

**AMEND BPH-20030702AAE**  
**RADIO STATESBORO, INC.**  
**WMCD (FM) RADIO STATION**  
**CH 261C1 - 100.1 MHZ - 84.0 KW**  
**RINCON, GEORGIA**  
**October 2003**

**EXHIBIT A**

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

The proposed tower site for WMCD is located 53.0 kilometers west-southwest of the community of Rincon, Georgia. From the proposed WMCD 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 Rincon. However, in this 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 2.0° increments from 69° to 79° 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 ten pertinent radials toward the community of Rincon, beginning out from the site (along the pertinent radials) 10.0 kilometers to the farthest boundary of the city (generally 53 kilometers), the individual radial  $\Delta H$  values never exceed 11.2 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 WMCD antenna system is to be located near Groveland, Georgia, at geographic coordinates North Latitude 31° 10' 17" and West Longitude 81° 44' 04". The

community of Rincon, Georgia, is located on bearings between 69° and 79° true from the proposed WMCD site. Running individual radials, in 2° increments, from the WMCD 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).<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 Rincon, 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.

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3) To insure coverage of the proposed community, the Diffcomb model was set at 39.0 kilometers as the point of interest (the distance to the present FCC F50/50 60 dBu contour).

Using the supplemental method calculations, we find that the city grade contour in the direction of Rincon, Georgia, in 2° increments between 69° and 79°, extends at least 62.9 kilometers out from the site on the pertinent radials, extending beyond the community of Rincon. As visually demonstrated on Exhibit A3, the predicted 70 dBu signal, as calculated using the Diffcomb model, shows Rincon 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 A9 are the terrain profiles of the 69°, 71°, 73°, 75°, 77° and 79° radials.

A sample calculation was made on the 73° radial, between the site and the community, 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 proposed WMCD facility, the distance to the 70 dBu contour was calculated using the Diffcomb program and found to extend 69.0 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.

$$106.9 + 19.24 \text{ dBk} - 20 \log 69 = 89.4$$

**Attenuation due to diffracted signal over terrain - 14.4 dB**

**Clutter Loss -5.0**

**Signal at point of interests 70.0 dBu**

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

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**EXHIBIT A1**

Predicted contours:

N. Lat. = 32 10 17 - Tabulated Service Contour Data  
W. Lng. = 81 44 04 - WMCD Radio Station - Rincon, Georgia

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	41.7	289.2	84.0000	19.24	1.000	69.76	47.76
045	31.0	299.9	84.0000	19.24	1.000	70.61	48.48
090	27.6	303.3	84.0000	19.24	1.000	70.87	48.70
135	23.2	307.7	84.0000	19.24	1.000	71.20	48.98
180	23.7	307.2	84.0000	19.24	1.000	71.16	48.95
225	37.6	293.3	84.0000	19.24	1.000	70.09	48.03
270	31.6	299.3	84.0000	19.24	1.000	70.56	48.43
315	38.7	292.2	84.0000	19.24	1.000	70.00	47.96

Ave El= 31.88 M HAAT= 299.00 M AMSL= 330.88 M

Additional Radials (Not Considered in Average):

069	27.3	303.5	84.0000	19.24	1.000	70.89	48.71
071	27.0	303.9	84.0000	19.24	1.000	70.92	48.74
073	26.9	303.9	84.0000	19.24	1.000	70.92	48.74
075	26.9	304.0	84.0000	19.24	1.000	70.92	48.74
077	27.2	303.7	84.0000	19.24	1.000	70.90	48.73
079	27.8	303.0	84.0000	19.24	1.000	70.85	48.68

