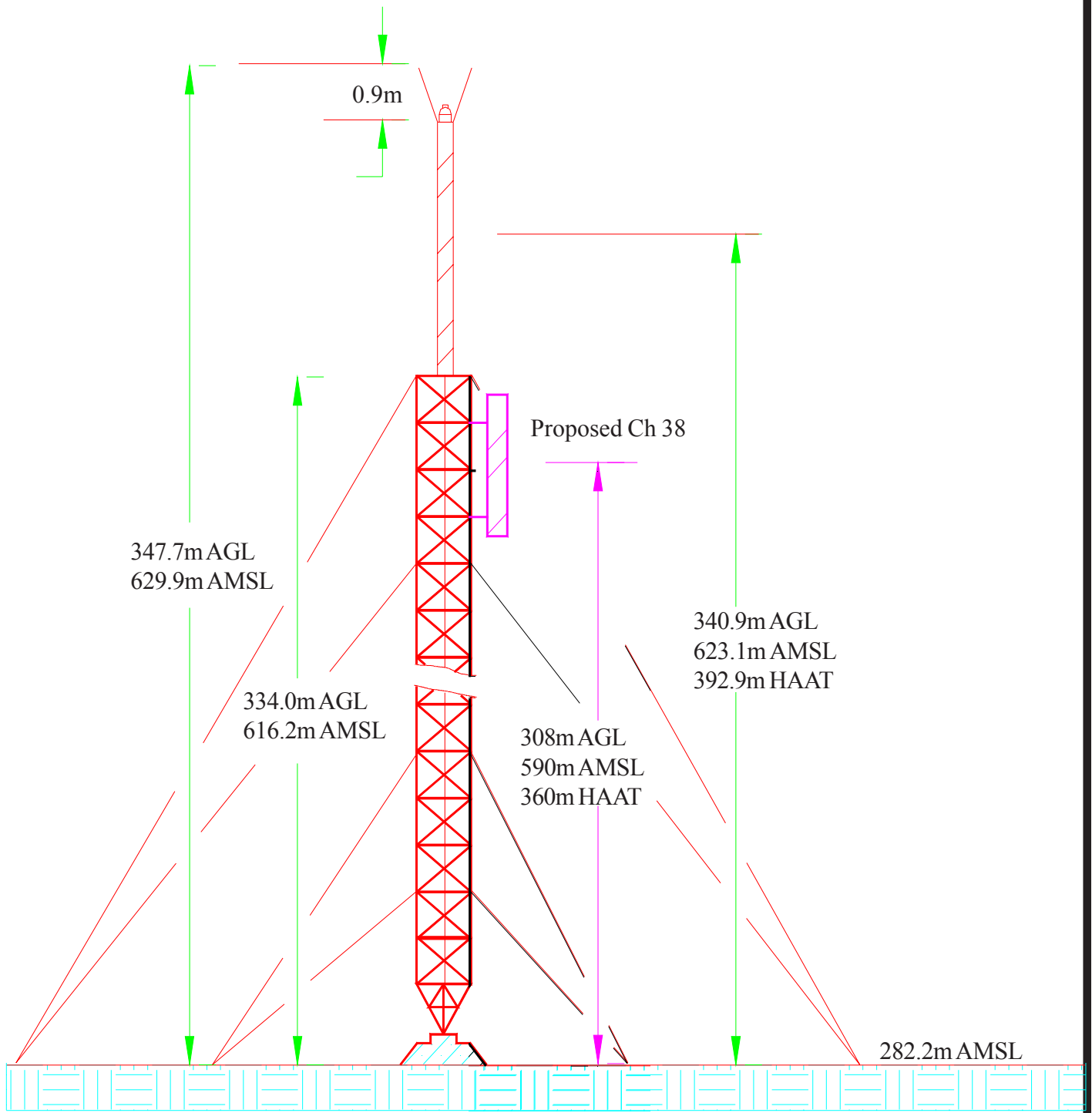


## E-1a



NOTE: Not Drawn to Scale

North Latitude 30° 59' 08"  
West Longitude 97° 37' 51"

