

# T Z SAWYER TECHNICAL CONSULTANTS

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DIGITAL LPTV FACILITY  
MINOR CHANGE APPLICATION  
KAVC-LD  
FCC FACILITY ID: 68077  
DENVER, COLORADO

JANUARY 2024

## ENGINEERING NARRATIVE

### Minor Change Application:

KAVC-LD, seeks to modify its existing license permit (LMS:0000210348 ) to specific a new transmission site and antenna system parameters. The proposed antenna is a PSI PSIUP2PN horizontally polarized directional UHF panel antenna (2-bays stacked and skewed). A full-service filter mask is to be employed. The facility requested is not contingent upon a grant or channel move of any other known facility at the time of filing.

Maximum Effective Radiated Power (ERP) is 15.0-kilowatts, horizontal polarization only.

### Modification Compliance:

Pursuant to 47 CFR §74.787(b) the instant application is considered a “minor” change because;

- There is no change in transmitting antenna location such that the protected service contour resulting from the change does not overlap some portion of the protected service contour of the authorized facility of the station license as illustrated in Figure 1, Present & Proposed Service Contours.
- There is no change in transmitting antenna location greater than 30 miles (48km) from the reference coordinates of the existing station construction permit antenna location, as noted below:

CALCULATED DISTANCE BETWEEN EXISTING LICENSE AND PROPOSED SITES

SITE	LAT (NAD83)	LON (NAD83)	(KM)	(MI)
CURRENT - LICENSED	40-05-59.0 N	104-54-04.0 W	26.709	16.596
PROPOSED CP MOD	39-54-50.0 N	105-05-59.0 W		

### FCC Tower Registration (ASR) #1200980 - FAA Notification:

The proposed antenna mounting structure is 24.4 meter in overall height above ground level (AGL) and has been issued a Antenna Structure Registration (ASR) number 1200980 by the Commission’s Wireless Bureau. This is an existing communication tower that does not require further FAA notification as no changes in the supporting structure is required. The antenna is to be side-mounted on the structure at the 19.2-meter AGL level.

Antenna Elevations:

The ground elevation at the site is 1695.8 meters above mean sea level (AMSL). The center of radiation of the proposed antenna is 19.2 meters above ground level (AGL). Thus, the center of radiation is 1715.0 meters above mean sea level (AMSL), as tabulated below:

ALL ELEVATIONS IN METERS

GROUND ELEVATION	1695.8
SUPPORTING STRUCTURE OVERALL HEIGHT AGL	24.4
ANTENNA HEIGHT AGL	19.2
ANTENNA RCAMSL	1715.0

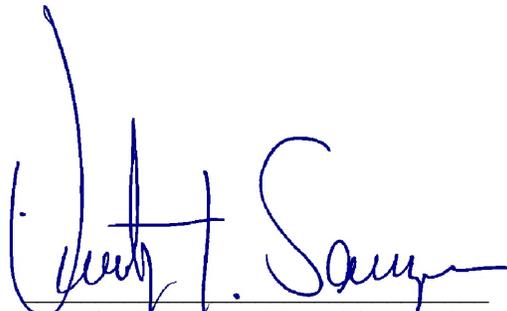
FCC TVStudy Results - A terrain profile spacing of 0.1 km is requested:

The results of a interference study of the proposal using the FCC TVStudy program (Version 2.2.5), shows that no prohibitive interference will occur from the proposal. A copy of the summary report has been included in this application. The applicant accepts any incoming interference that is predicted to exist to the proposed facility by any authorized or pending, primary or secondary TV station at the time this application is submitted. **The use of a terrain profile spacing interval of 0.1 km is requested.**

Environmental Evaluation Statement:

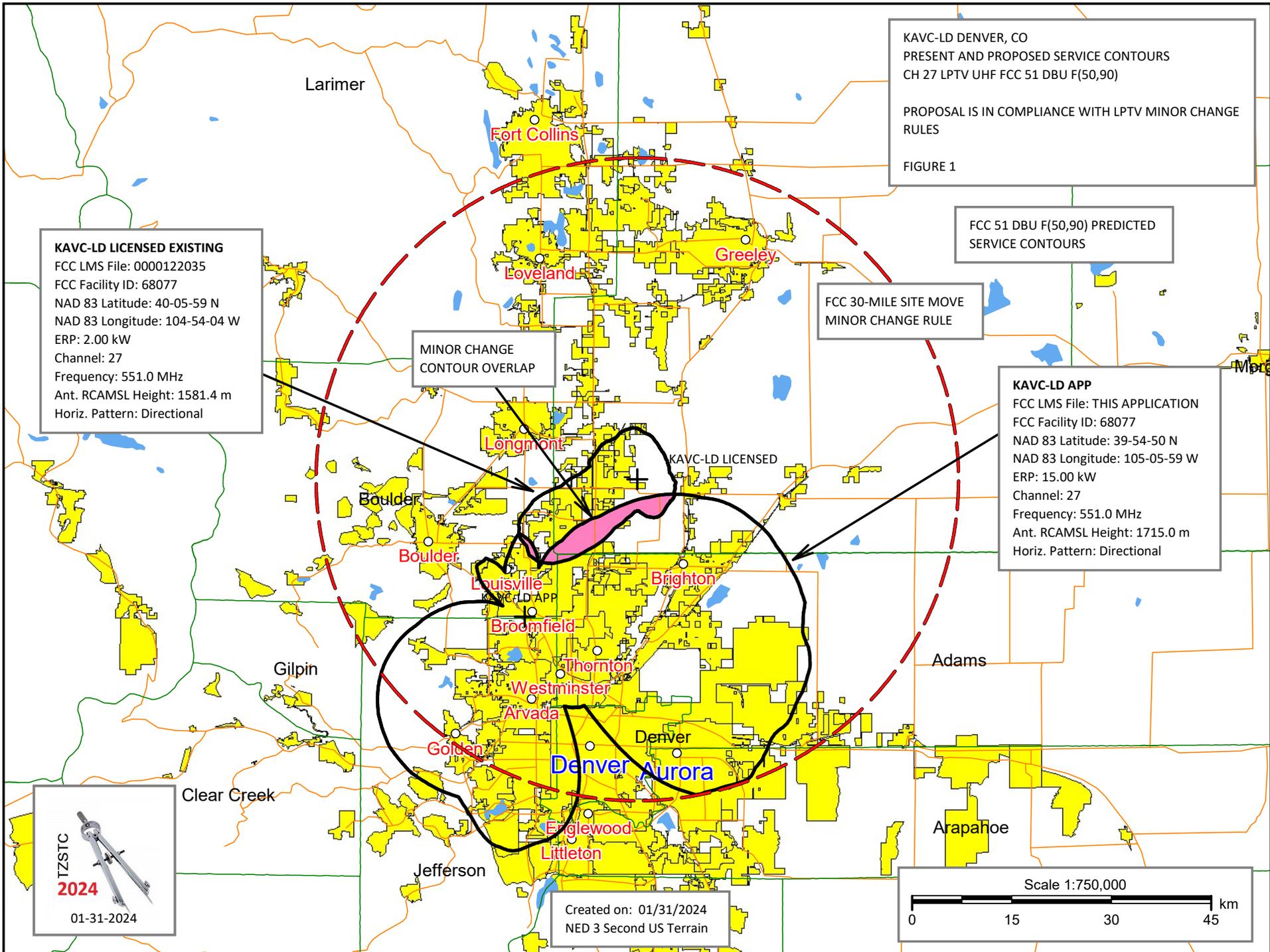
The environmental evaluation statement concerning this proposal has been included in this application and can be found as a separate file upload within the application. A grant of this proposal would NOT be an action which would have a significant environmental effect as demonstrated in the environmental evaluation statement.