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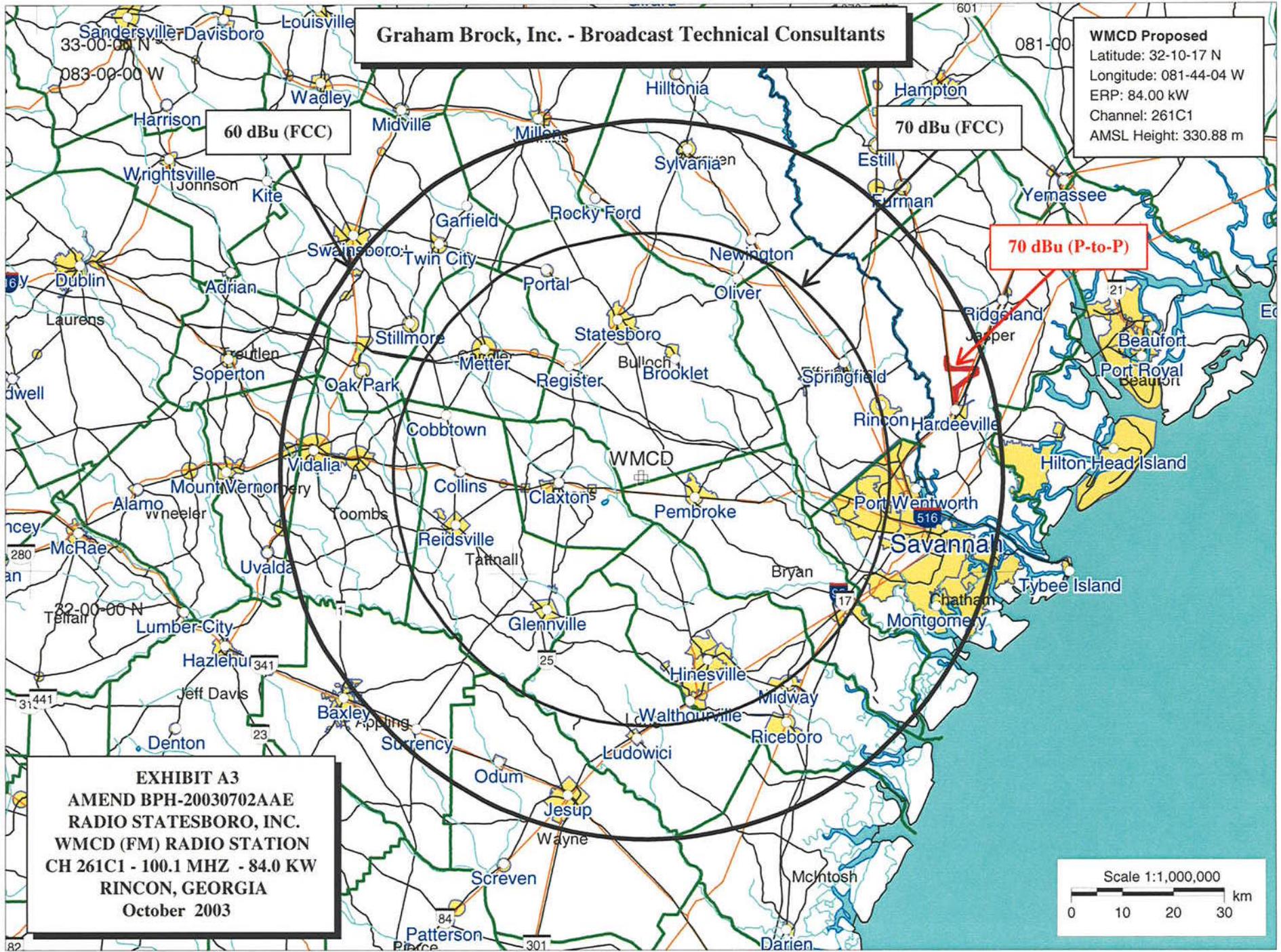
**EXHIBIT A2**

**Tabulation of City Grade Contours**  
**in Arc Towards Rincon, Georgia**

<u>Radial</u> <u>(Bearing)</u>	<u>ΔH value<sup>4</sup></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>		
69°	11.2 m	48.7 km	64.2 km	+ 31.8	D
71°	11.2 m	48.7 km	63.0 km	+ 29.4	D
73°	9.5 m	48.7 km	69.0 km	+ 41.7	D
75°	9.2 m	48.7 km	62.9 km	+ 29.2	D
77°	8.0 m	48.7 km	63.4 km	+ 30.2	D
79°	7.2 m	48.7 km	65.1 km	+ 33.7	D

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4) The delta H was calculated 10 kilometers out from the site, out to a distance of 53 kilometers.



