

TECHNICAL EXHIBIT  
APPLICATION FOR MODIFICATION OF  
DTV CONSTRUCTION PERMIT  
STATION KSWB-DT (FACILITY ID 58827)  
SAN DIEGO, CALIFORNIA

DECEMBER 12, 2003

CH 19    322.8 KW-DA    598 M

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Technical Narrative

This Technical Exhibit supports a minor change application to modify the digital television (DTV) construction permit (CP) for station KSWB-DT at San Diego, California (Facility ID 58827). Station KSWB-DT currently has a CP (BPCDT-19990901AAF) for its DTV operation on channel 19. The CP specifies the use of a Dielectric TFU-18DSC-S180 directional antenna (DA) system with a skull shaped pattern. The major lobe of the antenna pattern is oriented toward 330 degrees True. The maximum DTV effective radiated power (ERP) is 322.8 kilowatts (kW). The antenna center of radiation is 61 meters above ground level (AGL), and 842.2 meters above mean sea level (AMSL). The antenna height above average terrain (HAAT) is 604 meters. The transmitter site coordinates are 32-41-47, 116-56-07 (NAD-27). The FCC structure registration number is 1011527.

Proposed DTV Facilities

This minor change application proposes to change the antenna system to another model with more bays (ie, longer), but having the same antenna pattern. It is proposed to use a Dielectric TFU-30GTH/VP-R-S180 directional antenna system with the same skull shaped pattern as the CP antenna. The antenna will incorporate 1 degree of electrical beam tilt and 1 degree of mechanical tilt at 240 degrees True. The antenna system will include a vertical polarized component. The proposed antenna center of radiation will be 55.2 meters AGL, and 836.4 meters AMSL (see Figure 1). The proposed antenna HAAT will

be 598 meters, a reduction of 6 meters from the CP antenna HAAT. There is no proposed change in: channel (19), antenna pattern shape (skull) and orientation (330 degrees True), maximum DTV ERP (322.8 kW-DA), site coordinates (32041047, 116-56-07), structure registration (1011527), or city of assignment (San Diego, CA).

Figure 2 provides the patterns for the proposed Dielectric TFU-30GTH/VP-R-S180 directional antenna system. Sheet 1 of Figure 2 is the azimuth pattern for the horizontally polarized portion of the antenna. The maximum horizontal polarized ERP is 322.8 kW. Sheet 2 of Figure 2 provides the azimuth pattern for the vertically polarized portion of the antenna system. The maximum vertical polarized ERP is 176 kW. Sheets 3 and 4 of Figure 2 provide the vertical plane relative field patterns for the proposed antenna system.

The KSWB-DT transmitter site is approximately 16 kilometers from the closest point of the Mexican border. Figure 4 provides information demonstrating that the proposal does not require notification and further coordination with Mexico.

The KSWB-DT site is more than 1800 kilometers from the closest point of the Canadian border. The closest FCC monitoring station is at Douglas, Arizona, approximately 698 kilometers to the east. The closest point of the National Radio Quiet Zone (VA/WV) is more than 3300 kilometers to the east-northeast. The closest point of the Table Mountain Radio Quiet Zone (CO) is more than 1300 kilometers to the northeast. These separations are considered sufficient to not be a coordination concern.

The KSWB-DT transmitter site is also used for the KSWB-TV analog operation on channel 69. There are other authorized TV, DTV and FM full service facilities authorized in the vicinity of KSWB-DT's site on San Miguel Mountain. There are no known AM stations within 12 kilometers (7.5 miles) of the KSWB-DT site. No adverse electromagnetic interaction is expected. The applicant recognizes that it is responsible to remedy prohibited electromagnetic problems that its proposed operation may create.

Figure 3 is a map showing the predicted 48 dBu F(50,90) principal city contour and 41 dBu F(50,90) service contour for the proposed KSWB-DT operation. The limits of

San Diego, as defined in the 2000 US Census for California, are identified. The predicted 48 dBu contour encompasses the San Diego limits as required by the FCC rules. The estimated population (2000 Census) within the predicted 41 dBu contour is 3,103,152 people.

#### Allocation Study

Interference calculations have been made using the procedures outlined in the FCC's OET-69 Bulletin and a 1 kilometer grid. The proposed KSWB-DT operation complies with the FCC's 2%/10% interference standards with respect to pertinent surrounding analog (NTSC) full service TV assignments and DTV assignments and allotments.

Pertinent low power television (LPTV) stations that qualify for Class A consideration and are operating within the FCC's core band (ie, 2-51) have been examined. No adverse interference problems to Class A TV assignments are predicted.

#### Land Mobile Radio Service (LMRS)

There is no change in KSWB-DT site from that authorized in the CP and it is the same as the DTV allotment site. There are no land mobile radio service (LMRS) reservations on channels 18 and 19 within 500 kilometers of the KSWB-DT site. The separation to the adjacent channel 20 LMRS reservation at Los Angeles, California is 193.5 kilometers. The KSWB-DT separation (193.5 km) is in excess of the minimum requirement specified in Section 73.623(e) of the FCC rules between a DTV station and an adjacent channel LMRS reservation (176 km).

