

**W228CX (FORMERLY W231CB) APPLICATION FOR
MINOR MODIFICATIONS AND MATTOON WAIVER
TO SERVE AS A FILL IN FOR
WTLC(AM)**

This application seeks a change in site to serve as a fill-in for WTLC(AM). A *Mattoon waiver* is requested in order to accomplish the move.

Request for waiver of § 74.1233(a)(1):

This application requests a move to ASR#1253064 to serve as a fill in translator for WTLC(AM) (facility ID #51433) in accordance with the waiver granted for W263AQ's move to Effingham, IL (DA-11-1495) and subsequent grants commonly referred to as the *Mattoon Waiver*.

In accordance with the waiver granted for the move of W263AQ (DA-11-1495), the proposed W228CX (formerly W231CB) facility is mutually exclusive with the constructed and license applied for W228CX facility because the proposed 40 dBu (50:10) interfering contour overlaps the existing and licensed W228CX 60 dBu (50:50) contour as demonstrated in exhibit E1A.

It is also noted that the facility has not been "hopped" since it has operated at the current site since 2009. The recent change in channel and antenna do not constitute a "hop" according to Commission criteria.

Allocation discussion:

All exhibits utilize the V-Soft provided USGS 3 second terrain database.

E1	Channel study
E1A	W228CX 40 dBu Mattoon overlaps
E1B	Interference plot to WMXQ
E1C	Interference analysis to WRWM
E1D	Interference analysis to WIBC
E1E	Aerial view of interference area
E2	60 dBu and 2 mV/m contours plot
E3	ASR

A channel study is included as E1 and an interference plot as E1B showing clearance to WMXQ demonstrating compliance with §74.1204. Analysis of 2nd adjacent channel WRWM

and WIBC are provided below. A plot of the proposed 60 dBu is provided as E2 showing that it is entirely contained within the WTLC(AM) 2 mV/m and 40 km circle.

WRWM and WIBC analyses:

The proposed W228CX facility will be located inside the protected contour of 2nd adjacent channel stations WRWM on channel 230BI and WIBC on 226B. Therefore, an interference analysis has been conducted based on the U/D ratio of +40 dB at the proposed site. The WRWM (50,50) contour at the proposed site is 70.9 dBu and the (50,10) interference contour is 110.9 dBu. Exhibit E1C demonstrates that this interfering contour is at least 78.9 meters above ground. An examination of the aerial photographs from Google Earth provided as E1E shows that there are no structures taller than two stories or any major highways within the larger of the interference contours.

The WIBC contour at the proposed site 77.6 dBu and the (50,10) interference contour is 117.6 dBu. Exhibit E1D demonstrates that this interfering contour is at least 147.5 meters above ground.

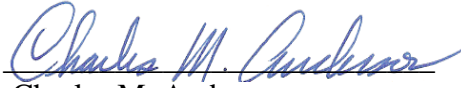
Clearly, these interference contours will not reach any populated area or major highways as is evident from the aerial photograph of the site included as E1E. Based on this showing a waiver of Section 74.1204 is requested in accordance with *Living Way Ministries, Inc.* (FCC 08-242).

RF Exposure Calculation:

The proposed facility will be located at an existing tower (ASR#1253064) using a single bay ERI LPX-1E circularly polarized antenna. The RF contribution of the proposed translator was calculated to be 0.4 μ Watts/cm² using the formula included below and a worst case vertical factor of 1.0. This is 0.2% of the maximum permissible 200 microwatts/cm² exposure for general population/uncontrolled exposure, and well below 5% of that limit which requires consideration.

$$S \text{ (RF in } \mu\text{Watts/cm}^2\text{)} = \frac{33.4 (F^2 \text{ Vertical Factor}) \times (H \text{ ERP} + V \text{ ERP in Watts})}{R^2 \text{ (distance to radiation center in meters} - 2 \text{ m)}}$$

The proposed translator facility complies with Commission RF radiation limits.



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E1 CHANNEL STUDY

REFERENCE
39 53 40.0 N.
86 12 21.0 W.

