

ATTACHMENT

COMMUNITY COVERAGE SUPPLEMENTAL SHOWING
USING AN ALTERNATIVE CONTOUR PREDICTION METHOD
STATION WKRH
FAIR HAVEN, NEW YORK
CH 293A 5.4 KW (DA-MAX) 100 M

Attached as Figure 2A is a map showing portions of the FCC predicted 70 dBu and 60 dBu coverage contours. As indicated, the FCC predicted 70 dBu contour does not encompass 80% of the principal community of Fair Haven. However, using a terrain sensitive propagation model, the 70 dBu is predicted to encompass 100% of Fair Haven.

Acceptability of Supplemental Showing

It is believed that it is appropriate to use a supplemental showing based on the FCC's policies and decisions for considering supplemental showings in the context of compliance with coverage of the community of license (Section 73.315).¹ Specifically, as indicated below, there is at least a 23 percent difference in the distance to the 70 dBu contour based on the supplemental method compared to the distance provided by the standard prediction method. As such, the terrain along propagation paths from the WKRH transmitter site towards the Fair Haven city limits "departs widely" from the 50 meter delta standard, thus satisfying the requirements in the *Minor Changes R&O* that the 70 dBu contour as predicted by the supplemental method be at least 10% larger than the distance based on the standard prediction method.

¹ See *Amendments of Parts 73 and 74 of the Commission Rules to Permit Certain Minor Changes in Broadcast Facilities Without a Construction Permit*, Report and Order, 12 FCC Rcd 12371, 12401-03 (1997)(the "Minor Changes R&O"); *KNTV Licensee*, 19 FCC Rcd 15479 (2004); *Letter to Christopher Sova, Esq. re KFME(FM) from Peter H. Doyle, Chief, Audio Division, Media Bureau (March 5, 2004)*("KFME"), affirmed sub nom. *CMP Houston-KC, LLC*, Memorandum Opinion and Order, 23 FCC Rcd 10565 (2008)("KFME MO&O"); and *Skytower Communications - 94.3, LLC, Request for Determination of Compliance with the Main Studio Location Rule*, 47 CFR 73.1125, Memorandum Opinion and Order and Notice of Apparent Liability for Forfeiture, Facility ID No. 25799, NaL/Acct. No. MB 201041410015, FRN: 0001790724, DA 10-1760.

Longley-Rice Coverage Analysis

The Longley-Rice propagation model² was used as more precise alternative to the Commission's standard prediction method to determine the location of WKRH's proposed 70 dBu contour. The Fair Haven town limits are located across the arc of azimuths from 224° clockwise to 238° true from the proposed WKRH transmitter site. Therefore, for the Longley-Rice analysis terrain profiles were prepared for the following radials: 224°, 230°, 235° and 238° true. Figure 1A, Sheets 1 thru 4, depicts the 224°, 230°, 235° and 238° true terrain profiles, respectively. The terrain data was derived from the NGDC 3-second terrain database. Using these terrain elevations, calculations of the field strength were made at 0.1-km intervals along each radial using the Longley-Rice propagation model. The following parameters were employed in the calculations:

Model	Point-to-point irregular
Location Variability	50%
Time Variability	50%
Situation Variability	50%
Frequency	106.5 MHz
Polarization	Horizontal
Conductivity	0.005 S/m
Dielectric Constant	15.0
Transmitter Antenna Height AMSL	195 m
Transmitting Antenna	Non-directional
Maximum Effective Radiated Power	5400 W
Receive Antenna Height	9.1 m
Clutter Factor	3 db

² Rice, P.L., A.G. Longley, K.A. Norton, and A.P. Barsis, "Transmission Loss Predictions for Tropospheric Communication Circuits," Technical Note 101 (Issued May 7, 1965, Revised January 1, 1967) National Bureau of Standards, Boulder, Colorado.

