

ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of KDMI LICENSE, LLC, licensee of KDMI-DT, Channel 56 in Des Moines, Iowa, in support of its Application for Construction Permit to operate on Channel 31 with its post-transition DTV facility.

It is proposed to mount a standard ERI directional antenna at the 578-meter level of the existing 609-meter tower on which the present KDMI-DT antenna is mounted. Exhibit B provides antenna azimuth and elevation pattern data, and proposed operating parameters are tabulated in Exhibit C. Exhibit D is a map upon which the predicted service contours are plotted. As shown, the city of license is completely contained within the proposed 48 dBu service contour. It can be seen in Exhibit E that the newly proposed 41 dBu contour extends slightly beyond that of the allotment facility assigned to KDMI-DT in Appendix B of the Commission's DTV Table of Allotments. However, at no azimuth does the proposed contour exceed that of the allotment facility by more than five miles. Accordingly, since the station's post-transition DTV Channel (31) is different than its pre-transition DTV Channel (56), the applicant requests a waiver of the current freeze on the filing of such an application. An interference study is included in Exhibit F, and a power density calculation is provided in Exhibit G.

It is not expected that the proposed facility would cause objectionable interference to any other broadcast or non-broadcast station authorized to operate at or near the KDMI-DT site.

However, if such should occur, the owner of this station recognizes its obligation to take whatever corrective actions are necessary.

Since no change in overall height or location of the existing tower is proposed herein, the FAA has not been notified of this application. In addition, the FCC issued Antenna Structure Registration Number 1061304 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.



