AMEND BMPH-20070802ABX
COMMONWEALTH BROADCASTING, LLC
WUSH (FM) RADIO STATION
CH 291B1 - 106.1 MHZ - 11.0 KW
POQUOSON, VIRGINIA
January 2008

EXHIBIT A

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

The proposed transmitter location for WUSH is located approximately 29.0 kilometers south of Poquoson, Virginia. Using the Commission's standard method of predicting city grade coverage, as outlined in §73.313, the predicted 3.16 mV/m contour does not encompass the boundaries of Poquoson from the proposed WUSH facility. 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 WUSH antenna system is to be located on an existing tower at geographic coordinates North Latitude 36° 51' 39" and West Longitude 76° 21' 13". The community of Poquoson is located on bearings between 349° and 12° true from the proposed WUSH site. We have analyzed the terrain in 5.0° increments from 350° through 10° to determine the terrain variations on each of these radials. §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 five pertinent radials toward the city (between 350° and 10°), beginning 10.0 kilometers from the site out to the extreme city boundary, the individual radial ΔH values never exceed 0.5 meter.

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 Diffcomb program (Version 7B), 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. Further, reductions of calculated signal strength are also made to account for foliage and buildings (Clutter Loss).[1] This model is a more representative prediction of field strength than the standard methodology.

On the pertinent bearings toward the community of license, we tabulated the distance to the city grade contour, using both the FCC method (Exhibit A1) and supplemental method to demonstrate the differences in the distances to the contour. We found the supplemental depiction distances are greater (in excess of 10%) than the distances using the Commission's standard methodology (see Exhibit A2). 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, exceeds the standard method by more than 10%. Therefore, pursuant to §73.313(e), a supplemental method of depicting the city grade coverage is warranted. 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 FCC method.

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

Using the supplemental method calculations, we find the city grade contour in the direction of Poquoson, Virginia, in 5.0° increments between 350° and 10°, extends out 35.0 kilometers from the proposed site and encompasses the entire boundary of the city of Poquoson, as visually demonstrated in Exhibit A3. There are no terrain obstructions in the path between the proposed transmitter site and the city of Poqouson, Virginia. Attached as Exhibits A4 through A8 are terrain profiles depicting the 350°, 355°, 0°, 5°, and 10° radials through the city.[2]

A sample calculation was made, based on the 0° radial between the site and the city to verify the location of the city grade contour, using a free space signal formula: 106.9 + power in dBk-20 log (distance in kilometers to point of interest). Based on the proposed WUSH facility, the distance to the 70 dBu contour was calculated using the Diffcomb program and found to extend 35.0 kilometers. Based on the proposed facility, the 70 dBu contour, corrected to allow for a 5.0 dB clutter loss (75 dBu contour), is being sought.

106.9 + 10.41 dBk - 20log 35.0 = 86.4
Attenuation due to diffracted signal over terrain - 11.4 dB
Clutter Loss -5.0
Signal at point of interest 70.0 dBu

Based on the supplemental depiction, we find the WUSH proposed facility serves the city of Poquoson with the required 70 dBu service. Therefore, the WUSH proposed facility is in compliance with the rules regarding city grade coverage.

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2)   The remaining studied radials are similar.

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EXHIBIT A1

Tabulation of City Grade Contours in Arc
Toward Poquoson, Virginia

Azi.	ΔH	Location of 70 dBu FCC Method (F)	Diffcomb (D)	% Change	Method Used
350	0.0	23.0	35.0	+52.2	D
355	0.5	23.0	35.0	+52.2	D
000	0.0	23.1	35.0	+51.5	D
005	0.0	23.1	35.0	+51.5	D
010	0.0	23.1	35.0	+51.5	D

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EXHIBIT A2

Predicted Contour:

N. Lat. = 36 51 39.0 - Tabulated Service Contour Data
W. Lng. = 76 21 13.0 - WUSH Radio Station - Poquoson, Virginia

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

Azi.	HAAT	ERP kW	dBk	Field	70-F5	60-F5
000	149.6	11.0000	10.41	1.000	23.06	38.99
045	149.6	11.0000	10.41	1.000	23.06	38.99
090	149.3	11.0000	10.41	1.000	23.04	38.95
135	149.3	11.0000	10.41	1.000	23.04	38.95
180	149.6	11.0000	10.41	1.000	23.06	38.99
225	149.3	11.0000	10.41	1.000	23.04	38.96
270	148.0	11.0000	10.41	1.000	22.95	38.80
315	149.6	11.0000	10.41	1.000	23.06	38.99

