TECHNICAL EXHIBIT
MINOR AMENDMENT TO THE APPLICATION OF FM STATION WWBB
FCC FILE NO. BPH-20150213ACG
PROVIDENCE, RHODE ISLAND
CH 268A 6 KW (DA) 91 M

This Technical Exhibit has been prepared on behalf of Clear Channel Broadcasting Licenses, Inc. ("CCBL"), in connection with the minor amendment to the application of CCBL station WWBB at Providence, Rhode Island, FCC File No. BPH-20150213ACG. Specifically, the purpose of this Technical Exhibit is to demonstrate that a 70 dBu signal is provided to 100% of the Providence city limits, WWBB's current and proposed community of license, from the proposed allotment coordinates specified in Section III-B, Item 4 of FCC File No. BPH-20150213ACG, as amended, based on a supplemental showing using the Longley-Rice propagation model.[1]

The FCC has previously indicated that use of supplemental showings from allotment sites is permitted pursuant to the criteria established in *Woodstock and Broadway, Virginia,* 3 FCC Rcd 6398 (1988), when it has been demonstrated that there is reasonable assurance of the availability of the site and, when applicable, tower registration has been obtained.[2] Attached is a letter from American Tower Company ("ATC") to CCBL confirming that CCBL has reasonable assurance

[1] The Note to Section 73.203 which provides that an exhibit must be supplied demonstrating "the existence of a suitable allotment site that fully complies with §§73.207 and 73.315 without resort to §§73.213 through 73.215," by its terms applies specifically to "non-reserved band changes in channel and/or class and/or community." Neither the channel, nor the class, nor the community of license of WWBB is proposed to change by the subject application. Even though the Section 73.203 Note does not by its terms apply to the subject application, in an abundance of caution, CCBL has commissioned engineering firm du Treil, Lundin & Rackley, Inc. to undertake this study confirming that the allotment site, as amended, fully complies with Section 73.315.

[2] See, e.g., Letter from Rudolfo F. Bonacci, Assistant Chief, Audio Division, Media Bureau, to Univision Radio License Corporation, dated January 15, 2010 (granting the application of KKMR(FM), Arizona City, Arizona, Facility ID #2740, File No. BPH-20000323ACA); see also File No. BPH-20120723AEM (one-step upgrade of WKHI(FM), Fruitland, Maryland, Facility ID #4107, granted based on Longley-Rice community coverage showing prepared by Khanna and Guill, Inc. from reference allotment site specified at an existing tower with reasonable site assurance).

that the existing tower now specified in File No. BPH-20150213ACG for the WWBB allotment site would be made available for the WWBB facility, subject to customary terms. The ATC letter also confirms that FCC antenna structure registration is not required for this existing ATC tower, and thus that portion of a *Woodstock and Broadway* showing is not applicable here.

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).[3] Specifically, as indicated below, there is at least a 44 percent difference in the distance to the 70 dBu contour based on the supplemental method as compared to the distance provided by the standard prediction method. As such, the terrain along propagation paths from the WWBB allotment site towards the Providence 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.

Longley-Rice Coverage Analysis

The Longley-Rice propagation model[4] was used as more precise alternative to the Commission's standard prediction

[3] See *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.

[4] 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.

method to determine the location of the proposed 70 dBu contour. The Providence city limits based on the 2010 Census are located across the arc of azimuths from 11° clockwise to 44° true from the WWBB allotment site. Therefore, for the Longley-Rice analysis terrain profiles were prepared for the following radials: 11°, 15°, 20°, 25°, 30°, 35°, 40° and 44° true. Figure 1, Sheets 1 thru 8, depicts the 11°, 15°, 20°, 25°, 30°, 35°, 40° and 44° 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	101.5 MHz
Polarization	Horizontal
Conductivity	0.005 S/m
Dielectric Constant	15.0
Transmitter Site Coordinates	N41-39-55/W71-31-13 (NAD27)
Transmitter Antenna Height AMSL	161 m
Transmitting Antenna	Non-Directional
Maximum Effective Radiated Power	6 kW
Receive Antenna Height	9.1 m
Clutter Factor	3 db

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).[5] The results of the study are

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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.

[5] 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,

illustrated graphically on Figure 1. 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).[6] 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 2. Also shown are the city limits of Providence based on the 2010 Census, the WWBB allotment site and the 70 dBu and 60 dBu contours 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 Providence city limits.[7]

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
11°T	16.6	23.9	7.3	+44.0
15°T	17.9	27.7	9.8	+54.7
20°T	18.6	27.1	8.5	+45.7
25°T	18.6	35.1	16.5	+88.7
30°T	18.8	31.6	12.8	+68.1
35°T	19.4	35.2	15.8	+81.4
40°T	19.2	32.1	12.9	+67.2
44°T	19.2	29.7	10.5	+54.7

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).

[6] 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.

[7] It is noted that the 60 dBu, F(50,50) contour based on the FCC's standard prediction method encompasses 100% of the Providence city limits. Also, per FCC policy, the Longley-Rice 70 dBu is truncated at the FCC predicted 60 dBu contour.

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

Sample Calculation

The following provides a sample Longley-Rice calculation along the 30° true radial.

Free Space Field (6 kW @ 25 km)	86.7 dBu
Additional estimated transmission loss	7.2 dB
Clutter Loss	3 dB
Net received field	76.5 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) from an allotment site. In addition, a 70 dBu signal is provided to 100% of the Providence city limits from the WWBB allotment site based on a supplemental showing using the Longley-Rice propagation model.

