

**DELAWDER COMMUNICATIONS, INC.**

P.O. Box 1095  
Ashburn, Virginia 20146-1095  
(703) 299-9222

**ENGINEERING REPORT**

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**Garwood, TX, Channel 247A FM Application**

**EXHIBIT 28 –ENGINEERING STATEMENT REGARDING SECTION 73.315**

When the terrain from the transmitter site to the community of license departs significantly from the average terrain, the FCC Rules permit use of an alternative or supplemental coverage showing (see Section 73.313). The FCC has established that such an alternative showing is permitted “Where  $\Delta h$  is used as the sole determinant that the terrain along a radial widely departs from the 50 meter standard, a  $\Delta h$  value of 20 meters or less, or 100 meters or more”<sup>1</sup>.

The pertinent radial through the community of Garwood is 118 degrees True. This profile is attached as Figure E28-1.

Figure E28-2, attached, is a map showing the calculated 70 dBu F50,50 Service Contour and the results of a Longley-Rice alternative propagation model<sup>2</sup>. The alternative study was conducted for 360 equally-spaced radials.

Also shown on the E28-2 map is the re-defined 70 dBu F50,50 Service Contour based on Longley-Rice in the direction of the community of license. The re-defined 70 dBu F50,50 Service Contour distances are as follows:

For 116 degrees True:	23.1 km (an increase of 37 percent);
For 118 degrees True:	23.5 km (an increase of 39 percent);
For 120 degrees True:	24.7 km (an increase of 46 percent).

The 70 dBu service contour is extended by much more than 10% than the

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<sup>1</sup>  $\Delta h$  “delta h” is terrain roughness as defined in Section 73.313 of the FCC Rules. Three arc-second USGS terrain data is used. Also, see Woodstock and Broadway, Virginia, 2 FCC Rcd 6398 (1988). *Current FCC Policy apparently no longer requires a delta h test in order for a supplemental showing to be used. The delta h qualification is herein made out of an abundance of caution.*

<sup>2</sup> Longley-Rice version 1.2.2 determined using EDX Engineering, Inc. SignalPro™ software and a 30 arc-second USGS terrain database is used. A receive antenna height of 9.1 meters AGL is also used.