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

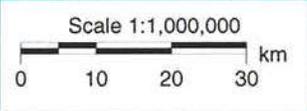
**WMCD Proposed**  
 Latitude: 32-10-17 N  
 Longitude: 081-44-04 W  
 ERP: 84.00 kW  
 Channel: 261C1  
 AMSL Height: 330.88 m

**60 dBu (FCC)**

**70 dBu (FCC)**

**70 dBu (P-to-P)**

**EXHIBIT A3**  
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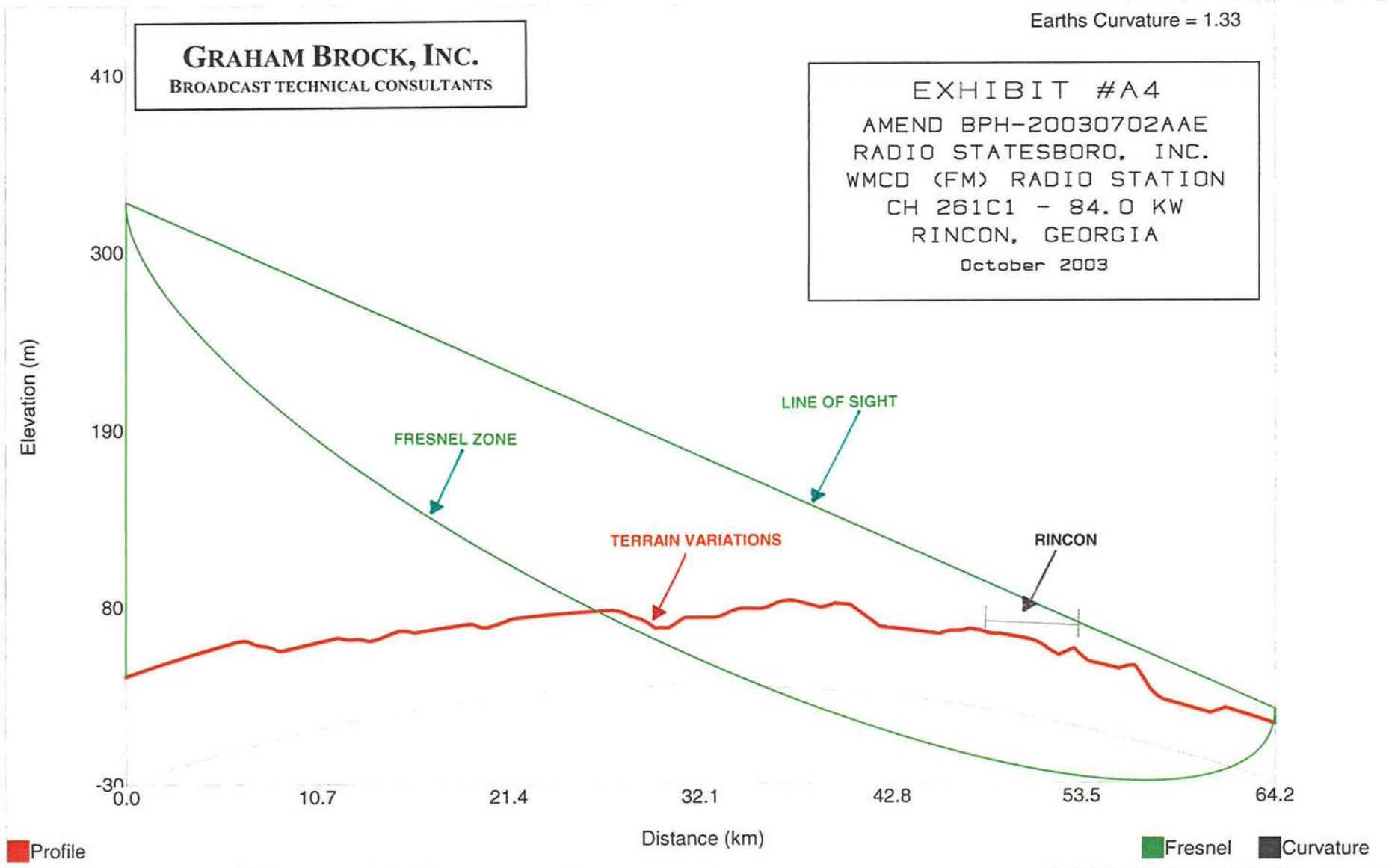


# WMCD TERRAIN RADIAL 69°

Earths Curvature = 1.33

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**EXHIBIT #A4**  
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Starting Latitude: 32-10-17 N  
Starting Longitude: 081-44-04 W