I hereby declare under penalty of perjury that the forgoing is true and correct to the best of my personal knowledge and belief.

W. Jeffrey Reynolds

du Treil, Lundin & Rackley, Inc.
201 Fletcher Avenue
Sarasota, Florida 342387
(941) 329-6000
JEFF@DLR.COM

March 30, 2015

WWBB 11 Degrees True

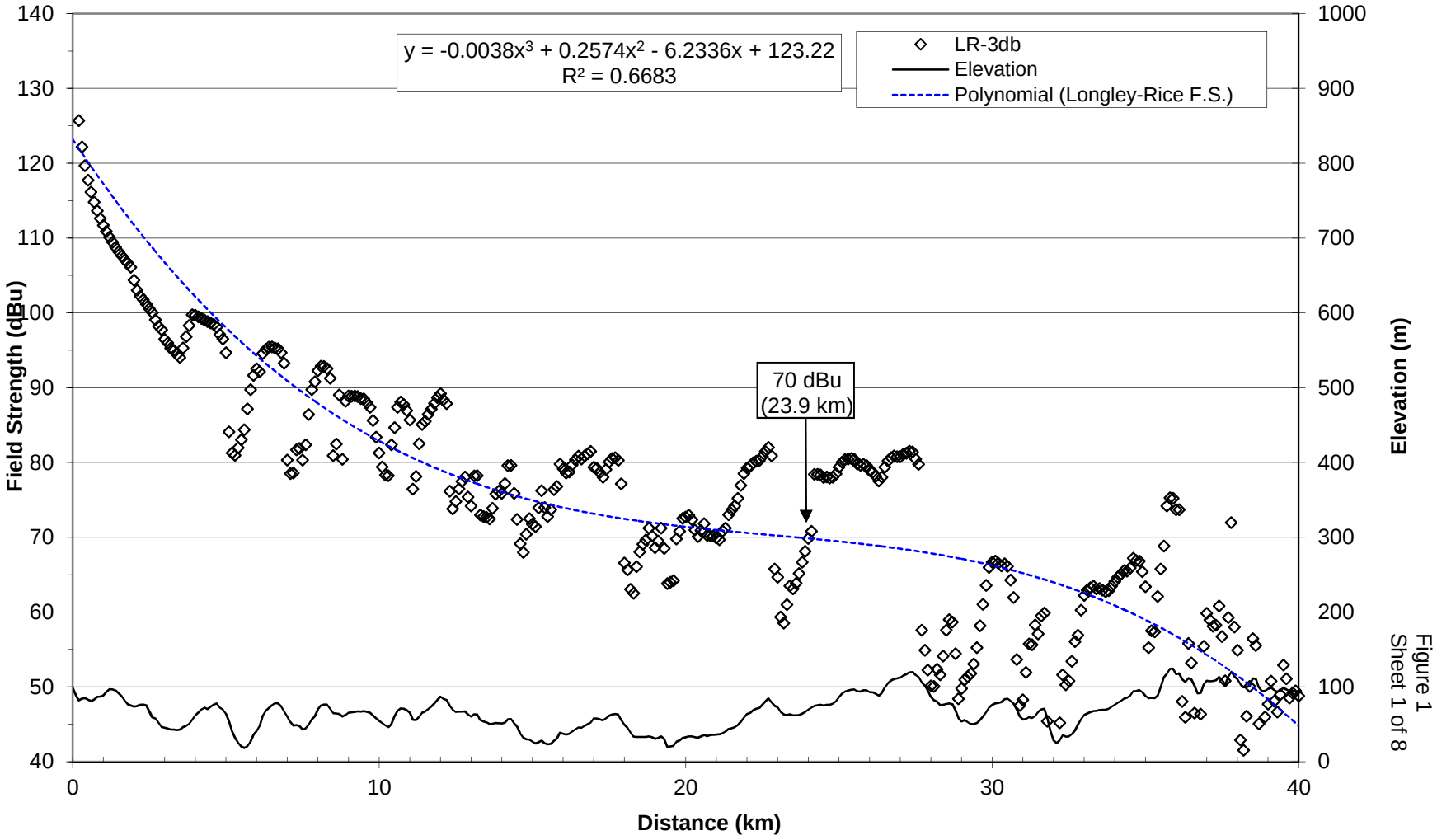


