NEW

Harlingen, Texas

Application for New Low Power FM Station

On Channel 260

by

Prayer Well Educational Association

Exhibit 11

Interference Analysis

October 2017

Prayer Well Educational Association

Edward L. McDade dba Blue Ridge Consultants
3528 Spartanburg Hwy
Flat Rock, North Carolina 28731
(864) 275-3276
Emcdade64@gmail.com

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Declaration

I declare, under penalty of perjury, that I am a broadcast technical consultant. That I have over thirty-five years of experience in the broadcast engineering field, that I am familiar with the Federal Communications Commission's Rules found in the Code of Federal Regulations Title 47, that I have prepared or supervised the preparation of the attached Exhibit 11, Interference Analysis, for Prayer Well Educational Association, and that all of the facts therein, except for facts of which the Federal Communications Commission may take official notice, are true to the best of my knowledge and belief.

Edward L. McDade
3528 Spartanburg Hwy
Flat Rock, North Carolina 28731
(864) 275-3276
Emcdade64@gmail.com
25 October 2017

Narrative

This Exhibit supports a minor modification application for a new Low Power FM station. The application proposes a move of the antenna location on Channel 260 in Harlingen, Texas as to be more centrally located in the city of license. Allocation details are provided in this exhibit.

Figure 1 shows the authorized and proposed 60 dBu F(50,50) coverage areas and a 16.1 kilometer (10 mile) radius around the transmitter site.

The proposed modification is predicated on the desire to better serve the Harlingen, TX area. The new antenna location is more centrally located in Harlingen and is 4.15 km north of the original construction permit site which will decrease any interference towards Mexico. This proposed modification simplifies the operation of the station, conserving resources.

Based on an eight radial HAAT of 33 meters, the ERP is shown as 84 Watts, based on the FMPower utility on the FCC.gov web site. The applicant recognizes that final power level will be calculated by the Media Bureau and provided in a modified Construction Permit.

Allocations

This application proposes service to Harlingen, Texas, on channel 260. An updated Table 1: Allocations is included in this exhibit with a list of the stations, construction permits, allocations, and applications studied. All facilities are protected by this application under distance protection requirements of 47 C.F.R. §73.807, with the exception of facilities protected by the Undesired to Desired (U/D) method. Facilities protected by the U/D method are listed in Table 2.

Table 1: Allocations

LPFM Harlingen
Prayer Well Educational Association

REFERENCE DISPLAY DATES
26 11 34.2 N. CLASS = L1 Int = L1 DATA 10-17-17
97 41 24.8 W. Current Spacings to 2nd Adj. SEARCH 10-17-17

---------- Channel 260 - 99.9 MHz ----------

Call	Channel	Location	Azi	Dist	FCC	Margin
KKPS CP	258C	Brownsville TX	249.6	14.01	92.5	-78.5
	Protected by U/D study, see text and figures					
KTEX LIC	262C0	Mercedes TX	235.3	18.08	83.5	-65.4
8/20/2010: Protected from Mexico as 262-C, Brownsville, TX at 26-07-14 N, 97-49-18 W.						
	Protected by U/D study, see text and figures					
KKPS LIC	258C0	Brownsville TX	228.2	18.56	83.5	-64.9
	Protected by U/D study, see text and figures					
NEW CP	260L1	Harlingen TX	181.2	4.15	23.5	-19.4
KRVT-LP LIC	260L1	Rancho Viejo TX	139.2	26.92	23.5	3.4
NEW CP	260L1	Edinburg TX	292.9	48.32	23.5	24.8
KZOA-LP LIC	260L1	Mission TX	272.6	63.89	23.5	40.4

Reference station has protected zone issue: Mexico

All separation margins include rounding

Table 2: Facilities Protected by U/D Method

Facility	KKPS.CP Brownsville, Texas	KTEX Mercedes, Texas	KKPS.LIC Brownsville, Texas
Relationship	258C, second adjacent	262C0, second adjacent	262C0, second adjacent
Distance (km)	14.01	18.08	18.0856
Bearing (degrees)	249.6	235.3	228.2
ERP (kW, on azimuth)	100	100	100
HAAT (m, on azimuth)	455	377	322.3
Ratio	40	40	40
Signal Strength (dBu)	97.69	91.85	90.11
Translator Signal Strength	137.69	131.85	130.11
Translator distance (km)	.006	.013	.015

