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ENGINEERING REPORT

WMNO-CD, Columbus, IN Minor Modification (Channel 18)

ENGINEERING STATEMENT

This is a minor change application to the channel 18 “re-pack” CP facility of BLANK0000028281 to re-locate the transmitter site to the ASR 1018015 existing tower site and to increase the service of WMNO-CD on its authorized channel 18. *Note that the community of license change to Columbus, OH is herein requested – a change that could not be made on the on-line form for a minor change.*

The proposed transmitter site is located 28.8 miles from the transmitter site of the pending license-to-cover filing BLANK0000034439. Attached is a map showing the 51 dBu F50,90 contour overlap between the herein proposed facility and the facility of BLANK0000034439.

The output from the FCC’s current “TVStudy” software is attached (as edited to remove superfluous scenarios) that demonstrates full compliance with the FCC’s protection requirements.

ENVIRONMENTAL STATEMENT

This proposal does not involve a site location specified under Section 1.1307(a) through (a)(8) of the FCC Rules.

The digital Class A TV station of the Applicant at this location produces an ERP that is less than or equal to 15 kilowatts. Assuming: (a) a maximum ERP of 15 kilowatts; (b) a relative field of less than 0.2 in the critical downward angles; and (c) a distance of at least 75 meters from the lowest antenna element to 2 meters above ground level, the maximum power density is calculated as follows:

$$S = 33.4\,(F)(F)(ERP) / [(R\,)(R\,)]$$

Where, S equals power density in uW/cm2
F equals the relative field factor
ERP equals the effective radiate power in watts

R equals the distance in meters

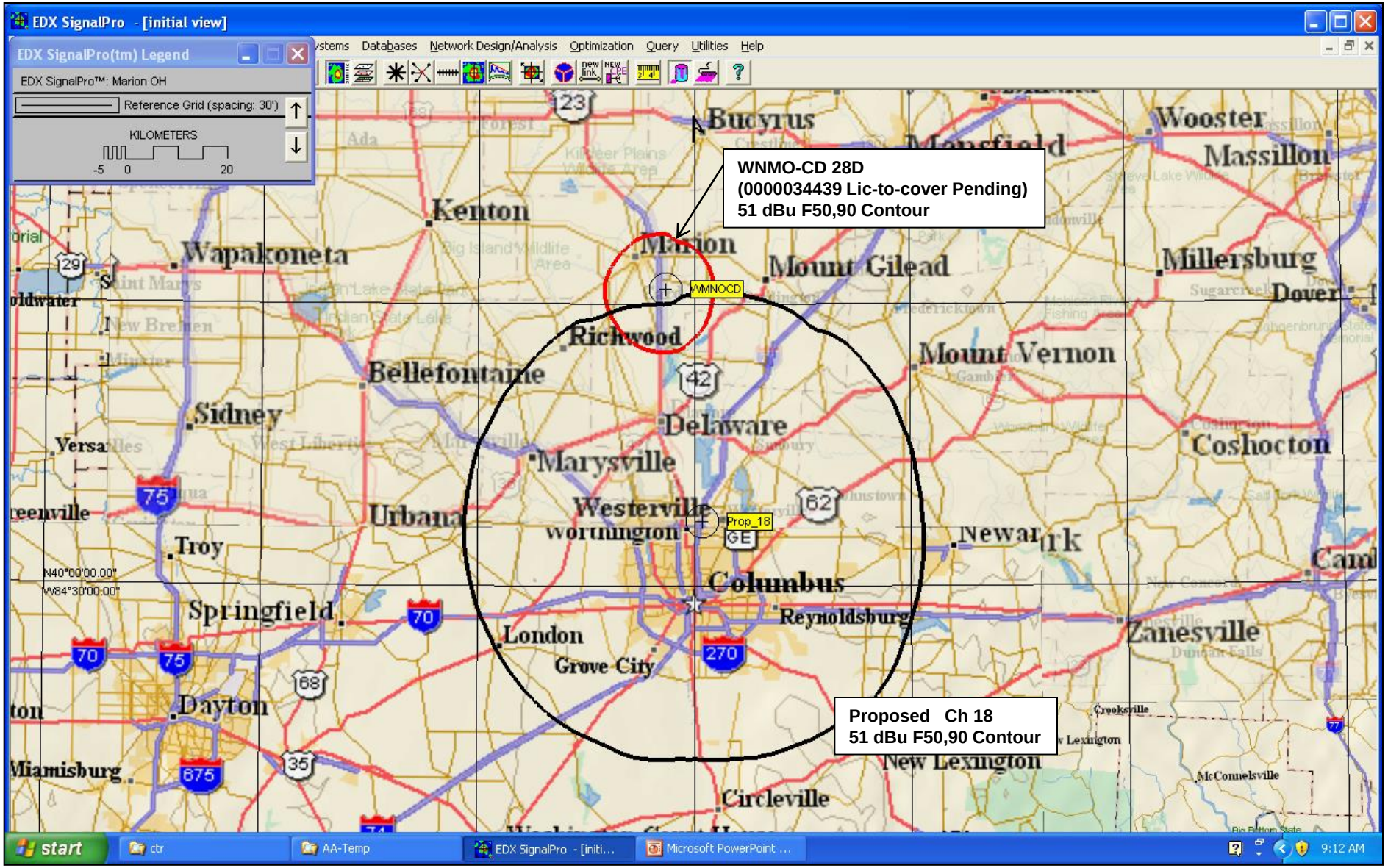
= 33.4 (0.2)(0.2)(15,000) / [(75)(75)]