January 31, 2024



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KAVC-LD DENVER, CO  
 PRESENT AND PROPOSED SERVICE CONTOURS  
 CH 27 LPTV UHF FCC 51 DBU F(50,90)

PROPOSAL IS IN COMPLIANCE WITH LPTV MINOR CHANGE RULES

FIGURE 1

**KAVC-LD LICENSED EXISTING**  
 FCC LMS File: 0000122035  
 FCC Facility ID: 68077  
 NAD 83 Latitude: 40-05-59 N  
 NAD 83 Longitude: 104-54-04 W  
 ERP: 2.00 kW  
 Channel: 27  
 Frequency: 551.0 MHz  
 Ant. RCAMSL Height: 1581.4 m  
 Horiz. Pattern: Directional

FCC 51 DBU F(50,90) PREDICTED SERVICE CONTOURS

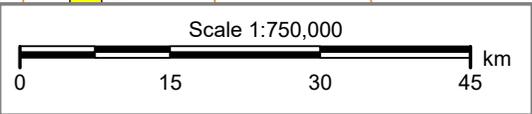
FCC 30-MILE SITE MOVE MINOR CHANGE RULE

MINOR CHANGE CONTOUR OVERLAP

**KAVC-LD APP**  
 FCC LMS File: THIS APPLICATION  
 FCC Facility ID: 68077  
 NAD 83 Latitude: 39-54-50 N  
 NAD 83 Longitude: 105-05-59 W  
 ERP: 15.00 kW  
 Channel: 27  
 Frequency: 551.0 MHz  
 Ant. RCAMSL Height: 1715.0 m  
 Horiz. Pattern: Directional

TZSTC  
**2024**  
 01-31-2024

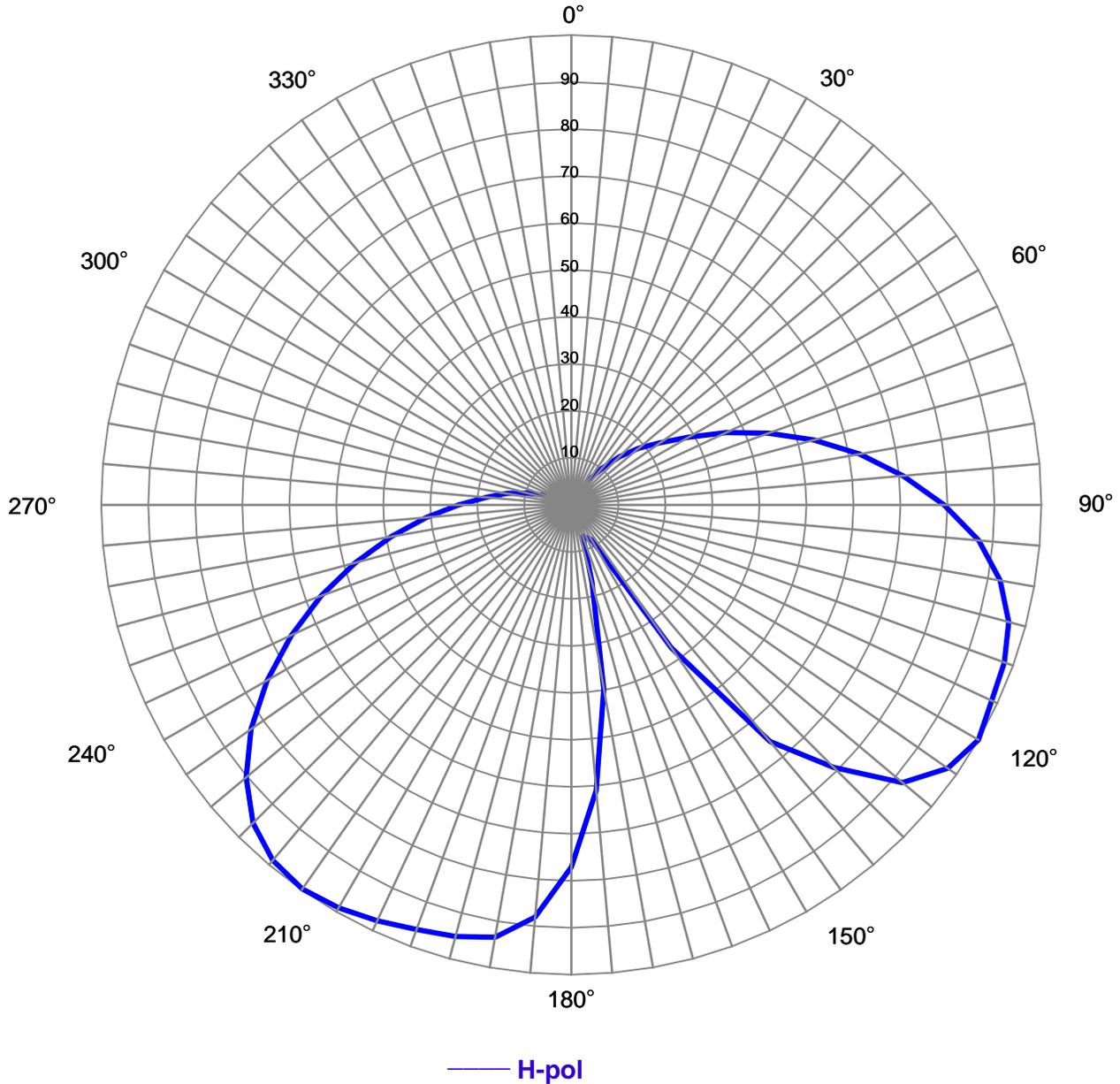
Created on: 01/31/2024  
 NED 3 Second US Terrain





