

## **KMAX-FM MINOR MODIFICATIONS**

This technical report is provided in support of an application for minor modifications to KMAX-FM on 232C3 at Wellington, CO (FCC facility #84497). An increase in ERP, a slight change in center of radiation and correction of coordinates are proposed. The facility may also be combined with co-owned KKPL for which an application seeking site and community changes is filed separately.

### **Allocations analysis:**

The proposed facility is fully-spaced on 232C3. The following exhibits are provided. All analyses utilized the GLOBE 30 second terrain database.

- E1 KMAX-FM Spacing Study
- E2 KMAX-FM-AP 70 dBu coverage
- E3 TowerAir

### **Proposed application site:**

The facility is located on an unregistered tower at corrected coordinates:

**N 40-55-40.5 W 105-08-35.7 (NAD 83).**

A *TowerAir* study is included as E3 demonstrating that the tower does not require registration.

The 60 dBu contour for the 12.0 kW ERP and 145.8 meters HAAT facility results in a distance to contour of 39.24 km and does not exceed the class C3 maximum of 39 km when rounded.

Seventy (70) dBu coverage of Wellington, CO is demonstrated in exhibit E2.

# Anderson Associates

Broadcast Engineering Consultants

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## HAAT and contour tabulation:

N 40-55-40.5 W 105-08-35.7

HAAT and Distance to Contour, FCC, FM 2-10 Miles, 51 points method - GLOBE 30 SEC

Az	AV EL	HAAT	ERP kW	60-F5	70-F5
000	2180.1	-51.5	12.0000	18.99	10.62
045	2018.4	110.2	12.0000	34.85	20.49
090	1840.1	288.5	12.0000	51.00	32.00
135	1753.4	375.2	12.0000	56.59	36.44
180	1796.7	331.9	12.0000	53.88	34.34
225	1962.7	165.9	12.0000	41.61	24.64
270	2116.4	12.2	12.0000	18.99	10.62
315	2194.8	-66.2	12.0000	18.99	10.62

Ave El= 1982.81 M HAAT= 145.79 M AMSL= 2128.6 M

## RF Exposure Calculation:

An ERI six bay MPX-6C-HW half-wave spaced antenna will be mounted at 56 meters AGL.

The RF exposure was calculated using the Commission's FMMODEL program to be 2.66  $\mu$ Watts/cm<sup>2</sup> or 1.33% of the maximum permissible for general public exposure and less than the 5% requiring consideration.

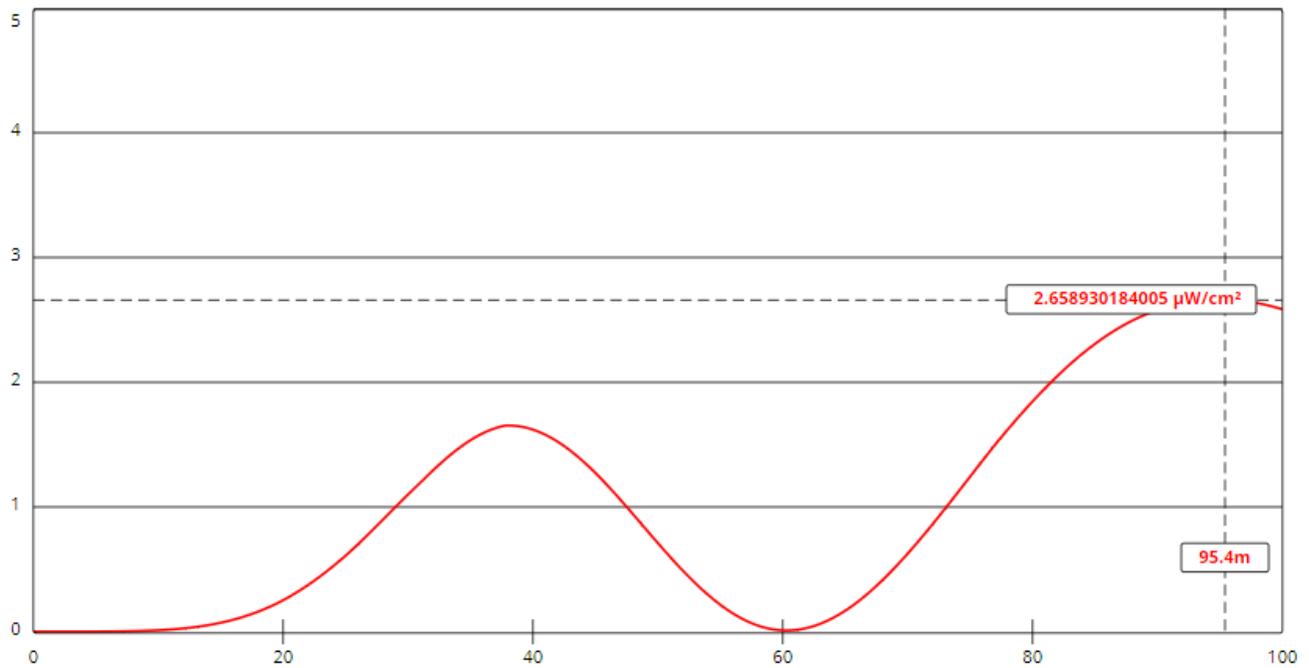
## Conclusion:

