

**RADIOFREQUENCY ELECTROMAGNETIC FIELD
MEASUREMENTS REPORT FOR W252CV
ATOP FLOYD CRAVENS LIBRARY BUILDING
ON THE CAMPUS OF
WESTERN KENTUCKY UNIVERSITY
BOWLING GREEN, KY**

AUGUST 27, 2014

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W252CV

RFR COMPLIANCE STATEMENT

AUGUST 2014

The rooftop of the Raymond Cravens Library has two existing cellular systems. AT&T and Sprint have antennas mounted near the outer walls and on the penthouse walls. A prior Dtech Communications Radiofrequency Exposure Study in November of 2013 documents the FCC's general population Maximum Permissible Exposure of less than 5% over 90% of the roof. An additional area where 6 antennas were located but since 4 have been relocated was 22% of the maximum and another area was less than 7% of the max. AT&T has installed the yellow RF Radiation Caution signs on one of their antenna frames.

The addition of the W252CV transmitter along with the W276BT transmitter on the Cravens Library have increased the Maximum Permissible Exposure level for the general population to less than 15% over most of the roof above the top floor. Two small areas of this roof have elevated levels but still less than 45% of the maximum exposure level for the general population.

Additional measurements taken with the Narda 8718B radiation survey meter on the top floor of the Cravens Library accessible by students were less than 1% of the FCC's general population MPE.

Measurements recorded in and on top of adjacent buildings were below 5% of the MPE.

When someone opens the access door to the penthouse roof of the Cravens Library, they are climbing into the aperture of the antenna. Signs have need to be posted on or near the penthouse roof ladder warning anyone getting onto the penthouse roof of exposure levels exceeding the maximum permissible level for human exposure. Radio station personnel indicated they would have the signage installed and would turn the transmitters off if anyone is working on the penthouse roof.

ENGINEERING STATEMENT OF FRED DALE HOWARD

W252CV licensed to Bowling Green, KY is constructed as a translator for WPTQ (FM) located in Glasgow, KY. It is co-located with W276BT also licensed to Bowling Green, KY. Both transmitters are combined into a Bext TFC-2K circularly polarized antenna spaced $\frac{1}{2}$ wavelength. Both facilities operate with an ERP of 250 watts each. The antenna center of radiation is 6.4 meters above the roof of the top floor of the Raymond Cravens Library on the campus of Western Kentucky University and approximately 3 meters above the penthouse roof of the library.

A Narda Model 8718B-10, serial number 0980, radiation survey meter configured to log a series of spatially-averaged data points and a Narda 8722 shaped E field probe were used to take power density measurements on August 27, 2014. The measurements were performed on the roof of the top floor of the Cravens Library, the top floor of the Cravens Library, the top floor and near roof area of the Ivan Wilson Fine Arts Center, roof of the Music Rehearsal Hall, and sidewalks around these structures. Access to the Cravens Library top floor roof and penthouse roof is controlled by a keypad lock on the entrance door of the stairwell to them. Access to the Fine Arts Center is limited through a janitor's closet while the Music Rehearsal Hall's roof is level with the sidewalks around it. The penthouse roof access of the Cravens Library places one in the aperture of the FM antenna and wasn't measured. The roof of the Margie Helm Library is inaccessible without the use of a tall ladder and wasn't measured. Exhibit 1 is an aerial view from Google Earth of the aforementioned buildings.

The roof of the top floor of the Cravens Library also has a 3 sector AT&T cellular antenna system along with a 3 sector Sprint cellular antenna system. The AT&T system operates in the 800 MHz band with LTE in the 700 MHz band. Sprint was operating in the 1.8 GHz band. These frequencies were noted using a Rohde & Schwarz ZVL-13 Network Analyzer with a spectrum analyzer option. Dtech Communications prepared a Radio Frequency Electromagnetic Fields Exposure Report for AT&T in November of 2013. In it they show a typical exposure level of less than 5% of the FCC General Population MPE (Maximum Permissible Exposure) over most of the roof. One small area in front of 6 closely spaced antennas shows a max of 22%.

Method of Measurement – The survey meter was connected to a shaped E-Field probe and set to read spatial average values. Measurements were taken during the late afternoon when cellular traffic would be increased. Both cellular systems are presumed to be operating normally and both FM translators were operating at their licensed ERP. Measurements were taken near the outer wall, midway between the outer wall and the penthouse wall, and near the penthouse wall on the roof of the top floor of the Cravens Library. The results of these measurements are presented in attached Exhibit 2. This

drawing made in 2012 was provided by the University and represents the cellular equipment layout of the Cravens Library roof above the top floor. The only change is that T Mobile isn't a current tenant. The Maximum Permissible Exposure level to the general population is less than 45% of the FCC's requirements in two small areas shaded in red. The color yellow represents less than 20% and blue indicates less than 8% of the MPE level for the general population.

Measurements were recorded on the top floor of the Cravens Library where students have access. The radiation survey meter and probe took measurements along the outer wall near the windows around the entire room. Readings on this floor were less than 1% of the FCC General Population MPE even near the windows.

On the top floor and the near roof area of the Ivan Wilson Fine Arts Center which is the tallest structure near the Cravens Library, measurements taken were less than 5% of the General Population MPE requirements.

