

AMEND BPH-20090417AJP
GEORGIA EAGLE BROADCASTING, INC.
WDXQ-FM RADIO STATION
CH 298A - 107.5 MHZ - 4.0 KW (DA)
COCHRAN, GEORGIA
June 2009

EXHIBIT B

Compliance with §73.313
Using Supplemental City Grade Analysis

The proposed WDXQ-FM transmitter location is located approximately 20.0 kilometers northwest of the center of Cochran, Georgia. Using the Commission's standard method of predicting city grade coverage, as outlined in §73.313, the predicted 3.16 mV/m contour falls short of reaching the boundary of Cochran, Georgia. However, in this particular case, we find a supplemental method of depicting city grade coverage is appropriate, as noted in §73.313(e) of the Commission's rules.

The proposed WDXQ-FM antenna system is to be located on an existing tower at geographic coordinates North Latitude 32° 32' 36.0" and West Longitude 83° 27' 55" (NAD 1927). The boundaries of Cochran, Georgia fall on bearings between 142° and 154° from the proposed WDXQ-FM transmitter site. We have analyzed the terrain in 4.0° increments between these bearings, as well as on a direct line to the community of license at 149°. 47 CFR §73.313 of the rules notes the Commission's propagation curves are based on a 50.0 meter terrain variation (ΔH). Using the 30 second terrain database, on the four radials towards Cochran, Georgia, beginning at a distance of 10.0 kilometers out from site out to a distance of 22.8 kilometers (the maximum distance to the extreme point of the community) towards the

community, the individual radial ΔH values never exceed 19.8 meters. On the radial into the center of the city, the ΔH is 17.6 meters. Therefore, the terrain along these pertinent radials is determined to vary significantly from the 50.0 meter variation used in the Commission's field strength curve predictions.

We have determined the location of the 70 dBu contour, using the Point-to-Point, Version 2¹, which is a variation of the irregular terrain model, using point-to-point calculation methodology, taking into consideration diffraction loss over knife edge and rounded obstacle obstructions. This model is a more representative prediction of field strength than the standard methodology.

On the pertinent bearings toward the main studio, we tabulated the distance to the city grade contour using the FCC method (Exhibit B1) and supplemental method, to demonstrate the differences in the distances to the contour (Exhibit B2). We find the supplemental depiction distances are greater (in excess of 10%) than the distances using the Commission's standard methodology (Exhibit B2). Based on the Staff's policy, we find the terrain on these radials varies widely and the differences to the contour distances, as determined by the supplemental method, exceed the standard method by more than 10%.² Therefore, pursuant to §73.313(e), a supplemental method of depicting the city grade coverage is warranted. It is noted that at no

1) This model was developed by the Commission's Office of Engineering and Technology. The program was implemented through the V-Soft Probe 3 computer software.

2) The variation of the terrain and distance to the supplemental contour complies with the supplemental policy outlined in a letter from the Mass Media Bureau to Mark Lipp, Esq. regarding KMAJ-FM, dated August 8, 2002.

point does the supplemental city grade distance extend beyond the predicted 60 dBu (50/50) protected contour of WDXQ-FM using the FCC method.

Using the supplemental method calculations, we find the city grade contour in the direction towards Cochran, Georgia in 4.0° increments, between 142° and 154°, extends out a minimum of 23.7 kilometers from the proposed WDXQ-FM site and extends beyond the boundary of the community of license, as visually demonstrated in Exhibit B3. There are no terrain obstructions in the path between the WDXQ-FM transmitter site and the community of license. Attached as Exhibits B4 through B7 are terrain profiles depicting the 142°, 146°, 150° and 154° radials through the community of license, to the city grade contour calculated using the alternate model.

A sample calculation was made, based on the 149° radial, between the site and the city to verify the location of the city grade contour, 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 WDXQ-FM facility, the distance to the 70 dBu contour was calculated using the supplemental program and found to extend 24.4 kilometers. The 70 dBu contour, adjusted to allow for up to a maximum of 5.0 dB clutter loss (75 dBu contour), is being sought.

$$106.9 + 6.02 \text{ dBk} - 20 \log 24.4 = 85.2$$

Attenuation due to diffracted signal over terrain - 10.2 dB

Assumed Maximum Clutter Loss -5.0³

Signal at point of interest 70.0 dBu

3) The Point to Point model calculates clutter loss along the path. This amount of clutter is considered worst case for the sample calculation.

