

## ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of KCWI LICENSE LLC, licensee of full-power digital television station KCWI-DT, Channel 23 in Ames, Iowa, in support of its Application for Construction Permit to specify an increase in effective radiated power from its presently authorized value (246 kW) to 1,000 kW. No change in transmitter site location, antenna height above ground or above average terrain, or antenna model is proposed herein.

It is proposed to utilize the licensed ERI ATW30HW-ETO-23M omnidirectional antenna, which is mounted at the 599-meter level of an existing 609-meter communications tower. An elevation pattern for the ERI antenna is provided in Exhibit B. Exhibit C is a map upon which the predicted service contours are plotted. As shown, the community of license, Ames, is completely encompassed by the proposed 48 dBu city-grade service contour. Operating parameters for the proposed facility are tabulated in Exhibit D. A detailed interference study is provided in Exhibit E. It is important to note that a cell size of 1 kilometer and an increment spacing of 0.1 kilometer was used for our study. A power density calculation appears as Exhibit F.

Since no change in the overall height or location of the existing tower is proposed herein, the Federal Aviation Administration has not been notified of this application. It is important to note that the FCC issued antenna structure registration number 1061304 to this structure.

EXHIBIT A

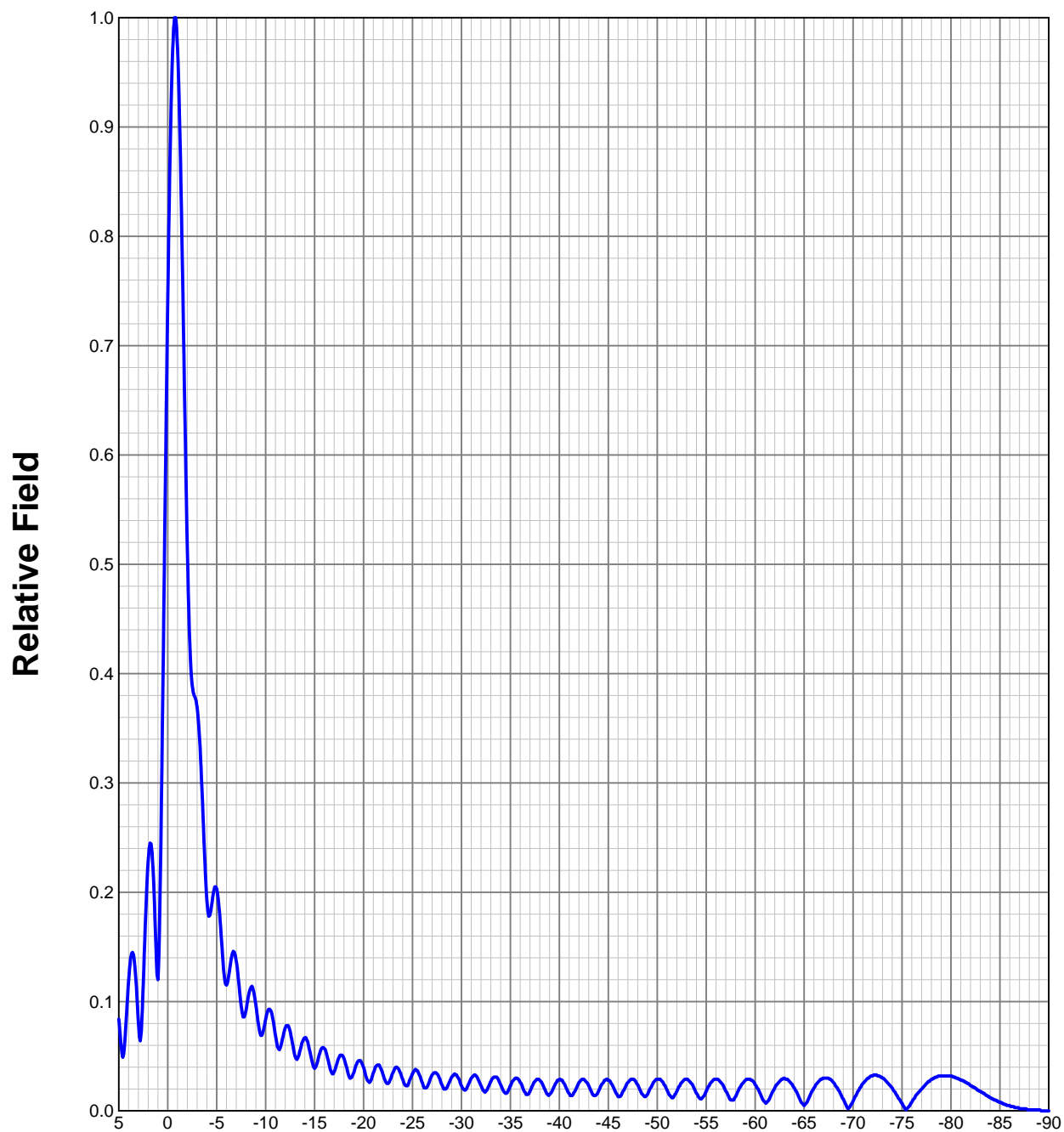
I declare under penalty of perjury that the foregoing statements and the attached exhibits, which were prepared by me or under my immediate supervision, are true and correct to the best of my knowledge and belief.

