

# T Z SAWYER TECHNICAL CONSULTANTS

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## DIGITAL LPTV FACILITY MINOR CHANGE APPLICATION - CP MODIFICATION KAVC-LD TELEVISION CHANNEL 27

### APPLICATION ENGINEERING STATEMENT

FCC FACILITY ID: 68077  
DENVER, COLORADO

### ENGINEERING NARRATIVE

#### Minor Change Application

KSFZ, seeks to MODIFY its current construction permit to specify a new antenna site, a new antenna system, and reduce its effective radiated power (ERP).

The maximum effective radiated power (ERP) will be 9.9 kilowatts using horizontal polarization only.

The proposed antenna is a KAT "1X1 750-10210", a directional yagi antenna, employing 0 degrees of electrical beam tilt. 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.

A graphical plot and tabulation of the relative field values from the proposed directional antenna have been provided in the application

#### 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 facilities of the existing station as illustrated in Figure 1, Present & Proposed Service Contours.
- There is no change in transmitting antenna location greater than 30 miles (48 km) from the reference coordinates of the existing station's licensed location, as noted below:

CALCULATED DISTANCE BETWEEN EXISTING LICENSED AND PROPOSED SITES

SITE	LAT (NAD83)	LON (NAD83)	(KM)	(MI)
CURRENT/EXISTING LIC	40-05-59.00 N	104-54-04.00 W	30.84	19.16
PROPOSED (CP APP)	39-57-36.25 N	105-12-48.32 W		

FCC Tower Registration (ASR) - FAA Notification

The proposed site is a leased American Tower Corporation site, in which FCC tower/antenna registration is not required. A determination of No Hazard To Air Navigation has been issued by the FAA (2021-ANM-233-OE). No lighting or marking is required.

The overall height of the mounting/supporting structure is 32.0 meters (105 feet) above ground level. No changes in the supporting structure is required that would require notification to the FAA. The antenna is side mounted upon the structure. The tower passes the FCC-FAA tower-air evaluation.

Antenna Elevations:

The center of radiation of the proposed antenna is 15.0 meters AGL, 1757.4 meters AMSL. The ground elevation at the site is 1742.4 meters.

FCC TVStudy Results:

FCC TVStudy Cell Size 1.0 km, Profile Spacing 0.1 km is Requested.

A reduced terrain profile interval setting of 0.1 km is appropriate due to the irregular terrain within the immediate area (Denver, Colorado).

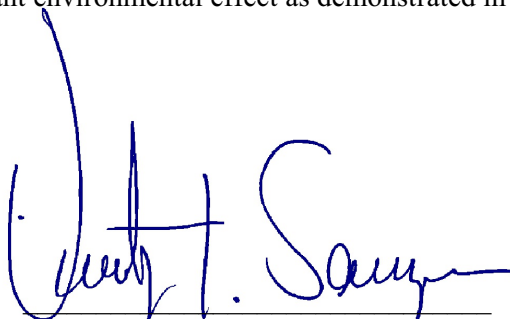
The results of a interference study of the proposal using the FCC TVStudy program (Version 2.2.5), shows that no prohibitive interference will occur from the proposal. A copy of the summary report has been included in this application.

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.

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.

July 25, 2022

A handwritten signature in blue ink, reading "Timothy Z. Sawyer". The signature is written in a cursive, flowing style. The first name "Timothy" is written with a large, looped 'T'. The last name "Sawyer" is written with a large, looped 'S'. The middle initial "Z." is written in a smaller, more straightforward script between the first and last names.

Timothy Z. Sawyer, Consulting Engineer

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KAVC-LD TOWER-AIR MOD OF CP RESULTS