Based on the supplemental depiction, we find the proposed WDXQ-FM facility delivers a 70 dBu signal over all of the community of Cochran, Georgia. Therefore, the proposed WDXQ-FM facility is in compliance with the rules regarding city grade coverage.⁴

4) The applicant understands that the Media Bureau staff will forward the proposed technical parameters of this facility to the Commission's Office of Engineering Technology for an independent review and confirmation of these findings.

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EXHIBIT B1

Predicted contour:

N. Lat. = 32 32 36 - Tabulated City Grade and Protected Contour Data
W. Lng. = 83 27 55 - WDXQ-FM Radio station - Cochran, Georgia

HAAT and Distance to Contour - NGDC 30 Second terrain database

Azi.	HAAT	ERP kW	dBk	Field	70-F5	60-F5
000	116.7	4.0000	6.02	1.000	15.74	27.69
045	103.9	4.0000	6.02	1.000	14.77	26.31
090	106.6	4.0000	6.02	1.000	14.97	26.62
135	128.6	4.0000	6.02	1.000	16.60	28.81
180	133.4	4.0000	6.02	1.000	16.94	29.26
225	128.5	3.6100	5.58	0.950	16.10	28.14
270	124.7	1.4884	1.73	0.610	12.59	22.80
315	136.1	4.0000	6.02	1.000	17.13	29.52

Ave El= 96.47 M HAAT= 122.33 M AMSL= 218.8 M

Additional Radials (Not Considered in Average):

142	131.9	4.0000	6.02	1.000	16.83	29.11
148	133.9	4.0000	6.02	1.000	16.97	29.30
149	133.8	4.0000	6.02	1.000	16.97	29.30 (city center radial)
150	133.9	4.0000	6.02	1.000	16.97	29.31
154	131.0	4.0000	6.02	1.000	16.77	29.03

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EXHIBIT B2

Tabulation of City Grade Contours in Arc
Toward Cochran, Georgia

Azi.	ΔH (22.8 km)	Location of 70 dBu			% Change	Method Used
		FCC Method (F)	P-to-P	(P)		
142	18.3	16.8	24.7		+47.0	P
146	15.1	17.0	26.9		+58.2	P
149	17.6	17.0	24.4		+43.5	P
150	18.8	17.0	24.8		+45.9	P
154	19.8	16.8	23.6		+40.4	P

Graham Brock, Inc. - Broadcast Technical Consultants

WDXQ-FM Proposed

Latitude: 32-32-36 N
Longitude: 083-27-55 W
ERP: 4.00 kW
Channel: 298A
Frequency: 107.5 MHz
AMSL Height: 218.8 m
Horiz. Pattern: Directional
Prop Model : FCC/P-to-P V2

