

# *APPLICATION FOR CONSTRUCTION PERMIT*

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W229BZ – CANTON, ILLINOIS  
FACILITY ID: 141941  
94.1 MHz / 250 W ERP ND

ILLIANA COMMUNICATIONS, LLC

NOVEMBER 2020

## **APPLICATION FOR CONSTRUCTION PERMIT**

The following engineering statement and attached exhibits have been prepared for **Illiana Communications, LLC** ("Illiana"), licensee of FM translator station W229BZ at Canton, Illinois, and are in support of their application for construction permit to modify that facility.<sup>1</sup> This facility seeks to change the center of radiation elevation, channel, maximum ERP, and antenna type. The translator would remain at the same location at which it is currently licensed.

W229BZ is licensed to operate on FM channel 229 with a maximum effective radiated power of 204 Watts at a center of radiation of 56 meters above ground, 255 meters above mean sea level, utilizing a non-directional antenna. The proposed facility would operate on FM channel 231 with a maximum effective radiated power of 250 Watts utilizing a non-directional antenna. The proposed center of radiation is 276.9 meters above mean sea level, or 78.2 meters above ground level.

The primary facility for the translator would continue to be co-located AM station WBYS at Canton, Illinois.<sup>2</sup> Exhibit E-1 illustrates the predicted 60 dBu service contour for the proposed W229BZ technical parameters along with both the WBYS 2 mV/m daytime contour, and a twenty-five mile radius centered on the WBYS transmitter site. As this map demonstrates, the translator contour is contained within both of these constructs.

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<sup>1</sup> The Facility ID for W229BZ at Canton, Illinois is 141941.

<sup>2</sup> The Facility ID for WBYS at Canton, Illinois is 22898.

JEREMY RUCK & ASSOCIATES, INC.

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Canton, IL 61520

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The proposed facility complies with the provisions of Section 74.1204 of the Commission's Rules. Section 74.1205 is not applicable due to the proposed operation of the translator on FM channel 231. Exhibit E-2 is a tabular interference study for the proposed technical parameters. This study demonstrates that the contour overlap provisions of Section 74.1204 would be met by the proposed technical parameters to all relevant applications and authorizations. This study is graphically illustrated in the contour map that comprises Exhibit E-3.

The proposed facility would not constitute a significant environmental impact, and is exempt from environmental processing. The change in the translator antenna, and its elevation on the tower, would not increase the existing environmental impact already present from the structure.

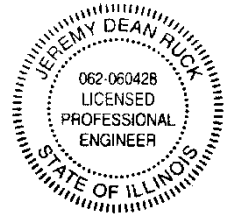
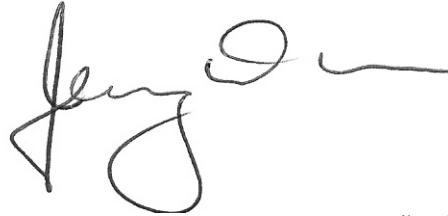
Additionally, the proposed facility would not constitute a radiofrequency radiation hazard to persons at the site. The Commission's on-line *FM Model* utility predicts a maximum power density of  $1.73 \mu\text{W}/\text{cm}^2$  at ground level at a distance of 78 meters from the tower base. For co-located FM station WCDD, *FM Model* predicts a maximum power density of  $24.98 \mu\text{W}/\text{cm}^2$  at a distance of 21 meters from the tower base. The sum of both of these values is considerably less than the uncontrolled environment condition of the Commission's safety standard. For W229BZ, which would utilize a Bext TFC2K-1, a type-2 antenna was considered. In the case of WCDD, an ERI LPX-6C antenna is utilized, which is a type-3 antenna.

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The preceding statement and attached exhibits have been prepared by me, or under my direction, and are true and accurate to the best of my belief and knowledge.



Above signature is digitized copy of actual signature  
License Expires November 30, 2021

Jeremy D. Ruck, PE  
November 6, 2020

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11.6.2020

**W229BZ.X**

BLFT20140131ARN  
Latitude: 40-32-40.60 N  
Longitude: 090-01-15.90 W  
ERP: 0.25 kW  
Channel: 231  
Frequency: 94.1 MHz  
AMSL Height: 276.9 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: FCC Contour

Jeremy Ruck & Associates, Inc.

