

MINOR CHANGE APPLICATION
KNTO, INC.
KNTO (FM) RADIO STATION
CH 227A - 93.3 MHZ - 4.6 KW
CHOWCHILLA, CALIFORNIA
October 2003

EXHIBIT A

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

The proposed tower site for KNTO is located 15.1 kilometers south-southeast of the community of Chowchilla, California. From the proposed KNTO 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 all the community of Chowchilla. 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 3.0° increments from 333° to 354° 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 (ΔH). Using the 30 second terrain database, on the ten pertinent radials toward the community of Chowchilla, beginning out from the site (along the pertinent radials) 10.0 kilometers to the farthest boundary of the city (generally 17 kilometers), the individual radial ΔH values never exceed 11.1 meters. As such, the terrain along the pertinent radials varies from the 50 meter variation used in the Commission's field strength curves.

The proposed KNTO antenna system is to be located west of Madera, California, at geographic coordinates North Latitude 36° 59' 14" and West Longitude 120° 12' 21". The community of Chowchilla, California, is generally located on bearings between 333° and 354°

true from the proposed KNT0 site. Running individual radials, in 3° increments, from the KNT0 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 coverage, 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 calculation signal strength are also made to account for foliage and buildings (Clutter Loss).³ 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 Chowchilla, 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 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.⁴

3) To insure coverage of the proposed community, the Diffcomb model was set at 28.0 kilometers as the point of interest (the distance to the present FCC F50/50 60 dBu contour).

4) If the Diffcomb contour extended beyond the predicted 60 dBu contour, it was truncated at that distance.

Using the supplemental method calculations, we find that the city grade contour in the direction of Chowchilla, California, in 3° increments between 333° and 354°, extends at least 20.0 kilometers out from the site, on the pertinent radials, extending beyond the community of Chowchilla. As visually demonstrated on Exhibit A3, the predicted 70 dBu signal, as calculated using the Diffcomb model, shows Chowchilla within the predicted city grade contour. There are no major terrain obstructions in the path between the proposed transmitter site and the community. Attached as Exhibit A4 through A11 are the terrain profiles of the 333°, 336°, 339°, 342°, 345°, 348°, 351°, and 354° radials.

A sample calculation was made, based on the 342° 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 proposed KNTD facility, the distance to the 70 dBu contour was calculated using the Diffcomb program and found to extend 24.0 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.

$$106.9 + 6.63 \text{ dBk} - 20 \log 24 = 85.9$$

Attenuation due to diffracted signal over terrain - 10.9 dB

Clutter Loss -5.0

Signal at point of interests 70.0 dBu

Therefore, based on the supplemental depiction, we find the community of Chowchilla to be within the city grade contour of the proposed KNTD facility in compliance with the Commission's rules.

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EXHIBIT A1

Predicted contours:

N. Lat. = 36 59 14 - Tabulated Service Contour Data
W. Lng. = 120 12 21 - KNTO Radio Station - Chowchilla, California

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

Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5	70-F5
000	74.8	107.1	4.6000	6.63	1.000	27.51	15.60
045	86.4	95.5	4.6000	6.63	1.000	26.09	14.64
090	82.2	99.7	4.6000	6.63	1.000	26.62	14.98
135	71.4	110.5	4.6000	6.63	1.000	27.91	15.88
180	59.9	122.0	4.6000	6.63	1.000	29.11	16.79
225	53.5	128.4	4.6000	6.63	1.000	29.72	17.24
270	51.8	130.1	4.6000	6.63	1.000	29.89	17.37
315	63.3	118.6	4.6000	6.63	1.000	28.77	16.53

Ave El= 67.91 M HAAT= 113.99 M AMSL= 181.9 M

Additional Radials (Not Considered in Average):

333	69.4	112.5	4.6000	6.63	1.000	28.13	16.04
336	71.5	110.4	4.6000	6.63	1.000	27.90	15.88
339	72.8	109.1	4.6000	6.63	1.000	27.75	15.76
342	74.2	107.7	4.6000	6.63	1.000	27.59	15.65
345	76.6	105.3	4.6000	6.63	1.000	27.31	15.45
348	78.1	103.8	4.6000	6.63	1.000	27.13	15.32
351	77.2	104.7	4.6000	6.63	1.000	27.23	15.40
354	76.9	105.0	4.6000	6.63	1.000	27.27	15.42

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EXHIBIT A2

Tabulation of City Grade Contours
in Arc Towards Chowchilla, California

<u>Radial</u> <u>(Bearing)</u>	<u>Δ H value</u>	<u>Location of 70 dBu</u>		<u>% of Chg</u>	<u>Method</u> <u>Used</u>
		<u>FCC (F)</u>	<u>Diffcomb(D)</u>		
333°	5.7m	16.0 km	20.0 km	+ 25.0	D
336°	2.4m	15.9 km	21.0 km	+ 32.1	D
339°	2.7m	15.8 km	23.0 km	+ 45.6	D
342°	11.1m	15.7 km	24.0 km	+ 52.9	D
345°	8.2m	15.5 km	25.0 km	+ 61.3	D
348°	5.2m	15.3 km	22.0 km	+ 43.8	D
351°	6.0m	15.4 km	21.0 km	+ 36.4	D
354°	5.9m	15.4 km	21.0 km	+ 36.4	D

Graham Brock, Inc. - Broadcast Technical Consultants

KNTO Proposed
Latitude: 36-59-14 N
Longitude: 120-12-21 W
ERP: 6.00 kW
Channel: 227A
AMSL Height: 181.9 m

