ATTACHMENT E
Electromagnetic Energy ("EME") Report

AGENDA ITEM NO. 4

"E"

Electromagnetic Energy ("EME")
Measurement and Site Compliance Report

Prepared for

at&t

Site Information

US ID:	93475
Site Name:	TWIN OAKS GOLF COURSE
Address:	1425 NORTH TWIN OAKS VALLEY ROAD, SAN MARCOS, CA 92069

Survey Date: August 07, 2011
Surveyed By: Arash Alizadeh
M-RFSC: Hector Manmano

Report Date: August 08, 2011

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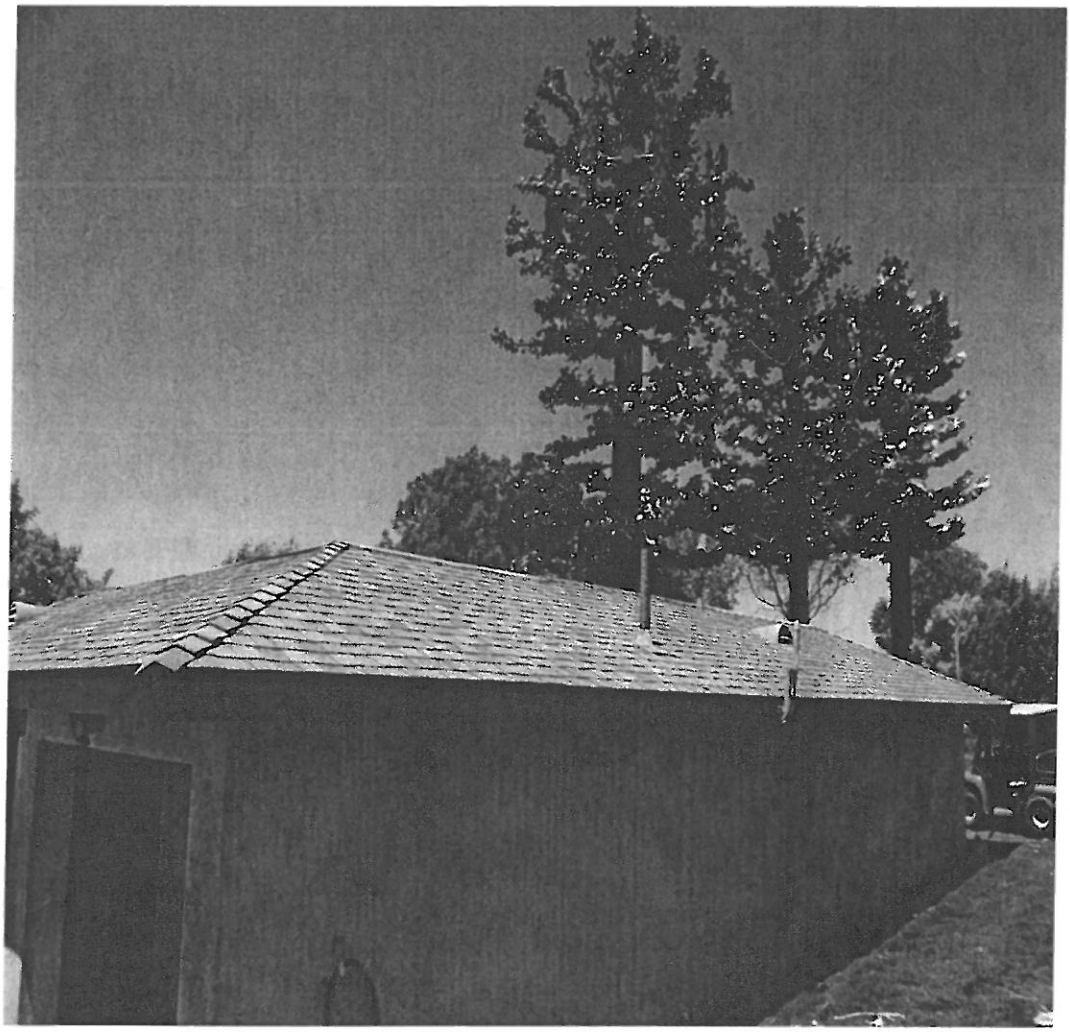
AT&T

US ID: 93475 - Site Name: TWIN OAKS GOLF COURSE

Electromagnetic Energy ("EME")
Measurement and Site Compliance Report



1425 NORTH TWIN OAKS VALLEY ROAD, SAN MARCOS, CA
92069

TABLE OF CONTENT

1 Summary

1.1 Introduction

AT&T has installed RF transmitting antennas at the following location (the "wireless telecommunications facility"):

Street Address: 1425 NORTH TWIN OAKS VALLEY ROAD, SAN MARCOS, CA 92069

US ID: 93475

Latitude / Longitude: 33.16663/ -117.15781

Telnet, Inc performed an RF emission survey of the RF environment surrounding the facilities installed by AT&T at this location. The facility is located monopole.

AT&T is licensed by the Federal Communications Commission ("FCC") to provide wireless communications services. As required by the FCC, wireless system operators perform an assessment of the potential human exposure to radio frequency emissions emanating from transmitting antennas at the site.

The physical survey verified antenna placement and technical specifications for accurate recommendations to determine compliance with FCC guidelines. Antenna specifications presented herein are based on direct evidence from an antenna or transmitter cabinet, information from the site manager or building manager, information from the licensees, educated estimates by the field technician or a combination of some or all of these sources.

1.2 Statement of Compliance

After evaluation of the total RF emission levels from all the operators and a thorough review of the site access procedures, signage and observable antenna locations, Telnet has determined that:

This site is compliant with FCC Policy.

AT&T contributes more than 5% of the maximum permissible exposure (MPE) based on theoretical modeling using the parameters supplied by the client.

The compliance determination is based on General Public MPE levels due to predicted and measured levels based on Spatial Averaging, RF signage placement, and the level of restricted access to the antennas at the site.

1.3 Safety Recommendations & Site Compliance Actions

This site is compliant with the FCC rules and regulations and no further steps must be taken at this time. Since AT&T contributes more than 5% of the MPE, should this site be non-compliant for any reason, all other operators who contribute greater than 5 % would all be liable to bring the site into compliance.

During the field visit, Telnet documented the presence and location of signs and barriers. Areas that require that action in order to meet AT&T corporate policy are listed below. No action means the location is compliant with the company policy. AT&T's RF exposure policy complies with FCC and OSHA requirements.

