Global RF Solutions℠
PREDICT, DETECT, PROTECT

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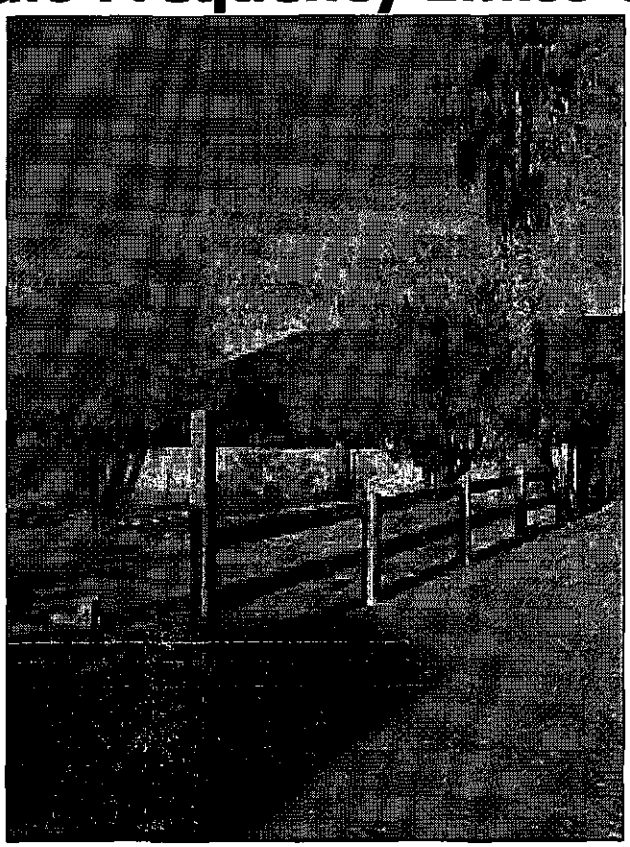
Evaluation of Human Exposure to Radio Frequency Emissions



Preliminary Analysis of PHO-Cinco Soles Scottsdale, AZ

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1. SUMMARY AND CONCLUSION

Summary:

A **preliminary** analysis of this Communications Facility has been completed to determine if it will be compliant with guidelines set forth by the Federal Communications Commission (FCC) with regards to maximum human exposure limits. This analysis applies to Verizon Wireless transmitters only, and allows for a worst-case capacity configuration using predictive software analysis.

The Radio Frequency Power Density predictions have been done using 100% transmitter duty cycle. This will predict a worst-case scenario for safety reasons. The predictive software tool utilizes a cylindrical model that provides spatially averaged power density that is calculated in one square foot increments (pixels). The composite RF fields are displayed as a percentage of the exposure limit. The software tool utilized for predictive analysis is RoofView®, a product developed by Richard Tell Associates, Inc. The FCC recognizes this software tool as a valid means of determining Maximum Permissible Exposure levels (MPE).

Conclusion:

The predictive software analysis has shown that Verizon Wireless **cannot exceed** maximum permissible exposure levels for the FCC Public or FCC Occupational standards in accessible areas at this site. Verizon Wireless **will be compliant** with FCC Guidelines as proposed.

