

**CORRECTION OF COORDINATES/  
MINOR CHANGE APPLICATION  
APEX BROADCASTING, INC.  
KTSR (FM) RADIO STATION  
CH 221C3 - 92.1 MHZ - 13.5 KW  
DE QUINCY, LOUISIANA  
May 2006**

**EXHIBIT A**

**Compliance with §73.315(a)  
Using Supplemental City Grade Analysis**

The corrected tower site for KTSR is located approximately 28.4 kilometers south-southeast of the community of DeQuincy, Louisiana. From the corrected KTSR facility, the predicted 3.16 mV/m contour, using the Commission's standard method of predicting city grade coverage as outlined in §73.313, does not encompass the community of DeQuincy. However, in this particular case, we find a supplemental method of depicting city grade coverage, as noted in §73.313(e) of the Commission's rules, is appropriate. We have analyzed the terrain in 4° increments from 325° to 341° to determine the terrain variations on each of these radials. §73.313 of the rules notes that the Commission's propagation curves are based on a 50 meter terrain variation ( $\Delta H$ ). Using the 30 second terrain database, on the five pertinent radials toward the community of DeQuincy, beginning 10.0 kilometers out from the site out to a distance of 31.0 kilometers, the individual radial  $\Delta H$  values never exceed 18.0 meters. As such, the terrain along the pertinent radials varies from the 50 meter variation used in the Commission's field strength curves.

The corrected KTSR antenna system is located in Sulphur, Louisiana, at geographic coordinates North Latitude 30° 13' 16" and West Longitude 93° 18' 40". The community of De Quincy, Louisiana, is located on bearings between 325° and 341° true from the corrected KTSR site. Running individual radials, in 4° increments, from the KTSR site through the community, we have determined the location of the city grade contour based on the standard utilization of the Commission's 50/50 curves (see Exhibit A1). We have alternatively determined the location of the 70 dBu contour, using the Diffcomb program, which is a variation of the irregular terrain model, taking into consideration diffraction loss over knife edge and rounded obstacle obstructions. Further, reductions of calculated signal strength are also made to account for foliage and buildings (Clutter Loss).<sup>3</sup> This model is a more representative prediction of field strength than the standard methodology under certain terrain conditions.

On the pertinent bearings toward the community of De Quincy, we have tabulated the distance to the city grade contour using both the FCC method and supplemental method to demonstrate the differences to the contour and find that the supplemental depiction distances are in excess of 10% higher than the distances using the Commission's standard methodology (see Exhibit A2). Based on the Staff's policy, we find that the terrain on these pertinent radials varies widely from the 3.0 to 16.0 kilometer average (as detailed above) and the differences to the contour distances, as determined by the supplemental method, exceed the standard method by more than 10%. Therefore, pursuant to §73.313(e), a supplemental method of depicting the city

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3) To insure coverage of the proposed community, the Diffcomb model was set at 39.1 kilometers as the point of interest.

grade coverage is acceptable. It is noted that at no point does the supplemental city grade distance extend beyond the predicted 60 dBu (50/50) protected contour.

Using the supplemental method calculations, we find that the city grade contour in the direction of De Quincy, Louisiana, in 4° increments between 325° and 341°, extends at least 31.9 kilometers out from the site, on the pertinent radials, extending beyond the community of De Quincy. As visually demonstrated on Exhibit A3, the predicted 70 dBu signal, as calculated using the Diffcomb model, shows De Quincy, Louisiana, within the predicted city grade contour. There are no terrain obstructions in the path between the proposed transmitter site and the community. Attached as Exhibit A4 through A8 are the terrain profiles of the 325°, 329°, 333°, 337° and 341° radials.

A sample calculation was made, based on the 333° radial, between the site and the community, to verify the location of the city grade, using a free space signal formula:  $106.9 + \text{power in dBk} - 20 \log (\text{distance in kilometers to point of interest})$ . Based on the corrected KTSR facility, the distance to the 70 dBu contour was calculated using the Diffcomb program and found to extend 31.9 kilometers. Based on the proposed facility, the 70 dBu contour, corrected to allow for a 5.0 dB clutter loss (the 75 dBu contour), is being sought.

$$106.9 + 11.3 \text{ dBk} - 20 \log 31.9 = 88.1$$

**Attenuation due to diffracted signal over terrain - 13.1 dB**

**Clutter Loss -5.0**

**Signal at point of interests 70.0 dBu**

Therefore, based on the supplemental depiction, we find the community of De Quincy to be within the city grade contour of the corrected KTSR facility in compliance with the Commission's rules.