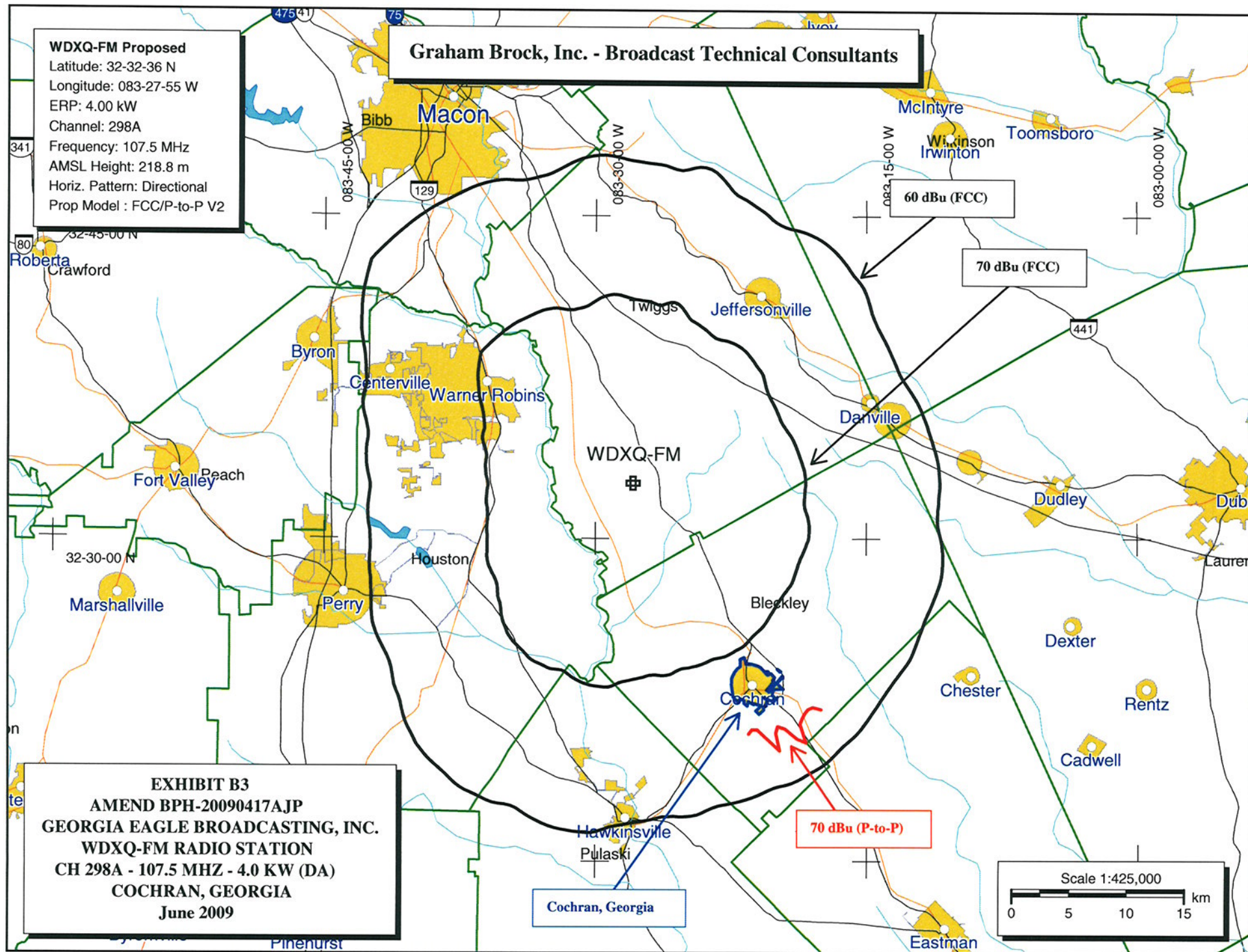
