

## TECHNICAL REPORT

This technical report has been developed in support of an application to modify KAFN 273A at Gould, AR. The applicant proposes to relocate the facility to a new tower site.

### **I. Allocation Analysis:**

The data for all terrain utilized in this report were obtained from the V-Soft PROBE 3 computer program, using the NGDC thirty-second terrain database. The proposed protected (50,50) and interfering (50,10) contours were calculated utilizing the same program.

KAFN will be fully spaced at its proposed site with respect to existing facilities, with the exceptions of KQEW and KPZK-FM, as is demonstrated in exhibit E-1.

**Consequently, 73.215 Processing is requested with respect to these facilities.**

The proposed facility will place a 70 dBu contour entirely over the existing community of license of Gould, AR, in compliance with Section 73.315. An effective radiated power of 6 kW is specified at a HAAT of 54 meters (60 dBu =21.4 km) is demonstrated in exhibit E-5.

Allocation exhibits provided are:

- E-1 KAFN Proposed Allocation Spacing Study
- E-2 KAFN Proposed HAAT Calculation
- E-3 KAFN Proposed vs. KQEW Interference Plot
- E-4 KAFN Proposed vs. KPZK-FM Max. Class Interference Plot
- E-5 KAFN 70 dBu Coverage Plot
- E-6 KAFN Proposed Line of Sight Plot

## II. Site:

The proposed facility will be relocated to the existing KXFE tower site (ASR# 1042634) at coordinates:

**(NAD 27) 33-58-11 N 091-32-58 W**

## III. Blanketing:

The 115 dBu blanketing contour is calculated to be 0.97 km. The calculation was made in accordance with the Commission's formula:

$$115 \text{ dBu (km)} = 1.609 [0.245 (P \text{ kW})^{1/2}].$$

The applicant accepts the responsibility for correction of any objectionable interference or blanketing problems in accordance with Commission rules.

## IV. Antenna System RF Analysis:

The new facility will utilize a three bay circularly polarized full wavelength antenna at a radiation center of 51 meters AGL. The RF contribution for the proposed 6 kW facility was calculated utilizing the Commission's FMMODEL program at a height

of 2 meters above ground level to be  $19.02 \text{ uW/cm}^2$  at a distance of 24 meters from the base of the tower. The RF calculation for the existing KXFE antenna is calculated to be  $15.27 \text{ uW/cm}^2$  at 18 meters. A worst-case combined  $34.29 \text{ uW/cm}^2$  at an average of 21 meters from the tower is well below the  $200 \text{ uW/cm}^2$  maximum exposure permissible for general public exposure.

**V. Conclusion:**

It is concluded that the proposed modifications to KAFN meet all applicable Commission rules and policies.



Charles M. Anderson, August 09, 2005

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E-1 KAFN Proposed Spacings

REFERENCE 33 58 11 N CLASS = A DISPLAY DATES  
 91 32 58 W Current Spacings DATA 08-05-05  
 SEARCH 08-06-05  
 ----- Channel 273 - 102.5 MHz -----

Call	Channel	Location	Dist	Azi	FCC	Margin
KAFN	LIC 273A	Gould	AR 8.18	126.1	114.5	-106.32
KQEW	LIC-Z 272C3	Fordyce	AR 84.08	257.5	88.5	-4.42
KPZKFM	LIC 273A	Cabot	AR 113.83	338.4	114.5	-0.67
WIIQO	LIC 272A	Leland	MS 80.88	141.7	71.5	9.38
KWLT	LIC 274C3	North Crossett	AR 99.69	201.7	88.5	11.19
KXSAFM	LIC 276A	Dermott	AR 48.58	182.7	30.5	18.08
WAGRFM	RSV 273C3	Lexington	MS 160.08	124.3	141.5	18.58
KTRQ	LIC-N 272C2	Colt	AR 141.27	31.3	105.5	35.77
KKYRFM	LIC 273C1	Texarkana	TX 242.62	256.4	199.5	43.12
WAGRFM	LIC 273A	Lexington	MS 160.08	124.3	114.5	45.58
KARNFM	LIC 275C2	Sheridan	AR 101.00	308.7	54.5	46.50
WZYQ.C	CP 270A	Mound Bayou	MS 78.55	97.1	30.5	48.05
KFFAFM	LIC-N 276C3	Helena	AR 104.92	53.5	41.5	63.42
KOKY	LIC 271A	Sherwood	AR 114.39	320.9	30.5	83.89
RDEL	DEL 274C1	Memphis	TN 217.73	47.7	132.5	85.23
WEGR	LIC-N 274C1	Memphis	TN 217.73	47.7	132.5	85.23
RADD	ADD 274C1	Arlington	TN 217.73	47.7	132.5	85.23

