

EXHIBIT A

ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of TRI-STATE CHRISTIAN TV, INC., licensee of full-power digital television station WTCT-DT, Channel 17 in Marion, Illinois, in support of its application for modification of Construction Permit 0000028108, which authorizes operation on its post-repack channel, Channel 30. It is proposed herein to increase the effective radiated power of the station. No change in transmitter site location, antenna radiation pattern or antenna height is proposed herein.

It is still proposed to mount a Dielectric omnidirectional elliptically-polarized slotted cylinder antenna at the 140-meter level of the existing 152-meter tower on which the present WTCT-DT antenna is mounted. The proposed effective radiated power for the instant facility is 1000 kW. Exhibit B is a map upon which the predicted service contours are plotted. As shown, the community of Marion is completely encompassed by the proposed 48 dBu city-grade service contour.

Elevation pattern information for the proposed antenna is provided in Exhibit C. Exhibit D contains the summary results from a TVStudy interference study, which was conducted using a cell size of 2 kilometers and increment spacing of 1.0 kilometer. It concludes that the proposed WTCT-DT facility meets the Commission's de minimis interference criteria to all co-channel and adjacent-channel post-repack full-power and Class A facilities. A power density calculation appears as Exhibit E.

Since no change in the overall height or location of the existing WTCT-DT tower is proposed herein, the Federal Aviation Administration has not been notified of this application.

EXHIBIT A

In addition, the Federal Communications Commission issued Antenna Structure Registration Number 1040116 to this tower.

I declare under penalty of perjury that the foregoing statements and the attached exhibits, which were prepared by me or under my immediate supervision, are true and correct to the best of my knowledge and belief.

A handwritten signature in blue ink, appearing to read 'K. T. Fisher', with a stylized 'K' and 'F'.

KEVIN T. FISHER

November 1, 2017

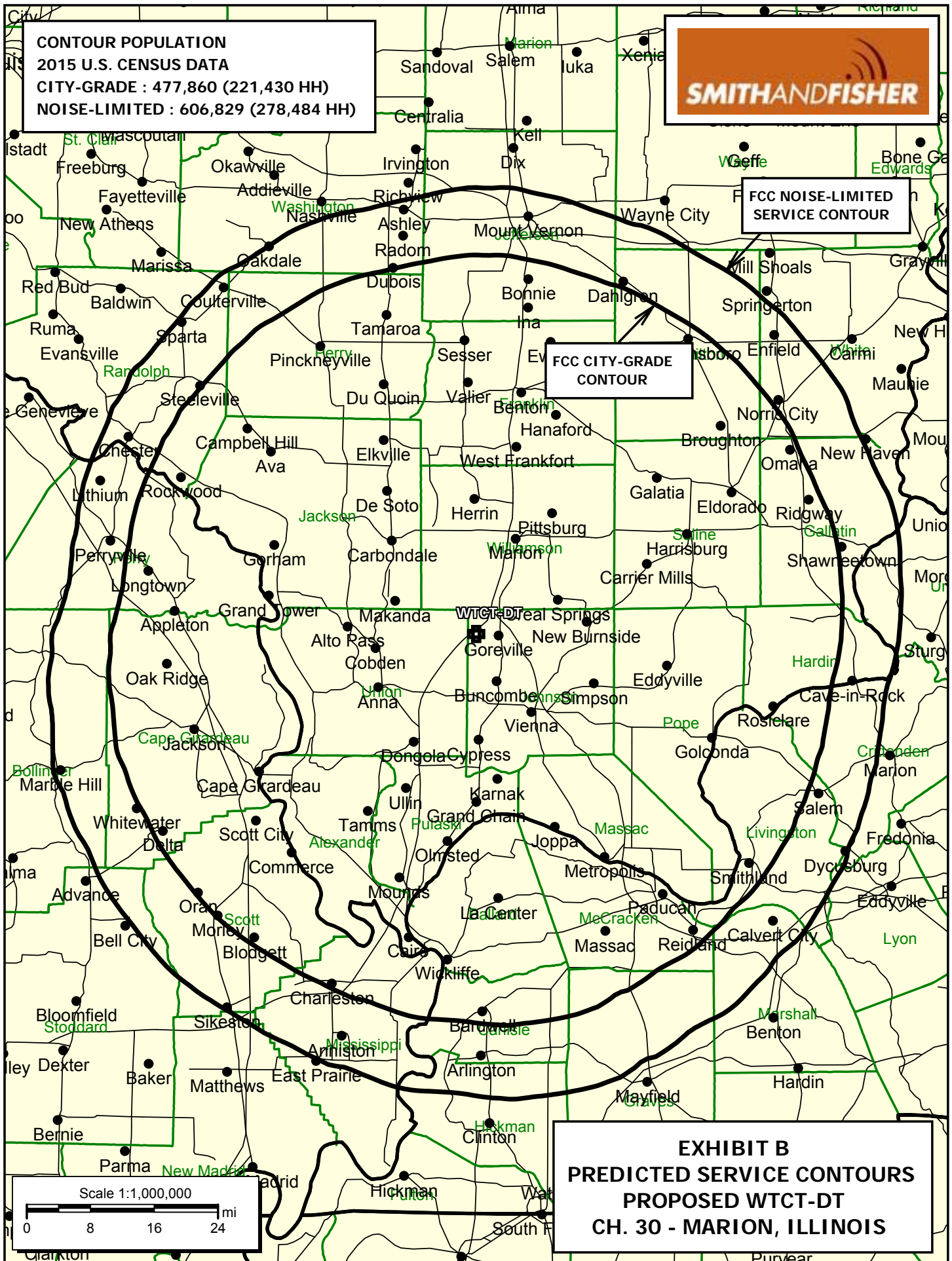
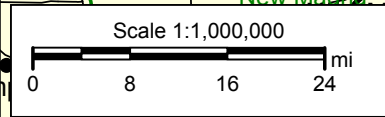
CONTOUR POPULATION  
2015 U.S. CENSUS DATA  
CITY-GRADE : 477,860 (221,430 HH)  
NOISE-LIMITED : 606,829 (278,484 HH)



