

Exhibit E

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DAVID C. COTTON, JR., PE – Wireless Consulting

From: David C. Cotton, Jr., PE
1095 Hilltop Drive, Suite 253
Redding, CA 96003-3811
PH: (530) 710-8185

To: Precision Site Development
Jeremy Jordan
jeremy@precisionsd.com
1524 Rainbow Trout Street
Roseville, CA 95747
PH: (916) 918-9322

Subject: PE Certification – SF68XCSKB, 65000 Jolon Rd., Jolon, CA, 93928

Date: 07 July 2017

1. I am registered as a Professional Engineer in the state of California. I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio Frequency (RF) Radiation.
2. The theoretical modeling (attached) of the site environment of the subject site in the has been performed to determine where there might be electromagnetic energy that is in excess of both the Controlled Environment (occupational) and Uncontrolled Environment (general public) levels. According to the Roofview Modeling, the maximum MPE on the ground is 3.4% of the occupational limit (17% of the general public limit), well below the maximum limits set by federal regulations.
3. I have reviewed and supervised the compilation of the Site Compliance Report and believe it to be true and accurate to the best of my knowledge. If you have any questions about this report, please contact me at (530) 710-8185 or dave@davidcottonpe.com.

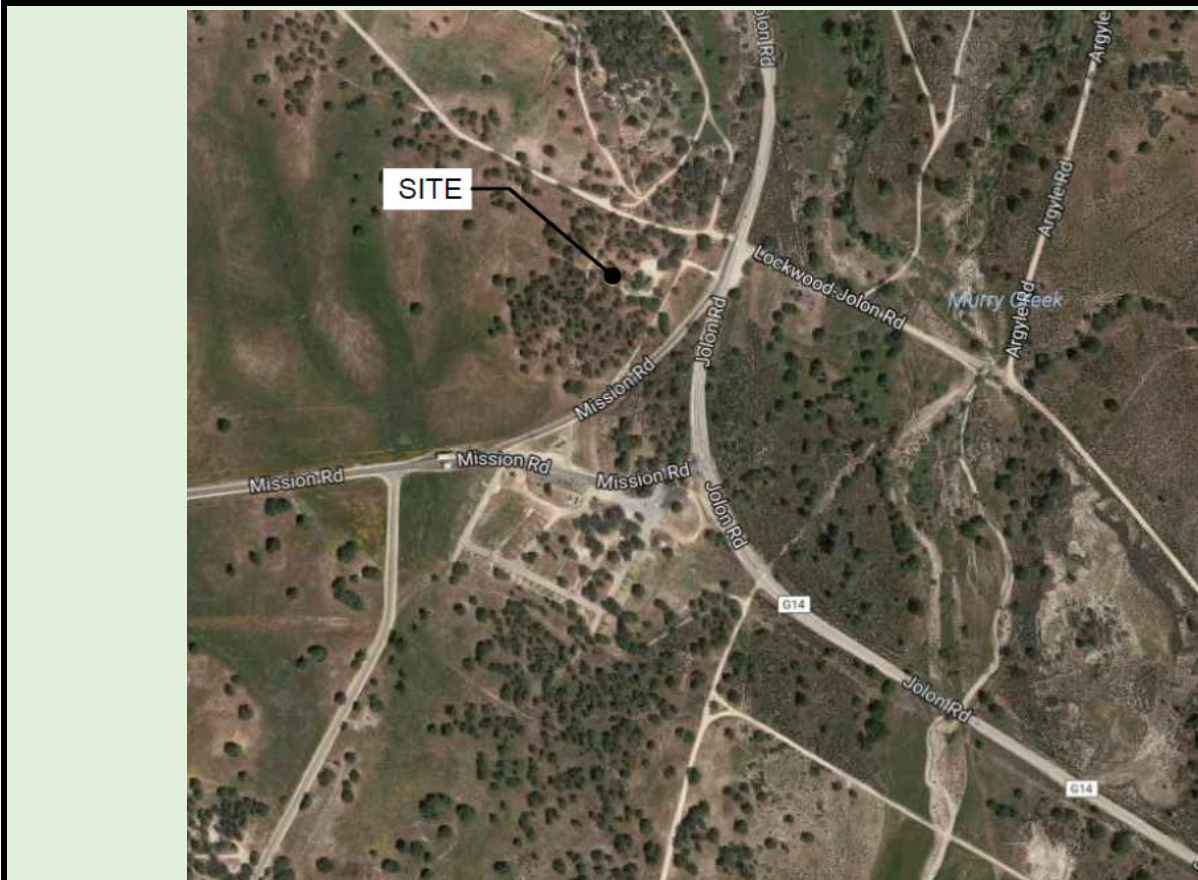
RADIO FREQUENCY - ELECTROMAGNETIC ENERGY (RF-EME) COMPLIANCE REPORT

Performed for: **Sprint** 

Field	Data
Cascade ID	SF68XCSKB
Alt Site ID	SF68XCSKB-C
Address	65000 JOLON ROAD JOLON, CA 93928
Lat/Lon	36.01224, -121.2286

Report Type	New Site Build
Date of Calculations	7/7/2017
Date of Report	7/7/2017

Site Photo



1.0 EXECUTIVE SUMMARY / REPORT SUMMARY

Purpose of Report

Global Technology Associates has been contracted by Sprint to conduct radio frequency electromagnetic (RF-EME) modeling for Sprint site SF68XCSKB located at 65000 JOLON ROAD in JOLON, CA 93928 to determine RF-EME exposure levels from existing and proposed Sprint wireless communications equipment at this site.

