

KUHT-DT CHANNEL 8
SPECIAL TEMPORARY AUTHORITY
HOUSTON, TEXAS
(University of Houston System)

KESSLER AND GEHMAN ASSOCIATES, INC.
TELECOMMUNICATIONS CONSULTING ENGINEERS

20090107

Prepared by William T. Godfrey, Jr.

KG&A

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Kessler and Gehman Associates, Inc.

Telecommunications Consulting Engineers

ENGINEERING TECHNICAL STATEMENT PREPARED BY WILLIAM T. GODFREY, JR. OF THE FIRM KESSLER AND GEHMAN ASSOCIATES, INC., TELECOMMUNICATIONS CONSULTING ENGINEERS IN CONNECTION WITH A SPECIAL TEMPORARY AUTHORITY (STA) REQUESTING AUTHORIZATION TO TEMPORARILY OPERATE THE UNIVERSITY OF HOUSTON SYSTEM (UHS) POST-TRANSITION DIGITAL TELEVISION BROADCAST FACILITY, KUHT-DT CHANNEL 8 (BMPEDT-20080619AJE) WITH ITS PRE-TRANSITION DIRECTIONAL ANTENNA.

The firm Kessler and Gehman Associates, Inc. has been retained by the University of Houston System (UHS), Houston, TX to prepare the engineering portion of a Special Temporary Authority (STA) requesting authorization to temporarily operate the KUHT-DT Channel 8 post-transition facility with its existing pre-transition antenna currently used by the KUHT-TV Channel 8 analog and KUHT-DT Channel 9 digital pre-transition facilities.

Discussion

Prior to the 2008 maximization filing window opening, UHS filed a “5-mile Expansion Waiver” post-transition DTV application and was issued a construction permit (BPEDT-20080314ABU) on March 18, 2008 to operate the KUHT-DT Channel 8 post-transition DTV facility with an ERP of 20.0 kW using the existing Cetec model JRP 8/3.9 circularly polarized directional antenna with an antenna height radiation center of 561.0 meters Above Ground Level (AGL). The FCC opened the DTV maximization filing window on May 30, 2008 (DA 08-1213) and UHS promptly filed a post-transition DTV maximization application requesting to operate the KUHT-DT Channel 8 post-transition DTV facility with an ERP of 34.3 kW using an ERI model ATW9V6-CTO-8 circularly polarized nondirectional antenna with an antenna height radiation center of 573.6 meters AGL (BMPEDT-20080619AJE).

UHS leases space on the Fox tower (ASRN: 1028555) and had a plan in place with Fox to have its new nondirectional post-transition DTV antenna installed when Fox installed its new



DTV antenna using a stacked antenna configuration. UHS and Fox had hoped to have the new antennas installed prior to February 17, 2009; however, the coordinated effort was significantly delayed due to Hurricane Ike. Unfortunately, UHS was recently informed by Fox that the plan to stack antennas has changed and that UHS will have to have its new antenna installed after the new Fox antenna is installed. UHS must now have another tower analysis study performed and will have to make adjustments with respect to the antenna model it will be able to use. As a result, it is not possible for the maximized post-transition DTV facility to be built by February 17, 2009 so UHS will file a license application on February 17, 2009 to cover the initial post-transition DTV facility (BPEDT-20080314ABU) which will result in an automatic 3-year construction deadline for the maximized post-transition DTV facility. However, since the KUHT-DT Channel 8 post-transition DTV station has a maximization authorization to operate a nondirectional facility with an ERP of 34.3 kW, it can use that authorization, by means of an STA, to temporarily operate the post-transition DTV facility using the existing Channel 8 directional antenna, which is approximately 12.6 meters lower, with the same ERP to serve the public's best interest at a time when the public is concerned about not being able to receive DTV once the transition ceases. The proposed temporary facility's F(50,90) 36 dBu noise limited contour would be completely encompassed by the authorized maximization facility's F(50,90) 36 dBu contour (Exhibit 9) in all azimuthal directions; therefore, no additional interference would occur.

UHS understands the importance of providing coverage to the population who currently enjoys service from the KUHT-TV analog facility; therefore, this STA respectfully requests authorization to temporarily operate the KUHT-DT Channel 8 post-transition facility with its existing Cetec directional Channel 8 antenna until the new nondirectional antenna is installed and operational. The STA F(50,90) 43.0 dBuV/m principal community contour will completely encompass Houston, TX which is the community of license for KUHT-DT (Exhibit 10).



Exhibits

Exhibits 1 and 2 represent KUHT's administration data, antenna and antenna structure specifications.

Exhibit 3 depicts the profile view of the proposed antenna on the antenna structure with all the appropriate elevations.

