Case File Number: CMD10-172 **January 19, 2010**

Location:	**7400 MacArthur Boulevard. (See map on reverse)**
Assessors Parcel Numbers:	**(040A-3408-022-01)**
Proposal:	To install three (3) new dish antenna and three (3) new panel antennas on the roof top of an existing building (Elmhurst Pharmacy, formerly the Eastmont Theatre). The Micro-Telecommunication facility will include a canceled roof top equipment cabinet.
Applicant:	Clearwire, Jacqueline Smart
Contact Person/ Phone Number:	Jacqueline Smart (510)435-9849
Owner:	Elmhurst Pharmacy
Case File Number:	CMD10-172
Planning Permits Required:	Regular Design Review to install three (3) telecommunication antennas, three (3) internet services dishes, and enclosed equipment cabinet. Major Conditional Use Permit for the installation of a Micro telecommunication facility within 100 feet of a residential zone.
General Plan:	Neighborhood Center
Zoning:	C-20 Shopping Center Commercial Zone
Environmental Determination:	Exempt, Section 15301 of the State CEQA Guidelines; minor additions and alterations to an existing facility Exempt, Section 15183 of the State CEQA Guidelines; projects consistent with a community plan, general Plan or zoning.
Historic Status:	PDHP, of no particular interest, potentially secondary importance; rating, Ec3
Service Delivery District:	5
City Council District:	6
Date Filed:	6/28/10
Finality of Decision:	Appealable to City Council within 10 days
For Further Information:	Contact case planner **Moe Hackett** at **(510) 238-3973** or mhackett@oaklandnet.com

SUMMARY

The following staff report addresses the proposal for a new unmanned wireless telecommunication facility located on the roof of an existing church building with an associated equipment cabinet located in a concealed location on the roof top of the building. The project site contains no other telecommunication antennas or equipment. This site would be considered a "Micro" Telecommunications Facility. The site is a rectangular building on a large L-shaped through lot with its street frontages on both Macarthur Boulevard and 73rd Avenue. The south east (side-yard) property-line abuts a surface parking lot at the corner of Macathur Boulevard & 75th Avenue, and the rear property-lines of two single family residential lots. The North West side of the parcel consists of a very large surface parking lot with access to both Macarthur Boulevard and 73rd Avenue, and a combination of abutting residential and commercial

#2

CITY OF OAKLAND PLANNING COMMISSION

Case File: CMD10-172
Applicant: Clearwire, Jacqueline Smart
Address: 7400 MacArthur Boulevard
Zone: C-20

properties. The site is in the C-20 Shopping Center Commercial. The General Plan designation for the site is Neighborhood Center with a very small portion of Detached Unit Residential towards the interior side yard and rear property lines. The scope of work entails the installation of three (3) antennas and three (3) internet services exchange point dishes and the installation of one equipment cabinet (located on the roof top) the antennas will be concealed within a newly created stealth roof-top penthouse structures. This penthouse will be painted and textured to match the existing building.

PROJECT DESCRIPTION

The applicant (Clearwire) is proposing a co-location for the installation of three (3) wireless telecommunication panel antennas and three (3) internet services exchange point dishes within three newly created stealth roof-top structures that will be painted and textured to match the buildings existing roof top projections (pipes, chimneys / vents, and other mechanical elements). These screening projections will be located on the roof top of an existing pharmacy. Through conditions of approval the antennas shall be enclosed and/or painted and textured to match the existing building elements. The proposal for the equipment cabinet is to locate it on the rooftop in an enclosed space that is obscured from view. All proposed antennas and associated equipment will not be accessible to the public. **(See Attachment A).**

PROPERTY DESCRIPTION

The subject property is a through lot of approximately 30,000 square feet, with frontage on Macarthur Boulevard and 73rd Avenue. The subject property has a functioning pharmacy and surface parking facilities (parking lot).

GENERAL PLAN ANALYSIS

The subject property is located within the Neighborhood Center General Plan designations. The Neighborhood Center land use classifications are intended to identify, create, maintain and enhance an area appropriate for mixed use neighborhood commercial centers in locations with smaller scale pedestrian- oriented, continuous street frontages. The proposed unmanned wireless telecommunication facility will not adversely affect and detract from the commercial or residential characteristics of the neighborhood. The antennas will be mounted on the existing pharmacy and visual impacts will be mitigated since the antennas will be enclosed and/or painted and textured to match existing roof-top projections on the building. General Plan Policy N9.9 states that the City encourages rehabilitation efforts which respect the architectural integrity of a building's original style. The subject structure had formally served as the Eastmont (movie) Theatre, and has always had a roof line with multiple penthouse and mechanical projections. The proposed project will have very minimal effect on the existing building.

ZONING ANALYSIS

The subject property is located within the C-20 Shopping Center Commercial Zone. The C-20 zone is intended to create, preserve, and enhance integrated centers devoted primarily to retail shopping within attractive surroundings, and is typically appropriate to areas near major thoroughfares or near residential communities. The proposal is for a new unmanned wireless telecommunication facility on an existing pharmacy and requires a Major Conditional Use

Permit since the project is within a residential zone. Staff finds that the proposed application meets applicable C-20 zoning and City of Oakland Telecommunication regulations.

ENVIRONMENTAL DETERMINATION

The California Environmental Quality Act (CEQA) Guidelines lists the projects that qualify as categorical exemptions from environmental review. The proposed project is categorically exempt from the environmental review requirements pursuant to Section 15301, additions and alterations to existing facilities, and 15183, projects consistent with a community plan, general plan or zoning.

KEY ISSUES AND IMPACTS

1. Conditional Use Permit

Section 17.46.080 of the City of Oakland Planning Code requires a conditional use permit to install a Micro Telecommunication facility in the C-20 Zone. Furthermore, Section 17.134.020 defines a major and minor conditional use permits. Subsections (A)(3)(i) lists a major conditional use permit: "Any telecommunication facility in or within one hundred (100) feet of the boundary of any residential zone. The required findings for a major conditional use permit are listed and included in staff's evaluation as part of this report.

2. Project Site

Section 17.128.110 of the City of Oakland Telecommunication Regulations indicate that new wireless facilities shall generally be located on designated properties or facilities in the following order of preference:

A. Co-located on an existing structure or facility with existing wireless antennas.
B. City owned properties or other public or quasi-public facilities.
C. Existing commercial or industrial structures in non-residential zones.
D. Existing commercial or industrial structures in residential zones.
E. Other non-residential uses in residential zones.
F. Residential uses in non-residential zones.
G. Residential uses in residential zones.