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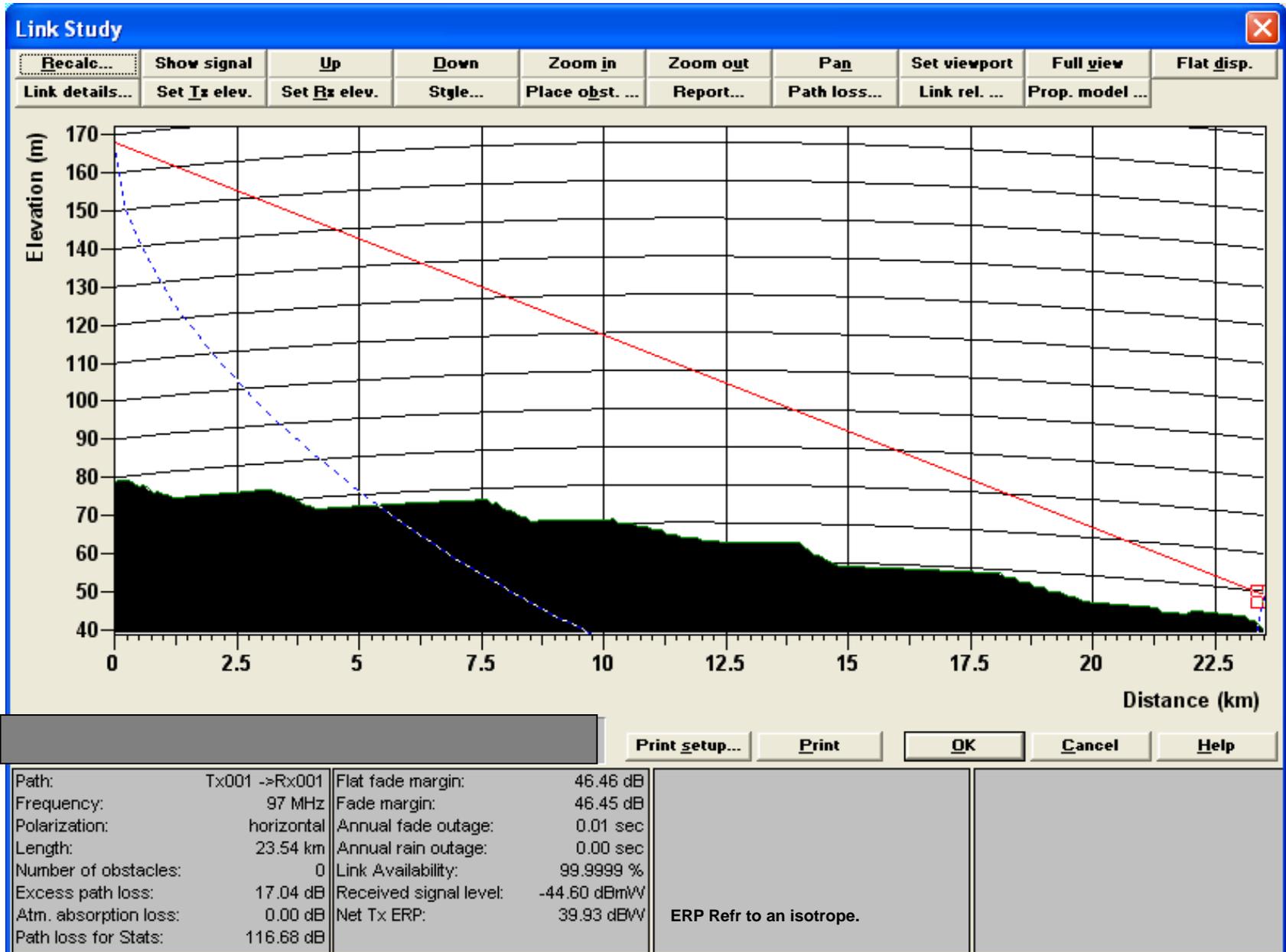
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standard 70 dBu F50,50 service contour. Furthermore, the re-defined 70 dBu service contour does not extend beyond the predicted 60 dBu F50,50 service contour. Both the 10% increase and the 60 dBu contour limit are conditions set by the FCC for use of the supplemental showing when it is used in order to establish community of license service.

**The re-defined 70 dBu F50,50 Service contour serves 100 percent of Garwood, TX.**

Further information regarding the use of the alternative model will be provided upon request. As a sample calculation, the free space loss to the end point of the 118 degree profile (a point located 23.5 kilometers from the proposed transmitter site) is 99.7 dB between isotropic antennas. The excessive loss (due to the Longley-Rice prediction model) is 17.0 dB. Subtracting the free space loss and excessive loss values from the ERPi (69.9 dBmW) yields a received power of minus 47 dBmW (using a 2.15 dBi receive antenna gain). This converts to a received signal strength of 70 dBuV/m. (Note that the terrain profile provides values referenced to isotopic source and receiver.)

**FIGURE E28-1: TERRAIN PROFILE AT 118 DEGREES TRUE**



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Path:	Tx001 ->Rx001	Flat fade margin:	46.46 dB
Frequency:	97 MHz	Fade margin:	46.45 dB
Polarization:	horizontal	Annual fade outage:	0.01 sec
Length:	23.54 km	Annual rain outage:	0.00 sec
Number of obstacles:	0	Link Availability:	99.9999 %
Excess path loss:	17.04 dB	Received signal level:	-44.60 dBm/W
Atm. absorption loss:	0.00 dB	Net Tx ERP:	39.93 dBW
Path loss for Stats:	116.68 dB		

ERP Refr to an isotrope.

**FIGURE E28-2: SECTION 73.315 MAP SUPPORT WITH LONGLEY-RICE RESULTS**