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**EXHIBIT A1**

Predicted contour:

N. Lat. = 30 13 16 - Tabulated Service Contour Data  
W. Lng. = 93 18 40 - KTSR Radio Station - De Quincy, Louisiana

HAAT and Distance to Contour - FCC Method - 30 Arc Second terrain database

Azi.	HAAT	ERP kW	dBk	Field	70-F5	60-F5
000	136.5	13.5000	11.30	1.000	23.18	39.06
045	135.1	13.5000	11.30	1.000	23.08	38.89
090	137.1	13.5000	11.30	1.000	23.23	39.14
135	137.1	13.5000	11.30	1.000	23.23	39.14
180	137.1	13.5000	11.30	1.000	23.23	39.14
225	137.1	13.5000	11.30	1.000	23.23	39.14
270	137.1	13.5000	11.30	1.000	23.23	39.14
315	137.0	13.5000	11.30	1.000	23.22	39.13

Ave El= 0.34 M HAAT= 136.76 M AMSL= 137.1 M

Additional Radials (Not Considered in Average):

325	136.1	13.5000	11.30	1.000	23.16	39.02
329	135.7	13.5000	11.30	1.000	23.12	38.97
333	135.6	13.5000	11.30	1.000	23.11	38.95
337	135.2	13.5000	11.30	1.000	23.09	38.91
341	135.4	13.5000	11.30	1.000	23.10	38.93

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**EXHIBIT A2**

**Tabulation of City Grade Contours**  
**in Arc Towards De Quincy, Louisiana**

<u>Radial</u> <u>(Bearing)</u>	<u>Delta h</u> <u>meters</u>	<u>Location of 70 dBu</u>		<u>% of Chg</u>	<u>Method</u> <u>Used</u>
		<u>FCC Method (F)</u>	<u>Diffcomb(D)</u>		
325°	12.0	23.2 km	32.0 km	+ 37.9	D
329°	18.0	23.1 km	34.0 km	+ 47.2	D
333°	17.4	23.1 km	31.9 km	+ 38.1	D
337°	10.5	23.1 km	34.0 km	+ 47.2	D
341°	17.5	23.1 km	32.0 km	+ 38.5	D

**Graham Brock, Inc. - Broadcast Technical Consultants**

**KNUF**

Latitude: 30-13-24 N  
Longitude: 093-18-36 W  
ERP: 13.50 kW  
Channel: 221C3  
Frequency: 92.1 MHz  
AMSL Height: 137.1 m

70 dBu (P-to-P)