Figure 1
Sheet 1 of 8

WWBB 15 Degrees True

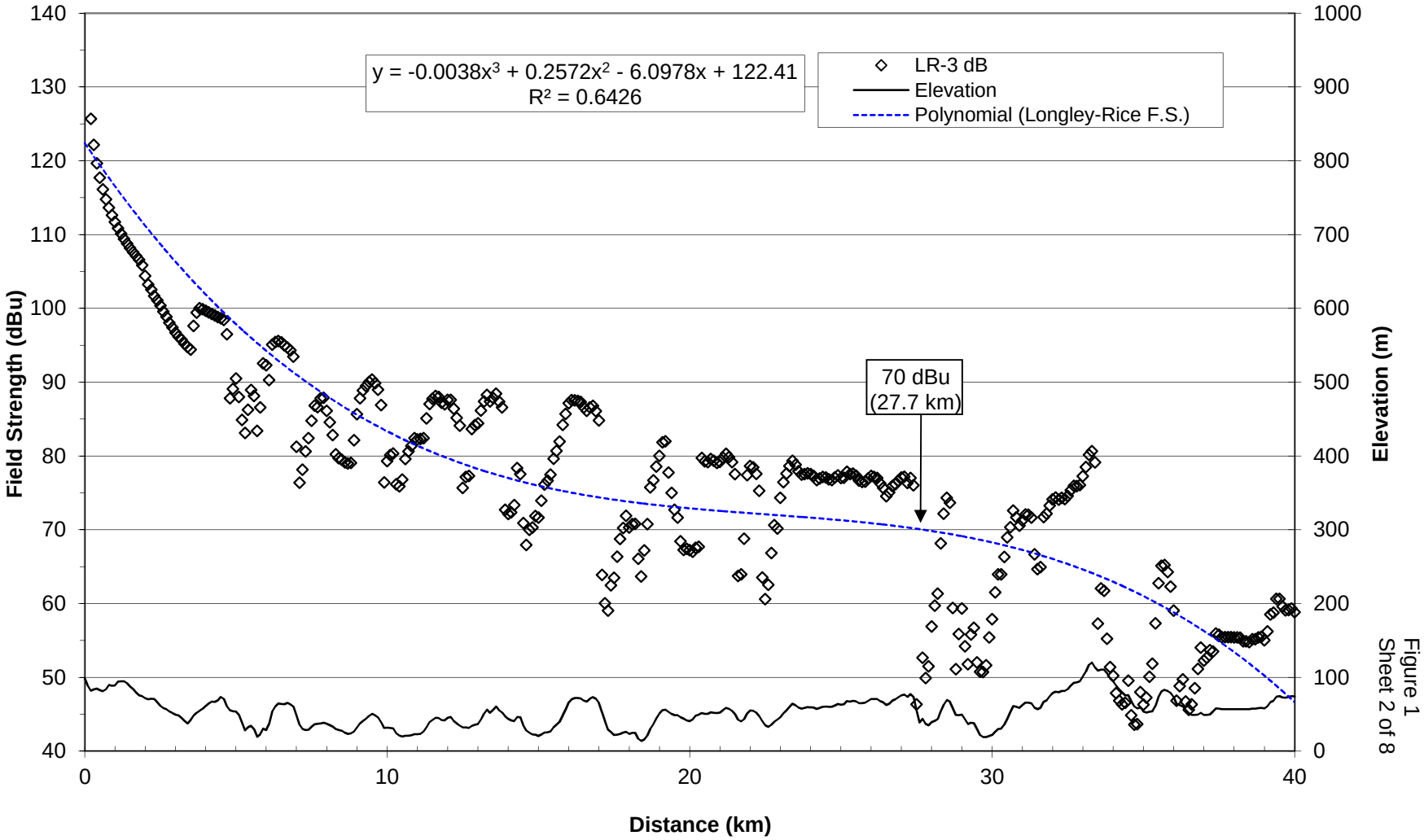


Figure 1
Sheet 2 of 8

WWBB 20 Degrees True

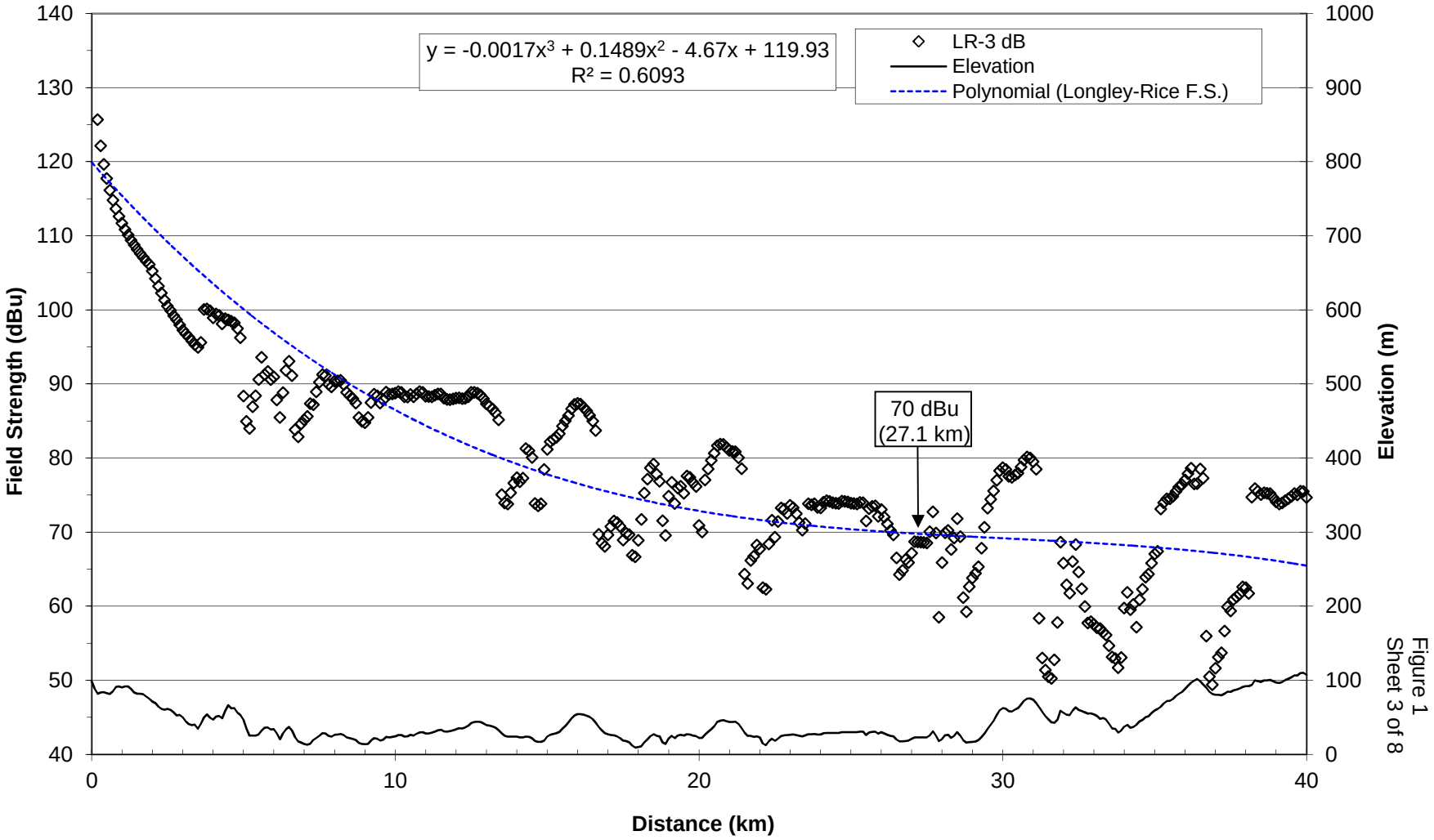