### Antenna Location on Tower

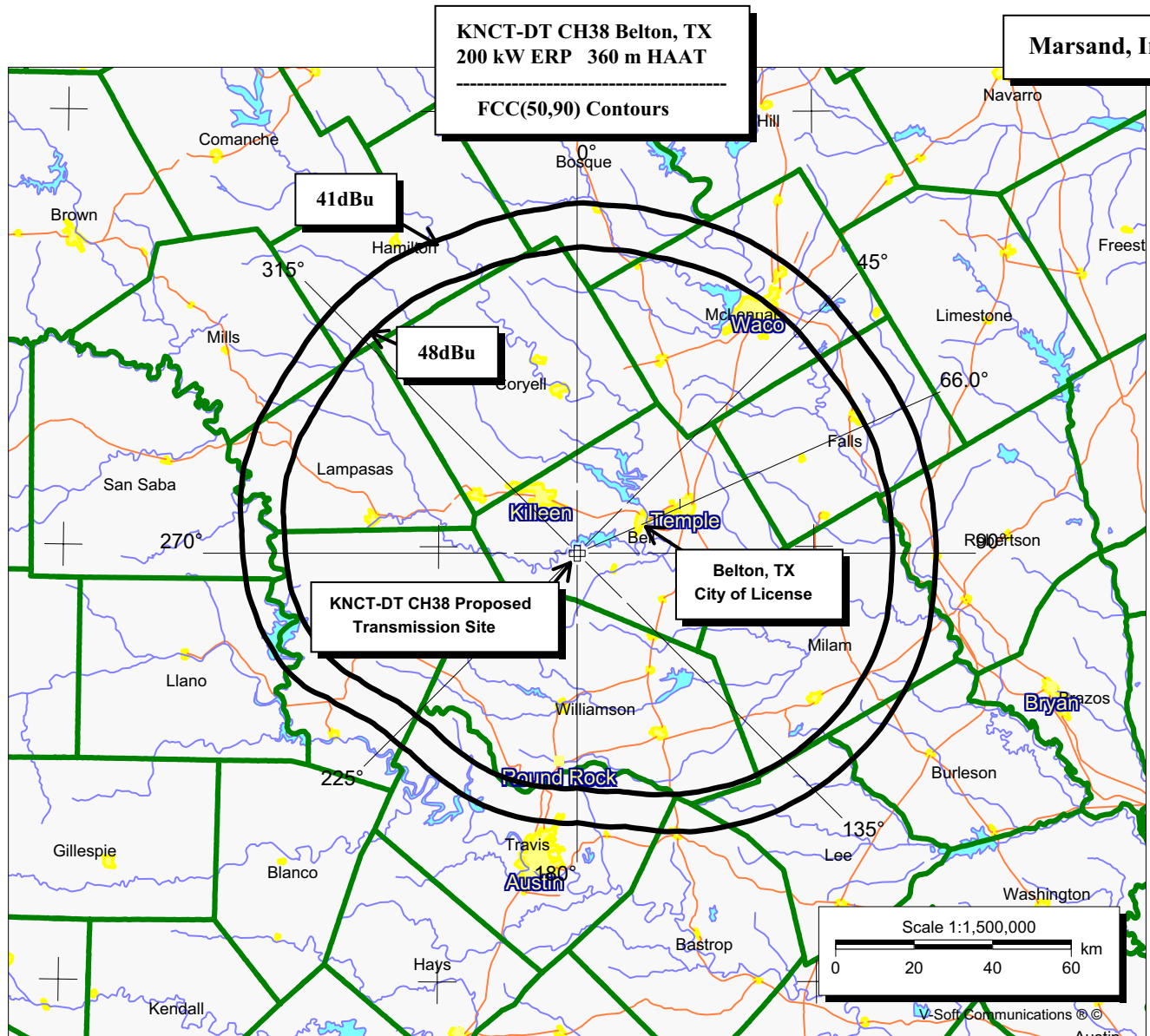
### Central Texas College

KNCT-DT CH38 Application for Modification to CP  
HAAT 360 m ERP 200.0 kW

### MARSAND, INC.

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E-1b



North Latitude 30° 59' 08"  
West Longitude 97° 37' 51"

