

TECHNICAL EXHIBIT  
MINOR CHANGE APPLICATION TO  
MODIFY DTV CONSTRUCTION PERMIT  
STATION KPXB-DT (FACILITY ID 58835)  
CONROE, TEXAS

JANUARY 28, 2002

CH 5    9.5 KW (MAX-DA)    555 M

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Technical Narrative

This Technical Exhibit supports a minor change amendment to modify the construction permit (CP) for digital television (DTV) station KPXB-DT at Conroe, Texas. Station KPXB(TV) currently operates on analog (NTSC) channel 49. The KPXB-DT CP (BPCDT-19990719KF, Facility ID 58835) proposes a DTV operation on channel 5, the channel allotted to KPXD for DTV use. The KPXD-DT CP is based on use of a directional antenna (DA) system and maximum effective radiated power (ERP) of 8 kW. The proposed antenna height above average terrain (HAAT) is 603 meters. The transmitter site coordinates are 29-33-44, 95-30-35 (NAD-27).

Proposed DTV Facilities

This minor change application to modify CP proposes to increase the maximum DTV ERP, reduce the antenna HAAT, and slightly change transmitter site location (coordinates). There is no proposed change in channel or antenna system (pattern). It is proposed to mount the DTV directional antenna system on a new tower being built by Richland Towers at Missouri City, Texas. The Federal Communications Commission registration number for the new tower is 1064696 and the coordinates are 29-34-15 N, 95-30-37 W (NAD-27). The proposed site is located approximately 1 kilometer (0.6 mile) north of

the KPXB-DT CP site. It is proposed to operate with a maximum DTV ERP of 9.5 kW and antenna HAAT of 555 meters.

The proposed transmitter site is 1764 kilometers from the closest point of the Canadian border. The proposed KPXB-DT site is more than 430 kilometers from the closest point of the Mexican border. The closest FCC monitoring station is at Kingsville, Texas, approximately 331 kilometers to the southwest. The closest point of the National Radio Quiet Zone (VA/WV) is more than 1600 kilometers to the northeast. The closest point of the Table Mountain Radio Quiet Zone (CO) is more than 1400 kilometers to the northwest. The closest radio astronomy site operating on TV channel 37 is at Fort Davis, Texas, approximately 819 kilometers to the west. These separations are considered sufficient to not be a concern for coordination purposes.

#### Allocation Study

Figure 4 is a separation study showing pertinent analog (NTSC) and DTV stations and allotments. This study is used as a guide to identify assignments requiring further study using the procedures outlined in the FCC's OET-69 Bulletin. Interference calculations have been made to analog (NTSC) and DTV stations and allotments using the procedures outlined in the FCC's OET-69 Bulletin and a 2 kilometer grid spacing. The proposed KPXB-DT operation does not cause excessive calculated interference to any analog or DTV assignment or allotment.

#### Class A Consideration

The FCC's CDBS and list of low power television (LPTV) assignments eligible for Class A status have been reviewed for potential impact. Interference calculations have been made using the procedures outlined in the FCC's OET-69 Bulletin.

The FCC's CDBS shows no Class A authorizations or applications of concern for the proposed KPXB-DT operation.

The FCC's list of LPTV assignments eligible for Class A status indicates 3 assignments for consideration. Although it is believed these 3 LPTV assignments do not require Class A consideration since they have not filed for Class A status on channel 5, studies have been conducted anyway. The 3 channel 5 LPTV assignments and the bearing and distance from the proposed KPXB-DT site are provided below.

<u>Call</u>	<u>Location</u>	<u>Chan.</u>	<u>Bearing</u>	<u>Distance</u>
KJIB-LP	Clear Lake, TX	5	86.7 deg.	44.4 km
KETX-LP	Livingston, TX	5	23.2	141.2
KLUF-LP	Lufkin, TX	5	21.7	211.3

Station KJIB-LP is displaced from operating on channel 5 by the KPXD DTV allotment and present KPXB-DT CP operation on channel 5. Station KJIB-LP has an application pending to change frequency to channel 29 (BPTTL-20010523ABI). Therefore, it is believed the proposed KPXB-DT operation does not have a Class A allocation problem with KJIB-LP.