Figure 1
Sheet 3 of 8

WWBB 25 Degrees True

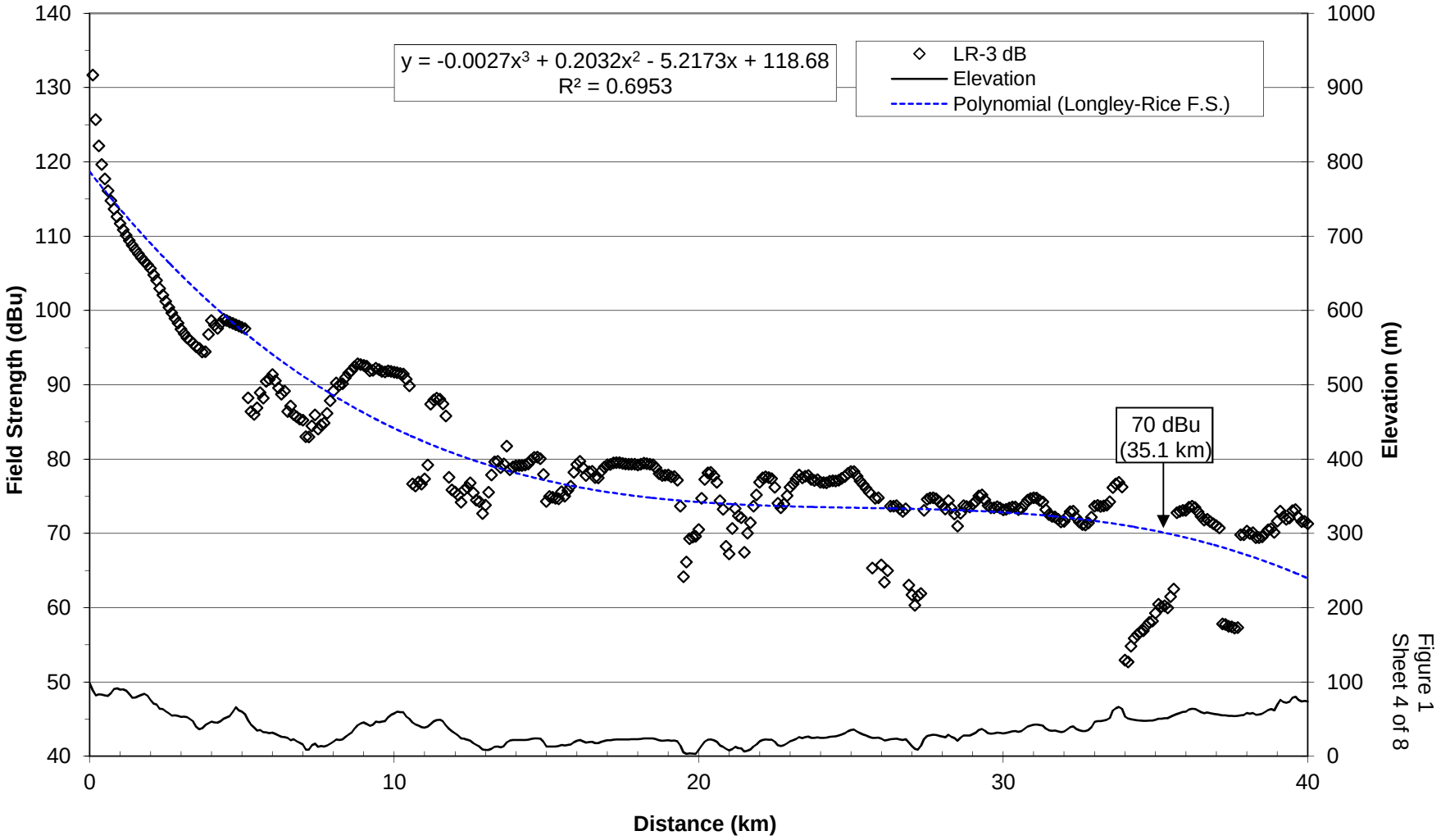


Figure 1
Sheet 4 of 8

WWBB 30 Degrees True

