

Planning Application #: 15-020

Date Received: 2/17/2015
 Fee Paid: 2097.50
 Receipt #: 87477

City of Albany

PLANNING APPLICATION FORM NON-RESIDENTIAL

Please complete the following application to initiate City review of your application. Please be aware that staff may have additional application requirements. For projects requiring Planning and Zoning Commission review, please schedule an appointment with Planning Division staff. The Community Development Department office is open to accept applications Monday, 8:30 AM to 7:00 PM, Tuesday through Thursday 8:30 AM to 5:00 PM, and Friday 8:30 AM to 12:30 PM (closed Noon - 1PM, Mon. - Thu.) at 1000 San Pablo Avenue, Albany, CA 94706 (510) 528-5760.

Fee Schedule (FY 2013-2014)

<input checked="" type="checkbox"/> Design Review*	\$2,027 / Admin. \$1,077
<input type="checkbox"/> Parking Exceptions/Reductions - see separate handout*	\$Actual Cost/Min \$2,027
<input type="checkbox"/> Conditional Use Permit (major)*	\$Actual Cost/Min \$2,027
<input type="checkbox"/> Conditional Use Permit (minor)*	\$1,077
<input type="checkbox"/> Sign Permit	\$1,447/\$451 Admin.
<input type="checkbox"/> Temporary/Seasonal Conditional Use Permit*	\$451
<input type="checkbox"/> Lot Line Adjustment*	\$Actual Cost/Min \$1,077
<input type="checkbox"/> Secondary Residential Unit*	\$1,077
<input type="checkbox"/> Parcel/Subdivision Map; Planned Unit Development; Condo Conversion*	\$3,285
<input type="checkbox"/> Variance*	\$2,027
<input checked="" type="checkbox"/> Other(s): Zoning Clearance	\$ 2,097

*When obtaining more than one planning approval, the full amount for the highest fee will apply and 1/2 fee will be charged for any other ones.
 General Plan Update Fee \$45 included in the fees above. This fee only needs to be paid once for each separately submitted application.
 If applying for a Conditional Use Permit, please complete the Supplemental Questionnaire

Job Site Address: 1100 Eastshore Highway (AKA Buchanan St.)		Zoning District:
Property Owner(s) Name: Golden Gate Land Holdings	Phone: 510-559-7311 Fax:	Email:
Mailing Address: Buchanan St.	City: Albany	State/Zip: Ca, 94706
Applicant(s) Name (contact person): Jerome Wade, CWC Inc, representing GTE Mobicel of CA, LP dba Verizon Wireless	Phone: 916-588-0810 Fax: 916-313-3730	Email: jwade@completewireless.net
Mailing Address: 2009 V st.	City: Sacramento	State/Zip: Ca, 95818

PROJECT DESCRIPTION (Please attach plans)

Remove and replace five (5) existing panel antennas with five (5) new panel antennas along with associated equipment.

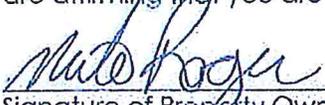
TERMS AND CONDITIONS OF APPLICATION

I, the undersigned owner (or authorized agent) of the property herein described, hereby make application for approval of the plans submitted and made part of this application in accordance with the provisions of the City's ordinances, and I hereby certify that the information given is true and correct to the best of my knowledge and belief.

I understand that the requested approval is for my benefit (or that of my principal). Therefore, if the City grants the approval with or without conditions, and that action is challenged by a third party, I will be responsible for defending against this challenge. I therefore agree to accept this responsibility for defense at the request of the City and also agree to defend, indemnify and hold the City harmless from any costs, claims, penalties, fines, judgments, or liabilities arising from the approval, including without limitation, any award or attorney's fees that might result from the third party challenge.

For this purposes of this indemnity, the term "City" shall include the City of Albany, its officers, officials, employees, agents and representatives. For purposes of this indemnity, the term "challenge" means any legal or administrative action to dispute, contest, attack, set aside, limit, or modify the approval, project conditions, or any act upon which the approval is based, including any action alleging a failure to comply with the California Environmental Quality Act or other laws.