#### Radiofrequency Electromagnetic Field Exposure

The proposed KSWB-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 55.2 meters above ground level. The proposed maximum DTV combined ERP is 498.8 kW (horizontal & vertical polarized ERPs).

A relative field value of 0.12 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  $0.0848 \text{ mW/cm}^2$ . This is approximately 25% of the FCC's recommended limit of  $0.34 \text{ mW/cm}^2$  for channel 19 for an "uncontrolled" environment. The calculated power density is approximately 5% of the FCC's recommended limit for a "controlled" environment.

The KSWB transmitter site is located on San Miguel Mountain with a gate restricting access approximately 1000 feet from the transmitter and tower. In addition, there is a 50 foot fence surrounding the KSWB tower base, further restricting access. Only authorized personnel should have access to the areas near the site. It is believed the KSWB site can be considered a "controlled" environment.

In addition to the KSWB-DT antenna, the tower supports the antennas for KSWB-TV (Ch.69, San Diego, CA) and KPBS-FM (Ch.208B, San Diego, CA). The vertical pattern for KSWB-TV's antenna (Dielectric TFU-30JSC/VP-S200) was used to calculate the power density from that station (relative field of 0.1). Station KPBS-FM uses a 4-bay FM antenna system, and a typical 4-bay FM vertical pattern was used for the power density calculations (relative field of 0.4). The controlled environment contribution from KSWB-TV is 24.6%, and from KPBS-FM it is 3.3%. The combined power density contributions from the 3 stations are about 33% of the FCC's limit for a "controlled" environment.

Access to the transmitting site is 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 KSWB-DT operation appears to be in compliance with the FCC's RF energy requirements.

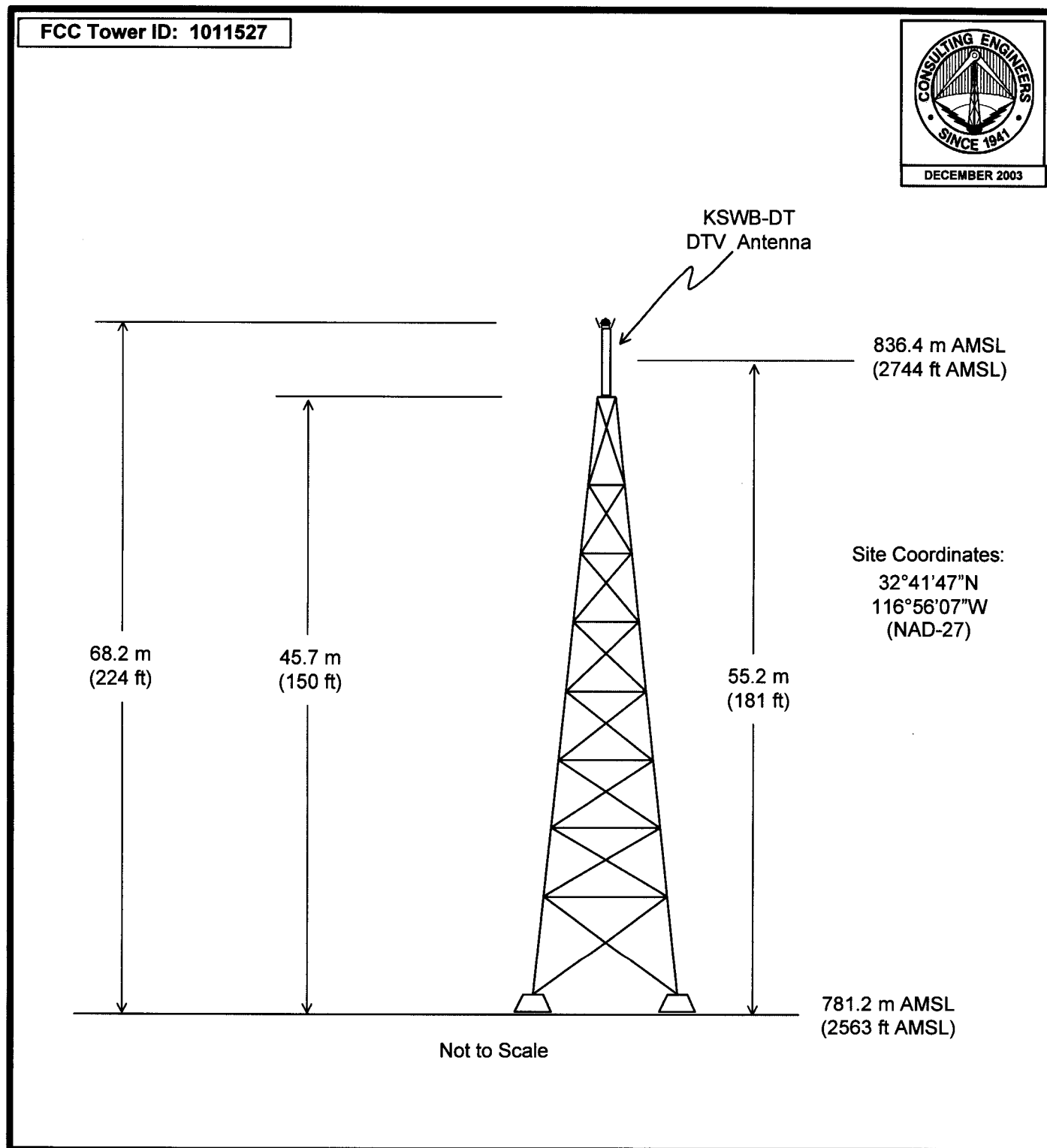
If there are questions concerning the technical portion of this application,  
please contact the office of the undersigned.