FCC NOISE-LIMITED  
SERVICE CONTOUR

FCC CITY-GRADE  
CONTOUR

**EXHIBIT B**  
**PREDICTED SERVICE CONTOURS**  
**PROPOSED WTCT-DT**  
**CH. 30 - MARION, ILLINOIS**



## ELEVATION PATTERN

Exhibit No.

Date **27 Jun 2017**

Call Letters

Channel **30**

Antenna Type **TFU-24JTH TFU**

Location

Customer

**Future fill is available!**

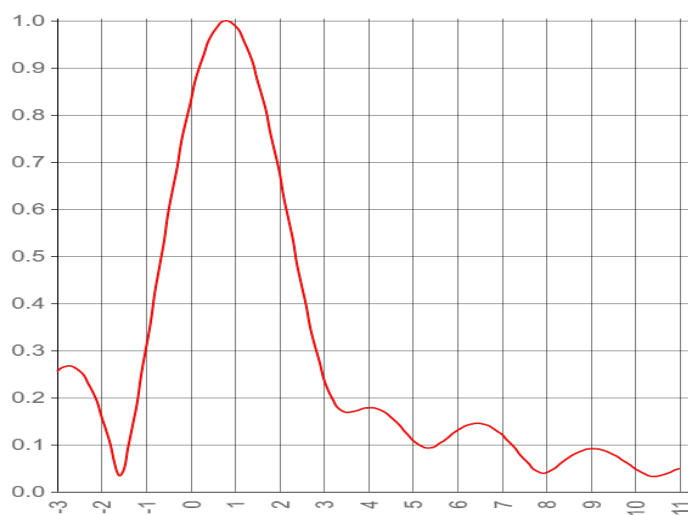
RMS Gain at Main Lobe **24.5 (13.89 dB)**