= 3.6 uW/cm^2

3.6 uW/cm^2 represents less than 5% of the uncontrolled power density limit (315.3 uW/cm^2 for UHF; 200 uW/cm^2 for VHF). The electromagnetic radiation from this proposed operation will not produce a value in excess of the radiation standard. The electromagnetic radiation from the proposed operation will not combine with other facilities on or near the structure to produce a significant change in value.

If this is a structure that may support various other operations, the applicant will cooperate with the other operators in establishing a plan for work done on the structure in close proximity to the existing antenna.

CONTOUR MAP


EDX SignalPro - [initial view]
EDX SignalPro(tm) Legend
EDX SignalPro™: Marion OH
Reference Grid (spacing: 30')
KILOMETERS
-5 0 20
WNMO-CD 28D
(0000034439 Lic-to-cover Pending)
51 dBu F50,90 Contour
WMNOCD
Prop_18
GE
Proposed Ch 18
51 dBu F50,90 Contour
Bucyrus
Wooster
Massillon
Kenton
Wapakoneta
Marion
Mount Gilead
Millersburg
Richwood
Bellefontaine
Mount Vernon
Sidney
Delaware
Coshocton
Marysville
Urbana
Westerville
Troy
Columbus
Springfield
Reynoldsburg
London
Grove City
Zanesville
Dayton
Miamisburg
New Lexington
Circleville
N40°00'00.00"
W84°30'00.00"
start
EDX SignalPro - [initi...
Microsoft PowerPoint ...
9:12 AM

tvstudy v2.2.3 (DAezu1)
Database: localhost, Study: COLUM18DF, Model: Longley-Rice
Start: 2017.10.31 17:19:51

Study created: 2017.10.31 17:12:09

Study build station data: LMS TV 2017-10-26 (3)

    Proposal: WMNO-CD D18 DC APP COLUMBUS, OH
 Facility ID: 1104
Station data: User record
   Record ID: 153
     Country: U.S.

Build options:
Protect LPTV records from Class A

Stations affected by proposal:

Call	Chan	Svc	Status	City, State	File Number	Distance
WSTR-TV	D18	DT	CP	CINCINNATI, OH	BLANK0000027774	166.5 km
WSTR-TV	D18	DT	BL	CINCINNATI, OH	DTVBL11204	166.5
WLPX-TV	D18	DT	CP	CHARLESTON, WV	BLANK0000026970	210.2
WLPX-TV	D18	DT	BL	CHARLESTON, WV	DTVBL73189	210.2
WCLL-CD	D19	DC	LIC	COLUMBUS, OH	BLDTA20110616AAM	16.5

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

    Channel: D18
       Mask: Full Service
   Latitude: 40 6 53.80 N (NAD83)
  Longitude: 82 58 55.30 W
Height AMSL: 365.7 m
       HAAT: 0.0 m

