

**RADIO FREQUENCY ELECTROMAGNETIC FIELDS EXPOSURE REPORT**

Prepared for County of San Diego

Site Name: **Felicita Regional Park**  
Site Type: **Monotrees**



Located at:

742 Clarence Lane  
Escondido, CA 92029  
Latitude: 33.0808° / Longitude: -117.0833°

Report Date: 10/1/2012

FCC Compliant: **Yes**

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## EXECUTIVE SUMMARY

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

*Table 1: EMF Summary*

<b>Access Type</b>	Gate
<b>Access Method</b>	Escorted by County personnel
<b>Access to antennas locked</b>	Yes
<b>RF Sign(s) @ access point(s)</b>	Yes
<b>Max cumulative measured EMF Level on Ground</b>	2.8% General Population

*Table 2: EMF Carrier Summary of Existing Conditions*

Wireless Carrier	FCC Compliant	Existing RF Sign(s)
<b>Sprint</b>	Yes	Notice to Workers, Notice & Caution
<b>Cricket</b>	Yes	Site Information & Notice

Field measurements were conducted at the subject site on 9/28/2012 2:00 PM by Jamie Santos. Weather conditions at the time of visit can be best described as 90°F, sunny, mild breeze, with medium humidity. The Narda meter, model NBM-520 with EA 5091 Probe was used (Serial Nos. C-0066 and 1001, respectively). The meter and probe were last calibrated on 4/13/2011 by the manufacturer and were under current recommended calibration interval of 24 months. This device is designed to measure frequencies between 300kHz and 50Ghz, well within the SMR, Cellular, and PCS frequency ranges (most major wireless operators). Therefore, the measured level is a cumulative RF<sup>F</sup> energy resulting from all transmitters within the frequency ranges of the probe. The probe itself is frequency shaped and can automatically weigh each field contribution based on frequency. The output is given in percentage of the FCC’s Occupational MPE Limit.

## SITE DESCRIPTION

The wireless telecommunication facility is located on the ground. The facility consists of 2 wireless carriers or operators and the antennas are mounted on separate monotree towers. The antennas are typically grouped into sectors pointing in different direction to achieve the desired areas of coverage. The table below summarizes the existing carriers located at this facility:

*Table 3: Site Technical Specifications*

Operator	Sector	Antenna Model	Type	Quantity	Frequency (MHz)	Orientation (°T)	Bottom Tip Height Above Ground (Z) (ft)
Sprint	A	Unknown	Panel	3	1900	240	34
Sprint	B	Unknown	Panel	3	1900	20	34
Sprint	C	Unknown	Panel	3	1900	130	34
Cricket	A	Unknown	Panel	1	1900	30	38
Cricket	B	Unknown	Panel	1	1900	120	38
Cricket	C	Unknown	Panel	1	1900	270	38