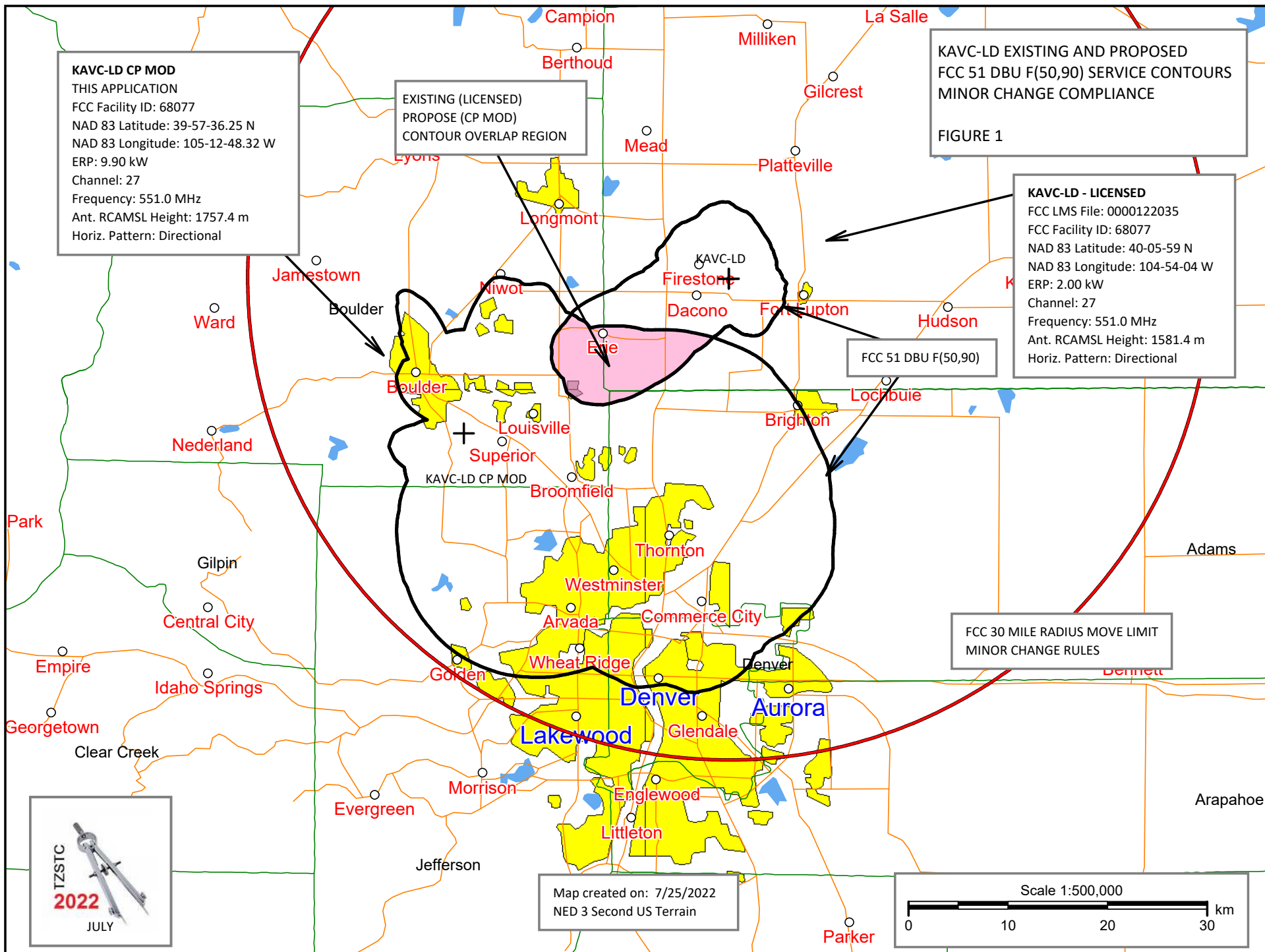
TOWAIR Determination Results

\*\*\* NOTICE \*\*\*

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results	
Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.	
Your Specifications	
NAD83 Coordinates	
Latitude	39-57-36.3 north
Longitude	105-12-48.3 west
Measurements (Meters)	
Overall Structure Height (AGL)	32
Support Structure Height (AGL)	32
Site Elevation (AMSL)	1742.4
Structure Type	
MTOWER - Monopole	