Exhibit 4 displays the existing KUHT-TV Channel 8 analog antenna's composite azimuth pattern, which will be used temporarily by the KUHT-DT Channel 8 post-transition DTV facility, and Exhibit 5 displays the associated relative field values every ten degrees.

Exhibit 6 displays the existing KUHT-TV Channel 8 analog antenna's elevation pattern and Exhibit 7 displays the associated relative field values from 10° above the horizontal through 50° below the horizontal.

Exhibit 8 depicts the location of the KUHT-DT transmitter site on a USGS 7.5-Minute (Series) Topographic map.

Exhibit 9 is an FCC coverage contour map depicting the authorized KUHT-DT Channel 8 post-transition DTV facility's F(50,90) 36.0 dBuV/m noise limited contour (black) and the proposed KUHT-DT Channel 8 STA facility's F(50,90) 36.0 dBuV/m noise limited contour (red).

Exhibit 10 is a principal community contour map demonstrating that the proposed KUHT-DT Channel 8 STA facility's F(50,90) 43.0 dBuV/m Principal Community contour will completely encompass the entire principal community of Houston, TX.

Environmental Impact

The proposed KUHT-DT Channel 8 STA facility will have no significant environmental impact as defined in §1.1307 of the FCC Rules. The digital transmitter, 6-1/8 inch transmission



line and antenna system shall produce an ERP of 34.3 kW (circular polarization). Assuming the maximum lobe of radiation were oriented toward the base of the tower, the proposed KUHT-DT Channel 8 STA facility's power density six feet above the ground would be 0.0073 mW/cm^2 which equates to only be 0.73% of the Maximum Permissible Exposure (MPE) limits for Occupational/Controlled Exposure and only 3.67% of the MPE limits for General Population/Uncontrolled Exposure authorized by the American National Standards Institute (ANSI). Since operation of the proposed KUHT-DT Channel 8 STA facility would not exceed 5.0% of the MPE limit for Occupational/Controlled Exposure or General Population/Uncontrolled Exposure at any point on the ground, the proposed KUHT-DT STA facility is not considered a "significant contributor" to the RF exposure environment pursuant to OET Bulletin 65, Edition 97-01. Therefore, contributions of exposure from other sources were not accounted for in this analysis. It is safe to conclude that the emissions would be insignificant and well within the maximum allowable requirements.

If other antennas are placed on the tower in the future, the licensee will cooperate with those users by reducing or completely terminating the power to the antenna when maintenance workers are in danger from the electromagnetic radiation emanating from the antenna. It is also understood that additional antennas on the support structure could increase the overall RF exposure levels and it is the responsibility of each licensee to ensure that the total RF exposure resulting from the operation of all antennas on the support structure do not exceed the maximum permissible exposure level at any point on the ground.

Certification

This technical statement was prepared by William T. Godfrey, Telecommunications Consultant with Kessler and Gehman Associates, Inc. having offices in Gainesville, Florida and has been working in the field of radio and television broadcast consulting since 1998. He graduated from the University of North Florida with a Bachelor of Arts degree in Criminal Justice and a minor in Mathematics in 1993. As a Professional in the field of



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Telecommunications he states under penalty of perjury that the information contained in this report is true and correct to the best of his knowledge and belief.



KESSLER AND GEHMAN ASSOCIATES, INC.

WILLIAM T. GODFREY, JR.
Telecommunications Technical Consultant

15 January, 2009

KUHT-DT CHANNEL 8 STA

Houston, Texas

ENGINEERING SPECIFICATIONS

A. Transmitter Site:

Geographic coordinates (NAD27):

North Latitude 29° 34' 28"
West Longitude 95° 29' 37"

Transmitter Site Address: **5034 McHard Road**
Missouri City, TX (approximately 4 miles SE)

B. Main Studio Address:

4343 Elgin Street
Houston, Texas 77204-0008

Post-Transition Facility:

DTV Channel Number 8
Frequency 180-186 MHz
Offset N/A

C. Antenna Height:

Height of Site Above Mean Sea Level (AMSL) 24.0 M
Overall Height of Structure Above Ground 600.4 M
(including all appurtenances)
Overall Height of Structure Above Mean Sea Level 624.4 M
(including all appurtenances)
Height of Site Above Average Terrain 5.0 M
Antenna Height Radiation Center (R/C) Above Ground 561.0 M
Antenna Height R/C Above Mean Sea Level 585.0 M
Average of All Non-Odd Radials 19.0 M
Antenna Height R/C Above Average Terrain 566.0 M

D. System Parameters – Circular Polarization:

Transmitter Power Required: 7.0 kW
Maximum Power Input to Antenna: 5.3 kW
Transmission Line Loss: 1.21 dB
Transmission Line Efficiency: 75.7%
Maximum Antenna Gain in Beam Maximum: 8.14 dB
Maximum Antenna Gain in Horizontal Plane: 7.97 dB
Maximum Effective Radiated Power: 15.35 dBk
 In Beam Maximum: 34.3 kW
Maximum Effective Radiated Power: 15.18 dBk
 In Horizontal Plane: 33.0 kW

