RADIOFREQUENCY (RF) MONITORING SUMMARY REPORT

MCPS

Conclusions

Based on the data collected in this study and the analysis of the data, AECOM makes the following conclusions:

- All of the average power density results were several orders of magnitude below FCC regulatory limits. Note that measurements and regulatory limits were for six-minute time-averaged, whole body exposure.
- Average power density results were also below recommended levels from non-regulatory agencies, including the IEEE, the ICNIRP, and the Bioinitiative Report 2007.
- The values measured in this assessment were collected while students were actively using their Chromebooks.
  - Thus, values measured represent actual and expected RF exposure during Chromebook usage.
  - Because students are not expected to be using their Chromebooks continually during the day, actual RF exposure for any given day is expected to be similar or less than the measured values.
- Given the wide variety of scenarios evaluated and that the results were all several orders of magnitude below the regulatory limit, similar results would be expected in other MCPS schools and classrooms containing the same equipment evaluated.

Schools Monitored

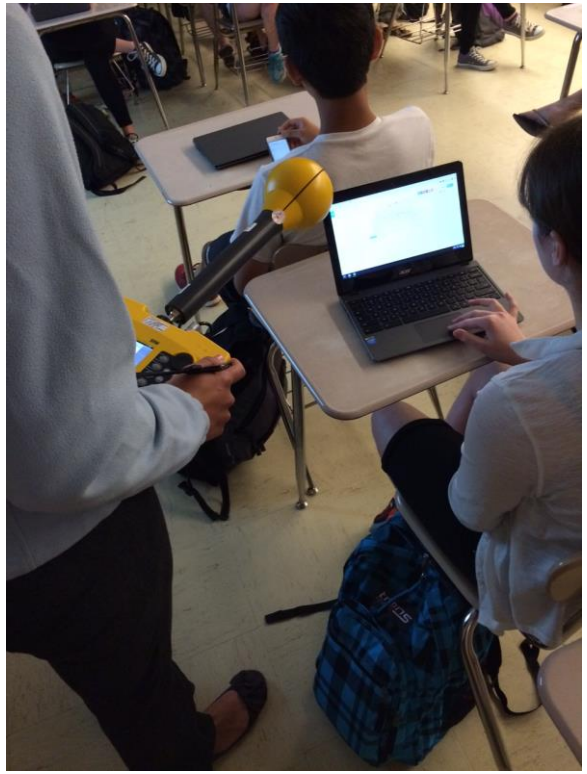
All the measured field strengths were collected while students were actively using their Chromebook devices.

AECOM personnel were specifically requested to collect data on the charging station as part of this study.

School	Access Point	ChromeBook	Charging Station
Gaithersburg High School	X	X	
Wootton High School	X	X	
Carbin John Middle School	X	X	
Churchill High School	X	X	
Bells Mill Elementary School	X	X	
Beverly Farms Elementary School	X	X	
Fallsmead Elementary School	X	X	
Little Bennett Elementary School		X	
Wilson Wims Elementary School			X
Arcola Elementary School	X	X	
Goshen Elementary School	X		
Strawberry Knoll Elementary School	X	X	

Equipment Used

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 (APs) across designated frequencies of 2 to 5 gigahertz (GHz).