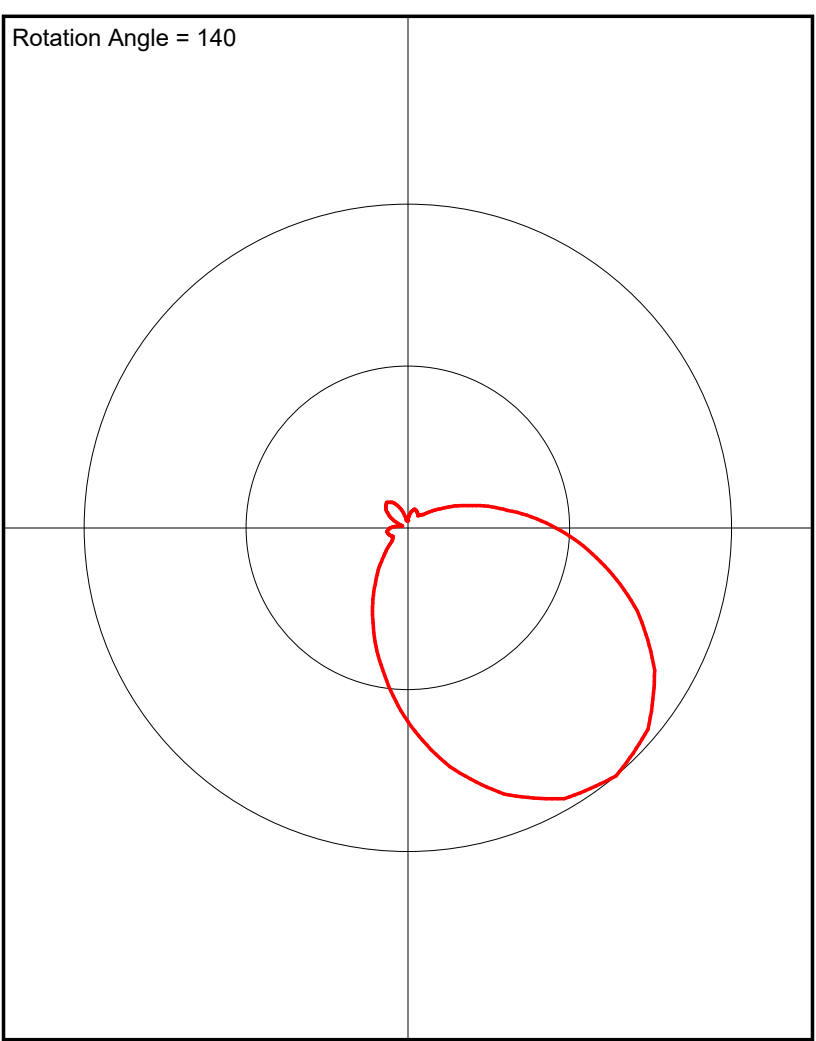


KAVC-LD KAT DIRECTIONAL Antenna Pattern

Pre-Rotation Antenna Pattern....

Azimuth (deg)	Relative Field
0.0	1.0
10.0	0.966
20.0	0.875
30.0	0.749
40.0	0.598
50.0	0.445
60.0	0.313
70.0	0.201
80.0	0.116
90.0	0.062
100.0	0.053
110.0	0.062
120.0	0.066
130.0	0.055
140.0	0.028
150.0	0.017
160.0	0.058
170.0	0.089
180.0	0.102
190.0	0.09
200.0	0.061
210.0	0.023
220.0	0.022
230.0	0.048
240.0	0.061
250.0	0.057
260.0	0.049
270.0	0.064
280.0	0.117
290.0	0.201
300.0	0.312
310.0	0.457
320.0	0.605
330.0	0.754
340.0	0.88
350.0	0.968