Ave El= 0.31 M   HAAT= 149.31 M   AMSL= 149.626 M

Additional Radials (Not Considered in Average):

350	149.3	11.0000	10.41	1.000	23.04	38.95
355	149.2	11.0000	10.41	1.000	23.03	38.94
005	149.6	11.0000	10.41	1.000	23.06	38.99
010	149.6	11.0000	10.41	1.000	23.06	38.99

WUSH Proposed
Latitude: 36-51-39 N
Longitude: 076-21-13 W
ERP: 11.00 kW
Channel: 291B1
Frequency: 106.1 MHz
AMSL Height: 149.626 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model : FCC/P-to-P

Graham Brock, Inc. - Broadcast Technical Consultants

70 dBu (P-to-P)

Poquoson, Virginia

60 dBu (FCC)

70 dBu (FCC)
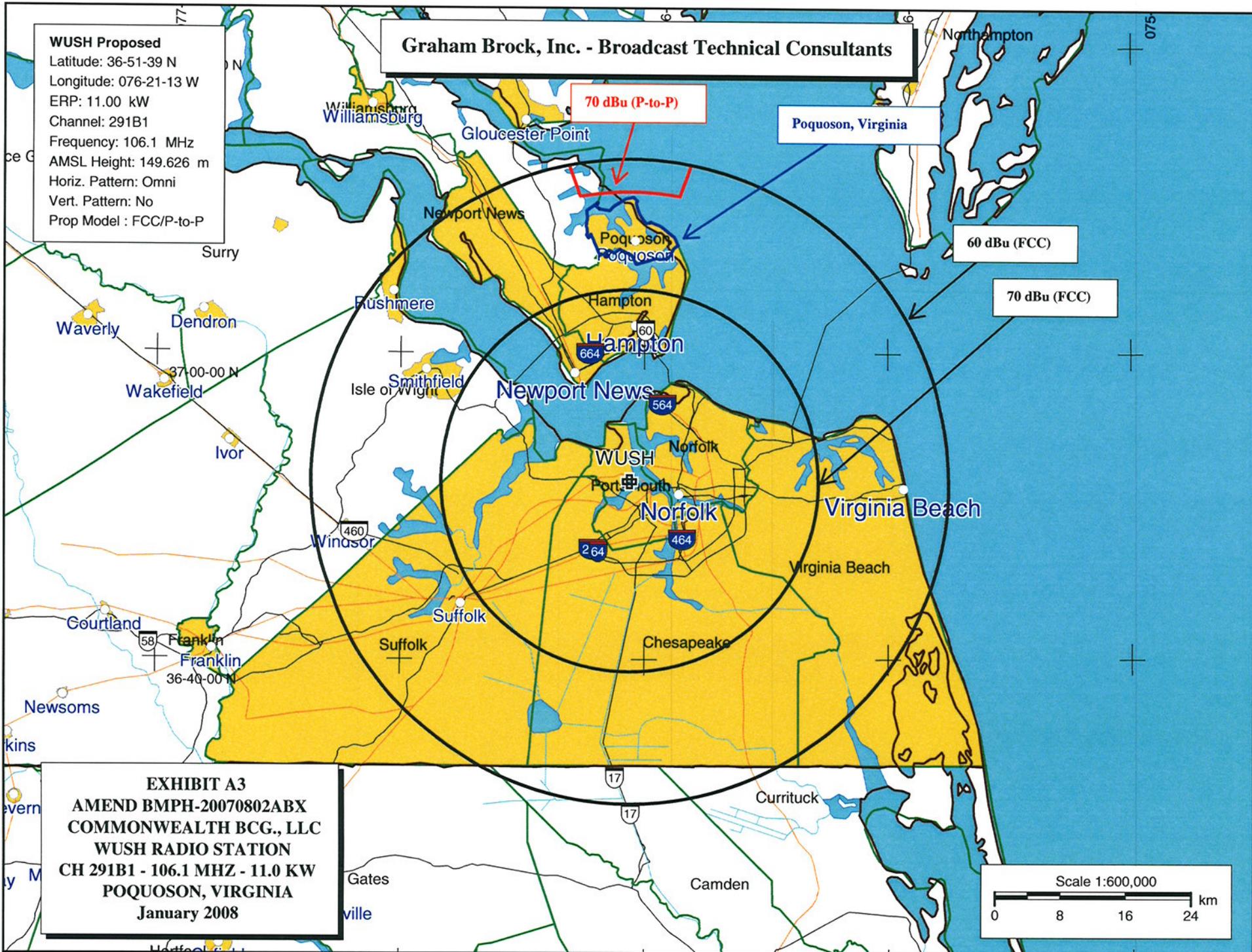
EXHIBIT A3
AMEND BMPH-20070802ABX
COMMONWEALTH BCG., LLC
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Scale 1:600,000