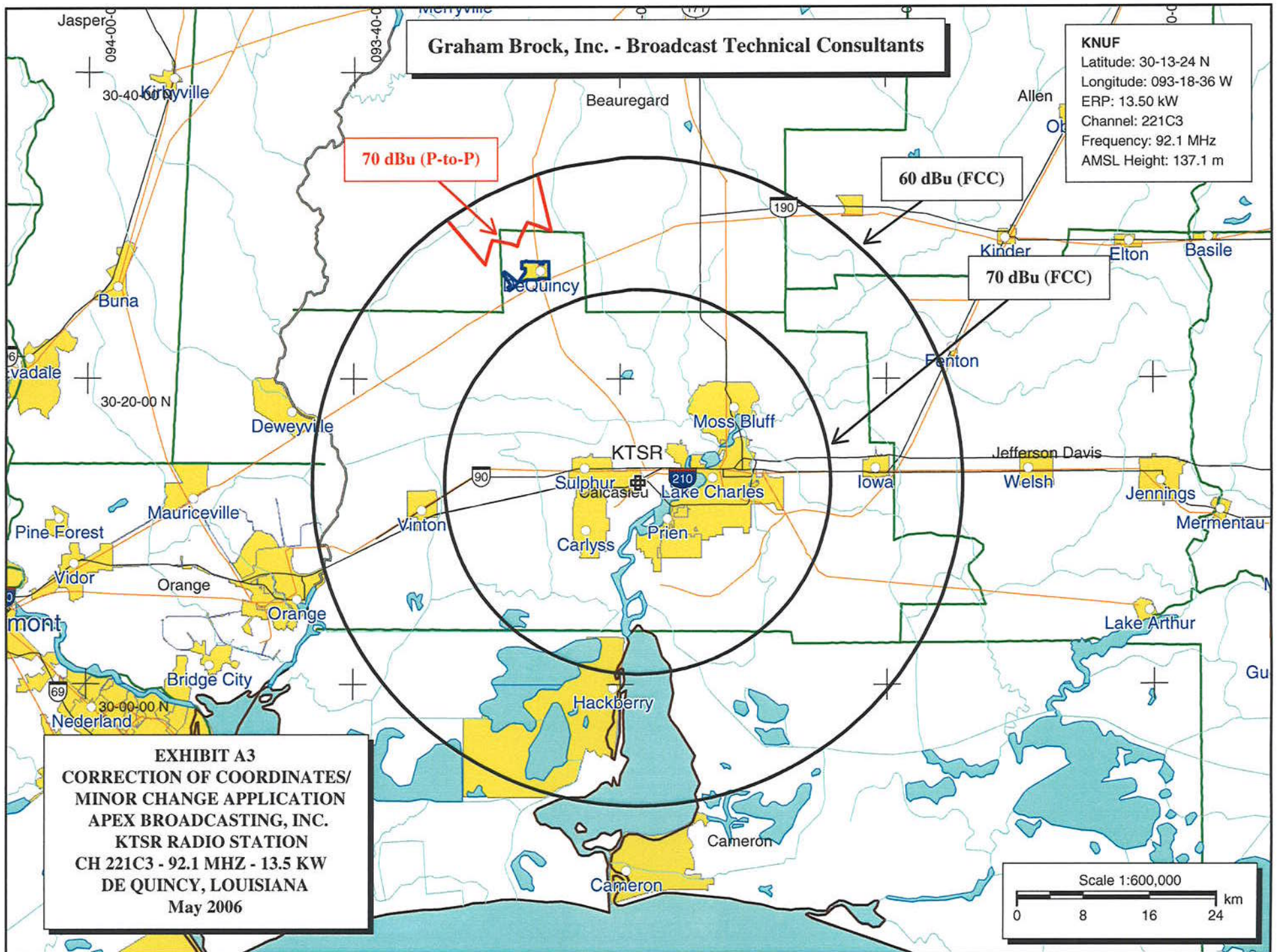
60 dBu (FCC)

70 dBu (FCC)