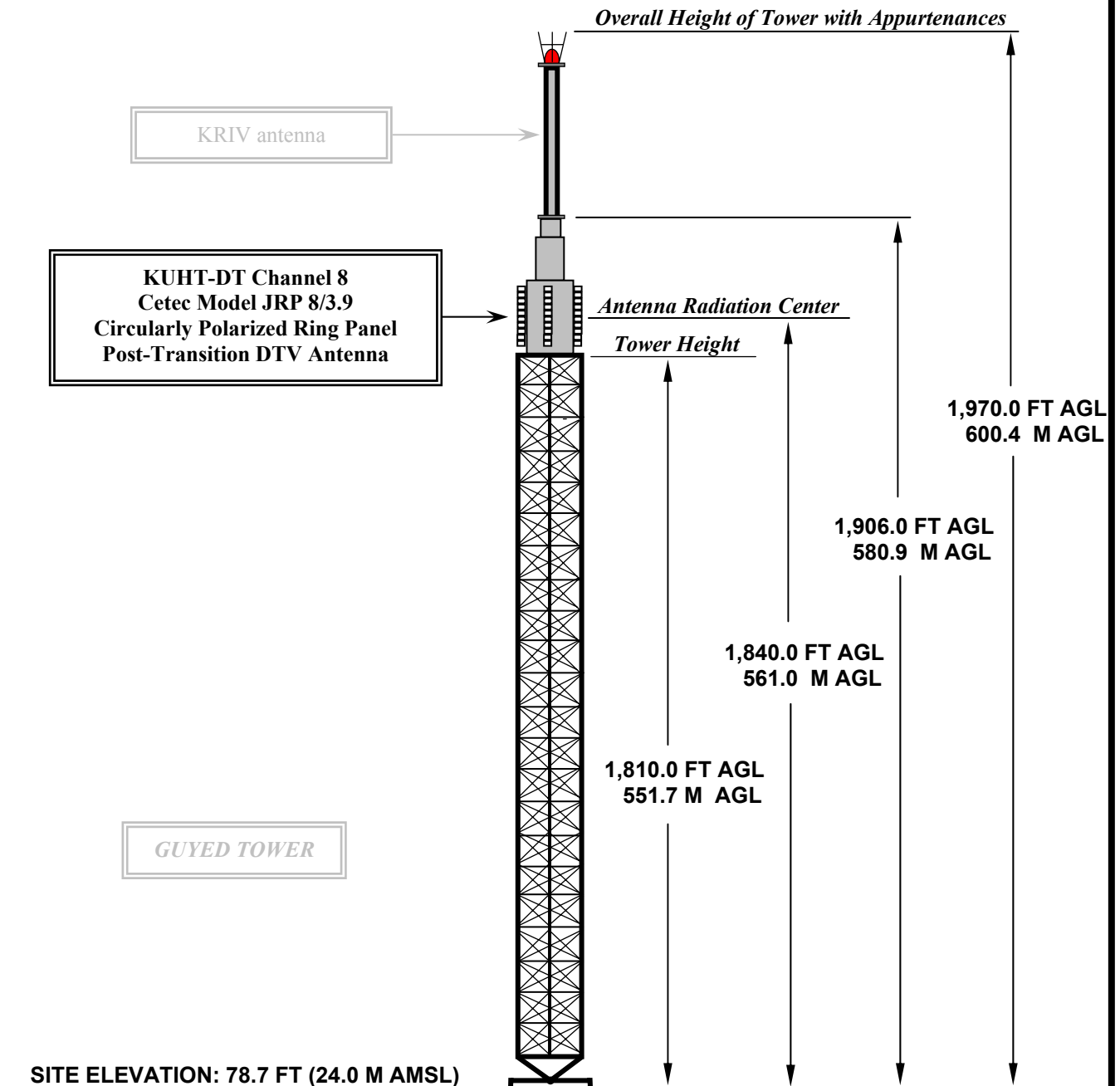
KUHT-DT CHANNEL 8 STA

Houston, Texas

DATA FOR PROPOSED DIRECTIONAL TRANSMITTING ANTENNA

- A. **Antenna:** Cetec Model JRP 8/3.9, Circularly Polarized, Directional, Ring Panel Antenna.
- B. **Electrical Beam Tilt:** 0.75 degrees
- C. **Mechanical Beam Tilt:** None
- D. **Maximum Power Gain**
Maximum: 6.52 (8.14 dB)
Horizontal: 6.26 (7.97 dB)
- E. **Transmitter Power Output:** 7.0 kW
- F. **Null Fill:** 15.0%
- G. **Transmission Line:** 6-1/8" 75 ohm Coaxial
- H. **Transmission Line Loss:** 0.063 dB/100-feet
- I. **Total Transmission Line:** 1,920 feet (585.2 m)
- J. **Transmission Line Attenuation:** 1.21 dB

