


Office of the Superintendent of Schools
MONTGOMERY COUNTY PUBLIC SCHOOLS
Rockville, Maryland

November 18, 2015

MEMORANDUM

To: Members of the Board of Education

From: Larry A. Bowers, Interim Superintendent of Schools 

Subject: Update on Findings of Radiofrequency Evaluation in Schools

This memorandum provides an update on our recent study of wireless access points in Montgomery County Public Schools (MCPS) classrooms. This study was commissioned to respond to concerns raised about the safety of wireless access points and Radiofrequency (RF) emissions in our schools and offices. Beginning earlier this year, public testimony and written communications to the Board from a cadre of advocates requested that we replace wireless access points with hard-wired installations due to concerns about the effects of radiation in our classrooms.

We contracted with AECOM, ranked number one in *Engineering News Record's* "Top 500 Design Firms" for six consecutive years and one of *Fortune* magazine's "2015 World's Most Admired Companies." AECOM's task was to conduct a series of evaluations of RF exposures associated with existing Wi-Fi installations at a sampling of 11 MCPS schools. Results of the RF monitoring study, *Radiofrequency (RF) Monitoring Summary Report*, indicated that all of the average power density results were well below government, industry, and also the BioInitiative Report 2007 precautionary guideline levels that have not been adopted by any scientific nor governing health agency but referenced by groups opposing Wi-Fi. The *Radiofrequency (RF) Monitoring Summary Report* is attached for your consideration.

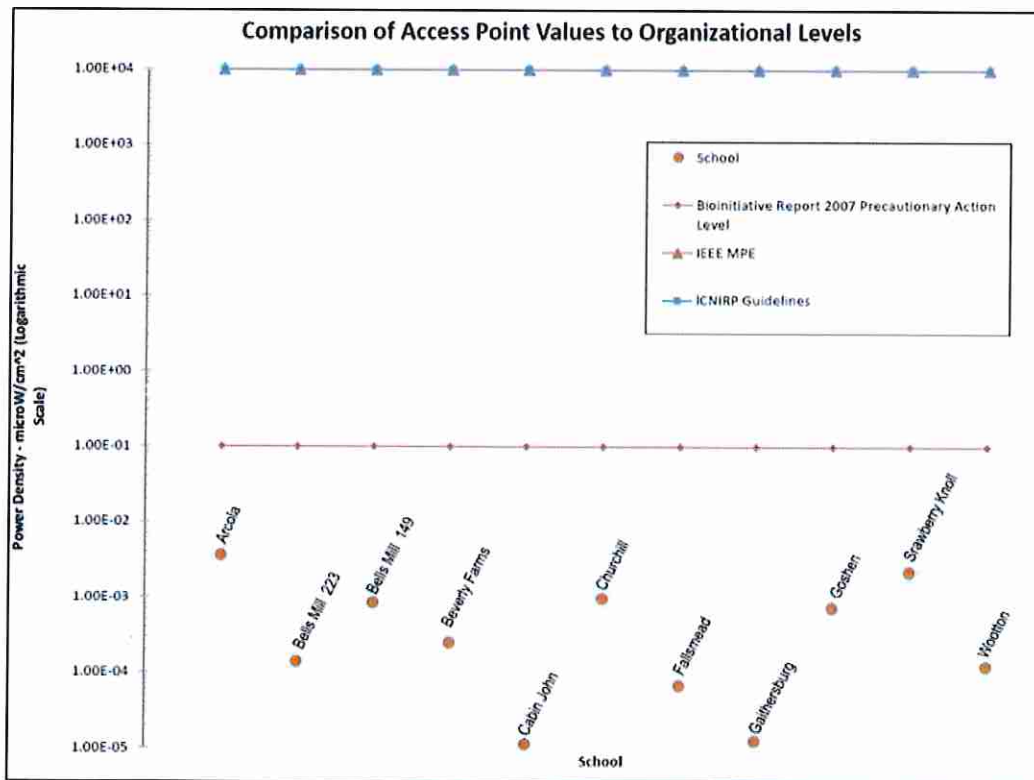
Despite the weight of more than 30 years of international research confirming the safety of exposure to nonionizing RFs, staff in the Office of the Chief Technology Officer committed to study our networks. As such, we contracted with the same engineering firm that the Los Angeles Unified School District used to conduct a similar independent study by qualified professionals, using the appropriate class instruments at the following 11 MCPS schools; the number in parenthesis following the school name indicates the number of access points deployed at the school: Winston Churchill High School (104), Gaithersburg High School (130), Thomas S. Wootton High School (84), Cabin John Middle School (46), Arcola Elementary School (57), Bells Mill Elementary School (36), Beverly Farms Elementary School (33), Goshen Elementary School (34), Little Bennett Elementary School (47), Strawberry Knoll Elementary School (35), and Wilson Wims Elementary School (52). These schools were selected because they are representative of the diverse communities in Montgomery County as well as the number of access points deployed.

