

**Exhibit A**  
Technical Exhibit



**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 PETITION FOR RECONSIDERATION OF THE SEVENTH REPORT AND ORDER AND EIGHTH FURTHER NOTICE OF PROPOSED RULE MAKING WITH RESPECT TO THE UNIVERSITY OF HOUSTON SYSTEM (UHS) POST-TRANSITION DIGITAL BROADCAST FACILITY, KUHT-DT CHANNEL \*8, HOUSTON, TEXAS.**

The firm Kessler and Gehman Associates, Inc. has been retained by the University of Houston System (UHS), Houston, Texas, licensee of analog broadcast facility KUHT-TV Channel \*8 and digital station KUHT-DT Channel \*9, to prepare an engineering analysis in support of a Petition for Reconsideration of the Seventh Report and Order and Eighth Further Notice of Proposed Rule Making (7<sup>th</sup> R&O) with respect to the operating parameters assigned to the KUHT-DT Channel \*8 post-transition facility as adopted in the Final DTV Table of Allotments (TOA).

**Discussion**

The purpose of this engineering statement is to respectfully bring to the Commission's attention that the KUHT-DT Channel \*8 facility, as depicted in the Final DTV Table of Allotments (TOA), will fall well short of replicating its pre-transition DTV facilities, but that this situation can be corrected if KUHT-DT is permitted to use the existing antenna now in use for both KUHT(TV) on Channel \*8 and KUHT-DT on Channel \*9..

KUHT-TV is licensed to operate on Channel \*8 using a directional antenna. UHS is repatriating back to Channel \*8 as authorized in the final DTV TOA for its post-transition DTV operation and it intends to use the existing Channel \*8 directional, top-mount antenna that has been in place for years. UHS filed comments in January 2007 notifying the Commission that the proposed DTV TOA, as depicted in the Seventh Further Notice of Proposed Rule Making,



contemplated an unnecessarily low power level and specified an incorrect antenna ID. The Final DTV TOA, as adopted in the Seventh Report and Order and Eighth Further Notice of Proposed Rule Making (7th R&O), now specifies an increased power level for KUHT-DT of 21.9 kW; however, the Commission did not correct the antenna ID. In most cases, the Commission explained in the 7th R&O why stations received or did not receive changes to station parameters in the Final DTV TOA; however, the Commission did not make any reference to KUHT with respect to the antenna pattern. UHS is pleased that the Commission did change the ERP from 8.4 kW in the proposed DTV TOA to 21.9 kW in the final DTV TOA; however, because the antenna pattern was not changed to match the Channel 8 azimuth pattern, UHS will be forced to acquire and install at great expense a new antenna or, due to the filing freeze restrictions, reduce the ERP well below the specified 21.9 kW if it has to use the antenna specified in the Final DTV TOA.

The FCC stated in its 7th R&O (Para. 26) that when proposed changes to the DTV Table and/or Appendix B are consistent and do not create new post-transition interference to a TCD of more than 0.1%, the request is granted. The Commission also stated in paragraph 35 that it asked licensees to review the accuracy of their information contained in the proposed DTV Table Appendix B and comment on any inaccuracies or discrepancies in this information. UHS did just as the FCC requested and filed comments in January 2007 based on, inter alia, an incorrect antenna ID specified in the proposed DTV TOA. UHS filed detailed information demonstrating that the antenna ID did not match its licensed DTV or NTSC pattern which is critical since KUHT operates with a dual-channel antenna for its licensed NTSC \*8 and DTV \*9 operation that will be used for its post-transition digital operation on Channel \*8. UHS also filed a Longley-Rice interference study supporting its January 2007 comments demonstrating that the post-transition KUHT-DT Channel \*8 facility with an ERP of 21.9 kW using antenna ID 18548 (licensed pattern) would not cause more than 0.1% additional interference to any post-transition DTV station (Exhibit 4). Accordingly, based on the Commission's comments in Para. 26 of the 7th R&O, the antenna ID should have been changed to ID No. 18548 as requested. The antenna ID change would be consistent since UHS is clearly requesting nothing more than it already has



and is licensed to operate with and the antenna change is compliant since it would meet the 0.1% additional interference threshold requirement with an ERP of 21.9 kW using antenna ID 18548.

The antenna issue goes back many years and wasn't actually corrected until 2004 when the Commission established the "CDBS Clean-up" in preparation for the channel election process for future post-transition digital channels. UHS submitted documentation to the FCC staff via e-mail demonstrating that the FCC had the incorrect antenna azimuth pattern in its Consolidated Data Base System (CDBS). The FCC recognized the error and updated the CDBS with the correct antenna azimuth pattern. When UHS subsequently filed its certification application and elected "replication," it understandably assumed that the FCC would use the correct antenna azimuth pattern since within just a matter of days prior to filing the certification application; the FCC corrected the antenna azimuth pattern on its CDBS.

Again, the FCC stated in Para. 38 of the 7th R&O that it would permit stations to file comments proposing to modify their certified facilities to match their authorized or constructed facilities and that the changes to the facilities would be reflected on the DTV Table Appendix B as long as the 0.1% additional interference requirement is met. UHS demonstrated in its January 2007 comments and again herein that changing the antenna ID to No. 18548 would match its constructed facility and would not violate the 0.1% additional interference criteria. It should also be recognized that changing the antenna ID would eliminate the financial burden of having to purchase a new antenna and it would benefit the public by continuing to serve the diverse population that has enjoyed the KUHT programming for many years.