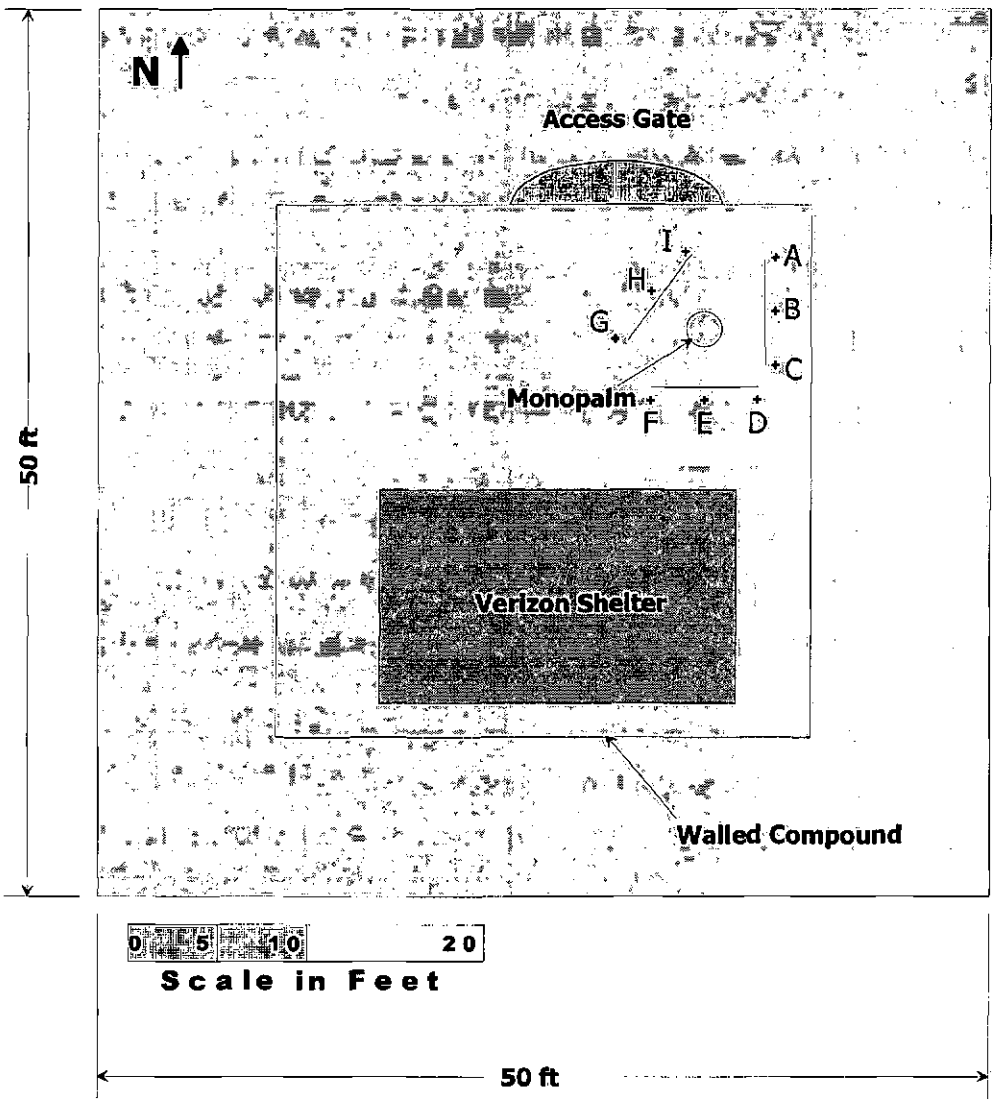
2. SITE DESCRIPTION

Site ID: N/A			**Site Name: PHO-Cinco Soles**			
Date of Evaluation	**January 17, 2012**		**Site Evaluator (name): Harry Young**			
Site Type	**Building**		**Tower/Monopole**	**XX**	**Water Tower**	
Address: 12051 N. 96th St., Scottsdale, AZ 85260						
GPS NAD83	**N 33 35 45.679**	**W 111 52 20.895**		**Structure Height AGL**		**30'**
Access Restricted	**Yes**					

This communications site will be located inside a stealth mono-palm inside a communications compound. Access to the antennas will be restricted by design (e.g. mounting height, location). Access will not be restricted to EME Awareness trained personnel and an RF Safety plan will not be in place.

2. SITE DESCRIPTION (continued)

This drawing depicts the proposed layout of the PHO-Cinco Soles communications facility. The antenna legend is on the next page.



2. SITE DESCRIPTION (continued)

This is the antenna legend for the drawing on the previous page.