Station KETX-LP has a construction permit (BMPTVL-20010116AIJ) to change frequency to channel 7. In addition, the proposed KPXB-DT operation causes less interference to KETX-LP's channel 5 operation than does the current KPXB-DT CP operation using the FCC's OET-69 procedures. Therefore, it is believed the proposed KPXB-DT operation does not have a Class A allocation problem with KETX-LP.

Using the procedures outlined in the FCC's OET-69 Bulletin, the proposed KPXB-DT operation causes no interference (ie, 0 people) to the KLUF-LP service area.

If necessary, a waiver of the FCC rules is requested based on use of the FCC's OET-69 procedures to demonstrate no interference to LPTV assignments requesting Class A status.

Radiofrequency Electromagnetic Field Exposure

The proposed KPXB-DT 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 550.5 meters above ground level. The maximum DTV ERP is 9.5 kW. A relative field value of 0.45 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 0.0002 mW/cm<sup>2</sup>. This is less than 1% of the FCC's recommended limit of 0.2 mW/cm<sup>2</sup> for channel 5 for an "uncontrolled" environment. The calculated power density is also less than 1% of the FCC's recommended limit for a "controlled" environment.

Access to the transmitting site will be restricted and appropriately marked with warning signs. As this is a multi-user site an agreement will control access. 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 KPXB-DT 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.

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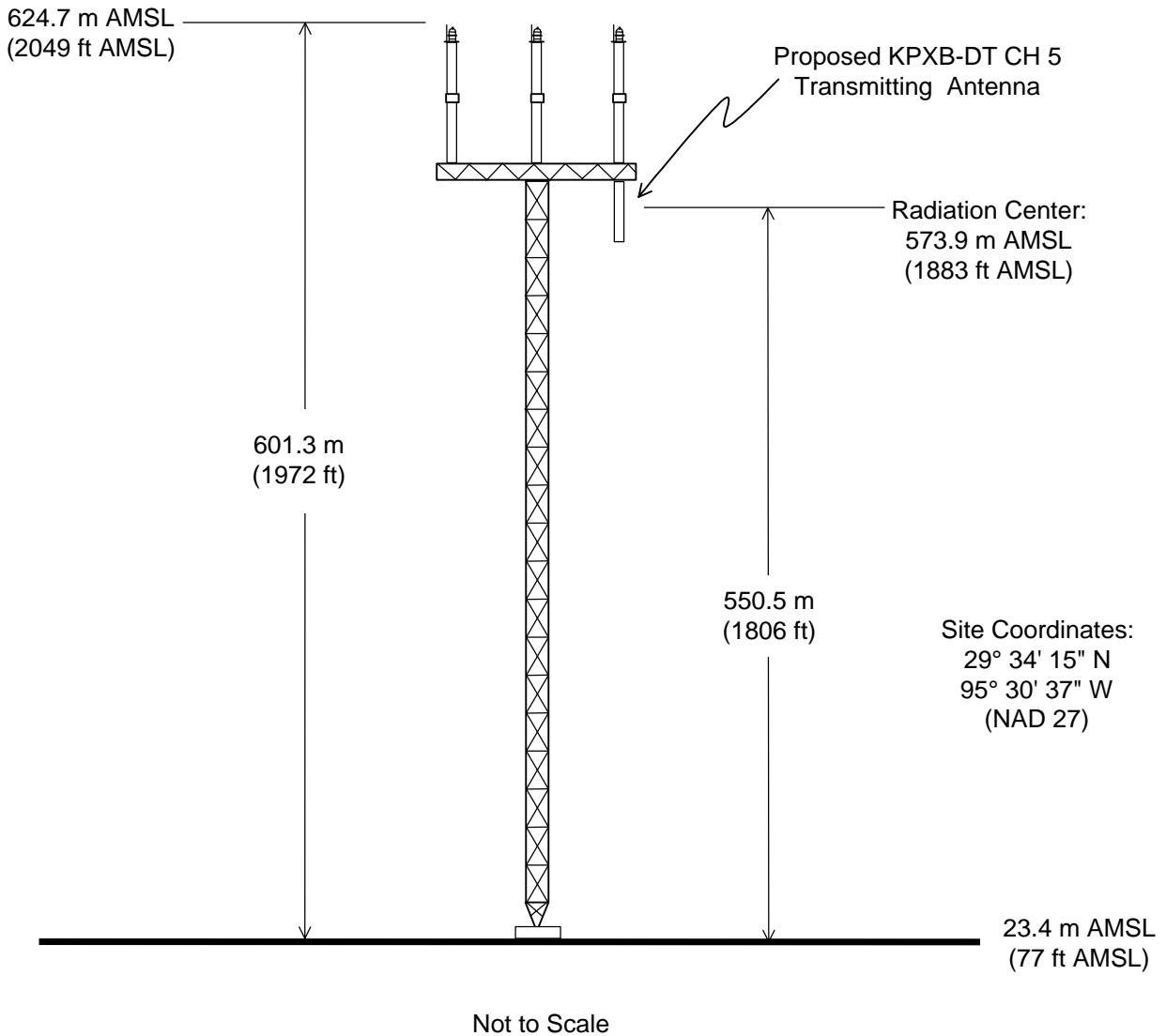
January 28, 2002

