



## **Engineering Statement**

**University of Nebraska (KUON-TV)**

**File 0000199898**

9/15/2023

The University's Petition for a change of channel was approved by the Commission on this date with the approval published in the Federal Register. This application proposal is for permission to construct the facilities as per the engineering found in the University's Petition.

Geographic Coordinates: N. Lat. 41-08-18, W. Long. 96-27-21 (NAD 83)

Channel number: 27 (551 MHz)

Proposed COR, 608.4 m AMSL, HAAT: 253 m (8 cardinal radials, (FCC 30-meter terrain data)

Ground Elevation at the site, 358.4 m

Antenna height C.O.R. above ground, 250 m. Registered ASR: #1029935

Tower height above ground, 258.7 m, (Currently in use by licensee.)

Antenna Type, DIE, Model TFU-36GTH/VP-R 06

ERP: 650 kW H, kW, 279 kW V, elliptically polarized

Attachment #1 of this statement is a coverage map showing the 40.05 noise-limited-service contour. As shown on the map, the principal city of Lincoln, Nebraska is fully covered by the city grade 47.07 dBu service contour.

Attachment #2 is distance to contour and HAAT table for the 36 cardinal radials.

Attachment #3: The applicant has used OET-69 procedures (TVStudy) to determine that no interference will be caused by use of channel 27. This was submitted with the petition. No changes are proposed.

The proposed antenna proof from Dielectric is submitted herein as a separate attachment. At head height this antenna produces a power density of  $20.84 \mu\text{W}/\text{cm}^2$  that is only 1.13 percent of the maximum for TV channel 27 of  $1,846.7 \mu\text{W}/\text{cm}^2$ . This is well below the Commission's maximum for a controlled area. There are no other R.F. sources on the tower or in in the area. The applicant will reduce power in the event workers must be on the tower. There are signs posted warning of the emissions being produced.

Attachment #4 is an exhibit stating the qualifications of the preparer.

