

TECHNICAL EXHIBIT  
APPLICATION FOR MINOR CHANGE  
IN LICENSED FACILITY  
STATION KWSZ (FACILITY ID 38306)  
LOMPOC, CALIFORNIA

JUNE 5, 2001

CH 286A    0.42 KW    371 M

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Table of Contents

	Technical Narrative
Figure 1	Proposed Transmitter Site
Figure 2	Tower Sketch
Figure 3	Vertical Antenna Pattern
Figure 4	Radial Data For Alternate Propagation Methods
Figure 5	Coverage Maps
Figure 6	FM Separation Study

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Technical Narrative

This Technical Exhibit supports a minor change application to the licensed facility for FM station KWSZ at Lompoc, California. KWSZ is currently licensed to operate on channel 286A with a non-directional antenna effective radiated power (ERP) of 0.55 kW and an antenna height above average terrain (HAAT) of 326 meters (BLH-19990810KF).

Proposed Facilities

This minor change application proposes to relocate the transmitter site approximately 23 kilometers east-northeast of the current site. It is proposed to operate at the site coordinates: 34-41-28 N, 120-15-58 W, with a non-directional ERP of 0.42 kW and antenna HAAT of 371 meters (equivalent to maximum Class A and the current licensed KWSZ facilities).

The Federal Aviation Administration (FAA) is not being notified of the proposed construction. The proposed structure is less than 200 feet above ground level and passes the 100:1 slope rating to the nearest runway. Therefore, FAA notification (and FCC registration) is not required.

The proposed transmitter site is more than 1,500 kilometers from the closest point of the Canadian border. The site is approximately 378 kilometers from the closest point of the Mexican border. The closest FCC monitoring station is at Livermore, California, approximately 363 kilometers to the north-northwest. The closest point of the National Radio Quiet Zone (VA/WV) is more than 3,500 kilometers to the east-northeast. The closest point

of the Table Mountain Radio Quiet Zone (CO) is more than 1,400 kilometers to the east-northeast. The closest radio astronomy site operating on TV channel 37 is at Owens Valley, California, approximately 334 kilometers to the northeast. These separations are sufficient to not be a concern for coordination purposes.

### Proposed Coverage Analysis

Study of the elevation profile between the transmitter site and multiple bearings towards Lompoc indicates that a higher field strength would be expected over Lompoc than is predicted using the FCC propagation curves. Consideration was given to the possible use of a “supplemental method” as provided in Section 73.313(e) to determine 70 dBu coverage of Lompoc by the proposed KWSZ facilities. The field strengths shown on Figures 4A-4C were based on the Longley-Rice prediction methodology, otherwise known as Tech Note 101. A 5-dB clutter factor has already been assumed for the points.

The terrain data was derived from the U.S.G.S. 3-second database. Using these terrain elevations, calculations of the field strength along each radial were made at 0.5-km intervals using the Longley-Rice methodology. The following parameters were employed in the calculations:

Location Variability:	50%
Time Availability:	50%
Situation Variability:	50%
Frequency:	105.1
Polarization:	Horizontal
Conductivity:	0.005 S/m
Dielectric Constant:	15.0
Climate Zone:	Continental Temperate
Transmitter Site (NAD 83):	34° 41' 28" N; 120° 15' 58" W
Radiation Center Above Mean Sea Level:	618.7 m
ERP (dipole):	0.42 kW
Receive Antenna Height AGL:	9.1 m
Model:	Point-to-Point Irregular Terrain

The results of the study are illustrated graphically in Figures 4A-4C. The location of the “assumed” 70 dBu field strength level was determined from each graph.

Figures 4D-4F show the proposed KWSZ(FM) 70 dBu coverage based on an alternate propagation model known as Point-to-Point (PTP) that the FCC is proposing to use.

The following tabulates the distance to the 70 dBu contours along each radial based on the FCC’s F(50,50) method, the Longley-Rice model (with 5-dB clutter factor) and the Point-to-Point model

Radial	70 dBu Field Strength (km)		Difference		PTP Distance to 70 dBu (KM)
	FCC F(50,50)	Longley-Rice	KM	Percent	
250°	15.4	24	8.6	+56	26
260°	14.4	25	10.6	+74	30
270°	14.4	25	10.6	+74	25

The difference between the distances to the 70 dBu contours for the Longley-Rice model exceeds the FCC predicted field strength distance for each radial substantially more than the minimum 10 percent, as required by FCC policy on supplemental showings.

Figure 5B is a coverage map showing the FCC predicted coverage contours along with the Longley-Rice predicted coverage and the PTP propagation method. Both alternate propagation methods indicate at least 70 dBu coverage to all of Lompoc. If a waiver of the provisions of Section 73.315(a) is still required, it is respectfully requested.

#### Allocation Study

Figure 5 contains a tabulation of actual and required separation distances with respect to other pertinent stations as specified in Section 73.207(b) of the Commission’s Rules. The FCC’s FM database was used as the basis for the separation study. The study does not indicate any “short-spacings” and, therefore, it is believed the proposal is in compliance with the FCC’s FM allocation rules.

Radiofrequency Electromagnetic Field Exposure

The proposed FM facility was evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. A conservative downward radiation relative field of 0.21 (see Figure 3), along with a combined ERP of 0.84 kW (0.42 kW horizontal polarization & 0.42 kW vertical polarization) was assumed. Therefore, the "worst-case" calculated power density at a point 2 meters above ground level is  $0.0071 \text{ mW/cm}^2$ , which is 3.6% of the FCC's recommended limit of  $0.2 \text{ mW/cm}^2$  for FM channels, applicable to general population/uncontrolled exposure areas.

Access to the transmitting site will be restricted and appropriately marked with warning signs. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down. The proposed KWSZ(FM) operation appears to be otherwise categorically excluded from environmental processing.

If there are questions concerning the technical portion of this application, please contact the office of the undersigned.