Site Access Locations

No Action Required

Alpha Sector Location

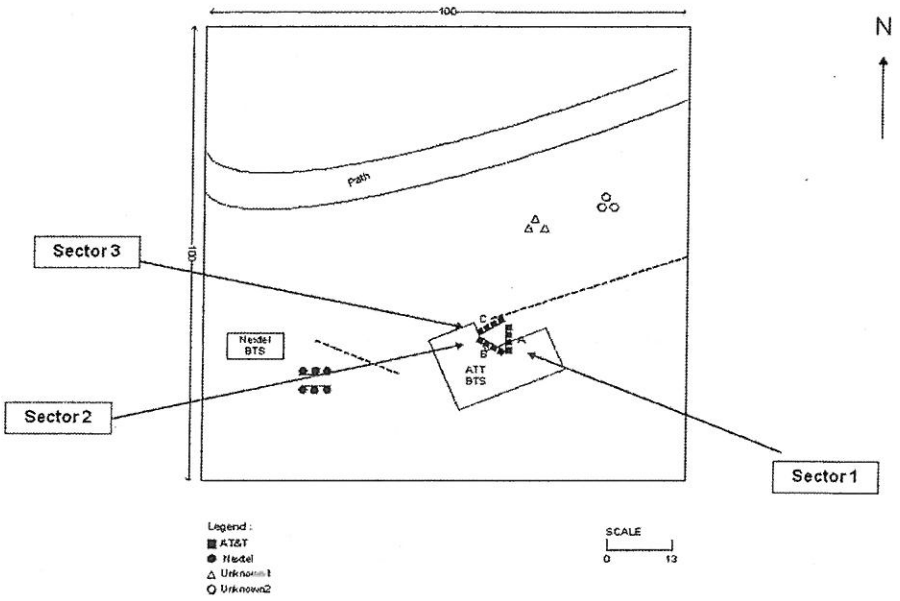
No Action Required

Beta Sector Location

No Action Required

Gamma Sector Location

No Action Required



1.3.1 Lockout/Tagout Procedures for Antenna, Transmission Line and Power Amplifier Maintenance

Whenever anyone is working on an antenna, transmission line, high power amplifier (HPA), or multi-channel power amplifier (MCPA), the transmitter (power amplifier) MUST be turned off. This can be accomplished either locally by flipping a circuit breaker(s) or remotely by command from the NMC/NOC.

The person initiating or requesting the transmitter shutdown is the ONLY person authorized to restore the transmitter to service. This person is responsible for making sure that ALL work has been completed, that ALL cables have been properly reconnected, and that EVERYONE is clear of the work area before the transmitter is reactivated. Generally, this person is considered to be the one actually performing the work. In the case of a contractor working at an active site, the FE/Technician may initiate the request on behalf of the contractor.

1.3.2 Lockout/Tagout Procedure, Local Shutdown

After securing permission to shut the transmitter down, the Field Engineer (FE)/Field Technician (FT) will turn off the circuit breaker and verify that the correct transmitter was deactivated. The FE/FT will then place a locking device(s) over the circuit breaker(s) to prevent accidental activation by an unauthorized person and place a TAG on, or in the immediate vicinity of, the circuit breaker(s). The tag should state "Do Not Operate." At the NMC/NOC the same note, including date and time and location, must be entered in the computer or a tag must be placed on the monitor frame in such a manner that the console operator will be made aware that the transmitter can not be activated without permission from the person who initiated the maintenance request.

The FE/FT will turn the key(s) over to the person performing the work. Upon completion of the work, this person performing the task will return the key(s). As a precautionary measure, prior to reactivating the transmitter, the FE/FT MUST verify, to the extent possible, that all connections have been made and that the work area is clear of personnel.

1.3.3 Lockout/Tagout Procedure, Remote Shutdown

After requesting the NMC/NOC to shut the transmitter down, the FE/FT will verify that the correct transmitter was deactivated. The FE/FT will then place a TAG on or in the immediate vicinity of transmitter. The tag should state "Do Not Operate." At the NMC/NOC the same note, including date/time, must be entered in the computer or a tag must be placed on the monitor frame in such a manner that the console operator will be made aware that the transmitter can not be activated unless the following conditions are met: 1) The tag has been removed by the person performing the work; and 2) Permission is provided by the person who initiated the maintenance request.

Upon completion of the work, the person performing the task will remove the tag and notify the FE/FT that the work is completed. As a precautionary measure, prior to requesting reactivation of the transmitter, the FE/FT MUST verify, to the

extent possible, that all connections have been made and that the work area is clear of personnel.

1.4 Site Measurements

The site survey crew has provided the sketch of the rooftop with a visual representation of the RF environment at the site and depict antenna locations and rooftop structures. Figure 3 depict the surveyed measurements in percentage of MPE limits for General Population standards. Percentages greater than 100% exceed the FCC MPE limits. Section 4.5 contains actual spatially averaged MPE measured at each reference point.

Additional Information in the Site Layout Diagram

The RF emissions diagram provides indications of RF Signage, barriers and locked doors.

RF Signage & Barrier Key					
RF Signage			Barriers		
Type	Existing Location	Recommended Location	Type	Existing Location	Recommended Location
Notice	NE	NR	Locked Door	LE	LR
Caution	CE	CR	Fencing	RE	RR
Warning	WE	WR	Rope Chain		
Information Sign 1	I1E	I1R	Paint Stripes		
Information Sign 2	I2E	I2R	Tape		
Information Sign 3	I3E	I3R			
Information Sign 4	I4E	I4R			

Table 1
RF Signage & Barrier Key

1.5 Antenna Site Area Measurements

Figure 1 represents the actual readings at various points at the site. These measurements depicts the energy levels that can be encountered by an individual at the site.

Maximum value for Occupational Standard based on Spatial Averaging: 1.27%

Maximum value for General Population Standard based on Spatial Averaging: 6.35%

Result Summary : AT&T is Compliant with FCC Policy based on General Public Maximum Permissible Exposure

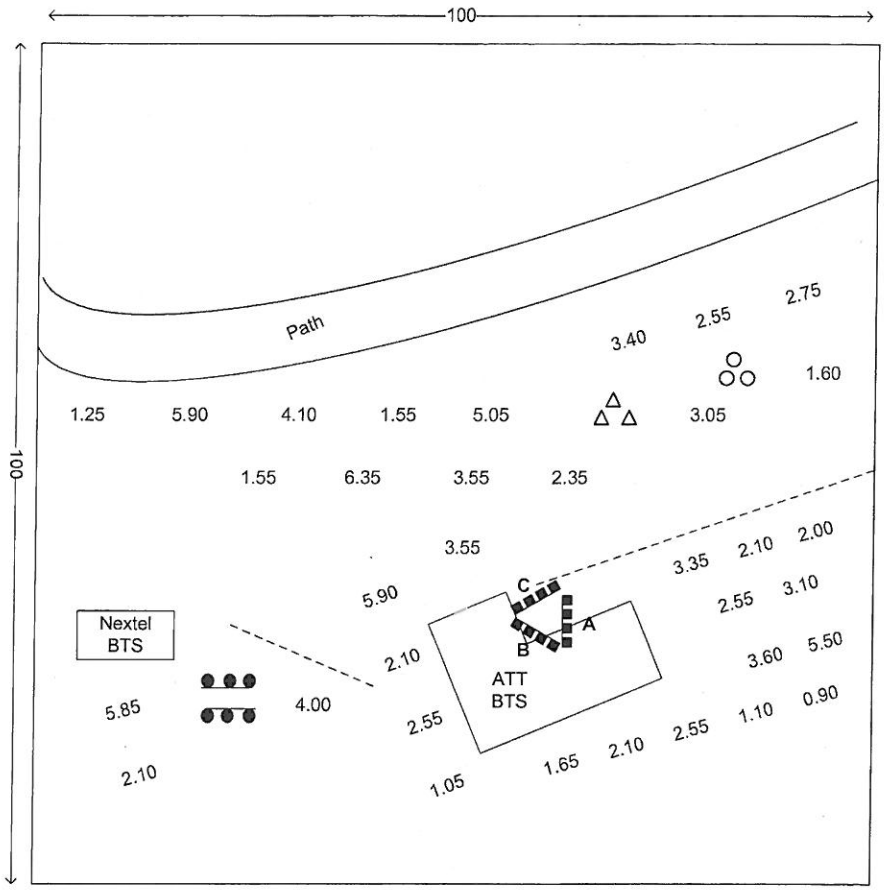
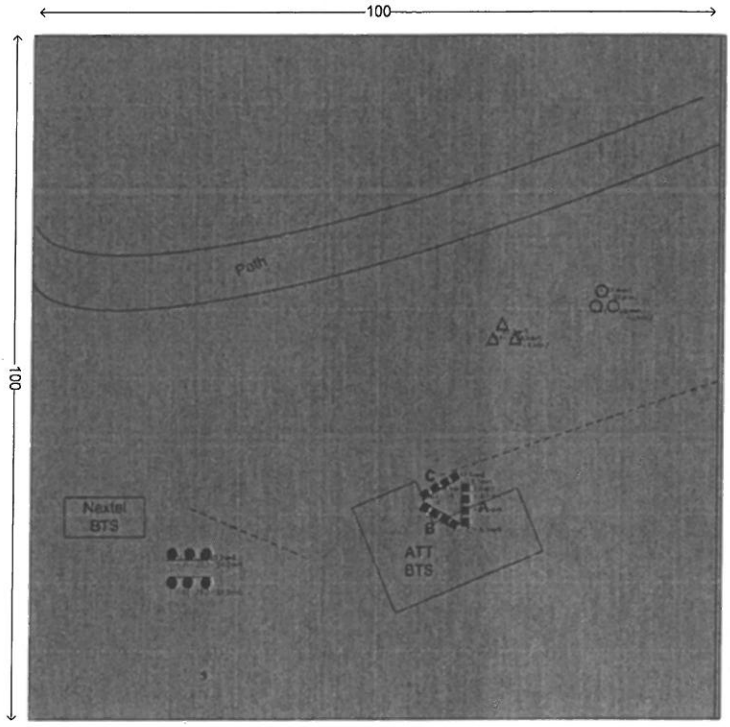