*Facilities locating on an A, B or C ranked preference do not require a site alternatives analysis.

Since the proposed project involves locating the installation of new antennas and associated equipment cabinets on an existing commercial building, the proposed project meets (C) locating on a commercial structure in a non-residential zone.

3. Project Design

Section 17.128.120 of the City of Oakland Telecommunications Regulations indicates that new wireless facilities shall generally be designed in the following order of preference:

A. Building or structure mounted antennas completely concealed from view.
B. Building or structure mounted antennas set back from roof edge, not visible from public right-of way.
C. Building or structure mounted antennas below roof line (facade mount, pole mount) visible from public right-of-way, painted to match existing structure.
D. Building or structure mounted antennas above roof line visible from public right of-way.
E. Monopoles.
F. Towers.

* Facilities designed to meet an A or B ranked preference do not require a site design alternatives analysis. Facilities designed to meet a C through F ranked preference, inclusive, must submit a site design alternatives analysis as part of the required application materials. A site design alternatives analysis shall, at a minimum, consist of:

a. Written evidence indicating why each higher preference design alternative can not be used. Such evidence shall be in sufficient detail that independent verification could be obtained if required by the City of Oakland Zoning Manager. Evidence should indicate if the reason an alternative was rejected was technical (e.g. incorrect height, interference from existing RF sources, inability to cover required area) or for other concerns (e.g. inability to provide utilities, construction or structural impediments).

City of Oakland Planning staff have reviewed and determined that the site selected is conforming to all other telecommunication regulation requirements. The project has met design criteria (A) since the antennas and/or dishes shall be mounted completely concealed within enclosures with paint and texture to match the existing roof-top projections. Furthermore, to mitigate visual impacts the antennas will be mounted approximately 35 – 43 feet above the public right of way (as seen from Macarthur Boulevard). The design of the building, which served at one time as a movie theatre, features a vertical marquee as part of the front façade. The marquee feature conceals the roof top projections from view main public right of-way of Macarthur Boulevard. The associated equipment cabinet will have no visual impact since the equipment will be placed on the roof top in an enclosed location (behind the marquee).

4. Project Radio Frequency Emissions Standards

Section 17.128.130 of the City of Oakland Telecommunication Regulations require that the applicant submit the following verifications including requests for modifications to existing facilities:

a. With the initial application, a RF emissions report, prepared by a licensed professional engineer or other expert, indicating that the proposed site will operate within the current acceptable thresholds as established by the Federal government or any such agency who may be subsequently authorized to establish such standards.
b. Prior to commencement of construction, a RF emissions report indicating the baseline RF emissions condition at the proposed site.
c. Prior to final building permit sign off, an RF emissions report indicating that the site is actually operating within the acceptable thresholds as established by the Federal government or any such agency who may be subsequently authorized to establish such standards.

The applicant states that the proposed project meets the radio frequency (RF) emissions standards as required by the regulatory agency. Submitted with the initial application was a RF emissions report, prepared by TRK Engineering (**attachment B**). The report states that the proposed project will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not cause a significant impact on the environment. Additionally, staff recommends that prior to the final building permit sign off, the applicant submits certified RF emissions report stating that the facility is operating within acceptable thresholds established by the regulatory federal agency.

CONCLUSION

City of Oakland planning staff believes that the proposed project and subject property can be developed to meet the established zoning and telecommunication regulations that were created and adopted to set certain criteria minimums and maximums for similar types of developments. Staff believes that the findings for approval can be made to support the Conditional Use Permit and Design Review.

RECOMMENDATIONS:

1. Affirm staff's environmental determination
2. Approve Conditional Use Permit and Design Review application CMD10-172 subject to the attached findings and conditions of approval

Prepared by:

Moe Hackett
Planner II

Approved by:

Scott Miller
Zoning Manager

Approved for forwarding to the
City Planning Commission

Eric Angstadt, Deputy Director
Community & Economic Development Agency

ATTACHMENTS:

A. Project Plans & Photo simulations
B. TRK Engineering RF Emissions Report

FINDINGS FOR APPROVAL

FINDINGS FOR APPROVAL:
This proposal meets all the required findings under Section 17.134.050, of the General Use Permit criteria; all the required findings under Section 17.136.050.(B), of the Non-Residential Design Review criteria; all the required findings under Section 17.128.050(B), of the telecommunication facilities (Micro) Design Review criteria; and all the required findings under Section 17.128.050.(C), of the telecommunication facilities (Micro) Conditional Use Permit criteria; and as set forth below and which are required to approve your application. Required findings are shown in **bold** type; reasons your proposal satisfies them are shown in normal type.

SECTION 17.134.050 – GENERAL USE PERMIT FINDINGS:

A. That the location, size, design, and operating characteristics of the proposed development will be compatible with, and will not adversely affect, the livability or appropriate development of abutting properties and the surrounding neighborhood, with consideration to be given to harmony in scale, bulk, coverage, and density; to the availability of civic facilities and utilities; to harmful effect, if any upon desirable neighborhood character; to the generation of traffic and the capacity of surrounding streets; and to any other relevant impact of the development.

The location, size, design and operational characteristics of the proposal will not adversely affect the livability or appropriate development of abutting properties and the surrounding neighborhood. Consideration was given to the harmony in scale, bulk, and coverage; to the availability of civic facilities and utilities; to harmful effect, if any, upon desirable neighborhood character; to the generation of traffic and the capacity of surrounding streets; and to any other relevant impact of the development. The proposed telecommunications antennas will be located within new roof top projections meant to resemble existing vents and piping (etc.) on the roof-top. The new facilities will be located behind the existing building marquee feature and will be mostly concealed from the view of the main public right of-way at Macarthur Boulevard. As such the facilities will not adversely affect the operating characteristic or livability of the existing area. The facility will be unmanned and will not create additional vehicular traffic in the area.

B. That the location, design, and site planning of the proposed development will provide a convenient and functional living, working, shopping, or civic environment, and will be as attractive as the nature of the use and its location and setting warrant.

The location, design and site planning of the proposed development will provide a convenient and functional commercial and residential environment, and will attempt to preserve the nature of the use and its location and setting warrant. The proposal will preserve a convenient and functional working, shopping, and living environment; therefore it would not affect the general quality and character of the neighborhood.

C. That the proposed development will enhance the successful operation of the surrounding area in its basic community functions, or will provide an essential service to the community or region.