End Latitude: 32-22-38.17 N  
End Longitude: 081-05-51.16 W

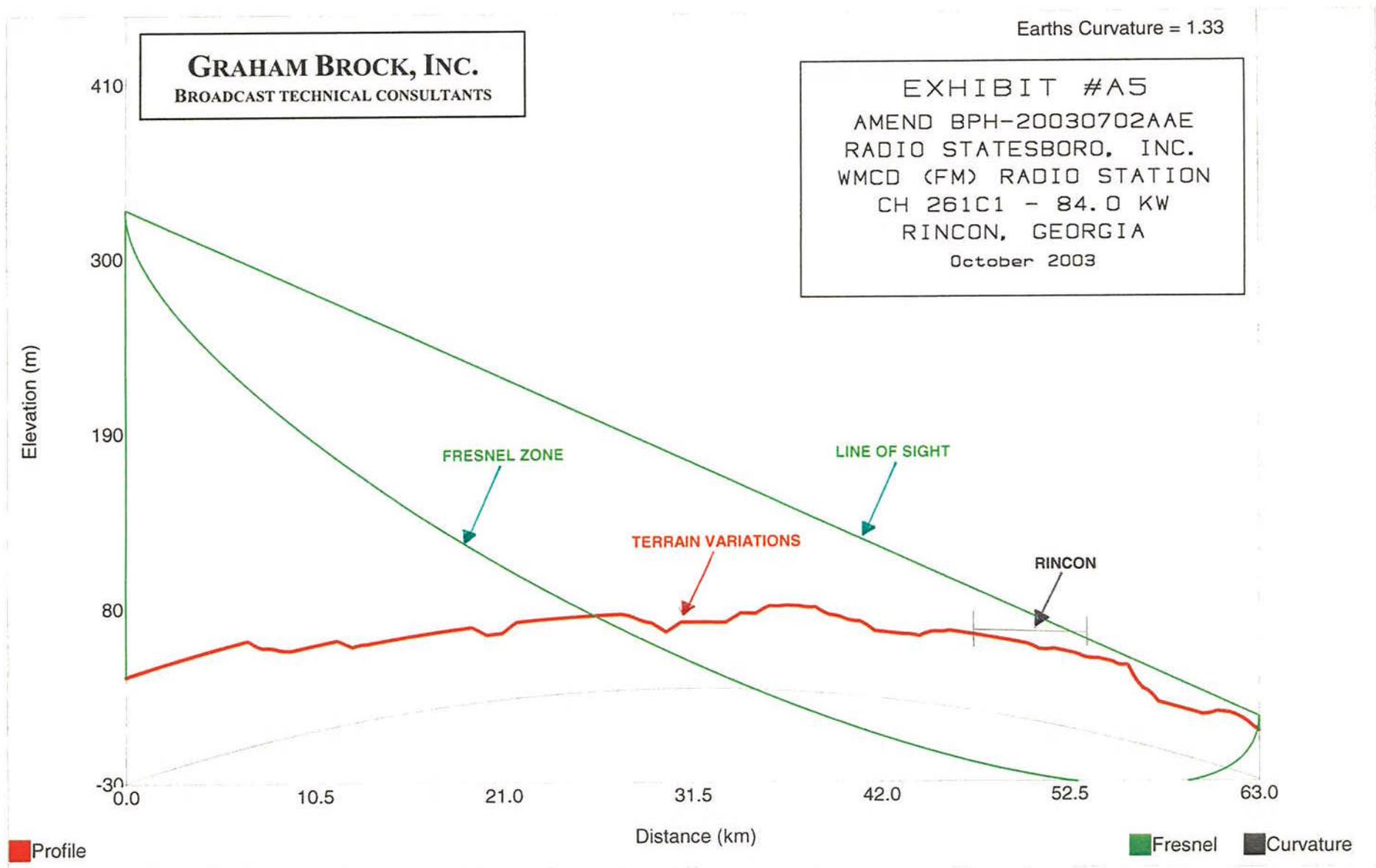
Distance: 64.2 km  
Bearing: 69 deg

Transmitter Height (AG) = 293.9 m  
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 37.0 m  
Receiver Elevation = 6.1 m