KUHT-DT STA ELEVATION VIEW



OVERALL HEIGHT AGL: 600.4 M
OVERALL HEIGHT AMSL: 624.4 M
RADIATION CENTER AGL: 561.0 M
RADIATION CENTER AMSL: 585.0 M
RADIATION CENTER HAAT: 566.0 M
AVG OF ALL NON-ODD RADIALS: 19.0 M
SITE HAAT: 5.0 M

COORDINATES (NAD 27):
N. LATITUDE 29° 34' 28"
W. LONGITUDE 95° 29' 37"
Antenna Structure Registration Number:
1028555

NOTE: NOT TO SCALE

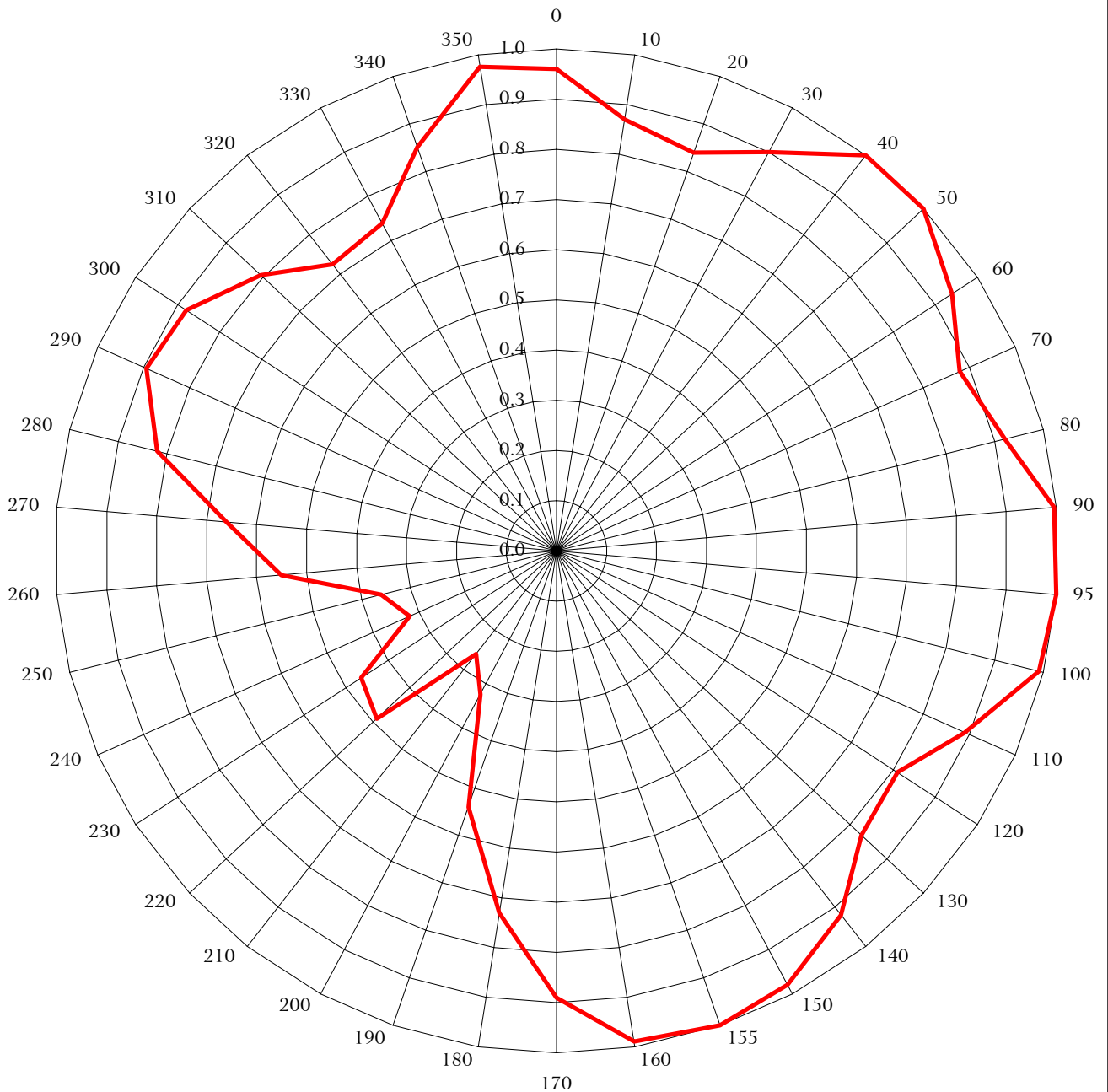
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HOUSTON, TEXAS