E-2 KAFN Proposed HAAT Calculation

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N. Lat. = 33 58 11 W. Lng. = 91 32 58

HAAT and Distance to Contour - FCC Method - 30 Arc Sec.

KAFN, Arkansas County Broadcasters, BLH20000106AAV

Azi. AV EL HAAT ERP kW dBk Field 60-F5

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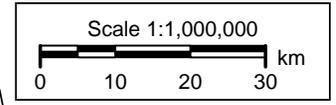
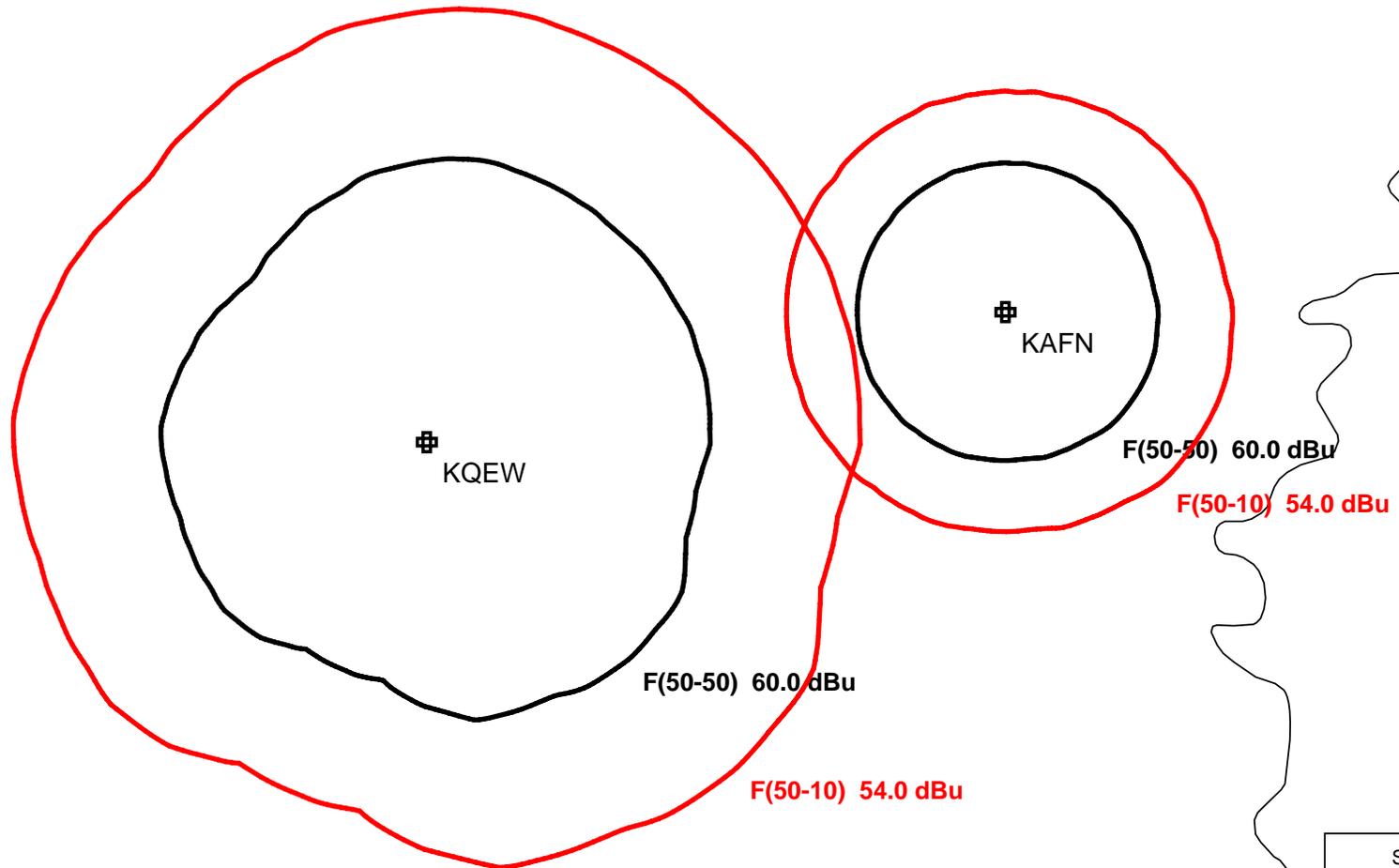
000	48.2	52.8	6.0000	7.78	1.000	21.16
045	46.5	54.5	6.0000	7.78	1.000	21.48
090	45.6	55.4	6.0000	7.78	1.000	21.66
135	44.0	57.0	6.0000	7.78	1.000	21.94
180	48.8	52.2	6.0000	7.78	1.000	21.04
225	48.1	52.9	6.0000	7.78	1.000	21.17
270	49.0	52.0	6.0000	7.78	1.000	20.99
315	49.0	52.0	6.0000	7.78	1.000	20.99