**EXHIBIT A3**  
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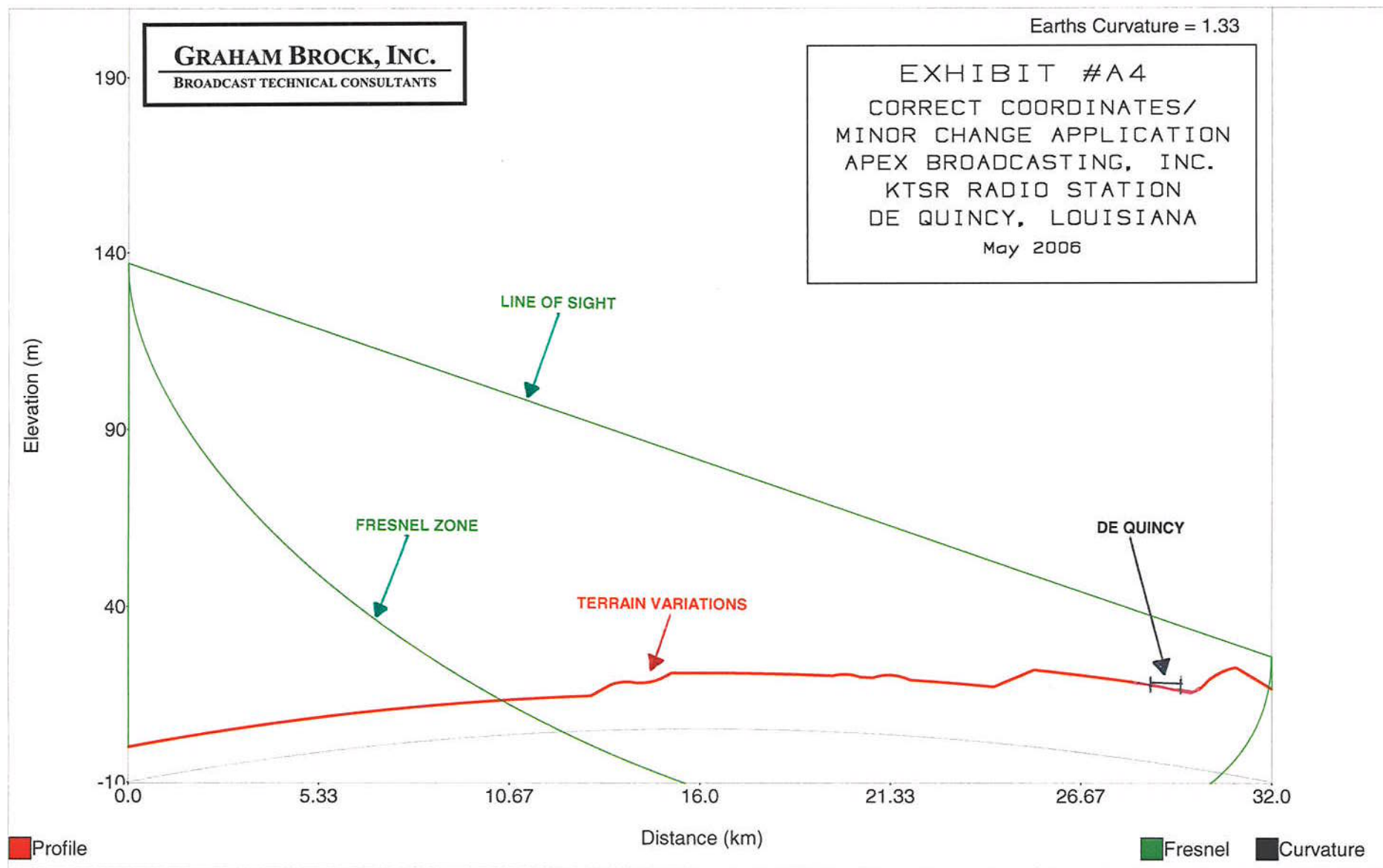
Scale 1:600,000