20090106

EXHIBIT 3

RELATIVE FIELD AZIMUTH PATTERN



CETEC ANTENNA

TYPE NUMBER: JRP-8

FREQUENCY: 180 MHZ - 186 MHZ

PEAK DIRECTIONAL GAIN: 6.52 (8.14 dB)

ELECTRICAL BEAM TILT: 0.75°

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20090107

EXHIBIT 4

KUHT-DT CHANNEL 8 STA

Houston, Texas

COMPOSITE TABULATION OF ANTENNA AZIMUTH PATTERN

<u>AZIMUTH</u>	<u>RELATIVE FIELD</u>	<u>AZIMUTH</u>	<u>RELATIVE FIELD</u>
N000°E	0.960	N180°E	0.730
N010°E	0.870	N190°E	0.540
N020°E	0.840	N200°E	0.324
N030°E	0.900	N210°E	0.260
N040°E	1.000	N220°E	0.490
N050°E	1.000	N230°E	0.465
N060°E	0.940	N240°E	0.320
N070°E	0.880	N250°E	0.360
N080°E	0.920	N260°E	0.550
N090°E	0.996	N270°E	0.660
N100°E	0.990	N280°E	0.820
N110°E	0.890	N290°E	0.895
N120°E	0.810	N300°E	0.880
N130°E	0.830	N310°E	0.805
N140°E	0.920	N320°E	0.725
N150°E	0.980	N330°E	0.740
N160°E	0.989	N340°E	0.850
N170°E	0.890	N350°E	0.976

