

Statesville, North Carolina
Application for Modified Facilities for FM Translator W264CU
On Channel 264
by
Conner Media Corporation

Exhibit 17
Nonionizing Radio Frequency Radiation Analysis

August 2014

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Timothy L. Warner, Inc.
Post Office Box 8045
Asheville, North Carolina 28814-8045
(828) 258-1238
twarner@tlwinc.net

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Declaration

I declare, under penalty of perjury, that I am a technical consultant to broadcasting and other communications systems, that I have over twenty-five years of experience in the engineering of broadcast and other communications systems, that I am familiar with the Federal Communications Commission's Rules found in the Code of Federal Regulations Title 47, that I am a Professional Engineer registered in North Carolina, that I have prepared or supervised the preparation of the attached Exhibit 17, Nonionizing Radio Frequency Radiation Analysis, for Conner Media Corporation, and that all of the facts therein, except for facts of which the Federal Communications Commission may take official notice, are true to the best of my knowledge and belief.



Timothy L. Warner, P.E.
Post Office Box 8045
Asheville, North Carolina 28801
(828) 258-1238
twarner@tlwinc.net
7 August 2014

Narrative

This Exhibit supports an application for modified facilities for FM translator W264CU, Statesville, North Carolina. The application proposes fill-in service with AM station WSIC (AM), Statesville, North Carolina. The application is for a tower also shared with WHWD-LD television.

This Exhibit shows that the proposed operation is in compliance with nonionizing radiation regulations.

Radio Frequency Radiation Evaluation

The proposed W264CU facilities, when evaluated under worst case methods in OET-65¹, will create 0.002 mW/cm² two meters above ground level. The worst case power density is 1 % of the maximum permitted 0.20 mW/cm² for general population/uncontrolled exposure. This level is de minimis, and less than the threshold of responsibility for nonionizing electromagnetic radiofrequency radiation.

A one bay SWR FMEC/1 antenna is proposed which reduces the power density at ground level.

LPTV Facility

The tower is also used by WHWD-LD, operating at 15 kilowatts ERP and a radiation center 81 meters above ground level on channel 48, 674-680 MHz. WHWD-LD also has an

¹Cleveland, Robert F., Jr., Sylvar, David M., and Ulcek, Jerry L., *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*, OET Bulletin 65, Edition 97-01.

application, BDFCDTT-20060331AVP, to operate on Channel 21, 512-518 MHz, with an ERP of 2 kilowatts at the same center of radiation.

The WHWD-LD licensed facilities, when evaluated under generalized worst case methods in OET-65² (including a vertical pattern of 1.0, or 100% power directly below the antenna), will create 0.08 mW/cm² two meters above ground level. At the upper frequency of channel 48, the general population/uncontrolled exposure limit is 0.45 mW/cm². The worst case power density is less than 18% of the general population/uncontrolled exposure limit.

The WHWD-LD application facilities, when evaluated under worst case methods in OET-65³ (including a vertical pattern of 1.0, or 100% power directly below the antenna), will create 0.011 mW/cm² two meters above ground level. At the upper frequency of channel 21, the general population/uncontrolled exposure limit is 0.35 mW/cm². The worst case power density is less than 4% of the general population/uncontrolled exposure limit.

AM Evaluation

The proposed tower is used for Class C AM station WSIC (AM). In its license renewal application, BR-20110729AJ0, it provided a comprehensive RFR evaluation based on the WSIC (AM) and low power television facilities at that time. The RFR exhibit is attached. The AM electrical field was calculated at 90 Volts per meter, which is 14.65% of the maximum permitted exposure. The AM magnetic field was calculated at 0.051 Amperes per meter, which is 3.13% of the maximum permitted exposure.

²Cleveland, Robert F., Jr., Sylvar, David M., and Ulcek, Jerry L., *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*, OET Bulletin 65, Edition 97-01.

³Cleveland, Robert F., Jr., Sylvar, David M., and Ulcek, Jerry L., *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*, OET Bulletin 65, Edition 97-01.

Summary

The sum of the worst case exposures is permissible, as tabulated here:

Facility	% MPE
W264CU	1
WHWD-LD	18
WSIC (AM)	15
Total	34

IREDELL BROADCASTING, INC.
WSIC, STATESVILLE, NORTH CAROLINA

DECLARATION

I declare, under penalty of perjury, that I prepared the attached RFR exhibit, and that the information contained therein is true to the best of my knowledge and belief.

Executed on July 29, 2011.

A handwritten signature in black ink, reading "William A. Culpepper". The signature is written in a cursive style with a long, sweeping underline.

William A. Culpepper, P.E.

900 Jefferson Drive
Charlotte, NC 28270
704-365-9995
wculpepper@att.net

IREDELL BROADCASTING, INC.

WSIC

STATESVILLE, NORTH CAROLINA

RFR STUDY

WSIC operates on 1400 kilohertz with one kilowatt and a 154.8 degree tower.

The tower supports the antenna for WHWD-LP which has a License for 9.0 kilowatts on channel 21, an Application for 2.0 kilowatts on channel 21 and a Construction Permit for 15.0 kilowatts on channel 48. All three have an antenna with a radiation center 81 meters AGL (79 meters Above Head Level).

Using the method outlined in the final paragraph of page 35 of OET-65, it will be shown that the sum of the contributions of the AM and any one of the televisions will be substantially less than the Maximum Permissible Exposure (MPE).

AM

The tower has a protective fence with a minimum distance to the tower of 3.5 meters. The electric and magnetic fields of WSIC have been calculated at the fence using the graph of Figure 3 in Supplement A of FCC OET-65. The graph is attached, and it can be seen that at 3.5 meters from the tower the Electric Field is 90 Volts per Meter. This is 14.65 percent of the MPE of 614 V/m. Also, as shown on the graph, the Magnetic Field at the fence is 0.051 Amperes per Meter, or 3.13 percent of the MPE of 1.63 A/m.

