

ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of TRINITY BROADCASTING NETWORK, licensee of television translator K52ES, Channel 52 in Norfolk, Nebraska, in support of this Application for Construction Permit to specify operation on Channel 21 from the licensed K52ES site. This proposal is being submitted in response to the Commission's reclamation of Channel 52 spectrum for future auction, thereby placing this translator in a displacement situation.

It is proposed to mount a standard Andrew omnidirectional antenna at the authorized height on the side of an existing 137-meter communications tower. Exhibit B is a map upon which the predicted service contours are plotted. It is important to note that the newly proposed 74 dBu contour encompasses a significant portion of that which obtains from the licensed K52ES facility. Operating parameters for the proposed facility are tabulated in Exhibit C. A contour overlap analysis and interference study are 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 1025553 to this tower.

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.

  
KYLE T. FISHER

August 27, 2003

Osmond

**CONTOUR POPULATION**  
**GRADE A (74 DBU) : 28,841**  
**GRADE B (64 DBU) : 35,081**

**Smith and Fisher**

Foster

Pierce

Carroll

Pierce

Wayne

Winside

Hadar

Hoskins

Grove

Battle Creek

Norfolk

K52ES

Pilger

Stanton

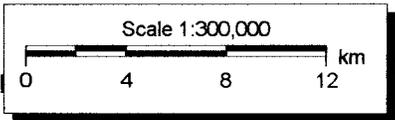
Madison

GRADE A

Stanton

Madison

GRADE B



Humphrey

Creston

**EXHIBIT B**

PROPOSED OPERATING PARAMETERS

PROPOSED K52ES  
CHANNEL 21 – NORFOLK, NEBRASKA

Transmitter Power Output:	0.1 kw
Transmission Line Efficiency:	68.0%
Antenna Power Gain – Toward Horizon:	28.2
Antenna Power Gain – Main Lobe:	28.2
Effective Radiated Power – Toward Horizon:	1.9 kw
Effective Radiated Power – Main Lobe:	1.9 kw
Transmitter Make and Model:	Type-accepted
Rated Output	0.1 kw
Transmission Line Make and Model:	Andrew HJ7-50A
Size and Type:	1-5/8" air dielectric
Length:	345 feet
Antenna Make and Model:	Andrew ALP16L2-HSOC
Orientation	Omnidirectional
Beam Tilt	0.5 degrees
Effective Height Above Ground:	98 meters
Effective Height Above Mean Sea Level:	610 meters

CONTOUR OVERLAP AND  
LONGLY-RICE INTERFERENCE STUDIES  
PROPOSED K52ES  
CHANNEL 21 – NORFOLK, NEBRASKA

We conducted a computer analysis of the interference situation for the proposed facility, the results of which are shown in Exhibit D-2. The study is based on contour protection requirements of Sections 74.705, 74.706, and 74.707 of the FCC's Rules with respect to analog full-power, digital full-power, and low power television stations, respectively. It concludes that the facility proposed herein meets these requirements except to one station: KHAS-DT, Channel 21 in Hastings, Nebraska.

We then conducted detailed interference studies using the Longley-Rice methodology contained in the Commission's *OET Bulletin No. 69*, with respect to KHAS-DT. The software utilizes a 2-square kilometer cell size (except where noted), calculates signal strength at 1.0 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 Trinity's proposed K52ES) already is predicted to exist (also known as "masking"). The results of these studies are provided in Exhibit D-3. They conclude that the facility proposed herein causes no significant new interference to KHAS-DT.

EXHIBIT D-1

As a result, a waiver of Section 74.706 of the Commission's Rules with respect to interference to KHAS-DT is requested and believed to be justified based on the aforementioned Longley-Rice study.



## INTERFERENCE SUMMARY

PROPOSED K52ES  
CHANNEL 21 – NORFOLK, NEBRASKA

<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>
KHAS-DT BMPCDT-20020221AAT	CPM	Hastings, NE	21	195,797	11	<0.1
KHAS-DT BDSTA-20021122ACG	STA	Hastings, NE	21	99,763	0	0

POWER DENSITY CALCULATION  
PROPOSED K52ES  
CHANNEL 21 – NORFOLK, NEBRASKA

Since the FCC considers the possible biological effects of RF transmissions in its environmental determinations, we have studied the matter with respect to this Norfolk facility. Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 1.9 kw, an effective antenna height of 98 meters above ground, and the vertical pattern of the Andrew antenna, maximum power density two meters above ground of  $0.000066 \text{ mw/cm}^2$  is calculated to occur 22 meters from the base of the tower. Since this is less than 0.1 percent of the  $0.34 \text{ mw/cm}^2$  reference for uncontrolled environments (areas with public access) surrounding a facility operating on Channel 21 (512-518 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.