Figure 1
Numbers in Blue are the Percentage (%) of MPE Limits for General Population Standard

1.6 RF Modeling

The modeling calculations assume that the antennas are operating at 100% capacity; that all antenna channels are transmitting simultaneously and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the measurement conclusions.

Proposed



Legend :

- AT&T
- Nextel
- Unknown1
- Unknown2

General Population Standard 0-100%
General Population Standard 100-500%
General Population Standard 500-5000%
General Population Standard > 5000%
Uptime=100%
# of Antennas on = 21

SCALE
0 13

Current

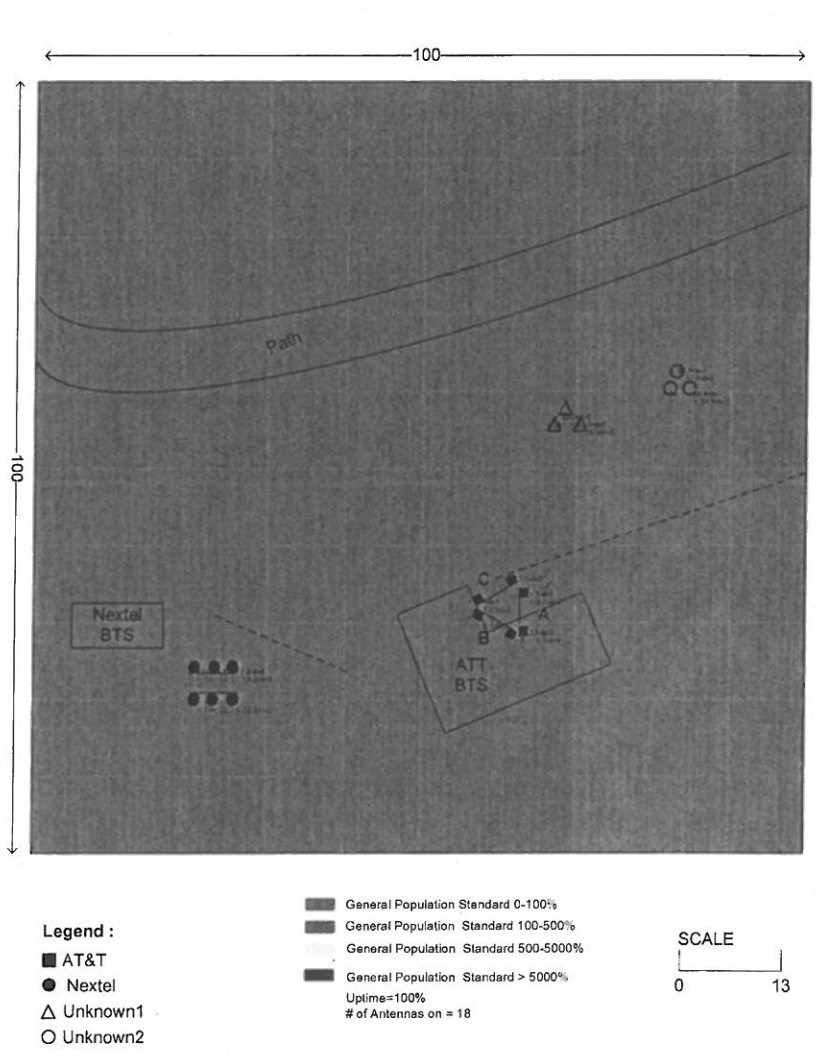
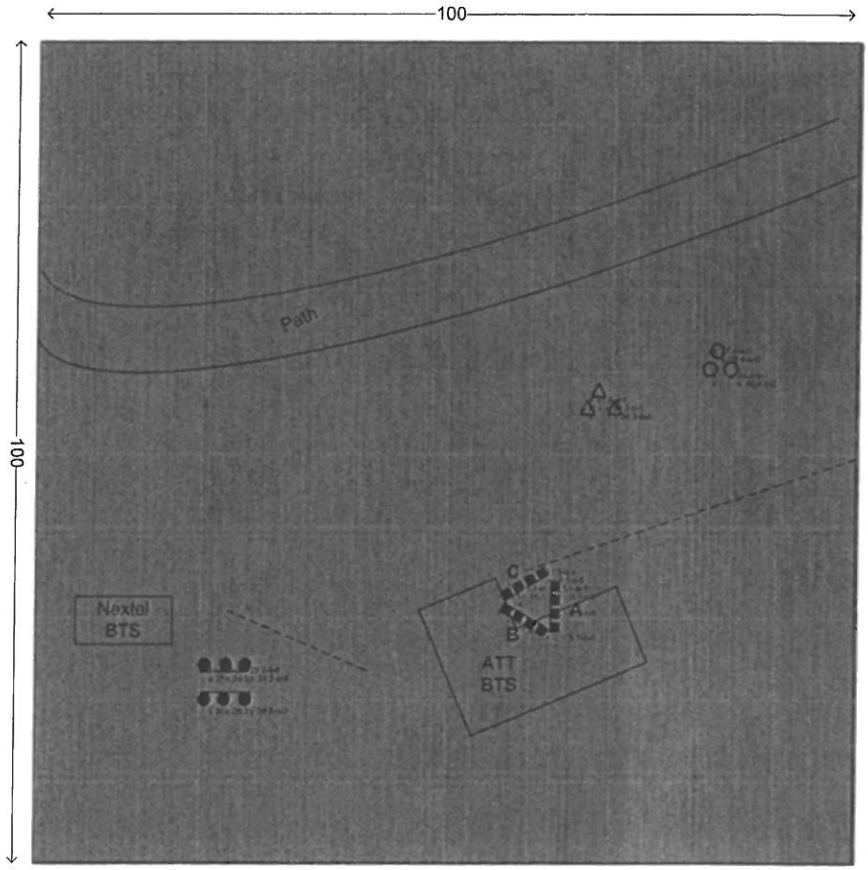


Figure 2
Percent of FCC General Population Exposure Limit, All carriers

Proposed



Legend :

