

## ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of D.T.V. LLC, licensee of Class A digital television station WPHA-CD, on Channel 24 in Philadelphia, Pennsylvania, in support of its Application for Construction Permit to operate with a new directional antenna. No change in transmitter site location, effective radiated power or antenna height is proposed herein.

It is proposed to mount a Dielectric directional, elliptically-polarized antenna at the authorized height (the 223 meter level) of the existing 383-meter KPHA-CD tower. The proposed effective radiated power for the facility remains at 15.0 kW. Exhibit B is a map upon which the predicted 51 dBu service contour is plotted.

Elevation and azimuth pattern data for the proposed antenna appear in Exhibit C.

Exhibit D contains the summary results from a TVStudy interference study, which was conducted using a cell size of 0.5 kilometer and increment spacing of 0.1 kilometer. It concludes that the proposed WPHA-CD facility meets the Commission's *de minimis* interference criteria to all co-channel and adjacent-channel post-repack full-power and Class A and LPTV/translator facilities.

A detailed power density calculation is provided in Exhibit E.

Since no change in the overall height or location of the existing WPHA-CD structure is proposed herein, the Federal Aviation Administration has not been notified of this application. In addition, the FCC issued Antenna Structure Registration Number 1231524 to this tower.

EXHIBIT A

I declare under penalty of perjury that the foregoing statements and the attached exhibits 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

December 7, 2017

**CONTOUR POPULATION  
2015 U.S. CENSUS DATA  
4,906,341 (2,001,506 HH)**

**Smith and Fisher, LLC**

**PROPOSED 51 DBU  
FCC CONTOURS**

**WPHA-CD-A**

**Philadelphia**

**EXHIBIT B  
PREDICTED SERVICE CONTOUR  
PROPOSED WPHA-CD  
CH. 24 - PHILADELPHIA, PENNSYLVANIA**

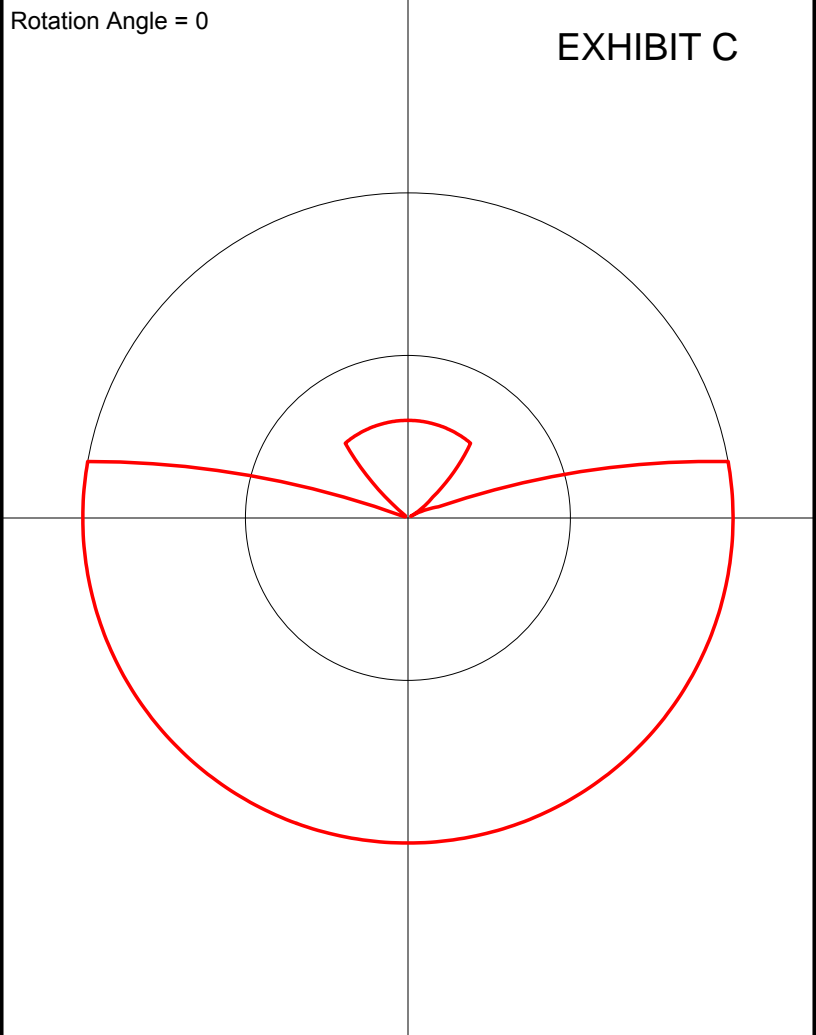
Scale 1:600,000

0 5 10 15 mi

Antenna Pattern  
Pre-Rotation Antenna Pattern....

