

ENGINEERING STATEMENT

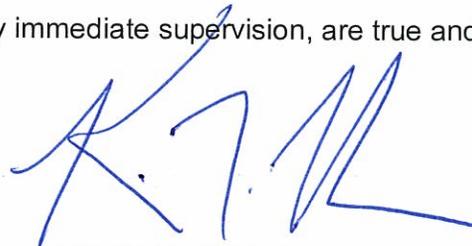
The engineering data contained herein have been prepared on behalf of TRI-STATE CHRISTIAN TV, INC., licensee of television translator W27CN, Channel 27 in Lansing, Michigan, in support of this application for modification of Construction Permit BDFCDTT-20060331BFH, which authorizes digital flashcut operation on Channel 27 from the licensed W27CN site. The purpose of this modification is to reduce the effective radiated power from 15.0 kw to 8.5 kw and correct site information based on an undated Antenna Structure Registration record. No change in antenna height above ground or antenna model/orientation is proposed herein.

It is proposed to utilize the existing W27Cn Andrew directional antenna, which is mounted at the 104-meter level of an existing 122-meter communications tower. Exhibit B is a map upon which the revised service contours are plotted. It is important to note that the newly proposed 51 dBu contour still encompasses a significant portion of the Grade A contour that obtains from the licensed analog W27CN facility. Operating parameters for the proposed facility are tabulated in Exhibit C. An interference study is provided in Exhibit D, and a power density calculation follows as Exhibit E.

Because no change in the overall height or location of the existing tower is proposed, the FAA has not been notified of this application. The FCC issued Antenna Structure Registration Number 1211449 to this tower.

EXHIBIT A

I declare under penalty of perjury that the foregoing statements and the attached exhibits, which were prepared by me or under my immediate supervision, are true and correct to the best of my knowledge and belief.

A handwritten signature in blue ink, appearing to read 'K. T. Fisher', is written over the text of the declaration.