As described in greater detail in Section 12.0 of this report, the Federal Communications Commission (FCC) has developed Maximum Permissible Exposure (MPE) Limits for general public exposures and occupational exposures. This report summarizes the results of RF-EME modeling in relation to relevant FCC RF-EME compliance standards for limiting human exposure to RF-EME fields.

This report contains a detailed summary of the RF-EME analysis for the site.

This document addresses the compliance of Sprint's proposed transmitting facilities independently and in relation to all collocated facilities at the site.

Sprint has installed and will be modifying the RF transmitting antennas at the following location (the “wireless telecommunications facility”):

**65000 JOLON ROAD
JOLON, CA 93928
Sprint Site ID: SF68XCSKB**

Field	Data
Facility and Access	
Facility Type	new site build monopole
Access Type	n/a
Access Restrictions	n/a
Facility Area Classification	uncontrolled (general population)
Theoretical Study Results	
Max RF Level in Secured Areas on Rooftop/Facility	3.4% of the occupational exposure standard (17.0% public MPE)
Max RF Level at Surrounding Compound Area Around Site	3.4% of the occupational exposure standard (17.0% public MPE)
Compliance	
FCC Compliance Conclusion	The proposed design is acceptable for public and occupational standards.

Table 1-1 Report Summary

2.0 LOCATION OF ALL EXISTING ANTENNAS AND FACILITIES AND EXISTING RF LEVELS

This project includes the establishment/installation of one (1) microwave/satellite antennas centered at 20' from ground level and six (6) RF antennas centered 47' from ground level at the address 65000 JOLON ROAD, JOLON, CA 93928. This will be installed on the monopole that will be deployed at site.

There are three sectors (A, B, C) with two RF antennas installed per sector (total of 6 RF antennas). The microwave antenna is a single antenna chain-mounted to the monopole structure. Plans show the above configuration and is confirmed in appendix. 1

To GTA's knowledge, there are no permanent or temporary WTS sites to consider within 100' of the proposed monopole.

3.0 LOCATION OR ALL APPROVED (BUT NOT INSTALLED) ANTENNAS AND FACILITIES AND EXPECTED RF LEVELS FROM THE APPROVED FACILITIES

From information available to GTA and Sprint at the time of this report, there are no future approved installations planned for this site other than the mentioned in section 2.0.