Figure 1



JANUARY 2002

Tower Reg. No. 1064696



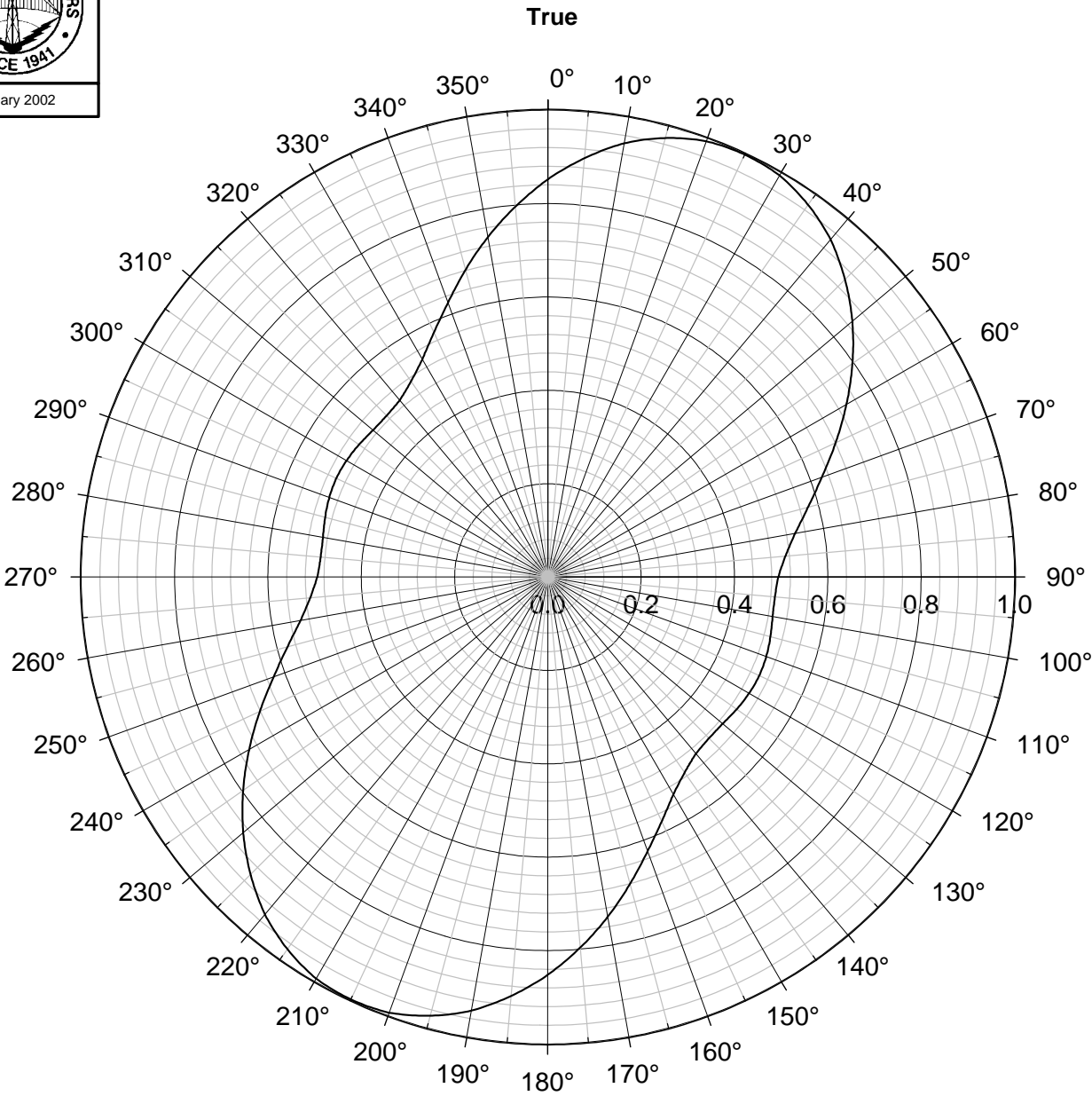
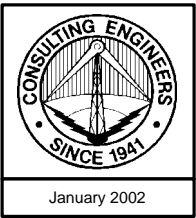
## **PROPOSED ANTENNA AND SUPPORTING STRUCTURE**