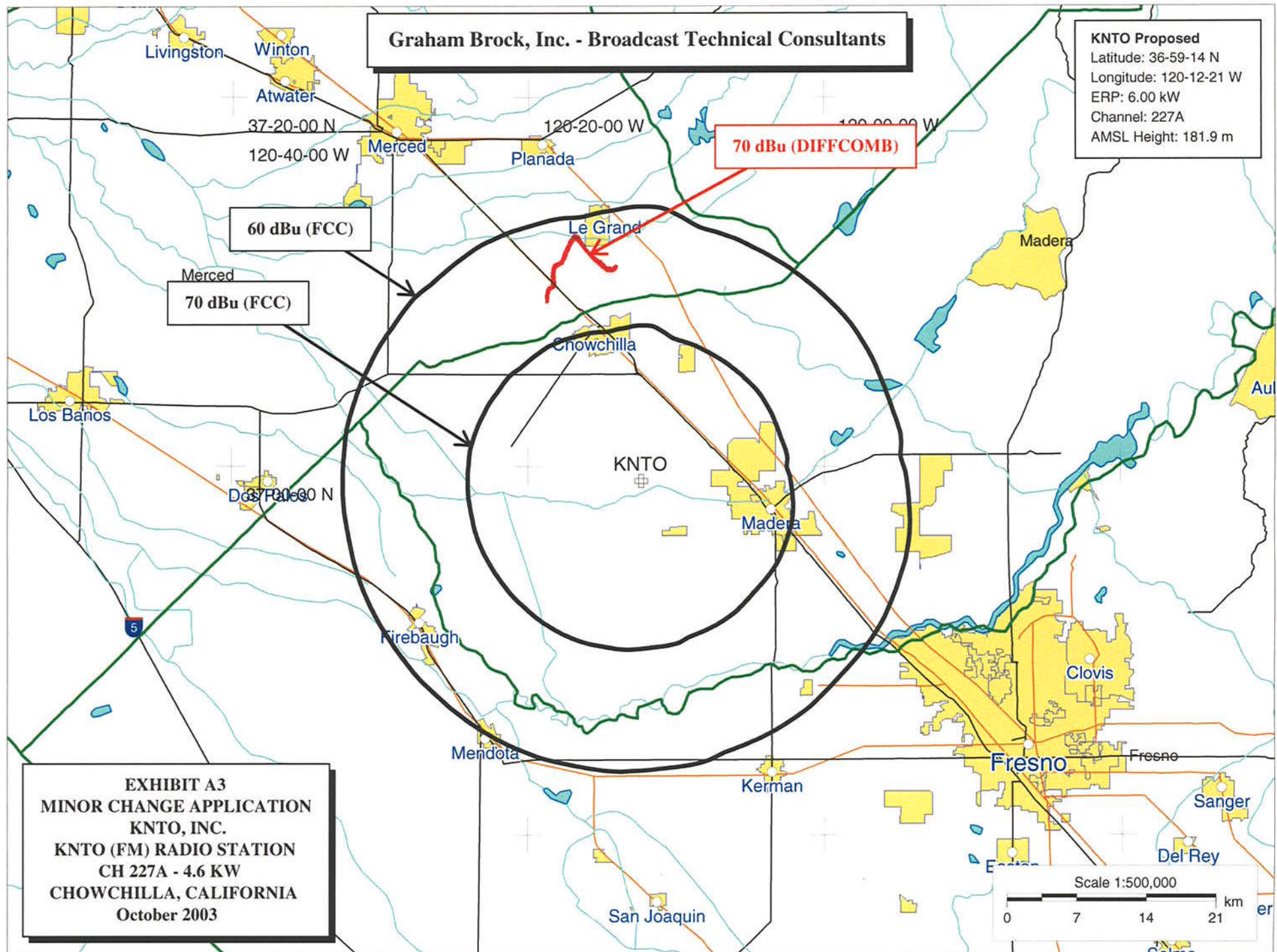
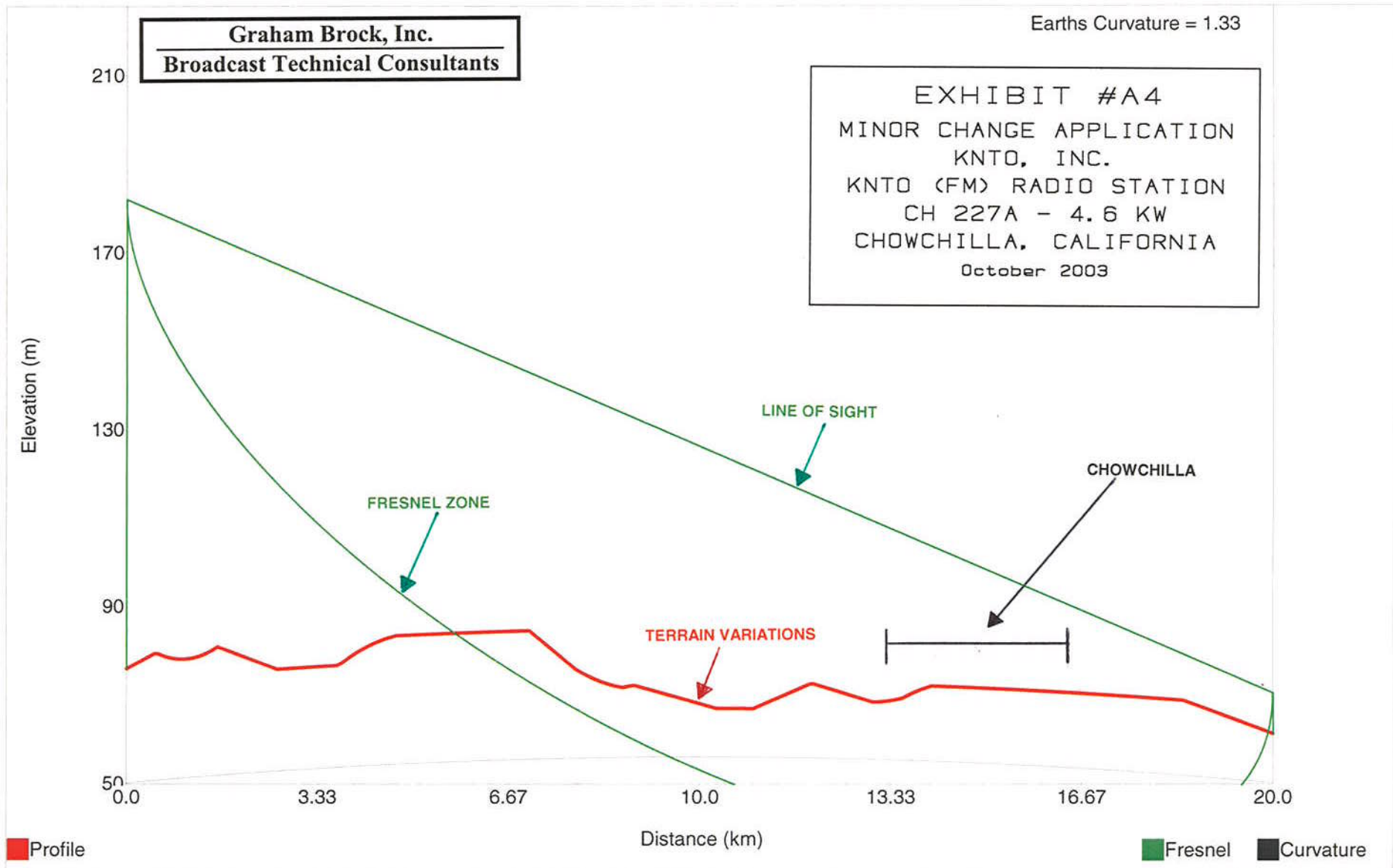


