

BNPFT-20030317FKZ

Oshkosh, Wisconsin

Application for New FM Translator

On Channel 239

by

Sister Grace, Inc.

Exhibit 17

Nonionizing Electromagnetic Radiofrequency Radiation Analysis

August 2018

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## Table of Contents

Description	Page
Declaration .....	2
Narrative .....	3
Summary .....	4
Figure 1: Nicom BKG77 3 Bay Vertical Pattern .....	5
Figure 2: FM Model Output.....	6

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 Electromagnetic Radiofrequency Radiation Analysis, for Sister Grace, Inc., 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.



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8 August 2018

### Narrative

This Exhibit supports an application for a new FM translator, file number BNPFT-20030317FKZ, Oshkosh, Wisconsin. The application proposes fill-in service with AM station WJOK, Kaukauna, Wisconsin.

This Exhibit shows that the proposed operation is in compliance with nonionizing electromagnetic radiation regulations. The proposed antenna radiation center is 39 meters (128 feet) above ground level.

### Radio Frequency Radiation Evaluation

The proposed BNPFT-20030317FKZ facilities, when evaluated under worst case methods in OET-65<sup>1</sup>, will create 0.012 mW/cm<sup>2</sup> two meters above ground level. That power density is in compliance with the public/uncontrolled limits at 6.1 % of the limit.

A Nicom BKG77 3 bay antenna is proposed which reduces the power density at ground level.

The antenna elevation pattern is provided as Figure 1.

The site was also evaluated using FM Model<sup>2</sup>, a program available on the FCC web site. That program evaluates near field effects, using data measured by the EPA. The current version includes more detailed calculations in areas near the antenna than prior versions. The antenna is an EPA Type 2: Opposed V Dipole antenna. The output of FM Model is provided

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<sup>1</sup>Cleveland, 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.

<sup>2</sup> See <https://www.fcc.gov/general/fm-model>.

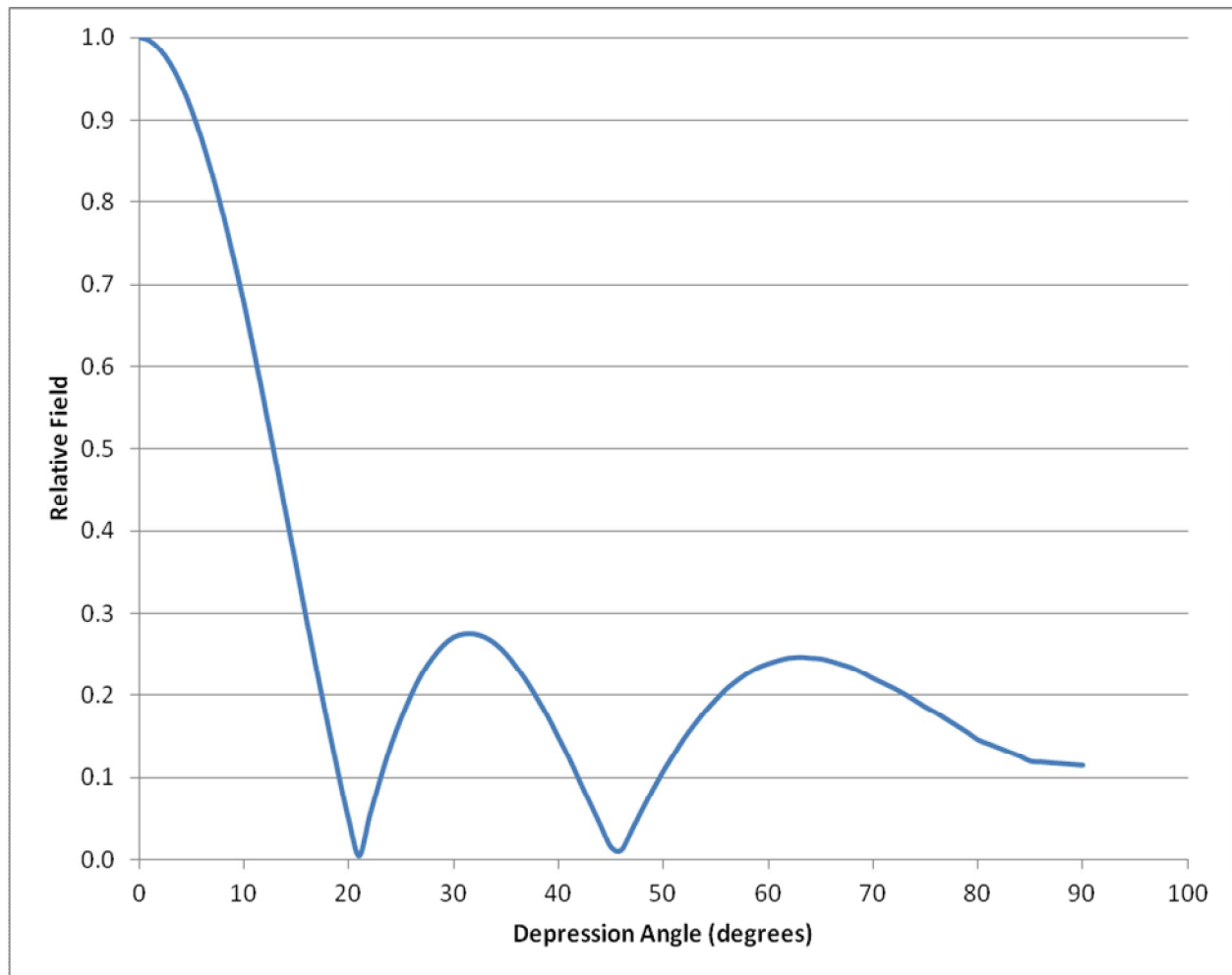
as Figure 2. FM Model calculates a maximum power density of  $3.75 \mu\text{W}/\text{cm}^2$  ( $0.00375 \text{ mW}/\text{cm}^2$ ) which is 1.875% of the general population/uncontrolled limit.

### Summary

Under worst case assumptions, the proposed BNPFT-20030317FKZ power density is 6.1% of the general population/uncontrolled exposure at 2 meters above ground at the base of the tower, well under the general population /uncontrolled exposure limit. Using FM Model, the level is less than 2% of the general population/uncontrolled exposure limit.

Section 1.1307(b)(3) excludes environmental processing of applications when the calculated level is predicted to be less than 5.0% of the applicable exposure limit.

This facility is categorically exempt from routine environmental evaluation, as defined in 47 C.F.R. Section 1.1307.

**Figure 1: Nicom BKG77 3 Bay Vertical Pattern**

**Figure 2: FM Model Output**