KEVIN T. FISHER

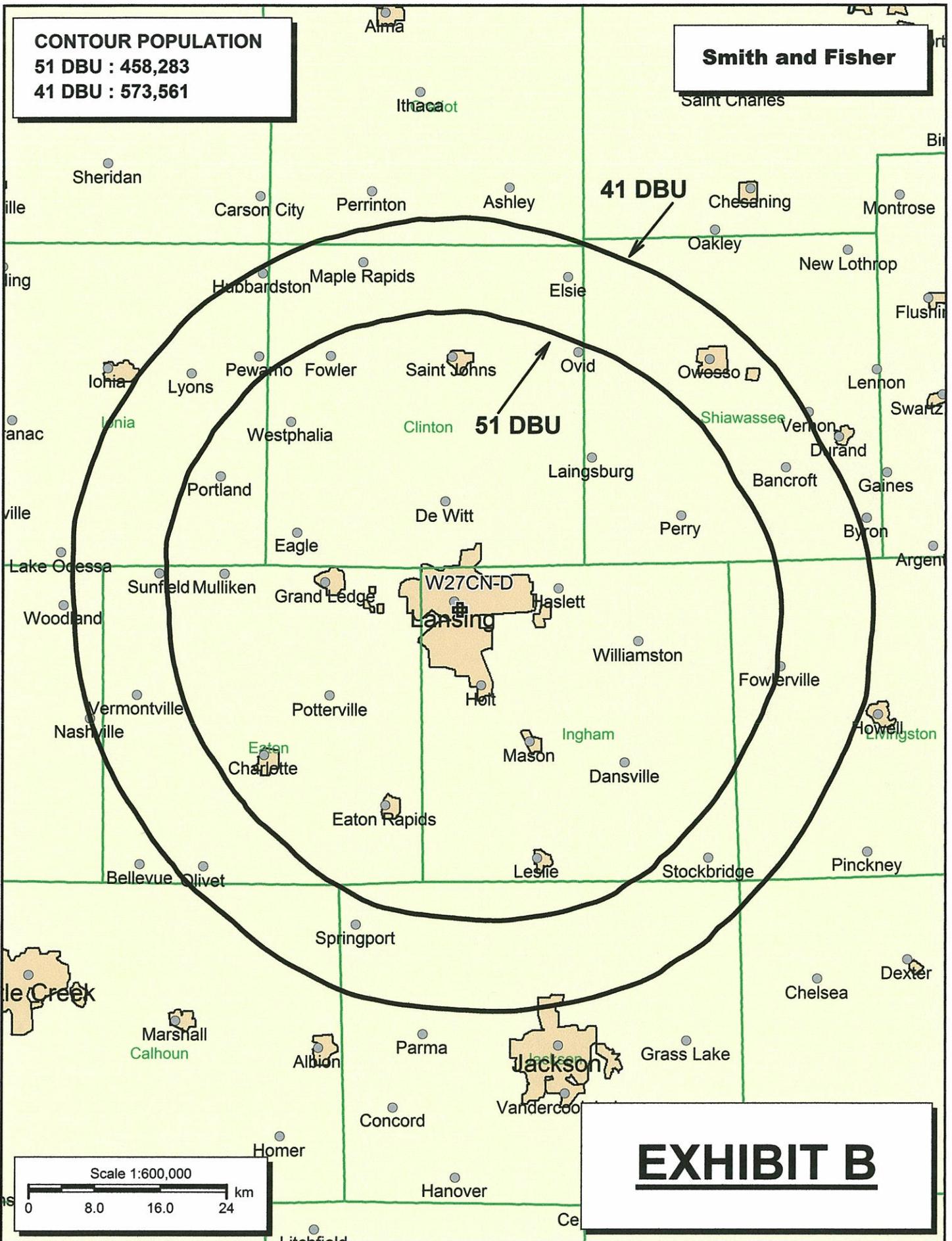
June 17, 2009

**CONTOUR POPULATION**

**51 DBU : 458,283**

**41 DBU : 573,561**

**Smith and Fisher**



PROPOSED OPERATING PARAMETERS

PROPOSED W27CN-D  
CHANNEL 27 – LANSING, MICHIGAN  
[MODIFICATION OF BDFCDTT-20060331BFH]

Transmitter Power Output:	1.0 kw
Transmission Line Efficiency:	60.7%
Antenna Power Gain – Toward Horizon:	14.06
Antenna Power Gain – Main Lobe:	14.06
Effective Radiated Power – Toward Horizon:	8.5 kw
Effective Radiated Power – Main Lobe:	8.5 kw
Transmitter Make and Model:	Type-accepted
Rated Output	1.0 kw
Transmission Line Make and Model:	Andrew LDF7-50A
Size and Type:	1-5/8" foam heliax
Length:	375 feet
Antenna Make and Model:	Andrew AL8
Orientation	135 degrees true
Beam Tilt	1.75 degrees
Radiation Center Above Ground:	104 meters
Radiation Center Above Mean Sea Level:	360 meters

LONGLEY-RICE INTERFERENCE STUDIES  
PROPOSED W27CN-D  
CHANNEL 27 – LANSING, MICHIGAN  
[MODIFICATION OF BDFCDTT-20060331BFH]

We conducted detailed interference studies using the Longley-Rice methodology contained in the Commission's *OET Bulletin No. 69*, with respect to all facilities of concern. The software utilizes a 1-square kilometer cell size, calculates signal strength at 0.1 kilometer increments along each radial studied, and employs the 1990 U.S. Census to count population within cells. In addition, the program does not attribute interference to the proposed facility in cells within the protected contour of the station under study where interference from another source (other than proposed W27CN-D) already is predicted to exist (also known as "masking"). The results of these studies are provided in Exhibit D-2. They conclude that the facility proposed herein causes no significant new interference to any of the potentially affected stations.

As a result, it is believed that the proposed W27CN-D facility complies with the requirements of Sections 74.709, 74.793(e), 74.793(f), 74.793(g), 74.793(h), 74.794(b) and 73.1030 of the Commission's Rules.

INTERFERENCE SUMMARY

PROPOSED W27CN-D  
CHANNEL 27 – LANSING, MICHIGAN  
[MODIFICATION OF BDFCDTT-20060331BFH]

<u>Call Sign</u>	<u>Status</u>	<u>City, State</u>	<u>Ch.</u>	<u>Longley-Rice Service Population</u>	<u>Unmasked Interference From Proposed Facility</u>	<u>%</u>
WFUM-DT BPEDT-20080312ADF	CP	Flint, MI	28	4,223,484	8,426	0.2

POWER DENSITY CALCULATION

PROPOSED W27CN-D  
CHANNEL 27 – LANSING, MICHIGAN  
[MODIFICATION OF BDFCDTT-20060331BFH]

Since the FCC considers the possible biological effects of RF transmissions in its environmental determinations, we have studied the matter with respect to this Lansing facility. Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 8.5 kw, an antenna radiation center 104 meters above ground, and the vertical pattern of the Andrew antenna, maximum power density two meters above ground of  $0.00026 \text{ mw/cm}^2$  is calculated to occur 92 meters southeast of the base of the tower. Since this is less than 0.1 percent of the  $0.37 \text{ mw/cm}^2$  reference for uncontrolled environments (areas with public access) surrounding a facility operating on Channel 27 (548-554 MHz), this proposal may be excluded from consideration with respect to public exposure to nonionizing electromagnetic radiation.

Further, the station owner will take whatever precautionary steps are necessary, such as reducing power or leaving the air temporarily, to ensure that workers operating in the vicinity of the antenna are not exposed to excessive nonionizing radiation.