The proposed development will enhance the successful operation of the surrounding area in its basic community function and will provide an essential service to the community or region. This will be achieved by improving the functional use of the site by providing a regional telecommunication facility for the community and will be available to police, fire, public safety organizations and the general public.

D. That the proposal conforms to all applicable design review criteria set forth in the DESIGN REVIEW PROCEDURE of Chapter 17.136 of the Oakland Planning Code.

The proposal conforms with all significant aspects of the design review criteria set forth in Chapter 17.136 of the Oakland Planning Code, as outlined below.

E. That the proposal conforms in all significant respects with the Oakland General Plan and with any other applicable plan or development control map which has been adopted by the City Council.

The proposal conforms in all significant aspects with the Oakland General Plan and with any other applicable plan or zoning maps adopted by the City of Oakland. The proposed macro-telecommunication facility in the Neighborhood Center Use General Plan designation will enhance and improve communication service for a mixture commercial uses that are pedestrian–oriented, and well as other residential, civic, and institutional uses in the area.

17.136.050(B) – NONRESIDENTIAL DESIGN REVIEW CRITERIA:

1. That the proposal will help achieve or maintain a group of facilities which are well related to one another and which, when taken together, will result in a well-composed design, with consideration given to site, landscape, bulk, height, arrangement, texture, materials, colors, and appurtenances; the relation of these factors to other facilities in the vicinity; and the relation of the proposal to the total setting as seen from key points in the surrounding area. Only elements of design which have some significant relationship to outside appearance shall be considered, except as otherwise provided in Section 17.136.060;

The proposal is the addition to a macro telecommunications facility which includes the addition of three (3) panel antennas and three (3) internet services exchange point dishes mounted within a new roof-top projections designed to resemble other existing mechanical projections on the roof -top and one equipment cabinet, located in an enclosed area of the front roof-top parapet. The six (6) proposed antennas and dishes are consistent and well related to the surrounding area in scale, bulk, height, materials, and textures. The nearest antennas will also be located approximately 35 feet above, and 33 feet (approximate) away from the public right of way.

2. That the proposed design will be of a quality and character which harmonizes with, and serves to protect the value of, private and public investments in the area;

The design will be appropriate and compatible with current zoning and general plan land use designations. The proposal protects and preserves the surrounding neighborhood context by adding additional wireless telecommunication antennas to a commercial and residential area. The

antennas will be concealed from public thoroughfare view and will have minimal visual impacts on the surrounding neighborhood.

3. That the proposed design conforms in all significant respects with the Oakland General Plan and with any applicable design review guidelines or criteria, district plan, or development control map which have been adopted by the Planning Commission or City Council.

The proposal conforms with the City of Oakland Comprehensive General Plan meeting specific General Plan policies and the Supplemental Report and Recommendations on Revisions to the Citywide Telecommunications Regulations. The proposal will conform to performance standards for noise set forth in Section 17.120.050 for decibels levels in residential areas for both day and nighttime use. The Project conforms to all micro-facility definitions set forth in Section 17.128.050 and meets all design review criteria to minimize all impacts throughout the neighborhood

17.128.050(B) DESIGN REVIEW CRITERIA FOR MICRO FACILITIES

1. Antennas should be painted and/or textured to match the existing structure:

The proposed antennas will be largely concealed from public view behind an existing marquee structure that serves as a screening device enclosure. While the new facilities will be visible from the side street (75th Avenue) they will be made to match existing roof top equipment (pipes, chimneys / vents, and other mechanical elements). They will be designed to resemble chimneys / vents that will be painted and textured to match the mechanical elements located at the roof top of an existing building.

2. Antennas mounted on architecturally significant structures or significant architectural details of the building should be covered by appropriate casings which are manufactured to match existing architectural features found on the building:

The new antennas and dishes to be added to the existing building will be mounted within screening enclosures (radome tubes designed to resemble chimney / vents) the roof top antennas will be screened by an existing (former) movie marquee element and will blend in with existing rooftop mechanical elements. These enclosures will be submitted to the Planning and Zoning division for review and approval prior to the issuance of a building permit.

3. Where feasible, antennas can be placed directly above, below or incorporated with vertical design elements of a building to help in camouflaging:

The proposed antennas shall be mounted within radome tube enclosures with the size, placement, configuration, materials, texture, and color to be submitted to the Planning and Zoning division for review and approval prior to the issuance of a building permit. The cable trays shall be painted to match the color of the building.

4. That all reasonable means of reducing public access to the antennas and equipment has been made, including, but not limited to, placement in or on buildings or structures, fencing, anti-climbing measures and anti-tampering devices.

The antennas will be mounted to the roof and will not be accessible to the public due to its location. The equipment will be located in an enclosed location on the rooftop behind the marquee and will not be visible or accessible to the public.

Section 17.128.050(C) CONDITIONAL USE PERMIT (CUP) FINDINGS FOR MICRO FACILITIES

1. The project must be demonstrated to have no visual impact:

Due to the proposed project locating on a roof top with other existing rooftop mechanical elements and front facing movie marquee, it will not disrupt the overall community character of the site.

1. The project must meet the special design review criteria listed in subsection B of this section (17.128.050B):

The proposed project meets the special design review criteria listed in section 17.128.050B.

CONDITIONS OF APPROVAL
CMD10-172

STANDARD CONDITIONS:

1. **Approved Use**
   Ongoing

a) The project shall be constructed and operated in accordance with the authorized use as described in the application materials, **CMD10-172**, and the plans dated and submitted on **June 28, 2010 with revisions submitted on December 20, 2010** and as amended by the following conditions. Any additional uses or facilities other than those approved with this permit, as described in the project description and the approved plans, will require a separate application and approval. Any deviation from the approved drawings, Conditions of Approval or use shall required prior written approval from the Director of City Planning or designee.

b) This action by the City Planning Commission ("this Approval") includes the approvals set forth below. This Approval includes: **The installation of a macro telecommunications facility located on the roof of an existing building at 7400 MacArthur Boulevard (APN: 040A-3408-022-01), under Oakland Municipal Code 17.128, 17.136 and 17.134.**

2. **Effective Date, Expiration, Extensions and Extinguishment**
   Ongoing

Unless a different termination date is prescribed, this Approval shall expire **two calendar years** from the approval date, unless within such period all necessary permits for construction or alteration have been issued, or the authorized activities have commenced in the case of a permit not involving construction or alteration. Upon written request and payment of appropriate fees submitted no later than the expiration date of this permit, the Director of City Planning or designee may grant a one-year extension of this date, with additional extensions subject to approval by the approving body. Expiration of any necessary building permit for this project may invalidate this Approval if the said extension period has also expired.