CH# 228D - 93.5 MHz, Pwr= 0.25 kW, HAAT= 208.8 M, COR= 462 M
Average Protected F(50-50)= 19.03 km
Omni-directional

DISPLAY DATES
DATA 03-10-15
SEARCH 03-11-15

CH CITY	CALL	TYPE STATE	ANT STATE	AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
226B Indianapolis	WIBC	LIC _CX IN		129.2 309.3	22.34 BLH20031121APA	39 46 03.0 86 00 12.0	13.500 302	5.6 551	66.3 Emmis Radio License, Llc	-2.7	-45.9* (1)
230B1 Lawrence	WRWM	LIC NCX IN		111.1 291.3	20.63 BLH20120301AEG	39 49 39.0 85 58 51.0	8.400 140	3.6 393	42.5 Radio License Holding Src	-2.4	-23.4* (2)
228A Lafayette	WKHY	LIC _CN IN		310.4 129.9	85.00 BLH19950329KA	40 23 13.0 86 58 10.0	6.000 75	82.7 274	24.6 Wask, Inc.	-15.3	3.6
228A Lafayette	WKHY	LIC _CX IN		310.3 129.8	85.05 BLH20140819ABR	40 23 12.0 86 58 14.0	6.000 76	82.4 273	24.5 Wask, Inc.	-15.0	3.8
228A Hartford City	WMXQ	LIC ZCN IN		48.2 228.7	88.39 BLH19921019KA	40 25 16.0 85 25 40.0	3.000 139	83.1 408	28.4 Woof Boom Radio Muncie Lic	-13.8	1.0
228D Frankfort	W228CX	CP DV_ IN		329.0 148.8	53.05 BPFT20140826AAK	40 18 12.0 86 31 40.0	0.250	23.6 274	7.0 Kaspar Broadcasting Co., I	11.2	-11.4* (3)
228A Columbus	WGPI	LIC _CX IN		164.7 344.9	85.83 BLED20140828AAW	39 08 54.7 85 56 35.7	6.000 46	71.8 243	17.2 The Gabriel Project, Inc.	-5.7	4.6
231D Frankfort	W231CB	LIC _C_ IN		329.0 148.8	53.05 BLFT20091125ADH	40 18 12.0 86 31 40.0	0.250 73	1.1 327	10.0 Kaspar Broadcasting Co., I	33.7	41.9
229A Walton	WFRR	LIC _CN IN		1.6 181.6	92.28 BLH19951120KB	40 43 31.0 86 10 33.0	6.000 100	40.4 324	26.2 Christian Friends Broadcas	34.1	39.5
231D Martinsville	W231BT	LIC DC_ IN		203.8 23.6	55.34 BLFT20110209ADD	39 26 18.0 86 27 58.0	0.215 88	0.8 305	9.3 Mid-america Radio Group, I	34.7	43.4

Terrain database is USGS 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= East Zone, Co to 3rd adjacent.
All separation margins (if shown) include rounding. Call signs with strikeout need not be protected.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside restricted contour.

