

TECHNICAL EXHIBIT  
MINOR CHANGE APPLICATION FOR  
CONSTRUCTION PERMIT FOR AN  
AUXILIARY ANTENNA OPERATION  
STATION KDAF-DT (FACILITY ID 22201)  
DALLAS, TEXAS

AUGUST 25, 2005

CH 32    235 KW (MAX-DA)    496 M

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Technical Narrative

This Technical Exhibit supports a minor change application for a construction permit (CP) for an auxiliary antenna operation for digital television (DTV) station KDAF-DT on channel 32 at Dallas, Texas (Facility ID 22201).

Station KDAF-DT is currently authorized to operate on channel 32 (BLCDT-20010606ABJ). Station KDAF-DT is authorized to use a directional antenna (DA) system with a “skull” shaped pattern. The major lobe of the antenna pattern is oriented toward 10 degrees True (north). The maximum effective radiated power (ERP) is 780 kW and the antenna height above average terrain (HAAT) is 537 meters. The transmitter site coordinates are 32-32-35, 96-57-32 (NAD-27).

Proposed Auxiliary DTV Facilities

Station KDAF-DT proposes to employ an existing master antenna system on the present supporting structure as an auxiliary antenna system. The proposed auxiliary antenna is a RFS model PHP-36C directional antenna system. The antenna pattern is “cardioid” shaped and the major lobe is oriented toward 0 degrees True. The proposed auxiliary antenna incorporates an electrical beam tilt of 0.7 degree. The proposed auxiliary antenna center of radiation will be located 449 meters above ground level (AGL), and 697.1 meters above mean sea level (AMSL). The proposed auxiliary antenna HAAT is 496 meters. The proposed auxiliary antenna maximum ERP is 235 kW. The FCC antenna structure registration number is 1059733 and the coordinates are 32-32-36, 96-57-32 (NAD-27).

Figure 1 is a sketch of the proposed auxiliary antenna and supporting structure.

Figure 2 shows the proposed auxiliary antenna's azimuth and vertical radiation patterns.

Figure 3 is a map showing the predicted 48 dBu and 41 dBu contours for the proposed KDAF-DT auxiliary operation, and the predicted 41 dBu contour for the KDAF-DT license operation. As shown, the 41 dBu contour for the proposed KDAF-DT auxiliary antenna operation is completely within the predicted 41 dBu contour for the KDAF-DT main antenna operation.

### Allocation Study

Since this application is for an auxiliary antenna operation, no allocation study is required.

The following stations are also located on the KDAF-DT structure (1059733).

KDAF(TV), Ch.33, Dallas, TX

KDFI-DT, Ch.36, Dallas, TX

KDFI(TV), Ch.27, Dallas, TX

KLDT(TV), Ch.55, Lake Dallas, TX

KLDT-DT, Ch.54, Lake Dallas, TX

KTAQ-DT, Ch.46, Greenville, TX

KDTX-TV, Ch.45, Dallas, TX

KDTN-DT, Ch.43, Denton, TX

KTXA-DT, Ch.18, Fort Worth, TX

KSTR-DT, Ch.48, Irving, TX

KSTR-TV, Ch.49, Irving, TX

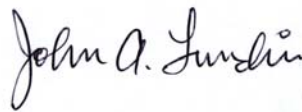
There are no main antennas for FM stations within 4 kilometer of the KDAF-DT site. There are no AM stations located within 5 kilometers (3.1 miles) of the KDAF-DT site. Although no adverse electromagnetic interaction is expected from KDAF-DT's proposed auxiliary antenna operation, the applicant recognizes its responsibility to correct prohibited interference problems that its proposed operation may create.

Radiofrequency Electromagnetic Field Exposure

The proposed KDAF-DT auxiliary facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. The radiation center for the proposed antenna is located 449 meters above ground level. The proposed maximum ERP of 235 kW is assumed. A conservative relative field value of 0.3 was assumed for the antenna's downward radiation (see Figure 2). The calculated power density at a point 2 meters (6.6 feet) above ground level is  $0.003536 \text{ mW/cm}^2$ . This is less than 1% of the FCC's recommended limit of  $0.39 \text{ mW/cm}^2$  for channel 32 for an "uncontrolled" environment. The calculated power density is less than 1% of the FCC's recommended limit for a "controlled" environment.