**Proposed Coverage**

**Central Texas College**

KNCT-DT CH38 Application for Modification to CP  
HAAT 360 m ERP 200.0 kW

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# E-1c

## EFFECTIVE RADIATED POWER PATTERN CALCULATIONS

Date: 3/12/2003 Site Elevation: 925.85 ft. 282.20 m  
 Call Letters: KNCT Average Terrain: 754.31 ft. 229.91 m  
 City/State: Belton, TX Antenna RC AG: 1010.50 ft. 308.00 m  
 Channel: 38DTV Antenna RCAMSL: 1936.35 ft. 590.20 m  
 Frequency: 617 MHz Mid-Band Antenna HAAT: 1182.05 ft. 360.29 m  
 Latitude: N 30° 59' 08" Maximum ERP - Vert. Pol.: kW dBk  
 Longitude: W 97° 37' 51" Hor. Pol.: 199.91 kW 23.01 dBk  
 Antenna: Andrew ATW30H4-HSCX-38 Radio Horizon ERP - Vert. Pol.: kW dBk  
 Hor. Pol.: 199.91 kW 23.01 dBk

Radial Azimuth (degrees)	Azimuthal Relative Field (V)	Radial Elevation (m)	Antenna HAAT (m)	Angle to Radio Horizon (degrees)	Radio Horizon ERP				Maximum ERP				DTV Contour 41 dBu (km)
					Hor. Polarization		Vert. Polarization		Hor. Polarization		Vert. Polarization		
					(dBk)	(kW)	(dBk)	(kW)	(dBk)	(kW)	(dBk)	(kW)	
*0	0.970	227.3	362.9	0.5	22.74	188.10			22.74	188.10			89.2
10	0.990	229.0	361.2	0.5	22.92	195.94			22.92	195.94			89.4
20	1.000	225.0	365.2	0.5	23.01	199.91			23.01	199.91			89.9
30	0.990	210.0	380.2	0.5	22.92	195.94			22.92	195.94			90.8
40	0.970	204.4	385.8	0.5	22.74	188.10			22.74	188.10			90.8
*45	0.955	202.1	388.1	0.5	22.61	182.33			22.61	182.33			90.8
50	0.940	205.8	384.4	0.5	22.47	176.64			22.47	176.64			90.3
60	0.920	194.4	395.8	0.6	22.28	169.21			22.28	169.21			90.7
70	0.930	182.4	407.8	0.6	22.38	172.91			22.38	172.91			91.5
80	0.970	193.5	396.7	0.6	22.74	188.10			22.74	188.10			91.5
*90	0.990	200.6	389.6	0.5	22.92	195.94			22.92	195.94			91.4
100	0.990	200.3	389.9	0.5	22.92	195.94			22.92	195.94			91.4
110	0.960	201.3	388.9	0.5	22.65	184.24			22.65	184.24			90.8
120	0.880	208.3	381.9	0.5	21.90	154.81			21.90	154.81			89.2
130	0.770	216.9	373.3	0.5	20.74	118.53			20.74	118.53			86.7
*135	0.705	218.1	372.1	0.5	19.97	99.36			19.97	99.36			85.3
140	0.640	221.8	368.4	0.5	19.13	81.89			19.13	81.89			83.7
150	0.500	229.3	360.9	0.5	16.99	49.98			16.99	49.98			79.8
160	0.350	225.0	365.2	0.5	13.89	24.49			13.89	24.49			75.3
170	0.250	228.0	362.2	0.5	10.97	12.49			10.97	12.49			70.7
*180	0.220	235.3	354.9	0.5	9.86	9.68			9.86	9.68			68.6
190	0.240	246.6	343.6	0.5	10.61	11.52			10.61	11.52			68.9
200	0.250	259.0	331.2	0.5	10.97	12.49			10.97	12.49			68.6
210	0.240	271.3	318.9	0.5	10.61	11.52			10.61	11.52			67.3
220	0.220	275.5	314.7	0.5	9.86	9.68			9.86	9.68			66.1
*225	0.238	277.9	312.3	0.5	10.54	11.32			10.54	11.32			66.7
230	0.250	274.6	315.6	0.5	10.97	12.49			10.97	12.49			67.5
240	0.350	246.9	343.3	0.5	13.89	24.49			13.89	24.49			73.5
250	0.500	219.5	370.7	0.5	16.99	49.98			16.99	49.98			80.6
260	0.640	224.7	365.5	0.5	19.13	81.89			19.13	81.89			83.4
*270	0.770	234.7	355.5	0.5	20.74	118.53			20.74	118.53			85.2
280	0.880	236.6	353.6	0.5	21.90	154.81			21.90	154.81			86.9
290	0.960	242.8	347.4	0.5	22.65	184.24			22.65	184.24			87.6
300	0.990	252.7	337.5	0.5	22.92	195.94			22.92	195.94			87.2
310	0.990	248.1	342.1	0.5	22.92	195.94			22.92	195.94			87.6
*315	0.980	243.3	346.9	0.5	22.83	192.00			22.83	192.00			88.0
320	0.970	240.2	350.0	0.5	22.74	188.10			22.74	188.10			88.1
330	0.930	235.0	355.2	0.5	22.38	172.91			22.38	172.91			88.0
340	0.920	242.9	347.3	0.5	22.28	169.21			22.28	169.21			87.0
350	0.940	235.6	354.6	0.5	22.47	176.64			22.47	176.64			88.0
Radial through City of License -													
66	0.926	188.1	402.1	0.4	22.34	171.42			22.34	171.42			91.1
Maximum Radials: 20 Minimum Radials:													
* Denote radials used in averaging													