0 8 16 24 km





# Terrain radial profile - 325°



Starting Latitude: 30-13-16 N  
 Starting Longitude: 093-18-40 W

End Latitude: 30-27-26.76 N  
 End Longitude: 093-30-07.99 W

Distance: 32 km  
 Bearing: 325 deg

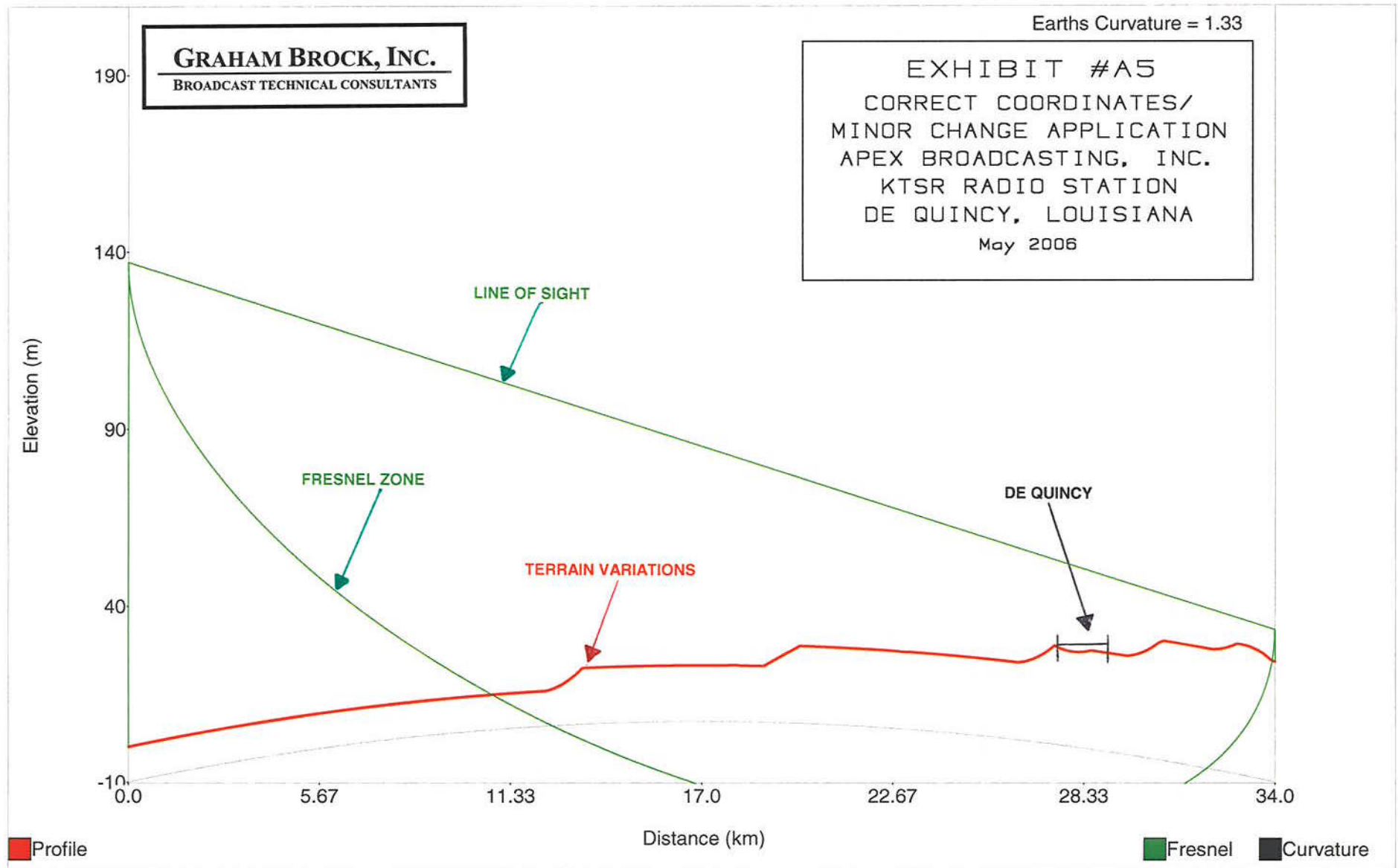
Transmitter Height (AG) = 137.1 m  
 Receiver Height (AG) = 9.1 m