## Coverage Map

**KUON-TV**

0000199898

Latitude: 41-08-18 N

Longitude: 096-27-21 W

ERP: 650.00 kW

Channel: 27

Frequency: 551.0 MHz

AMSL Height: 608.4 m

Elevation: 357.0 m

Horiz. Pattern: Omni

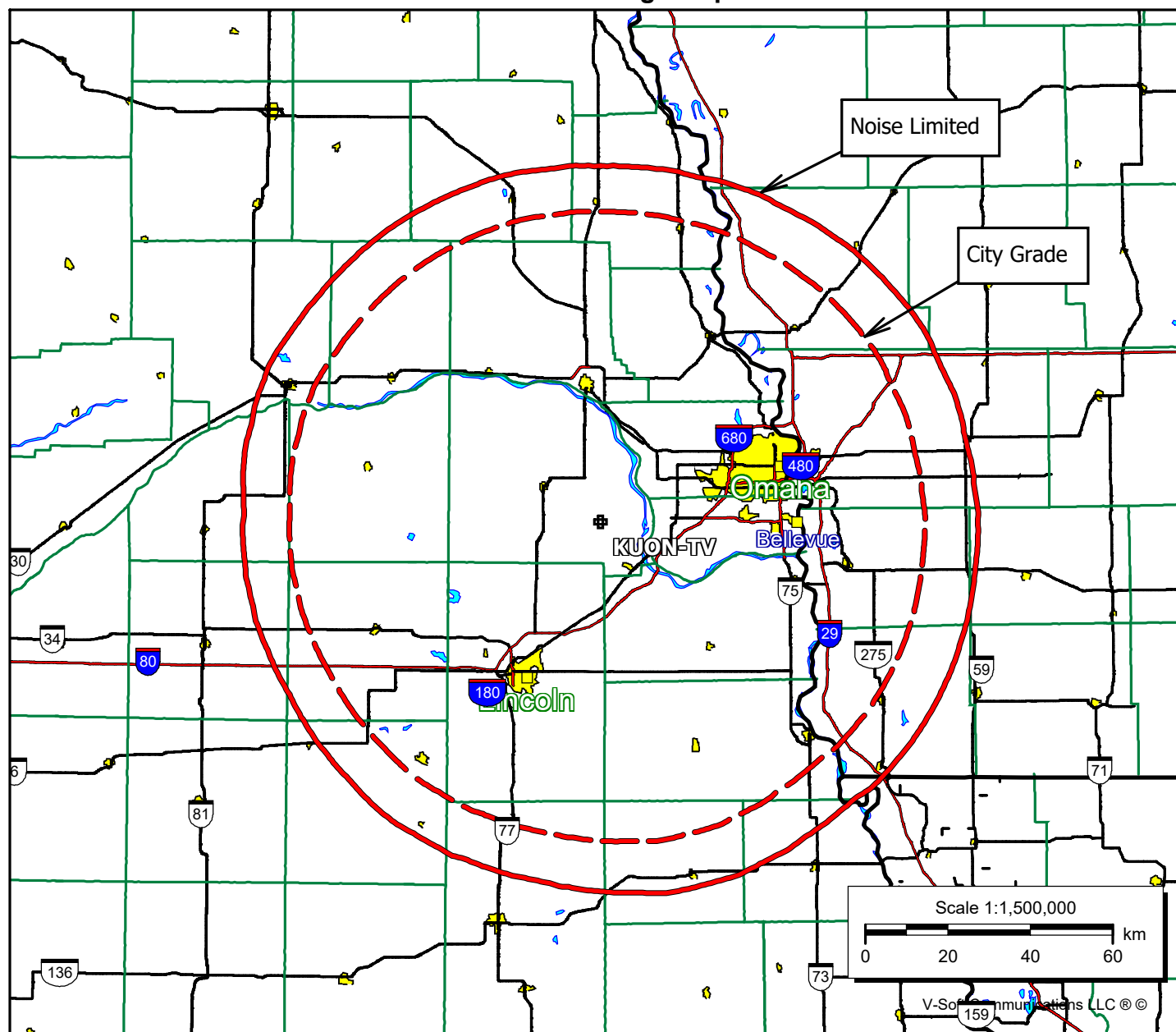
Vert. Pattern: Yes

Elec Tilt: 0.75

Prop Model: None

**Doug Vernier**1600 Picturesque Dr.  
Cedar Falls, Iowa 50613

Telecommunication Consultants



N. Lat. = 410818.0 W. Lng. = 962721.0  
 HAAT and Distance to Contour,  
 FCC OET,TV 3.2 - 16.1, 130 pts - FCC 30 Meter

Distance to Contours - KUON-TV - CH 27						
Azi.	AV EL	HAAT	ERP kW	dBk	47.04-F9	40.4-F9
000	373.0	235.4	650.0000	28.13	75.05	85.36
010	368.8	239.6	650.0000	28.13	75.37	85.87
020	362.4	246.0	650.0000	28.13	75.86	86.66
030	358.0	250.4	650.0000	28.13	76.22	87.25
040	349.4	259.0	650.0000	28.13	76.98	88.45
050	342.9	265.5	650.0000	28.13	77.62	89.40
060	337.8	270.6	650.0000	28.13	78.15	90.15
070	337.7	270.7	650.0000	28.13	78.15	90.16
080	340.0	268.4	650.0000	28.13	77.91	89.82
090	336.4	272.0	650.0000	28.13	78.30	90.36
100	334.6	273.8	650.0000	28.13	78.50	90.63
110	331.3	277.1	650.0000	28.13	78.86	91.10
120	330.0	278.4	650.0000	28.13	79.00	91.29
130	331.4	277.0	650.0000	28.13	78.85	91.09
140	339.2	269.2	650.0000	28.13	78.00	89.94
150	336.6	271.8	650.0000	28.13	78.28	90.33
160	334.3	274.1	650.0000	28.13	78.52	90.66
170	336.7	271.7	650.0000	28.13	78.27	90.31
180	348.9	259.5	650.0000	28.13	77.03	88.52
190	358.4	250.0	650.0000	28.13	76.19	87.20
200	359.3	249.1	650.0000	28.13	76.11	87.07
210	359.0	249.4	650.0000	28.13	76.14	87.11
220	360.7	247.7	650.0000	28.13	75.99	86.88
230	367.6	240.8	650.0000	28.13	75.45	86.01
240	372.0	236.4	650.0000	28.13	75.12	85.48
250	370.1	238.3	650.0000	28.13	75.27	85.71
260	368.4	240.0	650.0000	28.13	75.40	85.92
270	369.5	238.9	650.0000	28.13	75.31	85.78
280	361.3	247.1	650.0000	28.13	75.95	86.81
290	355.8	252.6	650.0000	28.13	76.41	87.54
300	357.4	251.0	650.0000	28.13	76.27	87.33
310	362.0	246.4	650.0000	28.13	75.89	86.72
320	362.3	246.1	650.0000	28.13	75.87	86.68
330	364.0	244.4	650.0000	28.13	75.73	86.46
340	365.9	242.5	650.0000	28.13	75.59	86.22
350	371.0	237.4	650.0000	28.13	75.20	85.60