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   Peak ERP: 15.0 kW
    Antenna: Omnidirectional
Elev Pattrn: Generic
  Elec Tilt: 1.00

49.1 dBu contour:
Azimuth      ERP       HAAT   Distance
  0.0 deg   15.0 kW    85.9 m   43.0 km
 45.0       15.0       89.0     43.4
 90.0       15.0       77.8     41.8
135.0       15.0      110.0     45.9
180.0       15.0      101.0     45.0
225.0       15.0      110.9     46.0
270.0       15.0       99.5     44.8
315.0       15.0       90.9     43.7

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m   Computed HAAT: 96 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: 175.4 km

Distance to Mexican border: 2021.0 km

Conditions at FCC monitoring station: Allegan MI
Bearing: 319.1 degrees   Distance: 371.7 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 277.3 degrees   Distance: 1885.2 km

No land mobile station failures found

Proposal is not within the Offshore Radio Service protected area
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Study cell size: 1.00 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%

Interference to BLANK0000027774 CP, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WSTR-TV	D18	DT	CP	CINCINNATI, OH	BLANK0000027774	
Undesireds:	WMNO-CD	D18	DC	BL	MARION, OH	DTVBL1104	198.2 km
	WMNO-CD	D18	DC	APP	COLUMBUS, OH		166.5
	WALV-CD	D17	DC	CP	INDIANAPOLIS, IN	BLANK0000028083	163.6
	WCET	D17	DT	CP	CINCINNATI, OH	BLANK0000026835	8.5
	WBXC-CD	D18	DC	CP	CHAMPAIGN/URBANA, IL	BLANK0000025142	334.0
	WFWA	D18	DT	CP	FORT WAYNE, IN	BLANK0000025074	219.0
	WAWV-TV	D18	DT	CP	TERRE HAUTE, IN	BLANK0000028343	247.0
	WKYU-TV	D18	DT	LIC	BOWLING GREEN, KY	BLEDT20040803AAG	290.4
	WKYI-CD	D18	DC	APP	LOUISVILLE, KY	BLANK0000034220	147.1
	WPXK-TV	D18	DT	CP	JELLICO, TN	BLANK0000026977	359.0
	WLPX-TV	D18	DT	CP	CHARLESTON, WV	BLANK0000026970	251.2
	WIPB	D19	DT	CP	MUNCIE, IN	BLANK0000027189	124.1
	WDKY-TV	D19	DT	CP	DANVILLE, KY	BLANK0000027289	147.7

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
26850.2	3,251,109	26606.1	3,243,626	25491.8	3,213,471	25350.6	3,211,320	0.55	0.07

Undesired	Total IX		Unique IX, before		Unique IX, after	
WMNO-CD D18 DC BL	0.0	0	0.0	0		
WMNO-CD D18 DC APP	206.9	6,142			141.2	2,151
WCET D17 DT CP	25.0	154	16.0	142	16.0	142
WFWA D18 DT CP	70.2	7,285	40.2	3,629	38.1	3,600
WAWV-TV D18 DT CP	165.2	3,927	72.4	2,244	72.4	2,244
WKYU-TV D18 DT LIC	7.0	132	0.0	0	0.0	0

WKYI-CD D18 DC APP	716.2	16,304	612.3	13,537	611.3	13,430
WPXK-TV D18 DT CP	34.1	486	9.0	59	8.0	59
WLPX-TV D18 DT CP	167.1	6,614	139.1	3,049	95.4	2,257
WIPB D19 DT CP	67.4	1,866	55.4	1,640	55.4	1,640
WDKY-TV D19 DT CP	43.2	583	29.1	427	29.1	427