ID	Name	(MHz) Freq	Input Power	Calc Power	Mfg	Model	(ft) X	(ft) Y	(ft) Z	Type	(ft) Aper	dBd Gain	BWidth Pt Dir
A	Verizon	875.00000		160.0	Commscope	DBXNH-6565B-YTM	38.0	36.0	20.0	TX	6.0		65;90
a	Verizon	2125.00000		80.0	Commscope	DBXNH-6565B-YTM	38.0	36.0	20.0	TX	6.0		65;90
B	Verizon	752.00000		80.0	Commscope	DBXNH-6565B-YTM	38.0	33.0	20.0	TX	6.0		65;90
C	Verizon	885.00000		160.0	Commscope	DBXNH-6565B-YTM	38.0	30.0	20.0	TX	6.0		65;90
c	Verizon	1945.00000		48.0	Commscope	DBXNH-6565B-YTM	38.0	30.0	20.0	TX	6.0		65;90
D	Verizon	875.00000		160.0	Commscope	DBXNH-6565B-YTM	37.0	28.0	20.0	TX	6.0		65;180
d	Verizon	2125.00000		80.0	Commscope	DBXNH-6565B-YTM	37.0	28.0	20.0	TX	6.0		65;180
E	Verizon	752.00000		80.0	Commscope	DBXNH-6565B-YTM	34.0	28.0	20.0	TX	6.0		65;180
F	Verizon	885.00000		160.0	Commscope	DBXNH-6565B-YTM	31.0	28.0	20.0	TX	6.0		65;180
f	Verizon	1945.00000		48.0	Commscope	DBXNH-6565B-YTM	31.0	28.0	20.0	TX	6.0		65;180
G	Verizon	875.00000		160.0	Commscope	DBXNH-6565B-YTM	29.0	32.0	20.0	TX	6.0		65;300
g	Verizon	2125.00000		80.0	Commscope	DBXNH-6565B-YTM	29.0	32.0	20.0	TX	6.0		65;300
H	Verizon	752.00000		80.0	Commscope	DBXNH-6565B-YTM	31.0	34.0	20.0	TX	6.0		65;300
I	Verizon	885.00000		160.0	Commscope	DBXNH-6565B-YTM	33.0	37.0	20.0	TX	6.0		65;300
i	Verizon	1945.00000		48.0	Commscope	DBXNH-6565B-YTM	33.0	37.0	20.0	TX	6.0		65;300

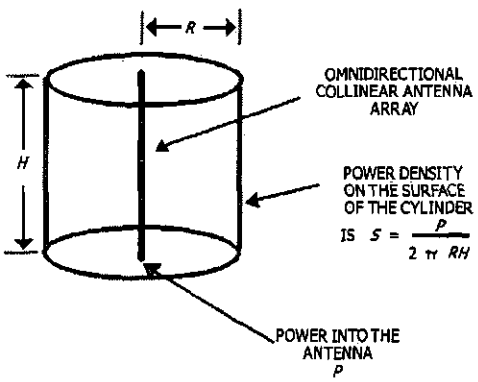
3. ANALYSIS

Site Modeling:

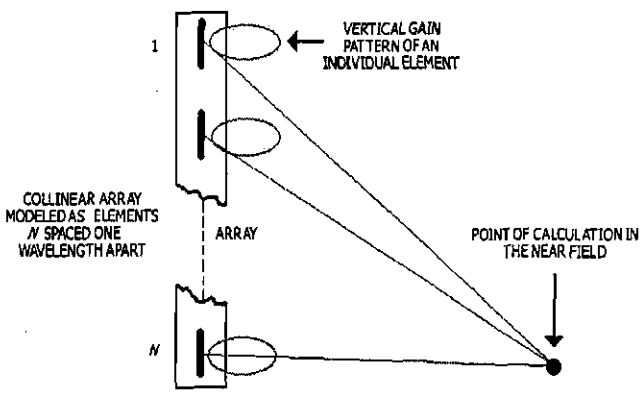
Electromagnetic energy (EME) exposure situations have been modeled at this site by using the following techniques. A cylindrical model in the near field of a vertical collinear antenna is run through a computer calculation engine. This model was used to compute the average power density on the surface of an imaginary cylinder, with a height equal to the antenna's aperture, and a radius equal to the distance of interest.

The collinear antenna model estimates the number of elements in the array and in the gain pattern of each element. The power density in the near field of the antenna is calculated by combining the contributions from each element in the array. The completed calculations of these models are plotted in the RESULTS section. The software tool utilized for predictive analysis is RoofView®, a product of Richard Tell Associates, Inc.

