

DONALD L. HAES, JR., CHP, CLSO

Radiation Safety Specialist

PO Box 198, Hampstead, NH 03841

617-680-6262

Email: donald_haes_chp@comcast.net

July 16, 2019

RE: Proposed installation of a radio base station antenna and associated equipment for the Verizon Wireless Small Cell Personal Wireless Services facility to be located on an existing utility pole located at 228 Brookline Street, Needham, MA.

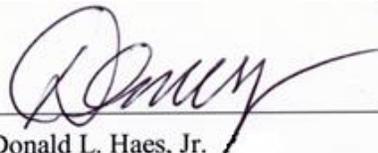
PURPOSE

I write in addendum to my report dated February 11, 2019, regarding the theoretical calculations of maximal radio-frequency (RF) fields from the proposed Verizon Wireless omnidirectional canister type PWS antenna at **228 Brookline Street, Needham, MA**. For the situation where the remote radio head (RRH) units include the higher frequencies of PCS (1900 MHz) and AWS (2100 MHz) technologies only, and not the LTE “700 MHz frequencies previously calculated, the previous calculations would be too conservative. Supplementary calculations have been prepared to provide additional written proof that the proposed facility would comply with the Federal Communications Commission (FCC) RF exposure guidelines, including residential areas and in the surrounding neighborhood. As in previous calculations, this supplemental report considers the contributions of the Verizon Wireless PWS transmitters operating at their proposed capacity. The calculated values of RF fields are again presented as a percent of current Maximum Permissible Exposure (%MPE) values as adopted by the FCC, and those established by the Massachusetts Department of Public Health (MDPH).

SUMMARY

These supplemental theoretical RF field calculations data indicate the summation of the proposed Verizon Wireless RF contributions would be within the established RF exposure guidelines at the proposed site; see Figure 1. These results, in addition to those prepared in my report dated February 11, 2019, indicate there could be even more similar installations at this location, and still be within Federal and State guidelines for RF exposure.

Sincerely,



Donald L. Haes, Jr.

Certified Health Physicist

Note: The analyses, conclusions and professional opinions are based upon the precise parameters and conditions of these particular sites; **utility pole at 228 Brookline Street, Needham, MA**. Utilization of these analyses, conclusions and professional opinions for any personal wireless services installation, existing or proposed, other than the aforementioned has not been sanctioned by the author, and therefore should not be accepted as evidence of regulatory compliance.

ANTENNA INVENTORY

Table 1: Verizon Wireless Antenna Inventory Utility Pole at 228 Brookline Street, Needham, MA Parameters: 536 watts ERP* of AWS @ 2150 MHz 489 watts ERP* of PCS @ 1900 MHz		
Site Name	Antenna Centerline (AGL)	Antenna Model
Needham SC02 MA	19'7"	NH360QM-DG
Information relevant to the antenna proposed by Verizon Wireless Appendix A.		
Table Notes: AWS: Advanced Wireless Services PCS: Personal Communication Services * ERP = Power out per channel (CH) X # channels per remote radio head (RRH) X #RRHs X gain the antenna provides within that frequency band.		