km
0   8   16   24
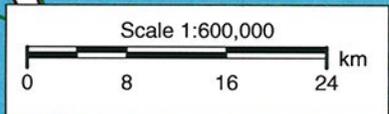
Terrain path analysis - WUSH Radio - 350° radial
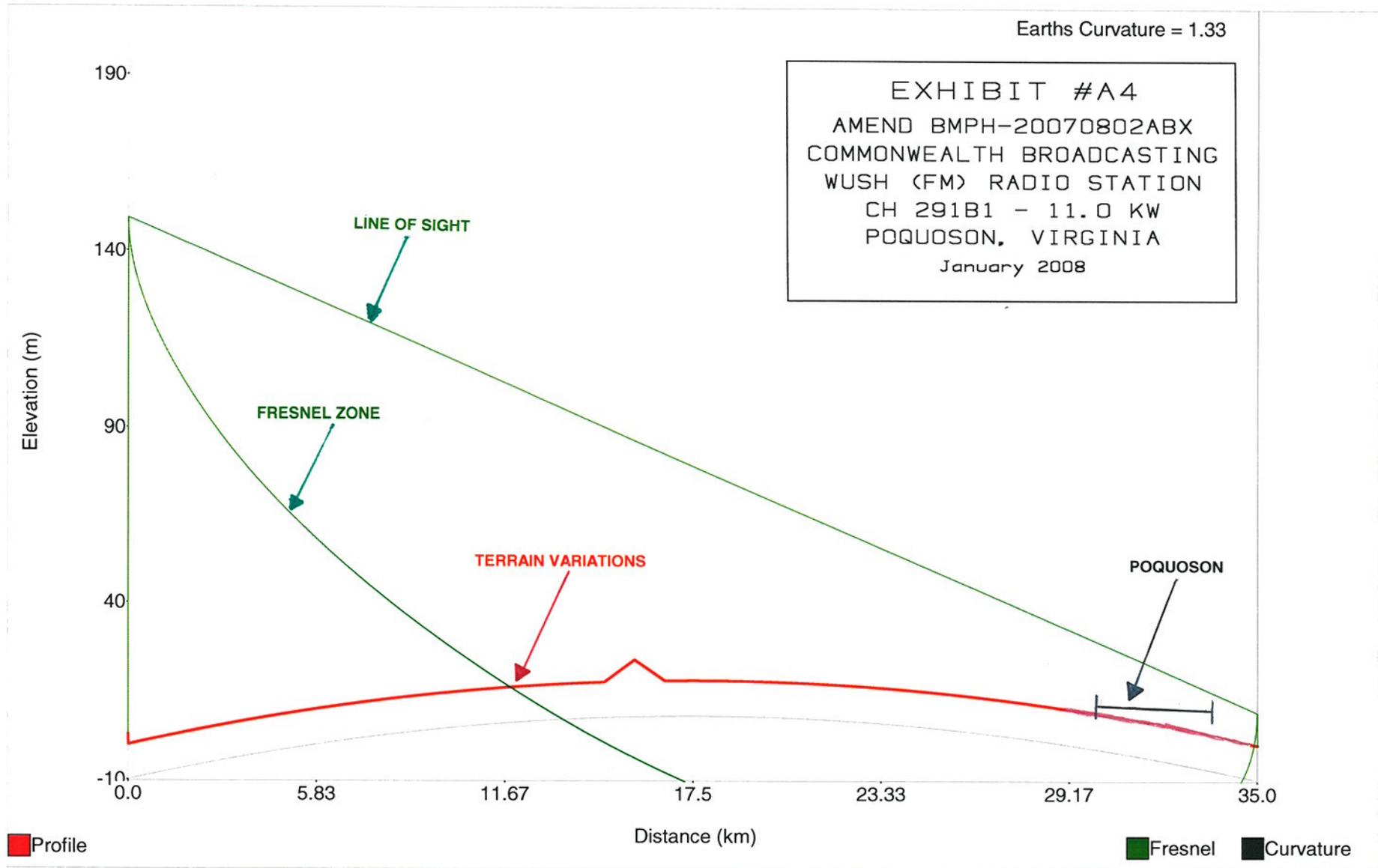
Earths Curvature = 1.33