Exhibit 1 depicts the post-transition antenna azimuth pattern as specified in the Final DTV TOA (Antenna ID: 80228) and the Exhibit 2 depicts the licensed KUHT-TV Channel \*8, licensed KUHT-DT Channel \*9, and proposed post-transition KUHT-DT Channel \*8 antenna azimuth pattern (Antenna ID: 18548). The azimuth pattern assigned in the Final DTV TOA and the licensed pattern used by KUHT-TV/DT and proposed for the post-transition facility are both directional cardioid patterns; however, the patterns are not identical. Exhibit 3 is a contour



comparison map depicting the following: 1) KUHT-DT Channel \*8 F(50,90) 36.0 dBuV/m protected noise limited contour (red) as specified in the Final DTV TOA; 2) proposed KUHT-DT Channel \*8 F(50,90) 36.0 dBuV/m protected noise limited contour (magenta) using the licensed KUHT analog/digital dual channel antenna azimuth pattern; and 3) licensed KUHT-TV Channel \*8 F(50,50) 56.0 dBuV/m protected Grade B contour (dashed black). Referring to Exhibit 3, it can be seen that proposed KUHT-DT Channel \*8 facility using the existing antenna and 21.9 kW ERP (magenta contour) would come much closer to replication (dashed black) than the KUHT-DT Channel \*8 post-transition facility as specified in the Final DTV TOA (red). In fact, the area that the KUHT-DT Channel \*8 Final DTV TOA F(50,90) 36.0 dBuV/m noise limited contour (red) would exceed the proposed noise limited contour (magenta) is 448.25 sq. km while the area that the proposed noise limited contour (magenta) would exceed the Final DTV TOA noise limited contour (red) is only 360.52 sq km (see Exhibit 3). Therefore, UHS's request to have the antenna ID changed would actually reduce the size of its overall coverage contour by 87.73 sq. km which further confirms that UHS is not asking for more than it is currently authorized and is simply requesting an antenna ID change so that it can replicate and continue to serve it's the population it has served for so many years.

The Commission recently sought input from stations that may be unable to build precisely the facilities specified in the final DTV TOA. The Commission asked if such stations are prohibited from expanding beyond their DTV Table Appendix B facilities will they instead be required to reduce their facilities so significantly that they will be unable to provide adequate service? It also asked for comments on whether the FCC should allow stations that fall into this situation to expand beyond their DTV Table Appendix B facilities to the extent necessary to address the difference between the theoretical facilities specified in the new DTV Table Appendix B and the actual facilities which they are able to build? UHS responded via recent filing comments requesting that stations be permitted to expand beyond their DTV Table Appendix B facilities when minor changes to antenna patterns are required to permit the station to replicate its current DTV facilities. In the case for UHS, the public interest would clearly be served by changing the antenna ID from No. 80228 to No. 18548.



As stated in paragraph 25 of the 7<sup>th</sup> R&O, the Commission received comments and reply comments in response to the Seventh Further Notice of Proposed Rule Making (7<sup>th</sup> FNPRM) and its goal was to accommodate the requests made by commenters to the extent possible consistent with the standards outlined in the 7<sup>th</sup> FNPRM, and particularly the 0.1 percent interference standard. The Commission stated in paragraph 26 of the 7<sup>th</sup> R&O that proposed changes to the DTV Table and/or Appendix B that are consistent with the standards outlined in the 7<sup>th</sup> FNPRM and do not create new post-transition interference to a tentative channel designation (TCD) of more than 0.1 percent would be granted. The FCC increased the KUHT-DT Channel \*8 post-transition ERP from 8.4 kW in the “Proposed DTV TOA” to 21.9 kW in the “Final DTV TOA” as UHS requested; although, it did not change the antenna ID from No. 80228 to No. 18548 as requested by UHS so that the KUHT-DT Channel \*8 post-transition facility could continue to operate with its existing antenna. The FCC did in fact change the antenna ID from No. 74357 in the “Proposed DTV TOA” to antenna ID No. 80228 in the “Final DTV TOA” but it unclear why this change was made because the patterns are exactly the same (Exhibit 4).

Changing the antenna ID from No. 80228 (Final DTV TOA) to No. 18548 (Licensed antenna) would not result in new post-transition interference to a TCD of more than 0.1 percent. This can be seen by referring to Exhibits 5 through 10. Exhibit 5 is a Longley-Rice interference study depicting predicted interference from the KUHT-DT Channel \*8 facility, as adopted in the Final DTV TOA, to all applicable surrounding pre-transition stations. The red cells within the KPLC-DT Channel 8 facility’s F(50,90) 36.0 dBuV/m protected noise limited contour indicates that it would be predicted to receive interference from the KUHT-DT Channel \*8 (Final DTV TOA) facility. Exhibit 6 is a population report that was calculated from the Longley-Rice study in Exhibit 5. Referring to Exhibit 6, it can be seen that the KUHT-DT Channel \*8 (Final DTV TOA) facility is predicted to cause interference to the following stations:

- 0.1% interference to KLRN-DT Channel 8 license
- 0.2% interference to KLRN-DT Channel 8 allotment
- 1.2% interference to KPLC-DT Channel 8 license



- 0.1% interference to WFAA-TV Channel 8 (license)

In order to determine if additional interference would be predicted to exist, it is required to run the Longley-Rice interference study again except this time the proposed antenna pattern must be used (Antenna ID No. 18548). Exhibit 7 is the same Longley-Rice study as Exhibit 5 except the KUHT-DT Channel \*8 facility's antenna pattern was changed from No. 80228 to No. 18548. It appears that the interference did not change when looking at Exhibit 7; nevertheless, the population report (Exhibit 8) that was calculated from this study (Exhibit 7) indicates that the interference increased by 0.2% for the KLRN-DT Channel 8 license/allotment as well as the KPLC-DT license and decreased to 0.0% for the WFAA-TV license. However, KLRN-DT released Channel 8 (co-channel) and will be moving to Channel 9 (1<sup>st</sup>-adjacent channel) for post-transition operation and KPLC-DT released Channel 8 (co-channel) and will be moving to Channel 7 (1<sup>st</sup>-adjacent channel) for post-transition operation. Therefore, another study is required to determine if the antenna change would result in new post-transition interference to a TCD of more than 0.1 percent. Exhibit 9 is the post-transition Longley-Rice interference study with KUHT-DT Channel \*8 using the proposed antenna (Antenna ID No. 18548) and Exhibit 10 is the population report that was calculated from the Longley-Rice interference study in Exhibit 9. Referring to both exhibits, it can clearly be seen that the proposed antenna pattern change would not result in new post-transition interference to a TCD of more than 0.1 percent. Accordingly, the Commission should change the antenna ID from No. 80228 to No. 18548.