Transmitter Elevation = 0.0 m  
 Receiver Elevation = 16.4 m

Frequency = 92.1 MHz  
 Fresnel Zone: 0.6



# Terrain radial profile - 329°



Starting Latitude: 30-13-16 N  
Starting Longitude: 093-18-40 W

End Latitude: 30-29-01.99 N  
End Longitude: 093-29-36.56 W

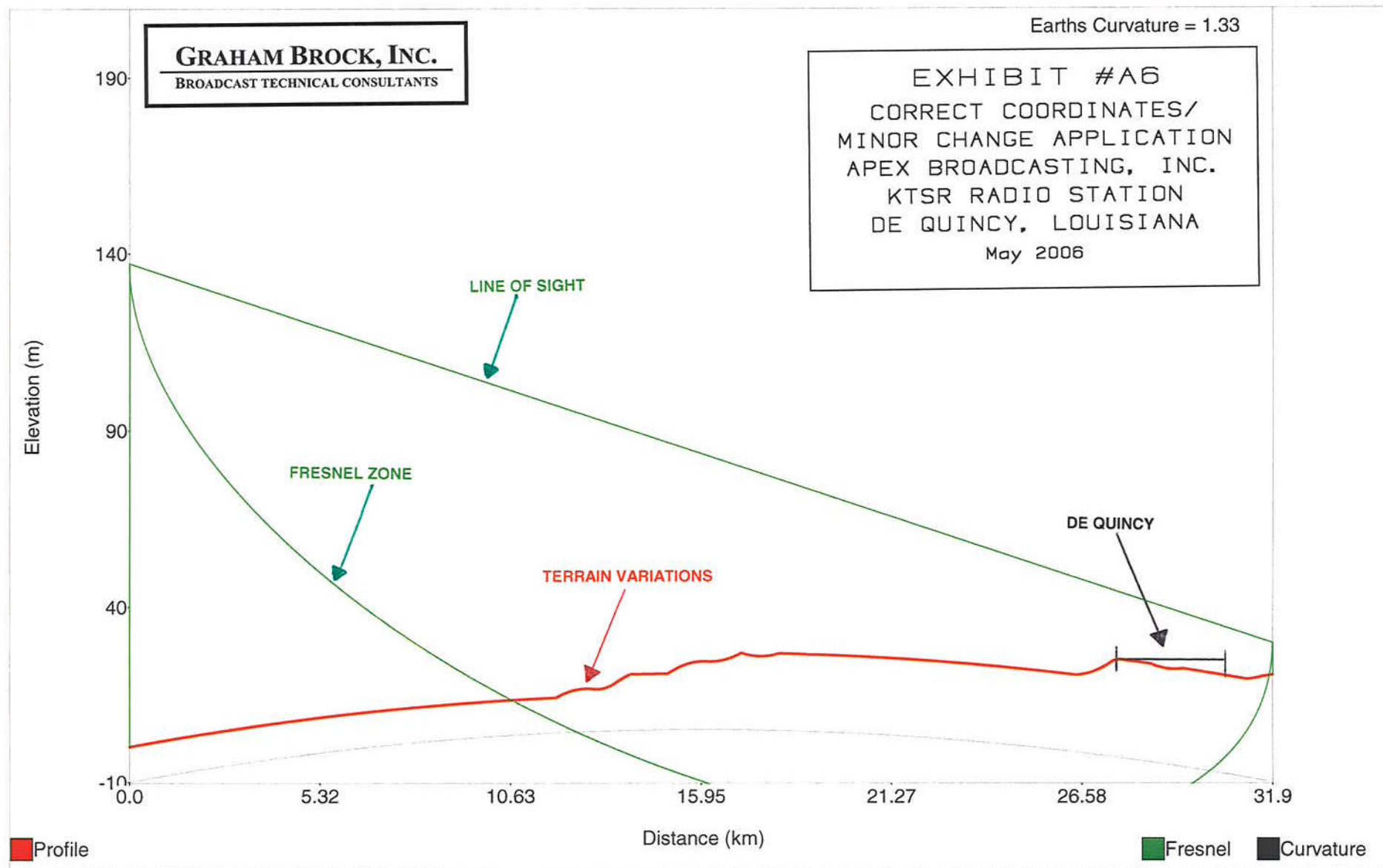
Distance: 34 km  
Bearing: 329 deg

Transmitter Height (AG) = 137.1 m  
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 0.0 m  
Receiver Elevation = 24.0 m