North Latitude 30° 59' 08"  
 West Longitude 97° 37' 51"

## ERP Pattern Calculations

### Central Texas College

KNCT-DT CH38 Application for Modification to CP  
 HAAT 360 m ERP 200.0 kW

### MARSAND, INC.

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**E-1d**

## **EFFECTIVE RADIATED POWER CALCULATIONS**

Call letters: **KNCT** Date: **3/12/2003**  
Location: **Belton, TX**  
Channel: **38DTV**  
Frequency: **617 MHz Mid-Band**  
Antenna: **Andrew ATW30H4-HSCX-38**

Transmitter Output Power: **9.01 kW avg. 9.55 dBk**  
Filter Type: **(included)** Filter Loss: **dB**  
Transmission Line: **Andrew HJ11-50 4" Air Heliax**  
Loss per 100 ft.: **-0.322 dB**  
Line Length: **1040 ft.**  

---

Total Line Loss: **-3.349 dB -3.35 dB**

Antenna Input Power: **4.17 kW 6.20 dBk**

Efficiency: **46.251 %**

Elevation Antenna Gain -

*Radio Horizon -*

Vert. Polarization	Gain	<b>dB</b>
Hor. Polarization	29.99 Gain	<b>14.77 dB</b>

Maximum -

Vert. Polarization	Gain	<b>dB</b>
Hor. Polarization	29.99 Gain	<b>14.77 dB</b>

Azimuthal Antenna Gain -

Vert. Polarization	Gain	<b>dB</b>
Hor. Polarization	1.60 Gain	<b>2.04 dB</b>

**Radio Horizon ERP -**

Vertical Polarization:	<b>kW</b>	<b>dBk</b>
Horizontal Polarization:	<b>199.91 kW</b>	<b>23.01 dBk</b>

**Maximum ERP -**

Vertical Polarization:	<b>kW</b>	<b>dBk</b>
Horizontal Polarization:	<b>199.91 kW</b>	<b>23.01 dBk</b>