Access to the transmitting equipment 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.

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

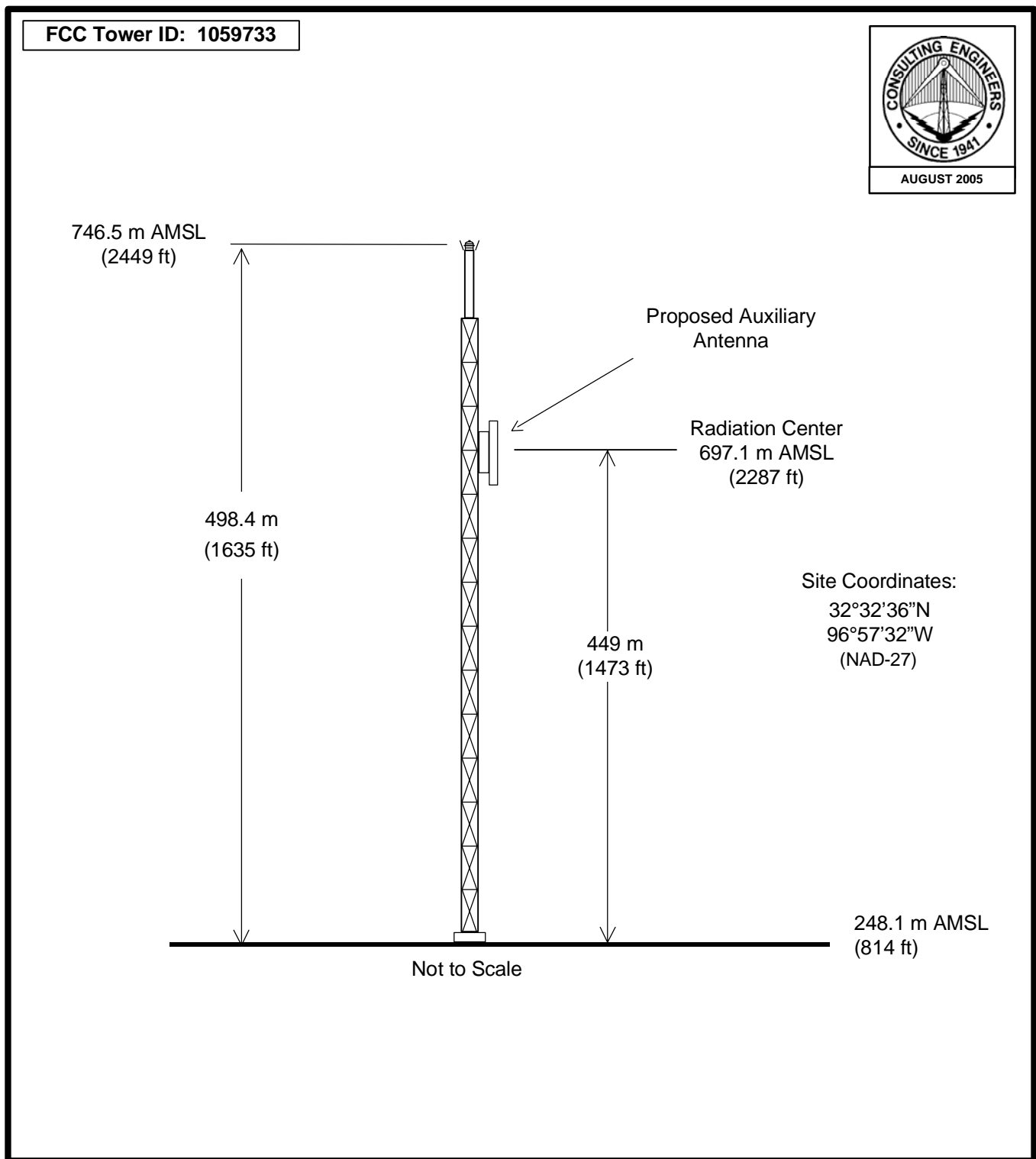


John A. Lundin

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237  
(941) 329-6000 voice  
(941) 329-6030 fax  
[john@DLR.com](mailto:john@DLR.com) e-mail