Frequency = 92.1 MHz  
Fresnel Zone: 0.6

# Terrain radial profile - 333°



Starting Latitude: 30-13-16 N  
Starting Longitude: 093-18-40 W

End Latitude: 30-28-38.73 N  
End Longitude: 093-27-42.95 W

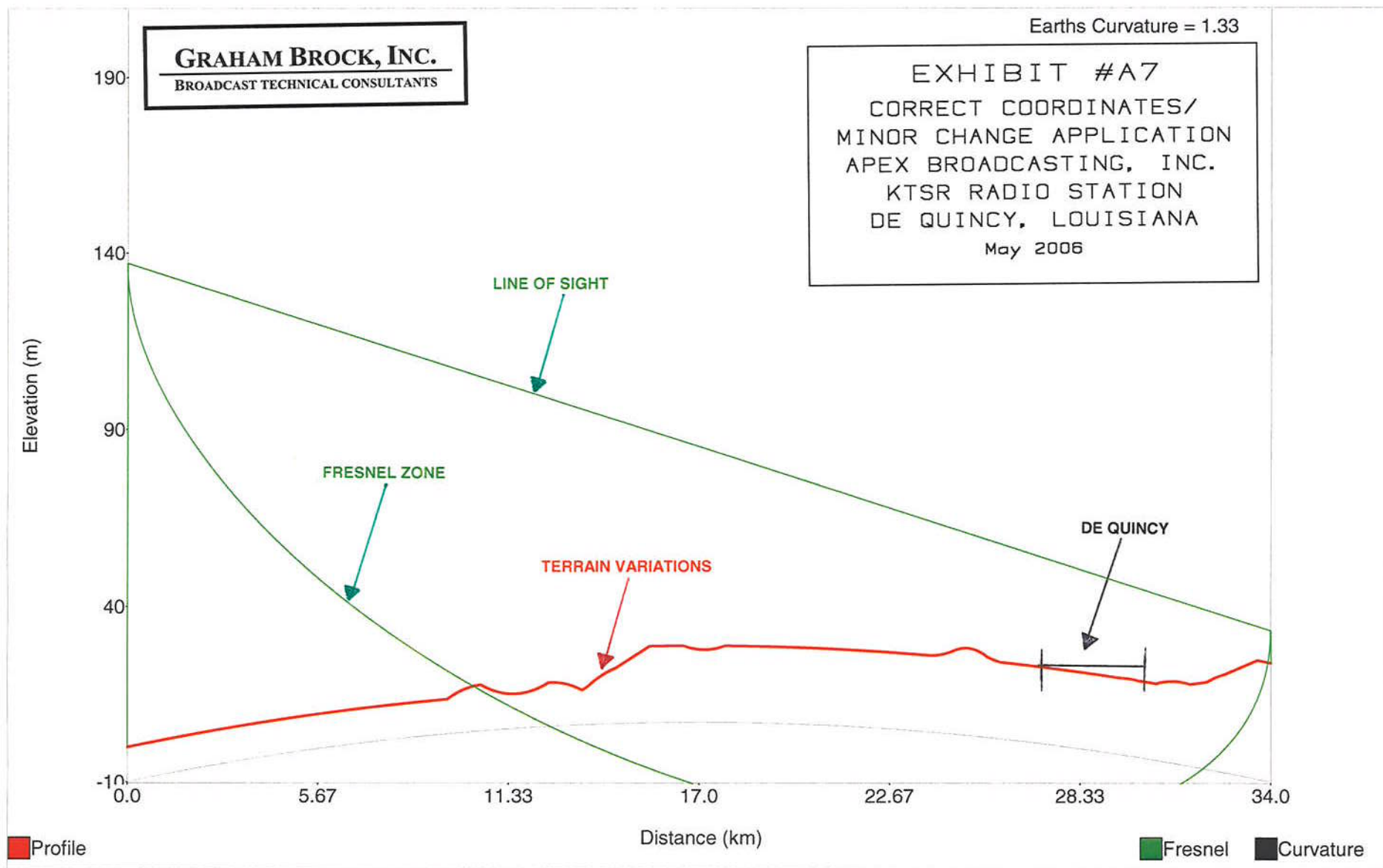
Distance: 31.9 km  
Bearing: 333 deg

Transmitter Height (AG) = 137.1 m  
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 0.0 m  
Receiver Elevation = 20.6 m