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

December 12, 2003

Figure 1



## ANTENNA AND SUPPORTING STRUCTURE

STATION KSWB-DT

SAN DIEGO, CALIFORNIA

CH 19 322.8 KW-DA 598 M

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



# Dielectric

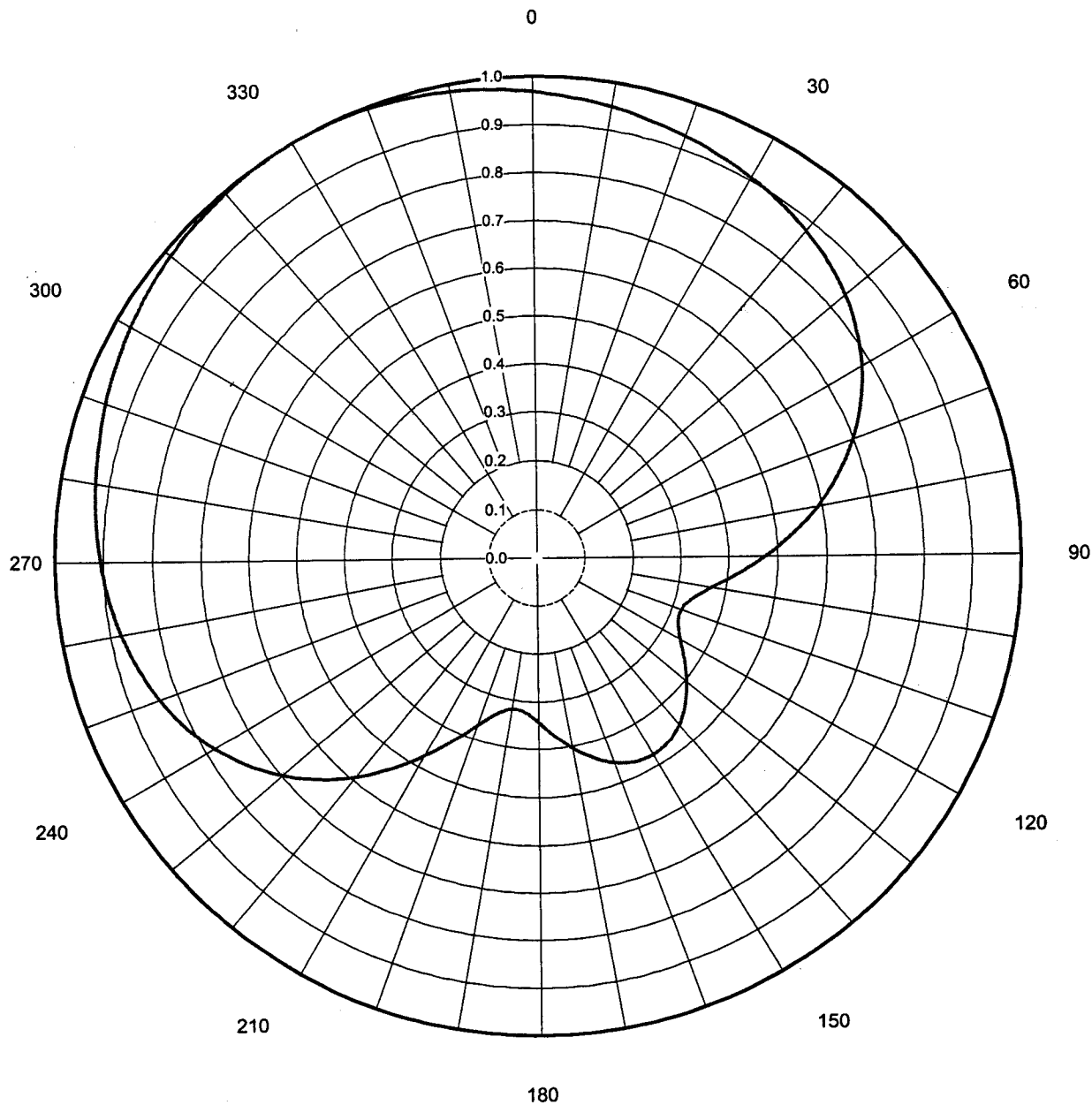
Call Letters  
Location  
Customer  
Antenna Type