Ave EI= 47.41 M HAAT= 53.59 M AMSL= 101 M

# E-3 KAFN Proposed vs. WQEW Interference Plot

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**KAFN**  
BLH20000106AAV  
Latitude: 33-58-11 N  
Longitude: 091-32-58 W  
ERP: 6.00 kW  
Channel: 273  
Frequency: 102.5 MHz  
AMSL Height: 101.0 m  
Elevation: 50.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

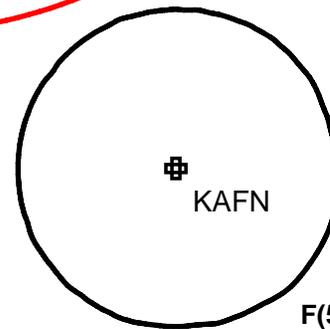
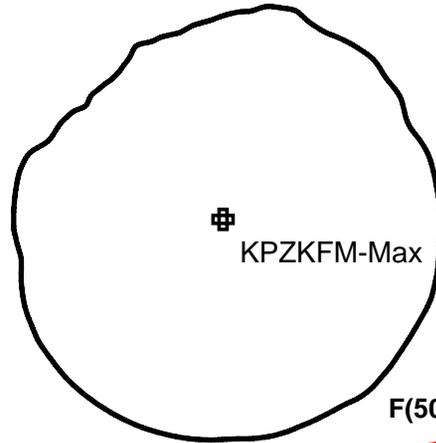


V-Soft Communications LLC ©

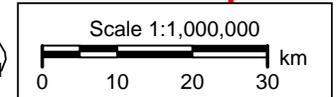
# E-4 KAFN Proposed vs. KPZK-FM Max. Class Interference Plot

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**KAFN**  
BLH20000106AAV  
Latitude: 33-58-11 N  
Longitude: 091-32-58 W  
ERP: 6.00 kW  
Channel: 273  
Frequency: 102.5 MHz  
AMSL Height: 101.0 m  
Elevation: 50.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None



