

# **Antenna Site City-Grade Coverage**

## **(Alternate Propagation Method):**

As can be seen in Exhibit 4, KUDD(FM)'s community of license, Randolph, UT, lies beyond the FCC predicted F(50,50) 70 dBu contour but completely within the FCC predicted F(50,50) 60 dBu contour on the 350 degree radial.<sup>1</sup> As shown in Exhibit 4, the F(50,50) 70 dBu community coverage contour is predicted to extend a radial distance of approximately 76 kilometers on the 350 degree radial toward Randolph, UT.

**SPECIAL NOTE:** It should be noted that station KDUT(FM) 272C Randolph, UT, is collocated with the proposed facilities of KUDD(FM) with an identical CORAMSL and "full field" ERP in the direction of Randolph, UT. The facilities of KDUT(FM) were previously found to meet the Commission's Antenna Site City Grade Coverage requirements (BMPH-20020214AAM). Therefore, the Applicant believes that the Commission Staff can also depend on the previous examination of the KDUT(FM) showing to satisfy the Community Coverage requirement instantly proposed without additional study. Nonetheless, the Applicant has included an Alternate Propagation Showing herein.

<sup>1</sup> The predicted coverage contours for the proposed operation were calculated in accordance with the provisions of Section 73.313. Pursuant with current FCC practice, the distances to the contours were calculated without consideration given to terrain roughness correction factors. The average terrain elevations from 3 to 16 kilometers along eight radials evenly spaced at 45 degree intervals were obtained from the 30-second N.G.D.C. terrain database. The terrain elevations were then used in combination with the effective radiated power for determining the distances to coverage contours.

Even though the FCC predicted F(50,50) 70 dBu contour does not fully encompass Randolph, due to the drastic change in elevation between the transmitter site and Randolph, higher field strengths would be expected over the community than what FCC predicted contours would show. Therefore, the Longley-Rice alternate propagation model has been used to verify this expectation. As can be seen on the map in Exhibit 4A, the first occurrence 73 dBu coverage contour, as predicted by Longley-Rice using the software code and input parameters as suggested by OET Bulletin 69, actually extends 99.8 kilometers on the 350 degree radial from the transmitter site, thereby easily covering the entire community of Randolph. The Community enjoys line of sight from the antenna site. The topographic profile in Exhibit 4B further bolsters this assessment and shows that Longley-Rice actually predicts better than 87 dBu signal across the community of Randolph on the 350 degree azimuth. Therefore, it is the undersigned's opinion that the instant application complies with Section 73.315 with respect to Community of License coverage. Compliance with the Commission's current staff policies with respect to the application of the Longley-Rice alternate propagation model is met:

The FCC predicted 60 dBu coverage contour entirely encompasses the community of license of Randolph (see Exhibit 4).

The radial distance to the 70 dBu Longley-Rice propagation model contour exceeds the distance to the FCC F(50,50) 70 dBu contour by more than ten percent. In this case, the 73 dBu Longley-Rice propagation model Mean Occurrence contour exceeds the distance to the FCC F(50,50)

70 dBu contour by more than 31.0% on the 350 degree radial (see Exhibit 4A).