EXHIBIT A3
MINOR CHANGE APPLICATION
KNTD, INC.
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KNT0 333° RADIAL



Starting Latitude: 36-59-14 N
Starting Longitude: 120-12-21 W

End Latitude: 37-08-51.92 N
End Longitude: 120-18-28.93 W

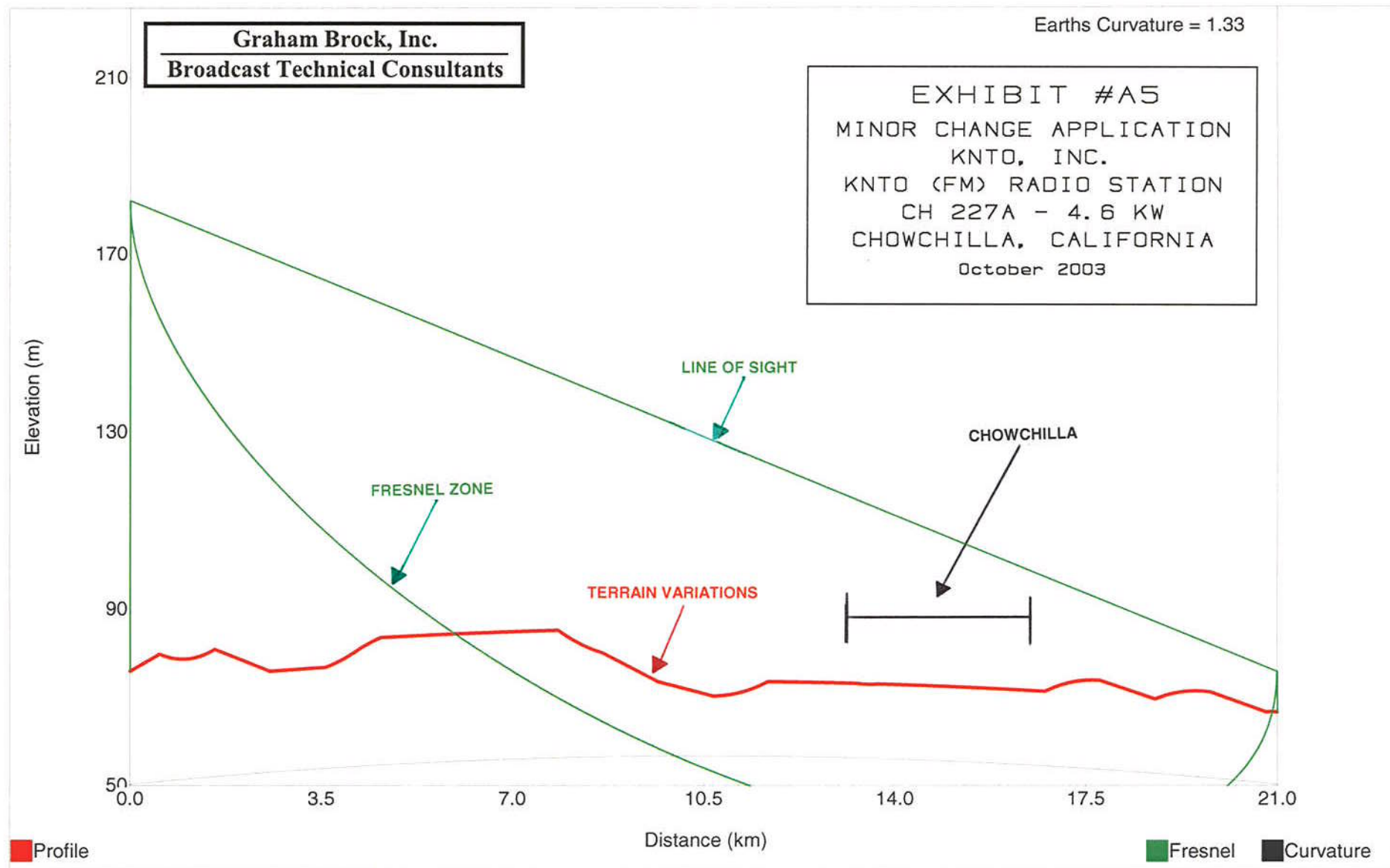
Distance: 20 km
Bearing: 333 deg

Transmitter Height (AG) = 106.1 m
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 75.8 m