Peak Power: **795.87 kW 29.01 dBk**

North Latitude **30° 59' 08"**  
West Longitude **97° 37' 51"**

**ERP Calculations**

**Central Texas College**

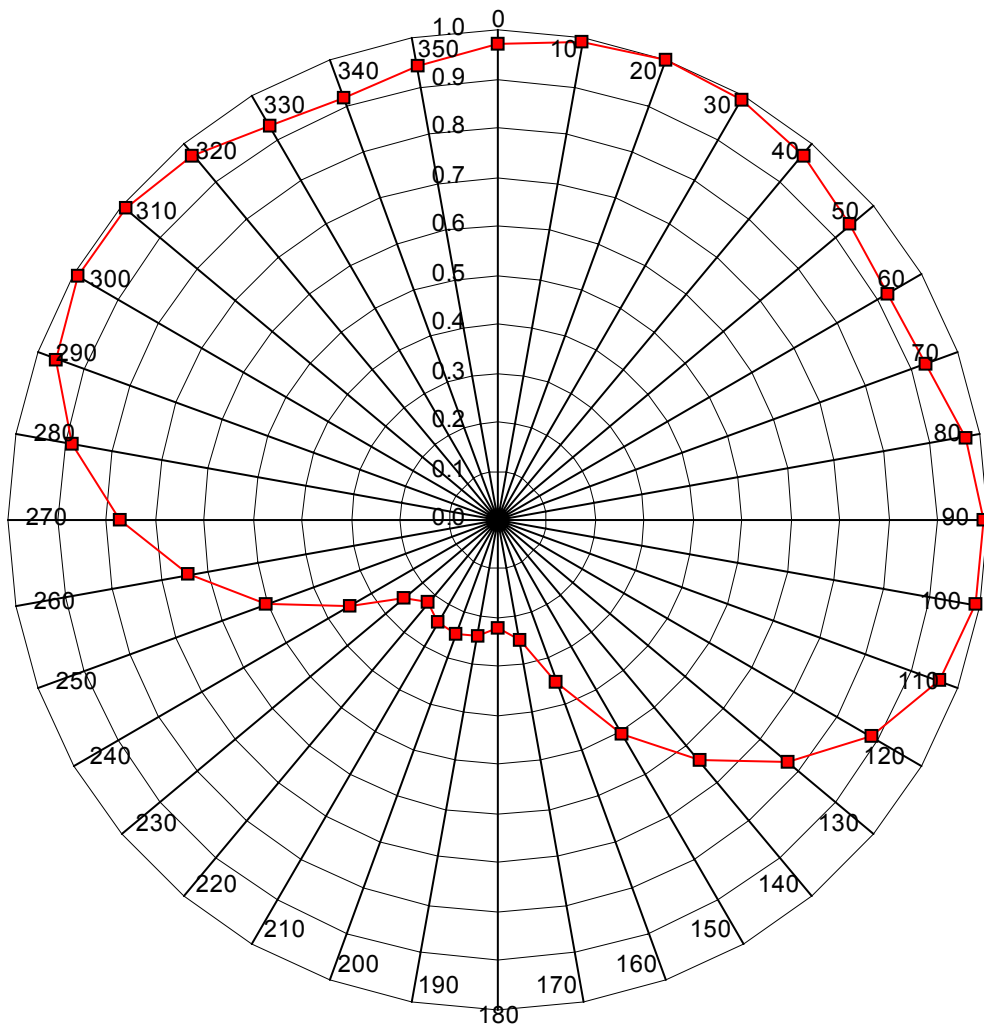
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HAAT **360 m** ERP **200.0 kW**

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**E-1e**

**Relative Field Pattern**



North Latitude 30° 59' 08"  
West Longitude 97° 37' 51"

**Relative Field Pattern**

**Central Texas College**

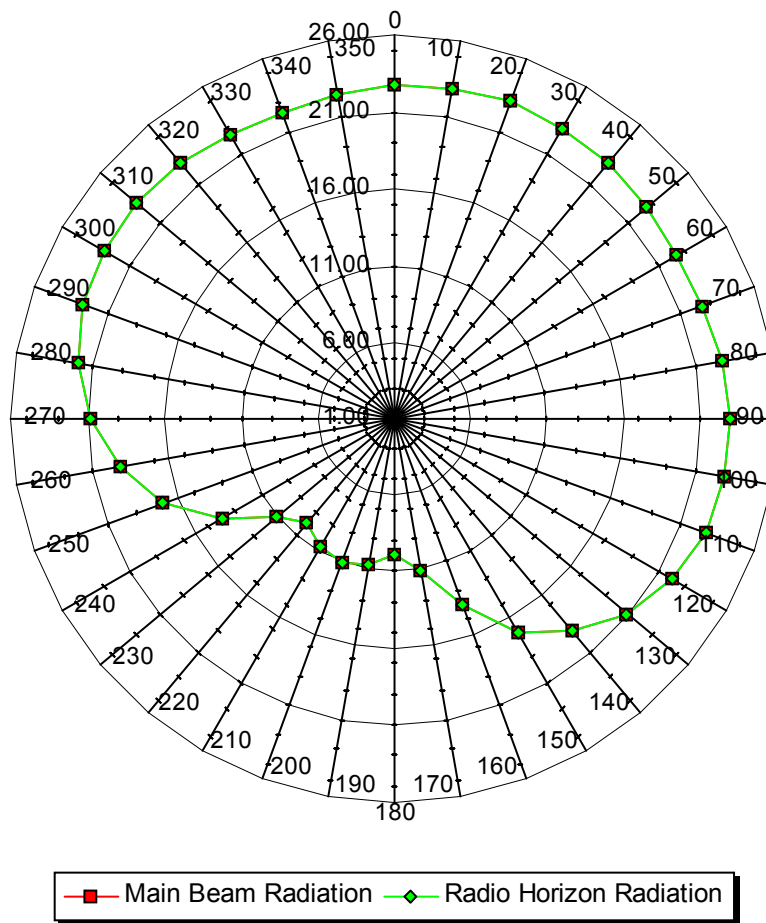
KNCT-DT CH38 Application for Modification to CP  
HAAT 360 m ERP 200.0 kW