4.0 NUMBER AND TYPES OF WTS WITHIN 100 FEET OF THE PROPOSED SITE AND ESTIMATES OF CUMULATIVE EMR EMISSIONS AT THE PROPOSED SITE

To GTA's knowledge, there are no permanent or temporary WTS sites to consider within 100' of the proposed monopole. 2

5.0 LOCATION AND NUMBER OF THE SPRINT ANTENNAS AND BACK-UP FACILITIES PER BUILDING AND NUMBER AND LOCATION OF OTHER TELECOMMUNICATION FACILITIES ON THE PROPERTY

This project includes the establishment/installation of one (1) microwave/satellite antennas centered at 20' from ground level and six (6) RF antennas centered 47' from ground level at the address 65000 JOLON ROAD, JOLON, CA 93928. This will be installed on the monopole that will be deployed at site. There are three sectors (A, B, C) with two RF antennas installed per sector (total of 6 RF antennas). The microwave antenna is a single antenna chain-mounted to the monopole structure. Plans show the above configuration and is confirmed in appendix. For Sprint: In each sector there is to be two (2) antennas transmitting in the 800, 1900, and 2500 MHz bands. The microwave will transmit in the 14 GHz band. 3

The Sector A antennas are oriented 60° from true north. The Sector B antennas are oriented 180° from true north. The Sector C antennas are oriented 300° from true north. The microwave antenna will be oriented 135° from true north. The bottom of the Sector A B C antennas are 44-44.5 feet above analyzed ground level. The bottom of the microwave/satellite antenna is 18 feet above ground level.

To GTA's knowledge, there are no permanent or temporary WTS sites to consider within 100' of the proposed monopole.

6.0 POWER RATING FOR ALL EXISTING AND PROPOSED BACKUP EQUIPMENT SUBJECT TO THE APPLICATION

The operating power for modeling purposes on RF antennas (per sector) was assumed to be 20-40 Watts per transmitter with one (1) transmitters operating at the 800 MHz ranges (30W), four (4) operating at the 1900 MHz ranges (20W ea), and two (2) operating at the 2500 MHz ranges (40W ea). The microwave/satellite antenna is operating at 4 watts per transmitter, one transmitter considered.

7.0 TOTAL NUMBER OF WATTS PER INSTALLATION AND THE TOTAL NUMBER OF WATTS FOR ALL INSTALLATIONS ON THE BUILDING

The max effective radiated power (ERP) for the 1900 MHz transmitters combined at site is 12889 watts. ERP for the 800 MHz transmitters combined at site is 2537 watts. ERP for the 2500 MHz transmitters combined at site is 12595 watts. ERP for the new Sprint microwave antenna installation is 48647 watts. These are detailed in Appendix.

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8.0 PREFERRED METHOD OF ATTACHMENT OF PROPOSED ANTENNA WITH PLOT OR ROOF PLAN INCLUDING: DIRECTIONALITY OF ANTENNAS, HEIGHT OF ANTENNAS ABOVE NEAREST WALKING SURFACE, DISCUSS NEARBY INHABITED BUILDINGS

This installation presents no concern with nearby inhabited buildings as there is ideal separation from the structure, effectively ruling them out from possible exposure in excess of public or occupational MPE. This is demonstrated in Appendix B at the end of this report and table is included to demonstrate ground level potential exposure.

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The three-dimensional perimeters of RF levels equal to the public and occupational exposure limits are calculated to extend up to 18 and 5 feet out from the antenna faces, respectively, and to much lesser distances above, below, and to the sides; this does not reach any publicly accessible areas.

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9.0 ESTIMATED AMBIENT RADIO FREQUENCY FIELDS FOR THE PROPOSED SITE

Based on worst-case predictive modeling all areas related to proposed equipment in the area were analyzed with the FCC's occupational and general public exposure limits at this site. As such, the proposed Sprint project is in compliance with FCC rules and regulations.