Rotation Angle = 0  
EXHIBIT C

Azimuth (deg)	Relative Field
0.0	0.3
10.0	0.3
20.0	0.3
30.0	0.3
40.0	0.3
50.0	0.1
60.0	0.01
70.0	0.1
80.0	1.0
90.0	1.0
100.0	1.0
110.0	1.0
120.0	1.0
130.0	1.0
140.0	1.0
150.0	1.0
160.0	1.0
170.0	1.0
180.0	1.0
190.0	1.0
200.0	1.0
210.0	1.0
220.0	1.0
230.0	1.0
240.0	1.0
250.0	1.0
260.0	1.0
270.0	1.0
280.0	1.0
290.0	0.01
300.0	0.01
310.0	0.01
320.0	0.3
330.0	0.3
340.0	0.3
350.0	0.3



## ELEVATION PATTERN

Exhibit No. **C**  
 Date **6 Dec 2017**  
 Call Letters **WPHA-CD**  
 Channel **24**  
 Antenna Type **TLP-12TLP/VP**  
 Location **Philadelphia, PA**  
 Customer

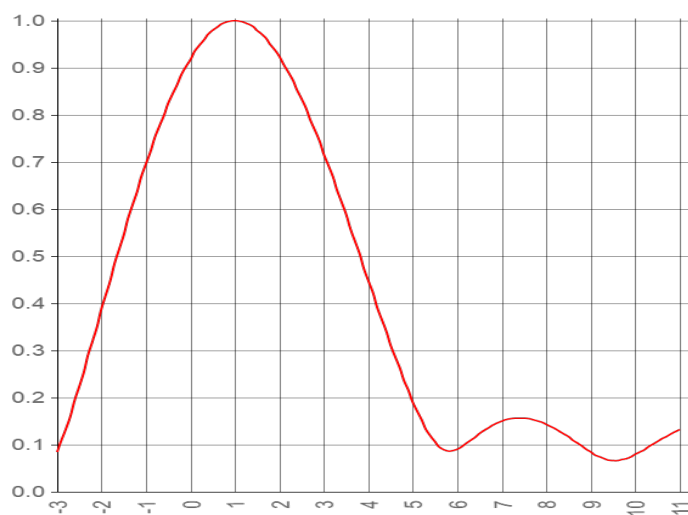
RMS Gain at Main Lobe **12.0 (10.79 dB)**

Beam Tilt **1 Degrees**

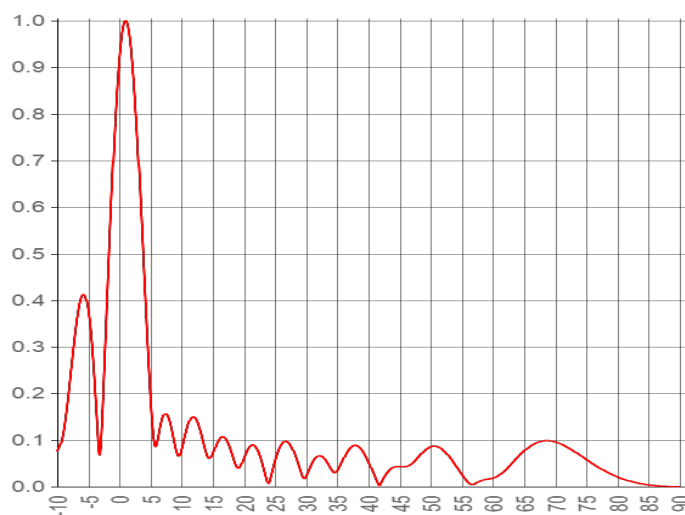
RMS Gain at Horizontal **10.1 (10.06 dB)**

Drawing # **12L120100**

**Calculated**



Degrees below horizontal



Degrees below horizontal

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10	0.076	10	0.079	30	0.022	50	0.086	70	0.096
-9	0.117	11	0.132	31	0.051	51	0.086	71	0.091
-8	0.221	12	0.149	32	0.066	52	0.078	72	0.084
-7	0.339	13	0.120	33	0.059	53	0.064	73	0.076
-6	0.409	14	0.071	34	0.038	54	0.045	74	0.067
-5	0.379	15	0.070	35	0.034	55	0.026	75	0.058
-4	0.227	16	0.101	36	0.060	56	0.010	76	0.049
-3	0.084	17	0.104	37	0.082	57	0.006	77	0.041
-2	0.385	18	0.074	38	0.089	58	0.013	78	0.034
-1	0.696	19	0.041	39	0.078	59	0.016	79	0.027
0	0.919	20	0.062	40	0.053	60	0.018	80	0.021
1	1.000	21	0.087	41	0.023	61	0.025	81	0.016
2	0.923	22	0.083	42	0.008	62	0.036	82	0.012
3	0.718	23	0.049	43	0.030	63	0.050	83	0.009
4	0.447	24	0.008	44	0.041	64	0.064	84	0.006
5	0.192	25	0.056	45	0.043	65	0.077	85	0.004
6	0.090	26	0.090	46	0.043	66	0.087	86	0.002
7	0.150	27	0.096	47	0.050	67	0.094	87	0.001
8	0.143	28	0.075	48	0.063	68	0.098	88	0.001
9	0.084	29	0.037	49	0.077	69	0.099	89	0.000