Undesired to Desired Method under §74.1204(d)

Protection to some facilities is provided through the use of Undesired to Desired Signal Strength Ratio (U/D) calculations. Table 2 lists the parameters studied. The proposed antenna is a Shively 6812-C. The elevation pattern is shown in Figure 2. The elevation of the 137.69 dBu, 131.85 dBu and 130.11 dBu contours are shown in Figure 3.

The KKPS.CP field strength calculated at ground level at the proposed NEW site is 97.69 dBu, using the FM Curves calculator on the FCC web site. For the translator interference contour, free space calculations are used. The corresponding 137.69 dBu field strength distance is .006 kilometers in the horizontal plane. The proposed antenna location is 31 meters above ground. As Figure 3 shows, the 137.69 dBu signal level remains 27.7 meters (91 feet) above ground level.

The KTEX field strength calculated at ground level at the proposed NEW site is 91.85 dBu, using the FM Curves calculator on the FCC web site. For the translator interference contour, free space calculations are used. The corresponding 131.85 dBu field strength distance is .013 kilometers in the horizontal plane. The proposed antenna location is 31 meters above ground. As Figure 3 shows, the 137.69 dBu signal level remains 24 meters (79 feet) above ground level.

The KTEXKPS.LIC field strength calculated at ground level at the proposed NEW site is 90.11 dBu, using the FM Curves calculator on the FCC web site. For the translator interference contour, free space calculations are used. The corresponding 130.11 dBu field strength distance is .015 kilometers in the horizontal plane. The proposed antenna location is 31 meters above ground. As Figure 3 shows, the 130.11 dBu signal level remains 23 meters (75 feet) above ground level.

Figure 4 is a topographic map of the transmitter site, showing that the site is on very flat terrain.

Figure 5 is a Google Earth aerial photograph with 137.69 dBu, 131.85 dBu and 131.11 dBu field strength contours plotted. As shown, a portion of a two and a half story structure near the base of the tower is within the predicted interference contour, with a roof height no more than 10 meters (33 feet) above ground level. At worst case the interfering contour is 23 meters (75 feet) above ground or 12.8 meters (42 feet) above the roof of the adjacent building. There are no other tall buildings in the area. There is no population within the predicted interference area and therefore this facility is permitted under §74.1204(d).

The applicant recognizes that the U/D method is only a tool for predicting likely interference. Should any actual interference be experienced, the applicant will cooperate fully in correcting the interference. Corrective steps may require changes in the transmitting antenna or other steps which would require Commission authorization, may require that the translator cease operation except for brief equipment tests, or may require filtering at the receivers which report interference.