STATION KPXB-DT

CONROE, TEXAS

CH 5 9.5 KW (MAX-DA) 555 M

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



**HORIZONTAL RELATIVE FIELD PATTERN**

STATION KPXB-DT

CONROE, TEXAS

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du Treil, Lundin & Rackley, Inc Sarasota, Florida





Proposal Number

DCA-8327

Date

8-Jul-99

Call Letters

KPXB-DT

Location

Conroe, TX

Customer

Antenna Type

TF-2CM P200

Figure 2  
Sheet 2 of 3

Channel 5

**ELEVATION PATTERN**

RMS Gain at Main Lobe 2.10 ( 3.22 dB )

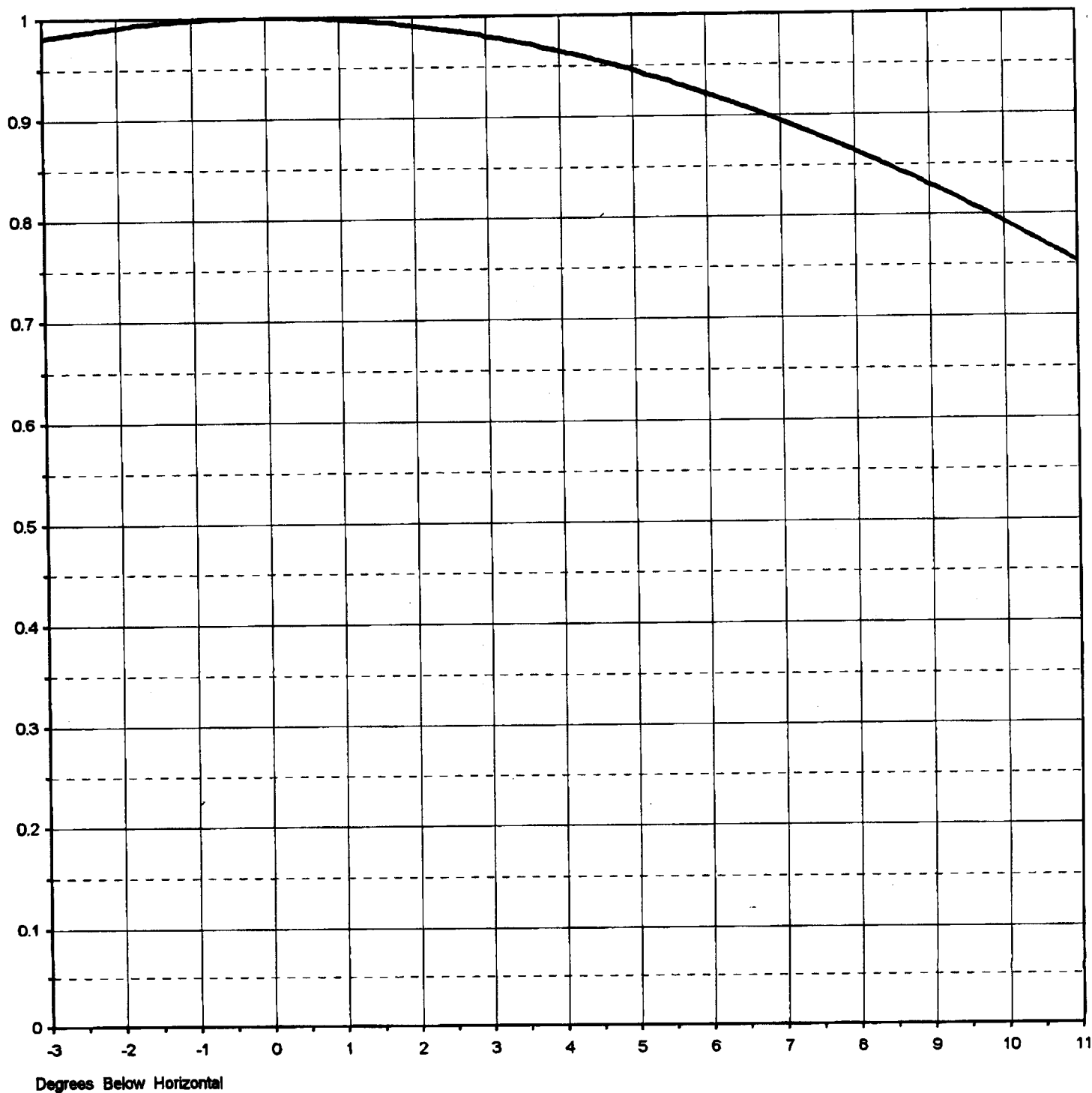
Beam Tilt 0.00 deg

RMS Gain at Horizontal 2.10 ( 3.22 dB )