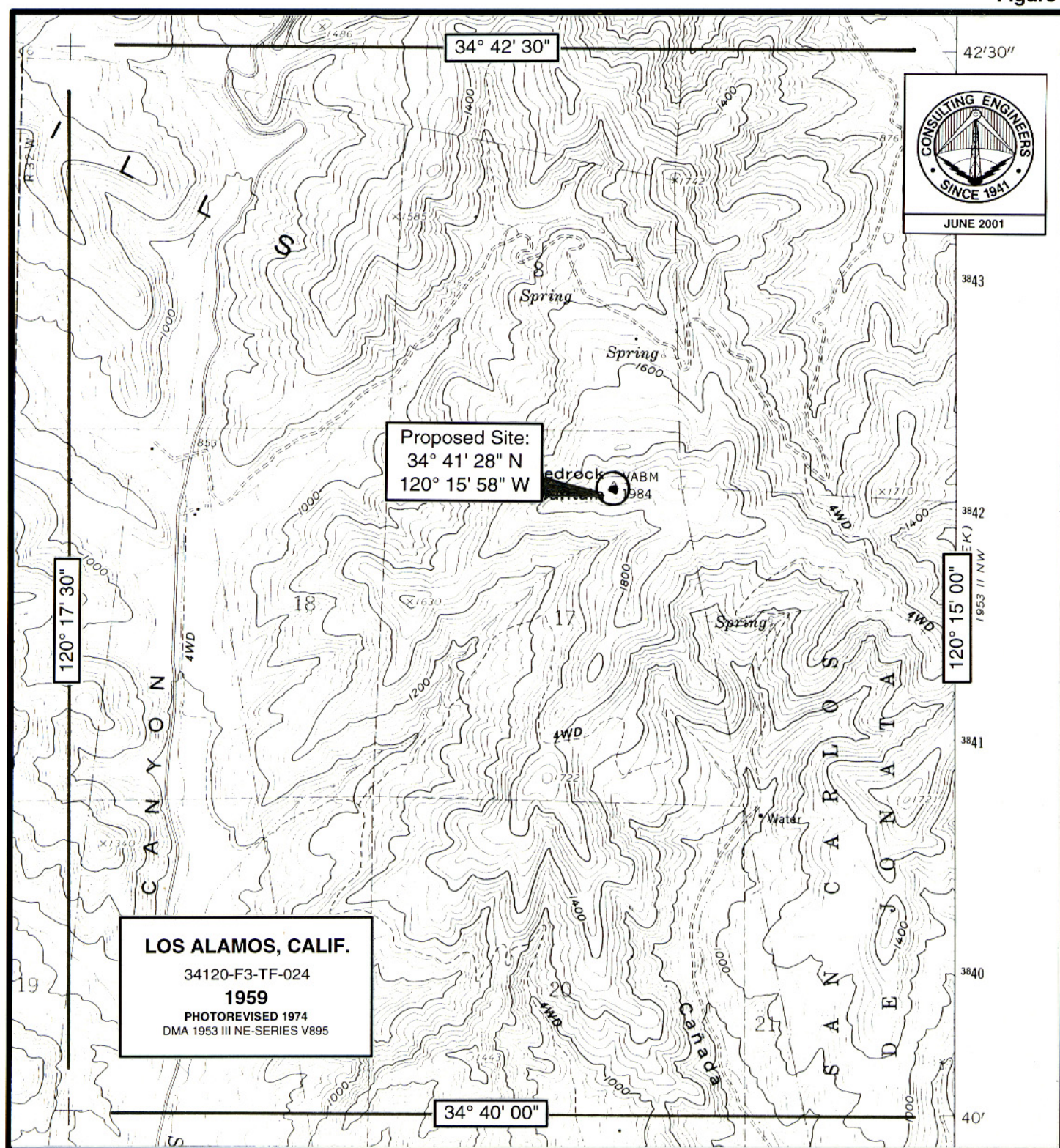
Jonathan N. Edwards

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237  
(941) 329-6000

June 5, 2001



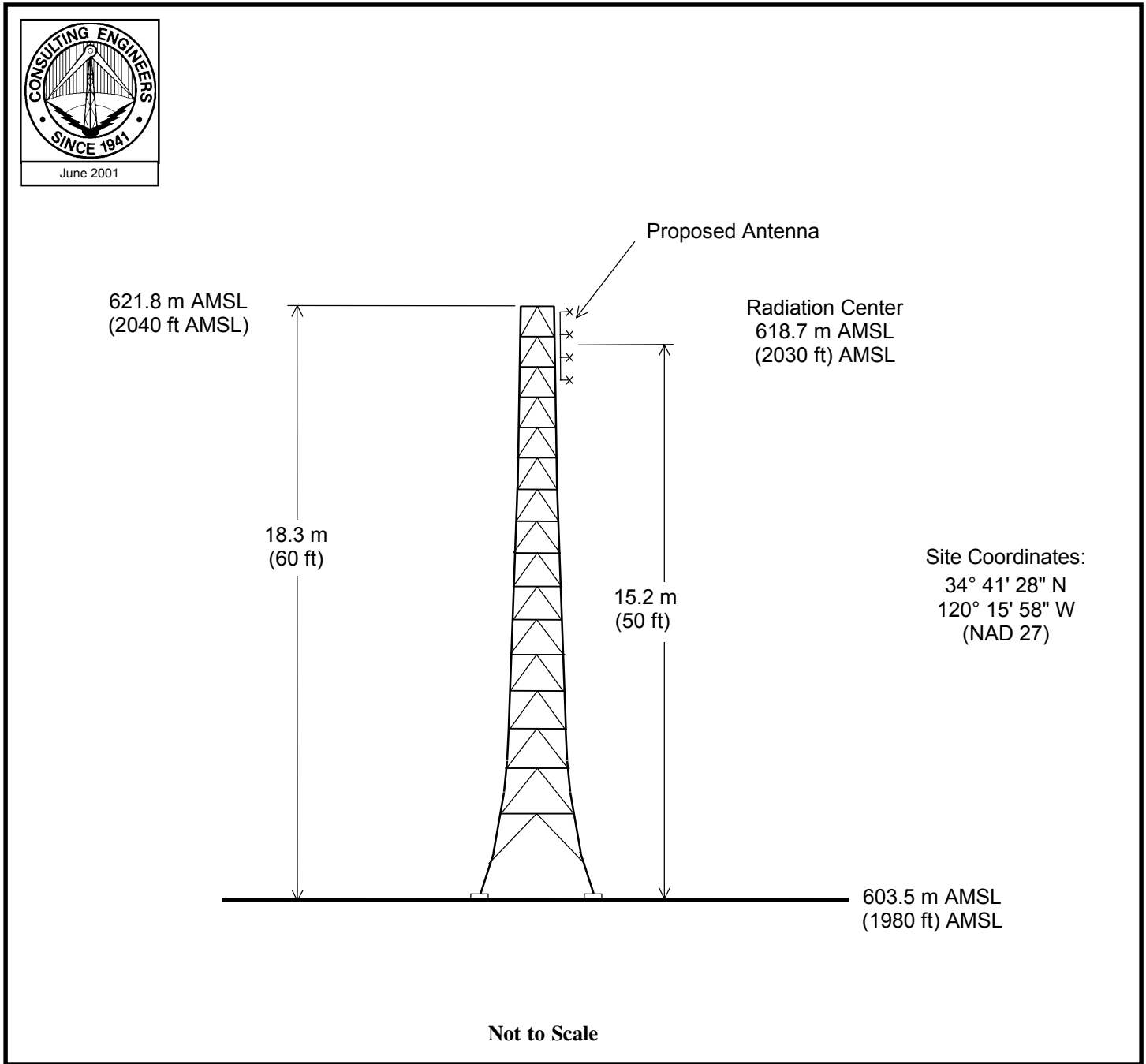
Figure 1



## PROPOSED TRANSMITTER LOCATION

STATION KWSZ(FM)  
LOMPOC, CALIFORNIA  
CH 286A 0.42 KW 371 M  
du Treil, Lundin & Rackley, Inc. Sarasota, Florida