Frequency = 100.1 MHz  
Fresnel Zone: 0.6

# WMCD TERRAIN RADIAL 71°



Starting Latitude: 32-10-17 N  
Starting Longitude: 081-44-04 W

End Latitude: 32-21-17.19 N  
End Longitude: 081-06-05.81 W

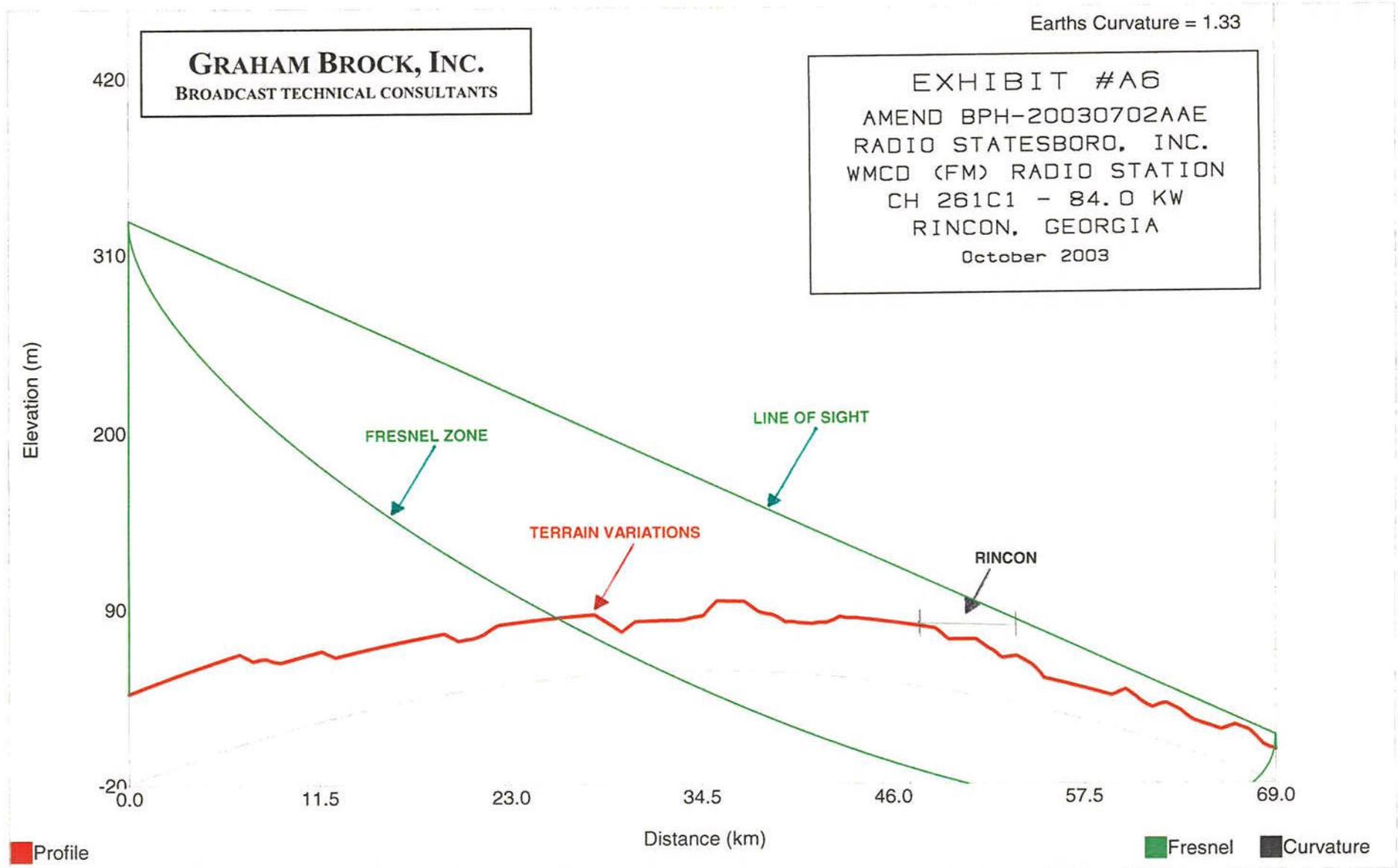
Distance: 63 km  
Bearing: 71 deg

Transmitter Height (AG) = 293.9 m  
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 37.0 m  
Receiver Elevation = 0.6 m