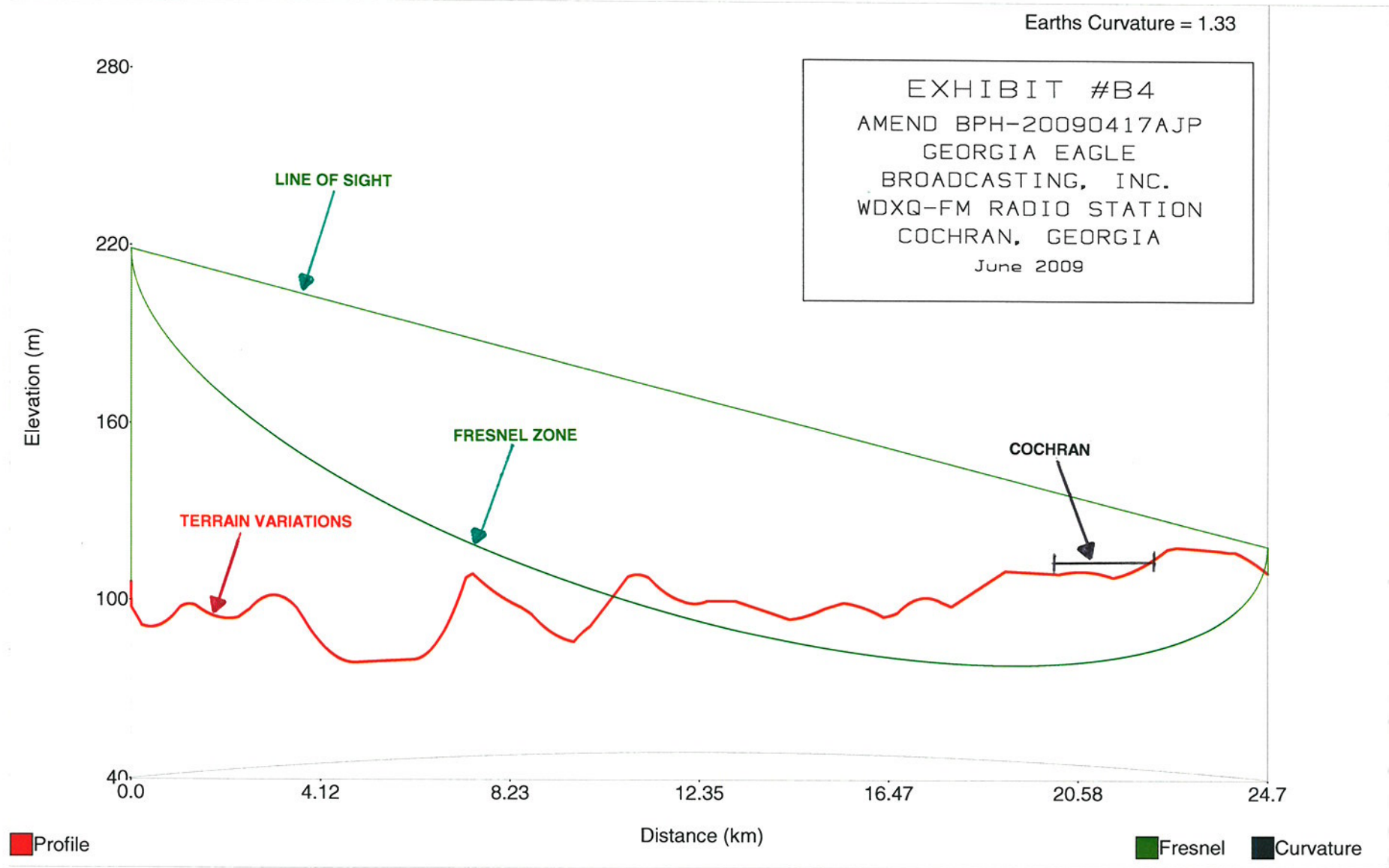