Ave El= 353.17 M HAAT= 255.23 M AMSL= 608.4 M

tvstudy v2.2.5 (4uoc83)

Database: 127.0.0.1, Study: BLEDT20090406AIP #194, Model: Longley-Rice

Start: 2021.08.26 12:01:48

Study created: 2021.08.26 12:01:48

Study build station data: LMS TV 2021-08-26

Proposal: KUON-TV D27 DT LIC LINCOLN, NE

File number: BLEDT20090406AIP

Facility ID: 66589

Station data: User record

Record ID: 197

Country: U.S.

Zone: II

Build options:

Protect pre-transition records not on baseline channel

Search options:

Baseline record excluded if station has CP

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	KLNE-TV	D26	DT	LIC	LEXINGTON, NE	BLANK0000123803	266.3 km
Yes	KPTM	D26	DT	LIC	OMAHA, NE	BLANK0000079038	20.7
Yes	KFXA	D27	DT	LIC	CEDAR RAPIDS, IA	BLCDT20050713ABD	378.1
Yes	KSNT	D27	DT	LIC	TOPEKA, KS	BLCDT20090910ABY	234.4
No	KRWF	D27	DT	LIC	REDWOOD FALLS, MN	BLCDT20080502ABG	380.1
No	KOMU-TV	D27	DT	CP	COLUMBIA, MO	BLANK0000143684	435.8
No	KHGI-CD	D27	DC	LIC	NORTH PLATTE, NE	BLANK0000114628	354.2
Yes	KSIN-TV	D28	DT	LIC	SIOUX CITY, IA	BLEDT20050726AMC	153.5
No	KHNE-TV	D28	DT	LIC	HASTINGS, NE	BLANK0000074810	143.0

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D27  
Latitude: 41 8 18.00 N (NAD83)  
Longitude: 96 27 21.00 W  
Height AMSL: 608.4 m  
HAAT: 253.0 m  
Peak ERP: 650 kW  
Antenna: Omnidirectional  
Elev Pattn: Generic  
Elec Tilt: 1.35

40.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	650 kW	235.4 m	85.2 km
45.0	650	263.2	89.2
90.0	650	272.1	90.7
135.0	650	275.1	91.2
180.0	650	259.4	88.5
225.0	650	242.9	86.1
270.0	650	238.7	85.6
315.0	650	246.1	86.5

Database HAAT does not agree with computed HAAT

Database HAAT: 253 m    Computed HAAT: 254 m

Distance to Canadian border: 846.3 km

Distance to Mexican border: 1339.6 km

Conditions at FCC monitoring station: Grand Island NE

Bearing: 262.4 degrees    Distance: 167.1 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:

Bearing: 264.5 degrees    Distance: 747.3 km

Study cell size: 2.00 km  
 Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%  
 Maximum new IX to LPTV: 2.00%

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 Interference to BLANK0000079038 LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KPTM	D26	DT	LIC	OMAHA, NE	BLANK0000079038	
Undesireds:	KUON-TV	D27	DT	LIC	LINCOLN, NE	BLEDT20090406AIP	20.7 km
	KLNE-TV	D26	DT	LIC	LEXINGTON, NE	BLANK0000123803	282.8
	KDLV-TV	D26	DT	LIC	MITCHELL, SD	BLCDT20081016ADD	348.5
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
41665.0	1,414,998	41235.4	1,414,014	41009.9	1,413,624	40985.7 1,413,502	0.06 0.01
Undesired				Total IX	Unique IX, before	Unique IX, after	
KUON-TV D27 DT LIC				28.2 132		24.2 122	
KLNE-TV D26 DT LIC				161.4 285	116.8 186	116.8 186	
KDLV-TV D26 DT LIC				108.7 204	64.1 105	60.1 95	