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**E-1f**

**Radiation Power Polar Plot  
(dBk)**



North Latitude 30° 59' 08"  
West Longitude 97° 37' 51"

**Radiation Power Polar Plot**

**Central Texas College**

KNCT-DT CH38 Application for Modification to CP  
HAAT 360 m ERP 200.0 kW

**MARSAND, INC.**

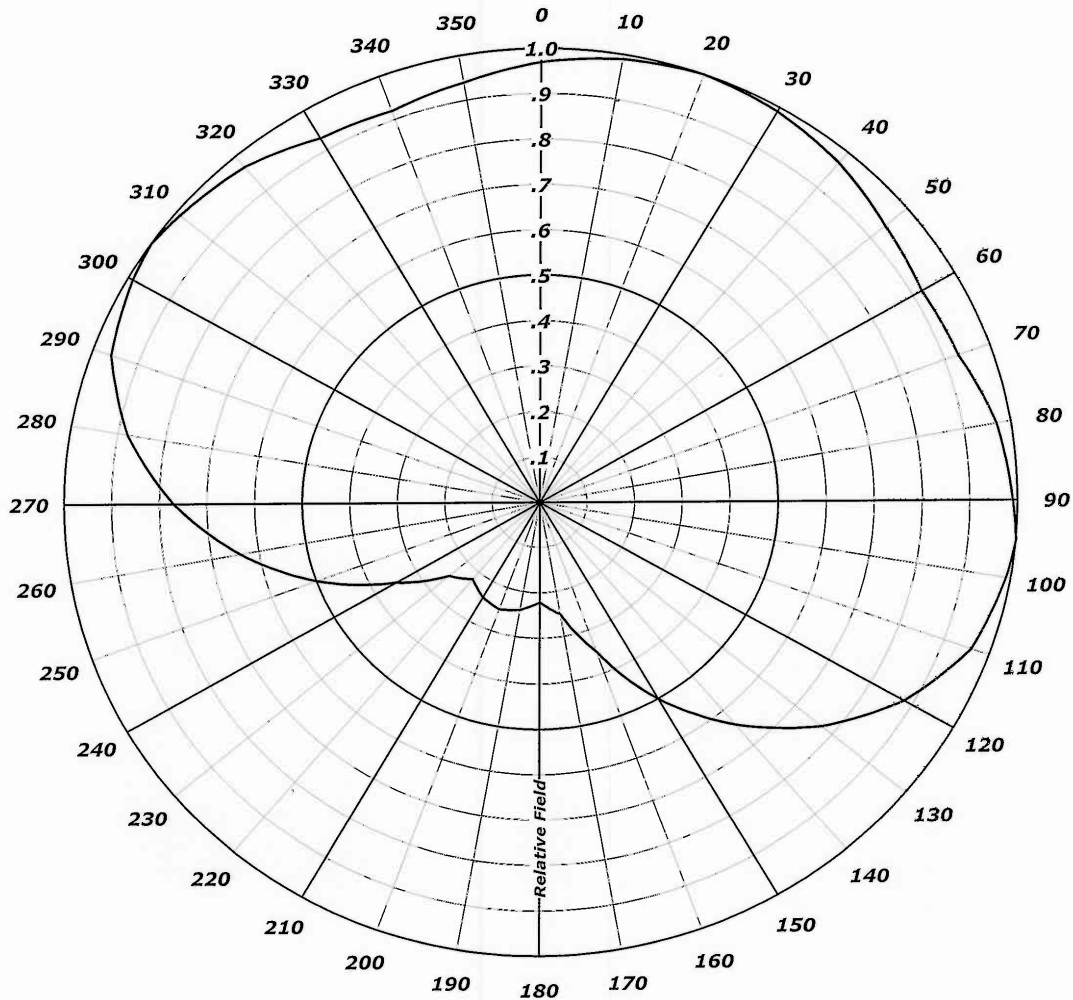
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E-1g

**ANDREW**  
**AZIMUTH PATTERN**

Type: CH38AZ-H-BID-CX

	Numeric	dBd
Directivity:	1.60	( 2.07 )
Peak(s) At:		
Polarization:	Horizontal	
Channel:	38 (Digital)	
Location:	Belton, TX	