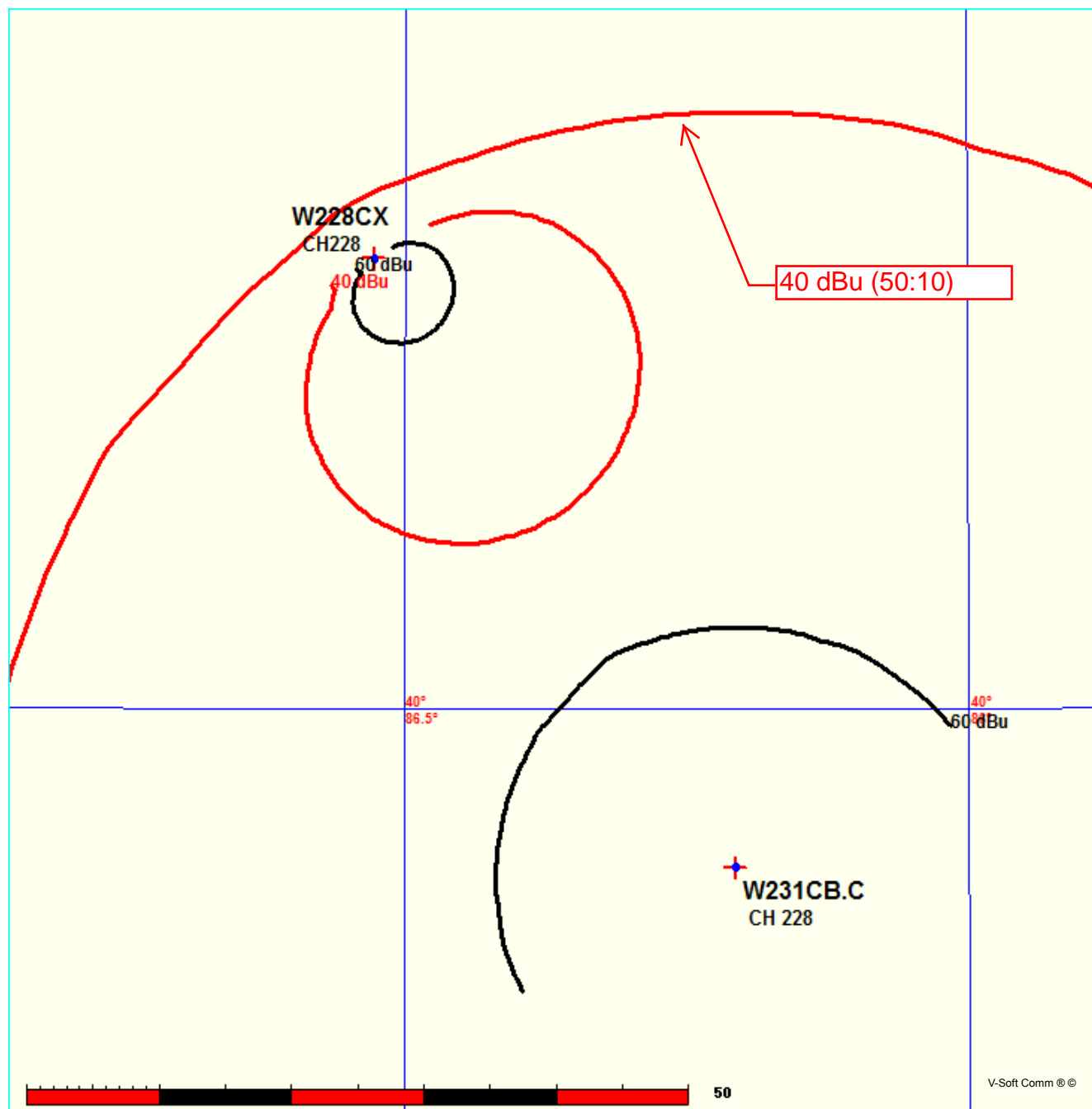
- (1) See E1C and E1E for disproval of interference.
- (2) See E1D and E1E for disproval of interference.
- (3) Mattoon 40 dBu-60 dBu overlap demonstrated in E1A.

E1A MATTOON OVERLAP

FMCommander Single Allocation Study - 03-12-2015 - USGS 03 SEC
W231CB.C's Overlaps (In= 11.22 km, Out= -11.39 km)

W228CX CH 228 D
Lat= 39 53 40.0, Lng= 86 12 21.0
0.25 kW 208.8 M HAAT, 462 M COR
Prot.= 60 dBu, Intef.= 40 dBu

W228CX CH 228 D DA BPFT20140826AAK
Lat= 40 18 12.0, Lng= 86 31 40.0
0.25 kW 0 M HAAT, 274 M COR
Prot.= 60 dBu, Intef.= 40 dBu