CYLINDRICAL RADIATION MODEL

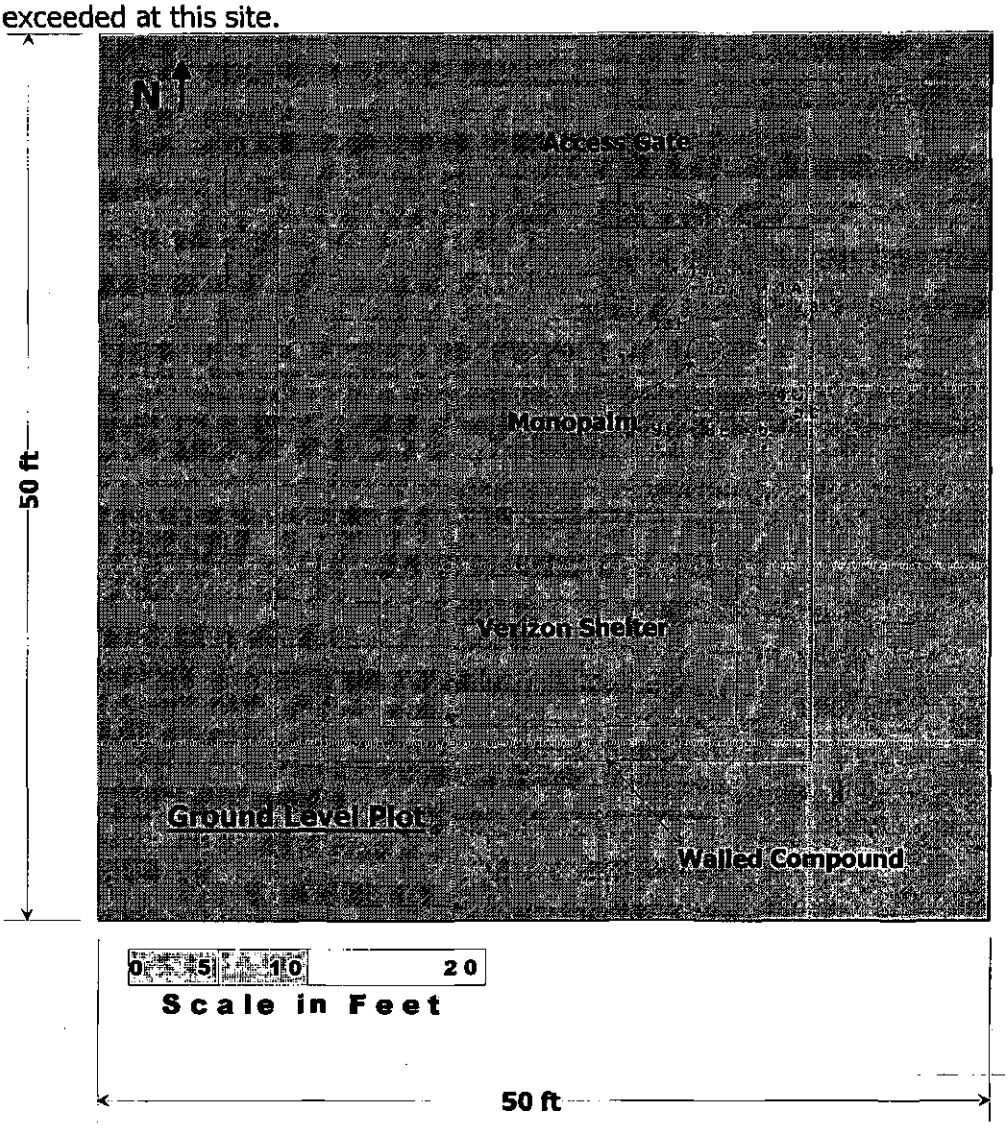


COLLINEAR ARRAY MODEL FOR NEAR FIELD



4. RESULTS

These are the predicted software plots using the FCC PUBLIC and FCC OCCUPATIONAL standard. The grid is in 10-foot increments. This shows that MPE limits cannot be exceeded at this site.