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Figure 1



## PROPOSED ANTENNA AND SUPPORTING STRUCTURE

STATION KDAF-DT  
DALLAS, TEXAS  
CH 32 235 KW (MAX-DA) 496 M

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

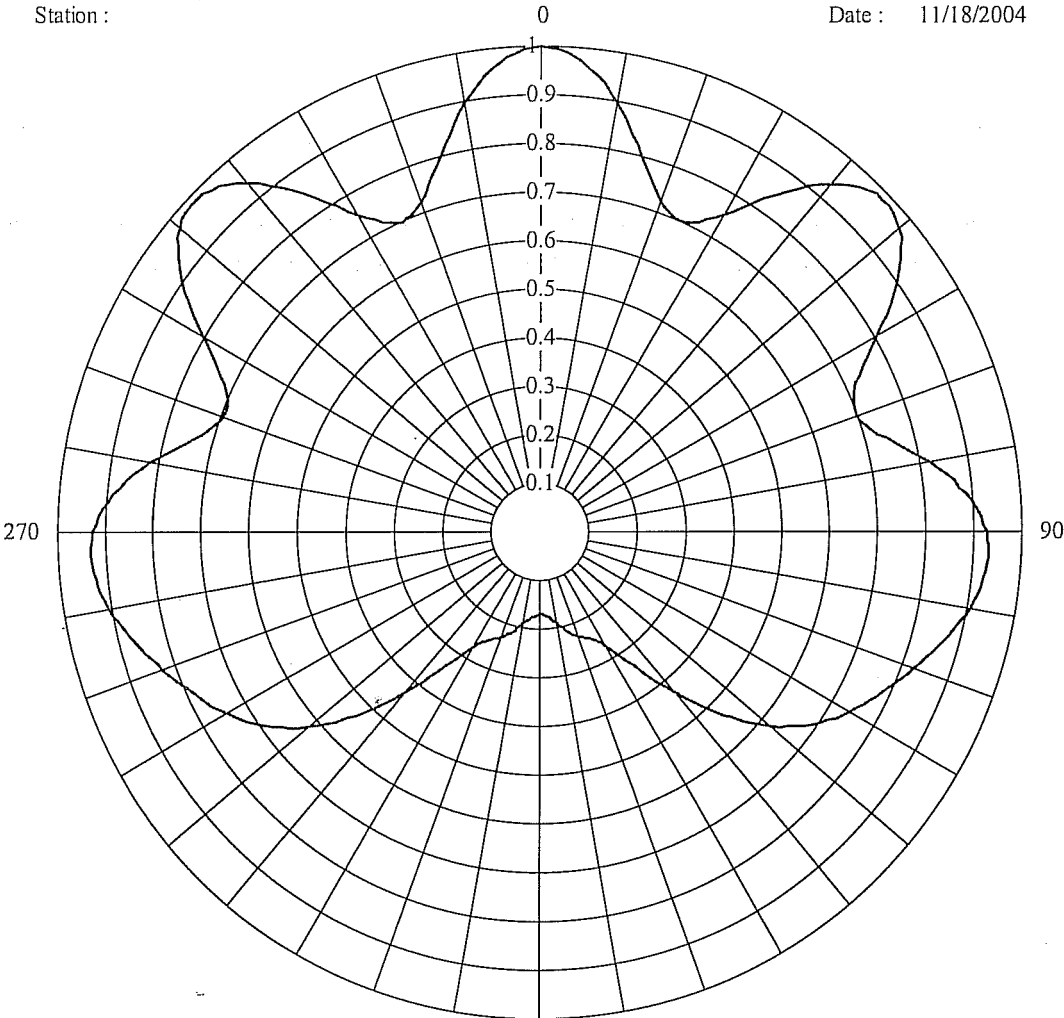


# Horizontal Radiation Pattern

E / Emax

Station :