ANDREW CORPORATION  
10500 W. 153rd Street  
Orland Park, Illinois U.S.A. 60462

KO101402-1192 -6-

North Latitude 30° 59' 08"  
West Longitude 97° 37' 51"

**Mfg. Antenna Azimuthal Pattern**

**Central Texas College**

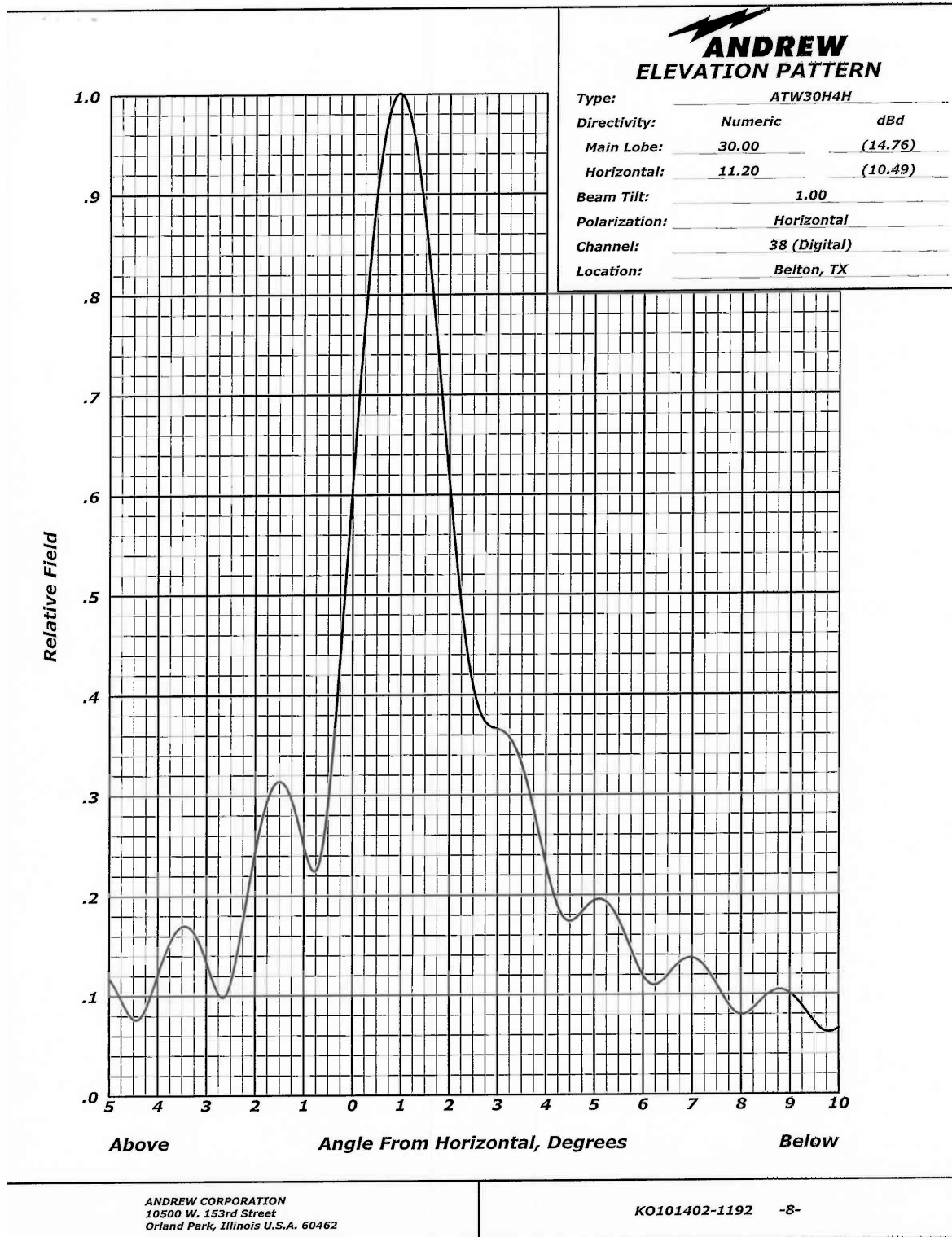
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HAAT 360 m ERP 200.0 kW