**KSWB-DT** Channel **19**  
**San Diego, CA**  
**Tribune Broadcast Company**  
**TFU-30GTH/VP-R S180**

## AZIMUTH PATTERN

Gain **1.80** **( 2.55 dB)**  
Calculated / Measured **Calculated**

Frequency **503.00 MHz**  
Drawing # **TFU-S180**





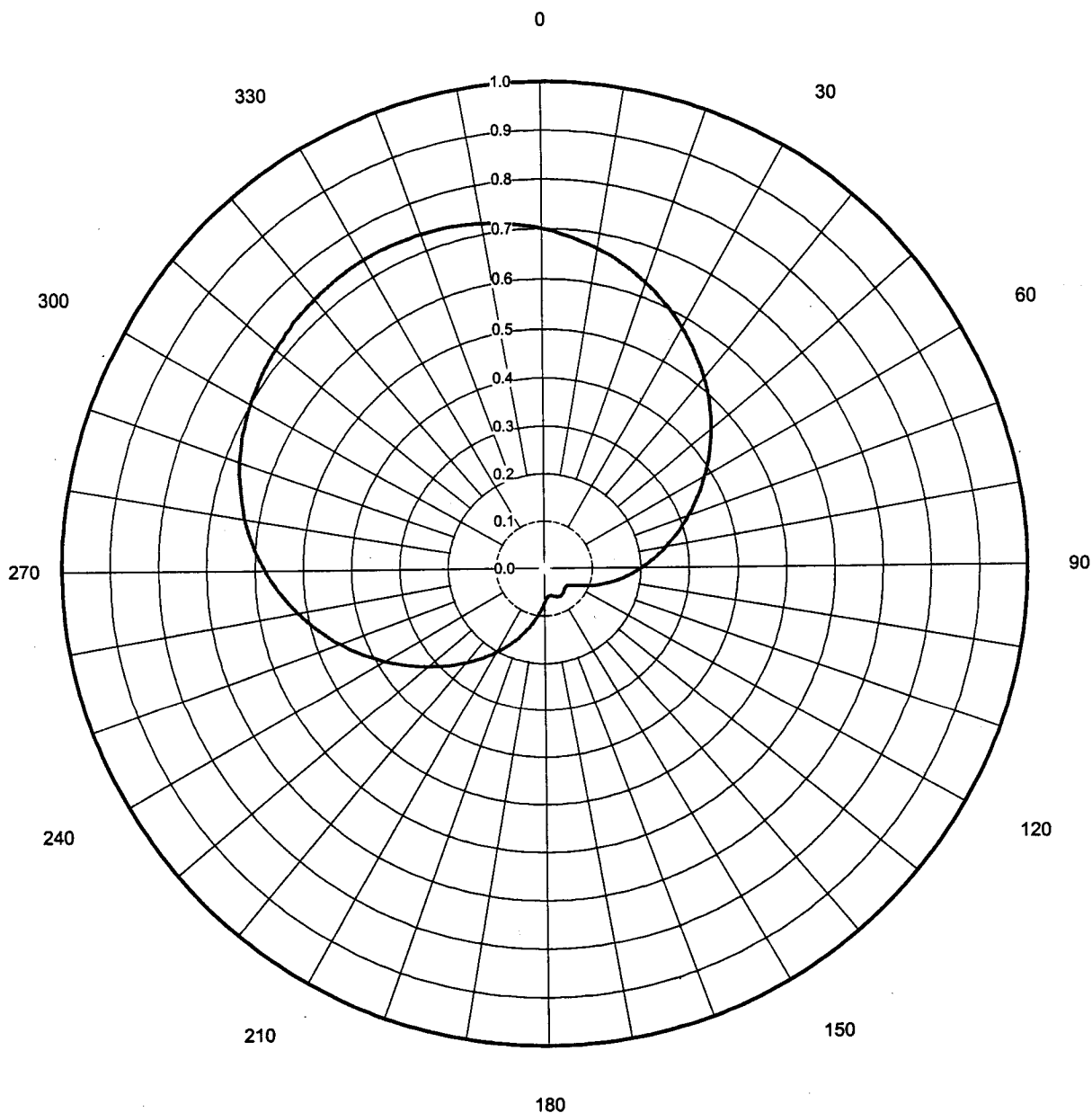
Call Letters  
Location  
Customer  
Antenna Type