### **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 Telecommunications he states under



**Kessler and Gehman Associates, Inc.**

Telecommunications Consulting Engineers

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

26 October, 2007

## KUHT-DT Channel \*8 Final DTV TOA Azimuth Pattern & Tabulation

Antenna Make	Model	Service	Antenna Id
N08	TXHOUSTON__08	DT	80228

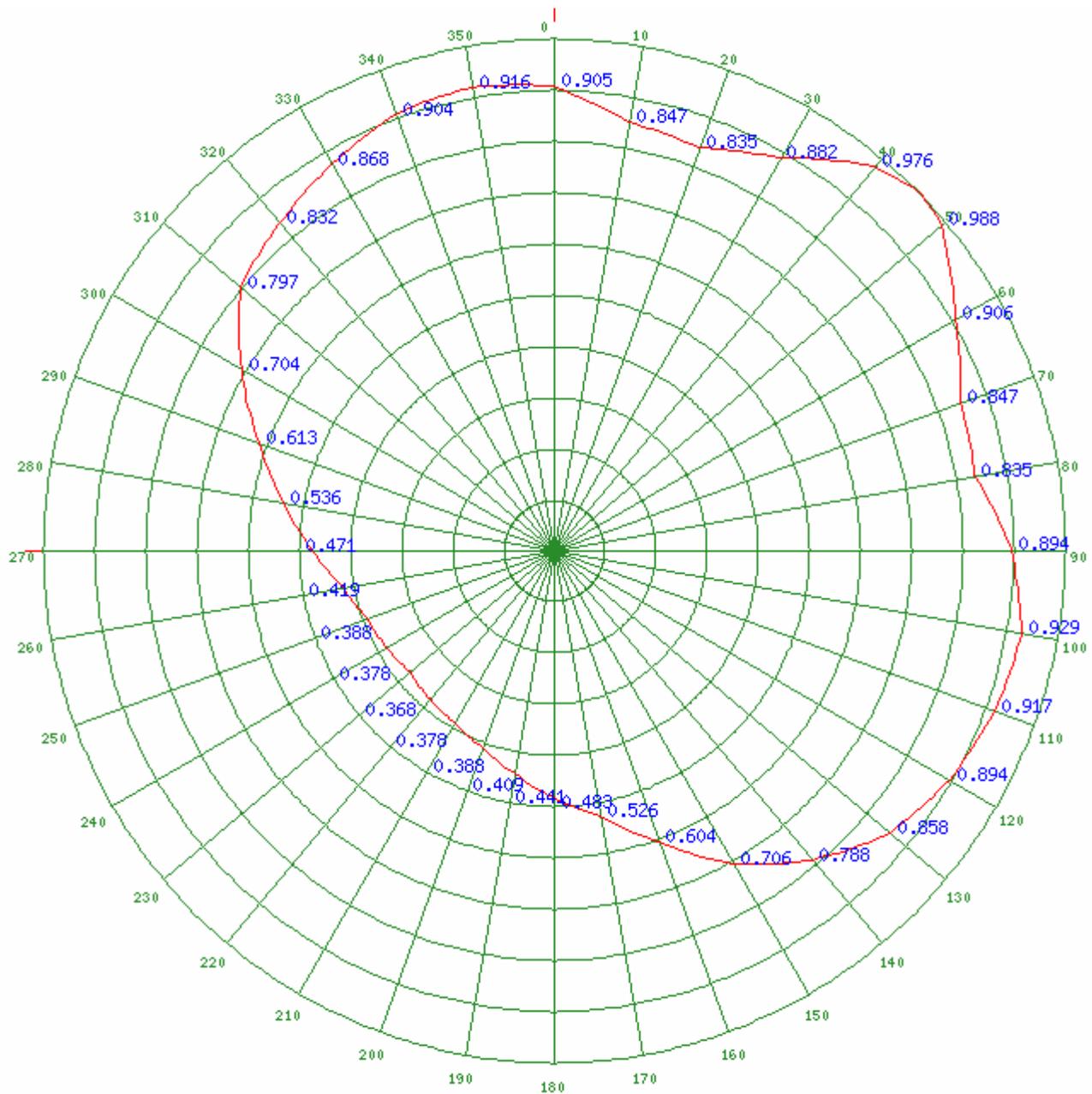
Antenna relative field values:

0° 0.905	10° 0.847	20° 0.835	30° 0.882	40° 0.976	50° 0.988
60° 0.906	70° 0.847	80° 0.835	90° 0.894	100° 0.929	110° 0.917
120° 0.894	130° 0.858	140° 0.788	150° 0.706	160° 0.604	170° 0.526
180° 0.483	190° 0.441	200° 0.409	210° 0.388	220° 0.378	230° 0.368
240° 0.378	250° 0.388	260° 0.419	270° 0.471	280° 0.536	290° 0.613
300° 0.704	310° 0.797	320° 0.832	330° 0.868	340° 0.904	350° 0.916

Additional Azimuths:

46°	1
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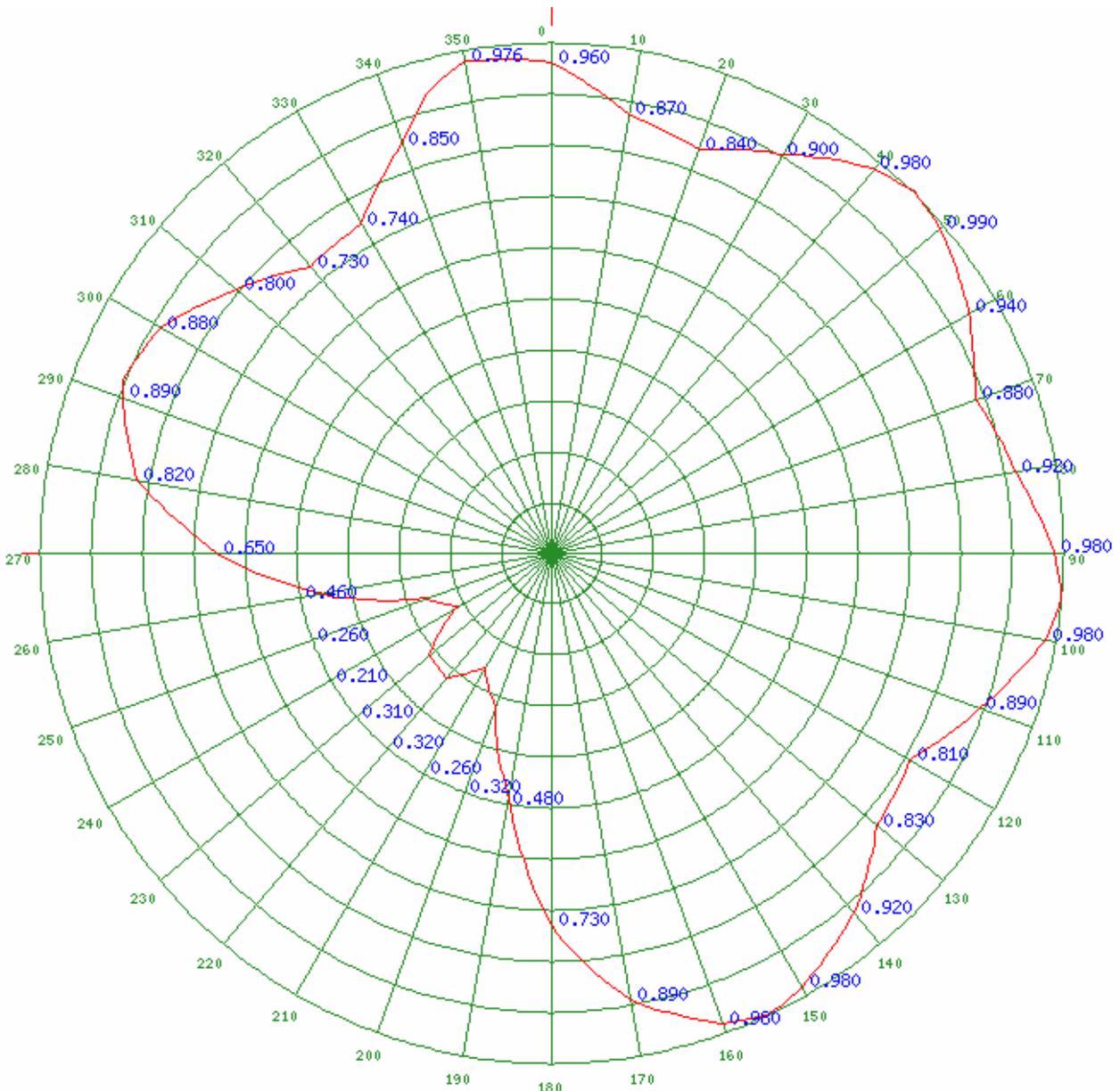
Relative Field Polar Plot

