

MODIFY BPH-20020318AAT
APEX BROADCASTING, INC.
WHLZ (FM) RADIO STATION
CH 223C1 - 92.5 MHZ - 100.0 KW
MONCKS CORNER, SOUTH CAROLINA
June 2002

EXHIBIT B

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

The proposed tower site for WHLZ is located 45.6 kilometers southeast of the community of Moncks Corner, South Carolina. From the proposed WHLZ 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 totally encompass the community of Moncks Corner. 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 1.0° increments from 337° to 339° 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 three pertinent radials toward the community of Moncks Corner, from the site out to 16.0 kilometers, the individual radial ΔH values never exceeds 6.3 meters, with one as low as 5.7 meters. As such, the terrain along the pertinent radials varies from the 50 meter variation used in the Commission's field strength curves.²

The proposed WHLZ antenna system is to be located in Mount Pleasant, South Carolina, at geographic coordinates North Latitude 32° 49' 04" and West Longitude 79° 50' 08". The

2) The eight cardinal radials were similarly reviewed. The 0°, 45°, 90°, 135°, 180°, 225° and 270° radials also varied widely and were reviewed using the supplemental methodology.

community of Moncks Corner, South Carolina, is located on bearings between 337° and 339° true from the proposed WHLZ site. Running individual radials, in 1° increments, from the WHLZ 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 B1). 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).² 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 Moncks Corner, 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 B2). 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.³

2) To insure coverage of the proposed community, the Diffcomb model was set at 67.0 kilometers as the point of interest (the distance to the present FCC F50/50 60 dBu contour).

3) 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 Moncks Corner, South Carolina, in 1° increments between 337° and 339°, extends at least 64.0 kilometers out from the site on the pertinent radials, extending well beyond the community of Moncks Corner. As visually demonstrated on Exhibit B3, the predicted 70 dBu signal, as calculated using the Diffcomb model, shows Moncks Corner, South Carolina, 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 B4 is the terrain profile of the 338° radial.⁴

A sample calculation was made, based on the 338° 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 WHLZ facility, the distance to the 70 dBu contour was calculated using the Diffcomb program and found to extend 65.0 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.

$$106.9 + 20 \text{ dBk} - 20 \log 65 = 90.6$$

Attenuation due to diffracted signal over terrain - 15.6 dB

Clutter Loss -5.0

Signal at point of interests 70.0 dBu

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

4) The terrain profiles of the of 337° and 339° radials are comparable to the depicted radial, based on the terrain from the site toward the city.

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EXHIBIT B1

Predicted Contours:

N. Lat. = 32 49 04 - Predicted Service Contours

W. Lng. = 79 50 08 - WHLZ Radio Station - Moncks Corner, South Carolina

FCC Method - 03 Arc Second terrain database

Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5	70-F5
000	3.7	235.3	100.0000	20.00	1.000	67.02	45.64
045	4.9	234.1	100.0000	20.00	1.000	66.91	45.55
090	.0	239.0	100.0000	20.00	1.000	67.33	45.89
135	.0	239.0	100.0000	20.00	1.000	67.33	45.89
180	.1	238.9	100.0000	20.00	1.000	67.33	45.89
225	2.6	236.4	100.0000	20.00	1.000	67.12	45.71
270	2.1	236.9	100.0000	20.00	1.000	67.15	45.74
315	1.9	237.1	100.0000	20.00	1.000	67.17	45.76

Ave El = 1.91 M HAAT = 237.09 M AMSL = 239 M

Additional radials (not considered in average):

337	2.6	236.4	100.0000	20.00	1.000	67.11	45.71
338	3.0	236.0	100.0000	20.00	1.000	67.08	45.69
339	3.4	235.6	100.0000	20.00	1.000	67.05	45.66

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EXHIBIT B2

Tabulation of City Grade Contours
in Arc Towards Moncks Corner, South Carolina

<u>Radial</u> <u>(Bearing)</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>		
0°	45.6 km	64.0 km	+ 40.4	D
45°	45.6 km	61.0 km	+ 33.8	D
90°	45.9 km	63.0 km	+ 37.3	D
135°	45.9 km	63.0 km	+ 37.3	D
180°	45.9 km	63.0 km	+ 37.3	D
225°	45.7 km	63.0 km	+ 37.8	D
270°	45.7 km	64.0 km	+ 40.0	D
315°	45.7 km	66.0 km	+ 44.1	D
337°	45.7 km	64.0 km	+ 40.0	D
338°	45.7 km	65.0 km	+ 42.2	D
339°	45.7 km	65.0 km	+ 42.2	D

