

RADIO FREQUENCY ELECTROMAGNETIC FIELDS EXPOSURE REPORT

Prepared for Native Link Technologies

Site Name: Karuk Tower
Site Type: Lattice Tower

Located at:

**Karuk Tribe of California
Orleans, CA
Latitude: 41.2995 / Longitude: -123.5526**

Report Date: 2/13/2013

EXECUTIVE SUMMARY

Dtech Communications, LLC (“Dtech”) has been retained by Native Link Technologies to determine whether its wireless communications facility complies with the Federal Communications Commission (“FCC”) Radio Frequency (“RF”) Safety Guidelines. This report contains a computer-simulated analysis of the Electromagnetic Fields (“EMF”) exposure resulting from the facility. The table below summarizes the result at a glance:

Table 1: EMF Summary

Native Link Technologies	Summary
Access to antennas locked	NA
RF Sign(s) @ access point(s)	NA
RF Sign(s) @ antennas	NA
Barrier(s) @ sectors	NA
Max cumulative EMF level for on ground	0.4% General Population
Max cumulative EMF level at antenna level	11.6% General Population (2.3% Occupational)
FCC Compliant	Yes

BACKGROUND

Dtech uses the FCC’s guidelines described in detail in Office of Engineering & Technology, Bulletin No. 65 (“OET-65”) “Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Radiation”. Table 2 below summarizes the current Maximum Permissible Exposure (“MPE”) safety limits classified into two groups: General population and Occupational.

Table 2: FCC MPE Limits (from OET-65)

Frequency (Mhz)	General Population/ Uncontrolled MPE (mW/cm ²)	Averaging Time (minutes)	Occupational/ Controlled MPE (mW/cm ²)	Averaging Time (minutes)
30 - 300	0.2	30	1.0	6
300 - 1500	Frequency (Mhz)/1500 (0.2 – 1.0)	30	Frequency (Mhz)/300 (1.0 – 5.0)	6
1500 - 100,000	1.0	30	5.0	6

General population/uncontrolled limits apply in situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment, and may not be 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.

Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment, and those persons have been made fully aware of the potential for exposure and can exercise control over their exposure.

Occupational/controlled 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/uncontrolled limits, as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

It is important to understand that the FCC guidelines specify *exposure* limits not *emission* limits. For a transmitting facility to be out of compliance with the FCC's RF safety guidelines an area or areas where levels exceed the MPE limits must, first of all, be in some way *accessible* to the public or to workers. When accessibility to an area where excessive levels is appropriately restricted, the facility or operation can certify that it complies with the FCC requirements.

SITE DESCRIPTION

The wireless telecommunication facility is located on the ground. The antennas are mounted on a lattice tower and connected to the equipment via coaxial cables. Technical specifications provided below are gathered from physical field surveys where possible, provided drawings and/or other documents provided by our clients, site/building managers and other licensees at this facility. “Generic”, “Others”, “Unknown” and conservative estimates are used where information is not available.

Table 3: Site Technical Specifications

Antenna ID	Operator	Antenna Mfg	Antenna Model	Type	Frequency (MHz)	Orientation (°T)	Horizontal BWidth (°)	Antenna Aperture (ft)	Antenna Gain (dBd)	Radios Counts	Total ERP (Watts)	Bottom Tip Height Above Ground (Z) (ft)	Bottom Tip Height Above Roof (Z) (ft)
A1	Native Link	Ubiquiti	5G-20-90	Panel	5000	75	90	2.2	17.9	2	39	84.8	0
B1	Native Link	Ubiquiti	5G-20-90	Panel	5000	75	90	2.2	17.9	2	39	84.8	0
1	Native Link	Ubiquiti	Rocket Dish	Dish	5000	68	5	2.1	31.9	Generic	65	-	-

Figure 1: Site Map



RESULTS

Figure 2: Result-The top (bird's eye) view of the resulting MPE (Maximum Permissible Exposure) map surrounding the facility.