A handwritten signature in blue ink, appearing to read 'Kyle T. Fisher', with a stylized flourish at the end.

KYLE T. FISHER

February 4, 2013

## EXHIBIT B

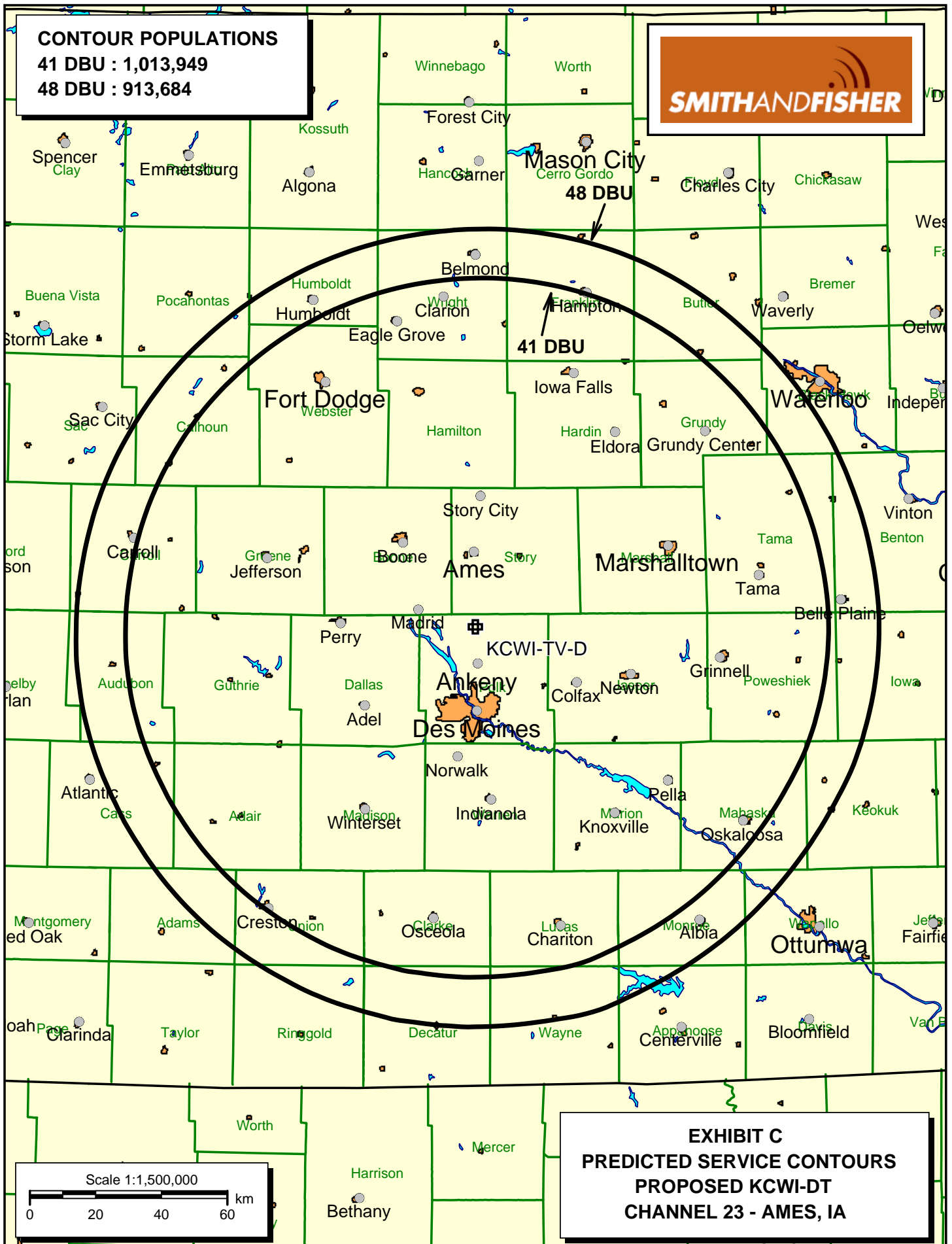
**ELEVATION PATTERN****Type:****ATW30H3H****Channel:****23****Directivity:****Numeric****dBd****Location:****Main Lobe:****30.00****14.77****Beam Tilt:****-0.75****Horizontal:****16.52****12.18****Polarization:****Horizontal***Preliminary, subject to final design and review.*