**KSWB-DT** Channel **19**  
**San Diego, CA**  
**Tribune Broadcast Company**  
**TFU-30GTH/VP-R S180**

**AZIMUTH PATTERN/VERTICAL POLARIZATION**

Gain **2.50** (**3.98 dB**)  
Calculated / Measured **Calculated**

Frequency **503.00 MHz**  
Drawing # **TFU-S250**



# Dielectric

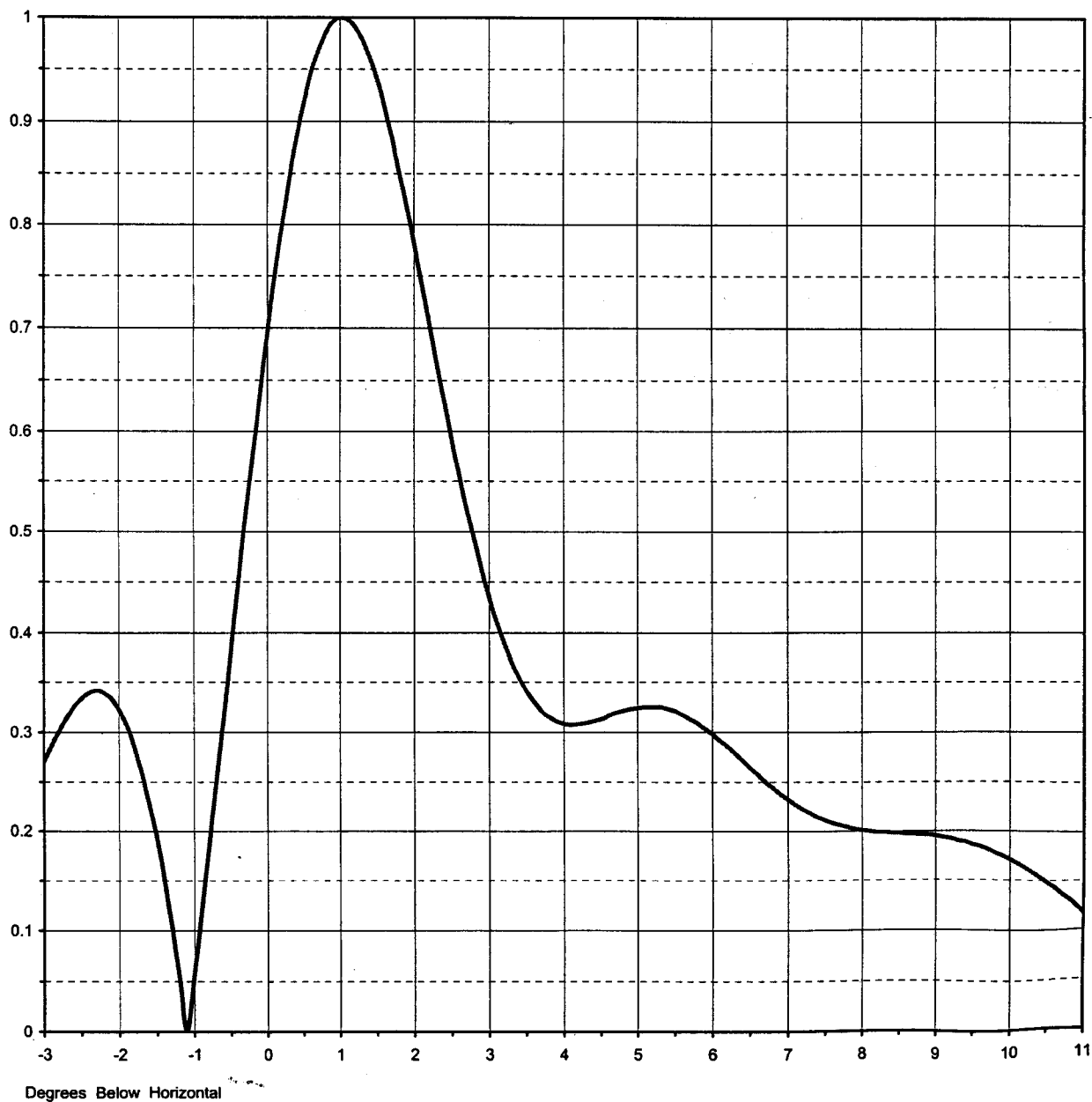
Call Letters  
Location  
Customer  
Antenna Type

**KSWB-DT** Channel **19**  
**San Diego, CA**  
**Tribune Broadcast Company**  
**TFU-30GTH/VP-R S180**

## ELEVATION PATTERN

RMS Gain at Main Lobe **18.50 (12.67 dB)**  
RMS Gain at Horizontal **8.90 (9.49 dB)**  
Calculated / Measured **Calculated**