See also Longley, A.G., and P.L. Rice, "Prediction of Tropospheric Radio transmission Loss Over Irregular Terrain: A Computer Method-1969," ESSA Technical Report ERL-ITS 67, Institute for Telecommunications Sciences, Boulder, Colorado, July 1968.

As indicated above, a 3 dB clutter factor was used to take into account field strength variations due to local clutter (e.g. trees, buildings).³ The results of the study are illustrated graphically on Figure 1A. The field strength data along each radial was analyzed to determine the "median" values using polynomial curve fitting (based on the method of least squares).⁴ The location of the "median" 70 dBu field strength level is indicated on each radial based on this analysis.

The 70 dBu contour based on the alternate terrain method (Longley-Rice) has been depicted on Figure 2A. Also shown are the legal boundaries of Fair Haven based on the 2010 Census, the proposed WKRH transmitter site and the protected 60 dBu contour based on the FCC's standard prediction method [F(50,50)]. It has been determined that the Longley-Rice 70 dBu encompasses 100% of the land area within the Fair Haven town limits.

Compliance with 70 dBu Contour 10% Extension Criteria

The following tabulates the distance to the 70 dBu contour along each radial based on the FCC's standard prediction method [F(50,50)] and the Longley-Rice alternate terrain method, the difference and percent change:

Radial	70 dBu Field Strength (km)		Difference	
	FCC F(50,50)	Longley-Rice	Km	Percent
224°T	15.6	27.5	11.9	+76.3
230°T	16.0	24.2	8.2	+51.3
235°T	16.2	19.9	3.7	+22.8
238°T	16.4	20.2	3.8	+23.2

³ Use of a 3 dB clutter factor appears "conservative" for the propagation paths considered here. For instance, a 2 dB clutter factor was used by the FCC to establish that KALF-FM at Red Bluff, California encompassed its main studio location - see Memorandum from William Daniel, Chief, Propagation Analysis Bureau, OET, to Dennis Williams, Chief, FM Branch, MMB, dated Oct. 6, 1992 concerning the supplemental showing of 3.16 mV/m contour of KALF-FM, Red Bluff, CA, File BLH-851125KH. In addition, Bullington indicated that the average loss from surrounding trees for horizontal polarization may be 2 to 3 dB (see Kenneth Bullington, "Radio Propagation at Frequencies Above 30 Megacycles, Proc IRE, October, 1947).

⁴ The polynomial equation used for the analysis is shown on each graph as a dashed line along with the R-squared value, which helps determine the line of best fit.

The difference between the distances to the 70 dBu contours exceeds 10 percent.