Frequency = 100.1 MHz  
Fresnel Zone: 0.6

# WMCD TERRAIN RADIAL 73°



Starting Latitude: 32-10-17 N  
 Starting Longitude: 081-44-04 W

End Latitude: 32-21-04.96 N  
 End Longitude: 081-02-00.46 W

Distance: 69 km  
 Bearing: 73 deg

Transmitter Height (AG) = 293.9 m  
 Receiver Height (AG) = 9.1 m

Transmitter Elevation = 37.0 m  
 Receiver Elevation = 0.1 m

Frequency = 100.1 MHz  
 Fresnel Zone: 0.6

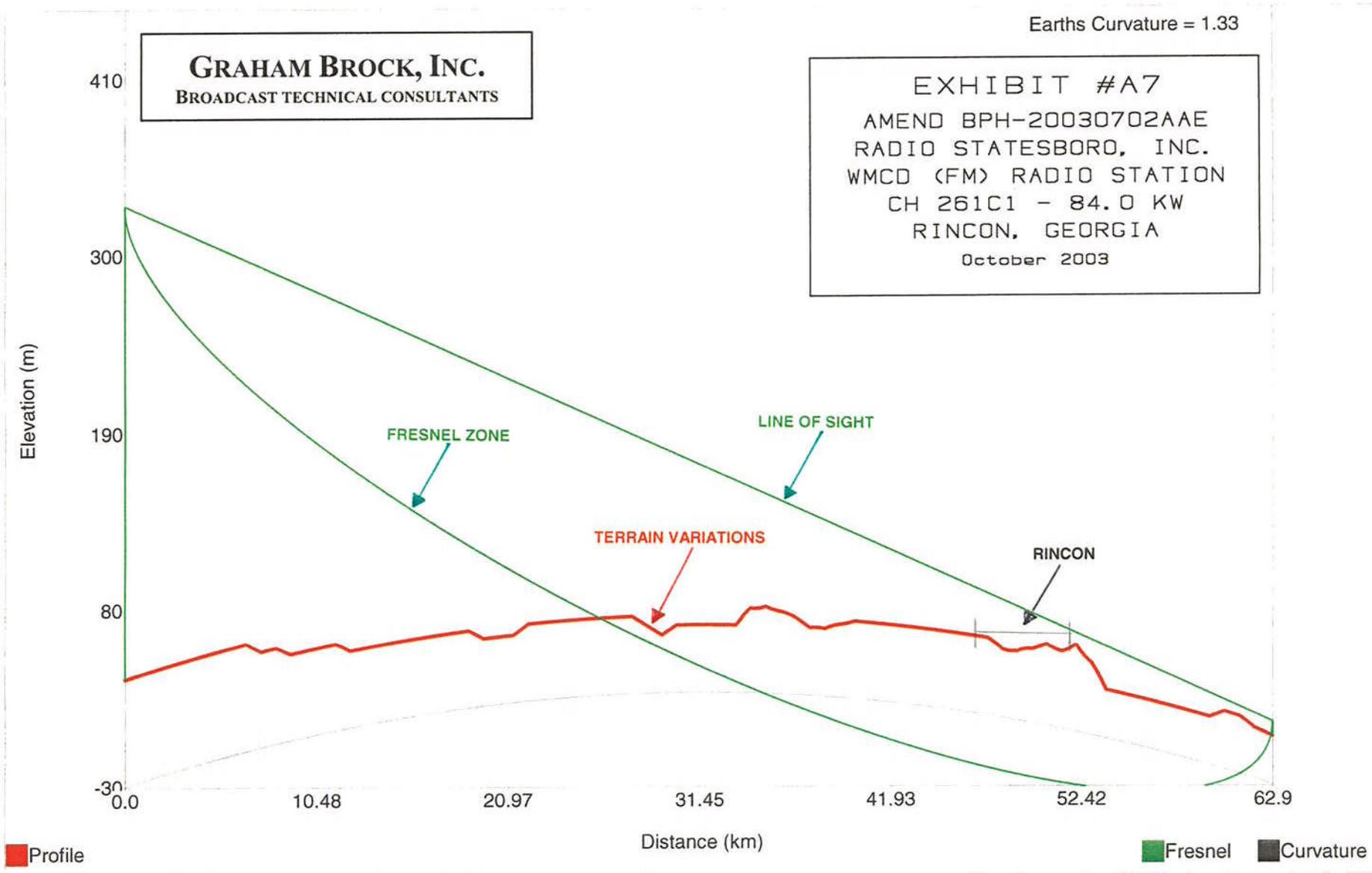
# WMCD TERRAIN RADIAL 75°

Earths Curvature = 1.33

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EXHIBIT #A7  
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Elevation (m)