Beam Tilt **1.00 deg**  
Frequency **503.00 MHz**  
Drawing # **30G185100**



# Dielectric

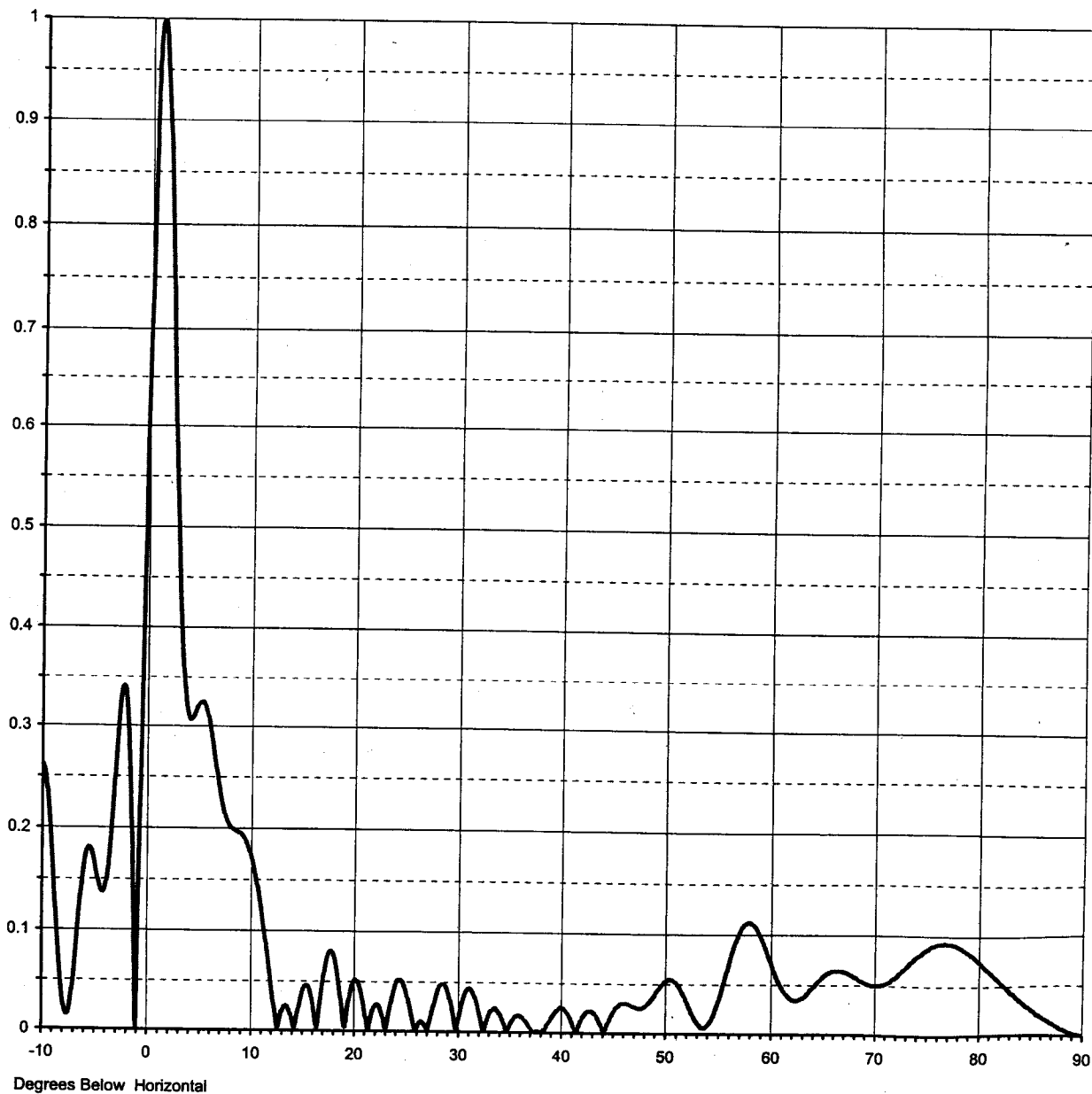
Call Letters  
Location  
Customer  
Antenna Type