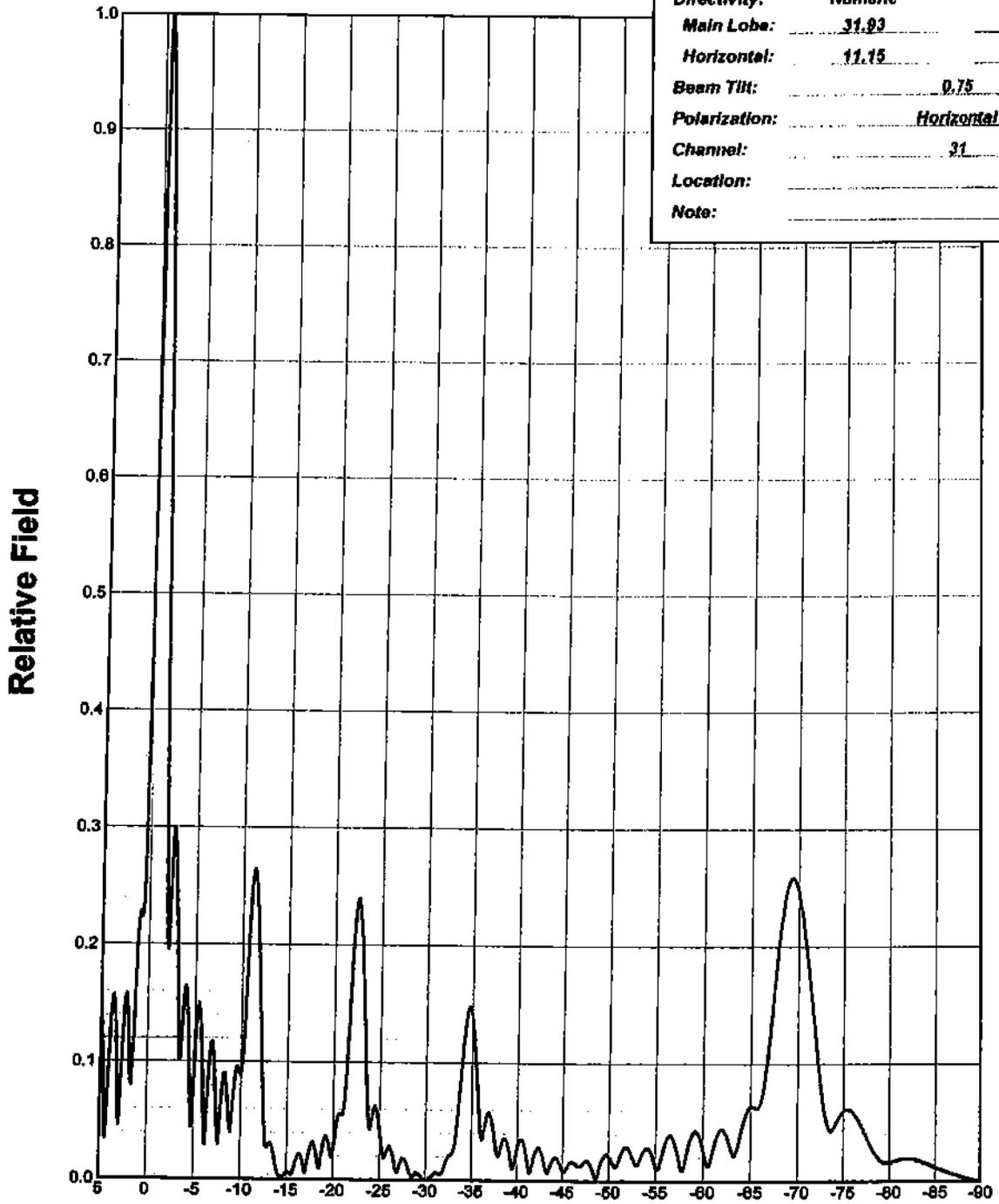
KEVIN T. FISHER

March 12, 2008



### ELEVATION PATTERN

Type:	ALP32M3	
Directivity:	Numeric	dBd
Main Lobe:	31.93	15.04
Horizontal:	11.15	10.47
Beam Tilt:	0.75	
Polarization:	Horizontal	
Channel:	31	
Location:		
Note:		