**Relative Field  
 Azimuth Plane Pattern**

PATTERN SHOWN IS NOT  
 ROTATED



Pattern Type:	<b>Relative Field</b>	Type:	<b>UHF Offset Panels</b>
Antenna Model:	<b>PSIUP2PN-27 Custom</b>	Orientation:	<b>110/205 Degrees</b>
Polarization:	<b>Horizontal</b>	Configuration:	<b>2-Bay/4-Panel reduced rear</b>
Gain:	<b>11.70 (10.68 dB)</b>	Reference:	<b>KAVC-LD</b>
Channel:	<b>27</b>	Date:	<b>1/22/2024</b>

## Azimuth Pattern Tabulation

Antenna: PSIUP2PN-27 Custom

Gain: 11.7 (10.68 dB)

Channel: 27

KAVC-LD

Angle	Relative Field	Power Gain	Gain dB	Angle	Relative Field	Power Gain	Gain dB
0	0.035	0.014	-18.49	180	0.771	6.951	8.42
5	0.032	0.012	-19.27	185	0.881	9.081	9.58
10	0.025	0.008	-21.22	190	0.935	10.220	10.09
15	0.018	0.004	-24.41	195	0.951	10.581	10.25
20	0.011	0.001	-28.33	200	0.962	10.823	10.34
25	0.017	0.003	-24.61	205	0.977	11.163	10.48
30	0.037	0.016	-18.05	210	0.990	11.476	10.60
35	0.066	0.051	-12.95	215	1.000	11.700	10.68
40	0.102	0.123	-9.11	220	0.988	11.416	10.58
45	0.144	0.244	-6.13	225	0.958	10.733	10.31
50	0.188	0.414	-3.83	230	0.903	9.540	9.80
55	0.231	0.622	-2.06	235	0.832	8.095	9.08
60	0.289	0.974	-0.11	240	0.747	6.536	8.15
65	0.364	1.552	1.91	245	0.657	5.053	7.04
70	0.446	2.331	3.68	250	0.566	3.751	5.74
75	0.534	3.339	5.24	255	0.475	2.642	4.22
80	0.623	4.544	6.57	260	0.388	1.763	2.46
85	0.709	5.881	7.69	265	0.310	1.126	0.51
90	0.793	7.361	8.67	270	0.240	0.673	-1.72
95	0.870	8.856	9.47	275	0.182	0.388	-4.12
100	0.927	10.045	10.02	280	0.139	0.226	-6.46
105	0.963	10.859	10.36	285	0.097	0.111	-9.55
110	0.980	11.246	10.51	290	0.059	0.041	-13.84
115	0.987	11.398	10.57	295	0.027	0.009	-20.63
120	1.000	11.700	10.68	300	0.012	0.002	-27.59
125	0.978	11.191	10.49	305	0.019	0.004	-23.83
130	0.920	9.903	9.96	310	0.029	0.010	-20.07
135	0.790	7.302	8.63	315	0.037	0.016	-18.05
140	0.658	5.066	7.05	320	0.042	0.021	-16.85
145	0.372	1.615	2.08	325	0.044	0.022	-16.49
150	0.085	0.085	-10.73	330	0.040	0.019	-17.28
155	0.078	0.070	-11.53	335	0.029	0.010	-19.95
160	0.070	0.057	-12.42	340	0.015	0.003	-25.80
165	0.170	0.337	-4.72	345	0.012	0.002	-27.73
170	0.398	1.855	2.68	350	0.023	0.006	-22.01
175	0.610	4.356	6.39	355	0.032	0.012	-19.11