The monitoring was conducted using the Narda Selective Radiation Meter Model 3006 (SRM-3006). The SRM-3006 was used to perform narrowband spectral analysis of application and individual classroom RF transmissions associated with the use of Chromebooks and access points across designated frequencies of 2 to 5 gigahertz. Measurements were taken for both Chromebooks

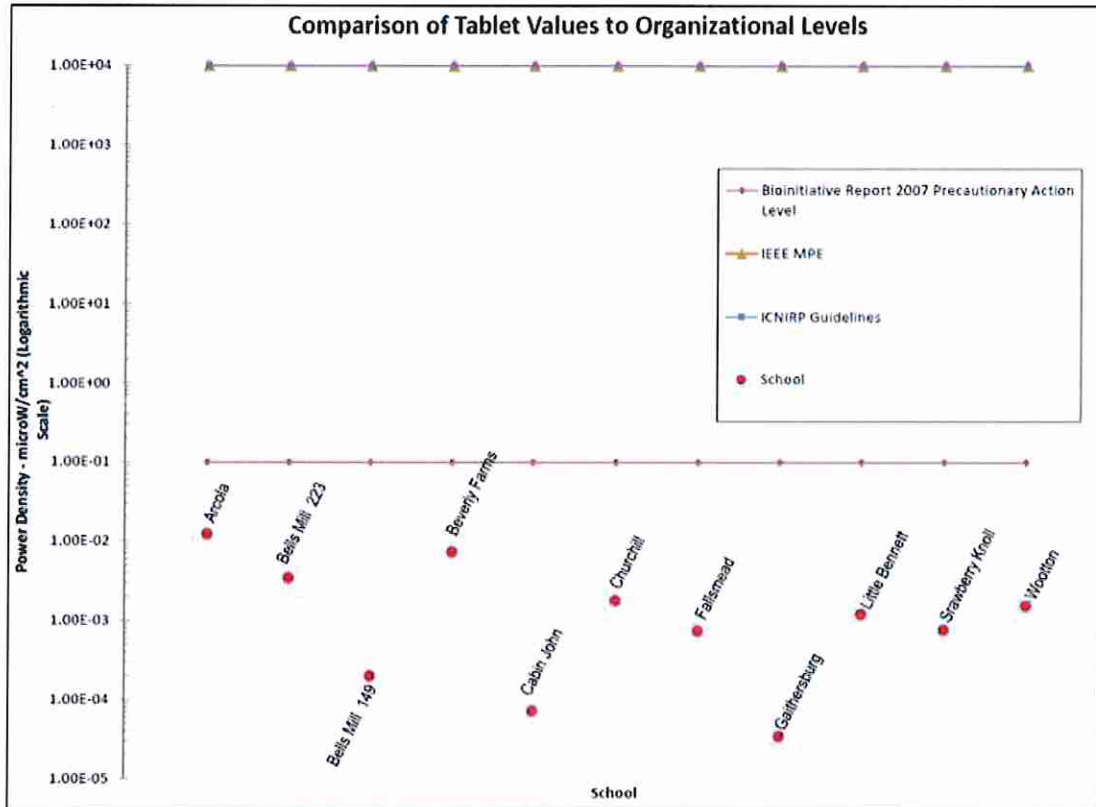
and access points at distances of one inch, one foot, two feet, and, if noticeable levels were present, three feet. The maximum value was recorded as well as both the instantaneous values and time-averaged values. Classroom measurements were taken predominantly at the user’s interface (desk level). Results of the RF monitoring study determined all of the average power density results were well below the Federal Communications Commission (FCC), Institute of Electrical and Electronics Engineers (IEEE), and International Commission on Non-Ionizing Radiation Protection (ICNIRP) level of 10,000 microwatts per centimeter squared ($\mu\text{W}/\text{cm}^2$) for time-averaged, whole-body exposure. All values also were below the BioInitiative Report 2007 precautionary level of $0.1 \mu\text{W}/\text{cm}^2$. This is the very level the Safe Tech for Schools Maryland group has used to argue is safe for human exposure.

To ensure that the tests reflected the reality of daily classroom use, all the measured field strengths were collected while students were actively using their Chromebook devices. Based upon the results of this study, AECOM predicts that similar results below the FCC, ICNIRP, IEEE, and BioInitiative Report 2007 recommended levels would be expected in all classroom settings using similar equipment and Wi-Fi configurations. The only regulatory agency in the United States for RF exposure is the FCC, which has adopted the IEEE Maximum Permissible Exposure standard referenced above. All MCPS RF exposures from access point devices are well below the FCC regulatory limit.

The following chart compares the RF emissions of access points to values suggested by various organizations including the BioInitiative Report 2007.



The following chart compares the RF emissions of Chromebooks to values suggested by various organizations including the BioInitiative Report 2007.



It is important to note that the measured readings at our schools are not only lower than standards sanctioned by government and health agencies and championed by the advocates opposed to Wi-Fi, but also validate that we are making important shifts in our learning spaces in a safe manner. It is equally important to point out the fact that the energy from a Wi-Fi access point is 100,000 times less than the radiation of a microwave and slightly above the RFs. We are confident that we are not subjecting our students and staff to harmful radiation from industrial strength routers as has been erroneously asserted. The independent, professionally completed testing confirms this information. We will make this study available on our website so that interested parents and community members may review this information.

If you have additional questions, please contact Dr. Andrew M. Zuckerman, chief operating officer, at 301-279-3627 or Mr. Sherwin A. Collette, chief technology officer, at 301-279-3581.

LAB:AMZ:SAC:sjk

Attachment

Copy to:

- | | |
|---------------|--------------|
| Dr. Navarro | Mr. Collette |
| Dr. Statham | Mr. Edwards |
| Dr. Zuckerman | Mr. Ikheloa |
| Mr. Civin | |