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**Engineering Statement
Minor Modification of K19LA-D
Channel 19 at Rocky Ford, CO
August 2023**

I. Background

This Engineering Statement has been prepared on behalf of Denver Digital Television, LLC, licensee of low-power station K19LA-D Rocky Ford. This material has been prepared in connection with an application for minor change in the licensed facility. The attached map exhibit demonstrates that the proposed facility has 50.8 dBu contour overlap with the licensed facility, and that the proposed site is within 30 miles of the licensed site. Therefore, this application qualifies as a minor change.

II. Interference Study

Study has been made of all cochannel and adjacent-channel facilities in the vicinity of the proposed operation, including a detailed Longley-Rice interference study to demonstrate that the proposed operation will not cause interference to any authorized or pending proposed facilities. This study was performed using the Commission's TVStudy software.

This study was conducted using a study cell size of 1.0 km and a terrain extraction increment of 1.0 km.

The results of this study indicate that the proposed facility is predicted to cause zero additional interference to any of the listed stations, beyond the allowed values of 0.5% to full-power and Class A stations, and 2.0% to low-power stations. (The one exception being to the old analog license of K19DY Canon City. Analog operations have ceased, and that record should be cleared from the

FCC database.) Based on the foregoing interference study, it is believed that the proposed facility can operate without risk of interference to other stations.

Study created: 2023.08.09 14:21:53

Study build station data: LMS TV 2023-07-25

Proposal: K19LA-D D19 LD APP ROCKY FORD, CO
 File number: K19LA-ATKQAF LIC
 Facility ID: 22868
 Station data: User record
 Record ID: 1514
 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
Yes	KZCS-LD	D18z	LD	LIC	COLORADO SPRINGS, CO	BLANK0000185638	96.6 km
No	KPXC-TV	D18	DT	LIC	DENVER, CO	BLANK0000071556	226.4
No	K18LL-D	D18	LD	LIC	EADS, ETC., CO	BLANK0000001779	93.8
No	K18JX-D	D18	LD	LIC	HOEHNE, CO	BLDTT20110613ACX	120.7
No	K19MZ-D	D19	LD	LIC	ARRIBA, CO	BLANK0000197748	136.4
No	K19FH-D	D19	LD	LIC	ASPEN, CO	BLDTT20121119AGZ	270.4
No	K19LD-D	D19	LD	LIC	BAYFIELD, CO	BLANK0000080872	323.9
Yes	K19DY-D	D19	LD	LIC	CANON CITY, CO	BLANK0000138251	102.1
Yes	K19DY-D	N19	TX	LIC	CANON CITY, CO	BLTT20001027AAF	102.1
No	K19JA-D	D19	LD	LIC	CORTEZ, CO	BLDTT20110331AFA	372.6
No	KRMA-TV	D19	LD	LIC	DENVER, CO	BLANK0000064177	282.1
No	KSBS-CD	D19	DC	LIC	DENVER, CO	BLANK0000206288	202.3
No	K19KN-D	D19	LD	LIC	EADS, ETC., CO	BLANK0000001775	93.8
No	K19HC-D	D19	LD	LIC	HOEHNE, CO	BLDTT20090720AAK	121.1
No	K19EG-D	D19	LD	LIC	HOLYOKE, CO	BLDTT20110613AAO	296.2
Yes	K19MN-D	D19	LD	LIC	LAKE GEORGE, CO	BLANK0000116870	127.9
No	K19LC-D	D19-	LD	LIC	PAGOSA SPRINGS, CO	BLANK0000080871	291.8
No	K19HG-D	D19	LD	LIC	REDSTONE, CO	BLDTT20091221ABC	301.1
No	K19IX-D	D19	LD	LIC	ROMEO, CO	BLDTT20130107ABJ	229.1
No	K19LW-D	D19	LD	LIC	STERLING, CO	BLANK0000117467	281.4
No	K19ML-D	D19	LD	LIC	WRAY, CO	BLANK0000117481	260.0
No	KWKS	D19	DT	LIC	COLBY, KS	BLEDT20070601ATA	259.5
No	K19LP-D	D19	LD	LIC	CLOVIS, NM	BLANK0000147046	421.6
No	KAMR-TV	D19	DT	LIC	AMARILLO, TX	BLCDT20080519ACZ	371.0
No	DDKCHY-LP	D19+	LD	APP	CHEYENNE, WY	BLANK0000071845	335.7
No	K19FX-D	D19	LD	LIC	LARAMIE, WY	BLDTT20111129FFV	366.3
No	KDNF-LD	D20	LD	LIC	ARVADA, CO	BLANK0000065360	188.6
Yes	KXTU-LD	D20	LD	LIC	COLORADO SPRINGS, CO	BLANK0000185269	96.5
No	KRMT	D20	DT	LIC	DENVER, CO	BLANK0000154349	188.6
No	K20MP-D	D20	LD	LIC	LAMAR, CO	BLANK0000107354	125.4
No	K20JG-D	D20	LD	LIC	SALIDA, ETC., CO	BLDTT20101004ACB	175.8
No	K20CV-D	D20	LD	LIC	RATON, NM	BLDTT20101008AAL	169.5
No	K20IT-D	D20	LD	LIC	BOISE CITY, OK	BLDTT20091228AEI	211.1
No	KZCS-LD	N23z	TX	LIC	COLORADO SPRINGS, CO	BLTTL20021218AAJ	96.6

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D19
 Mask: Stringent
 Latitude: 38 10 35.00 N (NAD83)
 Longitude: 104 1 25.00 W

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Height AMSL: 1484.5 m
HAAT: 0.0 m
Peak ERP: 15.0 kW
Antenna: SCA-PR-450 ARRAY (ID 110852) 120.0 deg
Elev Pattnr: Generic

49.3 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.138 kW	38.1 m	12.5 km
45.0	0.134	87.6	19.1
90.0	0.542	145.7	31.5
135.0	5.96	156.9	44.5
180.0	0.138	145.6	24.5
225.0	0.134	131.4	23.3
270.0	0.542	132.8	30.6
315.0	5.96	69.4	36.0

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 113 m

Distance to Canadian border: 1203.0 km

Distance to Mexican border: 746.1 km

Conditions at FCC monitoring station: Grand Island NE
Bearing: 55.8 degrees Distance: 568.2 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 335.1 degrees Distance: 242.9 km
ERP: 0.368 kW Field strength: -14.5 dBu, 0.0 mV/m

No land mobile station failures found

Study cell size: 1.00 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%

****IX check failure to BLTT20001027AAF LIC scenario 1, 6.94% interference caused**

Analog license which should be set inactive in the database

III. RF Exposure Study

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

D is the distance in meters from the center of radiation to the calculation point.

Power density levels produced by the proposed K19LA-D facility were calculated for an elevation of 2 meters above ground using the manufacturer's vertical plane pattern for the horizontally-polarized Scala/Kathrein PRTV antenna array proposed in this application. The highest calculated power density from the proposed antenna alone occurs at a point 282 meters from the base of the antenna support structure. At this point the power density from the proposed facility is calculated to be 2.1 $\mu W/cm^2$, which is 0.6% of 333 $\mu W/cm^2$ (the FCC maximum for uncontrolled environments at the Channel 19 frequency).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of K19LA-D alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 500 meters from the base of the antenna support structure. Section 1.1307 of the Commission's Rules exempts applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicant's proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 *et seq* and no further analysis of RF exposure at this site is required in this application.

Pursuant to OET Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken. The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency exposure in excess of FCC guidelines.

August 9, 2023

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