Sample Calculation

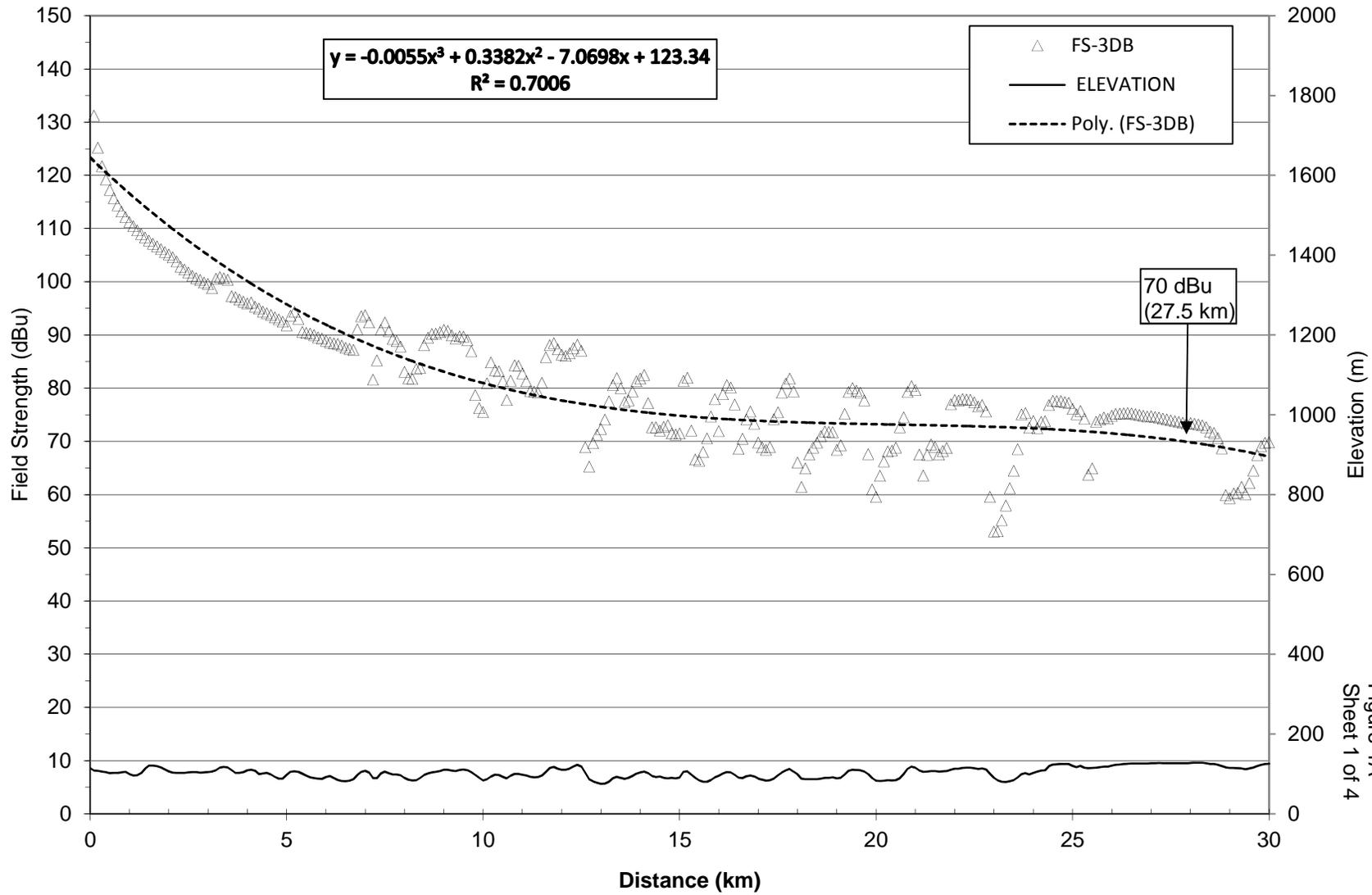
The following provides a sample Longley-Rice calculation along the 230° true radial.

Free Space Field (5.4 kW @ 16.0 km)	90.2 dBu
Additional estimated transmission loss	7.0 dB
Clutter Loss	3 dB
Net received field	80.2 dBu

Conclusion

As demonstrated above, use of a supplemental showing is appropriate based on the FCC's policies and decisions for considering supplemental showings in the context of demonstrating compliance with coverage of the community of license (Section 73.315). In addition, the WKRH application complies with the community of license coverage requirements of Section 73.315 based on the supplemental showing.