- AT&T
- Nextel
- Unknown1
- Unknown2

General Population Standard 0-5%
General Population Standard >5%
Uptime=100%
# of Antennas on = 9

SCALE
0 13

Current

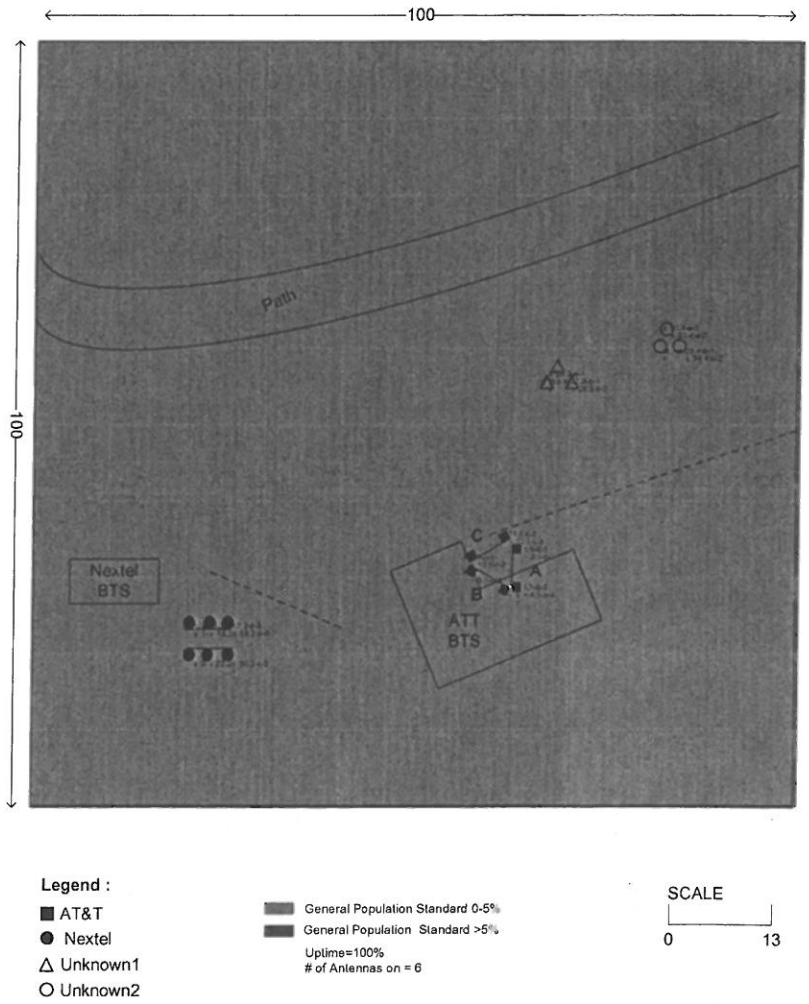


Figure 3
5% FCC Exposure Limit, AT&T proposed

2 Site Configuration

A survey was performed on 08/07/2011 to determine the RF emission levels present at the site. Measurements were performed on the areas considered accessible to the occupational population. At this site, additional steps were taken to assess areas accessible to the general population. The results of the measurements were the combined energy levels of AT&T antennas. To measure the RF emissions within the vicinity, Telnet, inc, utilized NARDA E Field Probe Model 25C, Frequency Range 300 KHz - 50 GHz with NARDA Electromagnetic Survey Meter Model NBM-550. Calibration was performed by Narda Safety Test Solutions on Dec 07, 2010 for a total interval of 24 month.

Relevant administrative and compliance–related information about the antenna site area is summarized in the table below :

Rooftop Access	
Access Method	Open Area
Access to Keys	N/A
Door Locked	N/A
Collocation Status	Collocated
Rooftop Area Classification	General Population
Weather Conditions	Sunny / Clear

2.1 Antenna Inventory

The Antenna Inventory shows all transmitting antennas on the site (see Table 1). This inventory was verified on site and was used by Telnet to perform software modeling of RF emissions . The inventory coincides with the site diagrams on this report, identifying each antennas location at the site.

For other carriers at the site, the use of "Generic" as an antenna model, or " Unknown" for an operator means the information with regard to the carrier, their FCC license and / or antenna information was not available nor could it be secured while on site. Equipment, antenna models and nominal transmit power were used for modeling, based on past experience with radio service providers.

Antenna Number	Operator	Type	TX Freq (MHz)	ERP (Watts)	Gain (dBd)	Model	Azimuth (deg.)	Length (ft)	Horizontal Beamwidth (Deg.)	X	Y	Z
1-a-1	ATT	Panel	GSM 850	500	13.65	Kathrein 80010765	80	6.3	65	64.0	34.0	20.0
1-a-2	ATT	Panel	GSM 1900	500	16.35	Kathrein 80010765	80	6.3	62	64.0	34.0	20.0
1-a-3	ATT	Panel	LTE 700	250	13.15	Kathrein 80010765	80	6.3	68	64.0	32.0	20.0
1-a-4	ATT	Panel	LTE 700	250	13.15	Kathrein 80010765	80	6.3	68	64.0	32.0	20.0
1-a-5	ATT	Panel	UMTS 850	500	13.65	Kathrein 80010765	80	6.3	65	64.0	29.0	20.0
1-a-6	ATT	Panel	UMTS 1900	500	16.35	Kathrein 80010765	80	6.3	62	64.0	29.0	20.0
1-b-1	ATT	Panel	GSM 850	500	13.65	Kathrein 80010765	200	6.3	65	63.0	28.0	20.0
1-b-2	ATT	Panel	GSM 1900	500	16.35	Kathrein 80010765	200	6.3	62	63.0	28.0	20.0
1-b-3	ATT	Panel	LTE 700	250	13.15	Kathrein 80010765	200	6.3	68	60.0	29.0	20.0
1-b-4	ATT	Panel	LTE 700	250	13.15	Kathrein 80010765	200	6.3	68	60.0	29.0	20.0
1-b-5	ATT	Panel	UMTS 850	500	13.65	Kathrein 80010765	200	6.3	65	57.0	31.0	20.0
1-b-6	ATT	Panel	UMTS 1900	500	16.35	Kathrein 80010765	200	6.3	62	57.0	31.0	20.0
1-c-1	ATT	Panel	GSM 850	500	13.65	Kathrein 80010765	320	6.3	65	57.0	33.0	20.0
1-c-2	ATT	Panel	GSM 1900	500	16.35	Kathrein 80010765	320	6.3	62	57.0	33.0	20.0
1-c-3	ATT	Panel	LTE 700	250	13.15	Kathrein 80010765	320	6.3	68	59.0	34.0	20.0
1-c-4	ATT	Panel	LTE 700	250	13.15	Kathrein 80010765	320	6.3	68	59.0	34.0	20.0
1-c-5	ATT	Panel	UMTS 850	500	13.65	Kathrein 80010765	320	6.3	65	62.0	36.0	20.0
1-c-6	ATT	Panel	UMTS 1900	500	16.35	Kathrein 80010765	320	6.3	62	62.0	36.0	20.0
2-b-1	Nextel	Panel	1900	210	15	Unknown	0	5.0	65	21.0	24.0	20.0
2-b-2	Nextel	Panel	850	1053	15	Unknown	0	5.0	65	21.0	24.0	20.0
2-b-3	Nextel	Panel	1900	210	15	Unknown	0	5.0	65	23.0	24.0	20.0
2-b-4	Nextel	Panel	850	1053	15	Unknown	0	5.0	65	23.0	24.0	20.0
2-b-5	Nextel	Panel	1900	210	15	Unknown	0	5.0	65	26.0	24.0	20.0
2-b-6	Nextel	Panel	850	1053	15	Unknown	0	5.0	65	26.0	24.0	20.0
2-c-1	Nextel	Panel	1900	210	15	Unknown	180	5.0	65	26.0	20.0	20.0