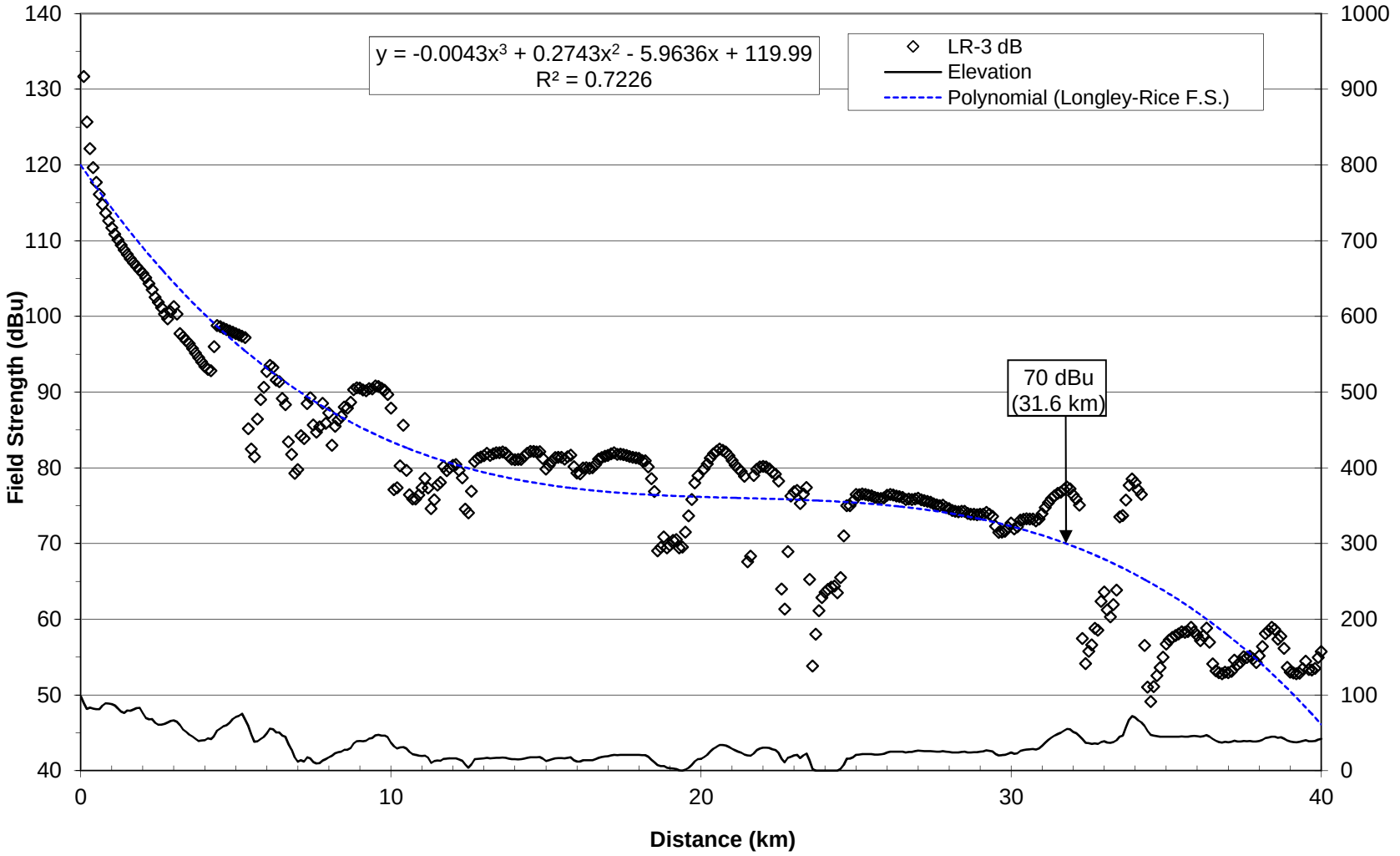


Figure 1
Sheet 5 of 8

WWBB 35 Degrees True

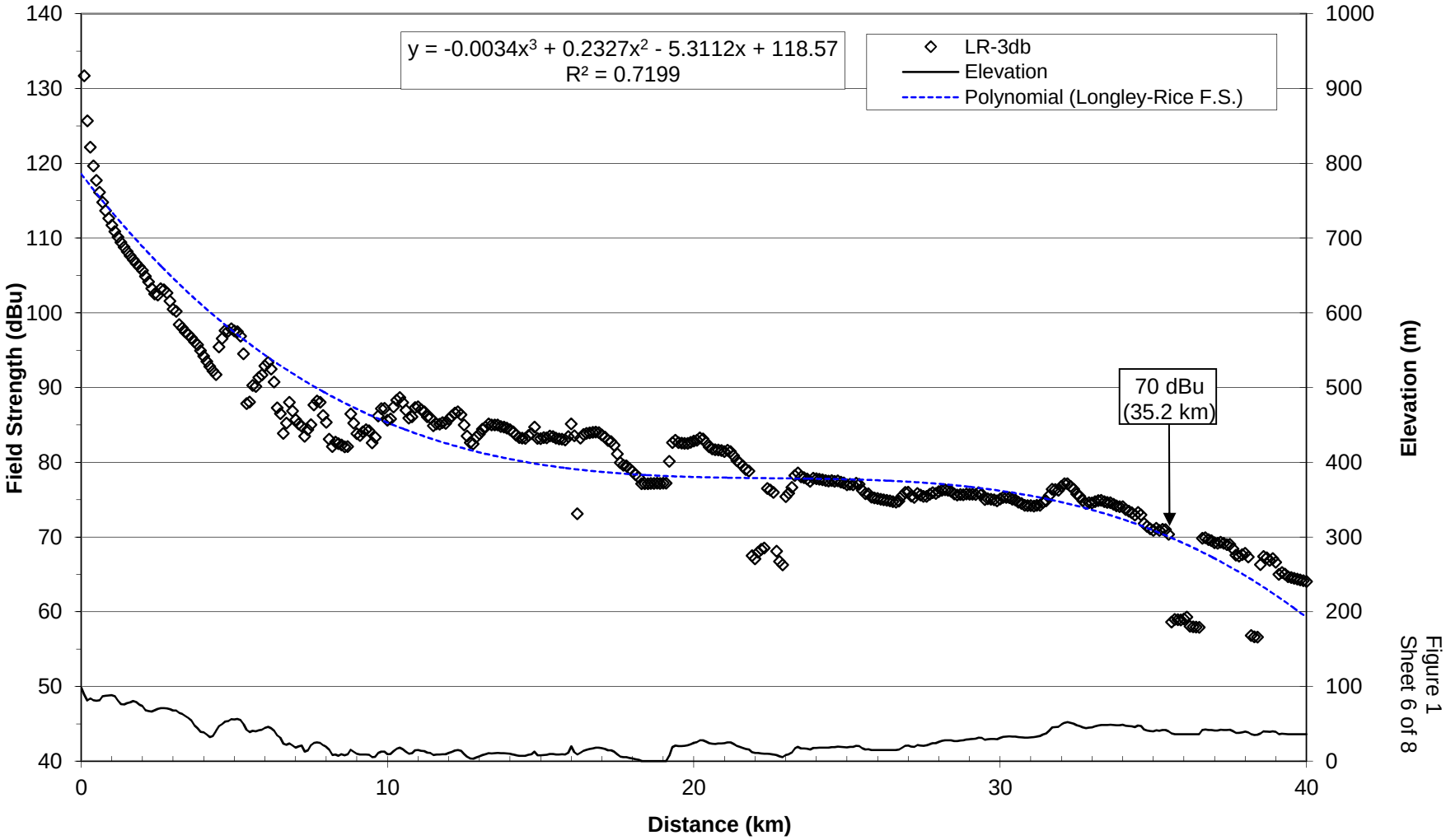


Figure 1
Sheet 6 of 8

WWBB 40 Degrees True