LPTV

The RF Power Density two meters Above Ground Level at the fence has been calculated for the parameters of the LPTV station as Licensed, as Authorized and as Applied for, using the equations in Section 3 of Supplement A of OET-65. Values are for Uncontrolled areas:

License ch 21, 9.0 kW - Power Density is $24 \mu\text{W}/\text{cm}^2$ which is 7.0% of MPE

CP ch 48, 15.0 kW - Power Density is $40 \mu\text{W}/\text{cm}^2$ which is 8.9 % of MPE

Application ch 21, 2 kW - Power Density is $5.35 \mu\text{W}/\text{cm}^2$ which is 1.56% of MPE

These television computations are very conservative as a value of 1.0 has been used for the vertical antenna field, and they would realistically be between 0.1 and 0.2 (see footnote on page 29 of Supplement A of OET-65).

COMBINING AM AND TELEVISION CONTRIBUTIONS

As permitted in the final paragraph of page 35 of OET-65, the Percentages of the MPE values of the AM (Electric Field) and the largest TV contribution (CP) have been added for combined AM and Television contributions as follows:

WSIC-AM Electric Field	14.65 percent of MPE
WHWD-LP CP	<u>8.90 percent of MPE</u>
total	23.55 percent of MPE

CONCLUSION

This study conclusively demonstrates that the combined RFR levels of WSIC (AM) and WHWD-LP are substantially less than the MPE for Uncontrolled Areas at the tower fence. The RFR level of the AM and the LPTV (as calculated with a vertical field of 1.0) decrease at points beyond the fence.

WSIC STATESVILLE, NC AM RFR ANALYSIS

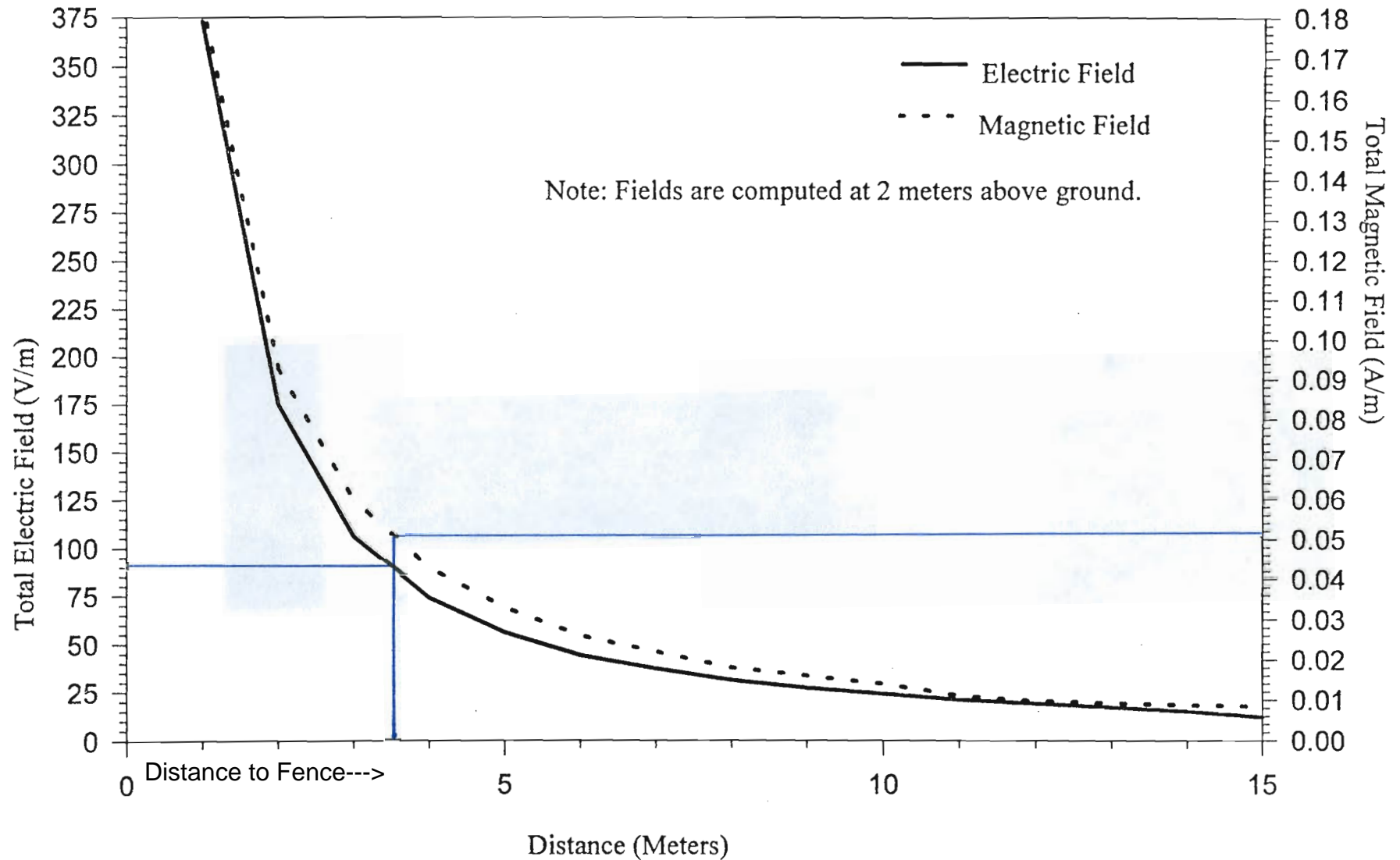


Figure 3. MININEC AM Model for 1 kW, 0.5 Wavelength Tower