3. **Scope of This Approval; Major and Minor Changes**
   Ongoing

The project is approved pursuant to the **Planning Code** only. Minor changes to approved plans may be approved administratively by the Director of City Planning or designee. Major changes to the approved plans shall be reviewed by the Director of City Planning or designee to determine whether such changes require submittal and approval of a revision to the approved project by the approving body or a new, completely independent permit.

4. **Conformance with other Requirements**
   Prior to issuance of a demolition, grading, P-job, or other construction related permit

a) The project applicant shall comply with all other applicable federal, state, regional and/or local laws/codes, requirements, regulations, and guidelines, including but not limited to those imposed by the City's Building Services Division, the City's Fire Marshal, and the City's Public Works Agency. Compliance with other applicable requirements may require changes to the approved use and/or plans. These changes shall be processed in accordance with the procedures contained in Condition of Approval #3.

b) The applicant shall submit approved building plans for project-specific needs related to fire protection to the Fire Services Division for review and approval, including, but not limited to automatic extinguishing systems, water supply improvements and hydrants, fire department access, elevated walking pathways, safety railings, emergency access and lighting.

5. **Conformance to Approved Plans; Modification of Conditions or Revocation**
Ongoing
a) Site shall be kept in a blight/nuisance-free condition. Any existing blight or nuisance shall be abated within 60-90 days of approval, unless an earlier date is specified elsewhere.

b) Violation of any term, C**onditions of Approval** or **project description** relating to the **Conditions of Approval** is unlawful, prohibited, and a violation of the Oakland Municipal Code. The City of Oakland reserves the right to initiate civil and/or criminal enforcement and/or abatement proceedings, or after notice and public hearing, to revoke the Approvals or alter these **conditions of approval** if it is found that there is violation of any of the C**onditions of Approval** or the provisions of the Planning Code or Municipal Code, or the project operates as or causes a public nuisance. This provision is not intended to, nor does it limit in any manner whatsoever the ability of the City to take appropriate enforcement actions. The project applicant shall be responsible for paying fees in accordance with the City's Master Fee Schedule for inspections conducted by the City or a City-designated third-party to investigate alleged violations of the Conditions of Approval.

6. **Signed Copy of the Conditions of Approval**
Ongoing
A copy of the approval letter and **Conditions of Approval** shall be signed by the property owner, notarized, and submitted with each set of permit plans to the appropriate City agency for this project.

7. **Indemnification**
Ongoing
a) To the maximum extent permitted by law, the applicant shall defend (with counsel acceptable to the City), indemnify, and hold harmless the City of Oakland, the Oakland City Council, the City of Oakland Redevelopment Agency, the Oakland City Planning Commission and its respective agents, officers, and employees (hereafter collectively called City) from any liability, damages, claim, judgment, loss (direct or indirect)action, causes of action, or proceeding (including legal costs, attorneys' fees, expert witness or consultant fees, City Attorney or staff time, expenses or costs) (collectively called "Action") against the City to attack, set aside, void or annul, (1) an approval by the City relating to a development-related application or subdivision or (2) implementation of an approved development-related project. The City may elect, in its sole discretion, to participate in the defense of said Action and the applicant shall reimburse the City for its reasonable legal costs and attorneys' fees.

b) Within ten (10) calendar days of the filing of any Action as specified in subsection A above, the applicant shall execute a Letter of Agreement with the City, acceptable to the Office of the City Attorney, which memorializes the above obligations. These obligations and the Letter of Agreement shall survive termination, extinguishment or invalidation of the approval. Failure to timely execute the Letter of Agreement does not relieve the applicant of

any of the obligations contained in this condition or other requirements or Conditions of Approval that may be imposed by the City.

8. **Compliance with Conditions of Approval**
Ongoing
The project applicant shall be responsible for compliance with the recommendations in any submitted and approved technical report and all the Conditions of Approval set forth below at its sole cost and expense, and subject to review and approval of the City of Oakland.

9. **Severability**
Ongoing
Approval of the project would not have been granted but for the applicability and validity of each and every one of the specified **Conditions of Approval**, and if one or more of such **Conditions of Approval** is found to be invalid by a court of competent jurisdiction, this Approval would not have been granted without requiring other valid **Conditions of Approval** consistent with achieving the same purpose and intent of such Approval.

10. **Landscape Maintenance.**
Ongoing
All new landscaping shall be permanently maintained in good growing condition and, whenever necessary, replaced with new plant materials to ensure continued compliance with applicable landscaping requirements.

11. **Operational Noise-General**
Ongoing.
Noise levels from the activity, property, or any mechanical equipment on site shall comply with the performance standards of Section 17.120 of the Oakland Planning Code and Section 8.18 of the Oakland Municipal Code. If noise levels exceed these standards, the activity causing the noise shall be abated until appropriate noise reduction measures have been installed and compliance verified by the Planning and Zoning Division and Building Services.

PROJECT SPECIFIC CONDITIONS FOR TELECOMMUNICATIONS FACILITIES

12. **Sinking Fund for Facility Removal or Abandonment.**
Prior to the issuance of building permit.
The applicant shall provide proof of the establishment of a sinking fund to cover the cost of removing the facility if it is abandoned within a prescribed period. The word "abandoned" shall mean a facility that has not been operational for a six (6) month period, except where non-operation is the result of maintenance of renovation activity pursuant to valid City permits. The sinking fund shall be established to cover a two-year period, at a financial institution approved by the City's Office of Budget and Finance. The sinking fund payment shall be determined by the Office of Budget and Finance and shall be adequate to defray expenses associated with the removal of the telecommunication facility.

13. Emissions Report

Prior to a final inspection

The applicant shall provide an RF emissions report to the City of Oakland Zoning Division indicating that the site is actually operating within the acceptable thresholds as established by the Federal government or any such agency that may be subsequently authorized to establish such standards.