WKRH - 224 DEGREES TRUE



WKRH - 230 DEGREES TRUE

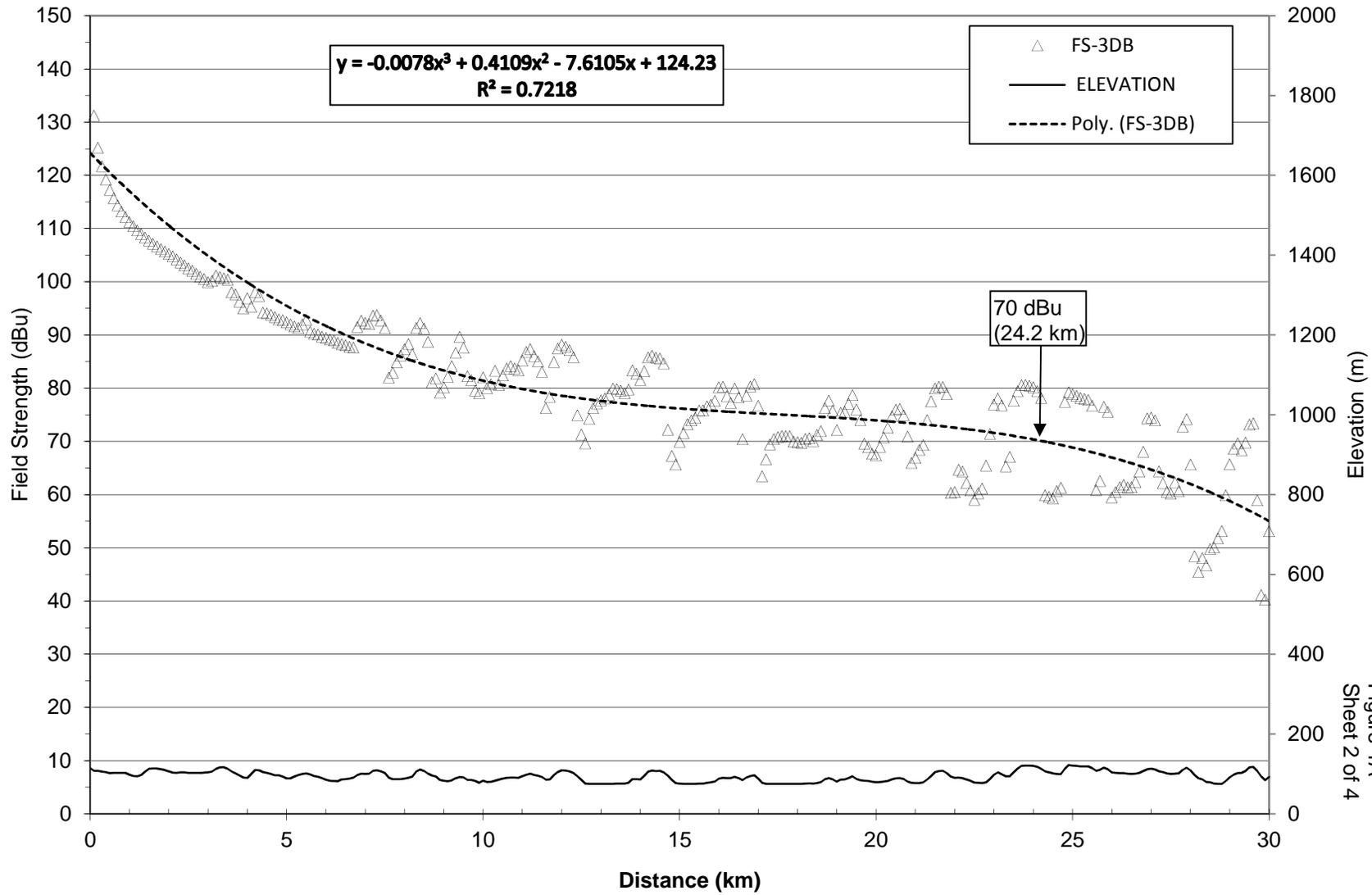
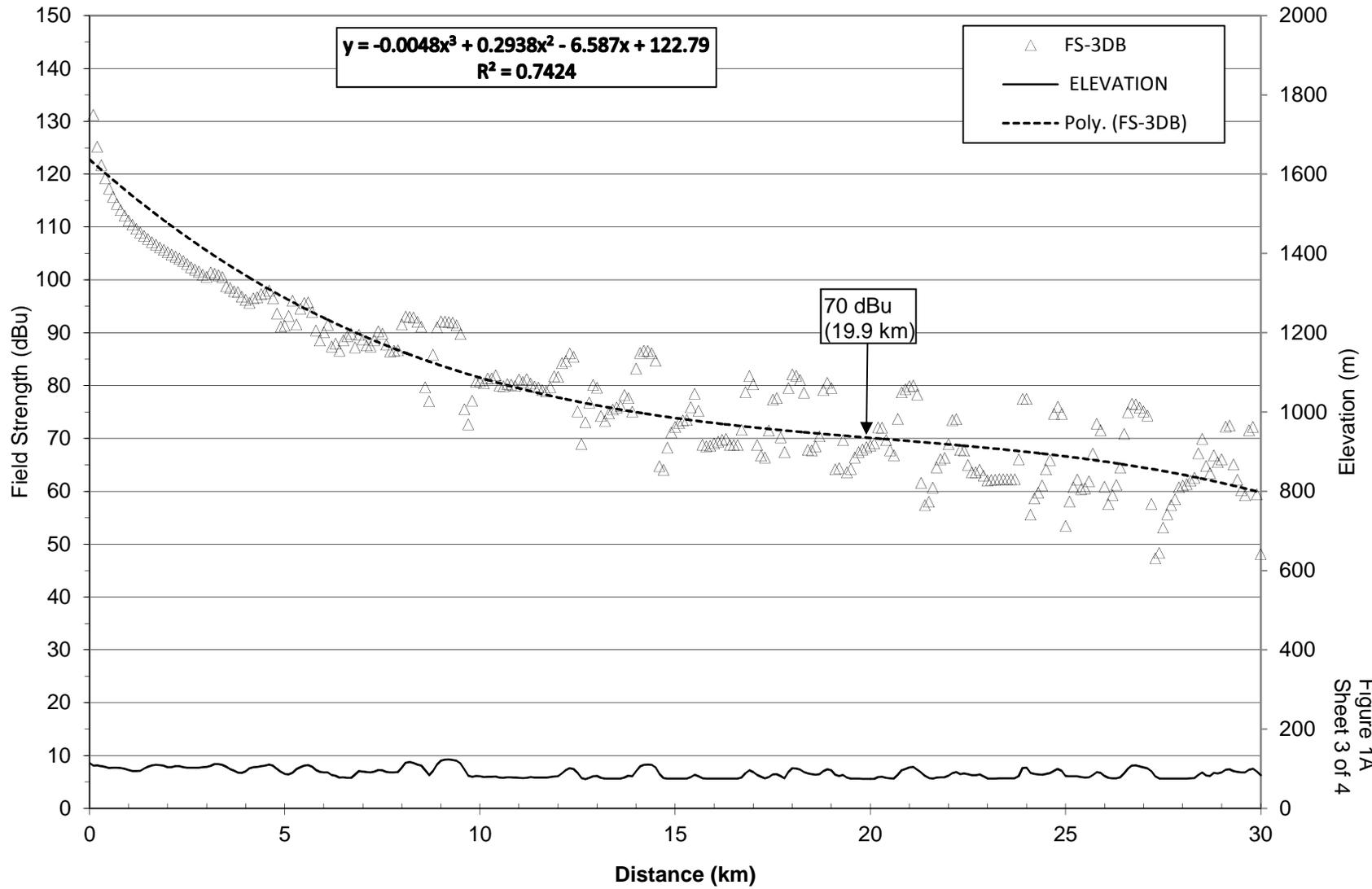