On the ground surface, at the nearest likely walking/working surfaces to the proposed Sprint antennas, the maximum power density is 0.170 mW/cm^2 which is 3.4 percent of the FCC's occupational MPE limit (17.0% public MPE limit).

The area directly in front of antennas is found to have a maximum power density of 26.060 mW/cm^2 which is 521.2 percent of the FCC's occupational MPE limit (2606% public MPE limit). This is not considered an accessible area.

10.0 SIGNAGE AT THE FACILITY IDENTIFYING ALL WTS EQUIPMENT AND SAFETY PRECAUTIONS FOR PEOPLE NEARING THE EQUIPMENT AS MAY BE REQUIRED BY THE APPLICABLE FCC ADOPTED STANDARDS (DISCUSS SIGNAGE FOR THOSE WHO SPEAK LANGUAGES OTHER THAN ENGLISH)

Signs are the primary means for control of access to areas where RF exposure levels may potentially exceed the MPE. However in this case the antenna area is considered an occupational only area and the accessible areas around site are not of concern for public exposure, therefore no signage will be necessary/required/recommended except a notice sign at the base of the monopole.

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11.0 STATEMENT ON WHO PRODUCED THIS REPORT AND QUALIFICATIONS

Please see the certifications attached in Appendix A below.

12.0 FEDERAL COMMUNICATIONS COMMISSION (FCC) REQUIREMENTS

The FCC has established Maximum Permissible Exposure (MPE) limits for human exposure to Radiofrequency Electromagnetic (RF-EME) energy fields, based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP) and, over a wide range of frequencies, the exposure limits developed by the Institute of Electrical and Electronics Engineers, Inc. (IEEE) and adopted by the American National Standards Institute (ANSI) to replace the 1982 ANSI guidelines. Limits for localized absorption are based on recommendations of both ANSI/IEEE and NCRP.

The FCC guidelines incorporate two separate tiers of exposure limits that are based upon occupational/controlled exposure limits (for workers) and general public/uncontrolled exposure limits for members of the general public.

Occupational/controlled exposure limits apply to situations in which 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 public/uncontrolled limits (see below), 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.

General public/uncontrolled exposure limits apply to situations in which the general public may be 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 would always be considered under this category when exposure is not employment-related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

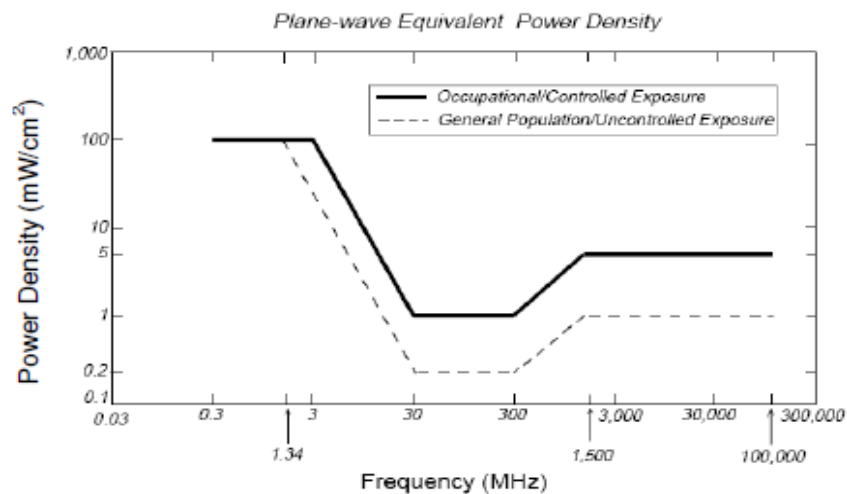
Table 12-1 and Figure 12-1 (below), which are included within the FCC's OET Bulletin 65, summarize the MPE limits for RF emissions. These limits are designed to provide a substantial margin of safety. They vary by

frequency to take into account the different types of equipment that may be in operation at a particular facility and are “time-averaged” limits to reflect different durations resulting from controlled and uncontrolled exposures.