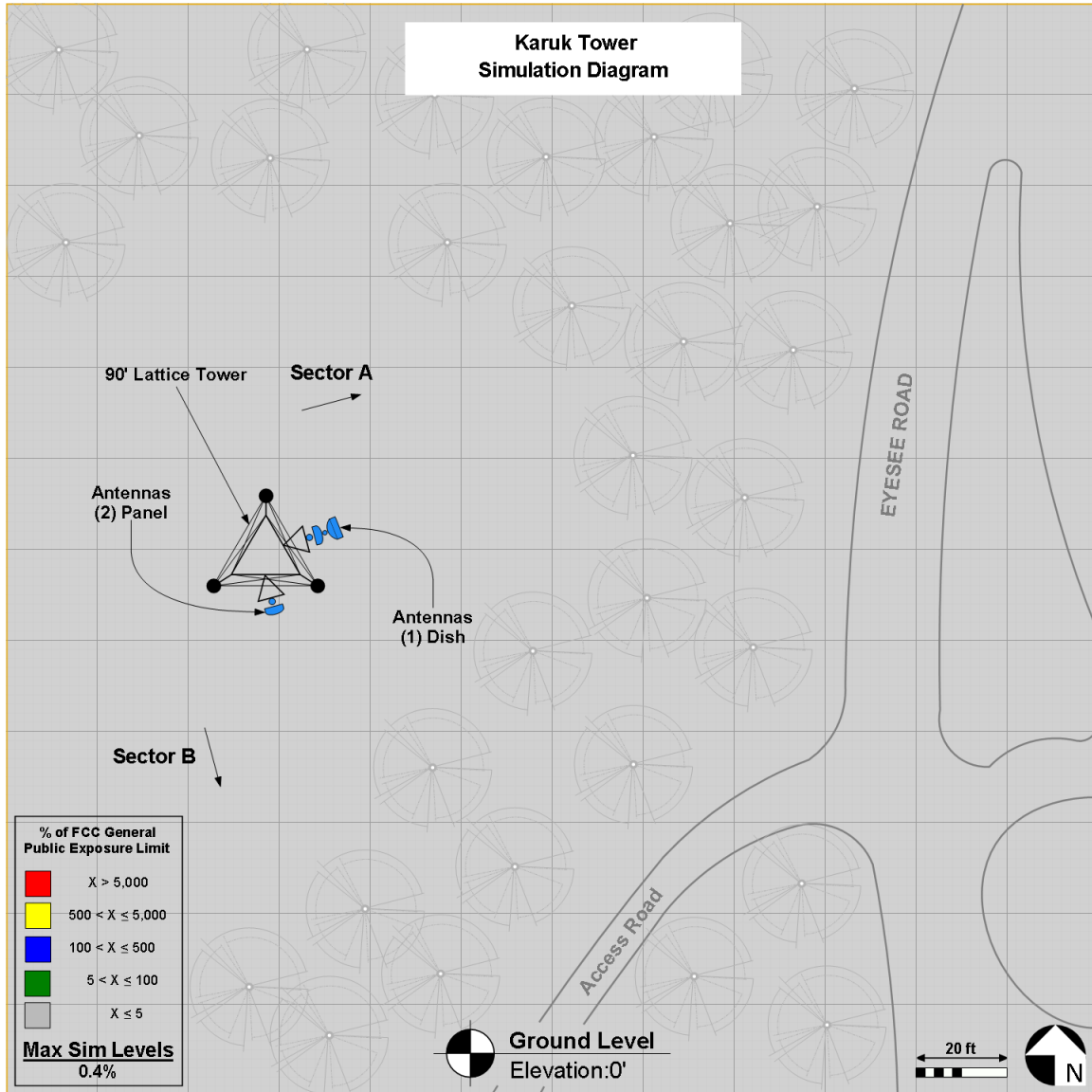
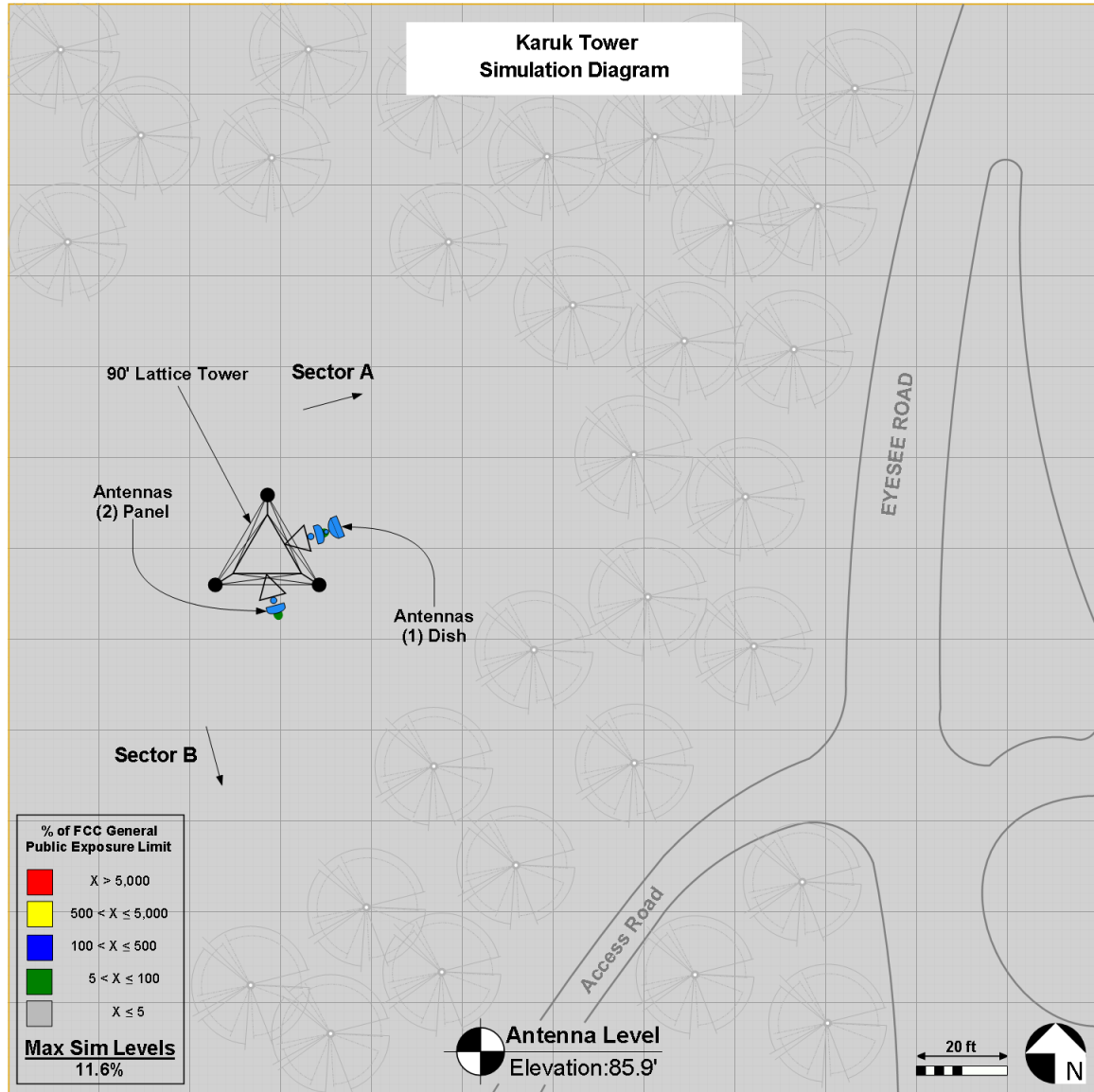