E1B PLOT TO WMXQ

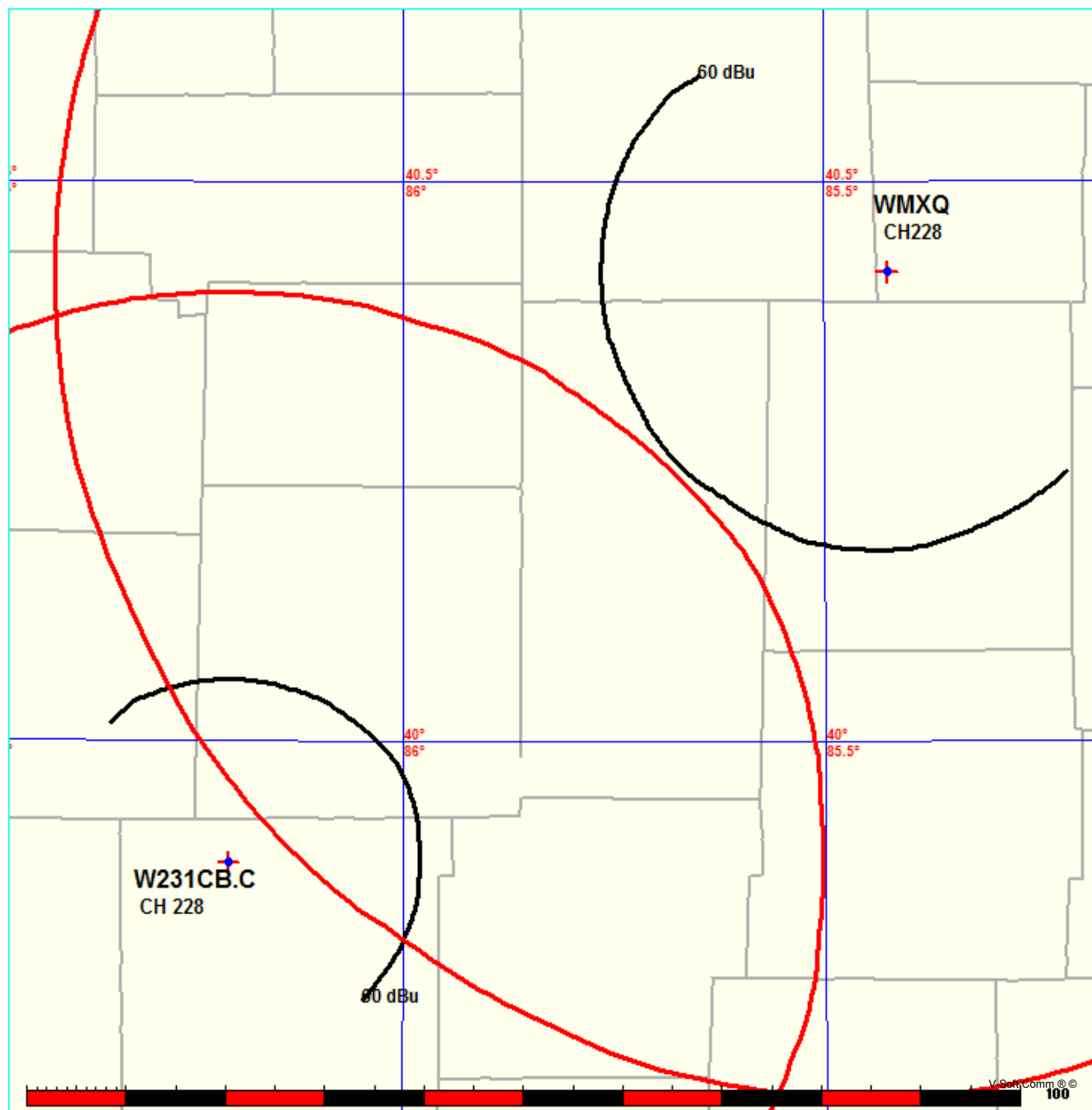
FMCommander Single Allocation Study - 03-12-2015 - USGS 03 SEC
W231CB.C's Overlaps (In= -13.75 km, Out= 1.02 km)

W228CX CH 228

Lat= 39 53 40.0, Lng= 86 12 21.0
0.25 kW 208.8 M HAAT, 462 M COR
Prot.= 60 dBu, Intef.= 40 dBu

WMXQ CH 228 A 73.215 Z BLH19921019KA

Lat= 40 25 16.0, Lng= 85 25 40.0
3.0 kW 139 M HAAT, 408 M COR
Prot.= 60 dBu, Intef.= 40 dBu



E1C

W228CX Frankfort, IN

74.1204(d) Showing

Translator or LPFM Maximum Licensed ERP = 0.25

Translator or LPFM Antenna Height AG = 207 Meters

W228CX Antenna Model = LPX-1E

Protected Station's Contour = 70.94082 dBu

Translator's or LPFM's full Interference contour 110.94082

Review Azimuth = 0 Degrees True

Relative Field on the horizon at Review Azimuth = 1.000

Translator/LPFM ERP on the horizon at Review Azimuth = 0.25 kW

Distance between stations = 20.6 km

Protected Station= WRWM, 8.4 kW, 393 M Meters COR AMSL

Depression Angle From Horizon(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m)
00.00	1.0	1.0	0.2500	314.7234	314.7234	207.000
05.00	0.993	1.0	0.2465	312.5203	311.3311	179.762
10.00	0.974	1.0	0.2372	306.5406	301.8835	153.770
15.00	0.941	1.0	0.2214	296.1547	286.0635	130.350
20.00	0.897	1.0	0.2012	282.3069	265.2817	110.445
25.00	0.843	1.0	0.1777	265.3118	240.4542	094.874
30.00	0.78	1.0	0.1521	245.4842	212.5956	084.258
35.00	0.709	1.0	0.1257	223.1389	182.7847	079.013
40.00	0.633	1.0	0.1002	199.2199	152.6113	078.944
45.00	0.554	1.0	0.0767	174.3568	123.2888	083.711
50.00	0.473	1.0	0.0559	148.8642	095.6880	092.963
55.00	0.394	1.0	0.0388	124.0010	071.1241	105.424
60.00	0.317	1.0	0.0251	099.7673	049.8837	120.599
65.00	0.245	1.0	0.0150	077.1072	032.5869	137.117
70.00	0.181	1.0	0.0082	056.9649	019.4832	153.470
75.00	0.124	1.0	0.0038	039.0257	010.1006	169.304
80.00	0.077	1.0	0.0015	024.2337	004.2081	183.134
85.00	0.041	1.0	0.0004	012.9037	001.1246	194.145
90.00	0.016	1.0	0.0001	005.0356	000.0000	201.964