Existing

November 2, 2010

Proposed

East Elevation

CA-SFO0830C
Elmhurst Pharmacy

TRK ENGINEERING

Existing

December 2, 2010

Proposed

North Elevation

CA-SFO0830C
Elmhurst Pharmacy

TRK ENGINEERING

ASSESSOR'S MAP 40A

3408

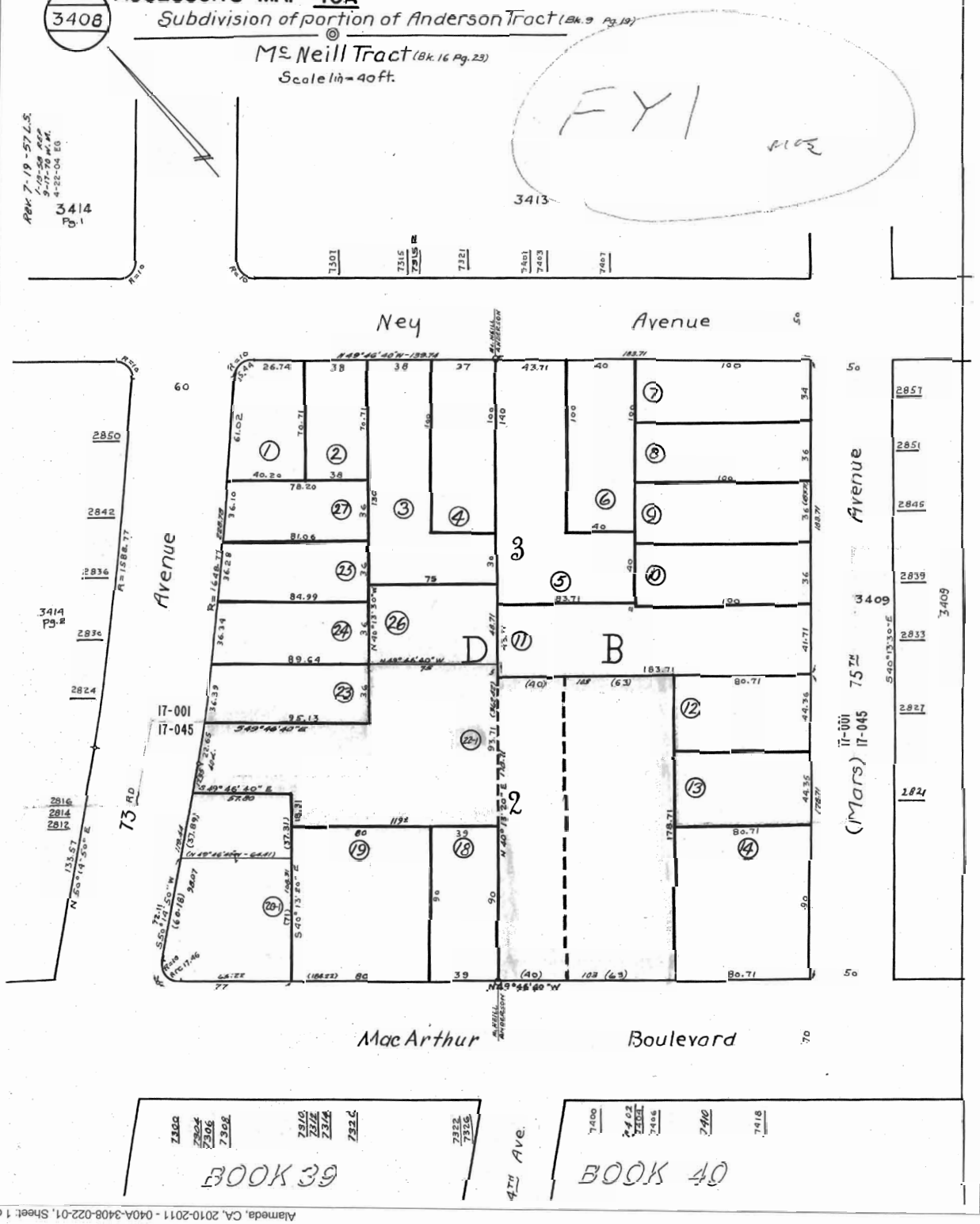
Code Area No. 17-001 17-045

Subdivision of portion of Anderson Tract (Bk. 9 Pg. 19)

McNeill Tract (Bk. 16 Pg. 23)

Scale 1in = 40ft.

FYI



Alameda, CA, 2010-2011 - 040A-3408-022-01, Sheet: 1 of 1

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JAN 04 2011
City of Oakland
Planning & Zoning Division

TRK ENGINEERING

FEDERAL COMMUNICATIONS COMMISSION (FCC) COMPLIANCE STUDY ON RADIO FREQUENCY ELECTROMAGNETIC FIELDS EXPOSURE

Prepared for:

clearwire
wireless broadband

RECEIVED
JAN 04 2011
City of Oakland
Planning & Zoning Division

CA-SFO0830C
ELMHURST PHARMACY
7400 MACARTHUR BLVD
OAKLAND, CA

DECEMBER 15/10, REV. 1

1040-039

SITE DESCRIPTION:

Carrier:	Clearwire wireless broadband
Site Address:	7400 MacArthur Blvd., Oakland, CA
Type of Service:	MMDS (Multichannel Multipoint Distribution Service)
Sectors:	60°, 180°, 300°
Antenna Type:	Kathrein 840 10054
Number of Antennas:	3
Frequencies *(GHz)*:	2.5 – 2.7
Maximum Power:	969 W ERP (per sector)
Antenna Height:	32'± and 40'-9"± *(radiation center AGL)*

Table 1. Clearwire RF summary

Clearwire is proposing to construct a wireless broadband facility on an existing commercial building at the above address (Figure 1). Three panel antennas with horizontal beam width of 87° will be mounted behind FRP antenna screens on the rooftop. An outdoor site support cabinet will be installed on the lower roof. Access to the facility is restricted to authorized personnel only.

Figure 1. Facility and surrounding area

Clearwire also proposes to install dish antennas or Internet Service Exchange Points (ISEP) at various locations on the rooftop. The RF power outside the main beam of these ISEP antennas is insignificant compared to the panel antennas (see calculations in Appendix A).

There are two other existing wireless communication facilities with panel antennas installed on the rooftop of the Eastmont Mall Shopping Center approximately 1400' southwest of the subject building. The RF contributions from these facilities to the surrounding area of the proposed Clearwire facility are insignificant.

PROTOCOL:

This study, and the calculations performed therein, is based on OET Bulletin 65[1] which adopts ANSI C95.1-1992 and NCRP standards. In particular, equation 10 from section 2 of the guideline is used as a model (in conjunction with known antenna radiation patterns) for calculating the power density at different points of interest. This information will be used to judge the RF exposure level incident upon the general population, and any employee present in the area. It should be noted that ground reflection of RF waves has been taken into account.