The signature of the property owner is required for all projects. By executing this form you are affirming that you are the property owner.


Signature of Property Owner



February 10, 2015
Date


Signature of Applicant (if different)

2-17-15
Date



In-person delivery

February 17, 2015

Anne L. Hersch, Planner
City of Albany
Planning Department
1000 San Pablo Ave
Albany, Ca 94706

RE: Zoning Clearance Application (APN: 066-2680-003-01; 1100 Eastshore Highway, Verizon Wireless site name: "Golden Gate Fields")

This package is intended as a formal submittal/application to modify an existing Verizon Wireless communications facility located at the above referenced location. The items listed below are enclosed, per the City's submittal requirements:

1. Credit Card payment
2. Planning application
3. Project Description
4. Site Plans / Elevations 24" x 36" (1 copy & 1 PDF set)
5. RF Study

Please feel free to contact me at (916) 588-0810 regarding any further information that may be required as part of this application.

Sincerely,

A handwritten signature in black ink, appearing to read "Jerome Wade", is written over a large, faint, light blue watermark of the COMPLETE logo.

Jerome Wade
Project Manager
jwade@completewireless.net

Photosimulation of the view of the antennas as seen from the maintenance yard, NOT a public viewpoint.



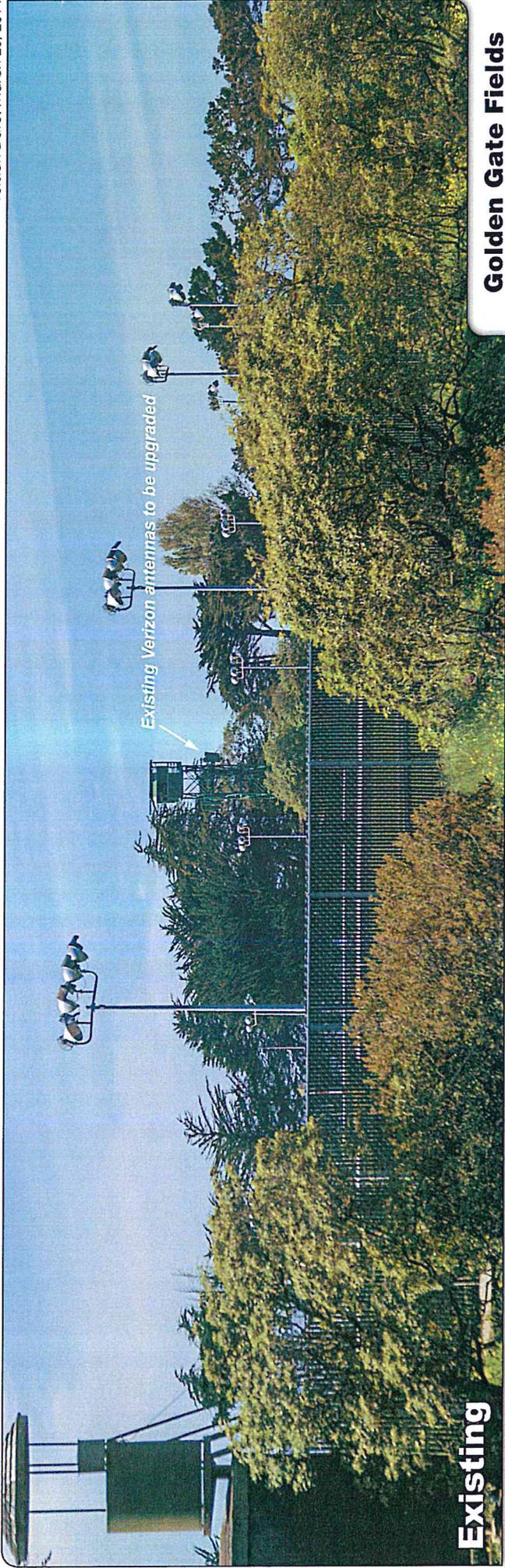
Golden Gate Fields

1100 Eastshore Highway
(AKA Buchanan Street)
Albany, CA 94706



Existing

Proposed



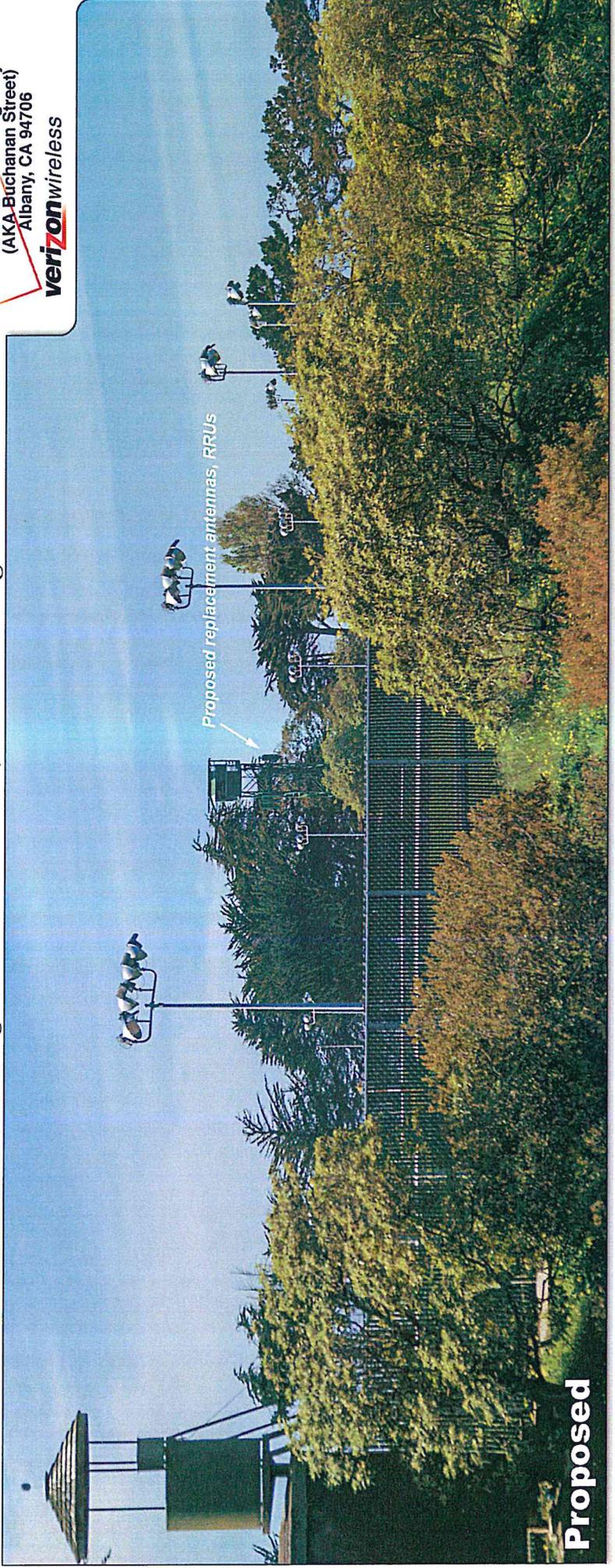
Existing

Golden Gate Fields

1100 Eastshore Highway
(AKA Buchanan Street)
Albany, CA 94706



Photomontage of the view looking west. across the track, from the frontage road.



Proposed

APPLICANT'S PROJECT DESCRIPTION

**UPGRADE OF VERIZON WIRELESS SITE: *GOLDEN
GATE FIELDS***

***1100 EASTSHORE HIGHWAY (AKA BUCHANAN
ST.)***

The Project

Verizon proposes upgrading the existing telecommunication facility to bring the latest wireless technology to the City of Albany. This network upgrade will provide customers unprecedented data speeds for personal and business uses and will also increase public safety by enabling users to access up to the minute news, traffic information and safety data.

This project includes:

1. Remove and replacement five (5) existing panel antennas for five (5) replacement panel antennas on existing pipe mounts.
2. Install four (4) actuators at antennas and one (1) surge protector and six (6) remote radio units behind the antennas.
3. Install two (2) additional cables along the existing cable route.
4. Install one (1) an additional surge protector at the equipment shelter.