F(50-10) 40.0 dBu

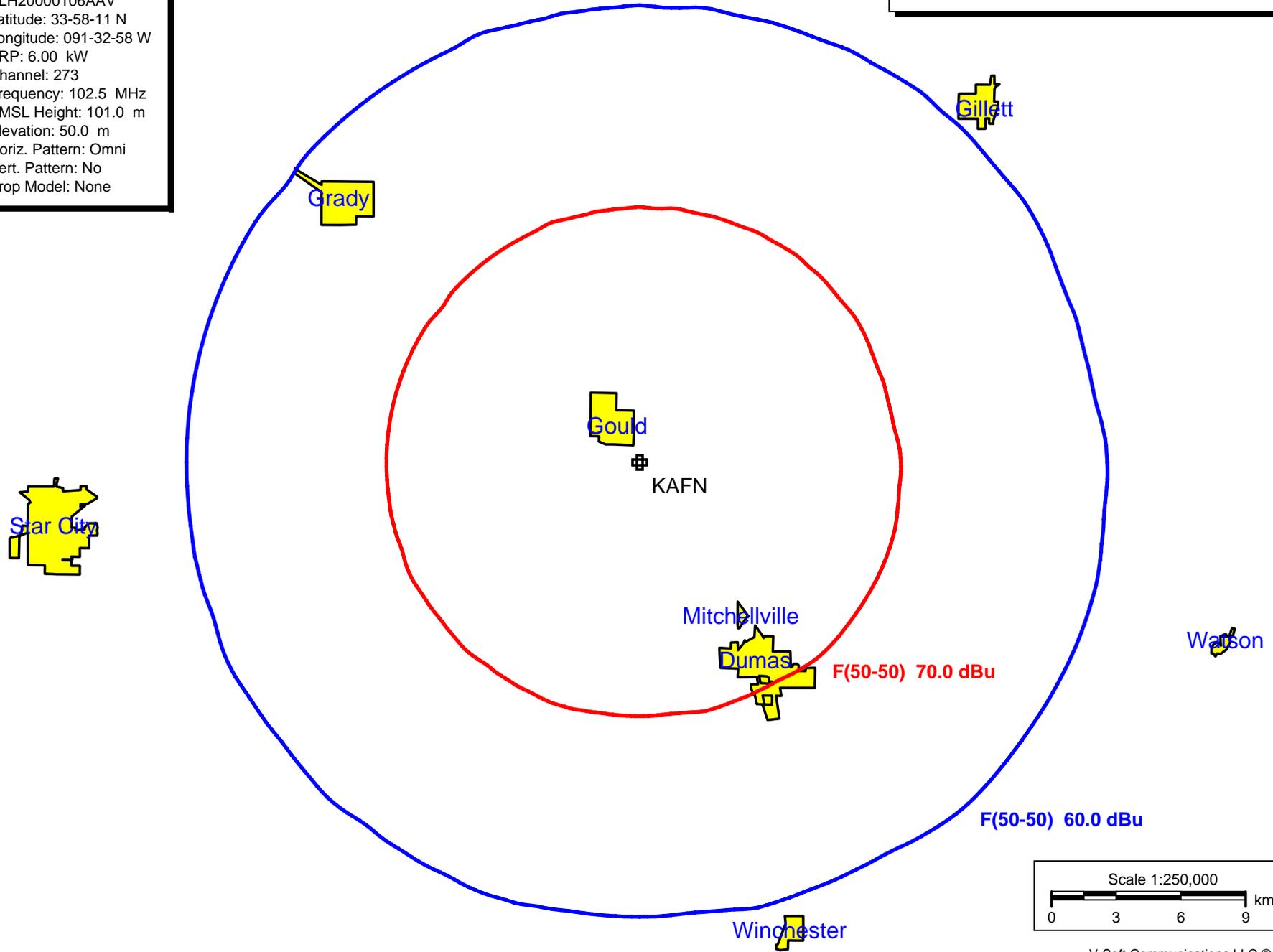


V-Soft Communications LLC ©

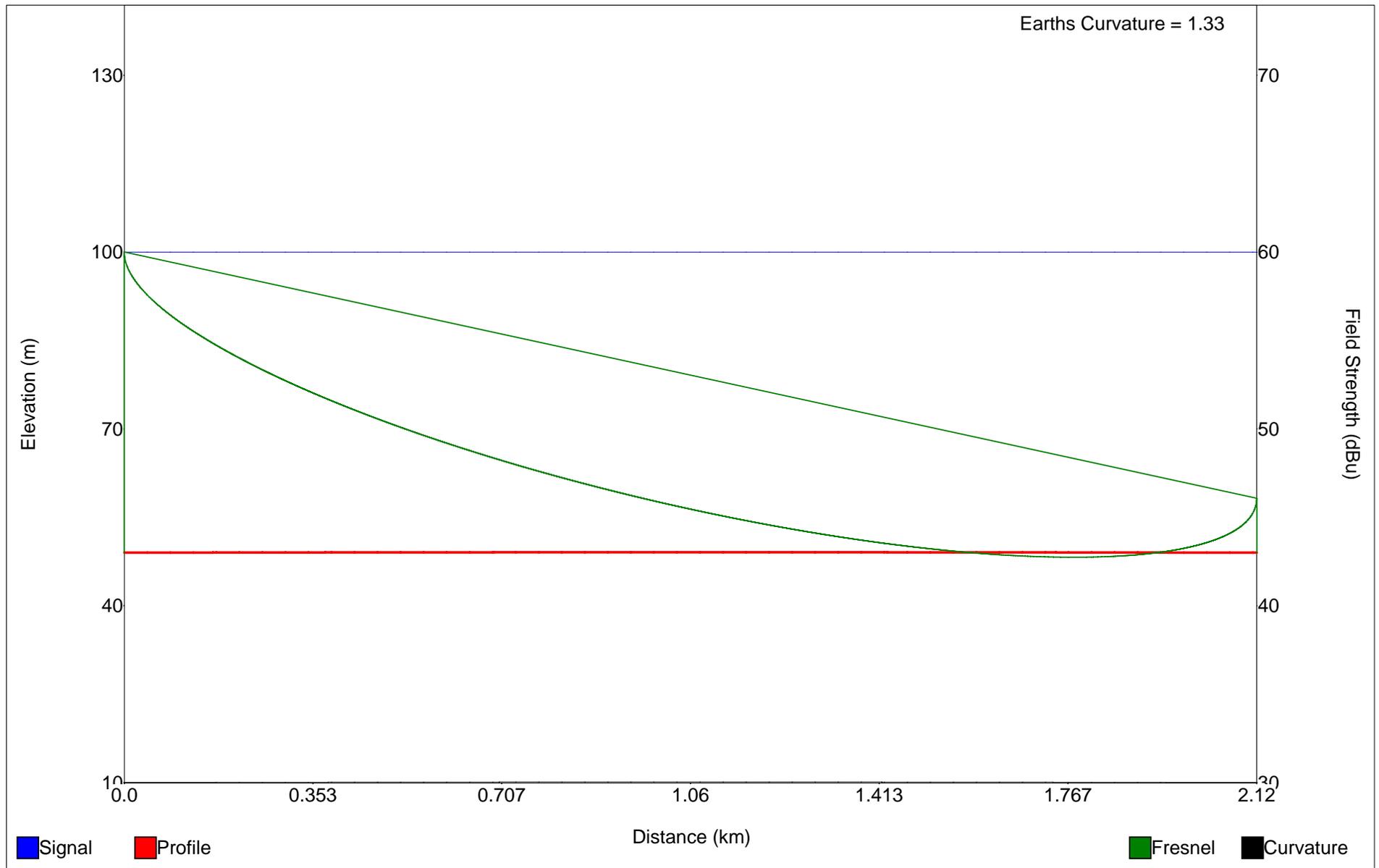
# E-5 KAFN Proposed Coverage Plot

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**KAFN**  
BLH20000106AAV  
Latitude: 33-58-11 N  
Longitude: 091-32-58 W  
ERP: 6.00 kW  
Channel: 273  
Frequency: 102.5 MHz  
AMSL Height: 101.0 m  
Elevation: 50.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None



# E-6 KAFN Proposed Line of Sight Plot



Starting Latitude: 33-58-11 N

Starting Longitude: 091-32-58 W

End Latitude: 33-59-07 N

End Longitude: 091-33-46 W

Distance: 2.120190495 km

Bearing: 324.472 deg

Transmitter Height (AG) = 51.0 m

Receiver Height (AG) = 9.2 m

Transmitter Elevation = 49.0 m

Receiver Elevation = 49.0 m

Frequency = 102.5 MHz

Fresnel Zone: 0.6