EXHIBIT #A4
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LINE OF SIGHT

FRESNEL ZONE

TERRAIN VARIATIONS

POQUOSON

Elevation (m)

Distance (km)

Profile

Fresnel   Curvature

Starting Latitude: 36-51-39 N	End Latitude: 37-10-17.07 N	Distance: 35 km
Starting Longitude: 076-21-13 W	End Longitude: 076-25-19.35 W	Bearing: 350 deg

Transmitter Height (AG) = 146.6 m	Transmitter Elevation = 3.0 m	Frequency = 106.1 MHz
Receiver Height (AG) = 9.1 m	Receiver Elevation = 0.0 m	Fresnel Zone: 0.6

Terrain path analysis - WUSH Radio - 355° radial
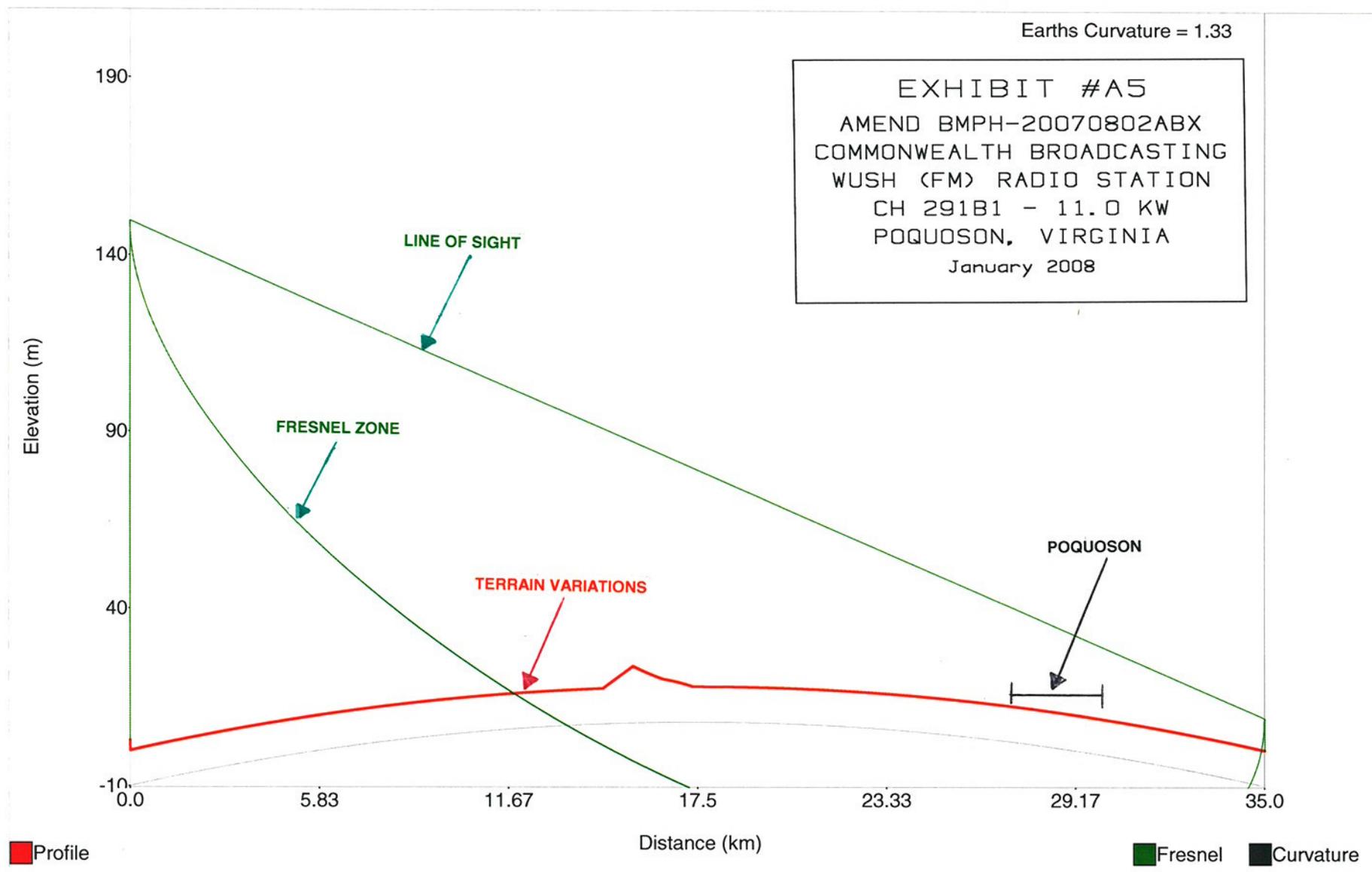
Earths Curvature = 1.33