Frequency 79.00 MHz

Calculated / Measured Calculated

Drawing # 02S021000



## ELEVATION PATTERN

RMS Gain at Main Lobe **2.10 ( 3.22 dB )**

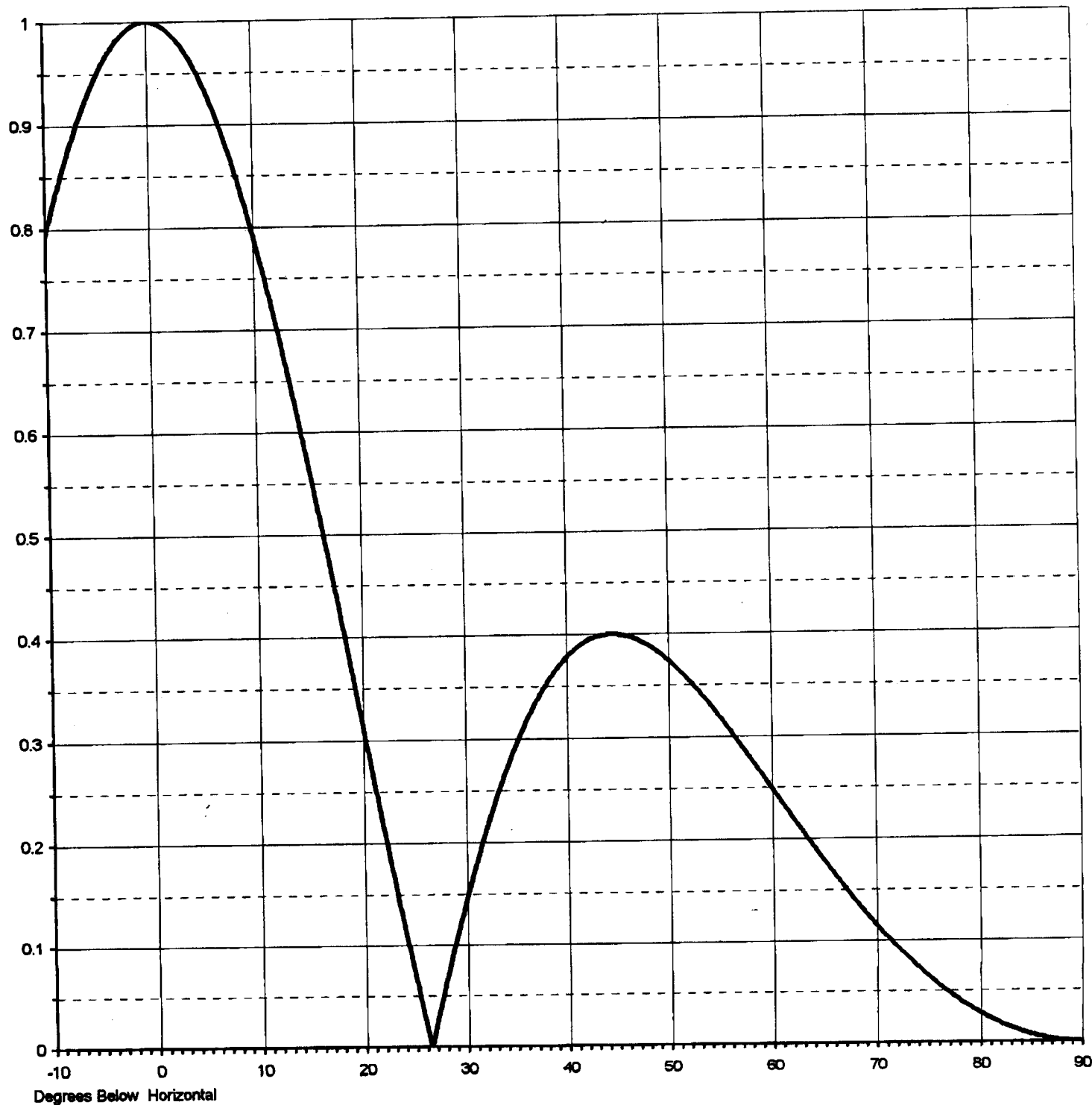
Beam Tilt **0.00 deg**

RMS Gain at Horizontal **2.10 ( 3.22 dB )**

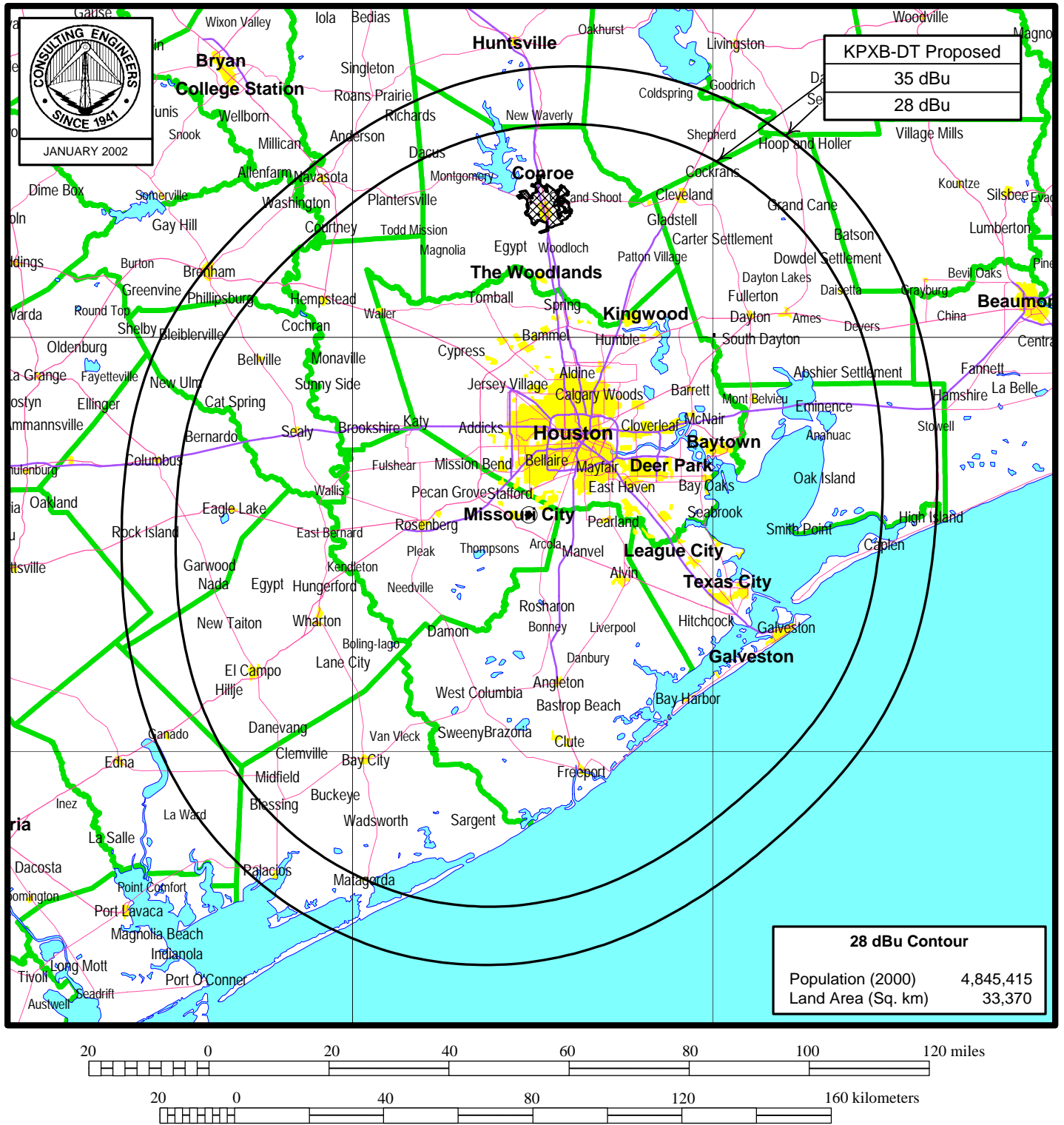
Frequency **79.00 MHz**

Calculated / Measured **Calculated**

Drawing # **02S021000-90**



**Figure 3**



## **PREDICTED F(50,90) COVERAGE CONTOURS**

STATION KPXB-DT

CONROE, TEXAS

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du Treil, Lundin & Rackley, Inc Sarasota, Florida

FIGURE 4

CDBS TV/DTV SEPARATION STUDY

Job Title: KPXB-DT, Conroe, TX  
 Channel: 5  
 Class:  
 Type: DT

Separation Buffer: 65 km  
 Coordinates: 29-34-15 095-30-37  
 Zone: III

Call FID	City St	File Status	Chan. Num	Zone	ERP-kW HAAT-m	DA Id	Latitude Longitude	Bear deg.	Dist. (km)	Required (km)