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Exhibit D -WPHA-CD

TVSTUDY INTERFERENCE SUMMARY  
PROPOSED WPHA-CD  
CH. 24 - PHILADELPHIA, PA

Study created: 2017.12.07 08:41:27

Study build station data: LMS TV 2017-11-22 (3)

Proposal: WPHA-CD D24 DC LIC PHILADELPHIA, PA  
File number: BLDTA20130920ADK  
Facility ID: 72278  
Station data: User record  
Record ID: 136  
Country: U.S.

Build options:  
Protect LPTV records from Class A

Stations affected by proposal:

Call	Chan	Svc	Status	City, State	File Number	
Distance						
WNJS	D23	DT	APP	CAMDEN, NJ	BLANK0000034585	48.3
km						
WNJS	D23	DT	CP	CAMDEN, NJ	BLANK0000026717	48.3
WNJS	D23	DT	BL	CAMDEN, NJ	DTVBL48481	48.3
WDPB	D24	DT	CP	SEAFORD, DE	BLANK0000026250	157.6
WDPB	D24	DT	APP	SEAFORD, DE	BLANK0000034446	157.5
WDPB	D24	DT	BL	SEAFORD, DE	DTVBL72335	157.5
WNYE-TV	D24	DT	LIC	NEW YORK, NY	BLEDT20071228ABM	132.3
WTAJ-TV	D24	DT	APP	ALTOONA, PA	BLANK0000034754	277.9
WTAJ-TV	D24	DT	BL	ALTOONA, PA	DTVBL23341	277.9
W24BB-D	D24	DC	LIC	EAST STROUDSBURG, PA	BLANK0000001453	111.8
W24CS-D	D24	LD	LIC	READING, PA	BLANK0000001522	66.1

No non-directional AM stations found within 0.8 km

Directional AM stations within 3.2 km:  
WNWR 1540 C DA2 D PHILADELPHIA, PA BP20161215ABM  
WNWR 1540 C DA2 N PHILADELPHIA, PA BP20161215ABM  
WNWR 1540 L DAD D PHILADELPHIA, PA BMML20120724AFT

Record parameters as studied:

Exhibit D -WPHA-CD

Channel: D24  
Mask: Full Service  
Latitude: 40 2 30.10 N (NAD83)  
Longitude: 75 14 10.10 W  
Height AMSL: 312.0 m  
HAAT: 0.0 m  
Peak ERP: 15.0 kW  
Antenna: WPHA-CD Special2 0.0 deg  
Elev Pattn: Generic

49.8 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	1.35 kW	243.3 m	41.2 km
45.0	0.600	207.6	35.0
90.0	15.0	263.0	54.8
135.0	15.0	291.6	56.5
180.0	15.0	274.4	55.5
225.0	15.0	219.2	52.3
270.0	15.0	192.5	50.8
315.0	0.360	262.2	35.1

Database HAAT does not agree with computed HAAT  
Database HAAT: 0 m Computed HAAT: 244 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: 419.4 km

Distance to Mexican border: 2543.6 km

Conditions at FCC monitoring station: Laurel MD  
Bearing: 234.8 degrees Distance: 167.1 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 280.1 degrees Distance: 2537.6 km

Study cell size: 0.50 km  
Profile point spacing: 0.10 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 WPHA-CD  
CHANNEL 24 – PHILADELPHIA, PENNSYLVANIA

Since the FCC considers the possible biological effects of RF transmissions in its environmental determinations, we have studied the matter with respect to this Philadelphia facility. Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 15.0 kW (H,V), an antenna radiation center 223 meters above ground, and the specific elevation pattern for the proposed Dielectric 12-bay antenna, a maximum power density value two meters above ground of  $0.00018 \text{ mW/cm}^2$  is calculated to occur 85 meters south, east and west of the base of the tower. Since this is significantly less than 0.1 percent of the  $0.35 \text{ mW/cm}^2$  reference for uncontrolled environments (areas with public access) surrounding a facility operating on Channel 24 (530-536 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.