It is concluded that the proposed minor modifications of KMAX-FM are in full compliance with Commission rules and policies.



Charles M. Anderson 10-20-2020  
cmanderson43@yahoo.com  
270-535-4432

## **FMMODEL Output:**



[View Tabular Results +](#)

Channel Selection	Channel 232 (94.3 MHz) ▾		
Antenna Type +	EPA Type 3: Opposed U Dipole ▾		
Height (m)	<input type="text" value="56"/>	Distance (m)	<input type="text" value="100"/>
ERP-H (W)	<input type="text" value="12000"/>	ERP-V (W)	<input type="text" value="12000"/>
Num of Elements	<input type="text" value="6"/>	Element Spacing (λ)	<input type="text" value=".5"/>

## E1 KMAX-FM-AP CHANNEL STUDY

REFERENCE

40 55 40.50 N.  
105 08 35.70 W.

CLASS = C3

Current Spacings to 3rd Adj.

DISPLAY DATES

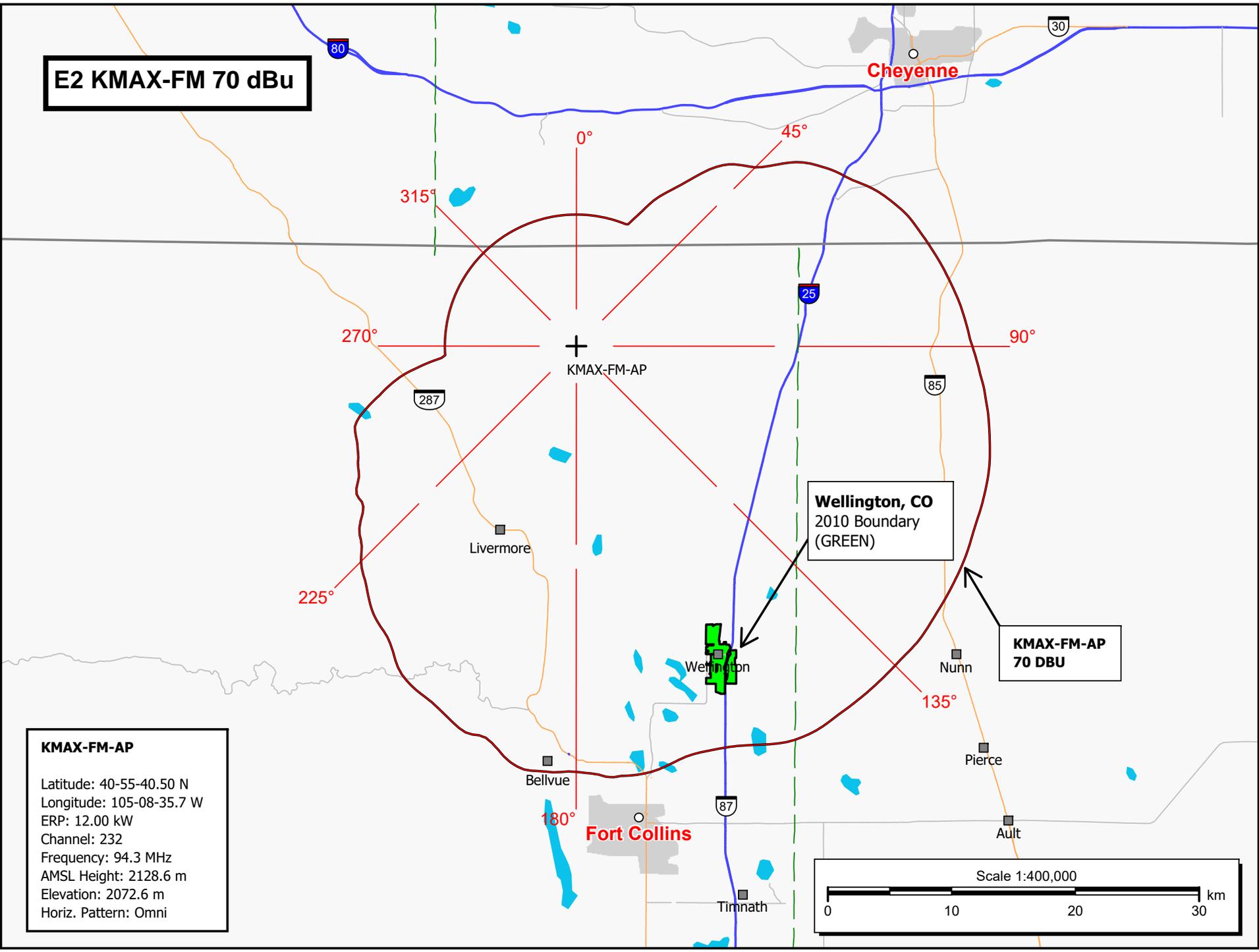
DATA 10-19-20  
SEARCH 10-19-20

----- Channel 232 - 94.3 MHz -----

Call	Channel	Location		Azi	Dist	FCC	Margin
<b>KMAX-FM</b>	LIC 232C3	Wellington	CO	283.5	0.05	152.5	<b>-152.5</b>
KRKS-FM	LIC-D 234C	Lafayette	CO	190.7	96.72	95.5	1.2
KAZY	LIC 229C3	Cheyenne	WY	58.6	44.28	42.5	1.8
KNEB-FM	LIC 231C1	Scottsbluff	NE	54.4	149.56	143.5	6.1