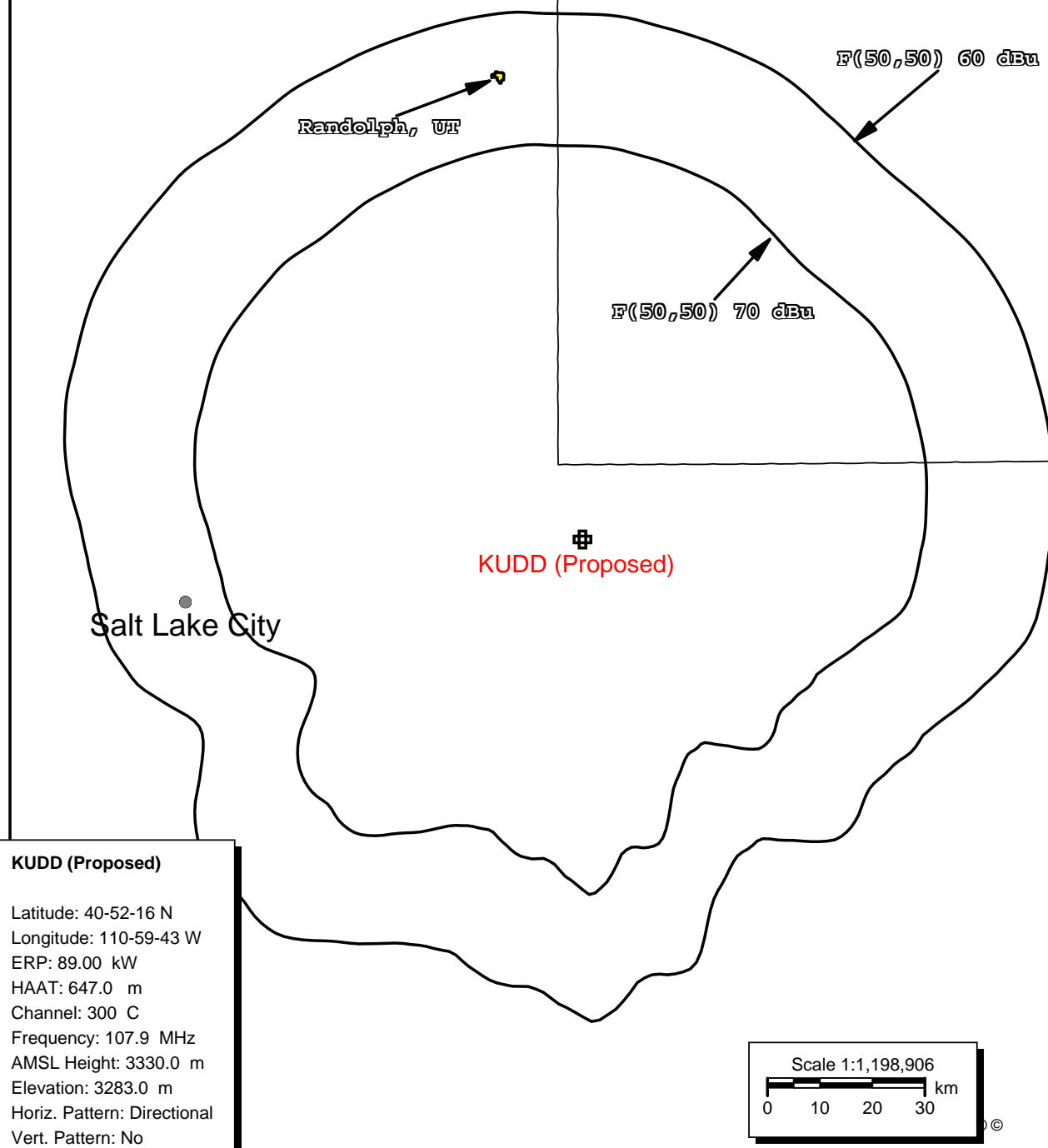
The “delta-h” requirement is achieved along 350 degree radial as calculations indicate a delta-h value of 179 meters at 350 degrees when considering the elevations extending from 10 kilometers to 50 kilometers from the proposed transmitter site. This complies with the current Commission policy requiring a “delta-h” of less than 20 meters or greater than 100 meters in order to utilize an alternate propagation method to determine coverage such as Longley-Rice or FM Point to Point.