FCC'S MAXIMUM PERMISSIBLE EXPOSURE (MPE) LIMIT:

In order to evaluate the RF exposure level, the power densities at different locations of interest have been examined. Equation 10 from Bulletin 65 is reproduced here as equation 1:

$$S = \frac{33.4 F^2 ERP}{R^2} \qquad \textbf{(1)}$$

Where:
$S =$ *Power density* $[\mu W/cm^2]$
$ERP =$ *Effective radiated power* $[W]$
$R =$ *Distance* $[m]$
$F =$ *Relative field factor (relative numeric gain)*

[1] Cleveland, Robert F, et al. Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields. OET Bulletin 65, Edition 97-01, August 1997.

Scenario 1: *Standing near the facility on street level*

The RF exposure level of a six-foot tall person standing on street level close to the building is evaluated. For the worst-case scenario, we assume that all the antennas are transmitting the maximum number of channels at the same time, with each channel at its maximum power level. Please refer to scenario 1 in appendix A for the complete geometry and analysis. The highest exposure location is found to be approximately 45' from a proposed Clearwire antenna. The calculations of maximum cumulative power density are summarized in Table 2.

Service	Max. ERP	F^2	R (m)	S (μW/cm²) (from eq. 1)	MPE %
clearwire (panel)	969 W	-15 dB (0.0316)	15.9	4.0454	0.4045
clearwire ISEP	100 W	-44 dB (0.0000)	16.3	0.0000	0.0000
Total					0.4045

Table 2. Worst-case predicted power density values for scenario 1.

The Maximum Permissible Exposure (MPE) limit for 2500 MHz MDS facilities[2] for general population/uncontrolled exposure is 1000 μW/cm². The maximum cumulative power density for the proposed facility is calculated to be 0.40% of the MPE limit.

Scenario 2: *Nearby building rooftops*

There are various types of buildings in the surrounding area. The RF exposure levels on nearby building rooftops are evaluated. We assume again, all antennas within a sector are transmitting with maximum power level. Please refer to scenario 2 in appendix A for the analysis. The highest exposure location is on the rooftop of the nearest building northwest of the subject building. The calculations for the maximum possible power density are summarized in Table 3.

Service	Max. ERP	F^2	R (m)	S (μW/cm²) (from eq. 1)	MPE %
clearwire (panel)	969 W	-13 dB (0.0501)	14.4	7.8196	0.7820
clearwire ISEP	100 W	-40 dB (0.0001)	14.7	0.0015	0.0002
Total					0.7822

Table 3. Worst-case predicted power density values for scenario 2.

The maximum cumulative power density for the Clearwire antennas is calculated to be 0.78% of the MPE limit. There is a relatively low level of RF energy directed either above or below the horizontal plane of the antennas, and there are no locations in the surrounding areas near the facility that will have RF exposure levels close to the MPE limit.

[2] Ibid., page 67. are shown

Scenario 3: *Facility rooftop*

Only authorized or trained persons will be permitted to access the rooftop and the antennas. The radiation center of the proposed Clearwire sector 1 antenna will be approximately 5' from the penthouse roof deck. A six-foot tall person standing in front of this antenna may be exposed within the main beam path of this antenna. In this situation, the occupational/controlled exposure limits will apply, as long as the exposed person has been made fully aware of the potential for the exposure.

The MPE limit for 2500 MHz MDS facility[3] for occupational/controlled exposure is 5 mW/cm². Under worst-case conditions, a distance of less than 8' in front of the sector 1 panel antenna will have the power density exceeding the occupational/controlled MPE limit. Please refer to scenario 3 in appendix A for the calculations. The rest of the panel antennas and ISEPs have the radiation centers higher than 6' to any part of the roof deck. There will not be other locations on the roof deck that will have RF exposure exceeds the occupational/controlled MPE limit.

Conclusion:

Under "worst-case" conditions, the calculations shown above predict that the maximum possible RF exposure is 0.78% of the MPE limit for general population/uncontrolled exposure. There will be less RF exposure on the ground level or nearby buildings as a person moves away from the site. Therefore, the proposed Clearwire facility will comply with the general population/uncontrolled limit.

For occupational/controlled exposure to trained persons or transient workers who work on the rooftop, an RF exclusion zone of 8' in front of the sector 1 panel antenna should be maintained. RF exposure warning signage should be posted on the rooftop and near the antennas. This will make trained persons or transient workers fully aware of the potential for RF exposure when there is a necessity to work near the antennas, and allow them to exercise control over their exposure that is within the occupational/controlled limit.

FCC COMPLIANCE:

The general population/uncontrolled exposure near the antennas, including persons on the street level, in nearby open areas, and inside or on existing nearby buildings will have RF exposure much lower than the "worst-case" scenario, which is only a small percentage of the MPE limit.

As for trained persons or transient workers, they will be made fully aware of the potential for RF exposure and can choose to exercise control over their exposure that is within the occupational/controlled limits.

Operation of the proposed Clearwire facility will not exceed current FCC adopted standards with regards to human exposure as defined by the FCC.

Sei Yuen Sylvan Wong, PE
California PE Reg. No. E 16850

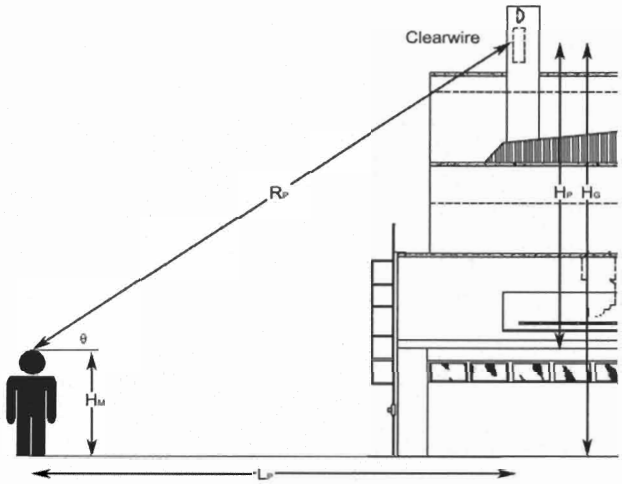
REGISTERED PROFESSIONAL ENGINEER
SEI YUEN SYLVAN WONG
16850
EXP. 12/31/10
ELECTRICAL
STATE OF CALIFORNIA

December 20, 2010

[3] Ibid., page 67.