Date : 11/18/2004



Model: PHP36C

180

Face	XOffset	YOffset	Tilt	Power	Phase	Polarisation :	Horizontal
A	0.00	0.34	0.0	1.0	0.0	Frequency (MHz) :	581.00
B	0.00	0.34	0.0	1.0	0.0	Directivity (dB) :	2.69
C	0.00	0.34	0.0	0.0	0.0	Loaded Measured Unit Pattern	
D	0.00	0.34	0.0	1.0	0.0	File = pul157.hup	

Pattern Tolerance +/- 5% of Emax

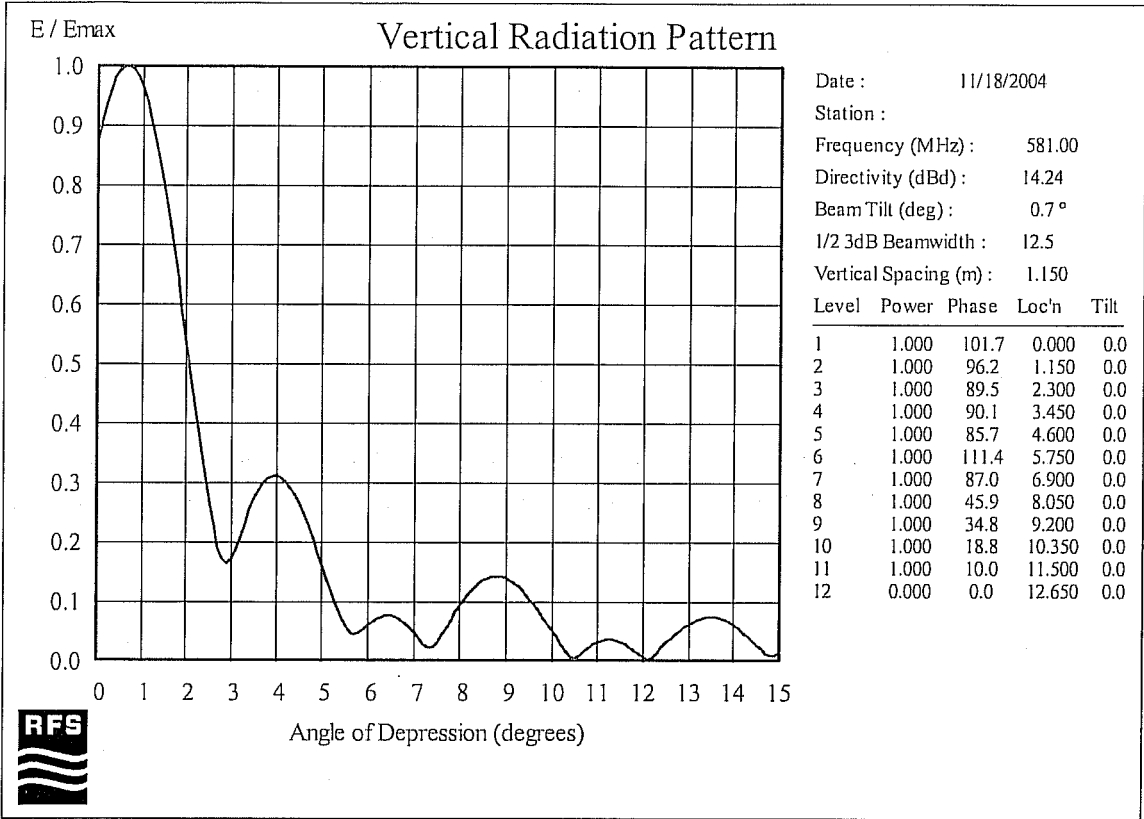
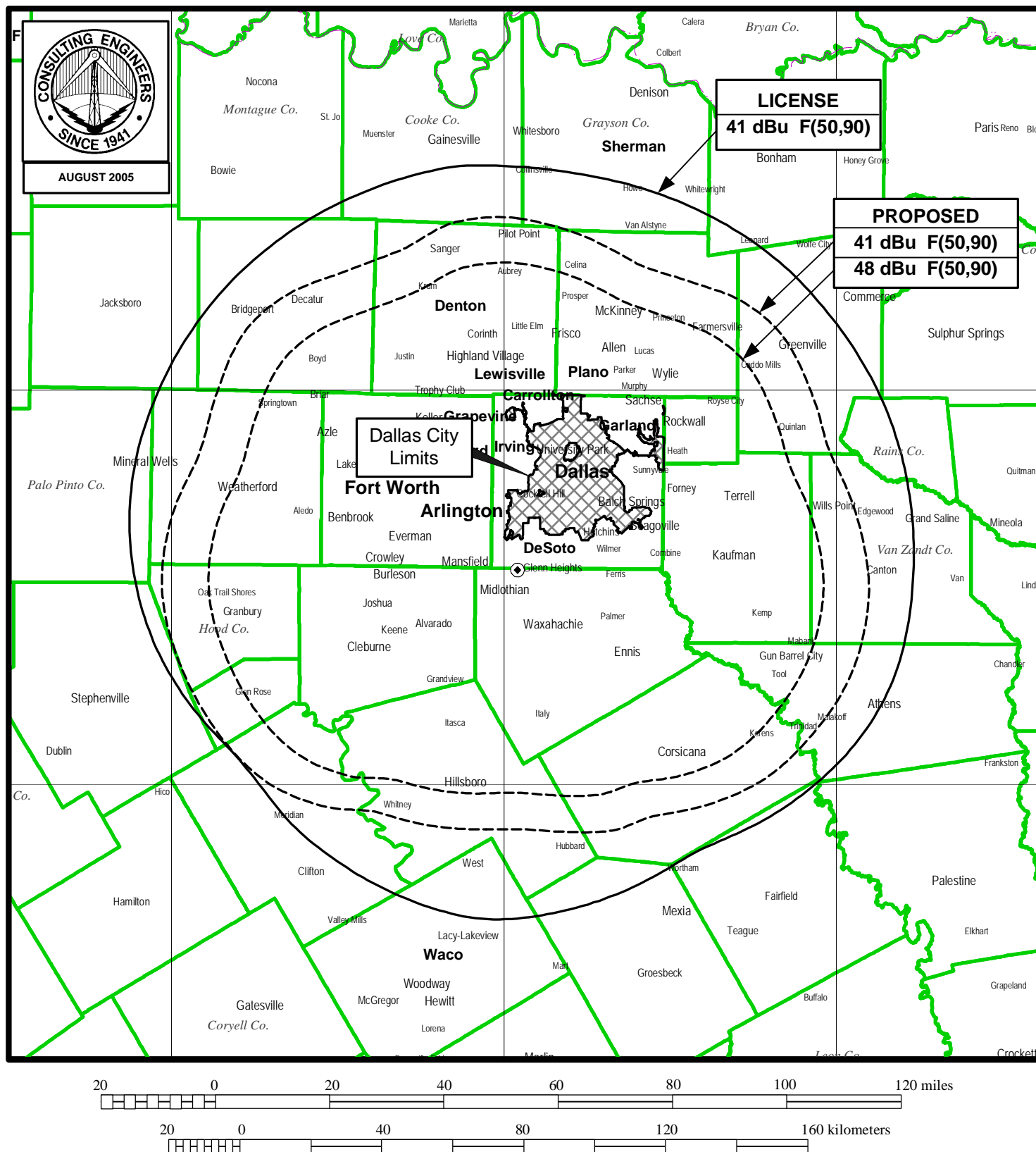




Figure 3



## PREDICTED DTV COVERAGE CONTOURS

STATION KDAF-DT  
DALLAS, TEXAS

CH 32 235 KW (MAX-DA) 496 M

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