RMS Gain at Horizontal **16.9 (12.27 dB)**

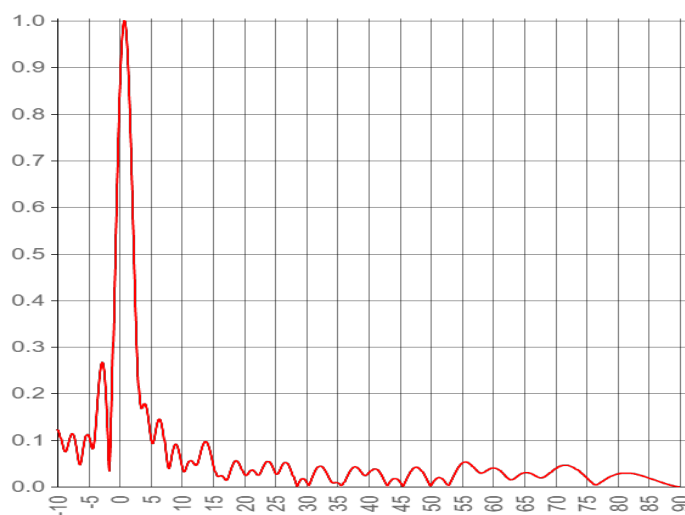
**Calculated**

Beam Tilt **0.75 Degrees**

Drawing # **24J245075**



Degrees below horizontal



Degrees below horizontal

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10	0.123	10	0.049	30	0.012	50	0.002	70	0.039
-9	0.082	11	0.049	31	0.020	51	0.018	71	0.045
-8	0.103	12	0.049	32	0.043	52	0.016	72	0.046
-7	0.092	13	0.071	33	0.035	53	0.006	73	0.041
-6	0.062	14	0.096	34	0.011	54	0.032	74	0.031
-5	0.111	15	0.054	35	0.009	55	0.050	75	0.020
-4	0.101	16	0.023	36	0.007	56	0.052	76	0.008
-3	0.255	17	0.015	37	0.033	57	0.040	77	0.006
-2	0.163	18	0.040	38	0.042	58	0.029	78	0.016
-1	0.304	19	0.054	39	0.029	59	0.035	79	0.023
0	0.830	20	0.028	40	0.028	60	0.040	80	0.027
1	0.990	21	0.034	41	0.038	61	0.036	81	0.029
2	0.676	22	0.028	42	0.027	62	0.023	82	0.029
3	0.241	23	0.039	43	0.003	63	0.015	83	0.027
4	0.178	24	0.054	44	0.017	64	0.023	84	0.023
5	0.110	25	0.030	45	0.011	65	0.030	85	0.019
6	0.130	26	0.042	46	0.013	66	0.029	86	0.014
7	0.121	27	0.050	47	0.036	67	0.022	87	0.010
8	0.040	28	0.020	48	0.041	68	0.020	88	0.005
9	0.091	29	0.013	49	0.024	69	0.028	89	0.002

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TVSTUDY INTERFERENCE ANALYSIS RESULTS  
PROPOSED WTCT-DT  
CHANNEL 30 – MARION, ILLINOIS

Study created: 2017.11.01 05:09:53

Study build station data: LMS TV 2017-10-24 (1)

Proposal: WTCT D30 DT CP MARION, IL  
File number: BLANK0000028108  
Facility ID: 67786  
Station data: User record  
Record ID: 84  
Country: U.S.  
Zone: I

Stations affected by proposal:

Call	Chan	Svc	Status	City, State	File Number	Distance
WEIU-TV	D30	DT	CP	CHARLESTON, IL	BLANK0000029172	232.3 km
WEIU-TV	D30	DT	BL	CHARLESTON, IL	DTVBL18301	232.3
WKPC-TV	D30	DT	CP	LOUISVILLE, KY	BLANK0000025323	293.8
WKPC-TV	D30	DT	BL	LOUISVILLE, KY	DTVBL21432	293.8
WNAB	D30	DT	CP	NASHVILLE, TN	BLANK0000028214	244.8
WNAB	D30	DT	BL	NASHVILLE, TN	DTVBL73310	244.8
KDNL-TV	D31	DT	LIC	ST. LOUIS, MO	BLCDT20021216AAE	161.2

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D30  
Latitude: 37 33 26.00 N (NAD83)  
Longitude: 89 1 24.00 W  
Height AMSL: 396.0 m  
HAAT: 213.0 m  
Peak ERP: 1000 kW  
Antenna: Omnidirectional  
Elev Pattn: Generic  
Elec Tilt: 0.80

40.3 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	1000 kW	241.4 m	89.6 km
45.0	1000	235.4	88.7
90.0	1000	198.6	84.5
135.0	1000	231.1	88.1
180.0	1000	263.4	93.2
225.0	1000	249.1	90.8
270.0	1000	197.1	84.4
315.0	1000	218.7	86.6

Database HAAT does not agree with computed HAAT

Database HAAT: 213 m    Computed HAAT: 229 m

\*\*Proposal service area extends beyond baseline plus 1.0%

Proposal service area population is more than 95.0% of baseline

Distance to Canadian border: 698.5 km

Distance to Mexican border: 1428.4 km

Conditions at FCC monitoring station: Powder Springs GA

Bearing: 135.4 degrees    Distance: 564.9 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:

Bearing: 286.5 degrees    Distance: 1429.2 km

Study cell size: 2.00 km

Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%

Maximum new IX to LPTV: 2.00%

No IX check failures found.

POWER DENSITY CALCULATION

PROPOSED WTCT-DT  
CHANNEL 30 – MARION, ILLINOIS

[MODIFICATION OF CONSTRUCTION PERMIT 0000028108]

Since the FCC considers the possible biological effects of RF transmissions in its environmental determinations, we have studied the matter with respect to this Marion facility. Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 1000 kW (H,V), an antenna radiation center 140 meters above ground, and the specific elevation pattern of the proposed Dielectric antenna, maximum power density two meters above ground of  $0.0067 \text{ mW/cm}^2$  is calculated to occur 45 meters from the base of the tower. Since this is only 1.8 percent of the  $0.38 \text{ mW/cm}^2$  reference for uncontrolled environments (areas with public access) surrounding a facility operating on Channel 30 (566-572 MHz), a grant of this proposal may be considered a minor environmental action with respect to public exposure to non-ionizing electromagnetic radiation.

Further, the station owner will take whatever precautionary steps are necessary, such as reducing power or leaving the air temporarily, to ensure that workers operating in the vicinity of the antenna are not exposed to excessive non-ionizing radiation.