The FCC’s MPEs are measured in terms of power (mW) over a unit surface area (cm²). Known as the power density, the FCC has established an occupational MPE of 5 milliwatts per square centimeter (mW/cm²) and an uncontrolled MPE of 1 mW/cm² for equipment operating in the 1900 MHz frequency range. For the Sprint equipment operating at 800 MHz, the FCC’s occupational MPE is 2.66 mW/cm² and an uncontrolled MPE of 0.53 mW/cm². These limits are considered protective of these populations.

TABLE 12-1

(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/cm²)	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
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm²)	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
300-1,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

FIGURE 12-1

Based on the above, the most restrictive thresholds for exposures of unlimited duration to RF energy for several personal wireless services are summarized below:

TABLE 12-2

Personal Wireless Service	Approximate Frequency	Occupational MPE	Public MPE
Personal Communication (PCS)	1,950 MHz	5.00 mW/cm ²	1.00 mW/cm ²
Cellular Telephone	870 MHz	2.90 mW/cm ²	0.58 mW/cm ²
Specialized Mobile Radio	855 MHz	2.85 mW/cm ²	0.57 mW/cm ²
Most Restrictive Freq. Range	30-300 MHz	1.00 mW/cm ²	0.20 mW/cm ²

Personal Communication (PCS) facilities used by Sprint in this area operate within a frequency range of 800-2500 MHz. The microwave installation is assumed 14000 MHz. Facilities typically consist of: 1) electronic transceivers (the radios or cabinets) connected to wired telephone lines; and 2) antennas that send the wireless signals created by the transceivers to be received by individual subscriber units (PCS telephones). Transceivers are typically connected to antennas by coaxial cables.

Because of the short wavelength of PCS services, the antennas require line-of-site paths for good propagation, and are typically installed above ground level. Antennas are constructed to concentrate energy towards the horizon, with as little energy as possible scattered towards the ground or the sky. This design, combined with the low power of PCS facilities, generally results in no possibility for exposure to approach Maximum Permissible Exposure (MPE) levels, with the exception of areas directly in front of the antennas.

Statement of Compliance

A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.

13.0 LIMITATIONS

This report was prepared for the use of Sprint. It was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same locale under like circumstances. The conclusions provided by GTA are based solely on the information provided by the client. The observations in this report are valid on the date of the investigation. Any additional information that becomes available concerning the site should be provided to GTA so that our conclusions may be revised and modified, if necessary. This report has been prepared in accordance with Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this report. No other warranty, expressed or implied, is made.

14.0 SUMMARY AND CONCLUSIONS

GTA has prepared this Radiofrequency Emissions Compliance Report for the proposed Sprint telecommunications equipment at the site located at 65000 JOLON ROAD in JOLON, CA 93928.

GTA has conducted theoretical modeling to estimate the worst-case power density from Sprint antennas and the other carriers' existing antennas to document potential MPE levels at this location and ensure that site control measures are adequate to meet FCC and OSHA requirements.

As presented in the preceding sections, based on worst-case predictive modeling, there are no modeled exposures on any accessible ground-level walking/working surface related to proposed equipment in the area that exceed the FCC's occupational and general public exposure limits at this site. As such, the proposed Sprint project is in compliance with FCC rules and regulations. Signage is recommended at the site as presented in Section 10.0. Posting of the signage brings the site into compliance with FCC rules and regulations.

APPENDIX A

Certifications

CERTIFICATION

This report was prepared by Sprint and serves as certification for compliance of the existing Sprint wireless telecommunications facility. The analysis and computation provided herein is based on applicable FCC regulations concerning RF safety and the control of human exposure to RF emissions. The information and analysis contained in this report is accurate and complete to the best knowledge and belief of the undersigned.