## **Exhibit 4**

### **Proposed Antenna Site Contour Map:**

**F(50,50) Protected Contour  
F(50,50) City-Grade Contour**

KUDD(FM) 300C Randolph, UT  
Community Coverage Contour Map



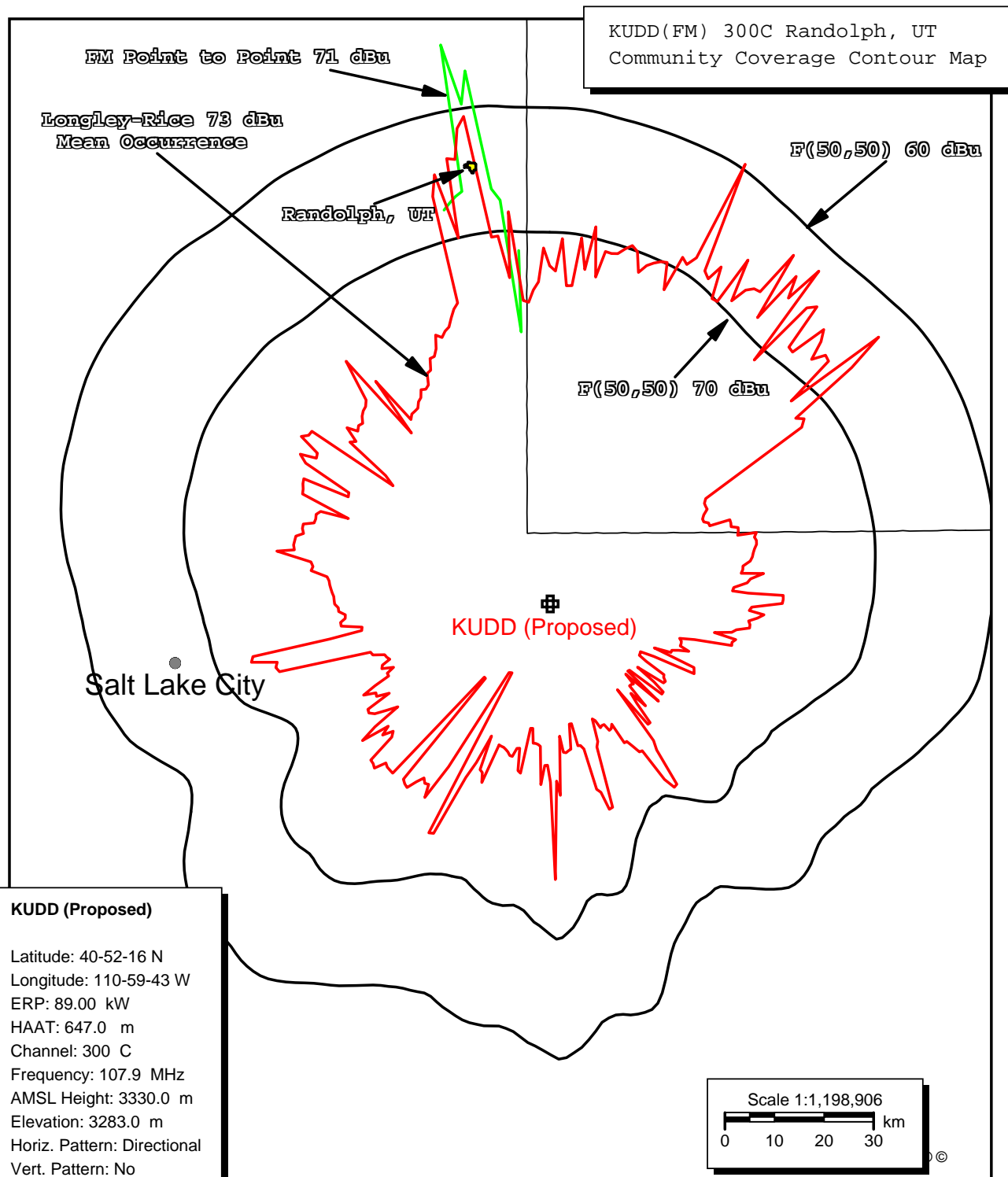
**KUDD (Proposed)**

Latitude: 40-52-16 N  
Longitude: 110-59-43 W  
ERP: 89.00 kW  
HAAT: 647.0 m  
Channel: 300 C  
Frequency: 107.9 MHz  
AMSL Height: 3330.0 m  
Elevation: 3283.0 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Prop Model: Longley/Rice  
Climate: Cont temperate  
Conductivity: 0.0150  
Dielec Const: 15.0  
Refractivity: 311.0  
Receiver Ht AG: 9.1 m  
Receiver Gain: 0 dB  
Time Variability: 50.0%  
Sit. Variability: 50.0%  
ITM Mode: Broadcast

# **Exhibit 4A**

**Alternate Propagation Method  
Coverage Map**

**Longley-Rice Method  
Mean Occurrence  
73 dBu Contour**



**KUDD (Proposed)**

Latitude: 40-52-16 N  
Longitude: 110-59-43 W  
ERP: 89.00 kW  
HAAT: 647.0 m  
Channel: 300 C  
Frequency: 107.9 MHz  
AMSL Height: 3330.0 m  
Elevation: 3283.0 m  
Horiz. Pattern: Directional  
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Prop Model: Longley/Rice  
Climate: Cont temperate  
Conductivity: 0.0150  
Dielec Const: 15.0  
Refractivity: 311.0  
Receiver Ht AG: 9.1 m  
Receiver Gain: 0 dB  
Time Variability: 50.0%  
Sit. Variability: 50.0%  
ITM Mode: Broadcast