Source of Data

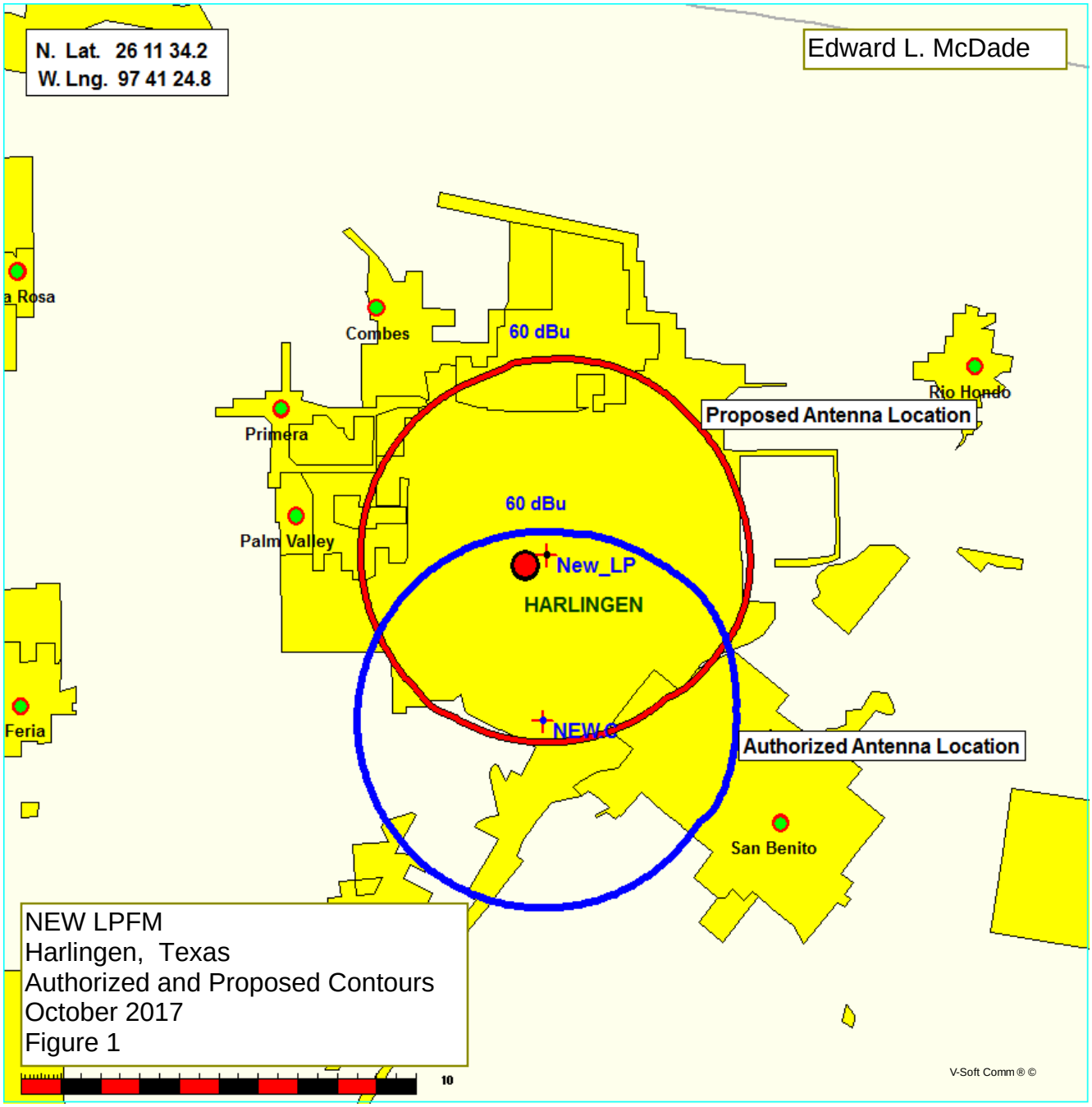
Transmitter location, effective radiated power, directional antenna pattern, and elevation data are extracted from the Commission's CDBS. All contours for existing and proposed facilities are calculated using height above average terrain calculated at one degree horizontal increments.

The contours were evaluated using terrain extracted from the NGDC 30 arcsecond terrain database, formatted by V-Soft Communications to work with its allocation and mapping programs.

All population data is from 2010 U.S. Census PL data files. Population is counted by considering the location of the centroid of each census block. The data for each block is counted if it falls within the area being counted.

LPFM Harlingen
Prayer Well Educational Association

Coverage Study - NGDC 30 SEC
10-23-2017



Antenna Mfg.: Shively
Antenna Type: 6812-C
Station: NEW
Frequency: 99.9
Channel #: 260
Figure: 2