**CONTOUR POPULATIONS**

**41 DBU : 1,013,949**

**48 DBU : 913,684**

**SMITHANDFISHER**



**EXHIBIT C**  
**PREDICTED SERVICE CONTOURS**  
**PROPOSED KCWI-DT**  
**CHANNEL 23 - AMES, IA**

PROPOSED OPERATING PARAMETERS

PROPOSED KCWI-DT  
CHANNEL 23 – AMES, IOWA

Transmitter Power Output:	17.59 dBk (57.4 kW)
Transmission Line Loss:	2.36 dB
Antenna Power Gain – Main Lobe:	14.77 dB
Effective Radiated Power – Main Lobe:	30.0 dBk (1,000 kW)

Transmitter Make and Model:	Type-accepted
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Antenna Make and Model:	ERI ATW30H3-ETO-23M
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Orientation	Omnidirectional
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Beam Tilt	0.75 degrees
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Radiation Center Above Ground:	599 meters
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Radiation Center Above Mean Sea Level:	603 meters
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LONGLEY-RICE INTERFERENCE STUDY  
PROPOSED KCWI-DT  
CHANNEL 23 – AMES, IOWA

We conducted a detailed interference study 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 2000 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 the proposed KCWI-DT facility) already is predicted to exist (also known as "masking"). The results of this study are provided in Exhibit E-2. It concludes that the facility proposed herein causes no significant interference to any of the potentially affected stations.

As a result, it is believed that the proposed KCWI-DT facility complies with all of the interference requirements of the Commission's Rules.

SUNDTV INTERFERENCE STUDY

PROPOSED KCWI-DT  
CHANNEL 23 – AMES, IOWA

<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>
WOWT-DT BLC DT-20110509AAN	Lic.	Omaha, NE	22	1,250,415	11	<0.1
KWWF-DT BLC DT-20110512AAH	Lic.	Waterloo, IA	22	236,067	743	0.3
WQPT-DT BLEDT-20030702AAR	Lic.	Moline, IL	23	594,672	433	0.1
KTCI-DT BLEDT-20100326AAI	Lic.	St. Paul, MN	23	3,251,434	557	<0.1
KTCI-DT BPEDT-20100505AHS	CP	St. Paul, MN	23	3,375,909	1,190	<0.1

POWER DENSITY CALCULATION

PROPOSED KCWI-DT  
CHANNEL 23 – AMES, IOWA

Since the FCC considers the possible biological effects of RF transmissions in its environmental determinations, we have studied the matter with respect to this Des Moines facility. Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 1,000 kW, an antenna radiation center 599 meters above ground, and the specific elevation pattern for the existing Dielectric antenna, maximum power density two meters above ground of  $0.00024 \text{ mW/cm}^2$  is calculated to occur 105 meters from the base of the tower. Since this value is less than 0.1 percent of the  $0.30 \text{ mW/cm}^2$  reference for uncontrolled environments (areas with public access) surrounding a facility operating on Channel 23 (524-530 MHz), a grant of this proposal may be considered a minor environmental action with respect to public exposure to non-ionizing 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 non-ionizing radiation.