EXHIBIT B3
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Terrain profile - 142° radial - WDXQ-FM



Starting Latitude: 32-32-36 N
 Starting Longitude: 083-27-55 W

End Latitude: 32-22-03.75 N
 End Longitude: 083-18-13.33 W

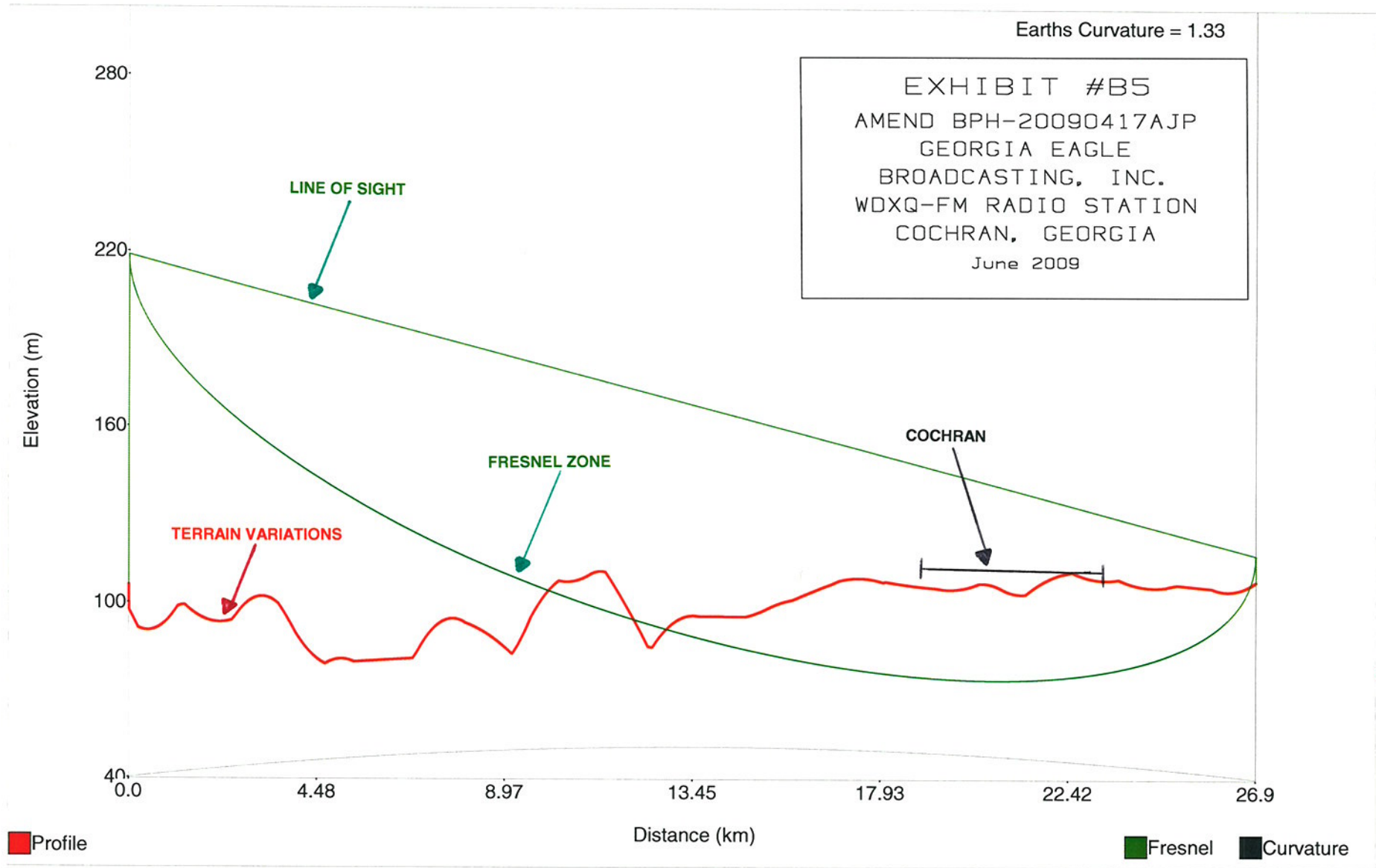
Distance: 24.7 km
 Bearing: 142 deg

Transmitter Height (AG) = 112.7 m
 Receiver Height (AG) = 9.1 m

Transmitter Elevation = 106.1 m
 Receiver Elevation = 109.8 m

Frequency = 107.5 MHz
 Fresnel Zone: 0.6

Terrain profile - 146° radial - WDXQ-FM



Starting Latitude: 32-32-36 N