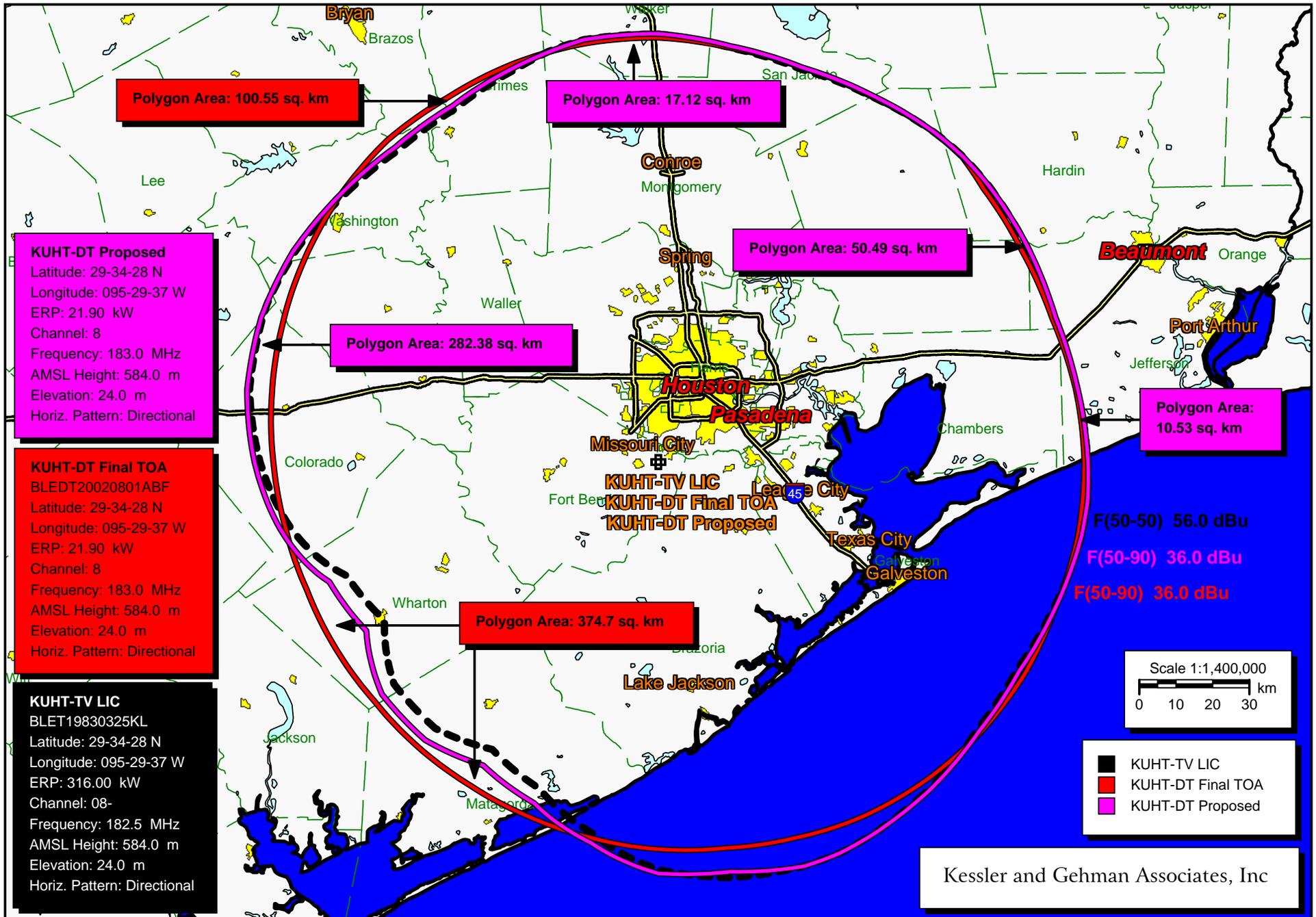


## KUHT-DT Channel \*8 Proposed Azimuth Pattern & Tabulation

Antenna Make	Model	Service	Antenna Id
CET	JRP 8/3.9	TV	18548
Antenna relative field values:			
0° 0.96	10° 0.87	20° 0.84	30° 0.9
40° 0.98	50° 0.99	60° 0.94	70° 0.88
80° 0.92	90° 0.98	100° 0.98	110° 0.89
120° 0.81	130° 0.83	140° 0.92	150° 0.98
160° 0.98	170° 0.89	180° 0.73	190° 0.48
200° 0.32	210° 0.26	220° 0.32	230° 0.31
240° 0.21	250° 0.26	260° 0.46	270° 0.65
280° 0.82	290° 0.89	300° 0.88	310° 0.8
320° 0.73	330° 0.74	340° 0.85	350° 0.976
Additional Azimuths:			
95° 1	345° 0.93	45° 1	155° 1
292° 0.9			