EXHIBIT #A5
AMEND BMPH-20070802ABX
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LINE OF SIGHT

FRESNEL ZONE

TERRAIN VARIATIONS

POQUOSON

Elevation (m)

Distance (km)

Profile   Fresnel   Curvature

Starting Latitude: 36-51-39 N   End Latitude: 37-10-30.05 N   Distance: 35 km

Starting Longitude: 076-21-13 W   End Longitude: 076-23-16.65 W   Bearing: 355 deg

Transmitter Height (AG) = 146.6 m   Transmitter Elevation = 3.0 m   Frequency = 106.1 MHz

Receiver Height (AG) = 9.1 m   Receiver Elevation = 0.0 m   Fresnel Zone: 0.6

Terrain path analysis - WUSH Radio - 0° radial
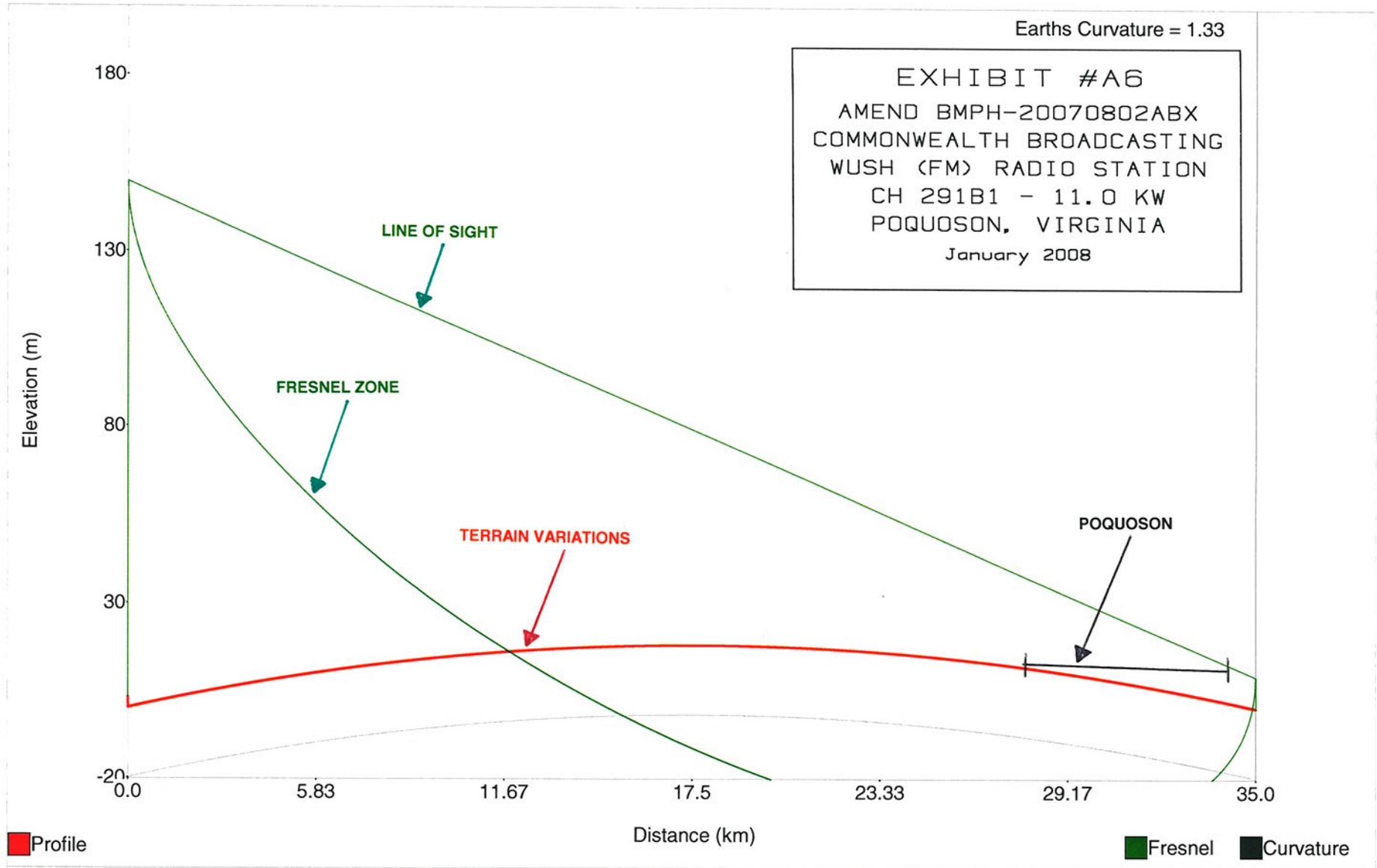
Earths Curvature = 1.33

EXHIBIT #A6
AMEND BMPH-20070802ABX
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LINE OF SIGHT

FRESNEL ZONE

TERRAIN VARIATIONS

POQUOSON

Elevation (m)

Distance (km)

Profile   Fresnel   Curvature

Starting Latitude: 36-51-39 N	End Latitude: 37-10-34.39 N	Distance: 35 km
Starting Longitude: 076-21-13 W	End Longitude: 076-21-13 W	Bearing: 0 deg

Transmitter Height (AG) = 146.6 m	Transmitter Elevation = 3.0 m	Frequency = 106.1 MHz
Receiver Height (AG) = 9.1 m	Receiver Elevation = 0.0 m	Fresnel Zone: 0.6

