



January 12, 2021

Engineering Statement, on behalf of Public Broadcasting of Colorado

This application proposes an increase in the TPO and ERP. No other changes are requested.

Using the GLOBE terrain elevation database, we have determined that the HAAT should be corrected to 204 m. No change is proposed to the licensed AMSL of 2,256 m. The Commission's GLOBE 1 K Base was selected using 36 evenly spaced radials. The proposed power and antenna HAAT produce a 60 dBu contour that travels 28.4 kilometers which is just under the maximum class contour distance of 28.5 kilometers.

The attached page is a list of antenna heights along each radial used to determine the final height above average terrain as expressed in this application.

Regarding service to the principal city, the original 2006 application used the Longley-Rice alternative method to determine city grade coverage. This application was accepted by the Commission and a license was granted. (see 301 form, BPH 20061002BTRX.) Since the instant proposal requests an increase of TPO and ERP of 50%, the principal city will be served by a higher signal level, therefore continuing to qualify the facility.

Consequently, this application meets all requirements for licensing.

Doug Vernier

HAAT Calculation using FCC's on-line calculator - GLOBE Terrain and 36 radials:

Latitude **39° 43' 59" North**
Longitude **105° 14' 12" West (NAD 83)**

Height of antenna radiation center above mean sea level: **2256 meters AMSL**

Number of Evenly Spaced Radials = **36** 0° is referenced to True North

Results

Calculated HAAT = **204 meters**

Antenna Height Above Average Terrain calculated
using 1 km [GLOBE terrain data](#)

Individual "Radial HAAT" Values, in meters

0°	368.0 m
10°	424.8 m
20°	444.7 m
30°	461.5 m
40°	526.0 m
50°	536.6 m
60°	545.7 m
70°	543.3 m
80°	517.4 m
90°	527.0 m
100°	509.6 m
110°	476.2 m
120°	432.9 m
130°	425.9 m
140°	437.5 m
150°	393.2 m
160°	297.5 m
170°	98.8 m
180°	67.9 m
190°	-1.9 m
200°	-26.2 m
210°	47.4 m
220°	-17.1 m
230°	-73.2 m
240°	-176.4 m
250°	-108.1 m
260°	-34.4 m
270°	45.7 m
280°	23.3 m
290°	-106.7 m
300°	-179.1 m
310°	-208.0 m
320°	-118.7 m
330°	-35.7 m
340°	66.6 m
350°	223.1 m