Date: 10/23/2017

Beam Tilt	0	
Gain (Max)	0.454	-3.426 dB
Gain (Horizon)	0.454	-3.426 dB

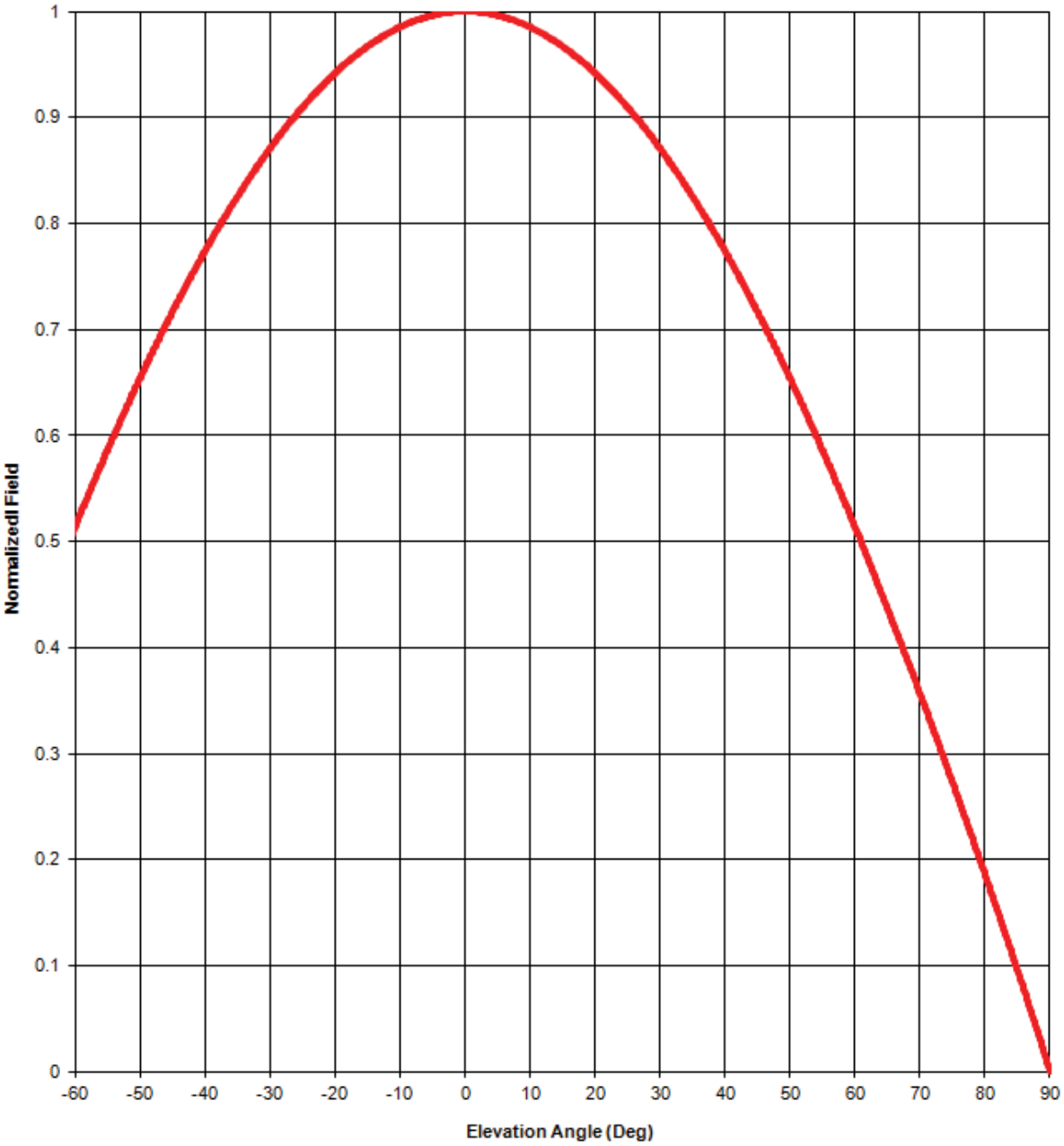


Figure 2