Starting Latitude: 32-10-17 N  
Starting Longitude: 081-44-04 W

End Latitude: 32-18-59.61 N  
End Longitude: 081-05-21.30 W

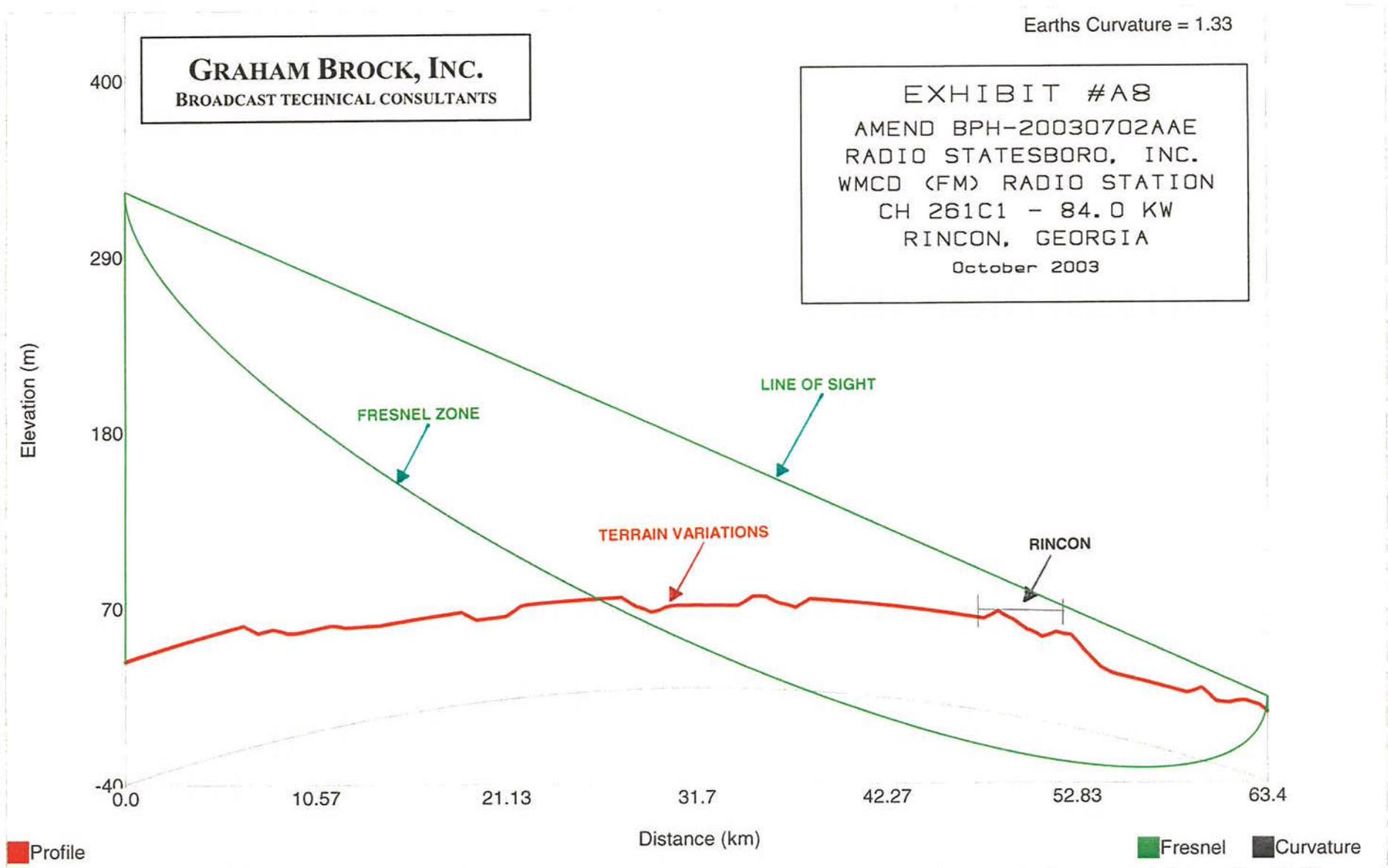
Distance: 62.9 km  
Bearing: 75 deg

Transmitter Height (AG) = 293.9 m  
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 37.0 m  
Receiver Elevation = 0.1 m