Graham Brock, Inc. - Broadcast Technical Consultants

WHLZ Proposed

Latitude: 32-49-04 N
Longitude: 079-50-08 W
ERP: 100.00 kW
Channel: 223C1
Frequency: 92.5 MHz
AMSL Height: 239.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: FCC/P-to-P

Predicted 70 dBu

DIFFCOMB 70 dBu

Predicted 60 dBu

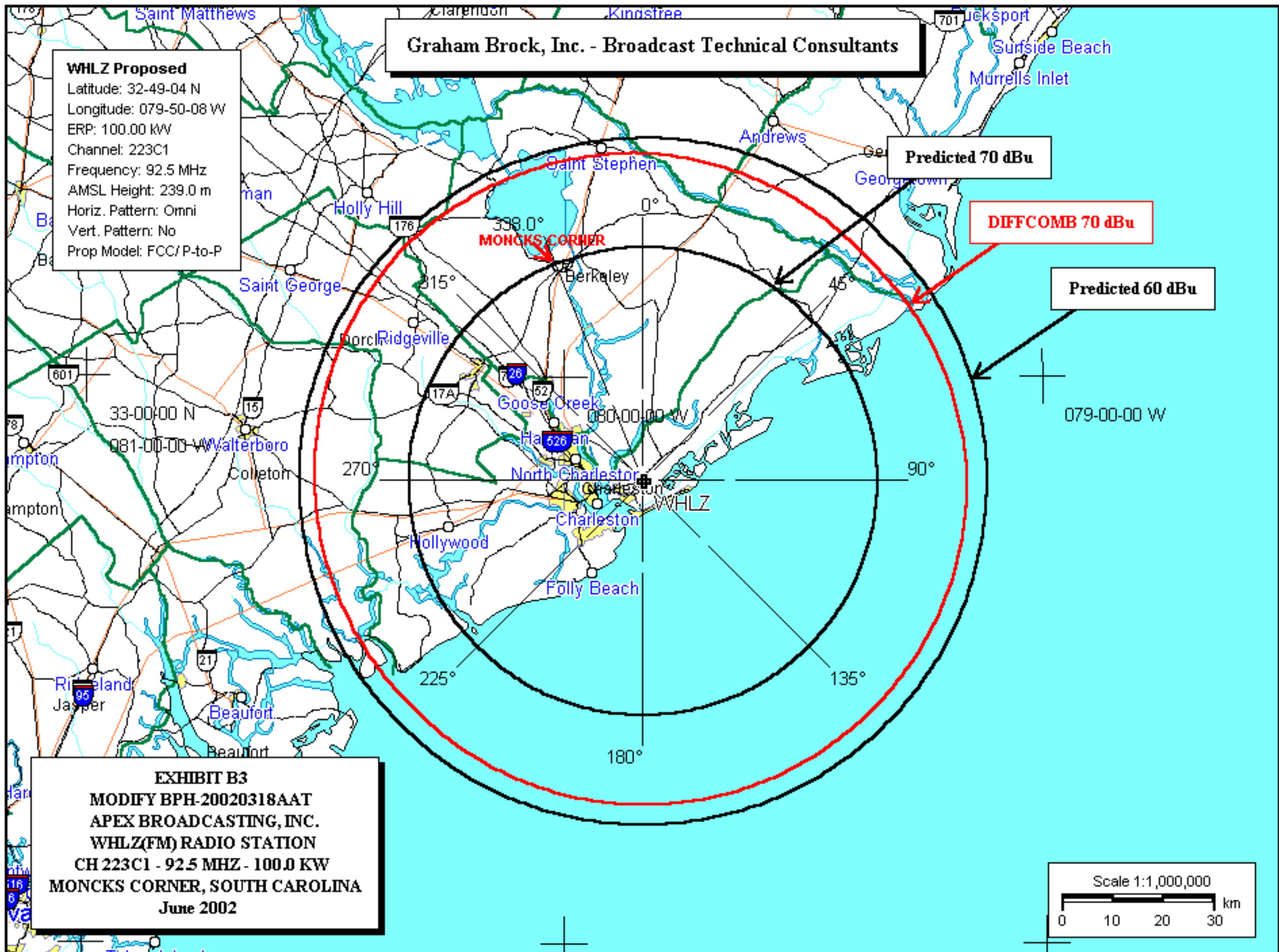
079-00-00 W

EXHIBIT B3

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Scale 1:1,000,000