2-c-2	Nextel	Panel	850	1053	15	Unknown	180	5.0	65	26.0	20.0	20.0
2-c-3	Nextel	Panel	1900	210	15	Unknown	180	5.0	65	23.0	20.0	20.0
2-c-4	Nextel	Panel	850	1053	15	Unknown	180	5.0	65	23.0	20.0	20.0
2-c-5	Nextel	Panel	1900	210	15	Unknown	180	5.0	65	21.0	20.0	20.0
2-c-6	Nextel	Panel	850	1053	15	Unknown	180	5.0	65	21.0	20.0	20.0
3-a-1	Unknown1	Panel	1900	632	15	Unknown	0	5.0	65	68.0	57.0	25.0
3-a-2	Unknown1	Panel	850	3162	15	Unknown	0	5.0	65	68.0	57.0	25.0
3-b-1	Unknown1	Panel	1900	632	15	Unknown	120	5.0	65	70.0	56.0	25.0
3-b-2	Unknown1	Panel	850	3162	15	Unknown	120	5.0	65	70.0	56.0	25.0
3-c-1	Unknown1	Panel	1900	632	15	Unknown	240	5.0	65	67.0	56.0	25.0
3-c-2	Unknown1	Panel	850	3162	15	Unknown	240	5.0	65	67.0	56.0	25.0
4-a-1	Unknown2	Panel	1900	632	15	Unknown	0	5.0	65	83.0	63.0	20.0
4-a-2	Unknown2	Panel	850	3162	15	Unknown	0	5.0	65	83.0	63.0	20.0
4-b-1	Unknown2	Panel	1900	632	15	Unknown	120	5.0	65	85.0	60.0	20.0
4-b-2	Unknown2	Panel	850	3162	15	Unknown	120	5.0	65	85.0	60.0	20.0
4-c-1	Unknown2	Panel	1900	632	15	Unknown	240	5.0	65	82.0	60.0	20.0
4-c-2	Unknown2	Panel	850	3162	15	Unknown	240	5.0	65	82.0	60.0	20.0

Table 2
Antenna Inventory: Proposed

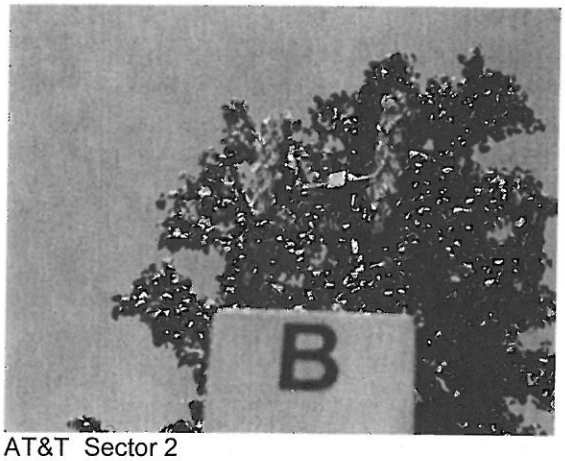
Anten-na Number	Operator	Type	TX Freq (MHz)	ERP (Watts)	Gain (dBd)	Model	Azi-muth (deg.)	Lengt h (ft)	Horizontal Beamwidth (Deg.)	X	Y	Z
1-a-1	ATT	Panel	GSM 850	500	11	EMS mb48rr65vdpalq	80	4.3	65	64.0	34.0	20.0
1-a-2	ATT	Panel	GSM 1900	500	13.9	EMS mb48rr65vdpalq	80	4.3	65	64.0	34.0	20.0
1-a-3	ATT	Panel	UMTS 850	500	11	EMS mb48rr65vdpalq	80	4.3	65	64.0	29.0	20.0
1-a-4	ATT	Panel	UMTS 1900	500	13.9	EMS mb48rr65vdpalq	80	4.3	65	64.0	29.0	20.0
1-b-1	ATT	Panel	GSM 850	500	11	EMS mb48rr65vdpalq	200	4.3	65	63.0	28.0	20.0
1-b-2	ATT	Panel	GSM 1900	500	13.9	EMS mb48rr65vdpalq	200	4.3	65	63.0	28.0	20.0
1-b-3	ATT	Panel	UMTS 850	500	11	EMS mb48rr65vdpalq	200	4.3	65	57.0	31.0	20.0
1-b-4	ATT	Panel	UMTS 1900	500	13.9	EMS mb48rr65vdpalq	200	4.3	65	57.0	31.0	20.0
1-c-1	ATT	Panel	GSM 850	500	11	EMS mb48rr65vdpalq	320	4.3	65	57.0	33.0	20.0
1-c-2	ATT	Panel	GSM 1900	550	13.9	EMS mb48rr65vdpalq	320	4.3	65	57.0	33.0	20.0
1-c-3	ATT	Panel	UMTS 850	500	11	EMS mb48rr65vdpalq	320	4.3	65	62.0	36.0	20.0
1-c-4	ATT	Panel	UMTS 1900	500	13.9	EMS mb48rr65vdpalq	320	4.3	65	62.0	36.0	20.0
2-b-1	Nextel	Panel	1900	210	15	Unknown	0	5.0	65	21.0	24.0	20.0
2-b-2	Nextel	Panel	850	1053	15	Unknown	0	5.0	65	21.0	24.0	20.0
2-b-3	Nextel	Panel	1900	210	15	Unknown	0	5.0	65	23.0	24.0	20.0
2-b-4	Nextel	Panel	850	1053	15	Unknown	0	5.0	65	23.0	24.0	20.0
2-b-5	Nextel	Panel	1900	210	15	Unknown	0	5.0	65	26.0	24.0	20.0
2-b-6	Nextel	Panel	850	1053	15	Unknown	0	5.0	65	26.0	24.0	20.0
2-c-1	Nextel	Panel	1900	210	15	Unknown	180	5.0	65	26.0	20.0	20.0
2-c-2	Nextel	Panel	850	1053	15	Unknown	180	5.0	65	26.0	20.0	20.0
2-c-3	Nextel	Panel	1900	210	15	Unknown	180	5.0	65	23.0	20.0	20.0
2-c-4	Nextel	Panel	850	1053	15	Unknown	180	5.0	65	23.0	20.0	20.0
2-c-5	Nextel	Panel	1900	210	15	Unknown	180	5.0	65	21.0	20.0	20.0
2-c-6	Nextel	Panel	850	1053	15	Unknown	180	5.0	65	21.0	20.0	20.0
3-a-1	Unknown1	Panel	1900	632	15	Unknown	0	5.0	65	68.0	57.0	25.0
3-a-2	Unknown1	Panel	850	3162	15	Unknown	0	5.0	65	68.0	57.0	25.0
3-b-1	Unknown1	Panel	1900	632	15	Unknown	120	5.0	65	70.0	56.0	25.0
3-b-2	Unknown1	Panel	850	3162	15	Unknown	120	5.0	65	70.0	56.0	25.0
3-c-1	Unknown1	Panel	1900	632	15	Unknown	240	5.0	65	67.0	56.0	25.0
3-c-2	Unknown1	Panel	850	3162	15	Unknown	240	5.0	65	67.0	56.0	25.0
4-a-1	Unknown2	Panel	1900	632	15	Unknown	0	5.0	65	83.0	63.0	20.0
4-a-2	Unknown2	Panel	850	3162	15	Unknown	0	5.0	65	83.0	63.0	20.0
4-b-1	Unknown2	Panel	1900	632	15	Unknown	120	5.0	65	85.0	60.0	20.0
4-b-2	Unknown2	Panel	850	3162	15	Unknown	120	5.0	65	85.0	60.0	20.0
4-c-1	Unknown2	Panel	1900	632	15	Unknown	240	5.0	65	82.0	60.0	20.0
4-c-2	Unknown2	Panel	850	3162	15	Unknown	240	5.0	65	82.0	60.0	20.0