MAXIMUM RELATIVE FIELD OF 1.000 AT N40°E, N50°E, N95°E & N155°E

MINIMUM RELATIVE FIELD OF 0.260 AT N210°E



KUHT-DT CHANNEL 8 STA

Houston, Texas

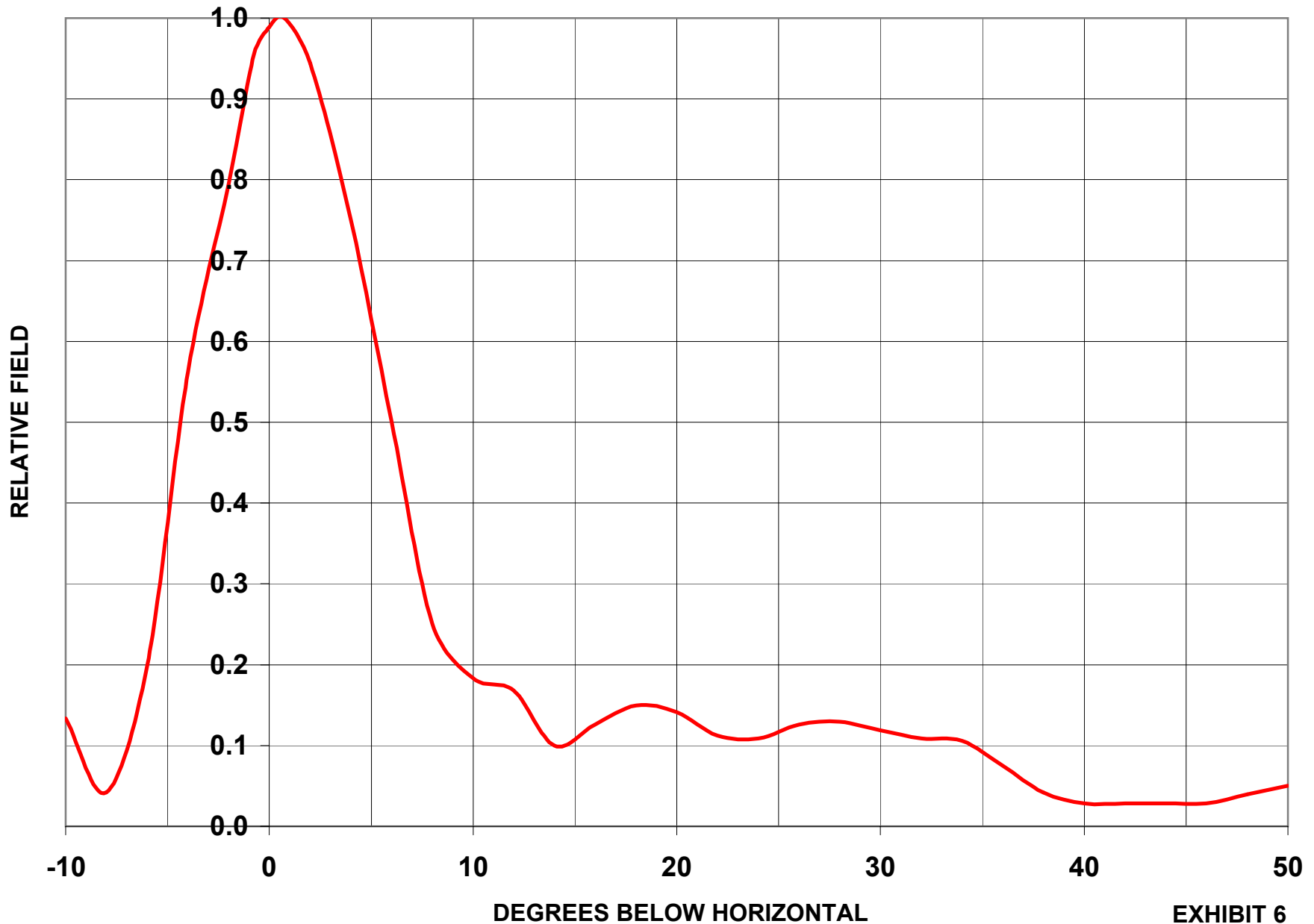
20090107

EXHIBIT 5

ELEVATION PATTERN

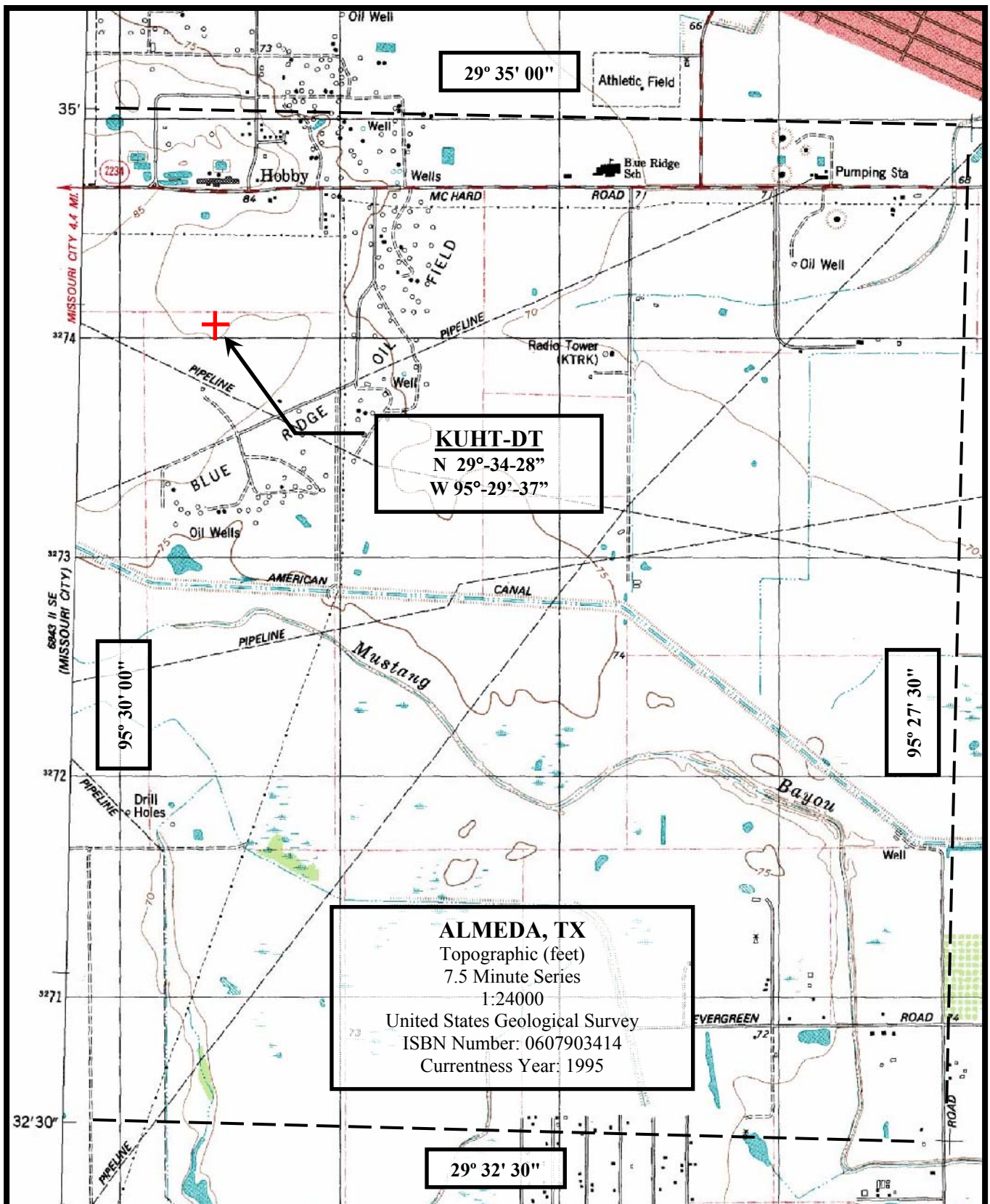
Electrical Beam Tilt: 0.75 deg

Antenna Type: Cetec model JRP 8/3.9
Location: Houston, TX
Customer: KUHT
Date: 01/07/2009