Figure 1A
Sheet 2 of 4

WKRH - 235 DEGREES TRUE



WKRH - 238 DEGREES TRUE

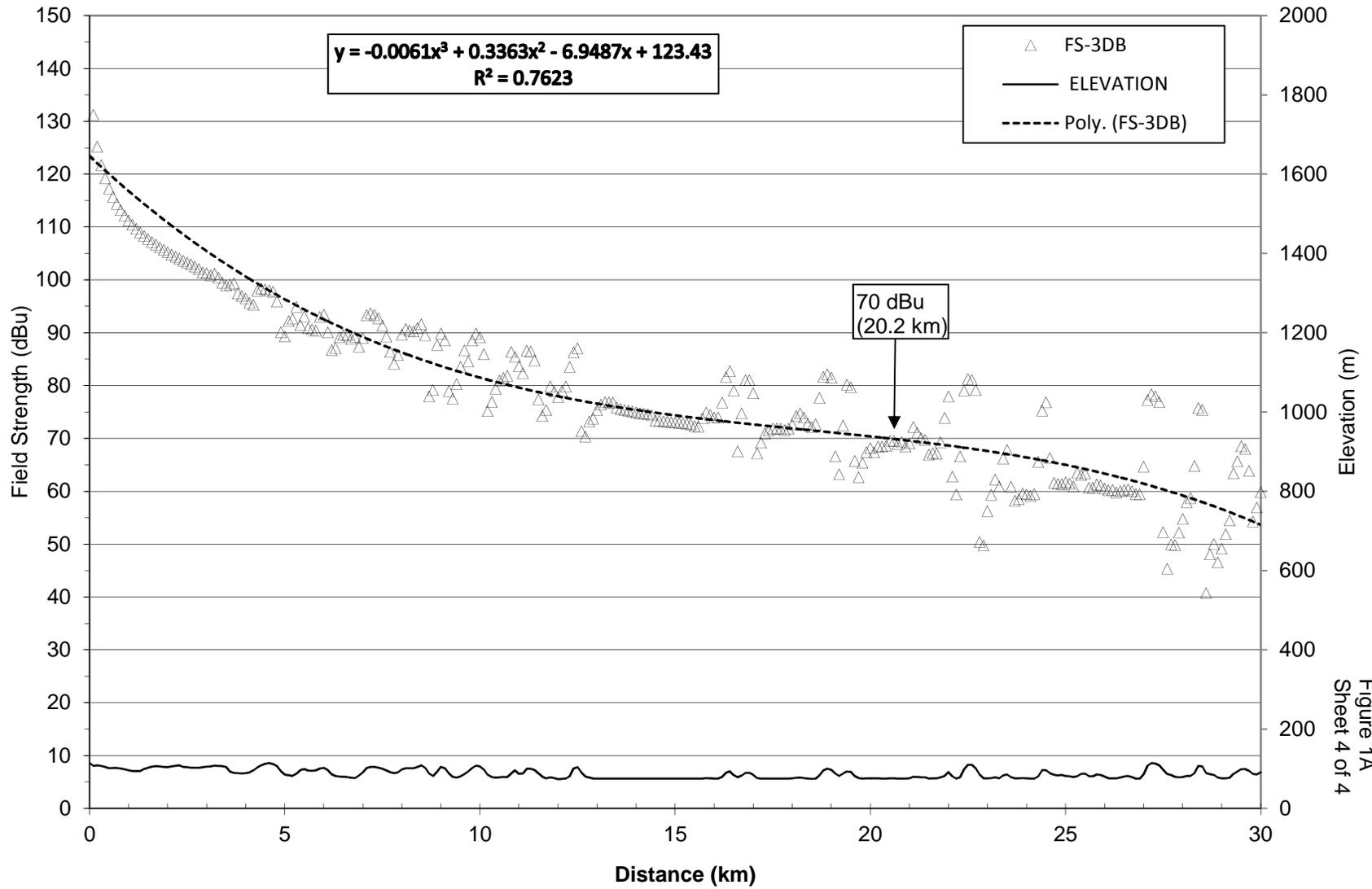