Figure 1: Site Map

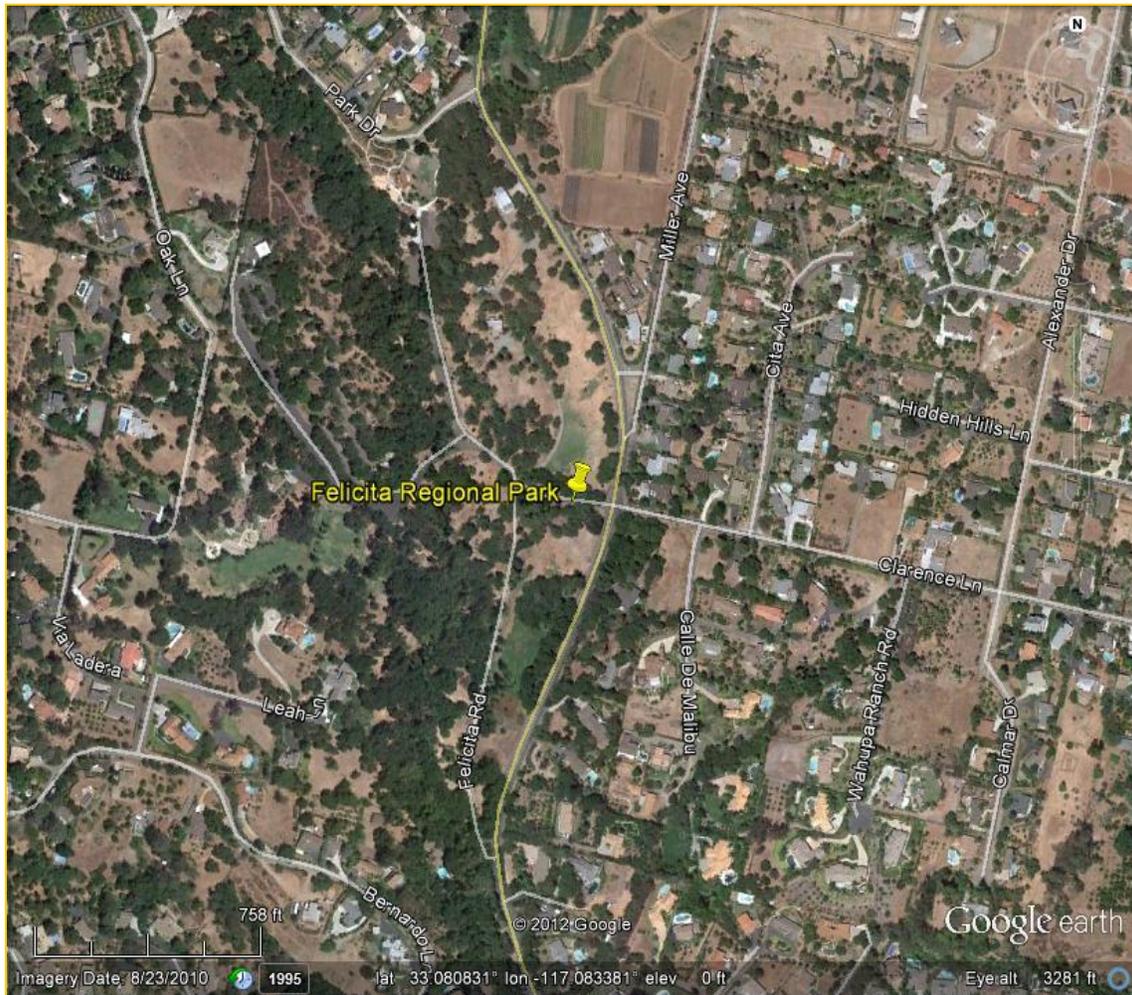


Figure 2: Site Diagram- All signage depicted is currently existing on site.