Table 3
Antenna Inventory: Current

3 Photos of Antenna Site Area and Antennas

3.1 AT&T Existing Sectors

AT&T Sector 1

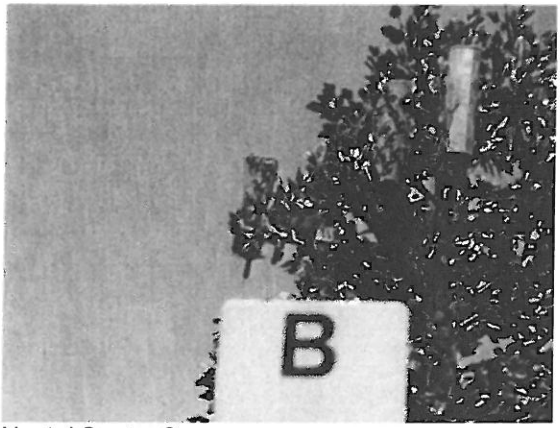


AT&T Sector 2

AT&T Sector 3

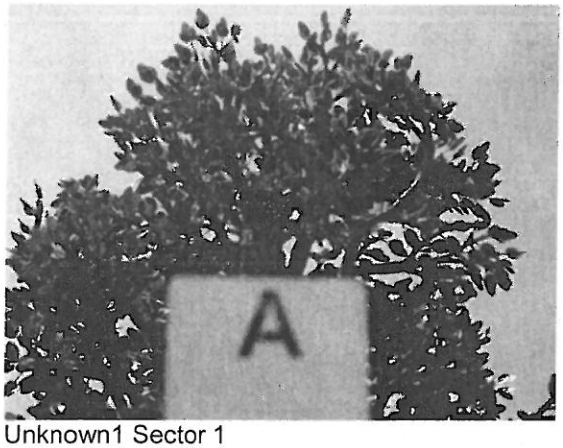

AT&T BTS

3.2 Collocated Carriers



Nextel Sector 2

Nextel Sector 3



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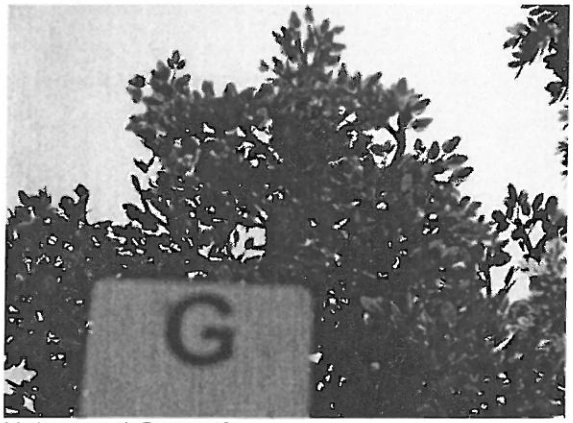
Unknown 1 Sector 2



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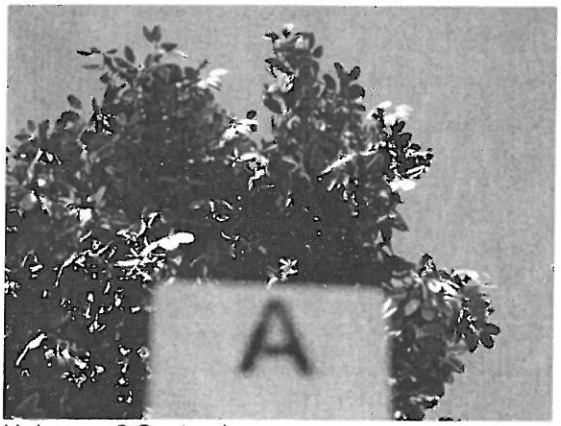

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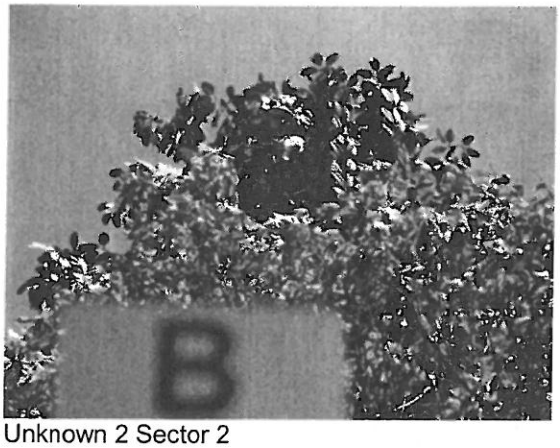
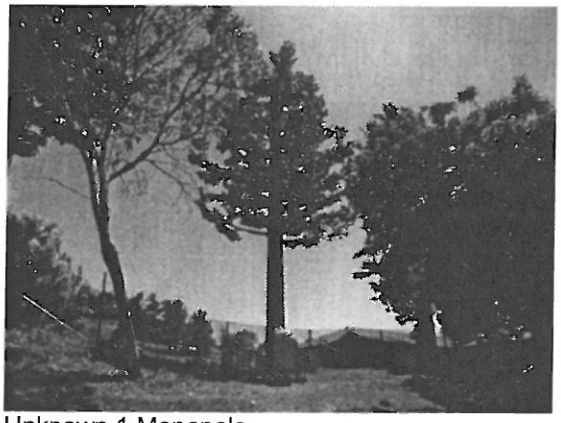


Unknown 2 Sector 2

Unknown 2 Sector 3


Unknown 1 Monopole

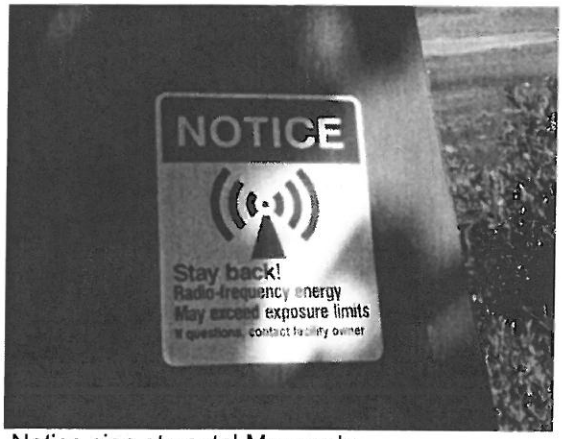

Unknown 2 Monopole

3.3 Signs and Access to the Site

Required RF signs include an information sign and all access locations were checked.

Pictures below show the access and the signage at the site.

Info 1 Sign on AT&T BTS



Notice sign at nextel Monopole

Caution Sign and info 2 Sign at ATT monopole

Caution Sign and Notice Sign at unknown 1

4 Modeling Summary and Assumptions

4.1.1 General Model Assumptions

In this report, it is assumed that all antennas are operating at full power at all times. Software modeling was performed for all transmitting antennas located on the site. Telnet, Inc has further assumed a 100% duty cycle and maximum radiated power.

The site has been modeled with these assumptions to show the maximum RF energy density. Telnet Inc believes this to be a worst case analysis, based on best available data.