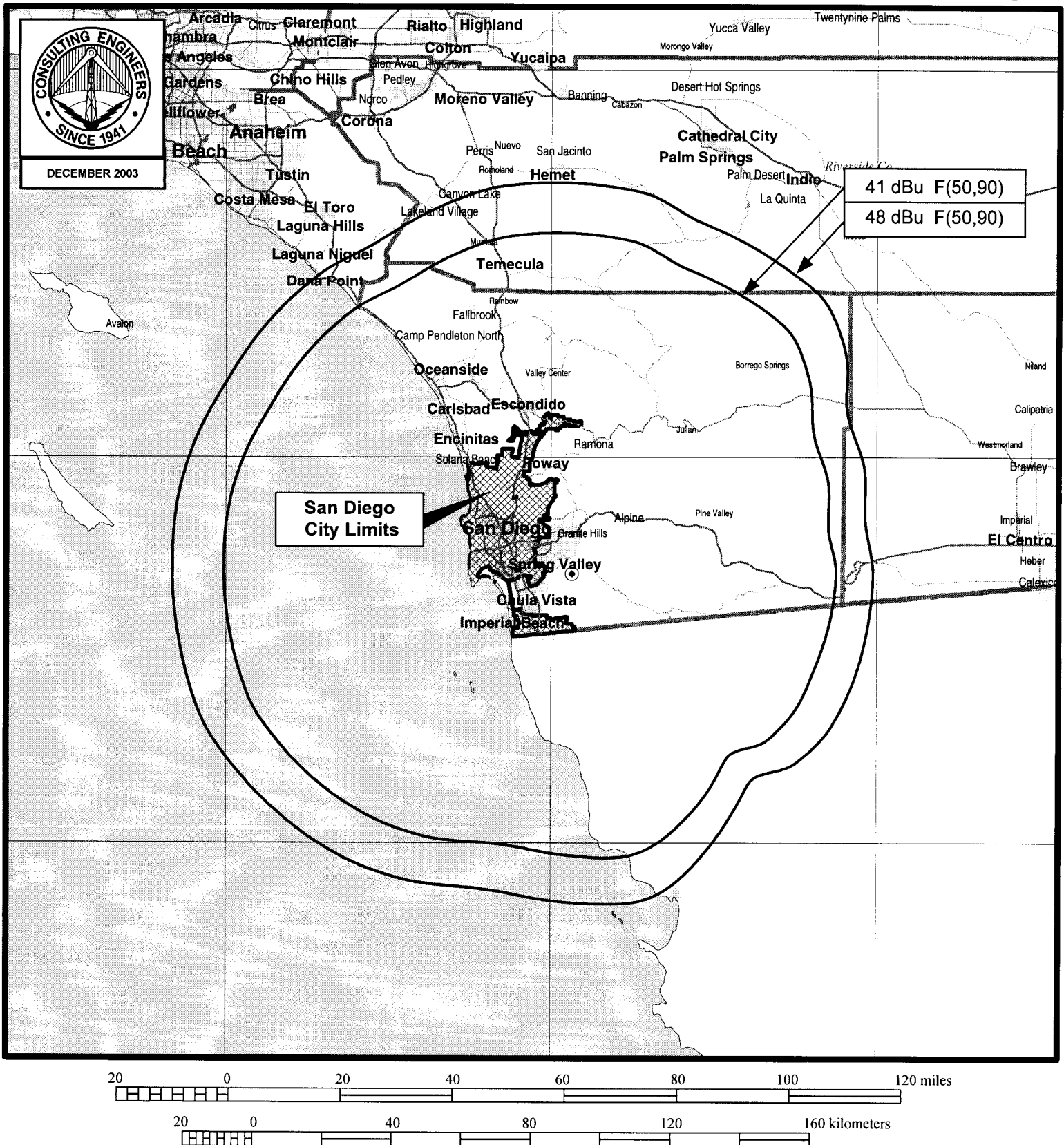
**KSWB-DT** Channel **19**  
**San Diego, CA**  
**Tribune Broadcast Company**  
**TFU-30GTH/VP-R S180**

## ELEVATION PATTERN

RMS Gain at Main Lobe **18.50 (12.67 dB)**  
RMS Gain at Horizontal **8.90 (9.49 dB)**  
Calculated / Measured **Calculated**