FIGURE 3 - FCC TVSTUDY SUMMARY REPORT - KAVC-LD DENVER CO

NOTE: CELL SPACING 1.0 KM  
 TERRAIN PROFILE 0.10 KM REQUESTED.

Proposal: KAVC-LD D27 LD APP Denver, CO  
 File number: KAVC- MINOR MOD  
 Facility ID: 68077  
 Station data: User record  
 Record ID: 741  
 Country: U.S.

Build options:  
 Protect pre-transition records not on baseline channel

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	K260T-D	D26	LD	LIC	AKRON, CO	BLANK0000117624	174.9 km
No	K26GY-D	D26	LD	LIC	BRECKENRIDGE, CO	BLANK0000068744	89.4
Yes	KKTV	D26	DT	LIC	COLORADO SPRINGS, CO	BLANK0000094108	131.5
No	K26LH-D	D26	LD	LIC	SNOWMASS VILLAGE, CO	BLDTT20120604AAE	173.3
No	KZFC-LD	D26-	LD	LIC	WINDSOR, CO	BLANK0000099248	62.0
No	K26PG-D	D26	LD	LIC	WOODY CREEK, CO	BLANK0000163794	171.9
No	K270F-D	D27	LD	LIC	CRESTED BUTTE, CO	BLANK0000068625	196.3
No	K27LK-D	D27	LD	LIC	GATEVIEW, CO	BLDTT20120106ABO	261.1
No	KHGS-LD	D27	LD	CP	GLENWOOD SPRINGS, CO	BLANK0000197511	196.3
No	KGJT-CD	D27	DC	LIC	GRAND JUNCTION, CO	BLDTA20131202CIV	283.5
No	K27IH-D	D27	LD	LIC	HOLYOKE, CO	BLDTT20070604ADF	241.8
No	K27KX-D	D27	LD	LIC	LAS ANIMAS, CO	BLDTT20110509ACX	278.6
No	K27KA-D	D27	LD	LIC	PARLIN, CO	BLDTT20100713APC	207.3
Yes	KVSN-DT	D27	DT	LIC	PUEBLO, CO	BLANK0000074846	131.5
No	K27MT-D	D27	LD	LIC	ROMEO, CO	BLANK0000055052	348.8
No	K270V-D	D27	LD	LIC	WOODY CREEK, CO	BLANK0000163800	171.9
No	KHGI-CD	D27	DC	LIC	NORTH PLATTE, NE	BLANK0000114628	399.8
No	DK48JH-D	D27	LD	APP	CAPULIN, ETC., NM	BLANK0000053998	372.2
No	K27NO-D	D27	LD	LIC	VERNAL, UT	BLANK0000146990	346.2
No	KWYF-LD	D27	LD	LIC	CASPER, WY	BLDTT20120615ACV	331.3
Yes	KLWY	D27	DT	LIC	CHEYENNE, WY	BLCDT20090227AAD	127.5
No	K28HI-D	D28	LD	LIC	BRECKENRIDGE/DILLON, CO	BLANK0000068743	89.4
No	K28KC-D	D28	LD	LIC	CANON CITY, CO	BLDTL20090708AAT	165.9
No	K28KU-D	D28	LD	LIC	CRESTED BUTTE, CO	BLDTL20121119AOU	196.3
Yes	KTFD-TV	D28	DT	LIC	DENVER, CO	BLANK0000066076	23.3
No	K28GE-D	D28+	LD	LIC	WOODLAND PARK, CO	BLANK0000040556	103.1
No	K28GE-D	N28+	TX	LIC	WOODLAND PARK, CO	BLTTL19991203AAV	103.1