Relative Field Polar Plot



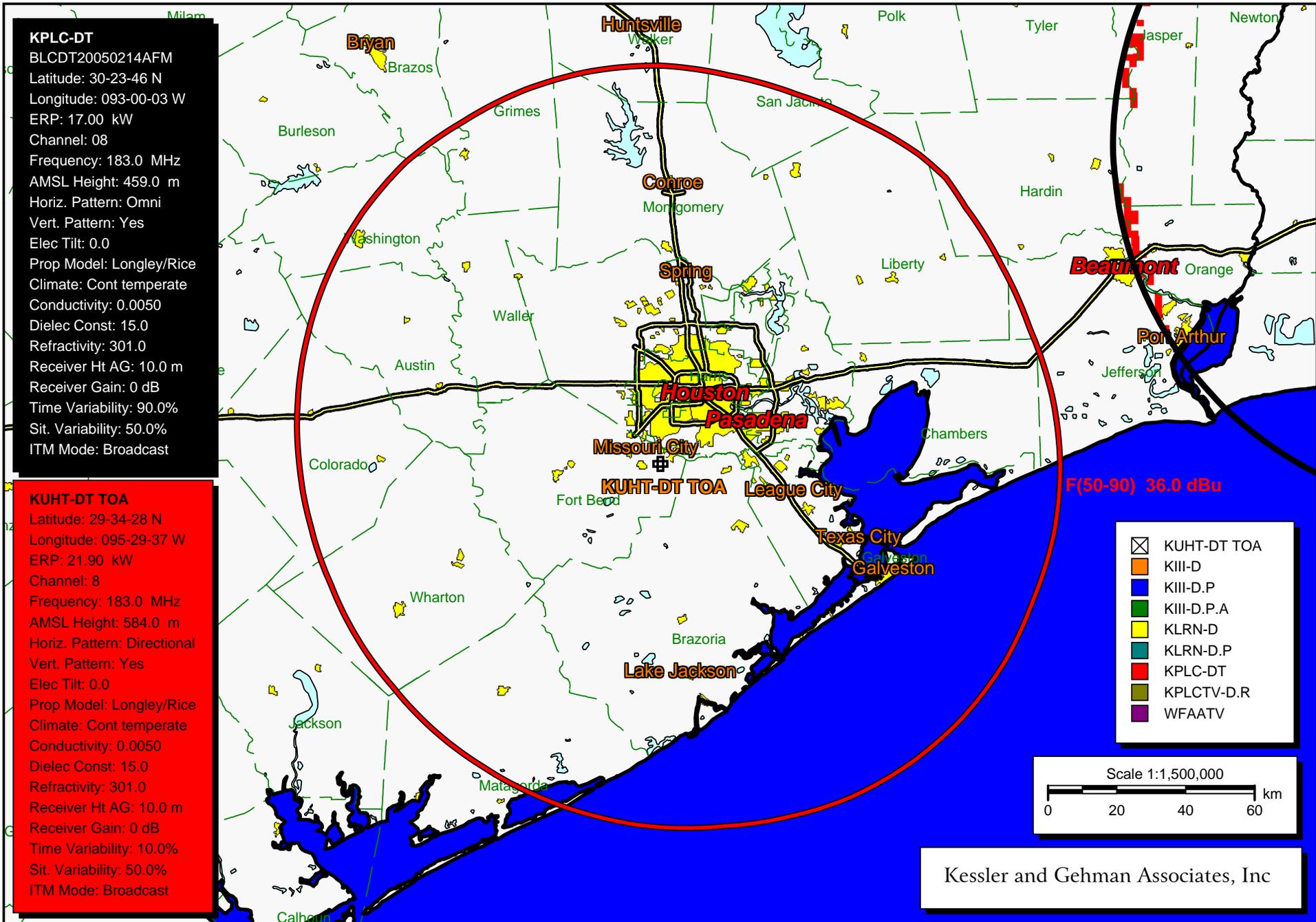


KUHT-TV LIC, KUHT-DT Final DTV TOA & KUHT-DT (Proposed) Service Contours

FCC Antenna Azimuth Pattern Tabulation Values for Antenna ID 74357 and Antenna ID 80228

Antenna Make	Model		Service	Antenna Id
D09	TXHOUSTON__08		DT	74357
Antenna relative field values:				
0° 0.905	10° 0.847	20° 0.835	30° 0.882	40° 0.976
60° 0.906	70° 0.847	80° 0.835	90° 0.894	100° 0.929
120° 0.894	130° 0.858	140° 0.788	150° 0.706	160° 0.604
180° 0.483	190° 0.441	200° 0.409	210° 0.388	220° 0.378
240° 0.378	250° 0.388	260° 0.419	270° 0.471	280° 0.536
300° 0.704	310° 0.797	320° 0.832	330° 0.868	340° 0.904
350° 0.916				
Additional Azimuths:				
47°	1			
<a href="#">Relative Field Polar Plot</a>				

Antenna Make	Model		Service	Antenna Id
N08	TXHOUSTON__08		DT	80228
Antenna relative field values:				
0° 0.905	10° 0.847	20° 0.835	30° 0.882	40° 0.976
60° 0.906	70° 0.847	80° 0.835	90° 0.894	100° 0.929
120° 0.894	130° 0.858	140° 0.788	150° 0.706	160° 0.604
180° 0.483	190° 0.441	200° 0.409	210° 0.388	220° 0.378
240° 0.378	250° 0.388	260° 0.419	270° 0.471	280° 0.536
300° 0.704	310° 0.797	320° 0.832	330° 0.868	340° 0.904
350° 0.916				
Additional Azimuths:				
46°	1			
<a href="#">Relative Field Polar Plot</a>				



KUHT-DT Channel \*8 (Final DTV TOA) Longley-Rice Outbound Interference Study

Outgoing Longley-Rice Interference Population Report

KUHT-DT TOA (8) Houston, TX  
 Broadcast Type: Digital Service: T  
 Lat: 29-34-28 N Lng: 095-29-37 W ERP: 21.9 kW AMSL: 584.0 m  
 DTV Outgoing Interference Study  
 Signal Resolution: 2.0 km  
 Consider NTSC Taboo: Yes  
 # of radials computed for contours: 72  
 Contours calculated using 8 radial HAAT.  
 LR Profile Spacing Increment: 1.0 km  
 Masked interference points are being counted as interference.  
 Pop Centroid DB: 2000 US Census (SF1,Housing)