Beam Tilt **1.00 deg**  
Frequency **503.00 MHz**  
Drawing # **30G185100-90**



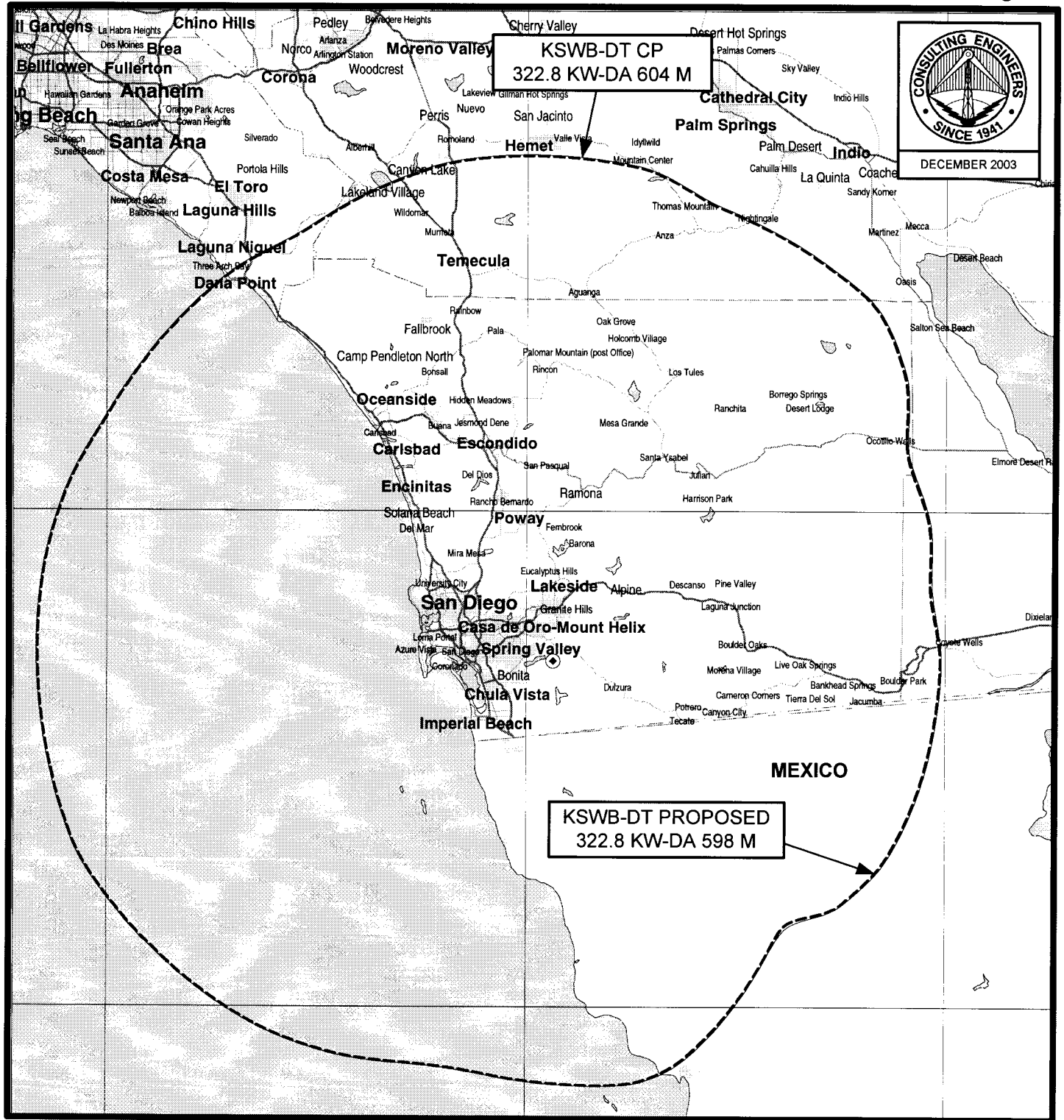


## **PREDICTED COVERAGE CONTOURS**

STATION KSWB-DT  
SAN DIEGO, CALIFORNIA  
CH 19 322.8 KW-DA 598 M

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

Figure 4



## PRESENT CP & PROPOSED 41 dBu CONTOURS

STATION KSWB-DT  
SAN DIEGO, CALIFORNIA  
CHANNEL 19

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

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Compliance With Mexico Agreement

Station KSWB-DT has a construction permit (CP, BPCDT-19990901AAF) to operate on channel 19 with a directional antenna (DA) system. The antenna pattern for the KSWB-DT CP facility is “skull” shaped (Dielectric S180) with the major lobe oriented toward 330 degrees True. The maximum DTV ERP is 322.8 kW. The antenna center of radiation is located 61 meters AGL, and 842.2 meters AMSL. The antenna HAAT is 604 meters. The site coordinates are 32-41-47, 116-56-07. The FCC structure registration number is 1011527.

Because the facilities approved in KSWB-DT’s construction permit exceeded KSWB’s initial DTV allotment, the FCC was required to notify the “*Secretaria de Comunicaciones y Transportes*” in Mexico. Notification to Mexico of KSWB-DT’s previous application resulted in a delay of processing action until it was approved or could be deemed approved pursuant to Section 3 of the *Memorandum of Understanding Between the Federal Communications Commission of the United States of America and the Secretaria de Comunicaciones y Transportes of the United Mexican States Related to the Use of 54-72 MHz, 76-88 MHz, 174-216 MHz and the 407-806 MHz Bands for the Digital Television Broadcasting Service Along the Common Border* (US-Mexico MOU). Once the KSWB-DT proposal was approved by Mexico and granted a CP by the FCC, the operating parameters of the KSWB-DT CP were entered into Table 7 of the US-Mexico MOU. Table 7 contains a list of all US DTV applications approved by Mexico.

The DTV facility proposed in the instant application by KSWB-DT is virtually identical to the KSWB-DT CP facility now included in Table 7 of the US-Mexico MOU. The proposed KSWB-DT operation will utilize an antenna with the same exact pattern and orientation as the KSWB-DT CP. The maximum DTV ERP of 322.8 kW will remain the same. There is no proposed change in channel, site coordinates, supporting structure, and city of assignment from that authorized in the KSWB-DT. The antenna proposed in the KSWB-DT application is longer than the antenna authorized in the KSWB-DT CP. This antenna length difference results in a slight reduction in the antenna HAAT (1%) for the KSWB-DT application (598 m) as compared to the KSWB-DT CP (604 m). Since KSWB-DT proposes an antenna HAAT

that is slightly lower than the CP facility, there is no need for further notification to Mexico because the KSWB-DT application will provide service to a slightly smaller area (with no extension in any direction) as compared to the KSWB-DT CP facility already approved by Mexico and included in Table 7.

Figure 4 is a map showing the predicted 41 dBu, F(50,90) service contours for the KSWB-DT CP operation and the KSWB-DT operation proposed herein. The 41 dBu contour for the KSWB-DT application (dashed line) is completely encompassed by the 41 dBu for the KSWB-DT CP (solid line). Since the contour of the KSWB-DT application is completely inside the contour for the CP, and there is no extension toward Mexico (or any other direction) from that already approved, no further notice to Mexico is needed

For these reasons, KSWB-DT submits that no further notification to Mexico is required.