Radial: 350 degrees

Delta h: 179 meters

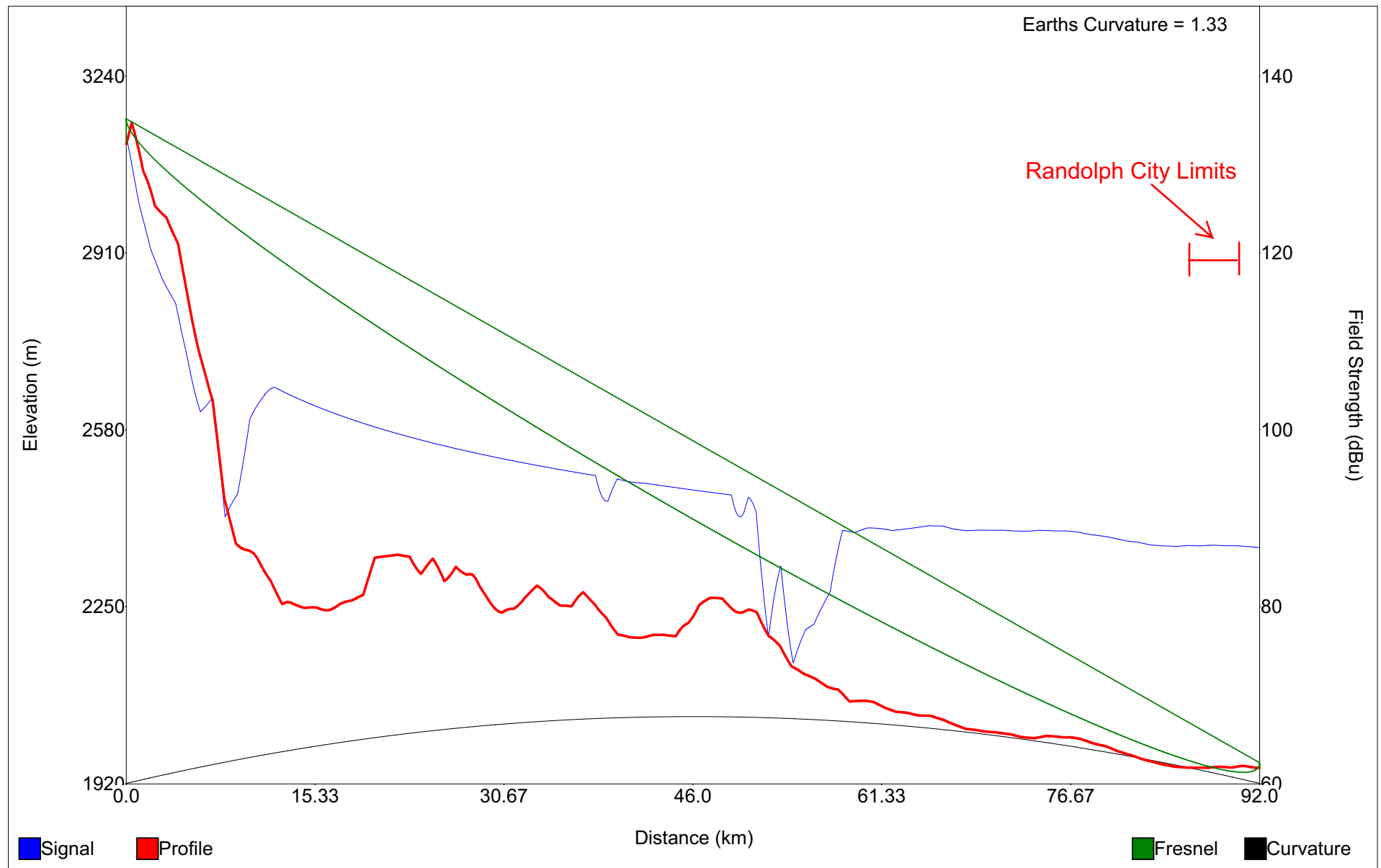
Longley-Rice Mean Occurrence: 73 dBu

FM Point to Point: 71 dBu

# **Exhibit 4B**

## **Alternate Propagation Method Profile Map to Randolph, UT**

# KUDD(FM) Profile to Randolph, UT



Starting Latitude: 40-52-16 N  
Starting Longitude: 110-59-43 W

End Latitude: 41-41-12.38 N  
End Longitude: 111-11-13.75 W

Distance: 92 km  
Bearing: 350 deg

Transmitter Height (AG) = 47.0 m  
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 3113.6 m  
Receiver Elevation = 1949.1 m

Frequency = 107.9 MHz  
Fresnel Zone: 0.6