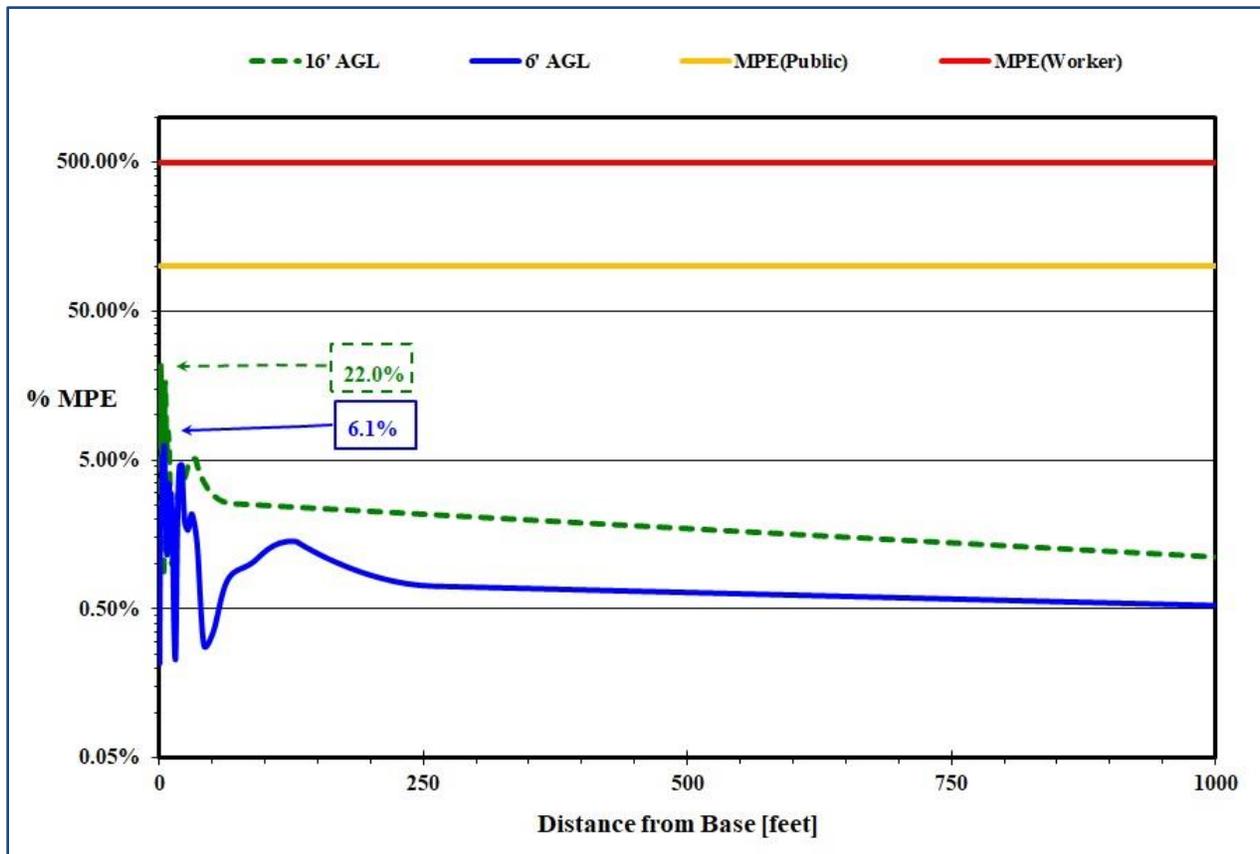


Figure 1: Theoretical RF Field Calculations for the Summation of the Proposed Verizon Wireless Small Cell Antenna Site “Needham SC02 MA” 228 Brookline Street, Needham, MA

DONALD L. HAES, JR., CHP, CLSO

Radiation Safety Specialist

PO Box 198, Hampstead, NH 03841

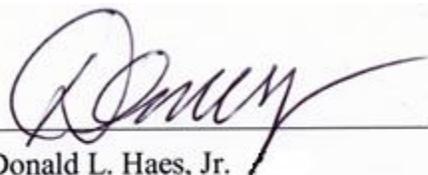
617-680-6262

Email: donald_haes_chp@comcast.net

STATEMENT OF CERTIFICATION

1. I certify to the best of my knowledge and belief, the statements of fact contained in this report are true and correct.
2. The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are personal, unbiased professional analyses, opinions and conclusions.
3. I have no present or prospective interest in the property that is the subject of this report and I have no personal interest or bias with respect to the parties involved.
4. My compensation is not contingent upon the reporting of a predetermined energy level or direction in energy level that favors the cause of the client, the amount of energy level estimate, the attainment of a stipulated result, or the occurrence of a subsequent event.
5. This assignment was not based on a requested minimum environmental energy level or specific power density.
6. My compensation is not contingent on an action or event resulting from the analyses, opinions, or conclusions in, or the use of, this report.
7. The consultant has accepted this assessment assignment having the knowledge and experience necessary to complete the assignment competently.
8. My analyses, opinions, and conclusions were developed and this report has been prepared, in conformity with the *American Board of Health Physics* (ABHP) statements of standards of professional responsibility for Certified Health Physicists.

Date: July 16, 2019



Donald L. Haes, Jr.

Certified Health Physicist