KCWA	LIC-Z 230A	Loveland	CO	183.9	48.34	41.5	6.8
KILO	LIC 232C	Colorado Springs	CO	174.3	243.50	236.5	7.0
K234AH	LIC 234D	Cheyenne	WY	27.2	21.58	9.5	12.1
K233CH	LIC-D 233D	Greeley	CO	146.9	64.97	46.5	18.5
KRRR	LIC-N 285C2	Cheyenne	WY	58.6	44.28	16.5	27.8
KEZZ	LIC-N 231C2	Phippsburg	CO	245.0	145.00	116.5	28.5
KEZZ	APP-N 231C2	Phippsburg	CO	249.2	145.89	116.5	29.4

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All separation margins include rounding.

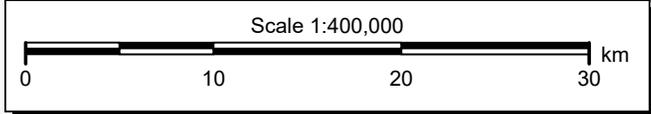
**E2 KMAX-FM 70 dBu**



**Wellington, CO**  
2010 Boundary  
(GREEN)

**KMAX-FM-AP**  
70 DBU

**KMAX-FM-AP**  
Latitude: 40-55-40.50 N  
Longitude: 105-08-35.7 W  
ERP: 12.00 kW  
Channel: 232  
Frequency: 94.3 MHz  
AMSL Height: 2128.6 m  
Elevation: 2072.6 m  
Horiz. Pattern: Omni



## E3 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	40-55-40.5 north
Longitude	105-08-35.7 west

##### Measurements (Meters)

Overall Structure Height (AGL)	61
Support Structure Height (AGL)	0
Site Elevation (AMSL)	2072.6

##### Structure Type

LTOWER - Lattice Tower

[CLOSE WINDOW](#)