Terrain path analysis - WUSH Radio - 5° radial
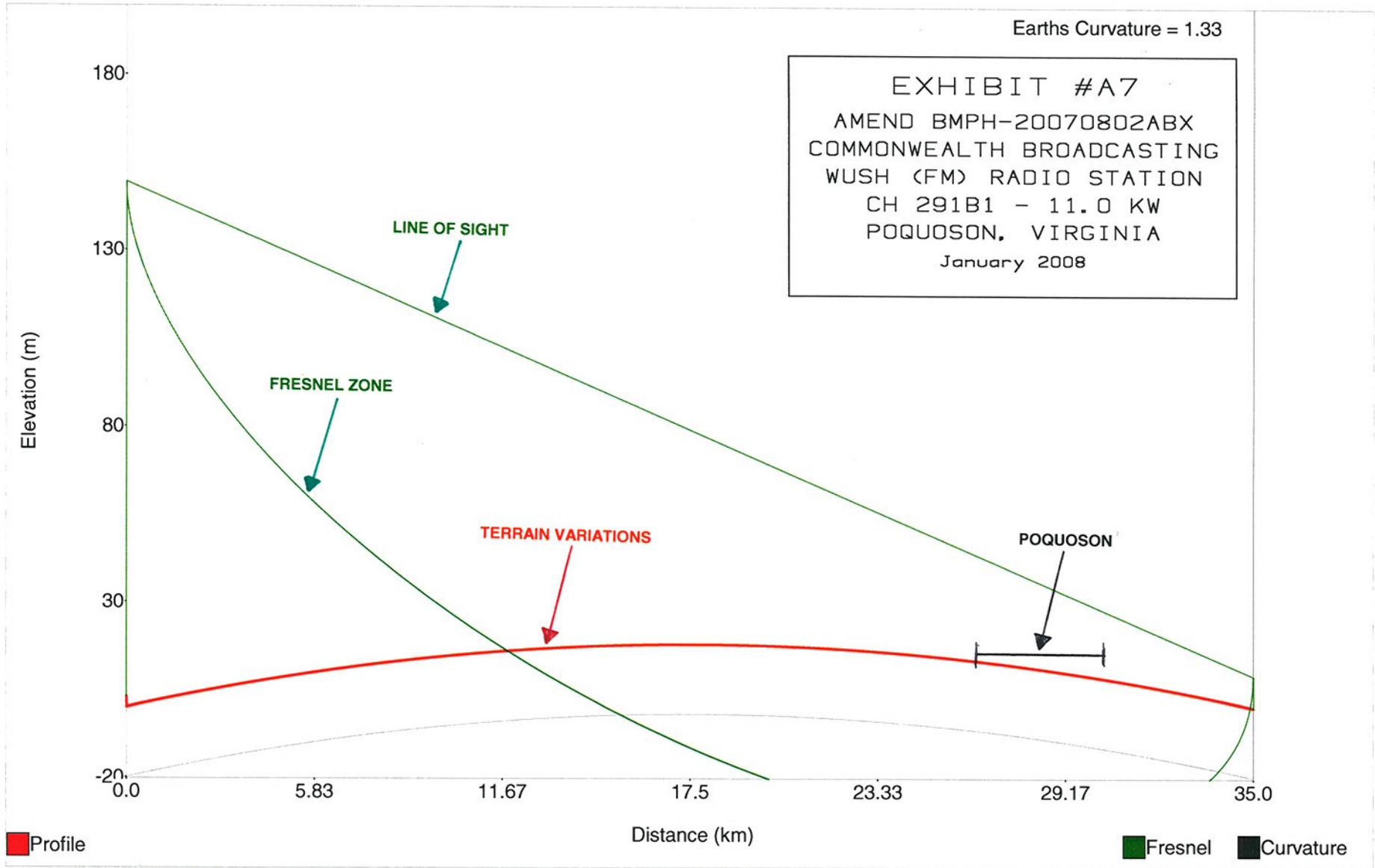
Earths Curvature = 1.33

EXHIBIT #A7
AMEND BMPH-20070802ABX
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LINE OF SIGHT

FRESNEL ZONE

TERRAIN VARIATIONS

POQUOSON

Elevation (m)

180
130
80
30
-20

0.0   5.83   11.67   17.5   23.33   29.17   35.0

Distance (km)

■ Profile   ■ Fresnel ■ Curvature

Starting Latitude: 36-51-39 N	End Latitude: 37-10-30.05 N	Distance: 35 km
Starting Longitude: 076-21-13 W	End Longitude: 076-19-09.35 W	Bearing: 5 deg

Transmitter Height (AG) = 146.6 m	Transmitter Elevation = 3.0 m	Frequency = 106.1 MHz
Receiver Height (AG) = 9.1 m	Receiver Elevation = 0.0 m	Fresnel Zone: 0.6