Electronics Research, Inc.  
7777 Gardner Road  
Chandler, Indiana U.S.A 47610

#### EXHIBIT B-1

ANTENNA ELEVATION PATTERN

PROPOSED KDMI-DT  
CHANNEL 31 - DES MOINES, IOWA

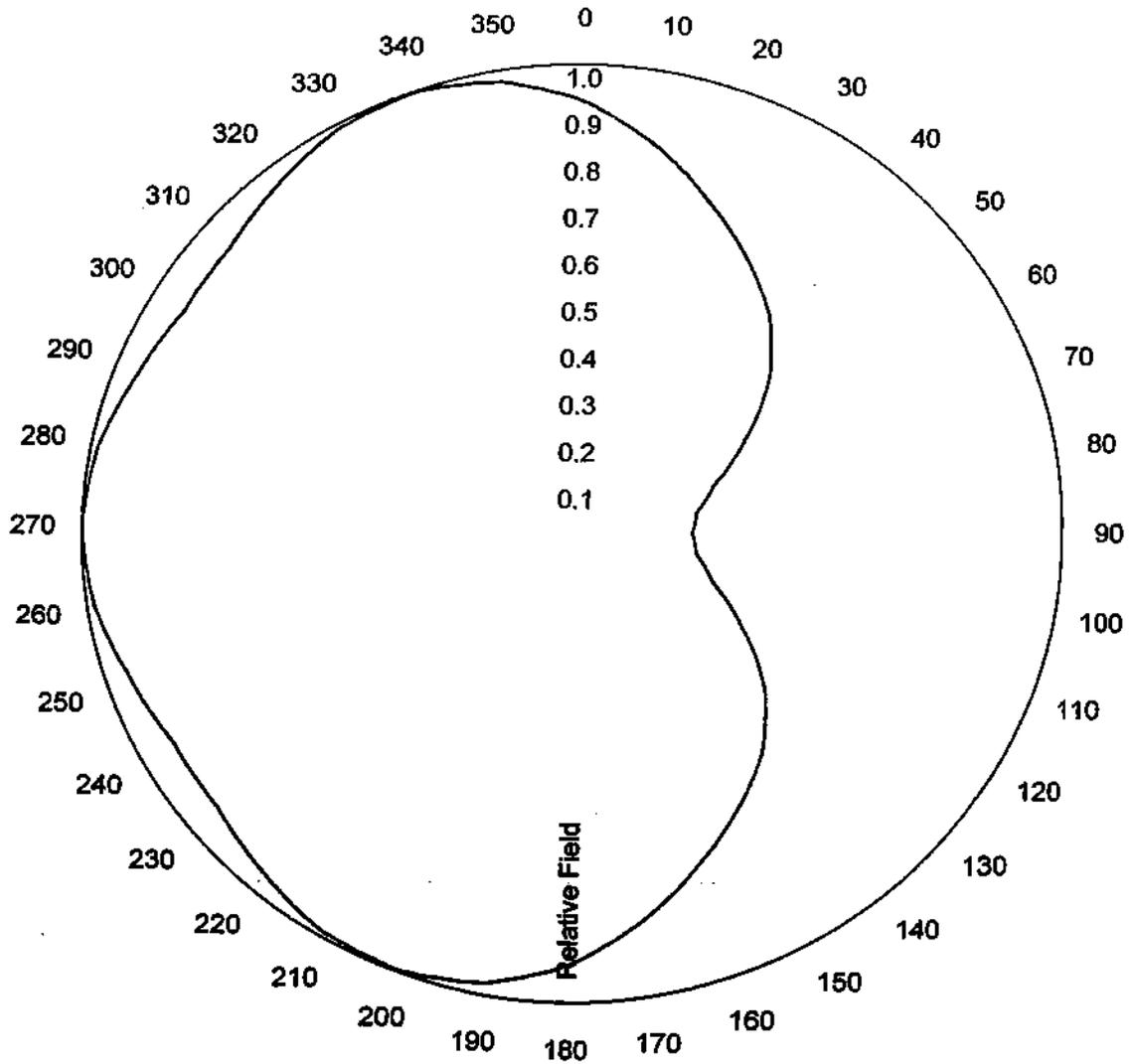
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### AZIMUTH PATTERN

Type: ALP-W

	Numeric	dBd
Directivity:	<u>1.50</u>	<u>1.93</u>
Peak(s) at:		
Polarization:	<u>Horizontal</u>	
Channel:	<u>31</u>	
Location:		
Note:		



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#### EXHIBIT B-2

ANTENNA AZIMUTH PATTERN

PROPOSED KDMI-DT  
CHANNEL 31 - DES MOINES, IOWA

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**AZIMUTH PATTERN  
FCC FILING FORMAT**

Type: ALP-W

Polarization: Horizontal

Angle	Field	ERP (kW)	ERP (dBk)
0	0.922	533.864	27.274
10	0.845	448.417	26.517
20	0.758	360.834	25.573
30	0.680	290.393	24.630
40	0.605	229.868	23.615
50	0.510	163.346	22.131
60	0.397	98.981	19.955
70	0.302	57.277	17.580
80	0.253	40.198	16.042
90	0.241	36.476	15.620
100	0.253	40.198	16.042
110	0.302	57.277	17.580
120	0.397	98.981	19.955
130	0.510	163.346	22.131
140	0.605	229.868	23.615
160	0.680	290.393	24.630
160	0.758	360.834	25.573
170	0.845	448.417	26.517
180	0.922	533.864	27.274
190	0.975	597.005	27.760
200	0.997	624.251	27.954
210	0.990	615.516	27.892
220	0.959	577.572	27.616
230	0.929	542.001	27.340
240	0.925	537.344	27.303
250	0.951	567.976	27.543
260	0.985	609.314	27.848
270	1.000	628.013	27.980
280	0.985	609.314	27.848
290	0.951	567.976	27.543
300	0.925	537.344	27.303
310	0.929	542.001	27.340
320	0.959	577.572	27.616
330	0.990	615.516	27.892
340	0.997	624.251	27.954
350	0.975	597.005	27.760