KPXB-DT 58835	CONROE TX	BPCDT CP-C	19990719KF	5 III	8.0 603	DA 38766	29-33-44 95-30-35	177.3	1.0	
DKTFH	CONROE TX			5 III	1.0 359	DA	30-15-45 95-14-50	18.2	80.8	
KENS-TV 26304	SAN ANTONIO TX	BLCT LIC-C	2516	5 (Z) III	100.0 424		29-16-07 98-15-55	263.5	269.4 4.15	273.6 Short
<i>(Proposal meets FCC's interference requirements using OET-69 procedures)</i>										
KALB-TV 51598	ALEXANDRIA LA	BLCT LIC-C	1555	5 (Z) III	100.0 485		31-02-15 92-29-45	59.8	332.4	273.6 Clear
KFDM-TV 22589	BEAUMONT TX	BLCT LIC-C	2049	6 (-) III	100.0 293		30-08-24 93-58-44	66.4	160.9	<11 or >125 Clear

\*\*\* End of DTV Channel Study \*\*\*

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Technical Specifications

Channel	5
Frequency	76-82 MHz
Proposed Site Coordinates (NAD 27)	29° 34' 15" North Latitude 95° 30' 37" West Longitude
Site Elevation above mean sea level	23.4 m
Average elevation above mean sea level of 8 equally spaced radials, 3-16 kilometers	19.1 m
Overall height of antenna structure (#1064696)	
Above ground	601.3 m
Above mean sea level	624.7 m
Height of antenna radiation center	
Above ground	550.5 m
Above mean sea level	573.9 m
Above average terrain	555 m
Transmitter rated power output (average)	5 kW
Transmission line	3-1/8", 50 Ohm, rigid coax
Length	(1950 ft) 594.4 m
Efficiency	68.1%
Antenna	Dielectric TF-2MT-P200
Polarization	Horizontal
Peak Power Gain	4.2
Beam Tilt (electrical)	0.0°
Main Lobes	25° & 205° T

Proposed Operation

Transmitter output power (average)	3.32 kW
Transmission line/combiner loss	1.06 kW
Antenna input power	2.26 kW
Maximum DTV Effective Radiated Power (MAX-DA)	9.50 kW