All Verizon Wireless antennas & equipment to be painted to match

Compliance with City Development Standards

The modifications to the existing site are consistent with the current use of the tower to co-locate Verizon's telecommunications facility and does not impact the scenic quality of the area. This submittal contains the following:

- **Zoning Clearance Application**

A Zoning Clearance Application with all relevant portions completed is included in this submittal.

- **Plans**

Three (3) copies of drawings are provided with this submittal.

- **Photosimulation**

Before after photos of the existing site are included with this submittal.

Notices of Actions Affecting this Development Permit

In accordance with California Government Code Section 65945(a), Verizon requests notice of any proposal to adopt or amend the: general plan, specific plan, zoning ordinance, ordinance(s) affecting building or grading permits that would in any manner affect this development permit. Any such notice may be sent to 2009 V Street, Sacramento, CA 95818.

**Verizon Wireless • Base Station No. 123761 “Golden Gate Fields”
1100 Eastshore Highway • Albany, California**

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a personal wireless telecommunications carrier, to evaluate proposed modifications to its existing base station (Site No. 123761 “Golden Gate Fields”) located at 1100 Eastshore Highway in Albany, California, for compliance with appropriate guidelines limiting human exposure to radio frequency (“RF”) electromagnetic fields.

Executive Summary

Verizon proposes to replace some of its directional panel antennas on the observation tower at the Golden Gate Fields racetrack, located at 1100 Eastshore Highway in Albany. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standards

The U.S. Congress requires that the Federal Communications Commission (“FCC”) evaluate its actions for possible significant impact on the environment. A summary of the FCC’s exposure limits is shown in Figure 1. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. The most restrictive FCC limit for exposures of unlimited duration to radio frequency energy for several personal wireless services are as follows:

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5,000–80,000 MHz	5.00 mW/cm ²	1.00 mW/cm ²
BRS (Broadband Radio)	2,600	5.00	1.00
WCS (Wireless Communication)	2,300	5.00	1.00
AWS (Advanced Wireless)	2,100	5.00	1.00
PCS (Personal Communication)	1,950	5.00	1.00
Cellular	870	2.90	0.58
SMR (Specialized Mobile Radio)	855	2.85	0.57
700 MHz	700	2.40	0.48
[most restrictive frequency range]	30–300	1.00	0.20

General Facility Requirements

Base stations typically consist of two distinct parts: the electronic transceivers (also called “radios” or “channels”) that are connected to the traditional wired telephone lines, and the passive antennas that send the wireless signals created by the radios out to be received by individual subscriber units. The transceivers are often located at ground level and are connected to the antennas by coaxial cables. A small antenna for reception of GPS signals is also required, mounted with a clear view of the sky.



**Verizon Wireless • Base Station No. 123761 “Golden Gate Fields”
1100 Eastshore Highway • Albany, California**

Because of the short wavelength of the frequencies assigned by the FCC for wireless services, the antennas require line-of-sight paths for their signals to propagate well and so are installed at some height above ground. The antennas are designed to concentrate their energy toward the horizon, with very little energy wasted toward the sky or the ground. This means that it is generally not possible for exposure conditions to approach the maximum permissible exposure limits without being physically very near the antennas.

Computer Modeling Method

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, “Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation,” dated August 1997. Figure 2 attached describes the calculation methodologies, reflecting the facts that a directional antenna’s radiation pattern is not fully formed at locations very close by (the “near-field” effect) and that at greater distances the power level from an energy source decreases with the square of the distance from it (the “inverse square law”). The conservative nature of this method for evaluating exposure conditions has been verified by numerous field tests.