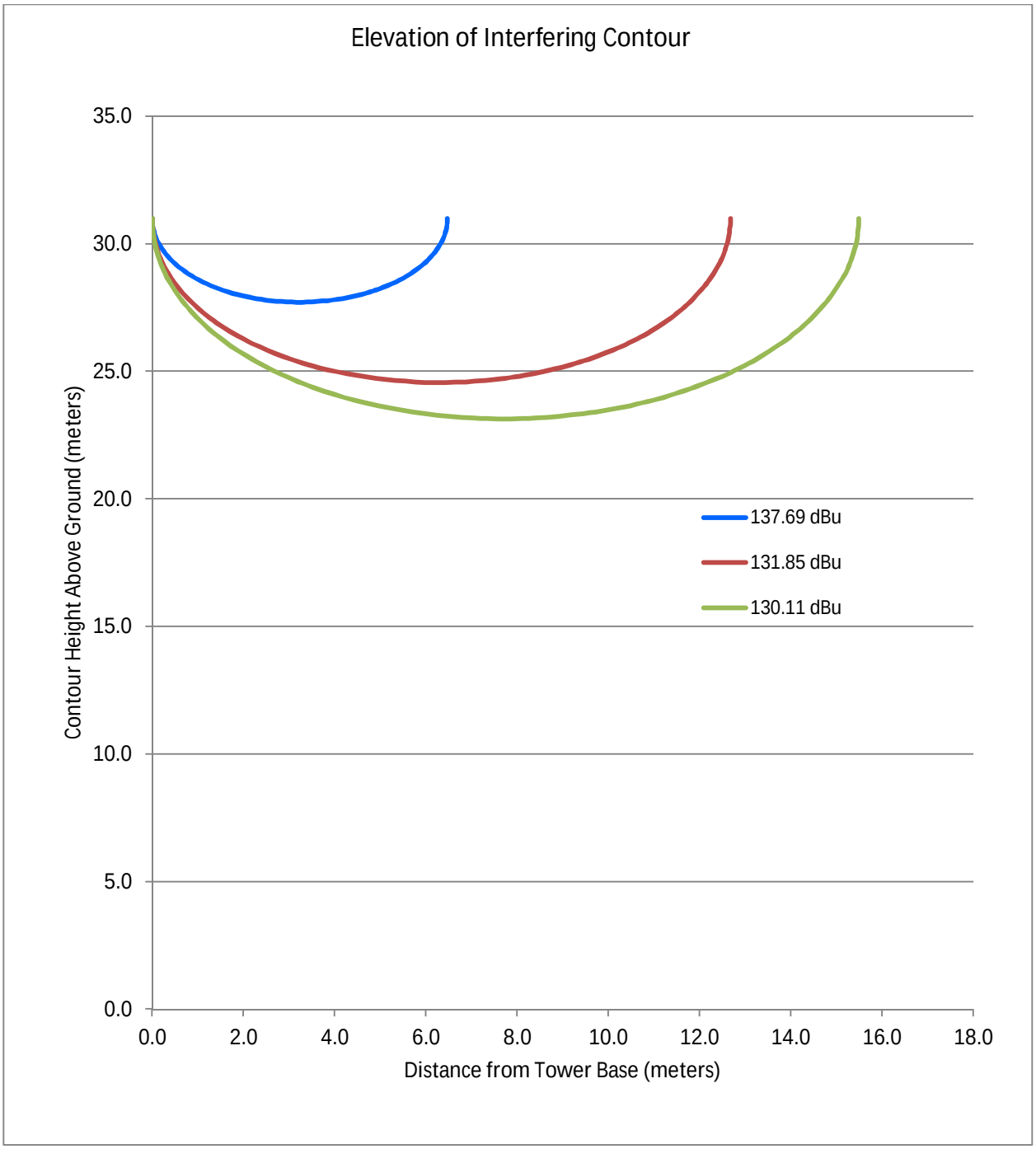
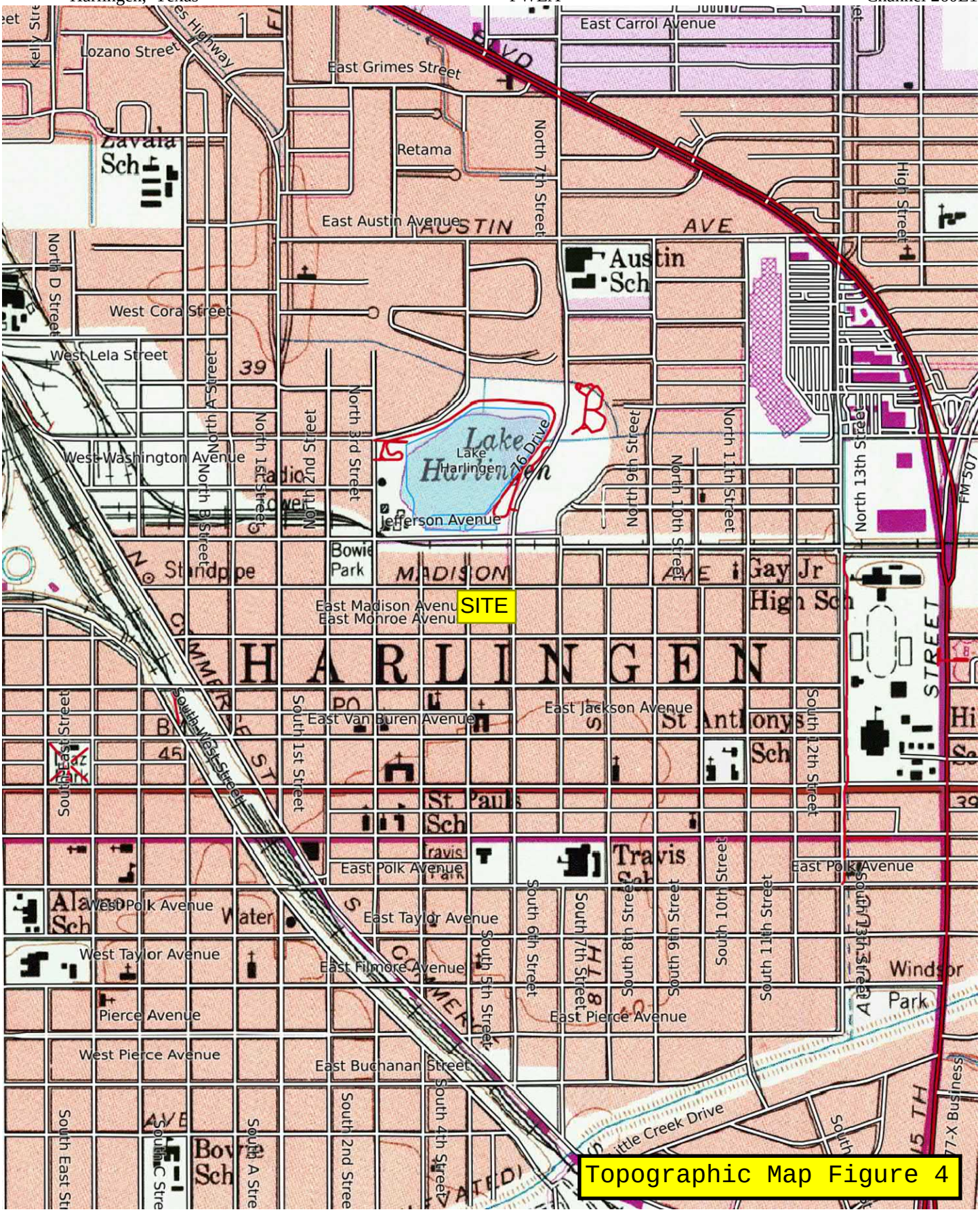