Receiver Elevation = 61.2 m

Frequency = 93.3 MHz
Fresnel Zone: 0.6

KNTO 336° RADIAL



Starting Latitude: 36-59-14 N
Starting Longitude: 120-12-21 W

End Latitude: 37-09-36.19 N
End Longitude: 120-18-07.17 W

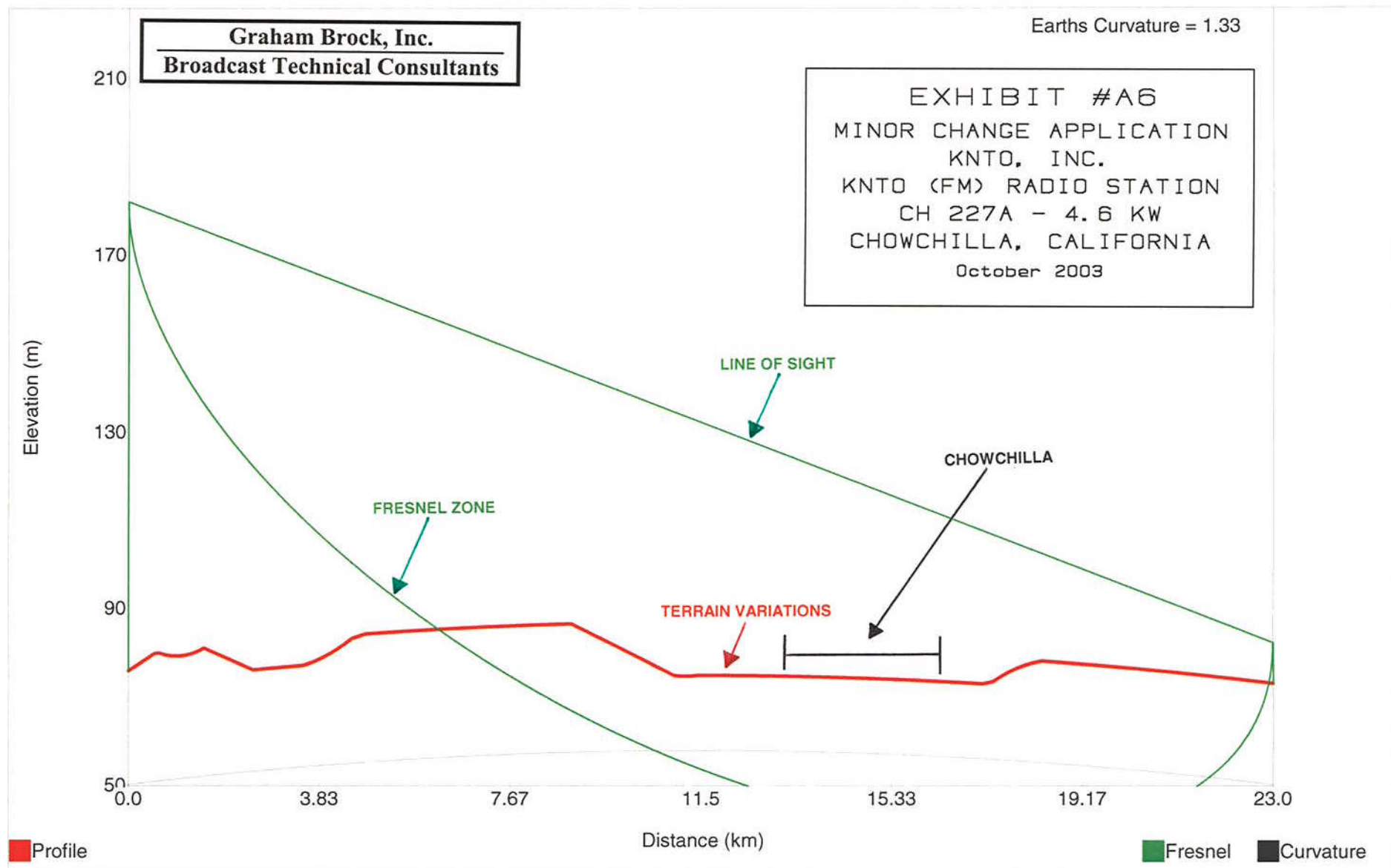
Distance: 21 km
Bearing: 336 deg

Transmitter Height (AG) = 106.1 m
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 75.8 m
Receiver Elevation = 66.5 m