Figure 2



## **ANTENNA AND SUPPORTING STRUCTURE**

STATION KWSZ(FM)

LOMPOC, CALIFORNIA

CH 286A    0.42 KW    371 M

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



ELECTRONICS RESEARCH, INC.  
108 MARKET STREET  
NEWBURGH, IN. 47630

FIGURE HA

-----THEORETICAL-----  
VERTICAL PLANE RELATIVE FIELD

4 ERI TYPE SHP, SHPX, LP, OR LPX ELEMENTS  
0 DEGREE(S) BEAM TILT  
0 PERCENT FIRST NULL FILL

MAY 24, 1993  
ELEMENT SPACING:  
0.5 WAVELENGTH

POWER GAIN IS 1.307 IN THE HORIZONTAL PLANE(1.307 IN THE MAX.)

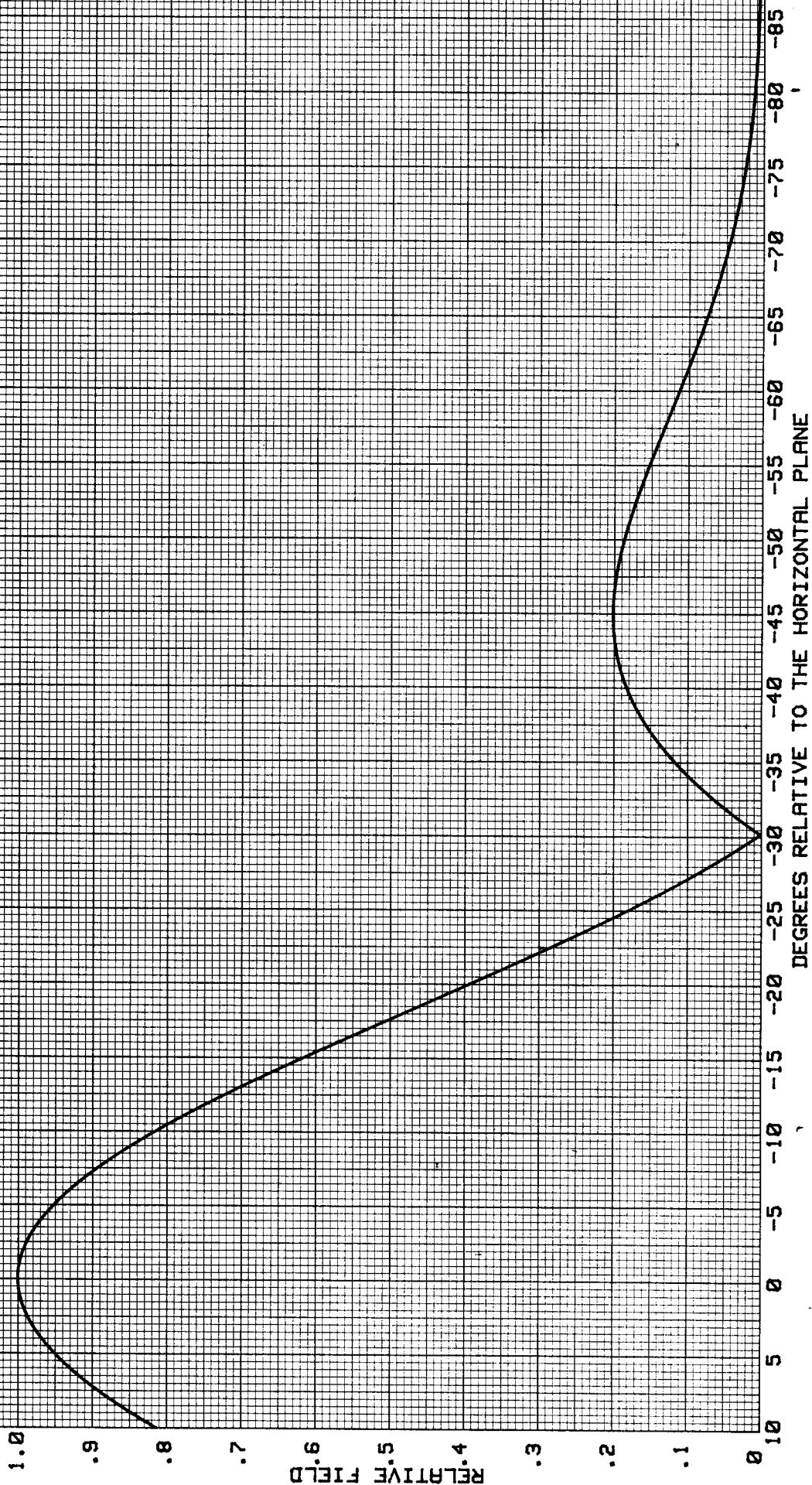


Figure 3

# KWSZ(FM) Longley-Rice 250° True

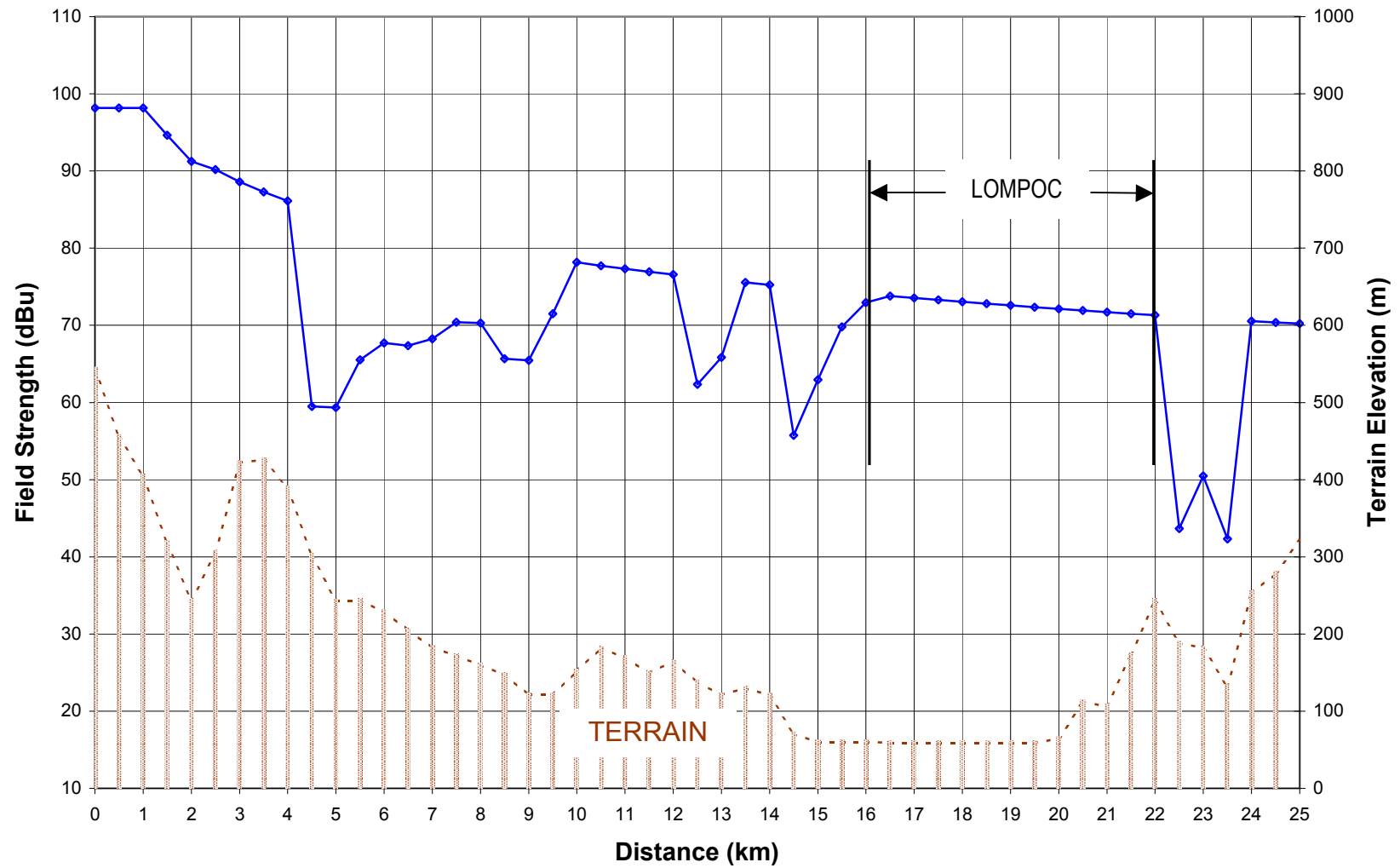


Figure 4A