- Proposed W229BZ 60 dBu Service Contour
- WBYS 2 mV/m Daytime Service Contour
- WBYS Transmitter Site 25 mile Radius

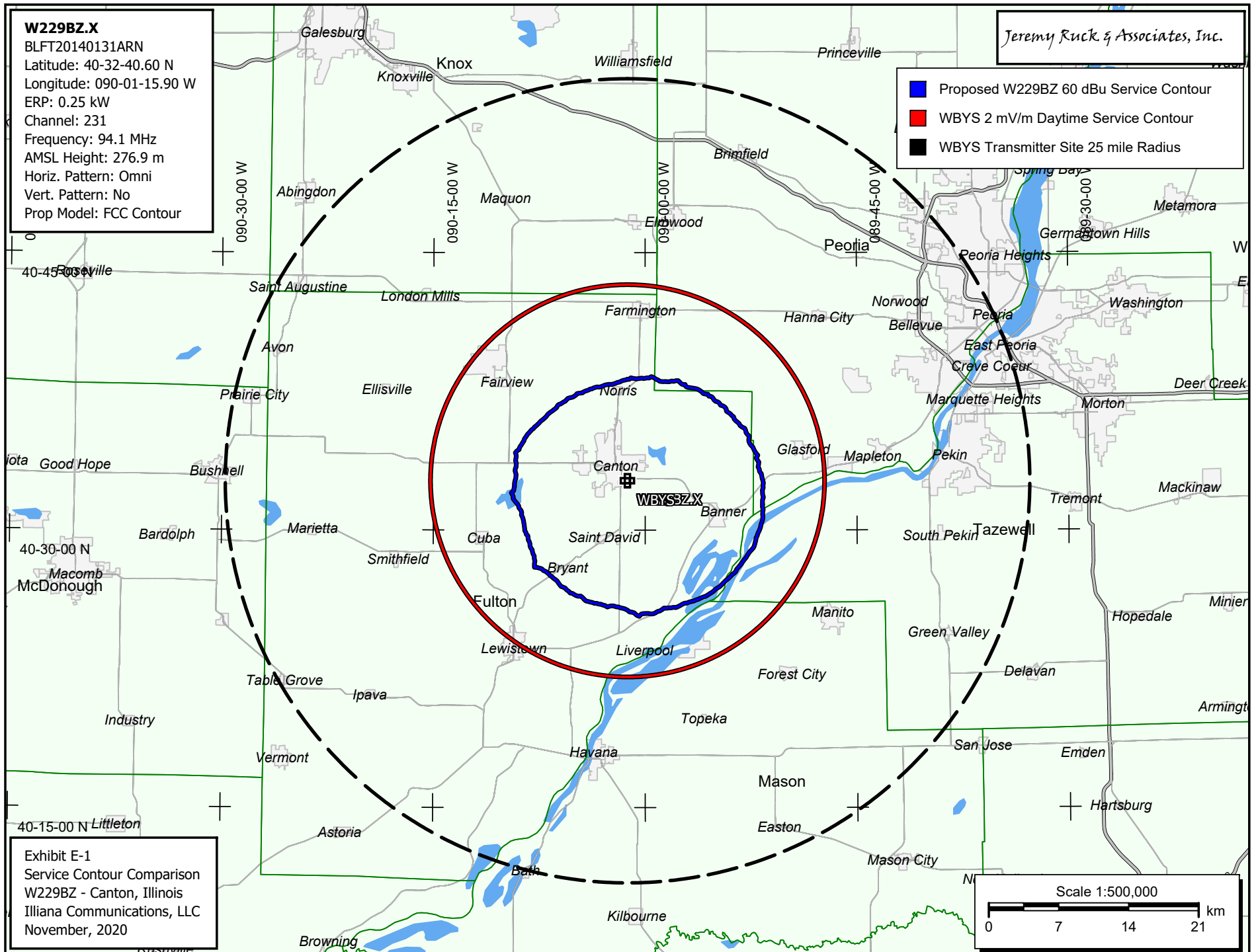
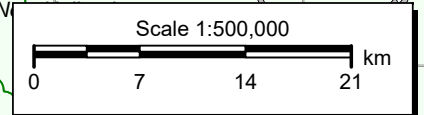


Exhibit E-1  
Service Contour Comparison  
W229BZ - Canton, Illinois  
Illiana Communications, LLC  
November, 2020



Jeremy Ruck & Associates, Inc.  
Consulting Engineers

Exhibit E-2 - Tabular Interference Study  
W229BZ - Canton, Illinois

REFERENCE  
40 32 40.60 N.  
90 01 15.90 W.