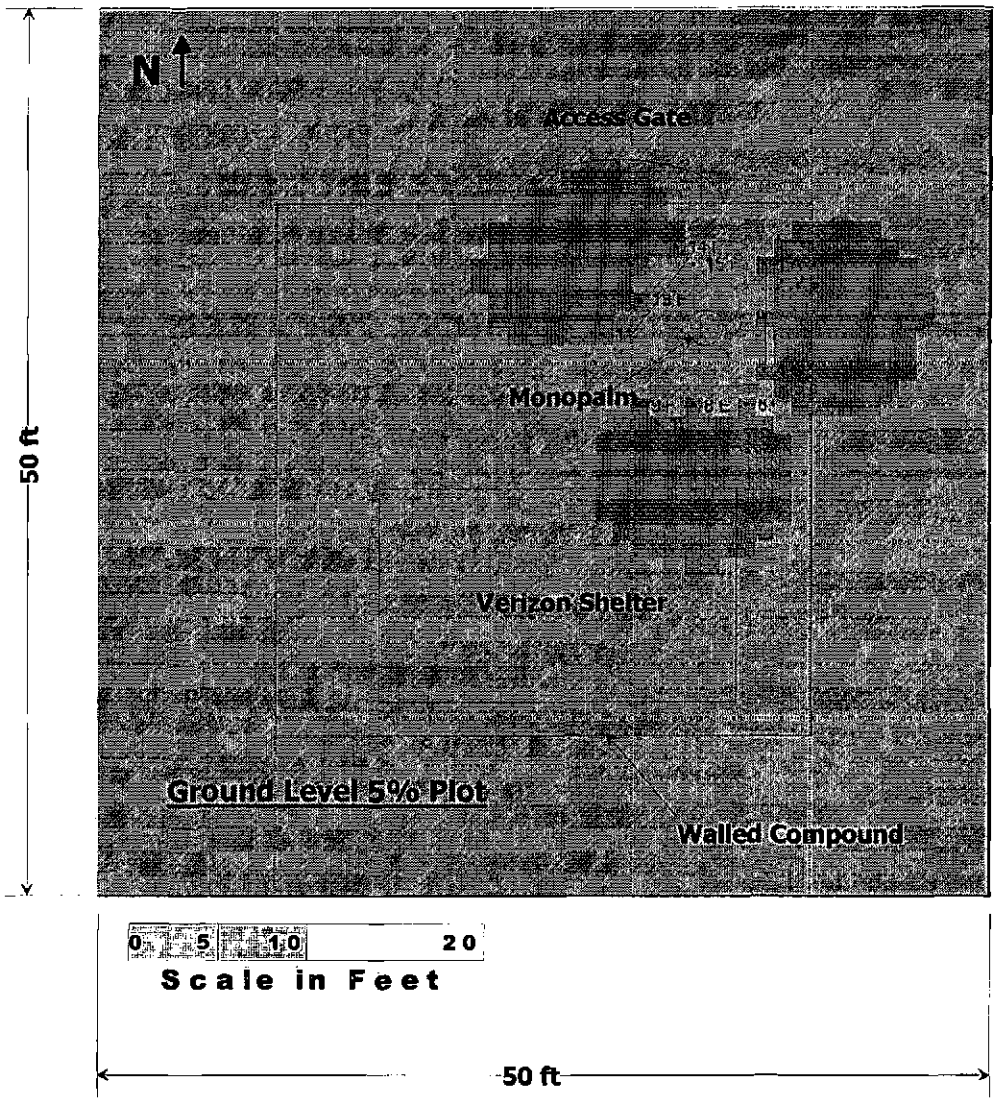


FCC MPE %
UPTIME = 100%

GREEN= <100% Public
BLUE= 100% - 500% Public
YELLOW= 100%-1000% Occupational
RED=>1000% Occupational

4. RESULTS (continued)

These are the predicted software plots with the threshold set to 5% of the FCC PUBLIC Standard for the Verizon Wireless antennas only. All other antennas are turned off! The grid is in 10-foot increments.



UPTIME = 100%

GREEN= < 5% FCC Public Standard
PURPLE= > 5% FCC Public Standards

5. RECOMMENDATIONS

Antenna access is restricted and not controlled by an RF safety plan. Verizon Wireless **will be compliant** with FCC Guidelines as proposed. No mitigation efforts are required.

The posting of Verizon Wireless site id and contact information sign at the stealth mono-palm is recommended.

Landlord must ensure that Verizon Wireless antenna access will be restricted to personnel that have been authorized by Verizon Wireless (EME Awareness trained personnel only). This would include all maintenance personnel and contractors accessing the antenna area.

APPENDIX A- LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(REFERENCE= TABLE 1. Title 47 CFR)

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz*Plane-wave equivalent power density

NOTE 1: ***Occupational/controlled*** limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: ***General population/uncontrolled*** exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.