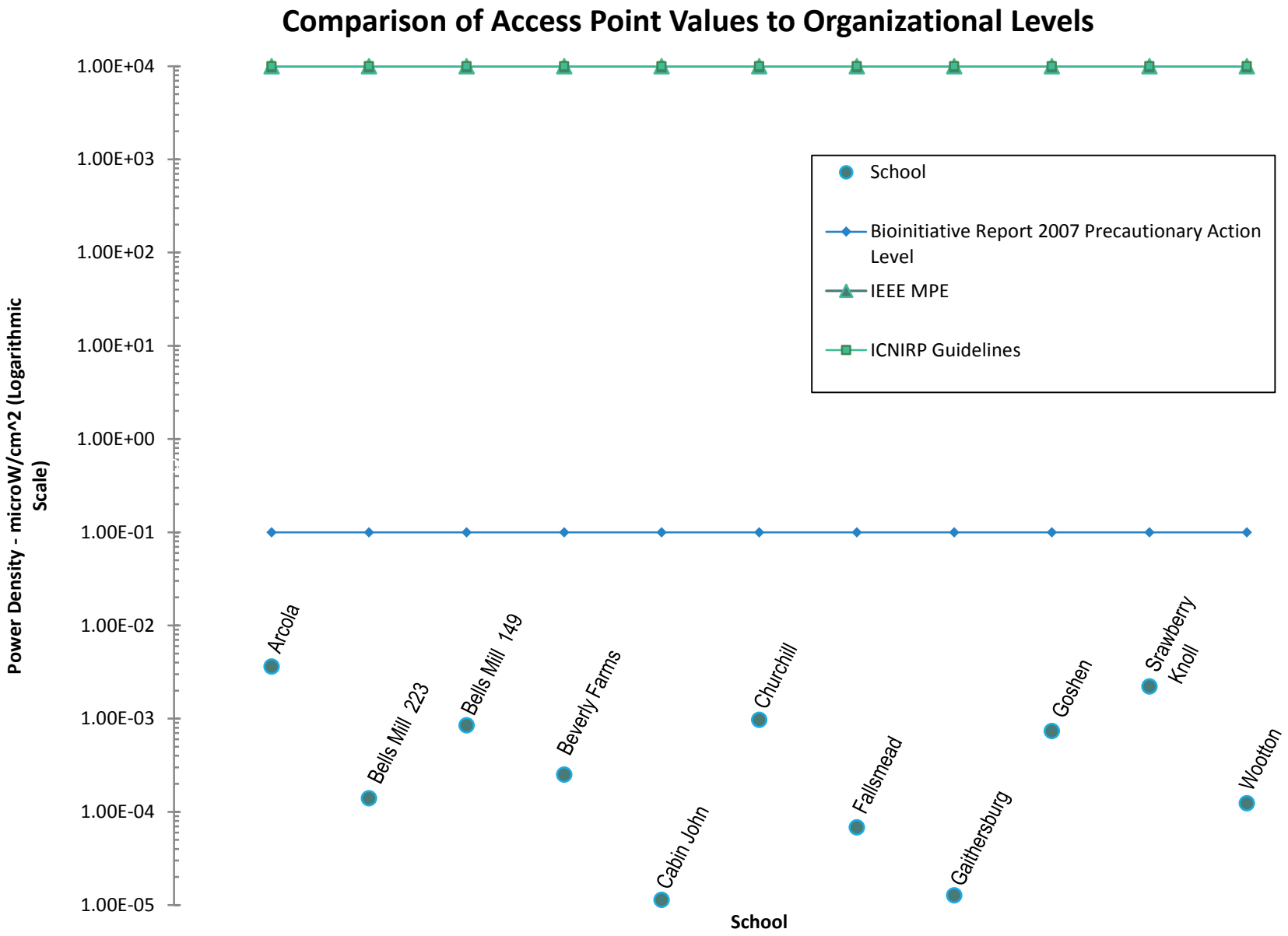


Monitoring Protocol

Monitoring was conducted while Chromebooks and access points were in use. Data were collected for six minutes while students were actively engaged in using their Chromebook devices. Monitoring involved approximately 550 millisecond sweeps, resulting in approximately 650 data sets being collected within the 6-minute monitoring time. Data were collected in 6-minute increments at set distances from the APs and Chromebook devices.

Access Point Results

All measured values for APs are under the Institute of Electrical and Electronics Engineers (IEEE) Maximum Permissible Exposure (MPE) limit, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines, and the Bioinitiative Report 2007 precautionary action level. Note that the only regulatory agency in the United States for RF exposure is the FCC, which has adopted the IEEE MPE standard. All MCPS RF exposures from AP devices are well below the FCC regulatory limit.


Comparison of Access Point Values to Organizational Levels
Power Density - microW/cm^2 (Logarithmic Scale)
1.00E+04
1.00E+03
1.00E+02
1.00E+01
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
School
Bioinitiative Report 2007 Precautionary Action Level
IEEE MPE
ICNIRP Guidelines
Arcola
Bells Mill 223
Bells Mill 149
Beverly Farms
Cabin John
Churchill
Fallsmead
Gaithersburg
Goshen
Strawberry Knoll
Wootton
School

Chromebook Results

All values measured for Chromebooks are under the IEEE MPE limit, the ICNIRP guidelines, and the Bioinitiative Report 2007 precautionary action level. Note that the only regulatory agency in the United States for RF exposure is the FCC, which has adopted the IEEE MPE standard. All MCPS RF exposures from Chromebooks are well below the FCC regulatory limit.

Comparison of Tablet Values to Organizational Levels