Elevation of Interfering Contour
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Contour Height Above Ground (meters)
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
Distance from Tower Base (meters)
137.69 dBu
131.85 dBu
130.11 dBu

Figure 3



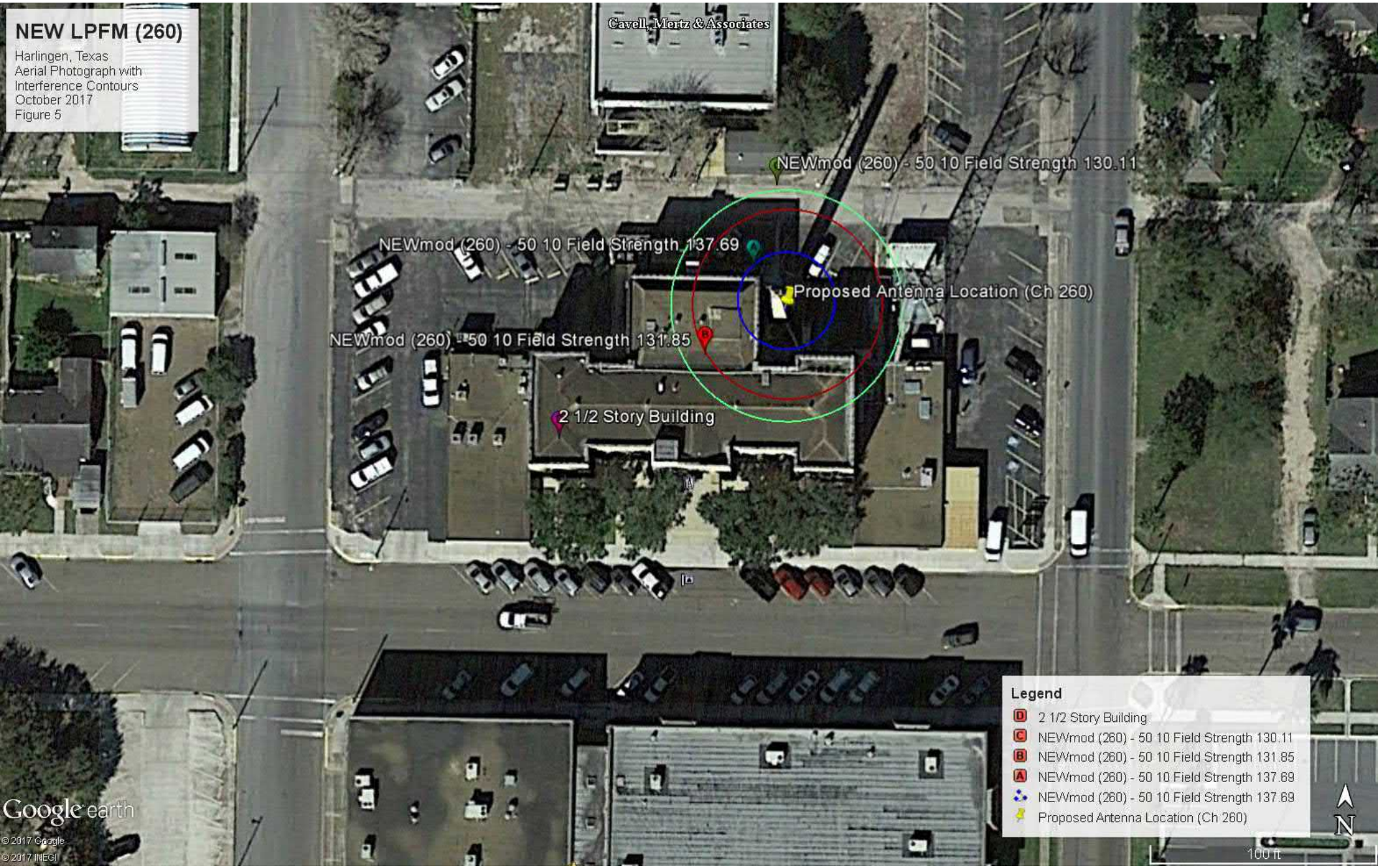
Harlingen, TX
WGS84
USNG Zone 14RPP

SARTopo

0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 km
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 mi

Scale **1:12000** 1 inch = 1000 feet

N MN 4°


NEW LPFM (260)
Harlingen, Texas
Aerial Photograph with
Interference Contours
October 2017
Figure 5
Cavell, Mertz & Associates
NEWmod (260) - 50 10 Field Strength 130.11
NEWmod (260) - 50 10 Field Strength 137.69
Proposed Antenna Location (Ch 260)
NEWmod (260) - 50 10 Field Strength 131.85
2 1/2 Story Building
Legend
2 1/2 Story Building
NEWmod (260) - 50 10 Field Strength 130.11
NEWmod (260) - 50 10 Field Strength 131.85
NEWmod (260) - 50 10 Field Strength 137.69
NEWmod (260) - 50 10 Field Strength 137.69
Proposed Antenna Location (Ch 260)
Google earth
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N
100 ft

Figure 5