# KWSZ(FM) Longley-Rice 260° True

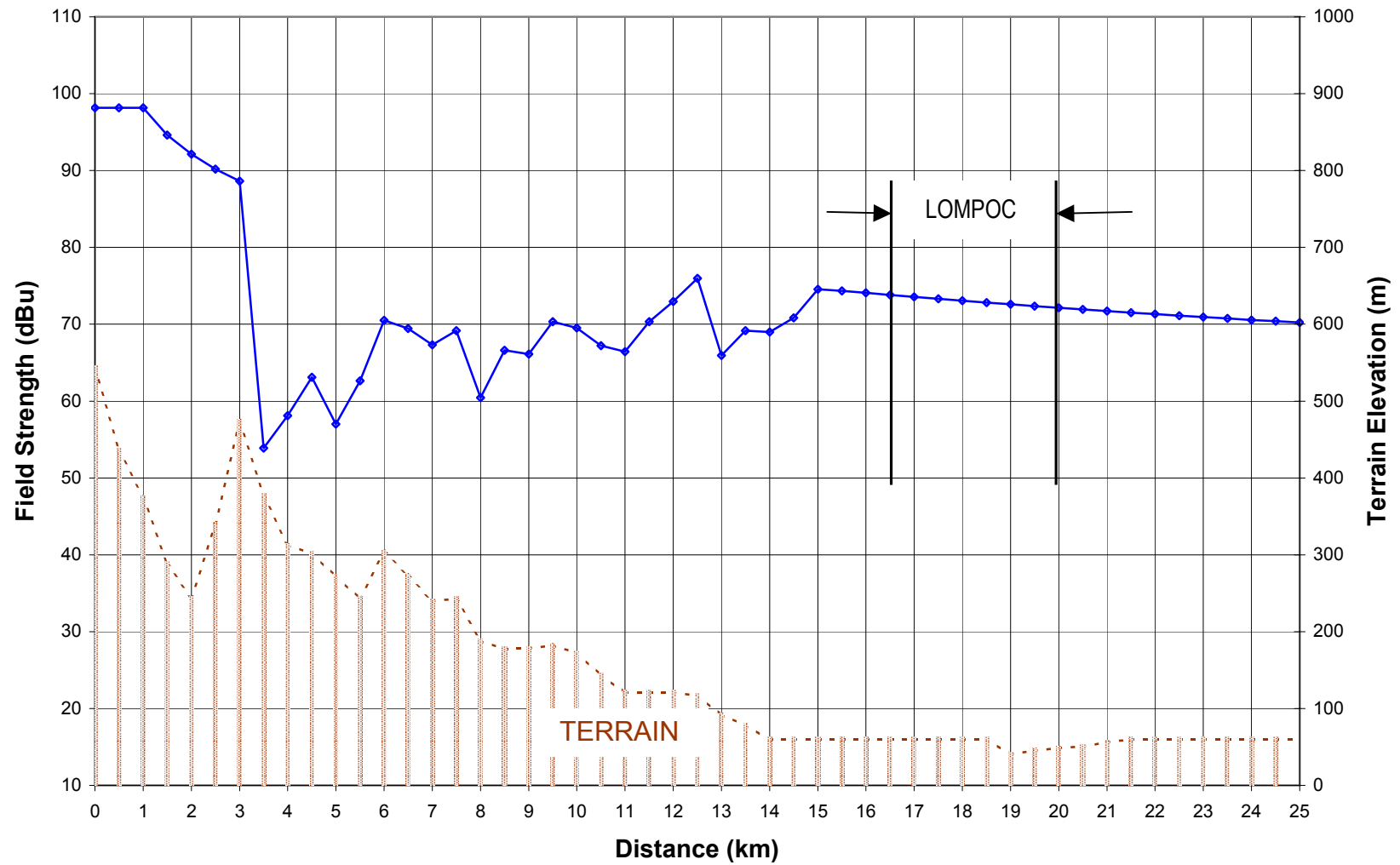


Figure 4B

# KWSZ(FM) Longley-Rice 270° True

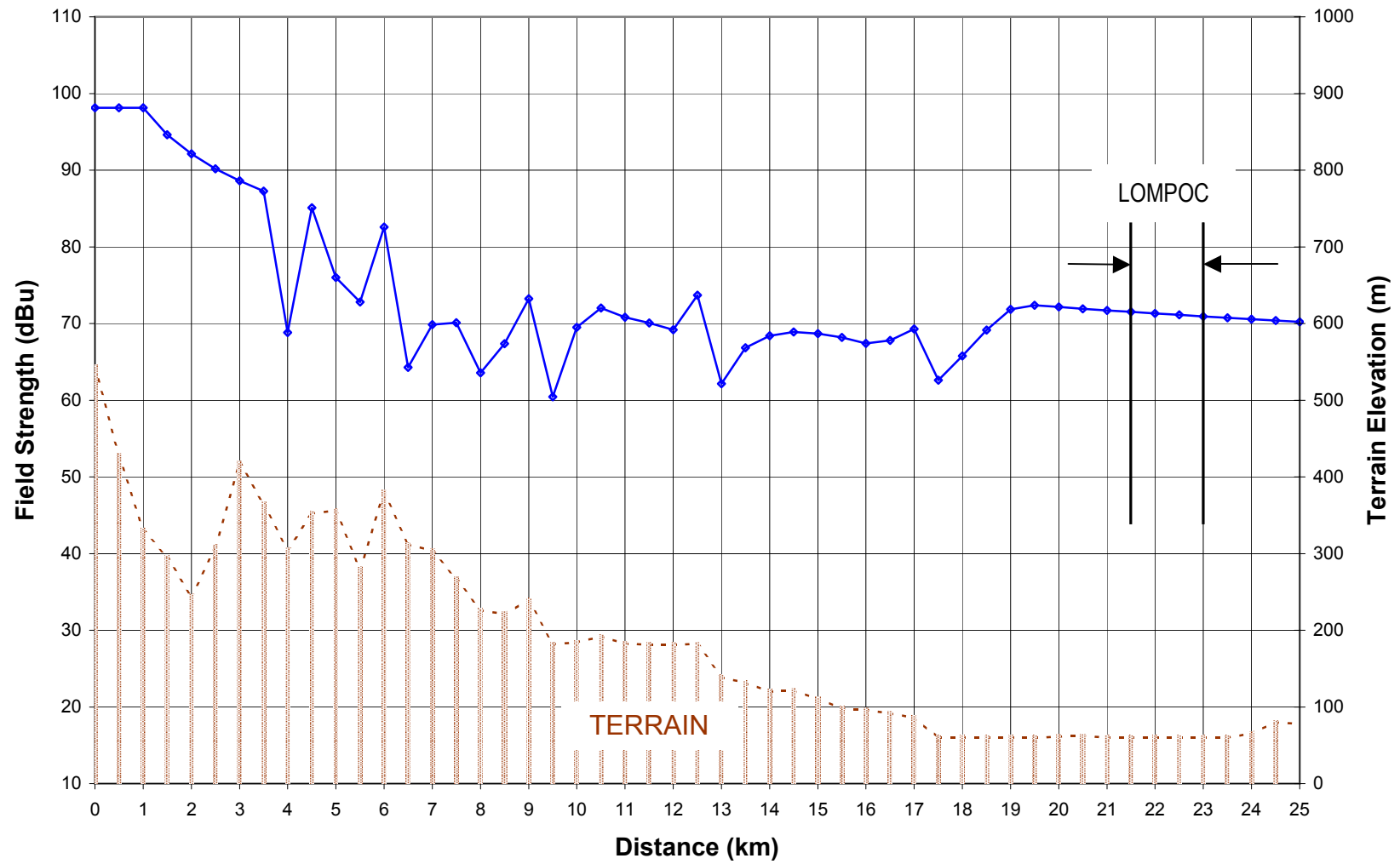


Figure 4C

# KWSZ(FM) Point-to-Point 250° True

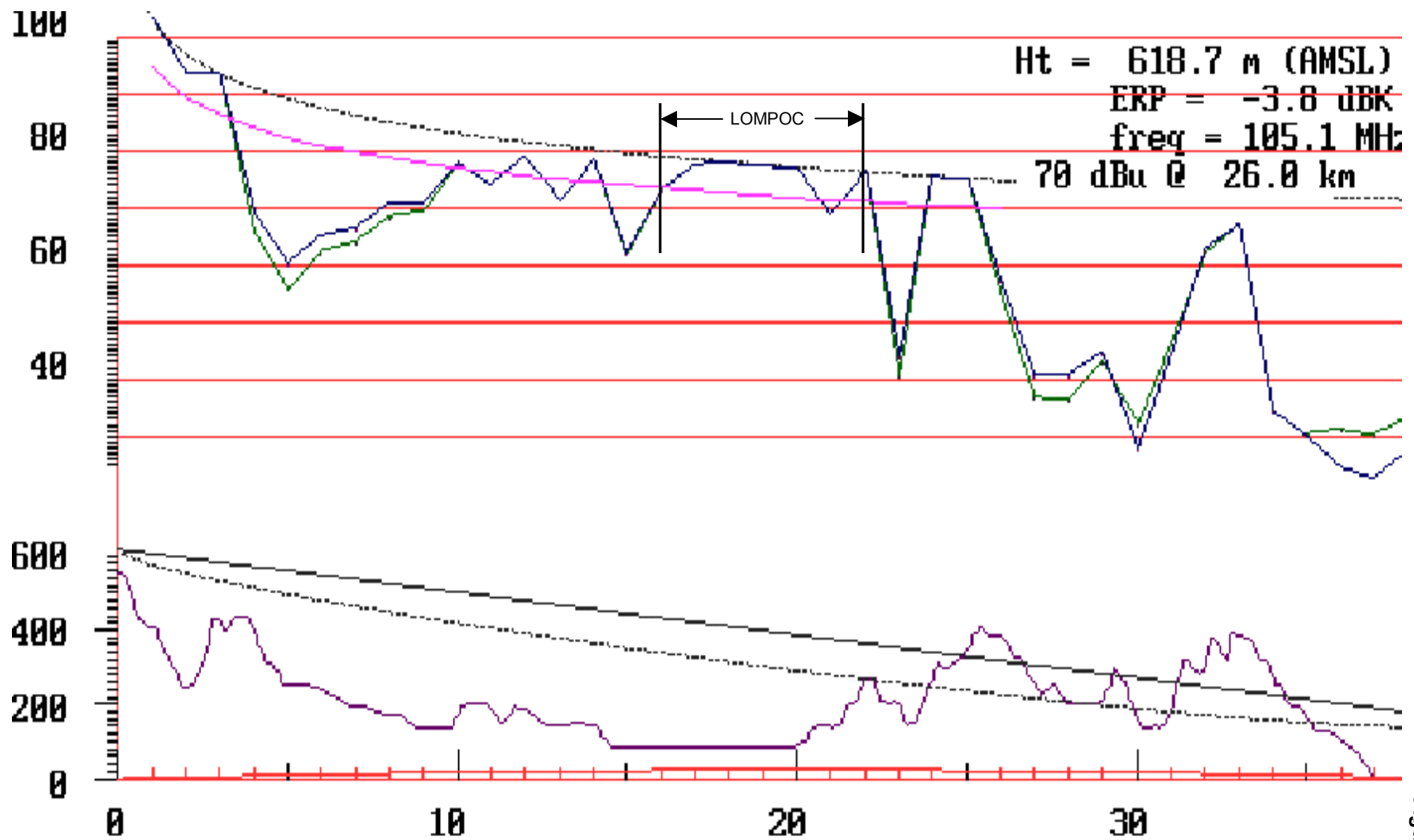