Site and Facility Description

Based upon information provided by Verizon, including construction drawings by MST Architects, Inc., dated March 13, 2014, that carrier presently has nine directional panel antennas installed part-way up the 60-foot observation tower sited near the northwest edge of the Golden Gate Fields racetrack, located at 1100 Eastshore Highway in Albany. The antennas are mounted on three faces of the tower, below the observation platform at the top of the tower. It is proposed to replace five of the existing antennas with five Andrew directional panel antennas – two Model LNX-4514DS, one Model SBNH-1D6565A, and two Model SBNH-1D4545A – at the same locations, next to the remaining four Andrew directional panel antennas – one Model HBX-6516DS, two Model HBX-4517DS, and one Model LNX-6513DS – mounted with up to 12° downtilt at an effective height of about 45 feet above ground and oriented in groups of three toward 0°T, 90°T, and 180°T. The maximum effective radiated power in any direction would be 12,600 watts, representing simultaneous operation at 4,340 watts for AWS, 1,970 watts for PCS, 3,920 watts for cellular, and 2,370 watts for 700 MHz service. There are reported no other wireless telecommunications base stations at the site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed Verizon operation is calculated to be 0.068 mW/cm², which is 12% of the applicable public exposure limit.



**Verizon Wireless • Base Station No. 123761 “Golden Gate Fields”
1100 Eastshore Highway • Albany, California**

The maximum calculated level at any nearby building* is 8.4% of the public exposure limit. The maximum calculated level for a person inside the observation platform is 7.8% of the public limit. The maximum calculated level at the grandstands† is 0.84% of the public limit. It should be noted that these results include several “worst-case” assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

Recommended Mitigation Measures

Due to their mounting locations, the Verizon antennas would not be accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training be provided to all authorized personnel who have access to the antennas, including employees and contractors of Verizon and of the racetrack; no training would be needed for photographers and others who may from time to time need to climb up the interior ladder past the antennas. No access within 34 feet directly in front of the antennas themselves, such as might occur during maintenance work on the outside of the tower, should be allowed while the base station is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. Posting explanatory signs‡ at the antennas and/or on the structure below the antennas, such that the signs would be readily visible from any angle of approach to persons who might need to work within that distance, would be sufficient to meet FCC-adopted guidelines.

Conclusion

Based on the information and analysis above, it is the undersigned’s professional opinion that the proposed operation of the Verizon Wireless base station located at 1100 Eastshore Highway in Albany, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations. Training of authorized personnel and posting explanatory signs is recommended to establish compliance with occupational exposure limitations.

* Located at least 100 feet away, based on photographs from Google Maps.

† Located at least 870 feet away, based on photographs from Google Maps.

‡ Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (*e.g.*, a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required.



**Verizon Wireless • Base Station No. 123761 "Golden Gate Fields"
1100 Eastshore Highway • Albany, California**

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration Nos. E-13026 and M-20676, which expire on June 30, 2015. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.



A handwritten signature in blue ink that reads "William F. Hammett". The signature is written over a horizontal line.

William F. Hammett, P.E.

707/996-5200

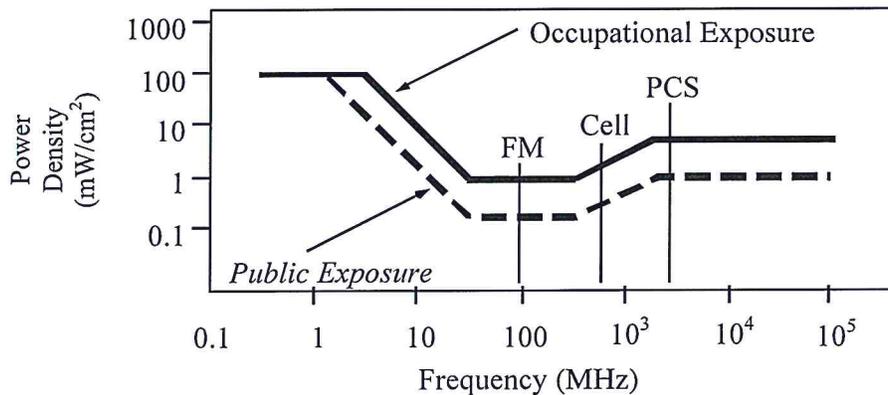
April 2, 2014

FCC Radio Frequency Protection Guide

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission (“FCC”) to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The FCC adopted the limits from Report No. 86, “Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” published in 1986 by the Congressionally chartered National Council on Radiation Protection and Measurements (“NCRP”). Separate limits apply for occupational and public exposure conditions, with the latter limits generally five times more restrictive. The more recent standard, developed by the Institute of Electrical and Electronics Engineers and approved as American National Standard ANSI/IEEE C95.1-2006, “Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,” includes similar limits. These limits apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