 Starting Longitude: 083-27-55 W

End Latitude: 32-20-31.64 N
 End Longitude: 083-18-19.79 W

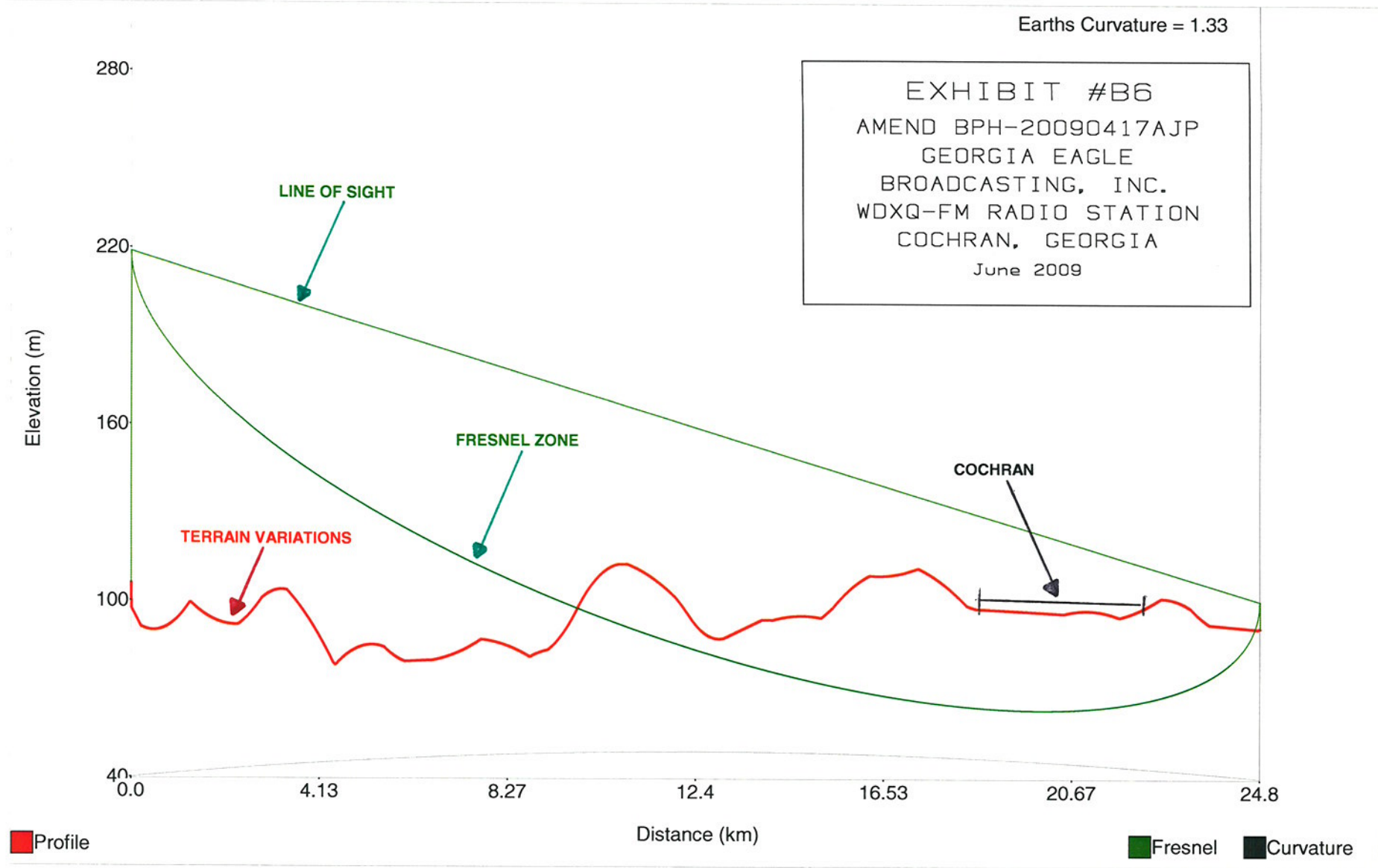
Distance: 26.9 km
 Bearing: 146 deg

Transmitter Height (AG) = 112.7 m
 Receiver Height (AG) = 9.1 m

Transmitter Elevation = 106.1 m
 Receiver Elevation = 107.8 m

Frequency = 107.5 MHz
 Fresnel Zone: 0.6

Terrain profile - 150° radial - WDXQ-FM



Starting Latitude: 32-32-36 N
 Starting Longitude: 083-27-55 W

End Latitude: 32-20-58.50 N
 End Longitude: 083-20-00.79 W

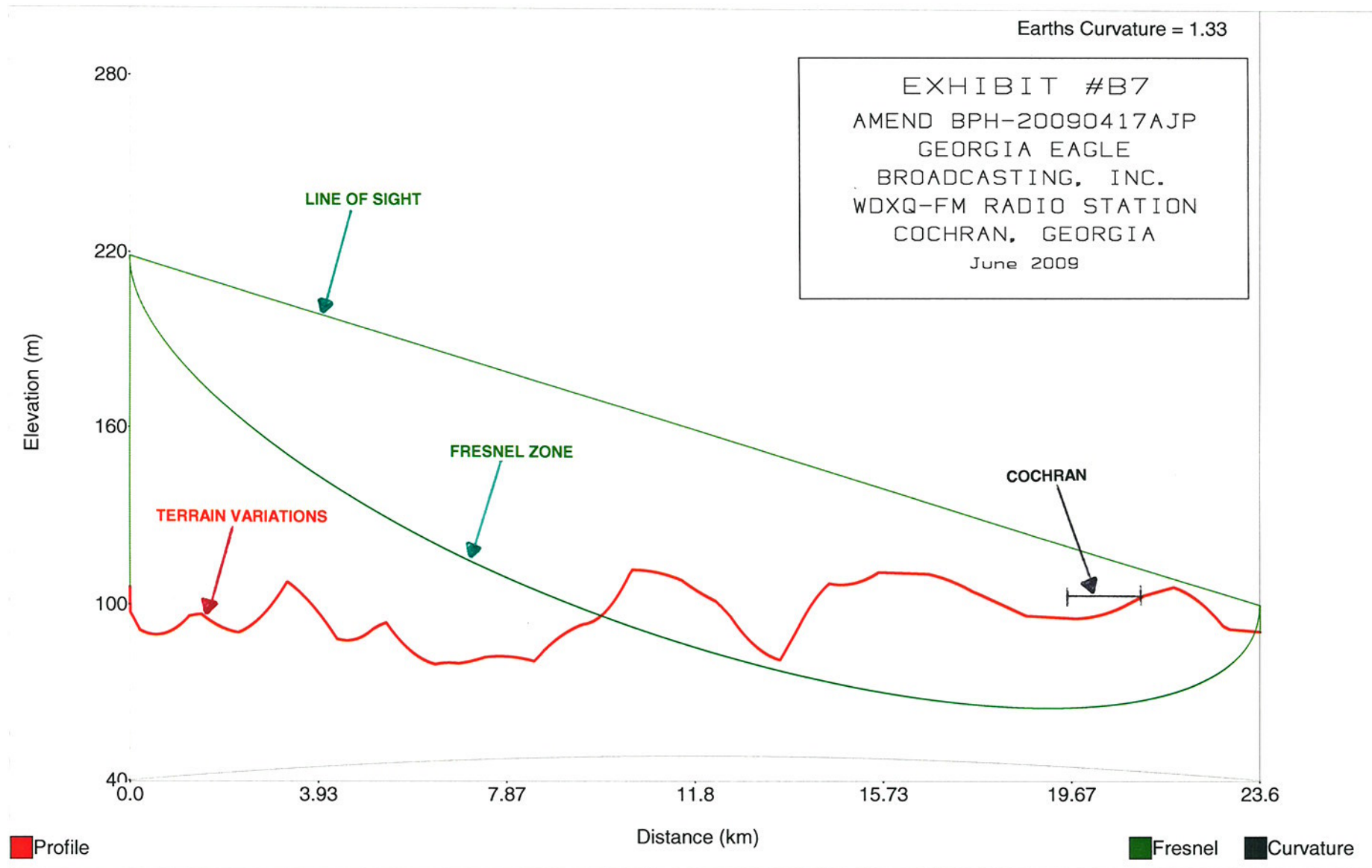
Distance: 24.8 km
 Bearing: 150 deg

Transmitter Height (AG) = 112.7 m
 Receiver Height (AG) = 9.1 m

Transmitter Elevation = 106.1 m
 Receiver Elevation = 91.3 m

Frequency = 107.5 MHz
 Fresnel Zone: 0.6

Terrain profile - 154° radial - WDXQ-FM



Starting Latitude: 32-32-36 N
Starting Longitude: 083-27-55 W

End Latitude: 32-21-07.21 N
End Longitude: 083-21-19.34 W

Distance: 23.6 km
Bearing: 154 deg

Transmitter Height (AG) = 112.7 m
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 106.1 m
Receiver Elevation = 91.0 m

Frequency = 107.5 MHz
Fresnel Zone: 0.6