Frequency = 92.1 MHz  
Fresnel Zone: 0.6

# Terrain radial profile - 337°



Starting Latitude: 30-13-16 N  
Starting Longitude: 093-18-40 W

End Latitude: 30-30-12.11 N  
End Longitude: 093-26-58.19 W

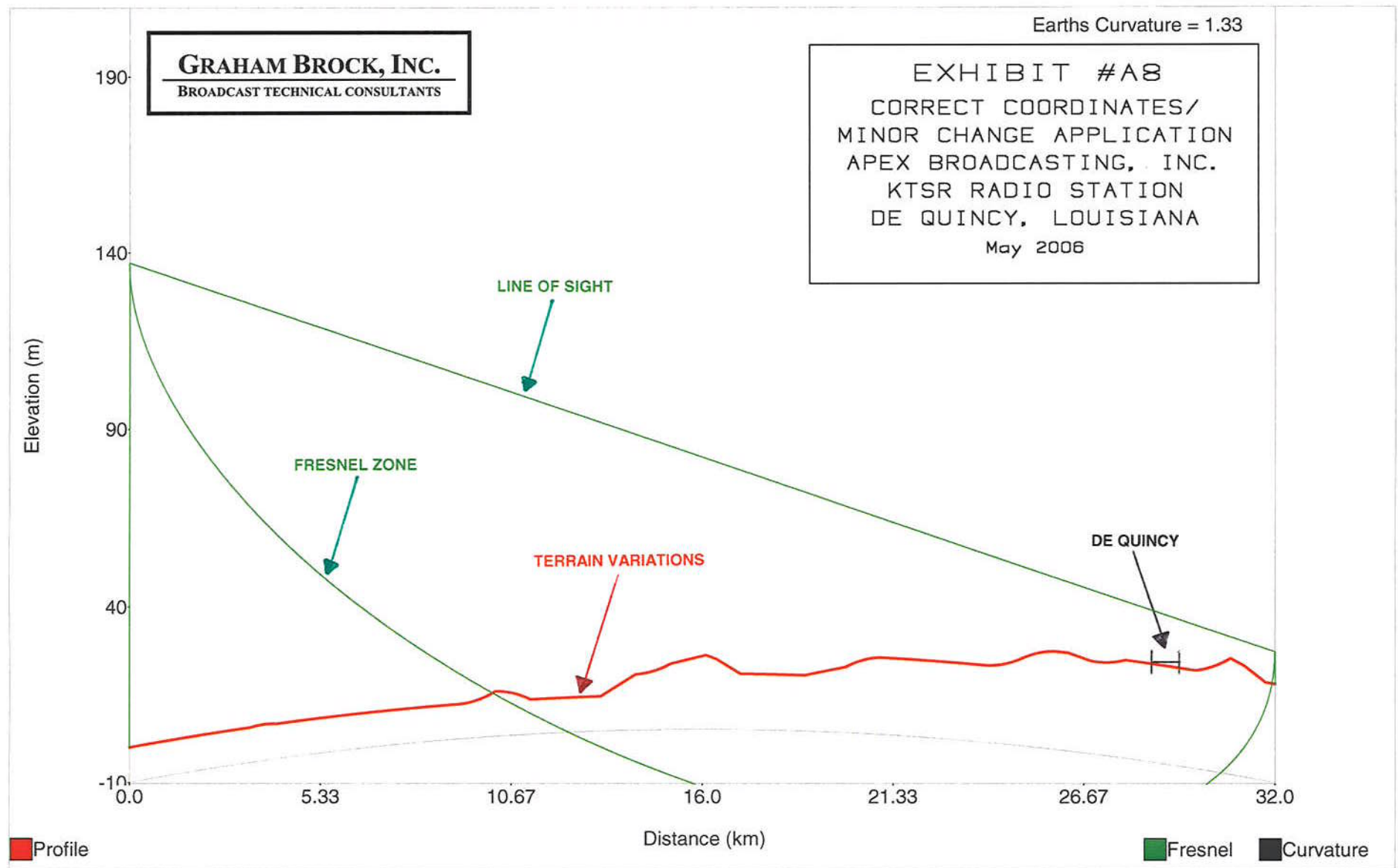
Distance: 34.0 km  
Bearing: 337 deg

Transmitter Height (AG) = 137.1 m  
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 0.0 m  
Receiver Elevation = 24.0 m

Frequency = 92.1 MHz  
Fresnel Zone: 0.6

# Terrain radial profile - 341°



Starting Latitude: 30-13-16 N  
Starting Longitude: 093-18-40 W

End Latitude: 30-29-38.42 N  
End Longitude: 093-25-10.65 W

Distance: 32.0 km  
Bearing: 341 deg

Transmitter Height (AG) = 137.1 m  
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 0.0 m  
Receiver Elevation = 18.0 m

Frequency = 92.1 MHz  
Fresnel Zone: 0.6