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**EXHIBIT B-3**

**ANTENNA RELATIVE FIELD VALUES**

**PROPOSED KDMI-DT  
CHANNEL 31 - DES MOINES, IOWA**

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PROPOSED OPERATING PARAMETERS

PROPOSED KDMI-DT  
CHANNEL 31 – DES MOINES, IOWA

Transmitter Power Output:	20.8 kw
Transmission Line Efficiency:	60.5%
Antenna Power Gain – Main Lobe:	49.81
Effective Radiated Power – Main Lobe:	628 kw
Transmitter Make and Model:	Type-accepted
Transmission Line Make and Model:	Andrew MACXLine
Size and Type:	6-1/8" rigid
Length:	2000 feet*
Antenna:	
Make and Model:	ERI ALP32M3-HSW-31
Orientation	270 degrees true
Beam Tilt	0.75 degrees
Radiation Center Above Ground:	578 meters
Radiation Center Above Mean Sea Level:	882 meters

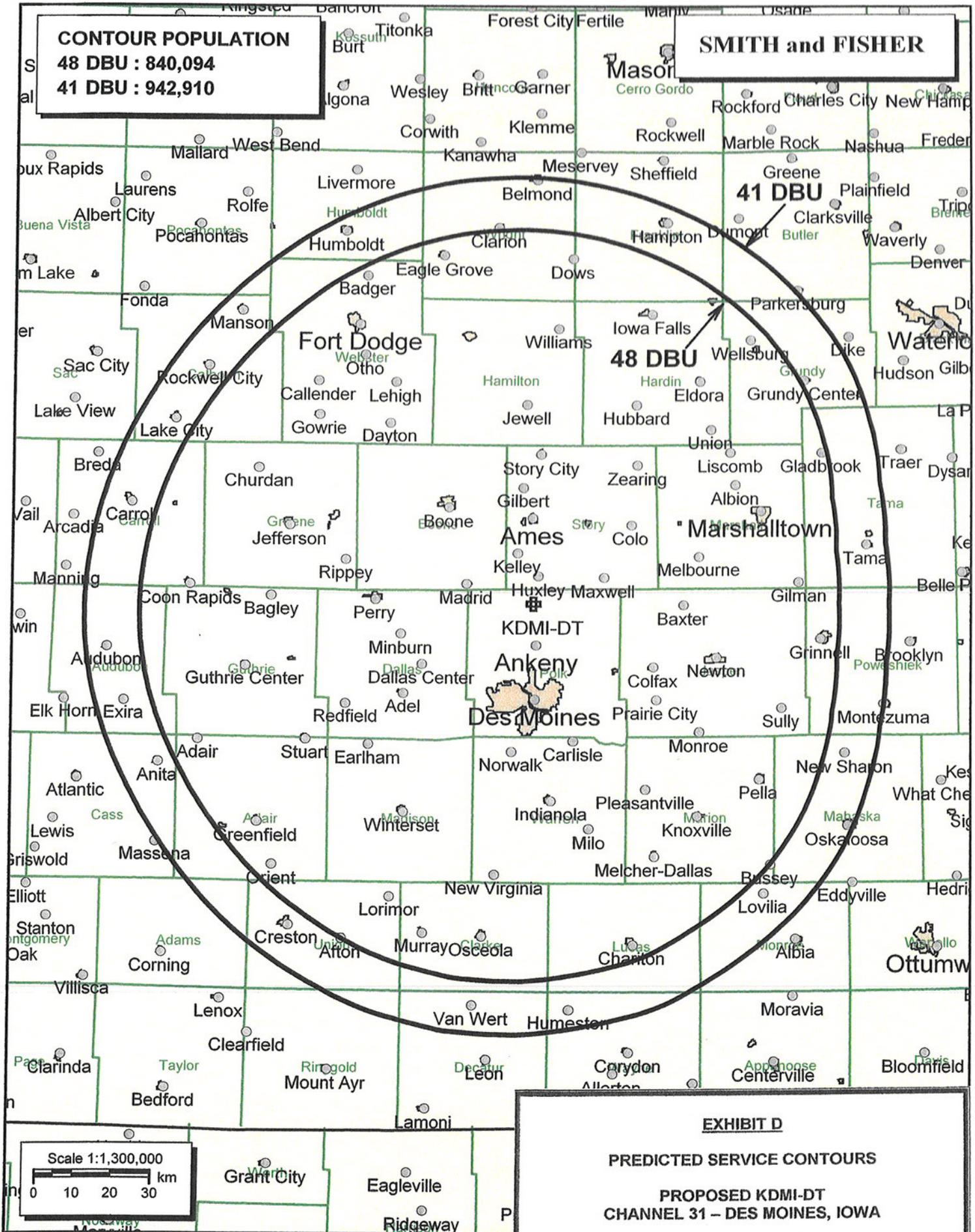
\*estimated

**CONTOUR POPULATION**

**48 DBU : 840,094**

**41 DBU : 942,910**

**SMITH and FISHER**



**41 DBU**

**48 DBU**

**Marshalltown**

**Ames**

**Ankeny**

**Des Moines**

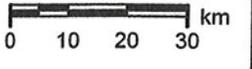
**EXHIBIT D**

**PREDICTED SERVICE CONTOURS**

**PROPOSED KDMI-DT  
CHANNEL 31 - DES MOINES, IOWA**

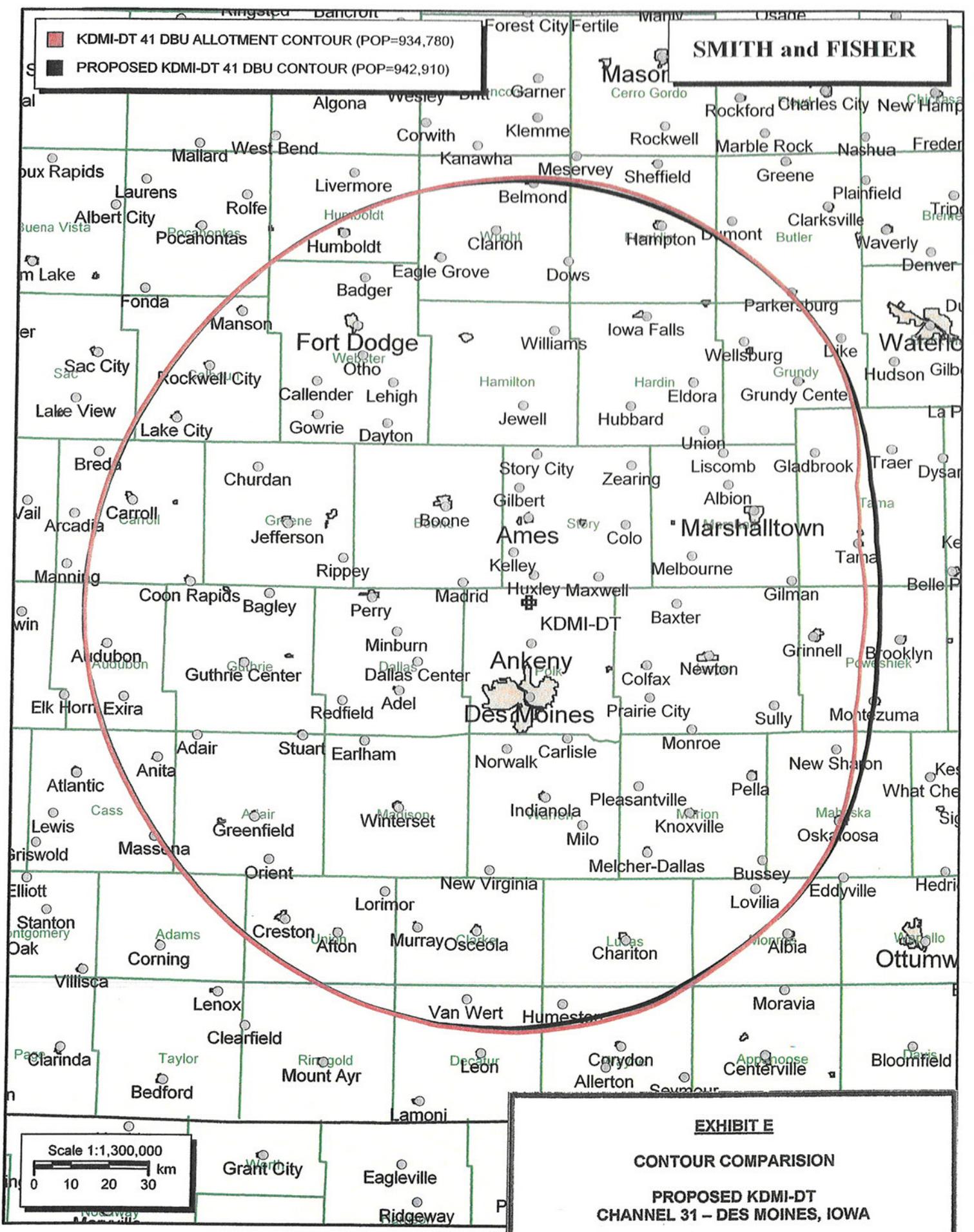
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Scale 1:1,300,000