If at any time power density measurements were to be made, Telnet Inc believes the real time measurements would indicate levels below those shown in this report. By modeling in this way, we have conservatively shown exclusion areas (areas not to be entered without a personal RF monitor, carriers reducing power or performing real time measurements to show real time exposure levels).

4.1.2 Use of Generic Antennas

For the purposes of this report, the use of 'Generic' as an antenna model, or 'Unknown' for a wireless carrier, means that the information about the carrier, their FCC license and/ or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Telnet will use our industry specific knowledge of equipment, antenna models and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, remodeling of the site is recommended. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

4.1.3 Statistical Summary

Proposed

Statistical Summary		
%MPE	SQ. FT	%SQ. FT.
	10000	100.00 % of total ROOF Area
0-100	10000	100.00 % of Selected Area
101-500	0	0.00 % of Selected Area
501-5000	0	0.00 % of Selected Area
> 5000	0	0.00 % of Selected Area
Roof Area 10000 sq. ft.		
Max %MPE 33.8 %		
Min %MPE 0.1 %		
Using Near/Far Spatial Avg Model		
With FCC 1997 Public Standard		

Table 3 Percent of FCC General Population Exposure Limit, All carriers

Statistical Summary		
%MPE	SQ. FT	%SQ. FT.
	10000	100.00 % of total ROOF Area
0-5	9983	99.83 % of Selected Area
6-500	17	0.17 % of Selected Area
501-5000	0	0.00 % of Selected Area
> 5000	0	0.00 % of Selected Area
Roof Area 10000 sq. ft.		
Max %MPE 7.1 %		
Min %MPE 0.0 %		
Using Near/Far Spatial Avg Model		
With FCC 1997 Public Standard		

Table 4 Percent of FCC General Population Exposure Limit, AT&T proposed

Current

Statistical Summary		
%MPE	SQ. FT	%SQ. FT.
	10000	100.00 % of total ROOF Area
0-100	10000	100.00 % of Selected Area
101-500	0	0.00 % of Selected Area
501-5000	0	0.00 % of Selected Area
> 5000	0	0.00 % of Selected Area

Roof Area 10000 sq. ft.
Max %MPE 33.8 %
Min %MPE 0.1 %
Using Near/Far Spatial Avg Model
With FCC 1997 Public Standard

Table 5 Percent of FCC General Population Exposure Limit, All carriers

Statistical Summary		
%MPE	SQ. FT	%SQ. FT.
	10000	100.00 % of total ROOF Area
0-5	9959	99.59 % of Selected Area
6-500	41	0.41 % of Selected Area
501-5000	0	0.00 % of Selected Area
> 5000	0	0.00 % of Selected Area

Roof Area 10000 sq. ft.
Max %MPE 17.9 %
Min %MPE 0.0 %
Using Near/Far Spatial Avg Model
With FCC 1997 Public Standard

Table 6 Percent of FCC General Population Exposure Limit, AT&T only

5 Survey Methodology

5.1 Sampling Description

The rooftop area of the site under evaluation was laid out in a grid of measurement points. Measurements were performed every 5-10' at various locations on the rooftop. The measurements were performed using industry-accepted techniques described in FCC Bulletin OET-65. At each measurement point identified where measurement was over 20%, a spatially averaged measurement is collected over the height of an average human body. The survey meter performs a time average measurement while the user slowly moves the probe over a distance range of 0 cm to 200 cm (about six feet) above the rooftop level. The results recorded at each measurement location include the average values over the spatial distance. The analysis included all emitters aggregated by carrier and height that were indicated to be present.

6 Analysis and Computation

Based on emission patterns of the antennas at this location most of the energy emitted is spread towards the horizon. This assumes the antennas have a zero downtilt. If a mechanical downtilt other then zero is applied to the antennas then the maximum energy emitted will need to be calculated using the information below.

The following formulas can be used for calculating the power density.

Power density is calculated by dividing the surface area of the sphere or the unit area normal to the direction of the propagation. This information is usually shown in units of microwatts per square centimeter (uW/cm2), milliwatt per square centimeters (mW/cm2), or watts per square meter (W/m2).

6.1 Analysis

$$S = \frac{(P \times KFact)}{(2\pi Rh)}$$

where :

S = power density (mW/cm^2)

P = total power input to the antenna (mW)

K = antenna correction factor / numeric factor for antenna discrimination

R = straight line distance of the antenna from a 6 ft. human (cm)

h = distance between the roof level and the bottom of the antenna (cm) o r the vertical distance from the tip of the antenna to the roof level where a 6 ft. human being is assumed standing directly from the antenna (also equal to R at 0)

MPE% = Calculated exposure level, as a percentage of the FCC MPE limit for continuous exposure of the general population

7 FCC Limits for MPE

The FCC guidelines for human exposure to RF electromagnetic fields were derived from the recommendations of two expert organizations, the National Council on Radiation Protection and Measurements ("NCRP") and the Institute of Electrical and Electronics Engineers ("IEEE"). The exposure guidelines are based on thresholds for known adverse effects and they incorporate appropriate margin of safety. The federal health and safety agencies such as: the Environmental Protection Agency ("EPA"), the Food and Drug Administration ("FDA"), the National Institute on Occupational Safety and Health ("NIOSH") and the Occupational Safety and Health Administration ("OSHA") have also been actively involved in monitoring and investigating issues related to RF exposure.

The FCC's MPE limits are based on exposure limits over a wide range of frequencies recommended by the NCRP and the exposure limits developed by the IEEE and adopted by the American National Standards Institute ("ANSI") to replace the 1982 ANSI guidelines. The limits for localized absorption are based on the recommendations of both the ANSI/IEEE and the NCRP. The potential hazard associated with the RF electromagnetic fields is discussed in OET Bulletin No. 56 "Questions and Answers about the Biological Effects and Potential Hazards of RF Electromagnetic Fields". This document can be obtained on the FCC website at http://www.fcc.gov.

Sections 7.1, 7.2 and 7.3 represent the FCC limits for both occupational and general population exposures to different radio frequencies:

7.1 (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

7.2 (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.

7.3 Controlled and Uncontrolled Exposure Limits

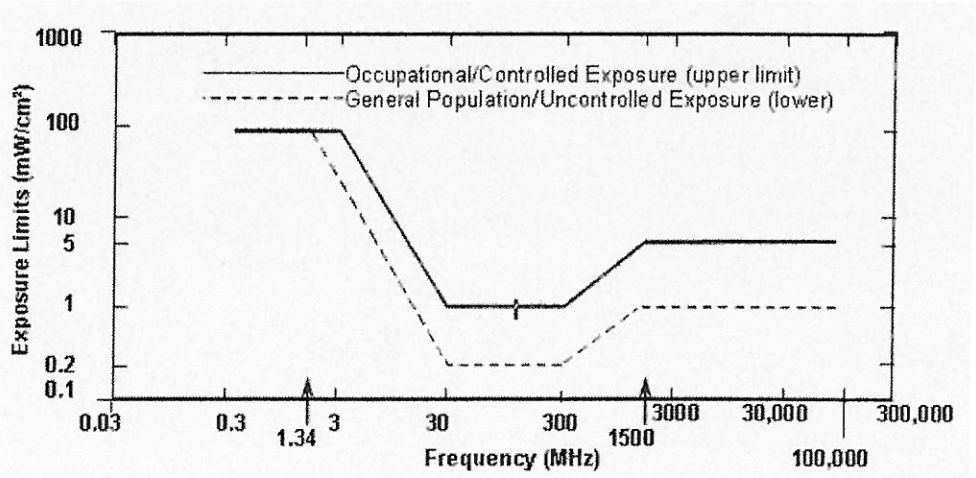


Figure 4

8 FCC Standard Certification

This report certifies that the site Twin Oaks Golf Course – 93475 is in compliance with the FCC standard. The analysis and procedure used to provide the report is according to OET Bulletin 65 and other industry standards.