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 Interference to BLCDT20050713ABD LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KFXA	D27	DT	LIC	CEDAR RAPIDS, IA	BLCDT20050713ABD	
Undesireds:	KUON-TV	D27	DT	LIC	LINCOLN, NE	BLEDT20090406AIP	378.1 km
	KOMU-TV	D27	DT	CP	COLUMBIA, MO	BLANK0000143684	356.1
	WHWC-TV	D27	DT	LIC	MENOMONIE, WI	BLANK0000157562	329.1
	WVTV	D27	DT	LIC	MILWAUKEE, WI	BLANK0000121792	360.0
	WBXF-CD	D28z	DC	CP	DES MOINES, IA	BLANK0000035778	139.2
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
34521.3	875,538	34276.7	874,070	34132.3	873,344	34120.3 873,137	0.04 0.02

Undesired		Total IX	Unique IX, before	Unique IX, after
KUON-TV D27 DT LIC	16.1	272		12.1 207
KOMU-TV D27 DT CP	20.2	225	20.2 225	20.2 225
WHWC-TV D27 DT LIC	56.0	193	39.9 114	39.9 114
WVTV D27 DT LIC	56.0	197	40.0 118	40.0 118
WBXF-CD D28z DC CP	28.1	190	28.1 190	24.1 125

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Interference to BLCDT20050713ABD LIC scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KFXA	D27	DT	LIC	CEDAR RAPIDS, IA	BLCDT20050713ABD	
Undesireds:	KUON-TV	D27	DT	LIC	LINCOLN, NE	BLEDT20090406AIP	378.1 km
	KOMU-TV	D27	DT	CP	COLUMBIA, MO	BLANK0000143684	356.1
	WHWC-TV	D27	DT	LIC	MENOMONIE, WI	BLANK0000157562	329.1
	WVTV	D27	DT	LIC	MILWAUKEE, WI	BLANK0000121792	360.0
	WBXF-CD	D28z	DC	LIC	DES MOINES, IA	BLANK0000005069	139.2
	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	34521.3 875,538	34276.7 874,070		34144.4 873,455		34128.3 873,183	0.05 0.03

Undesired		Total IX	Unique IX, before	Unique IX, after
KUON-TV D27 DT LIC	16.1	272		16.1 272
KOMU-TV D27 DT CP	20.2	225	20.2 225	20.2 225
WHWC-TV D27 DT LIC	56.0	193	39.9 114	39.9 114
WVTV D27 DT LIC	56.0	197	40.0 118	40.0 118
WBXF-CD D28z DC LIC	16.1	79	16.1 79	16.1 79

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Interference to BLCDT20090910ABY LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KSNT	D27	DT	LIC	TOPEKA, KS	BLCDT20090910ABY	
Undesireds:	KUON-TV	D27	DT	LIC	LINCOLN, NE	BLEDT20090406AIP	234.4 km
	KOMU-TV	D27	DT	CP	COLUMBIA, MO	BLANK0000143684	305.2

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
20155.3 622,818	19888.0 594,604	19792.6 581,115	19477.7 580,720	1.59 0.07
Undesired	Total IX	Unique IX, before	Unique IX, after	
KUON-TV D27 DT LIC	366.5 11,163		314.8 395	
KOMU-TV D27 DT CP	95.5 13,489	95.5 13,489	43.8 2,721	

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Interference to BLEDT20050726AMC LIC scenario 1

Call	Chan	Svc	Status	City, State	File Number	Distance
Desired: KSIN-TV	D28	DT	LIC	SIOUX CITY, IA	BLEDT20050726AMC	
Undesireds: KUON-TV	D27	DT	LIC	LINCOLN, NE	BLEDT20090406AIP	153.5 km
WBXF-CD	D28z	DC	CP	DES MOINES, IA	BLANK0000035778	243.9
KHNE-TV	D28	DT	LIC	HASTINGS, NE	BLANK0000074810	243.9
KXVO	D29	DT	LIC	OMAHA, NE	BLANK0000078842	160.6