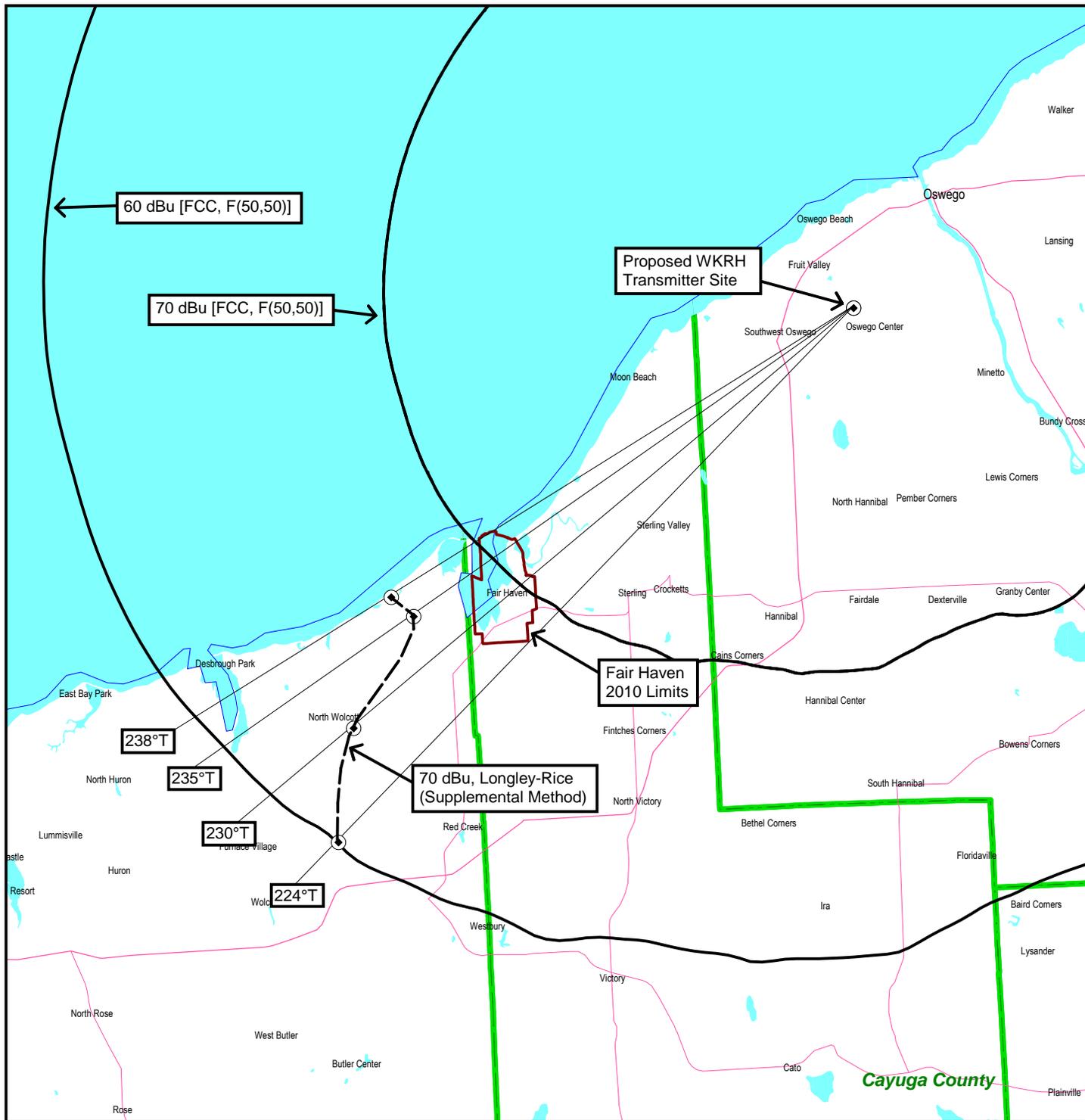


Figure 2A



70 DBU - SUPPLEMENTAL SHOWING

FM STATION WKRH
FAIR HAVEN, NEW YORK
CH 293A 5.4 KW 100 M