As shown in the table and chart below, separate limits apply for occupational and public exposure conditions, with the latter limits (in *italics* and/or dashed) up to five times more restrictive:

Frequency Applicable Range (MHz)	Electromagnetic Fields (<i>f</i> is frequency of emission in MHz)					
	Electric Field Strength (V/m)		Magnetic Field Strength (A/m)		Equivalent Far-Field Power Density (mW/cm ²)	
0.3 – 1.34	614	<i>614</i>	1.63	<i>1.63</i>	100	<i>100</i>
1.34 – 3.0	614	<i>823.8/f</i>	1.63	<i>2.19/f</i>	100	<i>180/f²</i>
3.0 – 30	1842/ <i>f</i>	<i>823.8/f</i>	4.89/ <i>f</i>	<i>2.19/f</i>	900/ <i>f²</i>	<i>180/f²</i>
30 – 300	61.4	<i>27.5</i>	0.163	<i>0.0729</i>	1.0	<i>0.2</i>
300 – 1,500	3.54√ <i>f</i>	<i>1.59√f</i>	√ <i>f</i> /106	<i>√f/238</i>	<i>f/300</i>	<i>f/1500</i>
1,500 – 100,000	137	<i>61.4</i>	0.364	<i>0.163</i>	5.0	<i>1.0</i>



Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits, and higher levels also are allowed for exposures to small areas, such that the spatially averaged levels do not exceed the limits. However, neither of these allowances is incorporated in the conservative calculation formulas in the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) for projecting field levels. Hammett & Edison has built those formulas into a proprietary program that calculates, at each location on an arbitrary rectangular grid, the total expected power density from any number of individual radio sources. The program allows for the description of buildings and uneven terrain, if required to obtain more accurate projections.



RFR.CALC™ Calculation Methodology

Assessment by Calculation of Compliance with FCC Exposure Guidelines

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission (“FCC”) to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The maximum permissible exposure limits adopted by the FCC (see Figure 1) apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits.

Near Field.

Prediction methods have been developed for the near field zone of panel (directional) and whip (omnidirectional) antennas, typical at wireless telecommunications base stations, as well as dish (aperture) antennas, typically used for microwave links. The antenna patterns are not fully formed in the near field at these antennas, and the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) gives suitable formulas for calculating power density within such zones.

For a panel or whip antenna, power density $S = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}$, in mW/cm²,

and for an aperture antenna, maximum power density $S_{max} = \frac{0.1 \times 16 \times \eta \times P_{net}}{\pi \times h^2}$, in mW/cm²,

- where θ_{BW} = half-power beamwidth of the antenna, in degrees, and
- P_{net} = net power input to the antenna, in watts,
- D = distance from antenna, in meters,
- h = aperture height of the antenna, in meters, and
- η = aperture efficiency (unitless, typically 0.5-0.8).

The factor of 0.1 in the numerators converts to the desired units of power density.

Far Field.

OET-65 gives this formula for calculating power density in the far field of an individual RF source:

power density $S = \frac{2.56 \times 1.64 \times 100 \times RFF^2 \times ERP}{4 \times \pi \times D^2}$, in mW/cm²,

- where ERP = total ERP (all polarizations), in kilowatts,
- RFF = relative field factor at the direction to the actual point of calculation, and
- D = distance from the center of radiation to the point of calculation, in meters.

The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 (1.6 x 1.6 = 2.56). The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired units of power density. This formula has been built into a proprietary program that calculates, at each location on an arbitrary rectangular grid, the total expected power density from any number of individual radiation sources. The program also allows for the description of uneven terrain in the vicinity, to obtain more accurate projections.