Frequency = 100.1 MHz  
Fresnel Zone: 0.6

# WMCD TERRAIN RADIAL 77°



Starting Latitude: 32-10-17 N  
 Starting Longitude: 081-44-04 W

End Latitude: 32-17-53.90 N  
 End Longitude: 081-04-42.85 W

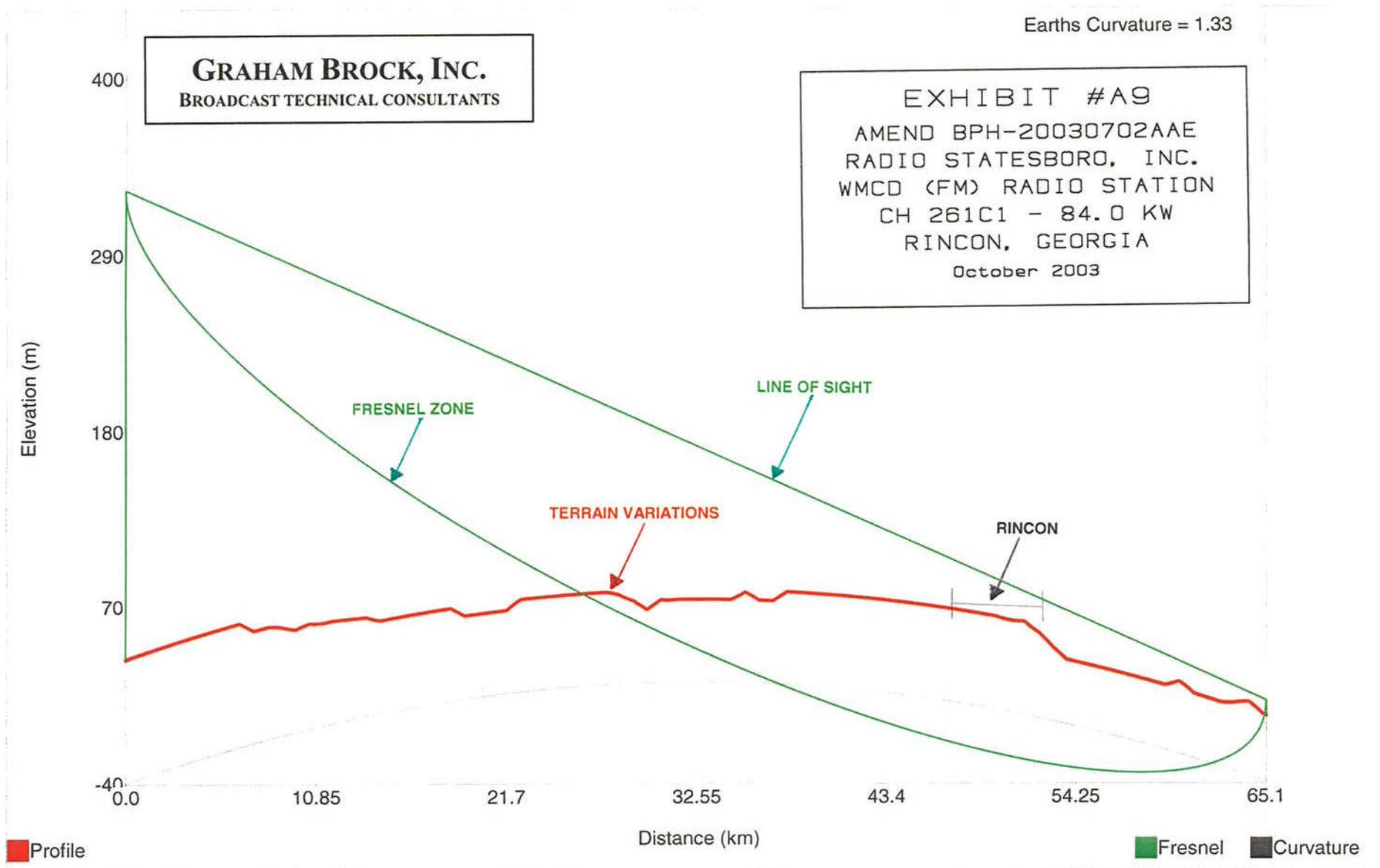
Distance: 63.4 km  
 Bearing: 77 deg

Transmitter Height (AG) = 293.9 m  
 Receiver Height (AG) = 9.1 m

Transmitter Elevation = 37.0 m  
 Receiver Elevation = 3.4 m

Frequency = 100.1 MHz  
 Fresnel Zone: 0.6

# WMCD TERRAIN RADIAL 79°



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EXHIBIT #A9  
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Earths Curvature = 1.33

Starting Latitude: 32-10-17 N  
Starting Longitude: 081-44-04 W

End Latitude: 32-16-53.73 N  
End Longitude: 081-03-21.92 W

Distance: 65.1 km  
Bearing: 79 deg

Transmitter Height (AG) = 293.9 m  
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 37.0 m  
Receiver Elevation = 1.3 m

Frequency = 100.1 MHz  
Fresnel Zone: 0.6