Terrain path analysis - WUSH Radio - 10° radial
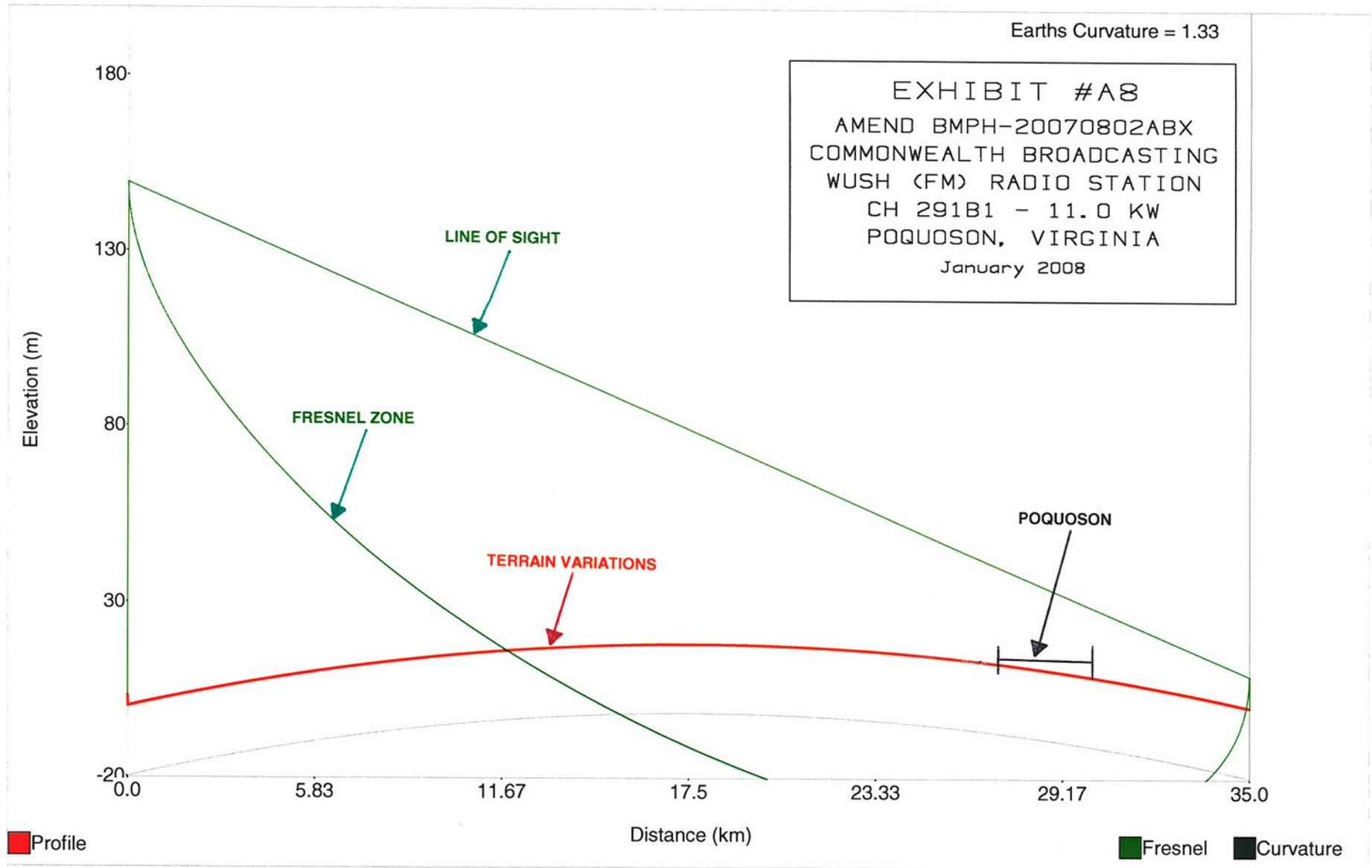
Earths Curvature = 1.33

EXHIBIT #A8
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LINE OF SIGHT

FRESNEL ZONE

TERRAIN VARIATIONS

POQUOSON

Elevation (m)

Distance (km)

Profile

Fresnel   Curvature

Starting Latitude: 36-51-39 N   End Latitude: 37-10-17.07 N   Distance: 35 km

Starting Longitude: 076-21-13 W   End Longitude: 076-17-06.65 W   Bearing: 10 deg

Transmitter Height (AG) = 146.6 m   Transmitter Elevation = 3.0 m   Frequency = 106.1 MHz

Receiver Height (AG) = 9.1 m   Receiver Elevation = 0.0 m   Fresnel Zone: 0.6