Frequency = 93.3 MHz
Fresnel Zone: 0.6

KNTO 339° RADIAL



Starting Latitude: 36-59-14 N
Starting Longitude: 120-12-21 W

End Latitude: 37-10-50.42 N
End Longitude: 120-17-55.14 W

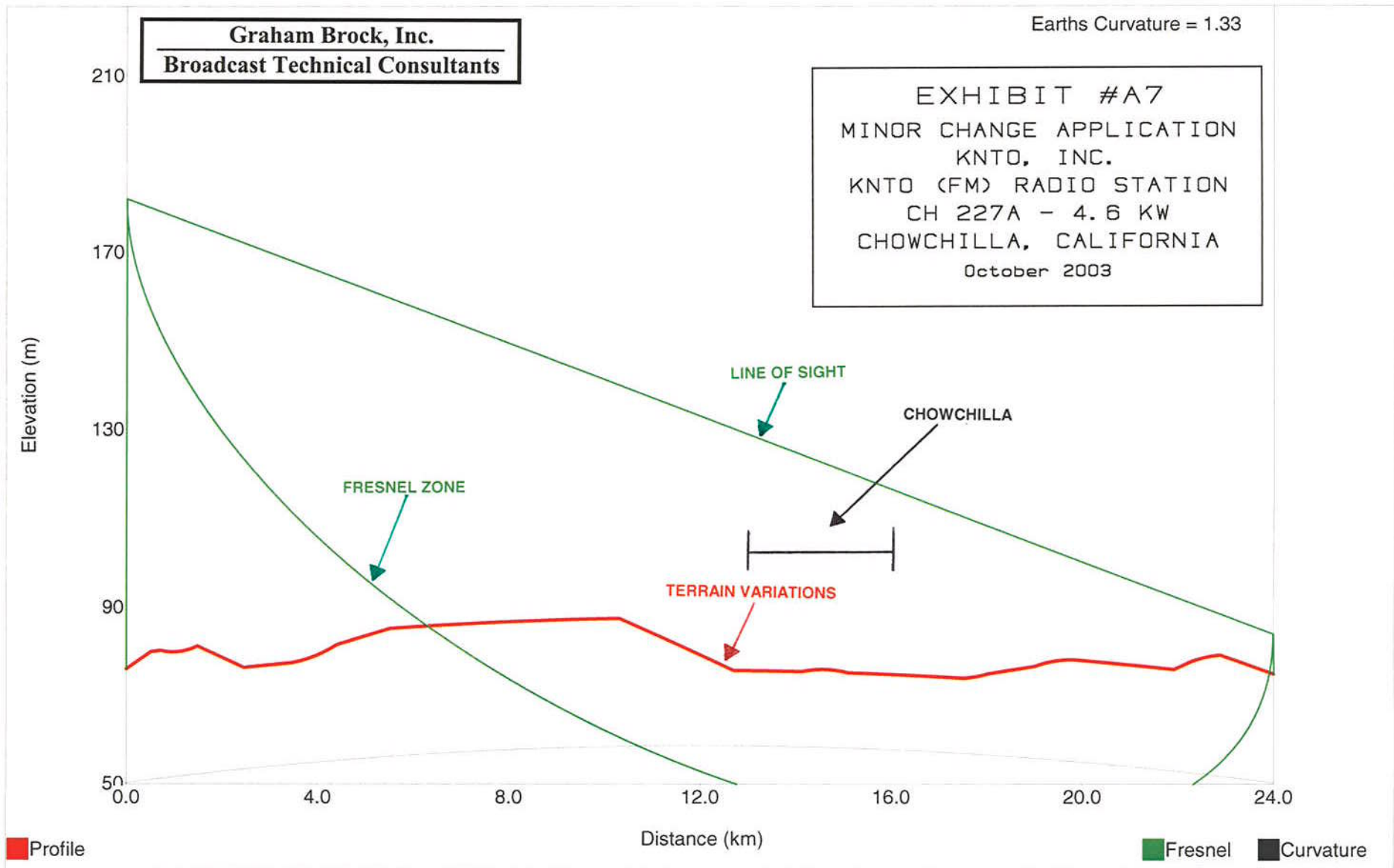
Distance: 23 km
Bearing: 339 deg

Transmitter Height (AG) = 106.1 m
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 75.8 m
Receiver Elevation = 73.0 m

