

ENGINEERING REPORT FOR  
CENTRAL OHIO ASSOCIATION OF CHRISTIAN BROADCASTERS  
FOR APPLICATION OF  
WXCB-CA  
CLASS A TELEVISION STATION  
DELAWARE, OH  
CHANNEL 42 – 19.28 KW MAX. - 366 METERS AMSL

JULY 29, 2002

R & L MEDIA SYSTEMS, INC.  
BROADCAST CONSULTANTS  
RADIO AND TELEVISION  
HENDERSONVILLE, TN

### Introduction

This engineering report has been prepared on behalf of Central Ohio Association Of Christian Broadcasters in support of an application for WXCB-CA, FCC Facility ID No. 59852 for Channel 42 at Delaware, OH.

It is proposed to operate using a Propagation Systems Inc. directional antenna with an effective radiated power (ERP) of 19.28 Kw at horizon and a radiation center of 366 meters above sea level. Aural power is proposed at 10% of visual power value.

### Transmitter Site

It is proposed to side-mount on an existing 83 meter guide tower at 501 Bowtown Road, Delaware, OH.

The NAD-27 geographic coordinates of the transmitter site are:

North Latitude: 40° 17' 57"  
West Longitude: 83° 02' 45"

### Equipment Data

Transmitter: Type-Verified, rated at 1.00 Kw visual and .100 Kw aural  
Transmission Line: 82 meters of Andrew, Type LDF7-50A  
1-5/8" Foam Dielectric 50-ohm line  
Antenna: Propagation Systems Inc, PSILP16OI, horizontal polarized, Slot Antenna.

### Power Data

#### Visual

Transmitter output	1.00 kW	0.00 dBk
Transmission line efficiency	66.68 %	-1.76 dB
Power input to antenna	.667 kW	-1.76 dBk
Antenna power gain (Horizon)	28.9	14.61 dB
Effective Radiated Power (Horizon)	19.28 kW	12.85 dBk

Elevation Data

Vertical dimension antenna	7.9 meters	25.9 feet
Elevation of the site above mean sea level	286.0 meters	938.4 feet
Height of top of structure above ground	83.0 meters	272.3 feet
Height of top of supporting structure above mean sea level	369.0 meters	1210.7 feet
Radiation center above ground	80.0 meters	262.5 feet

Other Stations

No objectionable interference problems are anticipated, however, if any problems occur, the applicant will take the necessary steps to resolve them.

FCC Rule, Section 1.1307

The proposed TV operation with a peak ERP of 19.28 kW visual and 1.928 kW aural. Calculations to determine power density levels from the proposed operation were performed using formulas outlined in OET Bulletin 65 (Edition 97-01) based on antenna relative field factor of .1 The formula used is:

$$S = \frac{(33.4)(F^2)(.4VERP+AERP)}{R^2}$$

The maximum power density levels at two meters above ground level are .529  $\mu\text{W}/\text{cm}^2$  computed for a radiation center of 80 meters above ground level. The maximum allowed by OET65 bulletin is:

Occupational/Controlled Exposure  
Frequency / .3  
2,137  $\mu\text{W}/\text{cm}^2$

General Population  
Frequency / 1.5  
427  $\mu\text{W}/\text{cm}^2$

The proposed operation will be in compliance with the FCC RF radiation guidelines since areas that exceed the FCC standards will be alerted to workers by posting warning signs and restricting areas. All stations on the tower will have a mutual written agreement and procedures for workers climbing the tower. Transmitter power of each station will be reduced or terminated when workers are near areas on the tower where power density levels are in excess of the FCC standard. An environmental assessment

(EA) is categorically excluded under Section 1.1307 of the FCC Rules and Regulations since the applicant indicates:

- (a)(1) The proposed facilities are not located in an officially designated wilderness area.
- (a)(2) The proposed facilities are not located in an officially designated wildlife preserve.
- (a)(3) The proposed facilities will not affect any listed threatened or endangered species or habitats.
- (a)(3)(ii) The proposed facilities will not jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats.
- (a)(4) The proposed facilities will not affect any known districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture.
- (a)(5) The proposed facilities are not located near any known Indian religious sites.
- (a)(6) The proposed facilities are not located in a flood plain.
- (a)(7) The side-mounted TV antenna on the existing tower will not involve a significant change in surface features of the ground in the vicinity of the tower.
- (a)(8) The existing tower structure is not equipped with high intensity white lights.
- (b) There will be a security fence with a locked gate to surround the tower. Workers and the general public will not be subjected to RF radiation levels in excess of FCC OET Bulletin 65 (Edition 97-01). Authorized personnel will be alerted to areas of the tower where potential radiation levels are in excess of the FCC standard. The transmitter power will be reduced or terminated when necessary.

#### Land Mobile Radio

A study of Land mobile Radio was performed and no objectionable interference problems is anticipated. However, if any problems occur, the applicant will take the necessary steps to resolve them.

#### Interference Study

A study was done and the following were found to receive possible objectionable interference.

WCWB-DT	42	Pittsburgh, PA	See attached Longley-Rice Study.
WGGN-DT	42	Sandusky, OH	See attached Longley-Rice Study.
WPBO-TV	42-	Portsmouth, OH	See attached Longley-Rice Study.

As can be seen, the proposed station meets the FCC criteria and is grantable.

Summary of Channel 42 Z:

Lat: 40-17-57.0 N  
Lon: 83-02-45.0 W  
ERP: 19.280 kW

ComStudy 2.2 RadioSoft

Callsign	Ch#	Fac ID	ARN	City	Type	ERP	Status	Bearing	Dist	Clearance	Pop Within Protected Contour	Pop Within Overlap	% Within Overlap
900725KG	46 Z	71927	BPET19900725KG	JAMESTOWN	APP	64.6	Clear	56.49	371.7	339.7	N/C	N/C	N/C
CKCOTV3	42 -	98679		SARNIA	LIC	846	Clean	15.44	279	115.5	404489	0	0.00%
NEW	46 +	127458	BPRM20000717AEG	BAY CITY	LIC	5000	Clear	342.18	367.2	335.2	N/C	N/C	N/C
W13BN	43 -	49182	BMP TTL20001113ACE	COLUMBUS	CP MOD	0.95	Clean	177.58	36.5	20.4	292583	0	0.00%
W48CH	42 +	68016	BLTT19940915IF	ERIE	LIC	6.7	Clean	51.26	315.8	249.6	192814	0	0.00%
WBGU-TV	27 +	6568	BLET19860808KL	BOWLING GREEN	LIC	1000	Clean	322.38	118	30	1149970	0	0.00%
WCLJ	42 +	68007	BLCT19870904KG	BLOOMINGTON	LIC	5000	Clean	250.38	282.8	115.5	1541204	0	0.00%
WCWB*	42	73907	DTV ALLOTMENT	PITTSBURGH	LIC	330.8	Clean	85.75	282.2	16.3	2597512	0	0.00%
WCWB-DT	42	73907	BDSTA20020419ABT	PITTSBURGH	LIC	20	Clean	84.18	258.4	7.7	2376869	0	0.00%
WCWB-DT	42	73907	BPCDT19990112KF	PITTSBURGH	CP	331	Clean	84.18	258.4	-10.6	2771505	0	0.00%
WCWB-DT	42	73907	BMP CDT20000428ABY	PITTSBURGH	APP	1000	Interf	84.18	258.4	-20.5	2967681	104	0.00%
WEAO	49 +	49421	BLET19821105KI	AKRON	LIC	692	Clean	53.35	147.5	47.5	2899923	0	0.00%
WGGN-DT	42	11027	BPCDT19991108AAE	SANDUSKY	CP	58.9	Clean	9.84	123.9	-127.3	783921	0	0.00%
WGGN-DT	42	11027	BMP CDT20000501AIZ	SANDUSKY	APP	1000	Interf	9.84	123.9	-142.6	1668614	841	0.10%
WGGN-TV*	42	11027	DTV ALLOTMENT	SANDUSKY	LIC	50	Clean	9.84	123.9	-127.5	827706	0	0.00%
WHIO-DT	41	41458	BDSTA20010719AAZ	DAYTON	LIC	275	Clean	238.84	120.1	27	2707607	0	0.00%
WHIO-DT	41	41458	BPCDT19991027ABD	DAYTON	CP	1000	Clean	238.84	120.1	15.7	2997429	0	0.00%
WHIO-TV*	41	41458	DTV ALLOTMENT	DAYTON	LIC	493.2	Clean	238.83	120.1	16.4	3215206	0	0.00%
WHME-TV	46 Z	36117	BLCT2590	SOUTH BEND	LIC	1120	Clear	299.87	298.6	266.6	N/C	N/C	N/C
WIPB	49 Z	3646	BLET19810717KI	MUNCIE	LIC	676	Clean	266.3	198.6	98.6	521600	0	0.00%
WKLE	46 Z	34207	BLET353	LEXINGTON	LIC	1260	Clear	202.73	290.8	258.5	N/C	N/C	N/C
WKLE*	42	34207	DTV ALLOTMENT	LEXINGTON	LIC	50	Clean	202.73	290.8	17.5	628966	0	0.00%
WKLE-DT	42	34207	BLEDT20011121ABJ	LEXINGTON	LIC	48	Clean	202.73	290.8	20.4	612515	0	0.00%
WLIO	35 -	37503	BLCT19890519KE	LIMA	LIC	661	Clean	298.9	104.5		433115	0	0.00%
WMSY-DT	42	5982	BPEDT19990527KG	MARION	CP	100	Clean	160.45	399.6	107.5	317946	0	0.00%
WMSY-TV*	42	5982	DTV ALLOTMENT	MARION	LIC	50	Clean	160.47	399.8	112.5	256393	0	0.00%
WNDU-DT	42	41674	BLCDT19991230AAH	SOUTH BEND	LIC	310	Clean	299.67	302.9	49.7	1070078	0	0.00%
WNDU-DT	42	41674	BPCDT20000427AAD	SOUTH BEND	APP	1000	Clean	299.67	303	28.4	1671983	0	0.00%
WNDU-TV*	42	41674	DTV ALLOTMENT	SOUTH BEND	LIC	390.9	Clean	299.68	303	33.3	1477942	0	0.00%
WOHZ-LP	41 +	41892	BPTTL20000731AEY	MANSFIELD	APP	13.3	Clean	34.86	63.1	41.1	122664	0	0.00%
WOSU-TV	34 Z	66185	BLET19851106KE	COLUMBUS	LIC	1170	Clean	146.04	18.7		1601859	0	0.00%
WPBO	42 -	66190	BLET19930707KE	PORTSMOUTH	LIC	525	Interf	180.45	170.9	-16.5	313102	732	0.20%
WPBO*	43	66190	DTV ALLOTMENT	PORTSMOUTH	LIC	50	Clean	180.45	170.9	82.1	574357	0	0.00%
WPBO-DT	43	66190	BPEDT20000317AAE	PORTSMOUTH	CP	50	Clean	180.45	170.9	82.2	576568	0	0.00%
WTLW	44 +	1222	BLCT19820714KG	LIMA	LIC	912	Clean	298.59	109.1	77.1	486333	0	0.00%
WTTE	28 -	74137	BPCT20011018AGK	COLUMBUS	CP	1440	Clean	177	40.3	-42	1555688	0	0.00%
WTTE	28 -	74137	BLCT19840614KE	COLUMBUS	LIC	1910	Clean	146.04	18.8	-67.7	1646794	0	0.00%
WVFX	46 -	10976	BLCT19810824KE	CLARKSBURG	LIC	155	Clear	114.82	256.1	224.1	N/C	N/C	N/C