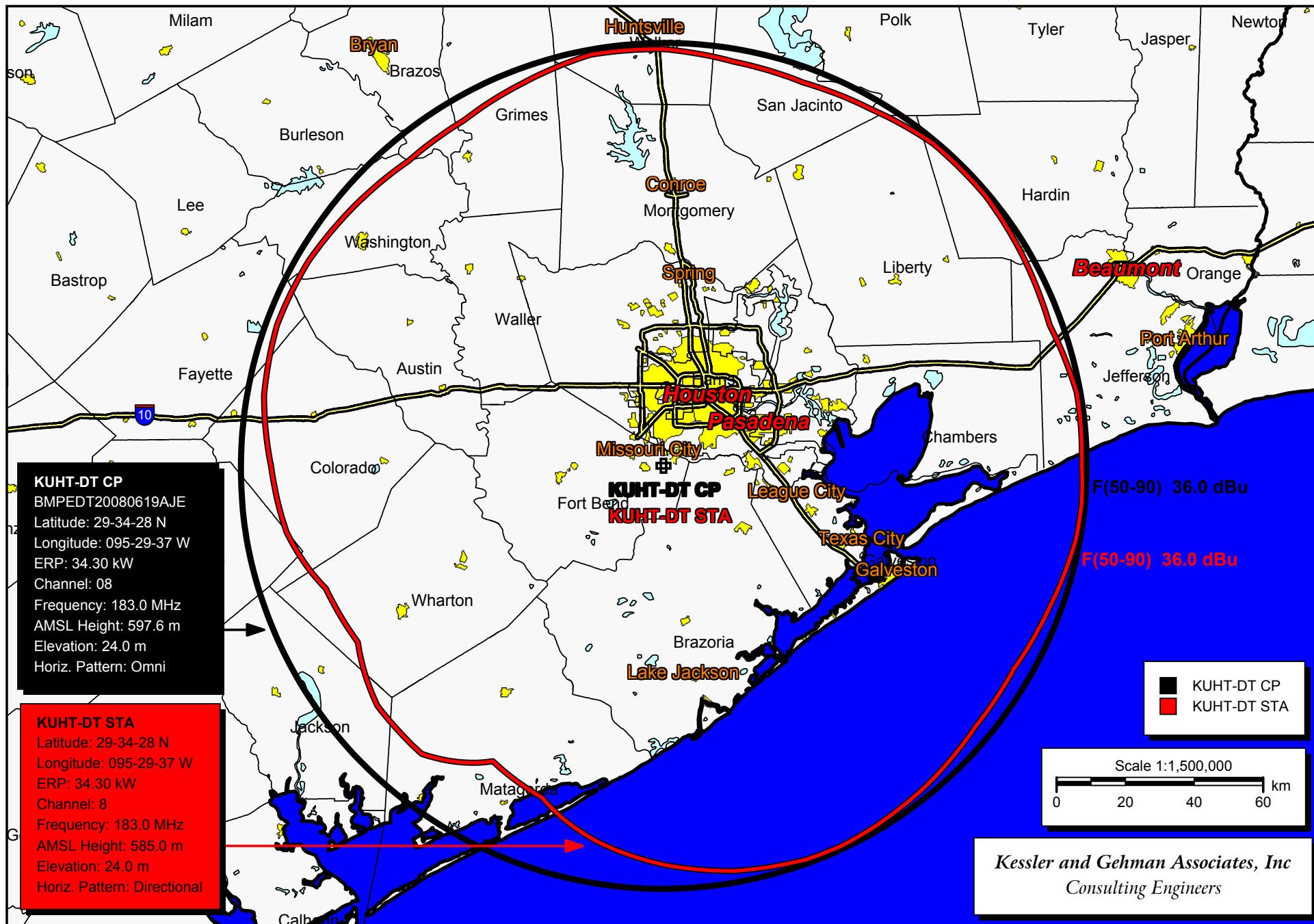


TABULATION OF ELEVATION PATTERN

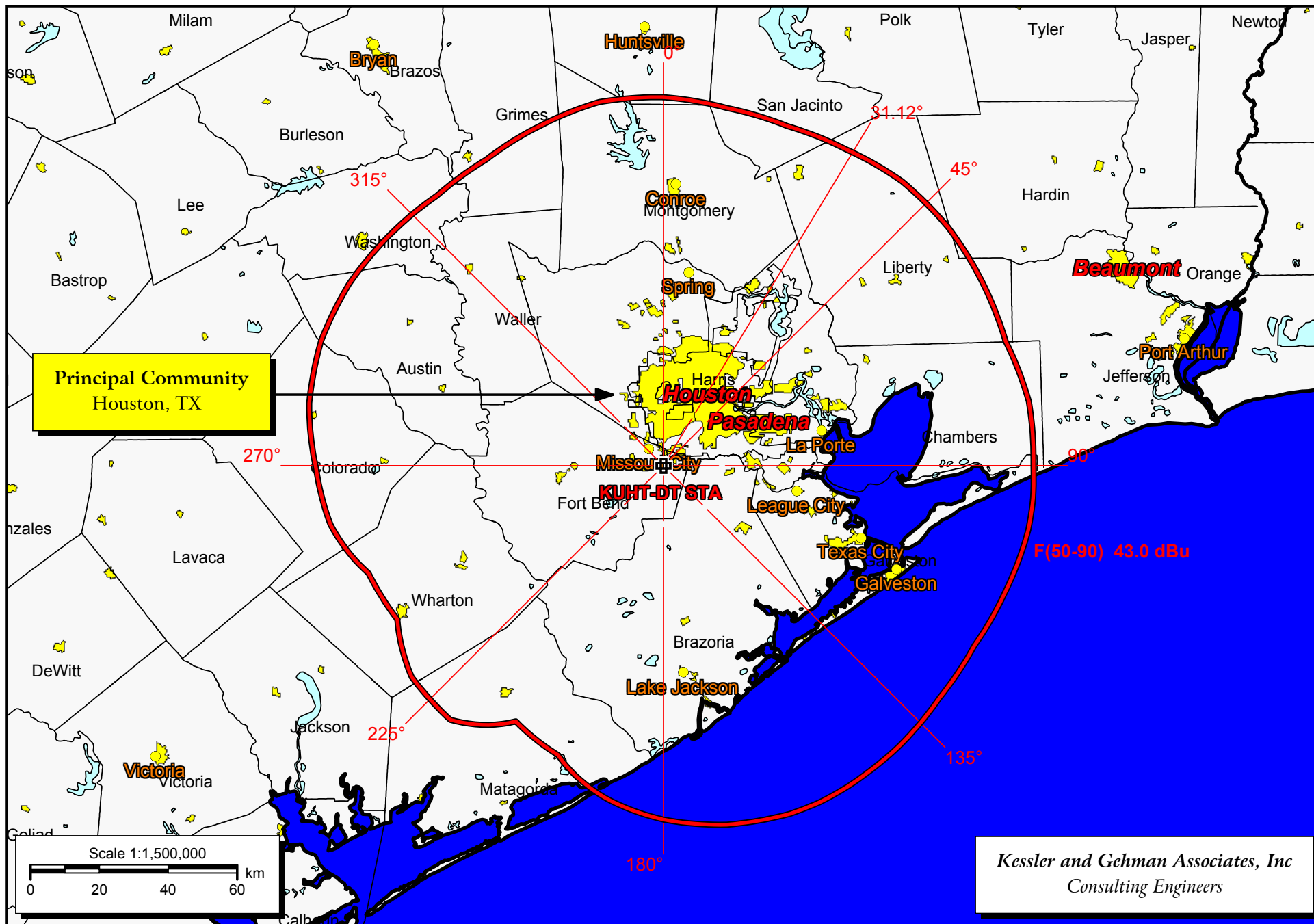
ANGLE	FIELD	dB
-10.0	0.13	-17.5
-8.0	0.04	-27.5
-6.0	0.20	-14.0
-4.0	0.56	-5.0
-2.0	0.79	-2.0
-0.75	0.95	-0.4
0.0	0.99	-0.1
0.75	1.00	0.0
2.0	0.94	-0.5
4.0	0.75	-2.5
6.0	0.50	-6.0
8.0	0.25	-12.0
10.0	0.18	-14.8
12.0	0.17	-15.5
14.0	0.10	-20.0
16.0	0.13	-18.0
18.0	0.15	-16.5
20.0	0.14	-17.0
22.0	0.11	-19.0
24.0	0.11	-19.3
26.0	0.13	-18.0
28.0	0.13	-17.8
30.0	0.12	-18.5
32.0	0.11	-19.3
34.0	0.11	-19.5
36.0	0.07	-22.5
38.0	0.04	-27.5
40.0	0.03	-31.0
42.0	0.03	-31.0
44.0	0.03	-31.0
46.0	0.03	-31.0
48.0	0.04	-28.0
50.0	0.05	-26.0



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KUHT-DT CP F(50,90) 36.0 dBu Contour (black) vs. KUHT-DT STA F(50,90) 36.0 dBu Contour (red)



KUHT-DT STA F(50,90) 43.0 dBuV/m Principal Community Contour