Frequency = 93.3 MHz
Fresnel Zone: 0.6

KNT0 342° RADIAL



Starting Latitude: 36-59-14 N
Starting Longitude: 120-12-21 W

End Latitude: 37-11-34.33 N
End Longitude: 120-17-21.70 W

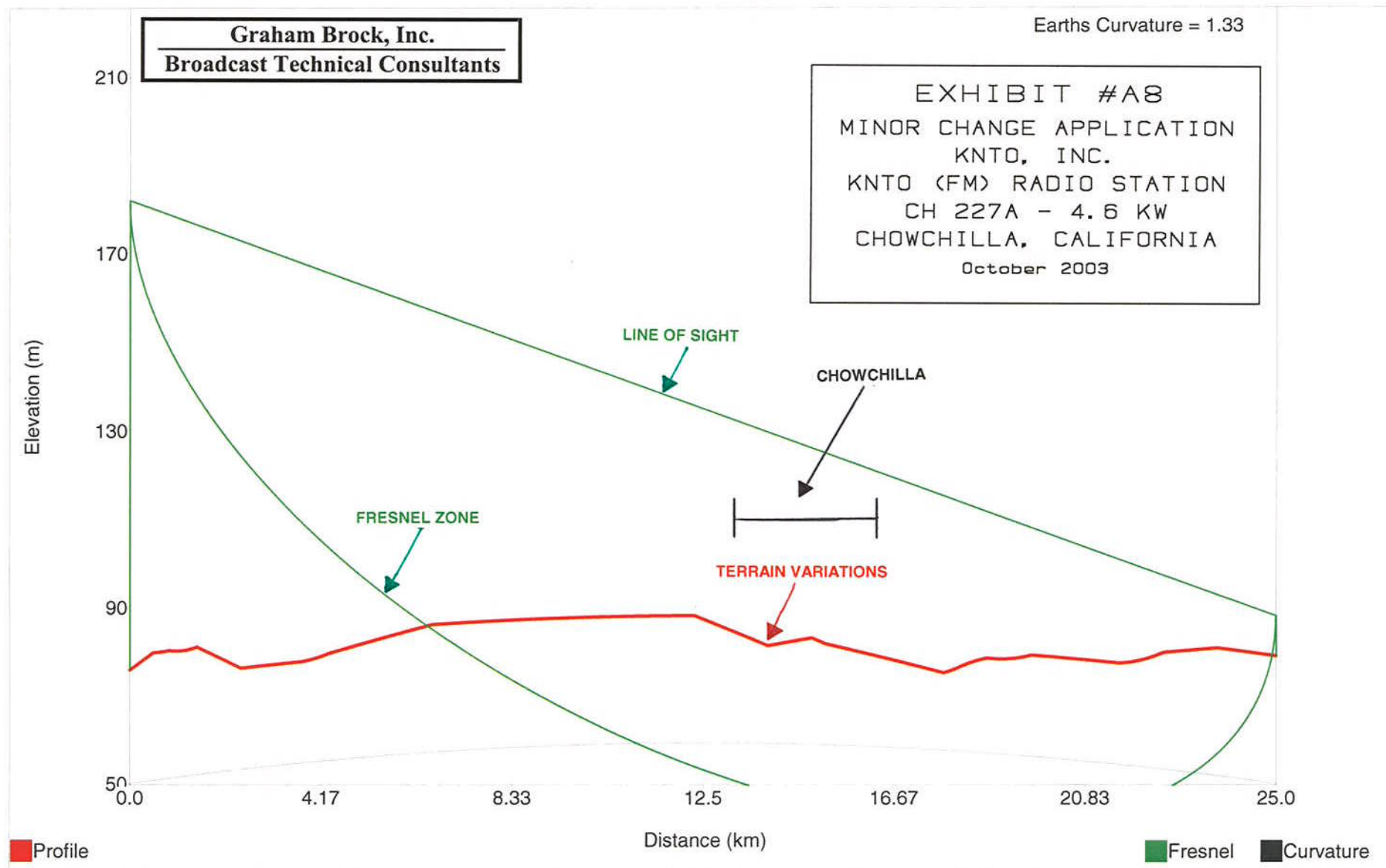
Distance: 24 km
Bearing: 342 deg

Transmitter Height (AG) = 106.1 m
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 75.8 m
Receiver Elevation = 74.7 m