E1D

W228CX Frankfort, IN

74.1204(d) Showing

Translator or LPFM Maximum Licensed ERP = 0.25

Translator or LPFM Antenna Height AG = 207 Meters

W228CX Antenna Model = LPX-1E

Protected Station's Contour = 77.5974 dBu

Translator's or LPFM's full Interference contour 117.5974

Review Azimuth = 0 Degrees True

Relative Field on the horizon at Review Azimuth = 1.000

Translator/LPFM ERP on the horizon at Review Azimuth = 0.25 kW

Distance between stations = 22.3 km

Protected Station= WIBC, 13.5 kW, 551 M Meters COR AMSL

Depression Angle From Horizon(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m)
00.00	1.0	1.0	0.2500	146.2514	146.2514	207.000
05.00	0.993	1.0	0.2465	145.2276	144.6750	194.343
10.00	0.974	1.0	0.2372	142.4489	140.2847	182.264
15.00	0.941	1.0	0.2214	137.6226	132.9332	171.381
20.00	0.897	1.0	0.2012	131.1875	123.2759	162.131
25.00	0.843	1.0	0.1777	123.2899	111.7386	154.895
30.00	0.78	1.0	0.1521	114.0761	098.7928	149.962
35.00	0.709	1.0	0.1257	103.6922	084.9397	147.525
40.00	0.633	1.0	0.1002	092.5771	070.9182	147.493
45.00	0.554	1.0	0.0767	081.0233	057.2921	149.708
50.00	0.473	1.0	0.0559	069.1769	044.4661	154.007
55.00	0.394	1.0	0.0388	057.6230	033.0512	159.798
60.00	0.317	1.0	0.0251	046.3617	023.1808	166.850
65.00	0.245	1.0	0.0150	035.8316	015.1431	174.526
70.00	0.181	1.0	0.0082	026.4715	009.0538	182.125
75.00	0.124	1.0	0.0038	018.1352	004.6937	189.483
80.00	0.077	1.0	0.0015	011.2614	001.9555	195.910
85.00	0.041	1.0	0.0004	005.9963	000.5226	201.027
90.00	0.016	1.0	0.0001	002.3400	000.0000	204.660

E1E 110.9 DBU (50:10)



Sardonyx St

W228CX (228)