Figure 4D

# KWSZ(FM) Point-to-Point 260° True

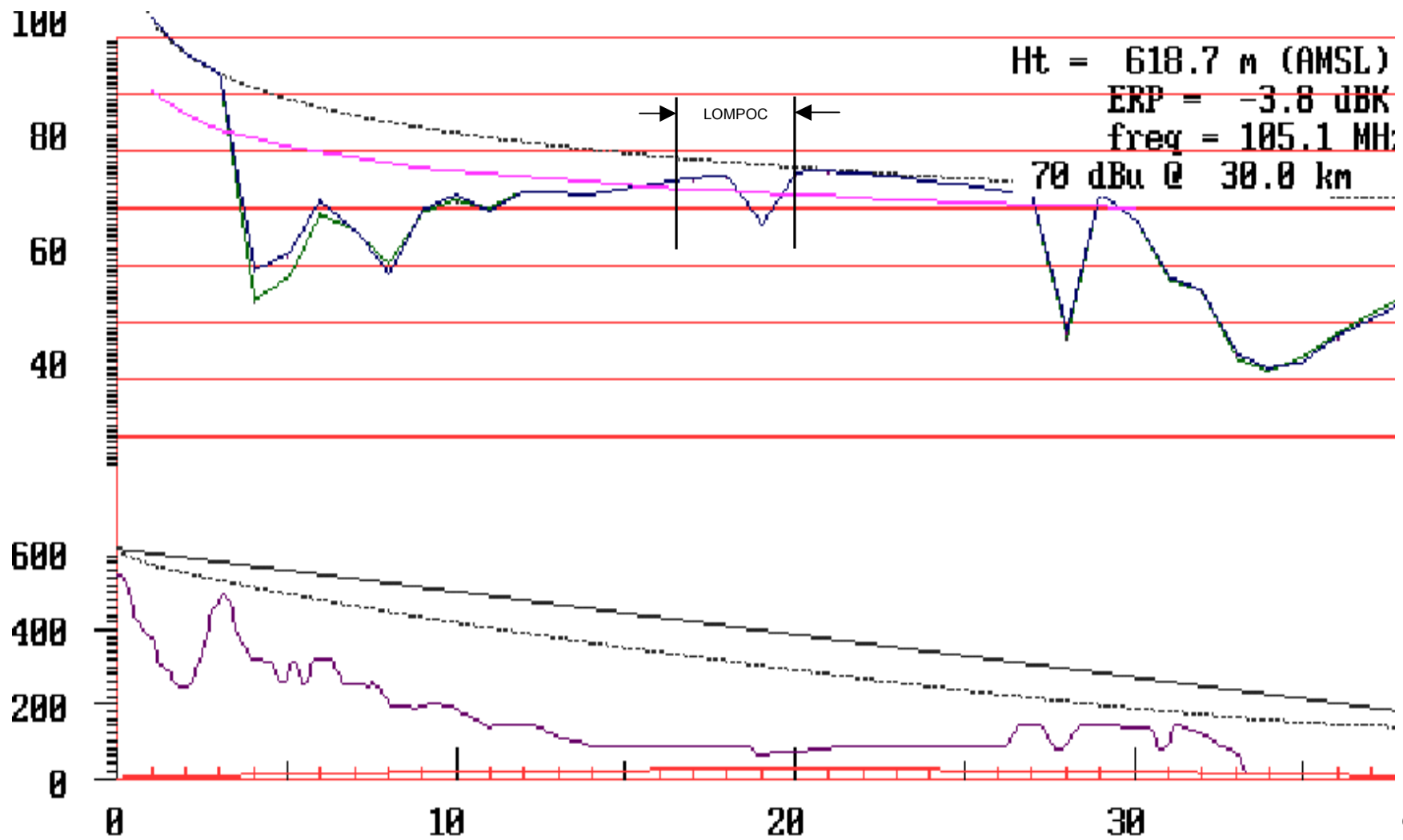


Figure 4E

# KWSZ(FM) Point-to-Point 270° True

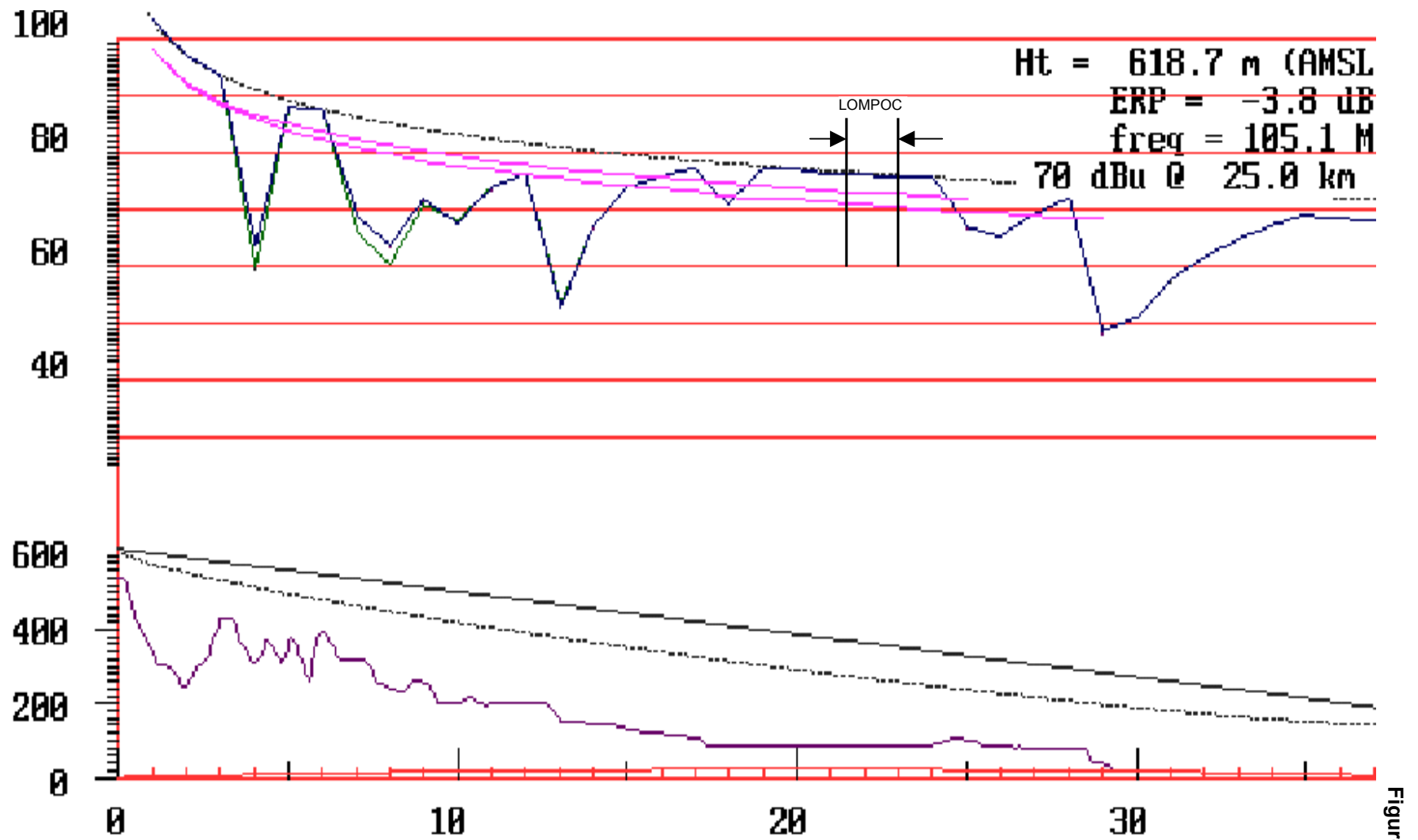
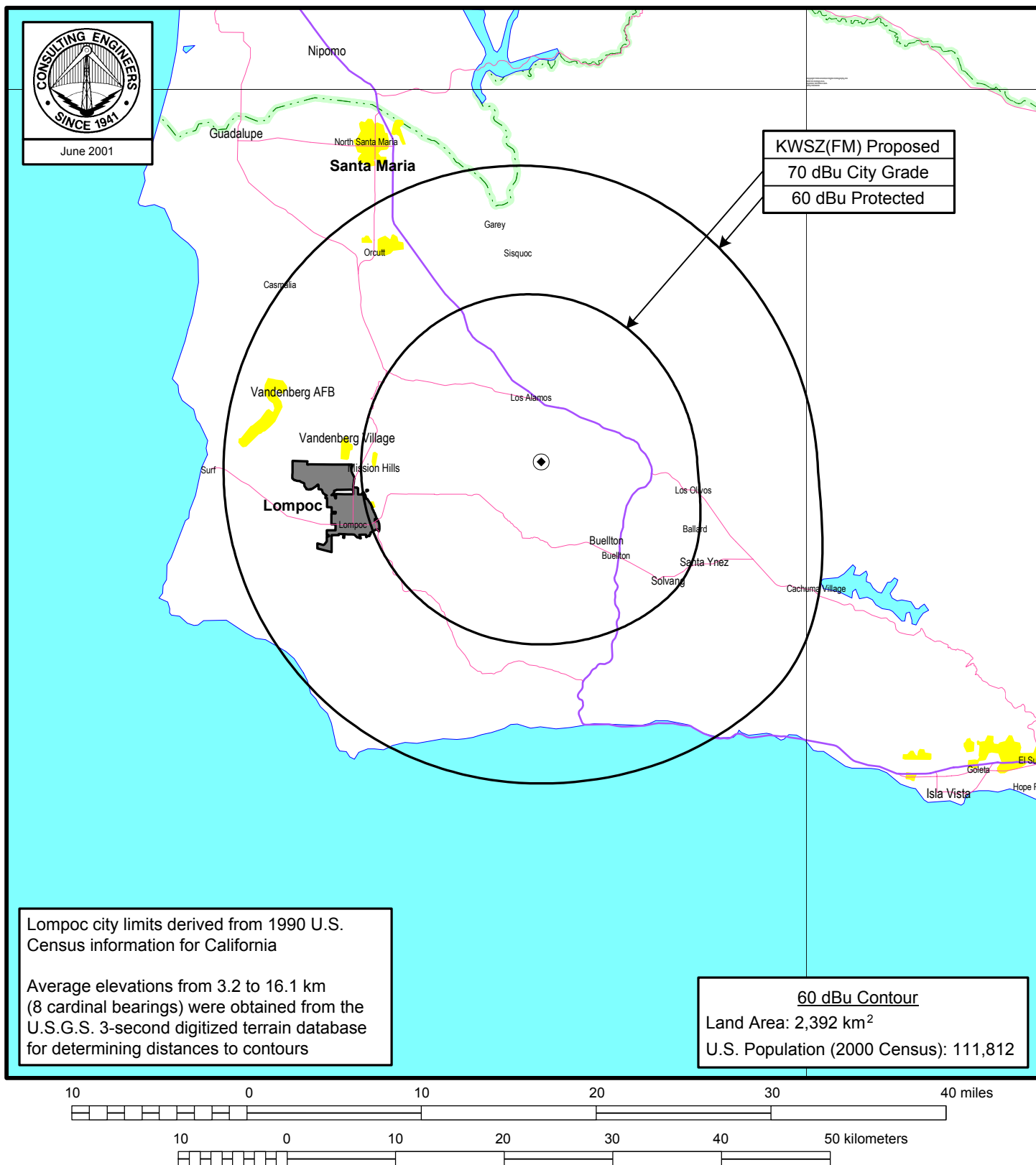