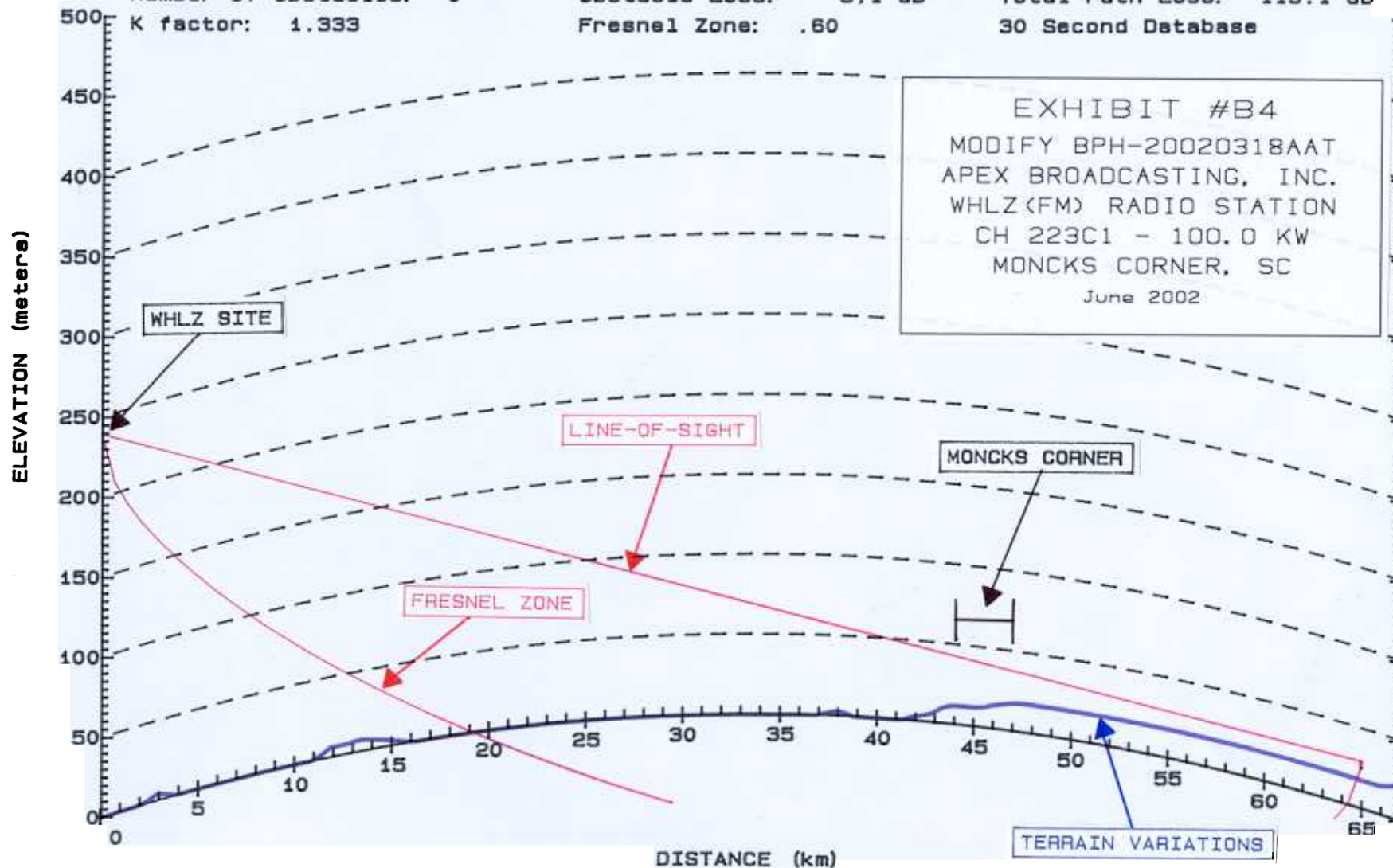
0 10 20 30 km



WHLZ Site: 32-49-04 79-50-08
Frequency: 92.5 MHz
Number of Obstacles: 0
K factor: 1.333

Azimuth: 338.00 degs.
Ant. Elev.: 239.0 m AMSL
Obstacle Loss: 5.1 dB
Fresnel Zone: .60

Receiver Dist.: 65.0 km
Rec. Elev.: 29.4 m AMSL
Total Path Loss: 113.1 dB
30 Second Database



PATH ANALYSIS

338 DEG

JUNE 2002

GRAHAM BROCK, INC.
BROADCAST TECHNICAL CONSULTANTS