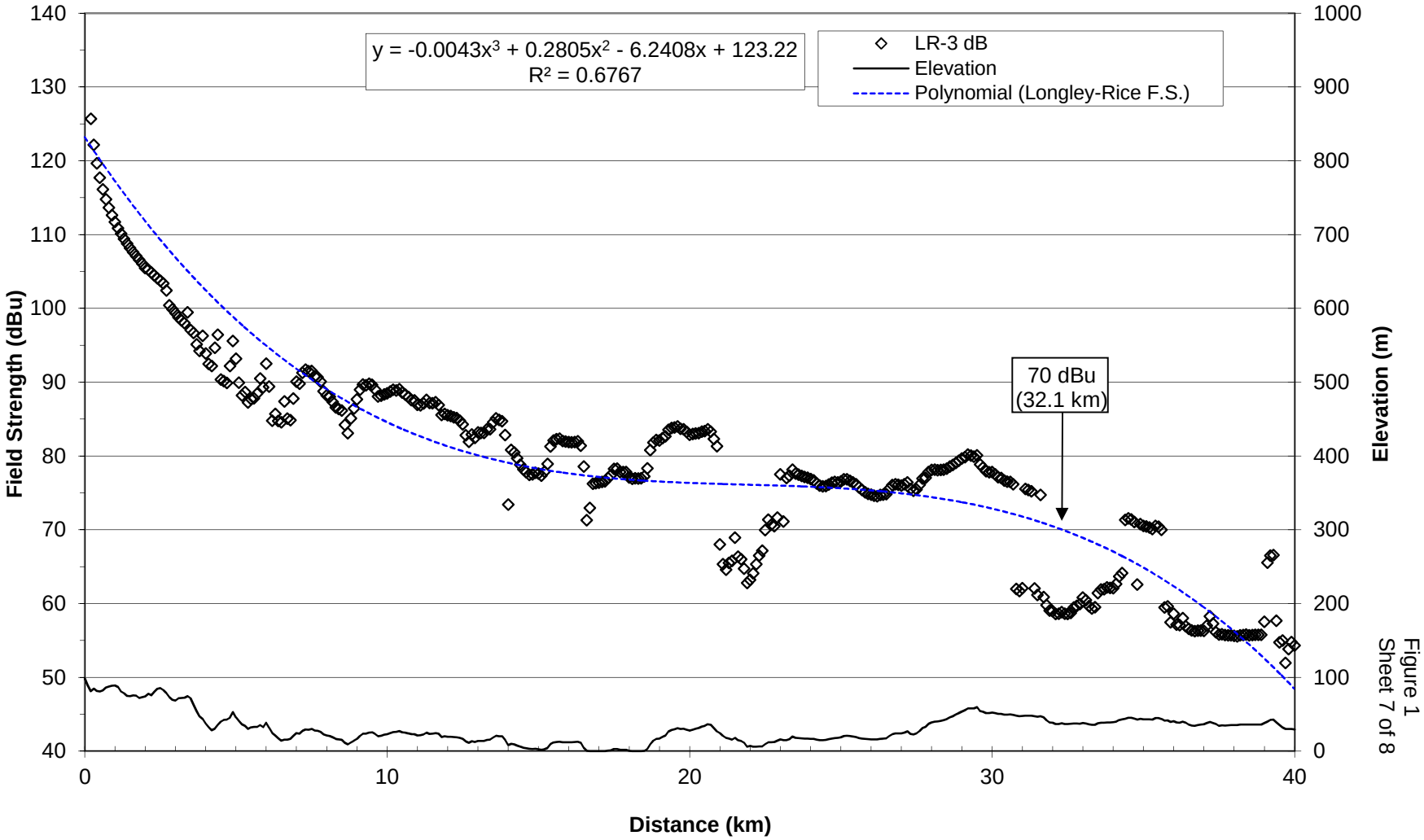


Figure 1
Sheet 7 of 8

WWBB 44 Degrees True

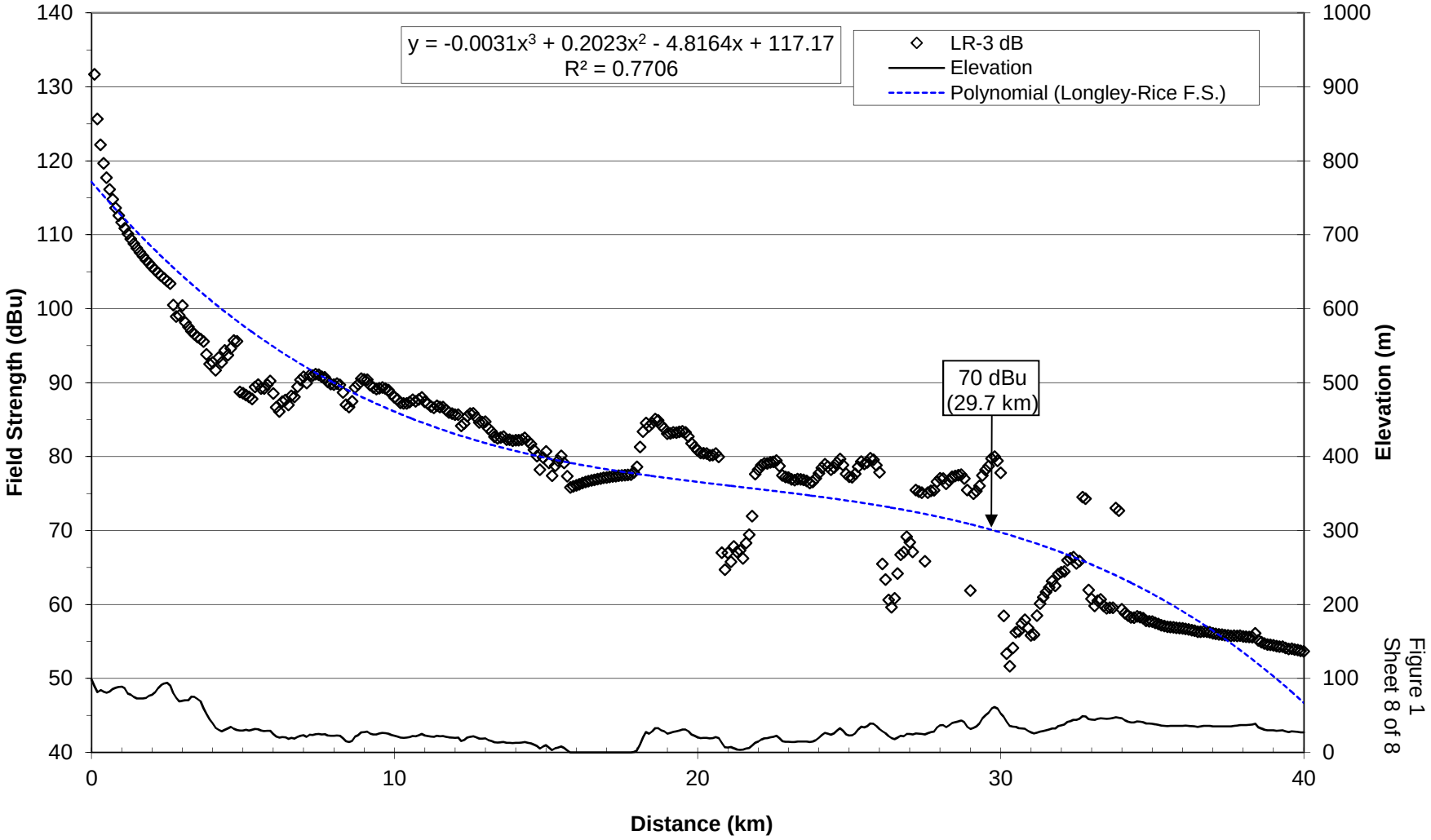
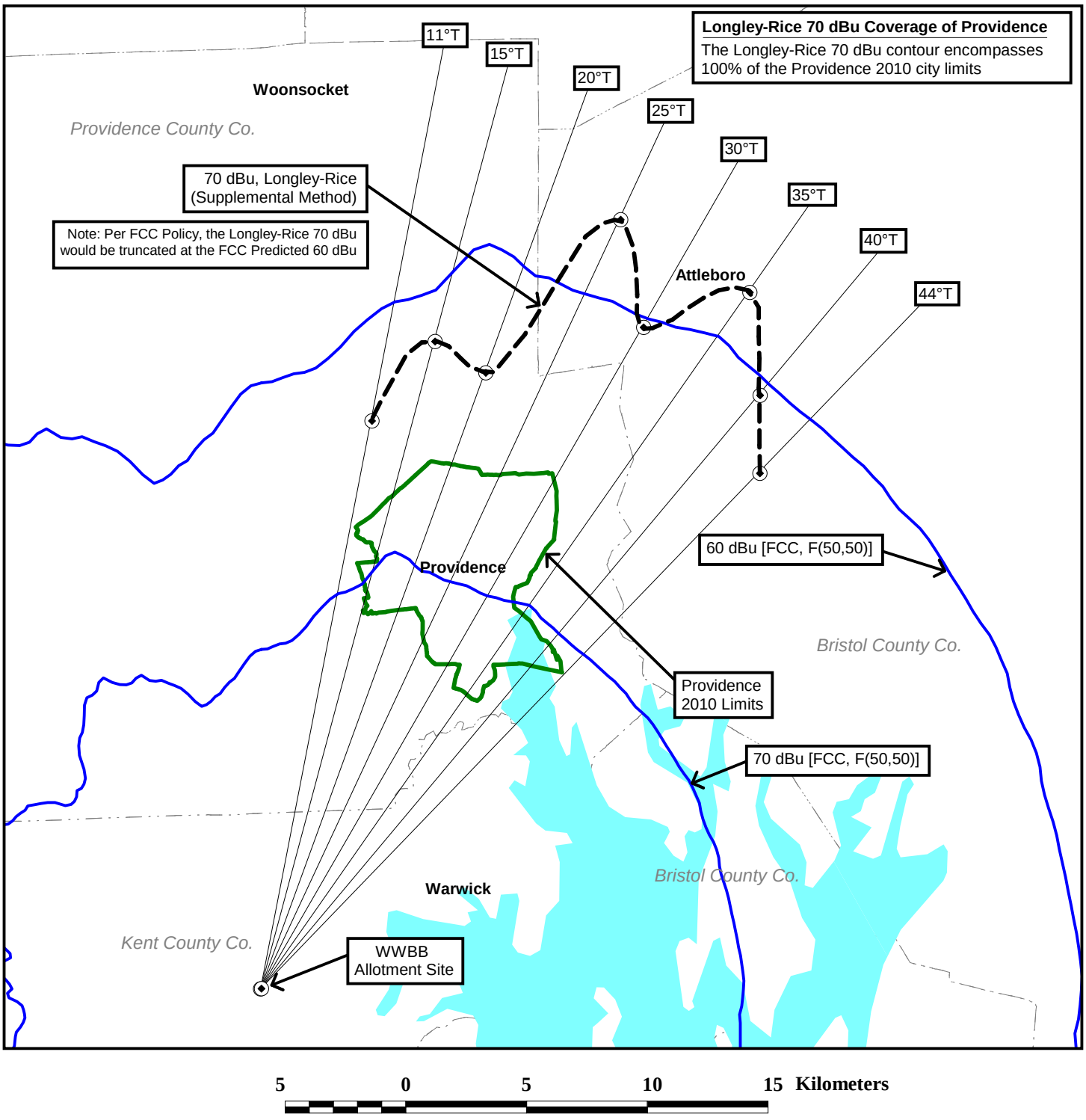