W 79th St

Amethyst Ave

ire Blvd

W 76th St

Google earth

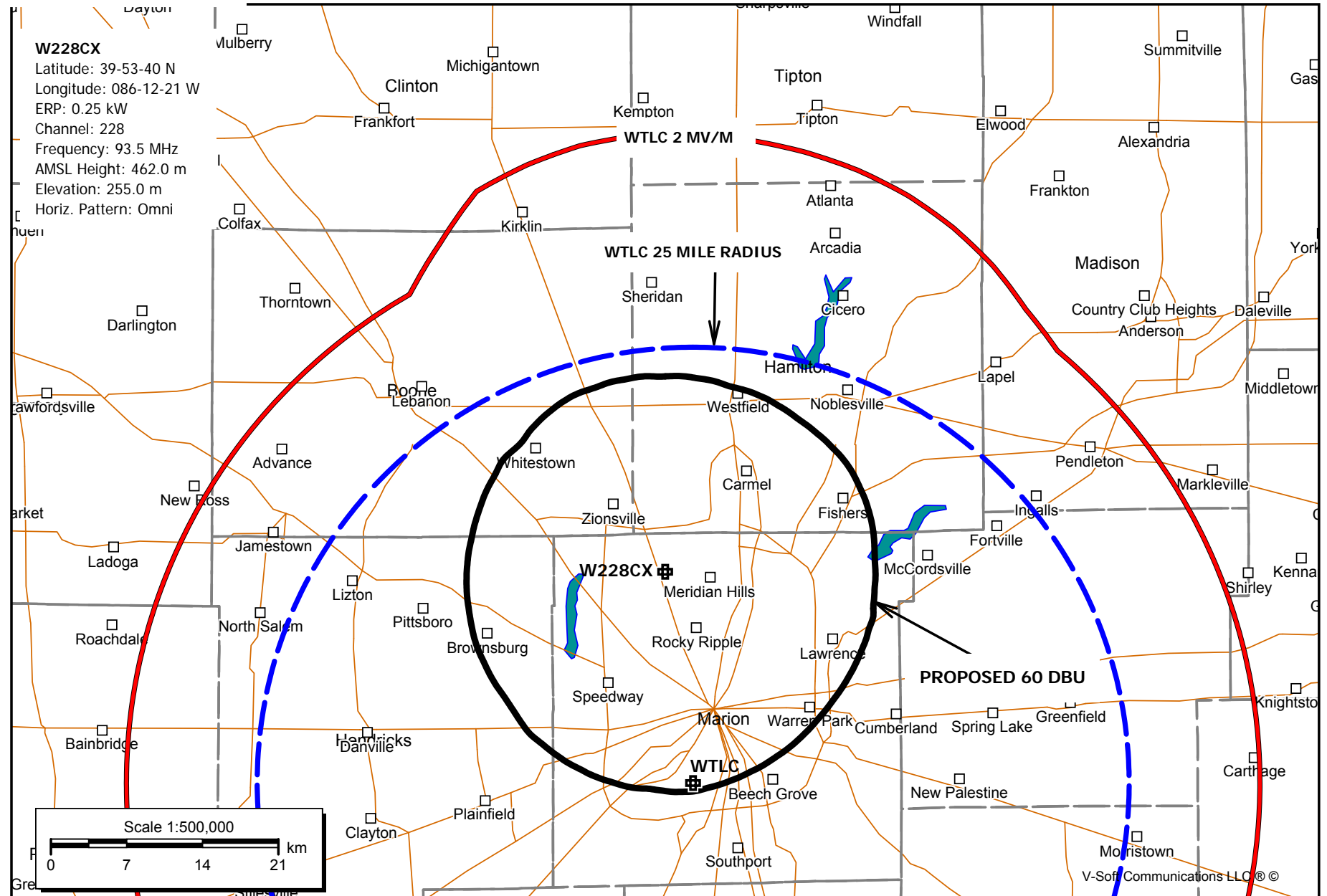
© 2015 Google



1000 ft

E2 CONTOURS

Anderson Communications, LLC



E3 Registration 1253064

 [Map Registration](#)

Registration Detail

Reg Number	1253064	Status	Constructed
File Number	A0898199	Constructed	07/24/2006
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Commu

Location (in NAD83 Coordinates)

Lat/Long	39-53-40.0 N 086-12-21.0 W	Address	7701 Walnut Drive
City, State	Indianapolis , IN		
Zip	46268	County	MARION
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
254.5	307.8
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
562.3	259.0

Painting and Lighting Specifications

FAA Chapters 4, 9, 12
Paint and Light in Accordance with FAA Circular Number 70/7460-1K

FAA Notification

FAA Study	2005-AGL-965-OE	FAA Issue Date	06/23/2005
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Owner & Contact Information

FRN	0011498342	Owner Entity Type	Limited Liability Company
Assignor FRN	0006154249	Assignor ID	L00167959

Owner

American Tower, LLC	P: (781)926-4500
Attention To: FAA/FCC	F:
10 Presidential Way	E: FAA-FCC@americantower.com
Woburn , MA 01801	

Contact

Attention To: FAA/FCC	P: (561)886-3925
10 Presidential Way	F:
Woburn , MA 01801	E: FAA-FCC@americantower.com

Last Action Status

Status	Constructed	Received	04/14/2014
Purpose	Change Owner	Entered	04/14/2014
Mode	Interactive		

Related Applications

04/14/2014	A0898199	- Change Owner (OC)
11/12/2009	A0656926	- Admin Update (AU)

Output from NADCON for station W228CX

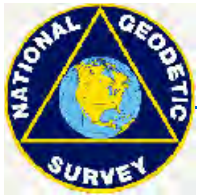
North American Datum Conversion

NAD 83 to NAD 27

NADCON Program Version 2.11

Transformation #: 1 Region: Conus

	Latitude	Longitude
NAD 27 datum values:	39 53 39.85374	86 12 21.03664
NAD 83 datum values:	39 53 40.00000	86 12 21.00000
NAD 27 - NAD 83 shift values:	-0.14626	0.03663(secs.)
	-4.511	0.870 (meters)
Magnitude of total shift:		4.594(meters)



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