Study Date: 10/23/2007  
 TV Database Date: 10/23/2007

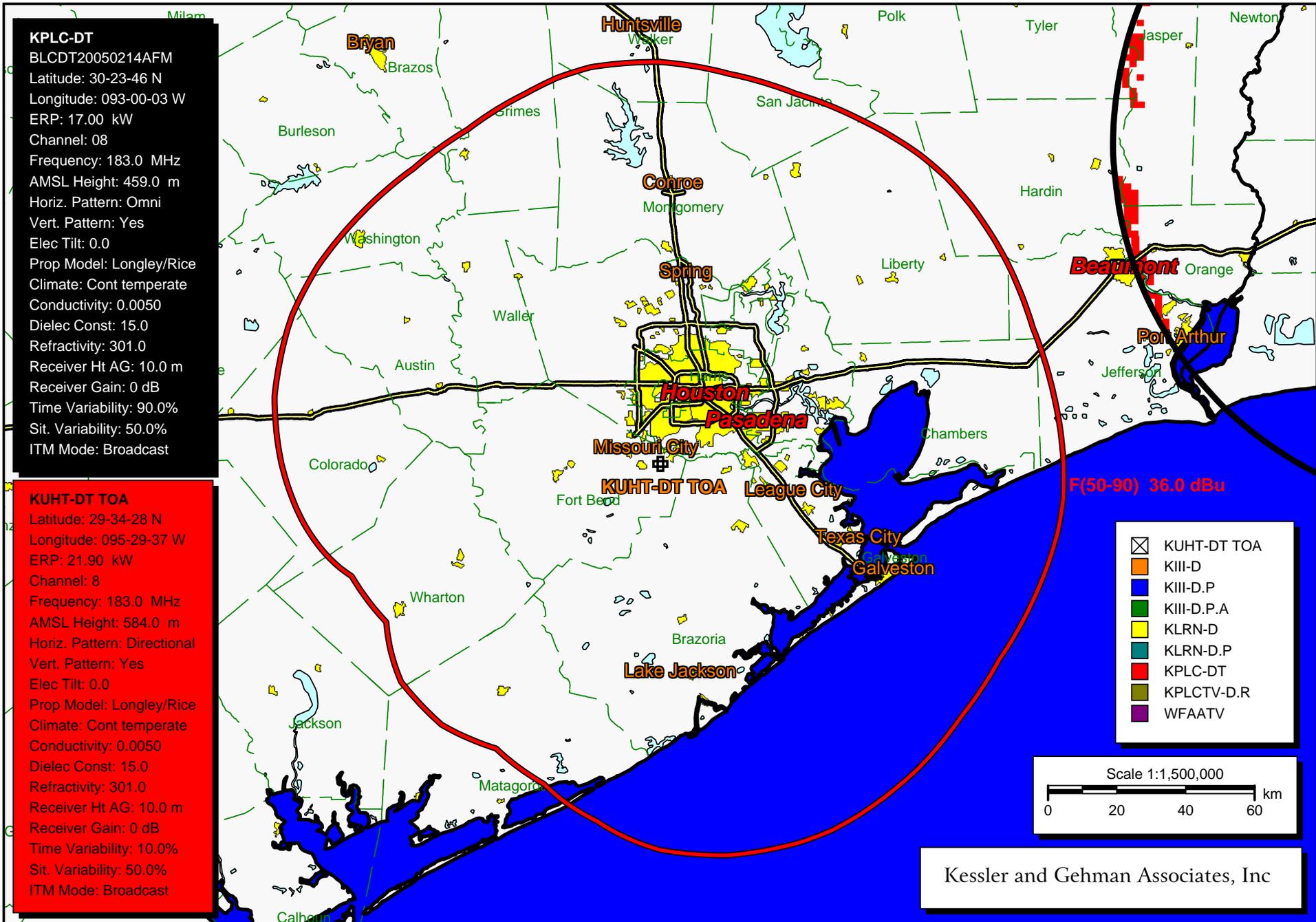
Primary Terrain: 3 Second US Terrain

Population Database: 2000 US Census (SF1)

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 Stations Considered:

Call Letters	City	State	Dist	Bear
KIII-D (08)	Corpus Christi	TX	295.9	224.7
KIII-D.P (08)	Corpus Christi	TX	295.9	224.7
KIII-D.P.A (08)	Corpus Christi	TX	295.9	224.7
KLRN-D (08)	San Antonio	TX	278.9	265.1
KLRN-D.P (08)	San Antonio	TX	278.9	265.1
KPLC-D (08)	Lake Charles	LA	257.2	68.6
KPLCTV-D.R (8)	LAKE CHARLES	LA	257.0	68.7
WFAATV (08Z)	Dallas	TX	362.5	337.4

Call	Area	HUnits	Contour	Masked Ix	Unmasked Ix	%
KIII-D (08)	4.3	0	545,302	0	0	0.0
KIII-D.P (08)	12.8	0	548,257	0	0	0.0
KIII-D.P.A (08)	12.8	0	548,257	0	0	0.0
KLRN-D (08)	76.3	922	1,813,489	0	2,634	0.1
KLRN-D.P (08)	101.8	1,141	1,811,907	0	3,133	0.2
KPLC-D (08)	218.7	5,143	1,014,755	0	12,014	1.2
KPLCTV-D.R (8)	25.1	80	676,219	0	206	0.0
WFAATV (08Z)	62.3	1,578	5,466,632	0	3,817	0.1



KUHT-DT Channel \*8 (Proposed) Longley-Rice Outboud Interference Study

Outgoing Longley-Rice Interference Population Report

KUHT-DT TOA (8) Houston, TX  
 Broadcast Type: Digital Service: T  
 Lat: 29-34-28 N Lng: 095-29-37 W ERP: 21.9 kW AMSL: 584.0 m  
 TV Outgoing Interference Study  
 Signal Resolution: 2.0 km  
 Consider NTSC Taboo: Yes  
 # of radials computed for contours: 72  
 Contours calculated using 8 radial HAAT.  
 LR Profile Spacing Increment: 1.0 km  
 Masked interference points are being counted as interference.  
 Pop Centroid DB: 2000 US Census (SF1,Housing)