Prepared by:
Maryam Ovichi
RF Engineer
Telnet Inc.

Date: 08/08/11

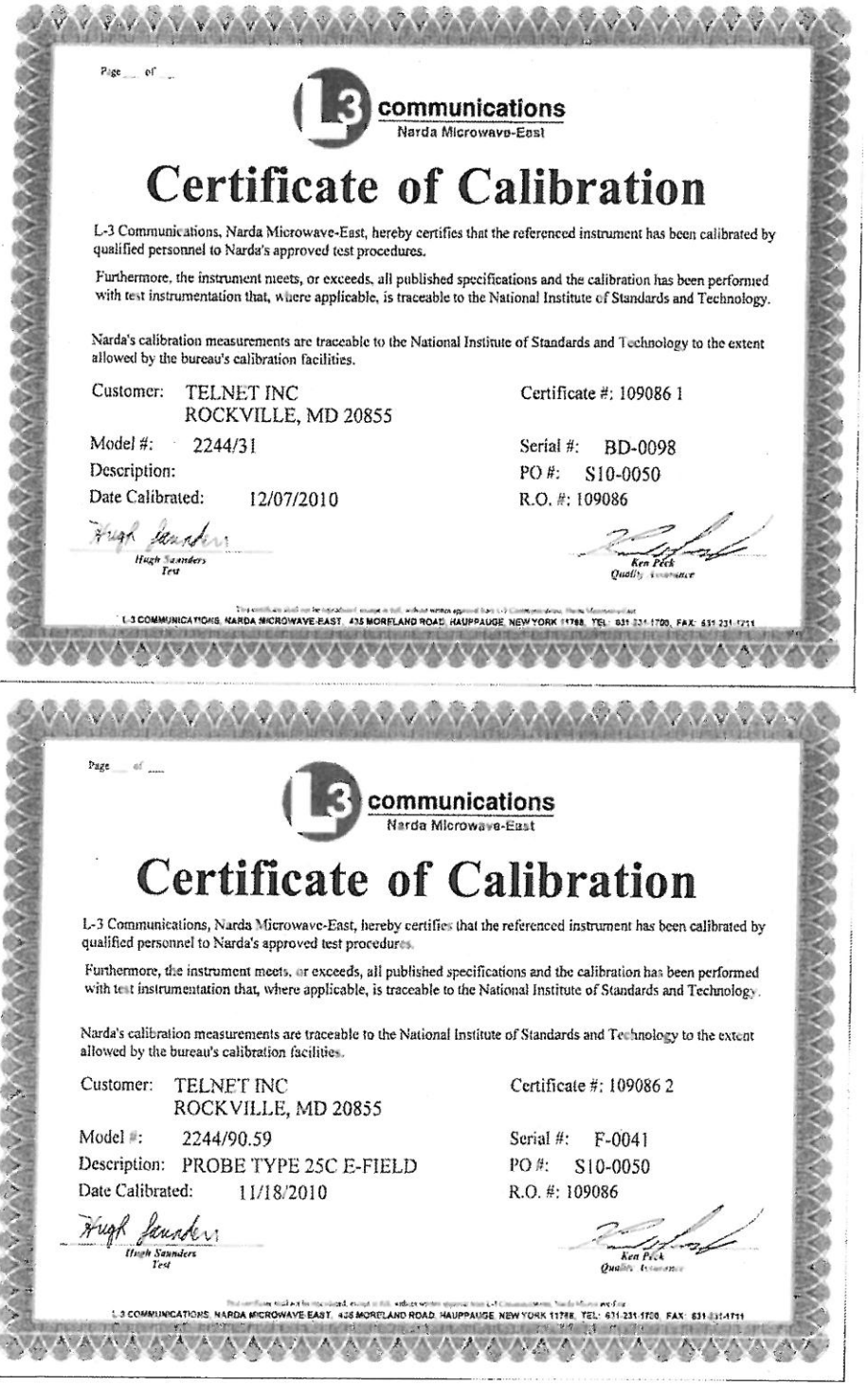
Reviewed by:
Boris Lublinsky
Project Manager, EMF Specialist
Telnet Inc.

Date: 08/08/11

9 Glossary of Terms

1. *Electromagnetic Field (energy density)* – the electromagnetic energy contained in an infinitesimal volume divided by that volume.
2. *Exposure* – Exposure occurs whenever and wherever a person is subjected to electric, magnetic or electromagnetic fields other than those originating from physiological processes in the body and other natural phenomena.
3. *General Population / Uncontrolled Exposure* – applies to human exposure to RF fields when the general public is exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public always fall under this category when exposure is not employment-related.
4. *Maximum Permissible Exposure (MPE)* – the rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with an acceptable safety factor.
5. *Occupational / Controlled Exposure* – applies to human exposure to RF fields when persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/controlled limits.
6. *Power Density (S)* – Power per unit area normal to the direction of propagation, usually expressed in units of watts per square meter (W/m^2) or, for convenience, units such as milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu W/cm^2$).
7. *Ionization* – a process by which electrons are stripped from atoms and molecules. This process can produce molecular changes that can lead to damage in biological tissue, includes effect on DNA, the genetic material. This process requires interaction with high levels of electromagnetic energy.
8. *Non-Ionizing radiation* – a type of emission that is not great enough to cause ionization of atom and molecules. "RF and Microwave Emissions" are low-level energy which are not capable of ionization.

10 Appendix



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L3 communications
Narda Microwave-East

Certificate of Calibration

L-3 Communications, Narda Microwave-East, hereby certifies that the referenced instrument has been calibrated by qualified personnel to Narda's approved test procedures.

Furthermore, the instrument meets, or exceeds, all published specifications and the calibration has been performed with test instrumentation that, where applicable, is traceable to the National Institute of Standards and Technology.

Narda's calibration measurements are traceable to the National Institute of Standards and Technology to the extent allowed by the bureau's calibration facilities.

Customer: TELNET INC
ROCKVILLE, MD 20855

Certificate #: 109086 1

Model #: 2244/31

Serial #: BD-0098

Description:

PO #: S10-0050

Date Calibrated: 12/07/2010

R.O. #: 109086

Hugh Saunders
Test

Ken Peck
Quality Assurance

L-3 COMMUNICATIONS, NARDA MICROWAVE-EAST, 435 MORELAND ROAD, HAUPPAUGE, NEW YORK 11788, TEL: 631 231 1700, FAX: 631 231 1711

Page __ of __

L3 communications
Narda Microwave-East

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Narda's calibration measurements are traceable to the National Institute of Standards and Technology to the extent allowed by the bureau's calibration facilities.

Customer: TELNET INC
ROCKVILLE, MD 20855

Certificate #: 109086 2

Model #: 2244/90.59

Serial #: F-0041

Description: PROBE TYPE 25C E-FIELD

PO #: S10-0050

Date Calibrated: 11/18/2010

R.O. #: 109086

Hugh Saunders
Test

Ken Peck
Quality Assurance

L-3 COMMUNICATIONS, NARDA MICROWAVE-EAST, 435 MORELAND ROAD, HAUPPAUGE, NEW YORK 11788, TEL: 631 231 1700, FAX: 631 231 1711