



M E M O R A N D U M

DATE: November 18, 2014

FROM: Jeffrey Leavey, CHP – Radiation Safety Officer

TO: John Duncan
 Joel Weidner
 Diane Andrews

SUBJECT: Radiofrequency Testing in Room 112 Atherton Hall Residence

Introduction

On October 28 Joel Weidner reported receiving a phone call from the parent of a student living in Atherton 112 with a concern about possible health effects from a WiFi access point that was located in the student’s room. The question was referred to Environmental Health and Safety for follow up. Two visits to the dorm room to gather information and data relating to the access point device and to take radiofrequency measurements.

WiFi Access Point Evaluation

The first visit (Jeff Leavey and John Duncan) was to obtain information about the access point and to determine the modes of potential exposure to the student from the device. It was observed that the student had an elevated bed that placed the access point approximately 18 inches above the bed surface. Information about the device was found to be Aruba Networks, Inc., Model AP-115 (FCC Model APIN0115), and Serial CJ0128455. This access point is a dual band unit using the 2.4 GHz and 5 GHz radio bands.

A search of the Federal Communications Commission (FCC) database of test data for this particular model found that radio emission testing was performed and the minimum safe distance from the device was determined by the testing company to be 20 cm (8 inches). This distance is also stated in the device owner’s manual.

The second visit (Jeff Leavey, John Duncan, and Yuanqing Guo) obtained measurements of the emitted power to confirm the manufacturer’s data submitted to the FCC and to ensure that this access point was performing as expected. Measurements were made on contact with the device, at 8 inches, and at 18 inches. The FCC exposure limits for the General/Uncontrolled Population for both 2.4 GHz and 5 GHz frequencies is 1 milliwatt/square centimeter (1 mW/cm²) or 10,000,000 microwatt/square meter (10⁷ μW/m²).

Measurements were made on November 17, 2014 with a Model AM-10 RF Meter Serial 2109 manufactured by EMFields, Inc. and provided by Magnetic Sciences, Inc. The peak average power readings were $930 \mu\text{W}/\text{m}^2$ on contact with the device, $110 \mu\text{W}/\text{m}^2$ at 8 inches from the device, and $70 \mu\text{W}/\text{m}^2$ at 18 inches from the device. The measurements confirm that the access point is functioning as expected with regards to emitted power and is a factor of approximately 10,000 below health and safety standards established by the FCC.

Conclusions

Based on the measurements obtained, there is no health and safety exposure concern with regard to this WiFi access point and the location of the student's bed. In this room, however, the orientation of the furniture makes it possible to approach closer than the manufacturer's recommended distance.

My recommendation for follow up action is: in this room, and if this issue is present in other student rooms, there should be a method to ensure students maintain the manufacturer's recommended distance from radio devices. I am available to discuss, review, or provide suggestions for meeting this recommendation if you wish.

Please share this report as necessary and feel free to contact me (JAL.62@psu.edu) if there are any questions.

cc: Kendra Wagner – Atherton Hall file
Ed Dobo
Maurine Claver
Yuanqing Guo