APPENDIX A

Scenario 1: Surrounding Area of the Facility



person's height (H_M) = 6 ft

Horizontal distance from building L_P is 5 ft at Θ= 80 °

Service Provider	Height H_G, ft	Height H_P, ft	Max. ERP	Angle Θ	F^2	R_P(m)	S (μW/cm2)	MPE%
clearwire panel	32.00	26.00	969.0	Θ = 80 °	-30 dB (0.0010)	8.0	0.5057	0.0506
clearwire ISEP	35.00	29.00	100.0	Θ = 81 °	-57 dB (0.0000)	9.0	0.0000	0.0000
						Total		0.0506

Horizontal distance from building L_P is 15 ft at Θ= 60 °

Service Provider	Height H_G, ft	Height H_P, ft	Max. ERP	Angle Θ	F^2	R_P(m)	S (μW/cm2)	MPE%
clearwire panel	32.00	26.00	969.0	Θ = 60 °	-30 dB (0.0010)	9.2	0.3824	0.0382
clearwire ISEP	35.00	29.00	100.0	Θ = 63 °	-48 dB (0.0000)	10.0	0.0000	0.0000
						Total		0.0382

Horizontal distance from building L_P is 26 ft at Θ= 45 °

Service Provider	Height H_G, ft	Height H_P, ft	Max. ERP	Angle Θ	F^2	R_P(m)	S (μW/cm2)	MPE%
clearwire panel	32.00	26.00	969.0	Θ = 45 °	-30 dB (0.0010)	11.2	0.2580	0.0258
clearwire ISEP	35.00	29.00	100.0	Θ = 48 °	-46 dB (0.0000)	11.9	0.0000	0.0000
						Total		0.0258

Horizontal distance from building L_P is 45 ft at Θ= 30 °

Service Provider	Height H_G, ft	Height H_P, ft	Max. ERP	Angle Θ	F^2	R_P(m)	S (μW/cm2)	MPE%
clearwire panel	32.00	26.00	969.0	Θ = 30 °	-15 dB (0.0316)	15.9	4.0454	0.4045
clearwire ISEP	35.00	29.00	100.0	Θ = 33 °	-44 dB (0.0000)	16.3	0.0000	0.0000
						Total		0.4045

Horizontal distance from building L_P is 97 ft at Θ= 15 °

Service Provider	Height H_G, ft	Height H_P, ft	Max. ERP	Angle Θ	F^2	R_P(m)	S (μW/cm2)	MPE%
clearwire panel	32.00	26.00	969.0	Θ = 15 °	-13 dB (0.0501)	30.6	1.7317	0.1732
clearwire ISEP	35.00	29.00	100.0	Θ = 17 °	-40 dB (0.0001)	30.9	0.0003	0.0000
						Total		0.1732

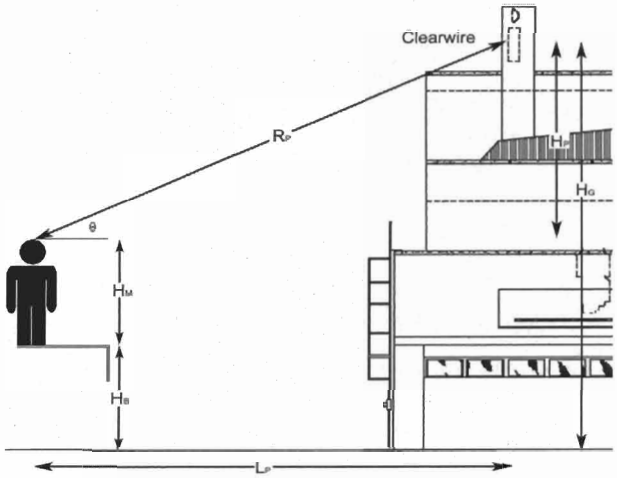
Horizontal distance from building L_P is 147 ft at Θ= 10 °

Service Provider	Height H_G, ft	Height H_P, ft	Max. ERP	Angle Θ	F^2	R_P(m)	S (μW/cm2)	MPE%
clearwire panel	32.00	26.00	969.0	Θ = 10 °	-14 dB (0.0398)	45.6	0.6195	0.0620
clearwire ISEP	35.00	29.00	100.0	Θ = 11 °	-32 dB (0.0006)	45.8	0.0010	0.0001
						Total		0.0621

Horizontal distance from building L_P is 297 ft at Θ= 5 °

Service Provider	Height H_G, ft	Height H_P, ft	Max. ERP	Angle Θ	F^2	R_P(m)	S (μW/cm2)	MPE%
clearwire panel	32.00	26.00	969.0	Θ = 5 °	-5 dB (0.3162)	91.0	1.2358	0.1236
clearwire ISEP	35.00	29.00	100.0	Θ = 6 °	-26 dB (0.0025)	91.0	0.0010	0.0001
						Total		0.1237

Scenario 2: Nearby Buildings/Rooftop



person's height (H_M) = 6 ft

Sector 1: Nearest building surface

H_B= 20.0 ft, L_P is 70 ft

Service Provider	Height H_G, ft	Height H_P, ft	Max. ERP	Angle Θ	F^2	R_P(m)	S (μW/cm2)	MPE%
clearwire panel	40.75	14.75	969.0	Θ = 12 °	-13 dB (0.0501)	21.8	3.4119	0.3412
						Total		0.3412

Sector 2 and B: Nearest building surface

H_B= 20.0 ft, L_P is 40 ft

Service Provider	Height H_G, ft	Height H_P, ft	Max. ERP	Angle Θ	F^2	R_P(m)	S (μW/cm2)	MPE%
clearwire panel	40.75	14.75	969.0	Θ = 20 °	-18 dB (0.0158)	13.0	3.0258	0.3026
clearwire ISEP	43.00	17.00	100.0	Θ = 23 °	-40 dB (0.0001)	13.3	0.0019	0.0002
						Total		0.3028

Sector 3 and A: Nearest building surface

H_B= 12.0 ft, L_P is 45 ft

Service Provider	Height H_G, ft	Height H_P, ft	Max. ERP	Angle Θ	F^2	R_P(m)	S (μW/cm2)	MPE%
clearwire panel	32.00	14.00	969.0	Θ = 17 °	-13 dB (0.0501)	14.4	7.8196	0.7820
clearwire ISEP	35.00	17.00	100.0	Θ = 21 °	-40 dB (0.0001)	14.7	0.0015	0.0002
						Total		0.7822

Scenario 3: Facility Rooftop

Location: In front of antennas

The MPE limit for 2500 MHz MDS facility for occupational/controlled exposure is 5 mW/cm².