Study Date: 10/23/2007  
 TV Database Date: 10/23/2007

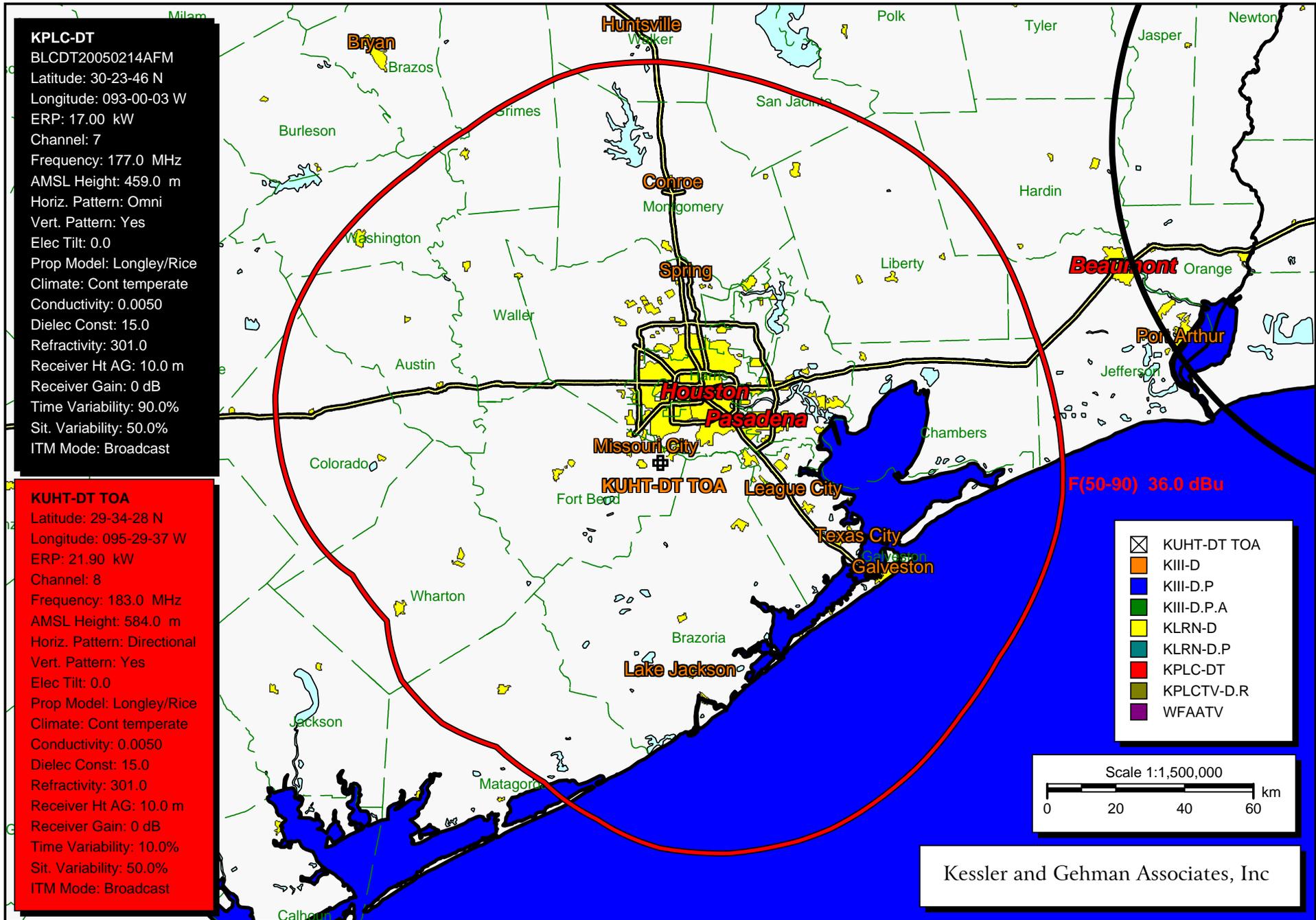
Primary Terrain: 3 Second US Terrain

Population Database: 2000 US Census (SF1)

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 Stations Considered:

Call Letters	City	State	Dist	Bear
KIII-D (08)	Corpus Christi	TX	295.9	224.7
KIII-D.P (08)	Corpus Christi	TX	295.9	224.7
KIII-D.P.A (08)	Corpus Christi	TX	295.9	224.7
KLRN-D (08)	San Antonio	TX	278.9	265.1
KLRN-D.P (08)	San Antonio	TX	278.9	265.1
KPLC-DT (08)	Lake Charles	LA	257.2	68.6
KPLCTV-D.R (8)	LAKE CHARLES	LA	257.0	68.7
WFAATV (08Z)	Dallas	TX	362.5	337.4

Call	Area	HUnits	Contour	Masked Ix	Unmasked Ix	%
KIII-D (08)	0.0	0	545,302	0	0	0.0
KIII-D.P (08)	0.0	0	548,257	0	0	0.0
KIII-D.P.A (08)	0.0	0	548,257	0	0	0.0
KLRN-D (08)	135.6	2,030	1,813,489	0	5,629	0.3
KLRN-D.P (08)	169.5	2,452	1,811,907	0	6,602	0.4
KPLC-DT (08)	277.7	6,058	1,014,755	0	13,831	1.4
KPLCTV-D.R (8)	25.1	80	676,219	0	206	0.0
WFAATV (08Z)	37.4	331	5,466,632	0	779	0.0



KUHT-DT Channel \*8 (Proposed) Longley-Rice Outbound Interference Study (Post-Transition Parameters)

Outgoing Longley-Rice Interference Population Report

KUHT-DT TOA (8) Houston, TX  
 Broadcast Type: Digital Service: T  
 Lat: 29-34-28 N Lng: 095-29-37 W ERP: 21.9 kW AMSL: 584.0 m  
 TV Outgoing Interference Study  
 Signal Resolution: 2.0 km  
 Consider NTSC Taboo: Yes  
 # of radials computed for contours: 72  
 Contours calculated using 8 radial HAAT.  
 LR Profile Spacing Increment: 1.0 km  
 Masked interference points are being counted as interference.  
 Pop Centroid DB: 2000 US Census (SF1,Housing)

Study Date: 10/23/2007  
 TV Database Date: 10/23/2007

Primary Terrain: 3 Second US Terrain

Population Database: 2000 US Census (SF1)

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 Stations Considered:

Call Letters	City	State	Dist	Bear
KIII-D (08)	Corpus Christi	TX	295.9	224.7
KIII-D.P (08)	Corpus Christi	TX	295.9	224.7
KIII-D.P.A (08)	Corpus Christi	TX	295.9	224.7
KLRN-D (9)	San Antonio	TX	278.9	265.1
KLRN-D.P (9)	San Antonio	TX	278.9	265.1
KPLC-DT (7)	Lake Charles	LA	257.2	68.6
KPLCTV-D.R (7)	LAKE CHARLES	LA	257.0	68.7
WFAATV (08Z)	Dallas	TX	362.5	337.4

Call	Area	HUnits	Contour	Masked Ix	Unmasked Ix	%
KIII-D (08)	0.0	0	545,302	0	0	0.0
KIII-D.P (08)	0.0	0	548,257	0	0	0.0
KIII-D.P.A (08)	0.0	0	548,257	0	0	0.0
KLRN-D (9)	0.0	0	1,813,489	0	0	0.0
KLRN-D.P (9)	0.0	0	1,811,907	0	0	0.0
KPLC-DT (7)	0.0	0	1,014,755	0	0	0.0
KPLCTV-D.R (7)	0.0	0	676,219	0	0	0.0
WFAATV (08Z)	37.4	331	5,466,632	0	779	0.0