**SMITH and FISHER**

■ KDMI-DT 41 DBU ALLOTMENT CONTOUR (POP=934,780)  
■ PROPOSED KDMI-DT 41 DBU CONTOUR (POP=942,910)



**EXHIBIT E**

**CONTOUR COMPARISON**  
**PROPOSED KDMI-DT**  
**CHANNEL 31 – DES MOINES, IOWA**  
**SMITH AND FISHER**

INTERFERENCE STUDY  
PROPOSED KDMI-DT  
CHANNEL 31 – DES MOINES, IOWA

The instant application specifies an ERP of 628 kw (directional) at 589 meters above average terrain, which we have determined to be allowable under the FCC's recently approved interference standards with respect to various digital television facilities as they will exist on or before February 17, 2009, the date by which all stations must operate with the parameters recently adopted in the Commission's DTV Table of Allotments.

In evaluating the interference effect of this proposal, we have relied upon the V-Soft Communications "Probe III" computer program, which has been found generally to mimic the FCC's program. In conducting our studies, we employed a cell size of 2.0 kilometers and an increment spacing of 1.0 kilometer along each radial. In addition, we utilized the 2000 U.S. Census. Changes in interference caused by proposed KDMI-DT to other pertinent stations are tabulated in Exhibit F-2.

As shown, the proposed KDMI-DT facility would not contribute more than 0.5% interference (beyond that which is caused by the allotted KDMI-DT facility) to the service population of any potentially affected post-transition DTV station.

A Longley-Rice interference study also reveals that the proposed KDMI-DT facility does not cause significant (0.5%) interference within the protected service contour of any potentially affected Class A low power television station.

Therefore, this proposal meets the FCC's *de minimis* interference standards for DTV operations.

INTERFERENCE STUDY SUMMARY

PROPOSED KDMI-DT  
CHANNEL 31 – DES MOINES, IOWA

<u>Call Sign</u>	<u>City, State</u>	<u>CH.</u>	<u>Coverage Population</u>	<u>Interference Population From KDMI-DT*</u>	<u>%</u>
KCWE-DT Allotment	Kansas City, MO	31	2,226,359	0	0

\*Above that caused by the KDMI-DT allotment facility.

POWER DENSITY CALCULATION  
PROPOSED KDMI-DT  
CHANNEL 31 – DES MOINES, 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 628 kw, an antenna radiation center 578 meters above ground, and the elevation pattern of the ERI antenna, maximum power density two meters above ground of  $0.0036 \text{ mw/cm}^2$  is calculated to occur 221 meters west of the base of the tower. Since this is only 0.9 percent of the  $0.38 \text{ mw/cm}^2$  reference for uncontrolled environments (areas with public access) surrounding a facility operating on Channel 31 (572-578 MHz), a grant of this proposal may be considered a minor environmental action with respect to public and occupational ground-level 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.