The undersigned states the following:

- I am an employee of Global Technology Associates (GTA), which provides RF-EME safety and compliance services to the wireless communications industry.
- I have successfully completed RF-EME safety training, and I am aware of the potential hazards from RF-EME and would be classified "occupational" under the FCC regulations.
- I am familiar with the FCC rules and regulations as well as OSHA regulations both in general and as they apply to RF-EME exposure.
- I have reviewed the data provided by the client and incorporated it into this Site Compliance Report such that the information contained in this report is true and accurate to the best of my knowledge.

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Calculations and Report Prepared by:



7/7/2017

Paul Salvesen - Project Manager
Global Technology Associates
Paul.Salvesen@gtatelecom.com
M: 949-872-3762

APPENDIX B

RoofView® Export File & Area Plot When Applicable/Pertinent

ID	Name	(MHz) Freq	Trans Power	Trans Count	Other Loss	Calc Power	ERP in Watts	Mfg	Model	(ft) X	(ft) Y	(ft) Z	Type	(ft) Aper	dBd Gain	BWdth Pt Dir	ON flag
1-A-1-1	Alpha-800	800	30	1	0.5	26.73753	845.5149	KMW	ET-X-TS-70-15-62-18-iR-RD	60	60	44.45833	Panel	5.083333	15	65;60	ON•
1-A-1-2	Alpha-1900	1900	20	4	0.7	68.09104	4296.254	KMW	ET-X-TS-70-15-62-18-iR-RD	60	60	44.45833	Panel	5.083333	18	65;60	ON•
1-A-2-1	Alpha-2500	2500	40	2	0.8	66.5411	4198.46	KMW	ET-X-WM-18-65-8P	62	58	44	Panel	6	18	65;60	ON•
1-B-3-1	Beta-800	800	30	1	0.5	26.73753	845.5149	KMW	ET-X-TS-70-15-62-18-iR-RD	60	54	44.45833	Panel	5.083333	15	65;180	ON•
1-B-3-2	Beta-1900	1900	20	4	0.7	68.09104	4296.254	KMW	ET-X-TS-70-15-62-18-iR-RD	60	54	44.45833	Panel	5.083333	18	65;180	ON•
1-B-4-1	Beta-2500	2500	40	2	0.8	66.5411	4198.46	KMW	ET-X-WM-18-65-8P	57	54	44	Panel	6	18	65;180	ON•
1-C-5-1	Gamma-800	800	30	1	0.5	26.73753	845.5149	KMW	ET-X-TS-70-15-62-18-iR-RD	55	60	44.45833	Panel	5.083333	15	65;300	ON•
1-C-5-2	Gamma-1900	1900	20	4	0.7	68.09104	4296.254	KMW	ET-X-TS-70-15-62-18-iR-RD	55	60	44.45833	Panel	5.083333	18	65;300	ON•
1-C-6-1	Gamma-2500	2500	40	2	0.8	66.5411	4198.46	KMW	ET-X-WM-18-65-8P	57	58	44	Panel	6	18	65;300	ON•
1-M-7	SatBH	14000	4	1	0		48647.44	Gilat	AT2191	59	55	18	Dish	4	40.85	4;135	ON•