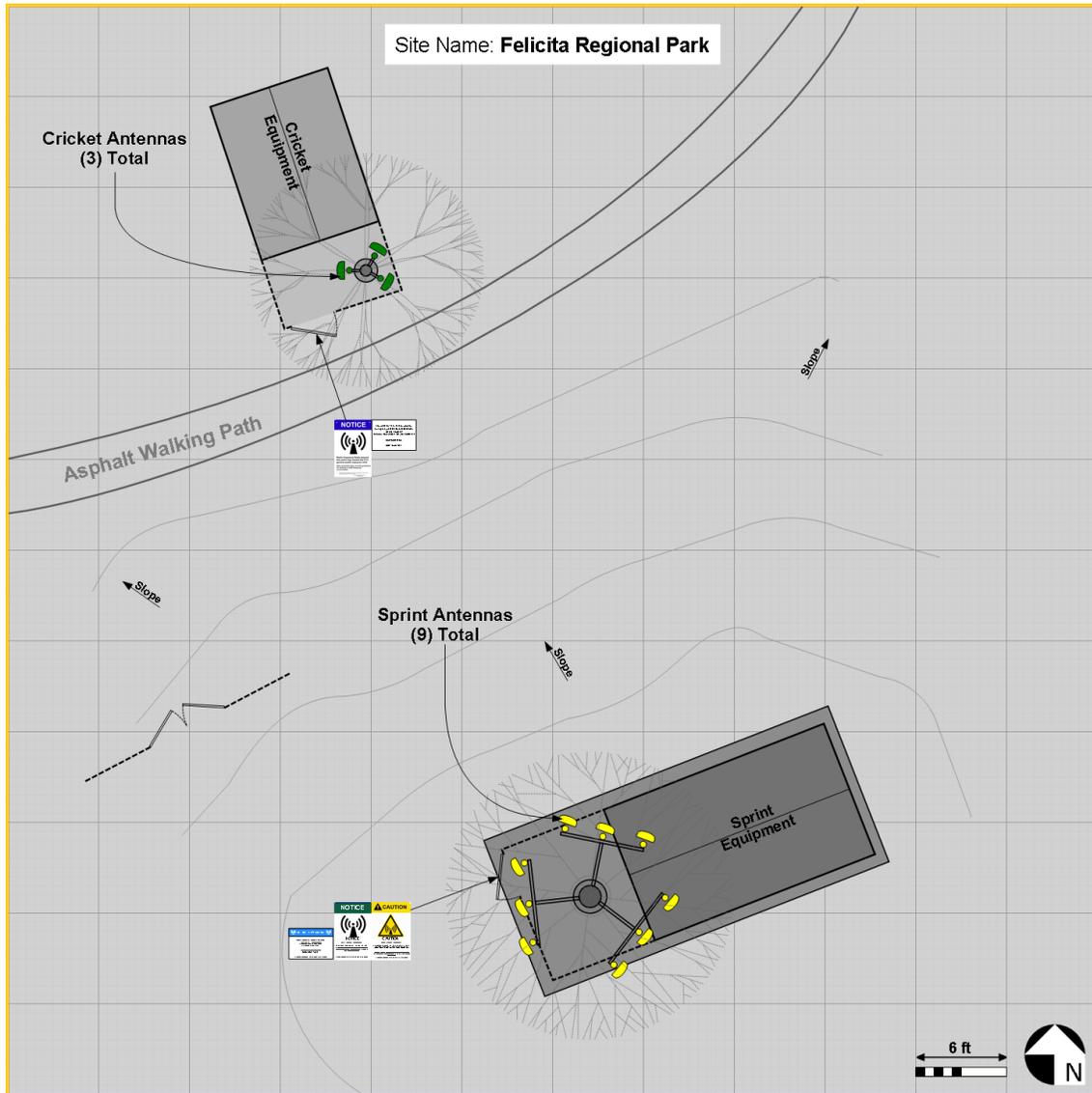


Figure 3: Site Photographs



Felicita Regional Park General site view



Felicita Regional Park General site view



Felicita Regional Park path to site from parking lot



Felicita Regional Park existing gate



Sprint Access point with Notice to Workers, Notice & Caution



Sprint Site ID SD34XC697



Sprint Sector A hidden in monstera



Sprint Sector B hidden in monstera



Sprint Sector C hidden in monstera



Sprint Equipment shelter



Cricket Access point with Site Information & Notice



Cricket Site ID SAN-222



Cricket Sector A hidden in monotree



Cricket Sector B hidden in monotree



Cricket Sector C hidden in monotree



Cricket Equipment shelter



## **RECOMMENDATION(S)**

Measurements for the facility's site resulted in exposure levels below the applicable FCC's General Population MPE Limits. There are RF advisory sign(s) already posted at path(s) to and/or near the antennas to establish awareness for exposure. Since the antennas are mounted on tall monotree towers and therefore not accessible by the general public, compliance actions are not required. It is presumed that wireless carrier employees and contractors 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 this telecommunication facility complies with the FCC's RF Safety Guidelines.

## 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: 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 4 below summarizes the current Maximum Permissible Exposure (“MPE”) safety limits classified into two groups: General population and Occupational.

Table 4: FCC MPE Limits (from OET-65)

Frequency (Mhz)	General Population/ Uncontrolled MPE (mW/cm <sup>2</sup> )	Averaging Time (minutes)	Occupational/ Controlled MPE (mW/cm <sup>2</sup> )	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.

## **Appendix B: 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 spatial averaged values were recorded.

Dtech uses an industry standard power density prediction computer model<sup>1</sup> to assess the worse-case, cumulative EMF impact of the surrounding areas of the subject site. For purposes of a cumulative study, nearby transmitters are included where possible. In addition, the analysis is performed at 100% duty cycle-all transmitters are active at all times and transmitting at maximum power. 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 C: 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.

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<sup>1</sup> RoofView Version 4.15, Richard Tell Associates, Inc. © 1996-2000.