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
28583.4 340,143	28375.2 338,811	28158.2 337,790	28154.2 337,774	0.01 0.00
Undesired	Total IX	Unique IX, before	Unique IX, after	
KUON-TV D27 DT LIC	12.1 30		4.0 16	
WBXF-CD D28z DC CP	12.0 21	8.0 17	8.0 17	
KHNE-TV D28 DT LIC	80.2 732	48.0 681	48.0 681	
KXVO D29 DT LIC	156.9 319	128.7 272	120.7 258	

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Interference to BLEDT20050726AMC LIC scenario 2

Call	Chan	Svc	Status	City, State	File Number	Distance
Desired: KSIN-TV	D28	DT	LIC	SIOUX CITY, IA	BLEDT20050726AMC	
Undesireds: KUON-TV	D27	DT	LIC	LINCOLN, NE	BLEDT20090406AIP	153.5 km
WBXF-CD	D28z	DC	LIC	DES MOINES, IA	BLANK0000005069	243.9
KHNE-TV	D28	DT	LIC	HASTINGS, NE	BLANK0000074810	243.9
KXVO	D29	DT	LIC	OMAHA, NE	BLANK0000078842	160.6

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
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28583.4	340,143	28375.2	338,811	28158.2	337,790	28154.2	337,774	0.01	0.00
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Undesired		Total IX	Unique IX, before	Unique IX, after
KUON-TV D27 DT LIC	12.1	30		4.0 16
WBXF-CD D28z DC LIC	8.0	17	8.0 17	8.0 17
KHNE-TV D28 DT LIC	80.2	732	52.1 685	52.1 685
KXVO D29 DT LIC	156.9	319	128.7 272	120.7 258

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Interference to proposal scenario 1  
7.37% interference received

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KUON-TV	D27	DT	LIC	LINCOLN, NE	BLEDT20090406AIP	
Undesireds:	KPTM	D26	DT	LIC	OMAHA, NE	BLANK0000079038	20.7 km
	KFXA	D27	DT	LIC	CEDAR RAPIDS, IA	BLCDT20050713ABD	378.1
	KSNT	D27	DT	LIC	TOPEKA, KS	BLCDT20090910ABY	234.4
	KSIN-TV	D28	DT	LIC	SIOUX CITY, IA	BLEDT20050726AMC	153.5
	KHNE-TV	D28	DT	LIC	HASTINGS, NE	BLANK0000074810	143.0

	Service area		Terrain-limited		IX-free		Percent IX
24295.5	1,291,032	24082.4	1,289,561	19979.0	1,194,463	17.04	7.37

Undesired		Total IX	Unique IX	Prcnt Unique IX
KPTM D26 DT LIC	4079.4	94,512	3995.4 93,804	16.59 7.27
KFXA D27 DT LIC	4.0	23	0.0 0	0.00 0.00
KSNT D27 DT LIC	92.0	964	16.1 279	0.07 0.02
KSIN-TV D28 DT LIC	4.0	0	0.0 0	0.00 0.00
KHNE-TV D28 DT LIC	12.0	320	8.0 307	0.03 0.02

**Declaration and  
Statement of Qualifications**

I, Douglas L. Vernier, declare that I have received training as an engineer from the University of Michigan School of Engineering. That, I have received degrees from the University in the field of Broadcast Telecommunications. That, I have been active in broadcast consulting for over 40 years.

That I have held a Federal Communications Commission First Class Radiotelephone License continually since 1964. In 1985, this license was reissued by the Commission as a lifetime General Radiotelephone license no. PG-16-16464.

That I am certified as a Professional Broadcast Engineer (#50258) by the Society of Broadcast Engineers, Indianapolis, Indiana. (Life-time Certification received in 2010).

That my qualifications are a matter of record with the Federal Communications Commission.

That I have been retained by the University of Nebraska to prepare the engineering showing appended hereto.

That I have prepared this broadcast engineering showing, the technical information contained in same and the facts stated within are true of my knowledge.

That under penalty of perjury, I declare that the foregoing is correct.

Douglas L. Vernier

A handwritten signature in blue ink, appearing to read "Doug Vernier", with a large, stylized initial "D" and a horizontal line extending to the right.

Executed on Sept 15, 2023