Figure 1
Sheet 8 of 8

Figure 2



70 DBU - SUPPLEMENTAL SHOWING

STATION WWBB
PROVIDENCE, RHODE ISLAND
CHANNEL 268A (101.5 MHZ)

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

AMERICAN TOWER®
CORPORATION

March 30, 2015

Via Electronic Mail at JeffLittlejohn@iheartmedia.com

Mr. Jeff Littlejohn
Executive Vice President - Engineering & Systems Integration
Clear Channel Broadcasting Licenses, Inc.
Clear Channel Broadcasting, Inc.
8044 Montgomery Road, Suite 650
Cincinnati, OH 45236

Re: ATC Asset No. 374118

Dear Mr. Littlejohn:

As Vice President/Broadcast of American Tower Corporation ("ATC"), I hereby confirm the following:

- ATC and/or its affiliated companies owns the tower located on a recorded perpetual land easement at the site designated as ATC Asset No. 374118, site address: 153 James P. Murphy Ind. Hwy, West Warwick, Kent County, Rhode Island.
- The ATC Asset No. 374118 tower is an existing 190.3 foot self-support tower atop a 0.5 foot concrete pad. ATC Asset No. 374118 was surveyed by a professional land surveyor in 2012 who confirmed the following tower coordinates (NAD 83): 41° 39' 55.82" N / 071° 31' 11.25" W.
- The ATC Asset No. 374118 tower is not currently registered with the Federal Communications Commission ("FCC") for an antenna structure registration as such tower is exempt from notification to the Federal Aviation Administration and consequently is exempt from FCC antenna structure registration pursuant to 47 C.F.R. Sections 17.4 and 17.7.
- ATC would make available space on ATC Asset No. 374118 at one of several levels, including at the level that would correspond to an antenna height above ground level of 187 feet (57 meters), for the placement of an antenna for an FM radio station licensed to Clear Channel Broadcasting Licenses, Inc., along with space at the site for the FM radio station's transmission equipment.
- ATC would be willing to enter into a lease with Clear Channel Broadcasting Licenses, Inc./Clear Channel Broadcasting, Inc. ("iHeart") for tower and transmitter building space

allowing iHeart to construct and operate an FM station at the 187 foot level at ATC Asset No. 374118, subject to structural review, final agreement of a rental rate based on market conditions and subject to execution of a lease agreement with customary terms in the industry.

- ATC understands that iHeart may submit a copy of this letter to the FCC in connection with an amendment to an application for a construction permit in regard to Station WWBB(FM), Providence, Rhode Island, FCC Facility ID No. 54568.

Sincerely,

AMERICAN TOWER CORPORATION

By: *Peter A. Starke*

Peter A. Starke
Vice President/Broadcast Group