Rotation Angle = 140



FCC TVSTUDY SUMMARY REPORT

0.1 KM PROFILE SPACING USED (REQUESTED)

Study build station data: LMS TV 2022-07-24

Proposal: KAVC-LD D27 LD APP Denver, CO  
 File number: KAVC MOD OF CP  
 Facility ID: 68077  
 Station data: User record  
 Record ID: 616  
 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	K26GY-D	D26	LD	LIC	BRECKENRIDGE, CO	BLANK0000068744	82.5 km
No	KKTU	D26	DT	LIC	COLORADO SPRINGS, CO	BLANK0000094108	138.4
No	K26LH-D	D26	LD	LIC	SNOWMASS VILLAGE, CO	BLDTT20120604AAE	167.0
No	KZFC-LD	D26-	LD	LIC	WINDSOR, CO	BLANK0000099248	60.3
No	K26PG-D	D26	LD	LIC	WOODY CREEK, CO	BLANK0000163794	165.2
No	KFWY-LD	D26	LD	APP	CHEYENNE, WY	BLANK0000188727	139.6
No	KFWY-LD	D26	LD	LIC	CHEYENNE, WY	BLANK0000179435	124.2
No	K270F-D	D27	LD	LIC	CRESTED BUTTE, CO	BLANK0000068625	191.4
No	K27LK-D	D27	LD	LIC	GATEVIEW, CO	BLDTT20120106ABO	257.9
No	KHGS-LD	D27	LD	CP	GLENWOOD SPRINGS, CO	BLANK0000052045	188.0
No	KGJT-CD	D27	DC	LIC	GRAND JUNCTION, CO	BLDTA20131202CIV	275.9
No	K27IH-D	D27	LD	LIC	HOLYOKE, CO	BLDTT20070604ADF	249.7
No	K27KX-D	D27	LD	LIC	LAS ANIMAS, CO	BLDTT20110509ACX	288.9
No	K27KA-D	D27	LD	LIC	PARLIN, CO	BLDTT20100713APC	205.0
Yes	KVSN-DT	D27	DT	LIC	PUEBLO, CO	BLANK0000074846	138.4
No	K27MT-D	D27	LD	LIC	ROMEO, CO	BLANK0000055052	351.7
No	K27OV-D	D27	LD	LIC	WOODY CREEK, CO	BLANK0000163800	165.2
No	KHGI-CD	D27	DC	LIC	NORTH PLATTE, NE	BLANK0000114628	406.8
No	K27NO-D	D27	LD	LIC	VERNAL, UT	BLANK0000146990	335.8
No	KWYF-LD	D27	LD	LIC	CASPER, WY	BLDTT20120615ACV	323.5
Yes	KLWY	D27	DT	LIC	CHEYENNE, WY	BLCDT20090227AAD	124.2
No	K28HI-D	D28	LD	LIC	BRECKENRIDGE/DILLON, CO	BLANK0000068743	82.5
No	K28KC-D	D28	LD	LIC	CANON CITY, CO	BLDTL20090708AAT	171.0
No	K28KU-D	D28	LD	LIC	CRESTED BUTTE, CO	BLDTL20121119AOU	191.4
No	KTFD-TV	D28	DT	LIC	DENVER, CO	BLANK0000066076	25.3
No	K28GE-D	D28+	LD	LIC	WOODLAND PARK, CO	BLANK0000040556	108.9
No	K28GE-D	N28+	TX	LIC	WOODLAND PARK, CO	BLTTL19991203AAV	108.9

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 57 36.25 N (NAD83)  
 Longitude: 105 12 48.32 W  
 Height AMSL: 1757.4 m (Adjusted based on actual ground elevation calculation)  
 HAAT: 0.0 m  
 Peak ERP: 9.90 kW  
 Antenna: KAT-1X1 750-10210 (ID 1003266) 140.0 deg  
 Elev Pattern: Generic

50.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.005 kW	167.4 m	11.0 km
45.0	0.032	163.1	17.4
90.0	2.07	125.5	36.1
135.0	9.59	64.5	36.6
180.0	3.54	-55.9	23.7

225.0	0.078	-422.6	9.4
270.0	0.030	-418.8	7.4
315.0	0.090	-58.7	9.8

Database HAAT does not agree with computed HAAT  
Database HAAT: 0 m    Computed HAAT: -54 m

Distance to Canadian border: 1004.7 km

Distance to Mexican border: 916.4 km

Conditions at FCC monitoring station: Grand Island NE  
Bearing: 77.3 degrees    Distance: 583.7 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 349.0 degrees    Distance: 17.9 km  
ERP: 0.007 kW    Field strength: 60.1 dBu, 1.0 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 0.44% interference to BLANK0000074846 LIC scenario 1  
Proposal causes 0.00% interference to BLCDT20090227AAD LIC scenario 1

---- Below is IX received by proposal KAVC MOD OF CP ----

Proposal receives 57.59% interference from scenario 1

No IX check failures found.



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## 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.)

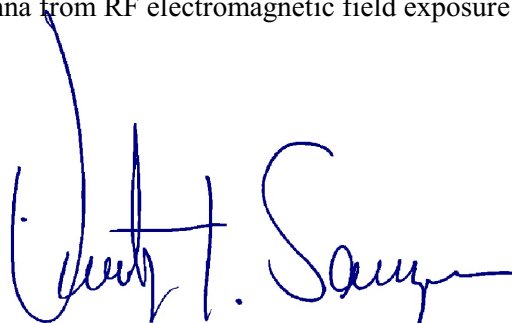
CALCULATED POWER DENSITY AT 2 METERS AGL (0.3 ANTENNA RELATIVE FIELD VALUE) ERP MAX (H)

CR AGL 15 M ERP MAX 9.9 KW (H)	MPE ( $\mu\text{W}/\text{CM}^2$ )	CALCULATED VALUE ( $\mu\text{W}/\text{CM}^2$ )	% OF MPE	PASS/FAIL
CONTROLLED AREA	1836.7	176.0911	9.59%	PASS
PUBLIC AREA	367.3		47.94%	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.

July 25, 2022

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