Figure 3: Result-The top (bird's eye) view of the resulting MPE (Maximum Permissible Exposure) map surrounding the facility.



RECOMMENDATION(S)

Calculations for Native Link Technologies site resulted in exposure levels below the applicable FCC's General Population MPE Limits. Since the antennas are mounted on a tall tower and therefore not accessible by the general public, compliance actions are not required. It is presumed that Native Link Technologies employees and facility owners are aware of the transmitting antennas and will take appropriate precautions when working near them.

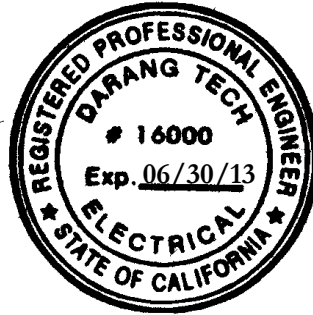
CONCLUSION

Based on the above results, analysis and recommendation(s), it is the undersigned's professional opinion that Native Link Technologies site complies with the FCC's RF Safety Guidelines. The worse-case exposure levels in publicly accessible areas are below the FCC's General Population MPE Limits.

CERTIFICATION

This report has been prepared by or under the direction of the following Registered Professional Engineer: Darang Tech, holding California registration number 16000, with renewal date of 06/30/13.


Darang Tech, P.E.



Appendix A: Measurement and/or Computer Simulation Methods

Spatial averaging measurement technique is used. An area between 2 and 6 feet, approximately the size of an average human, is scanned in single passes from top to bottom in multiple planes. When possible, measurements were made at very close proximity to the antennas and inside the main beam where most of the energy is emitted. The maximum levels (max-hold) were recorded.

Dtech uses an industry standard power density prediction computer Model¹ to assess the worse-case, cumulative EMF impact of the surrounding areas of the subject site. The Model does not take into account losses due to buildings. Its methodologies are conservative enough to account for typical down-tilts deployed in wireless communications. In addition, the analysis is performed at 100% duty cycle-all transmitters are active at all times and transmitting at maximum power. For purposes of a cumulative study, nearby transmitters are included where possible. The result is a surrounding area map color-coded to percentages of the applicable FCC's MPE Limits. A result higher than 100% exceeds the Limits.

Appendix B: Limitations

Dtech performed this analysis based on data provided by our clients that Dtech believes to be true and correct. Estimates where noted, are based on common industry practices and our best interpretation of available information. As mobile technologies continuously change, these data and results may also change. Therefore, Dtech disclaims all other warranties either expressed or implied. Any use of this document constitutes an agreement to hold Dtech and its employees harmless and indemnify it for any and all liability, claims, demands, litigation expenses and attorneys fees arising from such use. This is a technical document and may contain minor grammatical and/or spelling errors.

¹ Roofview® Version 4.15, Richard Tell Associates, Inc. © 1996-2000.