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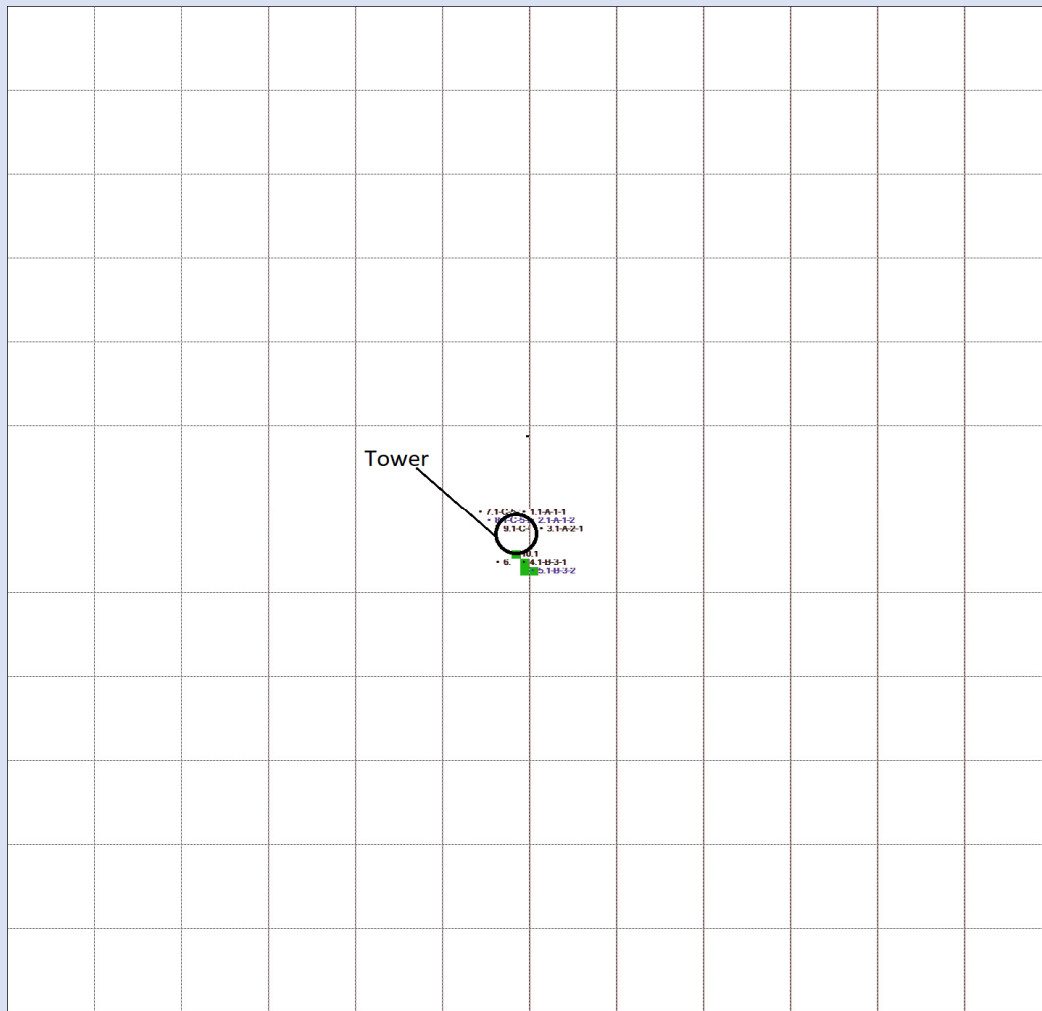
Sprint Impact on Ground Surface

Statistical Summary		
%MPE	SQ. FT	%SQ. FT.
	14400	100.00 % of total ROOF Area
0-1	14396	99.97 % of Selected Area
2-20	4	0.03 % of Selected Area
21-100	0	0.00 % of Selected Area
> 100	0	0.00 % of Selected Area
Roof Area 14400 sq. ft. Max %MPE 3.4 % Min %MPE 0.0 % Using Near/Far Spatial Avg Model With FCC 1997 Occupational Standard		

The above shows the ground level with a 3.4% occupational MPE exposure at maximum. 17.0% is the public MPE maximum which equates to this value. The entire typical walking surface of the ground is safe for all classifications.

The area near the antennas, which is not considered accessible, is not considered to be part of this analysis.

EME/MPE Impact Projected From Antennas (all carriers) At Ground Level



MPE Occupational Scale Key



0 to 1%



1 to < 20%



20% to < 100%



100% to 1000%



1000% & up

1 bl = 10'

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