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  
 Mask: Full Service  
 Latitude: 39 54 50.00 N (NAD83)  
 Longitude: 105 5 59.00 W  
 Height AMSL: 1715.0 m  
 HAAT: 0.0 m  
 Peak ERP: 15.0 kW  
 Antenna: PSI PSIUP2PN-27 CUSTOM 356.0 deg  
 Elev Patrn: Generic

50.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.014 kW	129.3 m	12.6 km
45.0	0.483	101.5	26.5
90.0	10.8	104.8	42.7
135.0	7.02	87.2	38.5
180.0	10.5	56.6	35.7
225.0	12.5	-31.1	29.4
270.0	0.598	-127.1	15.3
315.0	0.025	69.1	10.7

Database HAAT does not agree with computed HAAT

Database HAAT: 0 m    Computed HAAT: 49 m

Distance to Canadian border: 1009.8 km

Distance to Mexican border: 912.7 km

Conditions at FCC monitoring station: Grand Island NE

Bearing: 76.6 degrees    Distance: 575.4 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:

Bearing: 338.1 degrees    Distance: 28.6 km

ERP: 0.004 kW    Field strength: 46.3 dBu, 0.2 mV/m

Study cell size: 1.00 km

Profile point spacing: 0.10 km

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

Maximum new IX to LPTV: 2.00%

Proposal causes 0.11% interference to BLANK000094108 LIC scenario 1

Proposal causes 0.43% interference to BLANK000074846 LIC scenario 1

Proposal causes no interference to BLCDT20090227AAD LIC

Proposal causes no interference to BLANK000066076 LIC

---- Below is IX received by proposal KAVC- MINOR MOD ----

Proposal receives 42.47% interference from scenario 1

No IX check failures found.

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KAVC-LD  
LPTV CHANNEL 27 OPERATION  
FACILITY ID: 68077  
DENVER, COLORADO  
JANUARY 2024

## ENVIRONMENTAL EVALUATION STATEMENT

A grant of this proposal would NOT be an action which would have a significant environmental effect as demonstrated in this environmental evaluation statement. Any changes in equipment, or construction, if necessary will not trigger any event with regards to Section 106 of the National Historical Preservation Act (NHPA).

The proposal does not meet any of the criteria specified in Section 1.1307 of the FCC Rules. More specifically, the proposed facilities are not known to fall within any of the categories enumerated in Sections 1.1307(a)(1)-(7) and will not involve the use of high intensity white lights. Furthermore, operation of the proposed facility will not involve the exposure of workers or the general public to levels of radio frequency electromagnetic fields exceeding guidelines adopted by the Federal Communications Commission. (The current FCC guidelines are based upon criteria contained in the National Council of Radiation Protection and Measurements (NCRP) Report No.86 (1986) and ANSI/IEEE C95.1-1992.)

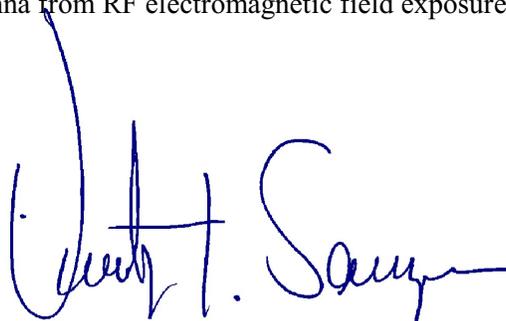
CALCULATED POWER DENSITY AT 2 METERS AGL (0.3 ANTENNA RELATIVE FIELD VALUE) ERP MAX (H ONLY)

CR AGL 19.2 M ERP MAX 15.0 KW	MPE ( $\mu\text{W}/\text{CM}^2$ )	CALCULATED VALUE ( $\mu\text{W}/\text{CM}^2$ )	% OF MPE	PASS/FAIL
CONTROLLED AREA	1836.7	152.4135	8.30%	PASS
PUBLIC AREA	367.3		41.50%	PASS

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs are posted at the site. The applicant will coordinate exposure procedures with any co-located facilities and will reduce power or cease operation as necessary to protect persons having access to the site, tower, or antenna from RF electromagnetic field exposure in excess of FCC guidelines.

January 31, 2024

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