R^2 = 33.4*F^2*ERP/S

R^2 = 33.4*(1)*[(969/5000)]

R^2 = 6.47

R = 2.5 m

R = 8.345 ft

KATHREIN
SCALA DIVISION

840 10054

87° XX-pol Panel Antenna
2496–2690 MHz

Kathrein Scala's XX-polarized adjustable electrical downtilt antennas offer the carrier the ability to tailor sites for optimum performance. Using variable downtilt, only a few models need be procured to accommodate the needs of widely varying conditions. Remotely controlled downtilt is available as a retrofitable option.

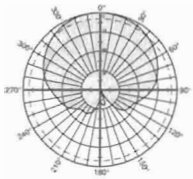
- 0–10° electrical downtilt range.
- DC Grounded metallic parts for impulse suppression.
- No moving electrical connections.
- Optional remote downtilt control.

Specifications:

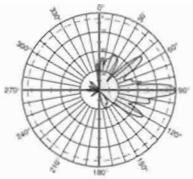
Frequency range	2496–2690 MHz
Gain	2 x 16 dBi
Impedance	50 ohms
VSWR	< 1.5:1
Intermodulation (2x20w)	IM3:< -150 dBc
Polarization	+45° and -45°
Front-to-back ratio	>23 dB typical
Maximum input power	300 watts (at 50°C)
+45° and -45° polarization horizontal beamwidth	87 degrees at midband (half power)
+45° and -45° polarization vertical beamwidth	7 degrees at midband (half power)
Electrical downtilt continously adjustable	0–10 degrees
Connector	4 x 7-16 DIN female
Sidelobe suppression for first sidelobe above horizon	0° 4° 8° 10° 15 15 15 15 dB (typical)
Null fill	> -1 dBi to 12° below horizon (typical) (17 dB below 16 dBi main beam)
Isolation	>30 dB
Weight	30 lb (13.6 kg)
Dimensions	42 x 12.7 x 2.8 inches (1067 x 323 x 71 mm)
Equivalent flat plate area	4.8 ft² (0.45 m²)
Wind survival rating*	120 mph (200 kph)
Shipping dimensions	48 x 13.3 x 5.1 inches (1220 x 337 x 130 mm)
Shipping weight	34 lb (15.4 kg)
Mounting	Fixed and tilt-mount options are available for 2 to 5.7 inch (50 to 145 mm) OD masts.

See reverse for order information.

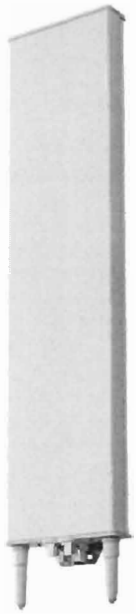
* Mechanical design is based on environmental conditions as stipulated in EIA-222-F (June 1996) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.

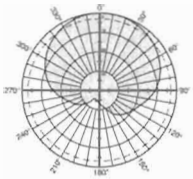


Horizontal pattern
±45°- polarization
0° electrical downtilt

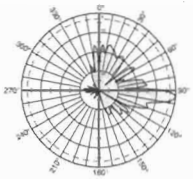


Vertical pattern
±45°- polarization
0° electrical downtilt

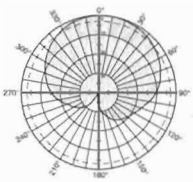




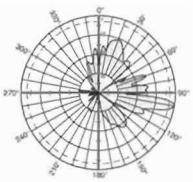
Horizontal pattern
±45°- polarization
5° electrical downtilt



Vertical pattern
±45°- polarization
5° electrical downtilt



Horizontal pattern
±45°- polarization
10° electrical downtilt



Vertical pattern
±45°- polarization
10° electrical downtilt

TÜV
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ANDREW®

PRODUCT SPECIFICATION

ValuLine® III Next Generation Antennas VHLP2

SPECIFICATIONS

	VHLP2-7W	VHLP2-10W	VHLP2-11	VHLP2-13	VHLP2-15	VHLP2-18	VHLP2-23	VHLP2-26	VHLP2-28	VHLP2-32	VHLP2-38
Frequency Band, GHz	7.125–8.5	10.55–10.68	10.7–11.7	12.70–13.25	14.25–15.35	17.7–19.7	21.2–23.6	24.25–26.5	27.5–29.5	31.8–33.4	37.0–40.0
Bottom Band Gain, dBi	29.5	33.7	34.0	35.6	36.5	38.3	39.8	40.8	41.8	43.4	44.6
Mid Band Gain, dBi	30.7	33.8	34.4	35.8	36.8	38.7	40.4	41.2	42.2	43.7	45.2
Top Band Gain, dBi	31.9	34.3	35.0	36.0	37.2	39.1	41.0	41.8	42.7	44.0	45.8
Beamwidth, degrees	4.7	3.7	3.3	2.7	2.5	2.1	1.7	1.5	1.3	1.0	0.9
Front/Back, dB	57	56	60	62	65	67	66	68	68	61	66
XPD, dB	32	30	30	30	30	30	30	30	30	30	30
Return Loss, dB	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7
Regulatory Compliance											
ETSI Class	R1 C3	R1 C2	R1 C3	R1 C3	R2 C3	R2 C3	R3 C3	R4 C3	R4 C3	R5 C3B	R5 C3B
FCC Part 101	N/A	CAT A*	CAT B	N/A	N/A	CAT A	CAT A	CAT A	N/A	N/A	CAT A
Brazil Anatel	N/A	C2	C2	C2	C2	C2	C2	C2	C2	C2	C2
Canada SRSP	N/A	310.5	N/A	312.7B	314.5A	Note 1	Note 2	N/A	N/A	N/A	338.6A
Andrew RPE Number	7075A	7085B, 7086B*	7083A	7004	7008	7012A	7016A	7020A	7024A	7028	7032A

Note 1: Meets Canada SRSP 317.8A, 318.5, 318.6
Note 2: Meets Canada SRSP 312.2A, 321.8B

** Use for FCC band (10.5–10.7 GHz)*

One Company. A World of Solutions.

VHLP2-23 - Radiation Pattern Envelope

ANDREW

ANDREW
RPE: 7016

Engineering Approved:
25 October 2004