Frequency = 93.3 MHz
Fresnel Zone: 0.6

KNTO 345° RADIAL



Starting Latitude: 36-59-14 N
Starting Longitude: 120-12-21 W

End Latitude: 37-12-17.27 N
End Longitude: 120-16-43.39 W

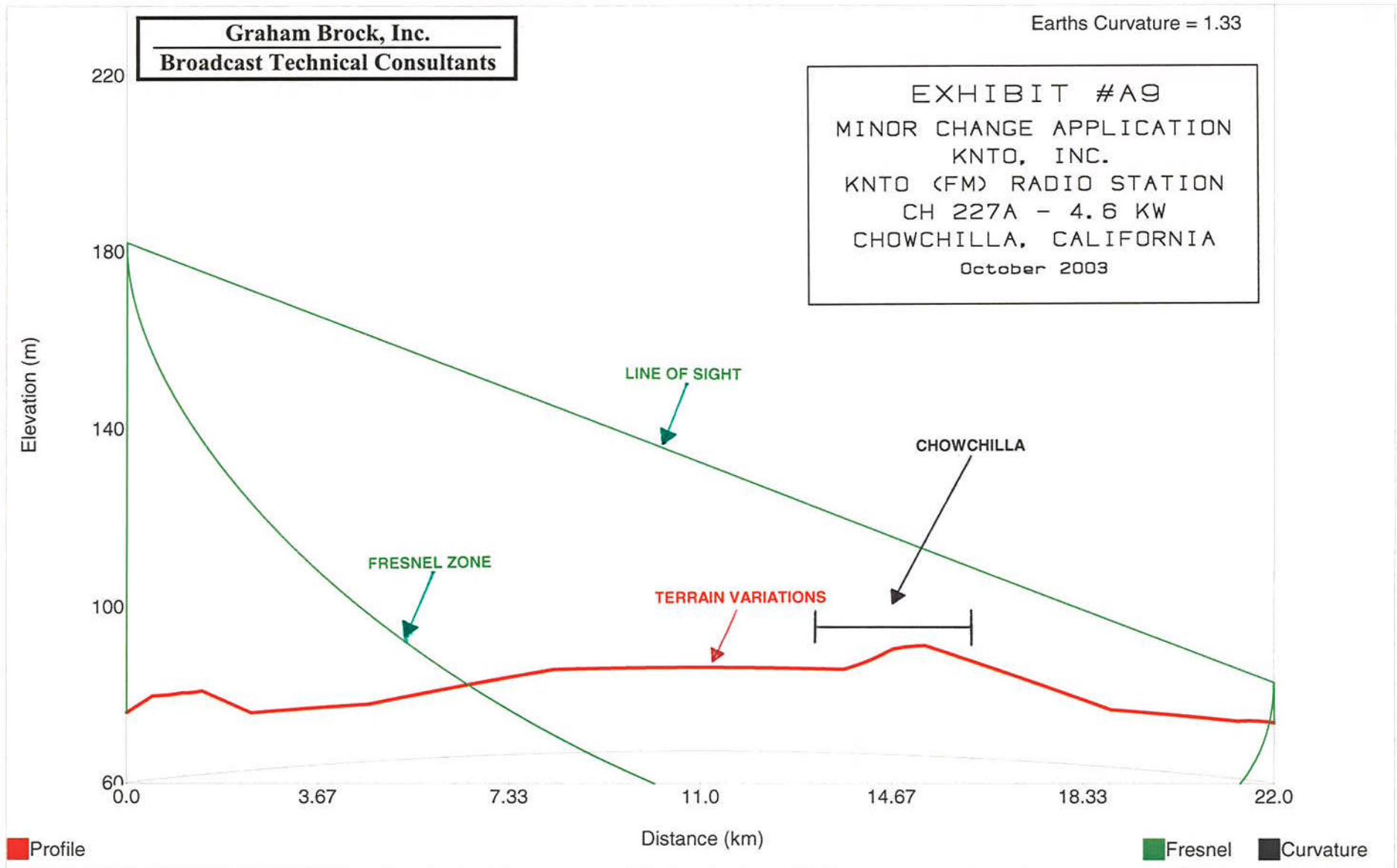
Distance: 25 km
Bearing: 345 deg

Transmitter Height (AG) = 106.1 m
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 75.8 m
Receiver Elevation = 79.0 m

Frequency = 93.3 MHz
Fresnel Zone: 0.6

KNTO 348° RADIAL



Starting Latitude: 36-59-14 N
Starting Longitude: 120-12-21 W

End Latitude: 37-10-52.03 N
End Longitude: 120-15-26.43 W

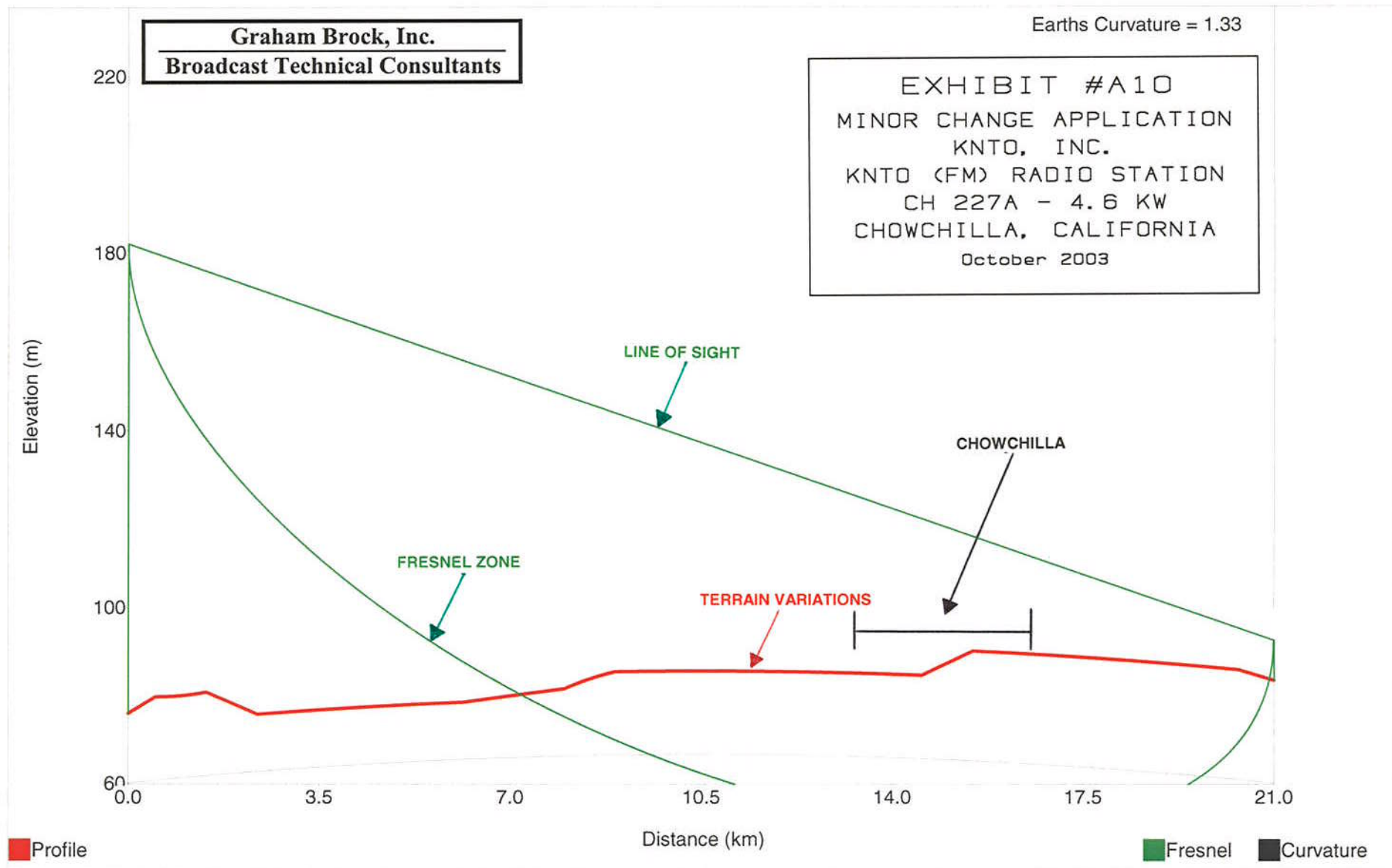
Distance: 22 km
Bearing: 348 deg

Transmitter Height (AG) = 106.1 m
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 75.8 m
Receiver Elevation = 73.5 m