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**E-1h**



North Latitude 30° 59' 08"  
West Longitude 97° 37' 51"

**Mfg. Antenna Elevation Pattern**

**Central Texas College**

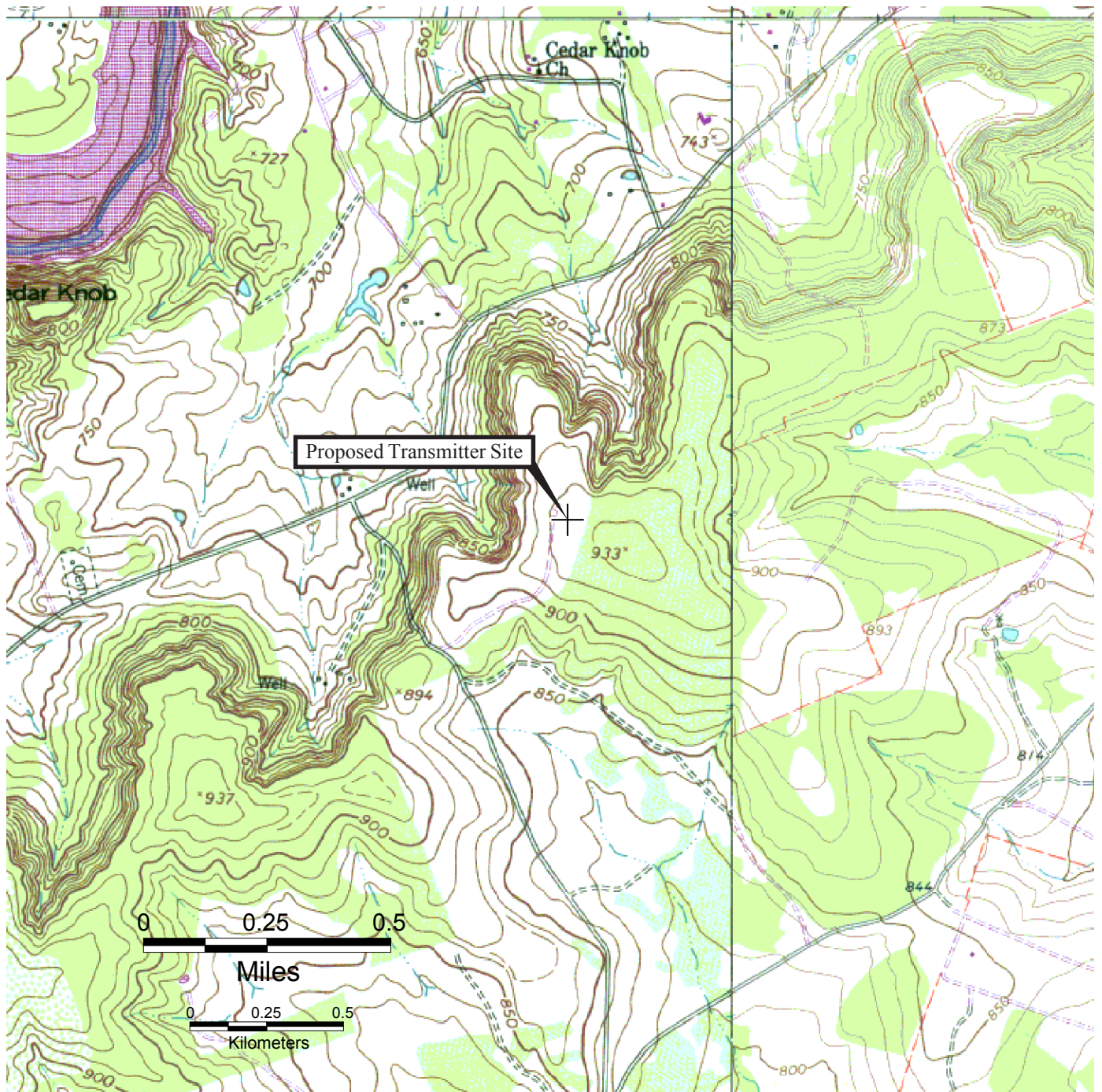
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E-1i



North Latitude 30° 59' 08"  
West Longitude 97° 37' 51"

**Proposed Transmitter Site**

**Central Texas College**

KNCT-DT CH38 Application for Modification to CP  
HAAT 360 m ERP 200.0 kW

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