CH# 231D - 94.1 MHz, Pwr= 0.25 kw, HAAT= 87.1 M, COR= 276.9 M  
Average Protected F(50-50)= 12.04 km  
Omni-directional

DISPLAY DATES  
DATA 11-06-20  
SEARCH 11-06-20

CH CITY	CALL	TYPE STATE	ANT AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
229D Canton	W229BZ	LIC IL	0.0 322.8	0.00 BLFT20140131ARN	40 32 40.10 90 01 15.40	0.204 69	255	---Reference--- Illiana Communications, LL		
232A Chillicothe	WPMJ	LIC IL	54.1 234.4	54.30 BLH19830118AA	40 49 48.10 89 29 54.30	6.000 91	45.9 287	28.8 Crci, L.L.C.	-3.3	6.2
230B1 Sherman	WQQL	LIC IL	144.9 325.2	75.20 BLH20041206AAT	39 59 25.20 89 30 46.40	15.000 131	58.9 311	44.9 Saga Communications Of Ill	2.3	5.2
232A Beardstown	WRMS-FM	LIC IL	214.1 33.9	62.42 BMLH19900904KE	40 04 45.10 90 25 58.40	6.000 91	41.5 249	24.1 Lb Sports Productions LLC	11.1	16.0
231C1 Iowa City	KRNA	LIC IA	312.0 130.8	202.71 BLH19911115KA	41 45 00.00 91 50 16.60	100.000 299	172.6 546	72.9 Townsquare Media Cedar Rap	19.6	95.2
231D Monmouth	W231DA	CP IL	308.5 128.1	67.72 BPFT20190717AAU	40 55 19.10 90 39 07.50	0.250	30.5 281	9.2 Robbins-Treat Resources, L	26.6	23.7
231D Monmouth	W231DA	LIC IL	307.9 127.5	66.72 BLFT20160413AAK	40 54 41.10 90 38 52.40	0.205	22.6 245	6.7 Robbins-Treat Resources, L	33.5	25.1
284A Bushnell	WLMD	LIC IL	270.4 90.1	39.52 BLH19920819KD	40 32 45.10 90 29 15.40	3.300 115	0.0 309	0.0 Virden Broadcasting Corp.	9.5R	30.0M
285A Pekin	WXCL	LIC IL	74.7 255.0	41.83 BMLH20060505ACO	40 38 34.10 89 32 38.30	6.000 100	0.0 290	0.0 Midwest Communications, In	9.5R	32.3M
229D Galesburg	W229BO	LIC IL	328.5 148.3	51.97 BLFT20150313AAO	40 56 34.10 90 20 39.50	0.210	1.0 329	12.9 Galesburg Broadcasting Com	40.8	37.7
230A Cambridge	KQCJ	LIC IL	351.9 171.8	94.07 BLH20080422AAC	41 22 56.10 90 10 47.40	4.200 120	41.1 334	26.9 Virden Broadcasting Corp.	42.8	53.3
231B Watseka	WGFA-FM	LIC IL	81.0 262.5	193.10 BLH19970711KC	40 47 37.10 87 45 17.10	50.000 111	132.3 305	59.1 Iroquois County Broadcasti	47.4	72.6

Terrain database is FCC 30 meter , 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.  
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.  
« = Station meets FCC minimum distance spacing for its class.  
Reference station has protected zone issue: AM tower

**W229BZ.X**

BLFT20140131ARN

Latitude: 40-32-40.60 N

Longitude: 090-01-15.90 W

ERP: 0.25 kW

Channel: 231

Frequency: 94.1 MHz

AMSL Height: 276.9 m

Elevation: 198.0 m

Horiz. Pattern: Omni

Vert. Pattern: No

Prop Model: FCC Contour

Jeremy Ruck &amp; Associates, Inc.

- 60 dBu F(50,50) Service Contour
- 57 dBu F(50,50) Service Contour
- 54 dBu F(50,50) Service Contour
- 36 dBu F(50,10) Interference Contour
- 40 dBu F(50,10) Interference Contour
- 51 dBu F(50,10) Interference Contour
- 54 dBu F(50,10) Interference Contour
- 100 dBu F(50,10) Interference Contour
- IF Spacing Limit