Frequency = 93.3 MHz
Fresnel Zone: 0.6

KNTO 351° RADIAL



Starting Latitude: 36-59-14 N
Starting Longitude: 120-12-21 W

End Latitude: 37-10-26.82 N
End Longitude: 120-14-34.16 W

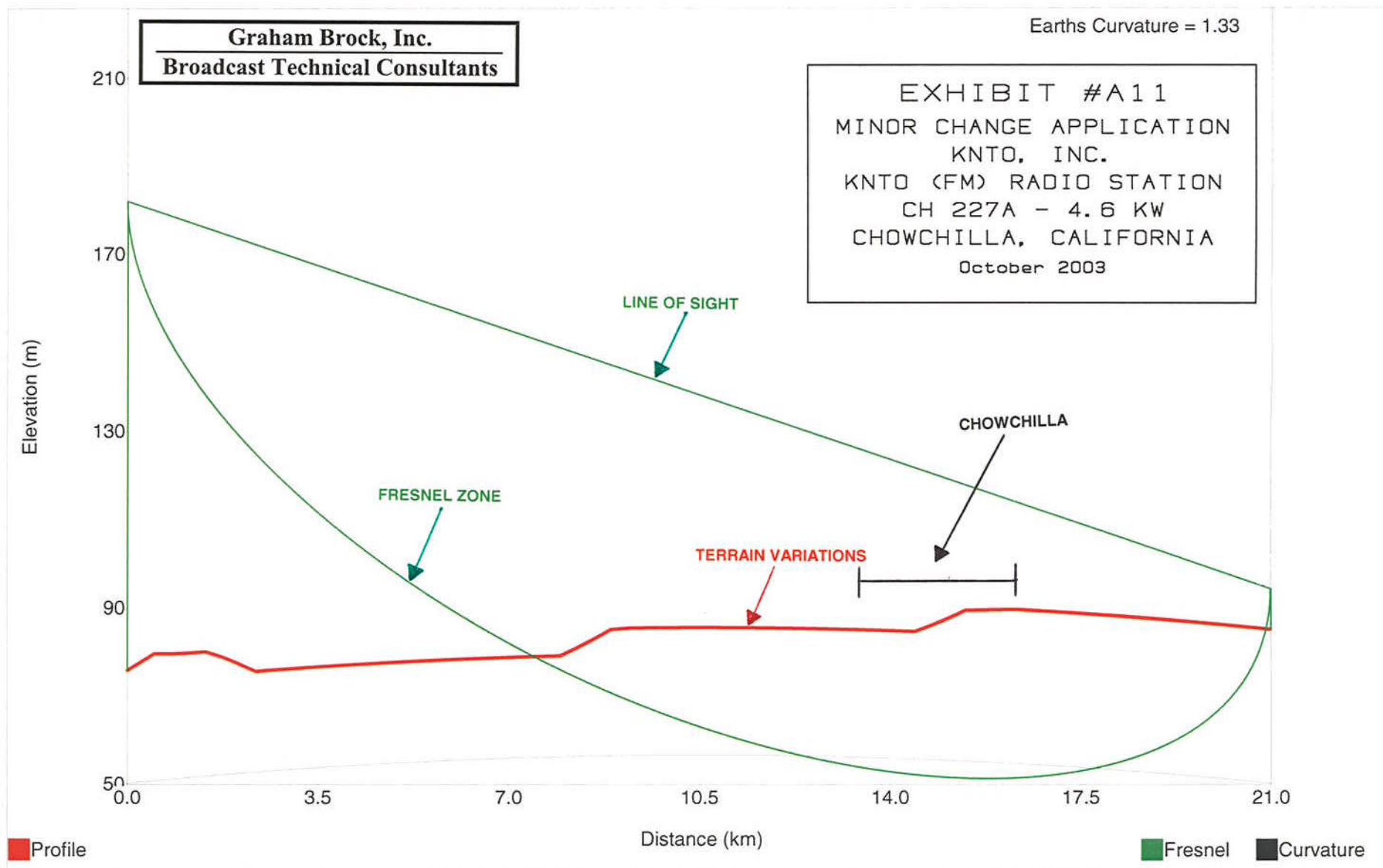
Distance: 21 km
Bearing: 351 deg

Transmitter Height (AG) = 106.1 m
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 75.8 m
Receiver Elevation = 83.4 m

Frequency = 93.3 MHz
Fresnel Zone: 0.6

KNTO 354° RADIAL



Starting Latitude: 36-59-14 N
Starting Longitude: 120-12-21 W

End Latitude: 37-10-31.48 N
End Longitude: 120-13-49.98 W

Distance: 21 km
Bearing: 354 deg

Transmitter Height (AG) = 106.1 m
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 75.8 m
Receiver Elevation = 85.0 m

Frequency = 93.3 MHz
Fresnel Zone: 0.6