In front of the Fine Arts Center, on the Music Rehearsal Hall roof, and adjoining sidewalks, all readings were still below 5% of the maximum permissible level.

The Margie Helm Library has 2 stories above ground level. Although the roof wasn't accessible, readings would be expected to be below 5% of the maximum level when you consider the readings made at the taller Fine Arts Center.

Cavell, Mertz & Associates

WILSON FINE
ARTS CENTER

MARGIE HELM
LIBRARY

MUSIC REHEARSAL
HALL

RAYMOND
CRAVENS
LIBRARY

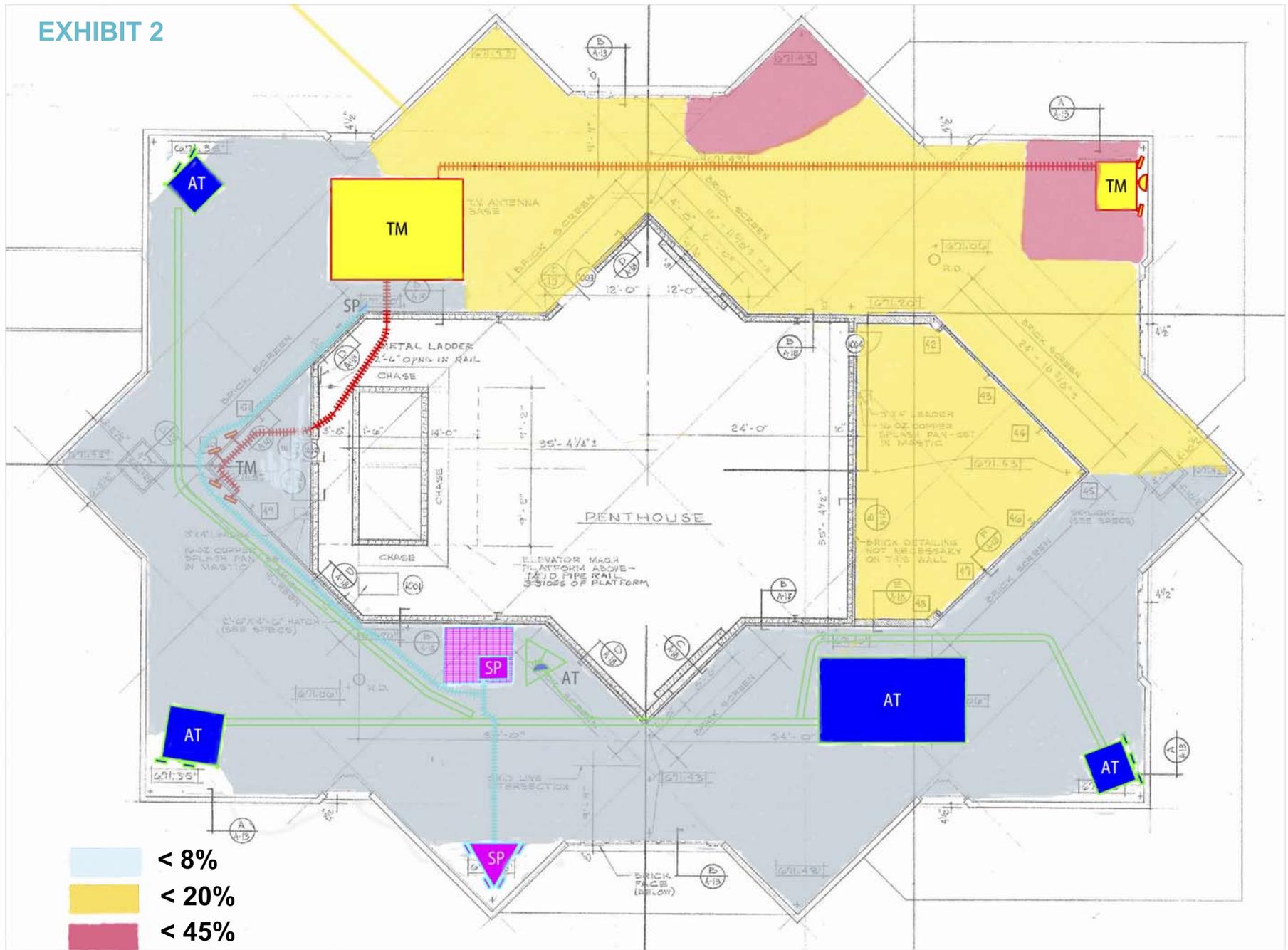
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Google earth

1993

36°59'08.65" N 86°27'08.85" W elev 682 ft eye alt 1509 ft

EXHIBIT 2



CERTIFICATION

I, Fred Dale Howard, do hereby certify:

That my qualifications in telecommunications matters are of record before the Federal Communications Commission, having been presented and accepted upon many occasions in the past:

That I am a consultant with offices at Old Hickory, Tennessee, specializing in the Broadcast Field and its associated topics:

That I have been retained by the applicant for the purpose of preparing the accompanying report and associated figures: that these materials were prepared by me personally or under my supervision and that I am familiar with their contents: and that all information presented therein is true and correct of my own knowledge and belief.

ISI 

Fred Dale Howard

August 28, 2014