Figure 5A



## FCC PREDICTED F(50,50) COVERAGE CONTOURS

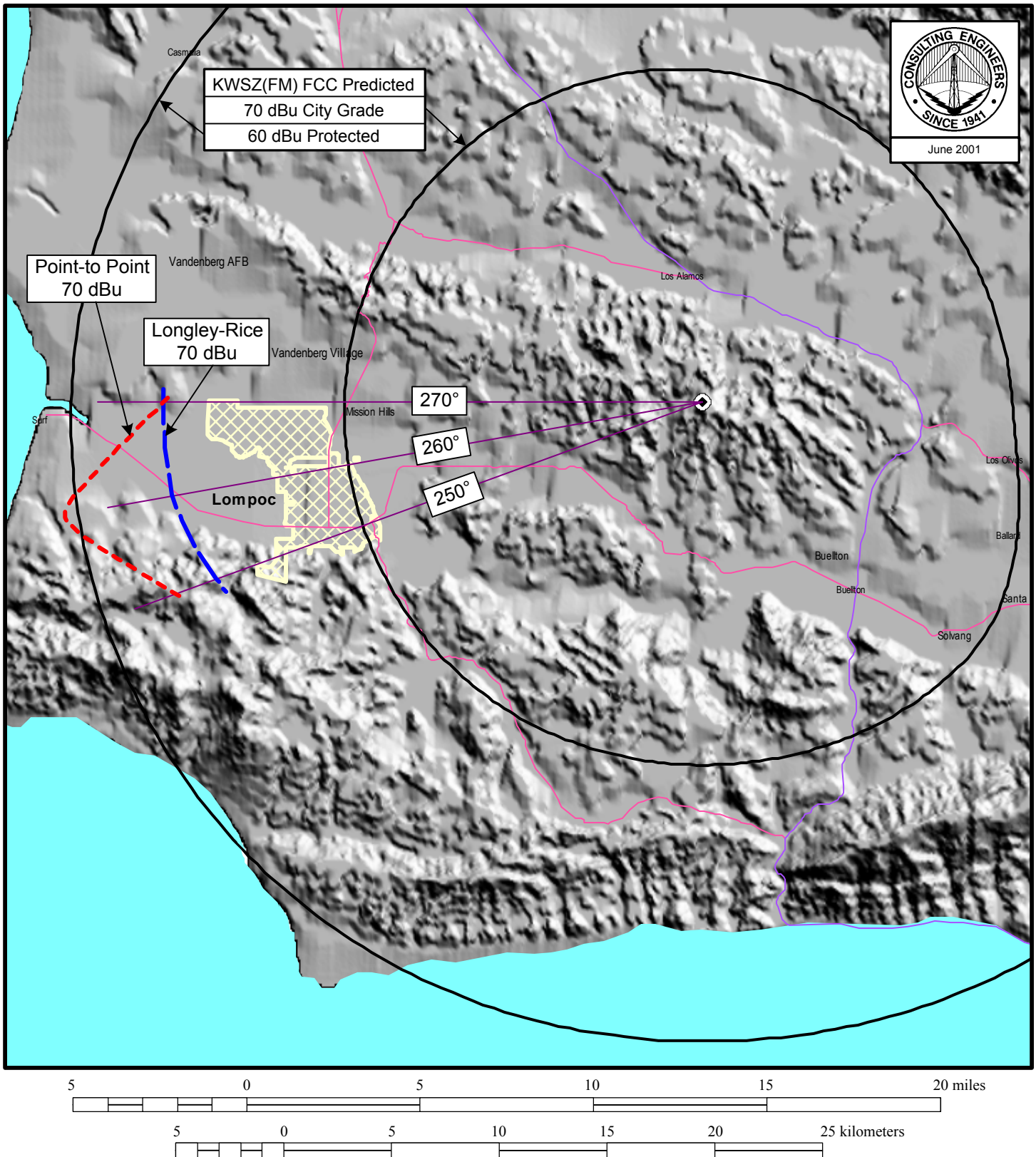
STATION KWSZ

LOMPOC, CALIFORNIA

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du Treil, Lundin & Rackley, Inc Sarasota, Florida

Figure 5B



# **COVERAGE BASED ON ALTERNATE PROPAGATION METHODS**

STATION KWSZ

LOMPOC, CALIFORNIA

CH 286A 0.42 KW 371 M

du Treil, Lundin & Rackley, Inc Sarasota, Florida

du Treil, Lundin and Rackley, Inc.  
Sarasota, FL

6/5/01

**CDBS FM SEPARATION STUDY**

Channel: 286A Separation Buffer: 65 km  
Coordinates: 34-41-28 N 120-15-58 W

Call Id	City St	File Status	File Num	Channel Freq	ERP HAAT	DA Id	Latitude Longitude	73 215	Bear	Dist. (km)	Req. (km)
KKMI 53604	BURLINGTON IA	LIC C	BLH 19990122KE	228 A 93.5	6.000 93	N	40-49-11 091-07-02	N	14.7	45.87 14.87	31.0 Close
KSPEFM 61058	ELLWOOD CA	LIC C	BLH 19890214KC	233 B 94.5	0.880 899	N	34-31-32 119-57-28	N	123.0	33.72 18.72	15.0 Clear
KIQO 42066	ATASCADERO CA	LIC C	BLH 19810803AI	283 B 104.5	5.600 427	N	35-21-38 120-39-21	N	334.6	82.34 13.34	69.0 Close
KIQO 42066	ATASCADERO CA	BPH CP C	BPH 19990809IE	283 B 104.5	4.700 440	N	35-21-40 120-39-21	N	334.6	82.40 13.40	69.0 Close
KCAQ 25092	OXNARD CA	LIC C	BLH 19980209KH	284 B 104.7	5.100 450	N	34-20-55 119-20-13	Y	113.8	93.39 24.39	69.0 Clear
KWSZ 38306	LOMPOC CA	LIC C	BLH 19990810KF	286 A 105.1	0.550 326	N	34-36-12 120-29-17	N	244.4	22.56	
KMZTFM 43939	LOS ANGELES CA	LIC C	BLH 19870225KA	286 B 105.1	18.000 880	N	34-13-45 118-04-04	N	103.7	208.39 30.39	178.0 Clear
KKDJ 37774	DELANO CA	LIC C	BLH 19871231KD	287 B 105.3	35.000 177	N	35-30-53 119-03-41	N	49.8	142.88 29.88	113.0 Clear
KIDIFM 7101	GUADALUPE CA	LIC C	BMLH 20010212AA	288 A 105.5	0.350 409	N	34-53-54 120-35-28	N	307.9	37.59 6.59	31.0 Close
KKBE 7744	OJAI CA	LIC C	BLH 19980209KG	288 A 105.5	0.310 438	N	34-20-55 119-20-13	N	113.8	93.39 62.39	31.0 Clear