Interference to DTVBL11204 BL, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WSTR-TV	D18	DT	BL	CINCINNATI, OH	DTVBL11204	
Undesireds:	WMNO-CD	D18	DC	BL	MARION, OH	DTVBL1104	198.1 km
	WMNO-CD	D18	DC	APP	COLUMBUS, OH		166.5
	WALV-CD	D17	DC	CP	INDIANAPOLIS, IN	BLANK0000028083	163.6
	WCET	D17	DT	CP	CINCINNATI, OH	BLANK0000026835	8.5
	WBXC-CD	D18	DC	CP	CHAMPAIGN/URBANA, IL	BLANK0000025142	334.0
	WFWA	D18	DT	CP	FORT WAYNE, IN	BLANK0000025074	219.0
	WAWV-TV	D18	DT	CP	TERRE HAUTE, IN	BLANK0000028343	247.1
	WKYU-TV	D18	DT	LIC	BOWLING GREEN, KY	BLEDT20040803AAG	290.4
	WKYI-CD	D18	DC	APP	LOUISVILLE, KY	BLANK0000034220	147.1
	WPXK-TV	D18	DT	CP	JELLICO, TN	BLANK0000026977	359.0
	WLPX-TV	D18	DT	CP	CHARLESTON, WV	BLANK0000026970	251.2
	WIPB	D19	DT	CP	MUNCIE, IN	BLANK0000027189	124.1
	WDKY-TV	D19	DT	CP	DANVILLE, KY	BLANK0000027289	147.7

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
26850.2	3,251,091	26604.1	3,243,452	25504.8	3,212,401	25362.7	3,210,286	0.56	0.07

Undesired		Total IX		Unique IX, before		Unique IX, after	
WMNO-CD D18 DC BL	0.0	0	0.0	0			
WMNO-CD D18 DC APP	203.9	6,075			142.2	2,115	
WCET D17 DT CP	27.0	806	17.0	794	17.0	794	
WFWA D18 DT CP	67.2	7,288	37.1	3,629	35.1	3,600	
WAWV-TV D18 DT CP	165.2	4,418	74.4	2,735	74.4	2,735	
WKYU-TV D18 DT LIC	7.0	229	1.0	0	1.0	0	
WKYI-CD D18 DC APP	702.1	15,925	601.4	13,204	601.4	13,204	
WPXK-TV D18 DT CP	30.1	475	10.0	84	9.0	84	

WLPX-TV D18 DT CP	163.1	6,645	140.0	3,177	96.4	2,216
WIPB D19 DT CP	68.4	1,869	56.4	1,643	56.4	1,643
WDKY-TV D19 DT CP	37.2	553	27.1	401	27.1	401

Interference to BLANK0000026970 CP, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WLPX-TV	D18	DT	CP	CHARLESTON, WV	BLANK0000026970	
Undesireds:	WMNO-CD	D18	DC	BL	MARION, OH	DTVBL1104	266.4 km
	WMNO-CD	D18	DC	APP	COLUMBUS, OH		210.2
	WVVA	D17	DT	CP	BLUEFIELD, WV	BLANK0000027470	144.7
	WKYI-CD	D18	DC	APP	LOUISVILLE, KY	BLANK0000034220	354.0
	WCCB	D18	DT	CP	CHARLOTTE, NC	BLANK0000027051	367.8
	WSTR-TV	D18	DT	CP	CINCINNATI, OH	BLANK0000027774	251.2
	WPXK-TV	D18	DT	CP	JELLICO, TN	BLANK0000026977	334.5
	WJPW-CD	D18	DC	LIC	WEIRTON, WV	BLDTA20130417ABH	234.1

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
27433.0	1,015,385	26099.4	951,582	25859.6	929,095	25848.6	928,969	0.04	0.01

Undesired		Total IX		Unique IX, before		Unique IX, after	
WMNO-CD D18 DC BL	0.0	0	0.0	0			
WMNO-CD D18 DC APP	25.9	668			11.0	126	
WVVA D17 DT CP	33.4	276	25.3	159	25.3	159	
WCCB D18 DT CP	6.1	534	3.0	534	3.0	534	
WSTR-TV D18 DT CP	178.1	21,408	165.0	21,138	151.1	20,596	
WPXK-TV D18 DT CP	44.5	656	22.3	269	22.3	269	
WJPW-CD D18 DC LIC	1.0	0	1.0	0	1.0	0	

Interference to DTVBL73189 BL, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WLPX-TV	D18	DT	BL	CHARLESTON, WV	DTVBL73189	
Undesireds:	WMNO-CD	D18	DC	BL	MARION, OH	DTVBL1104	266.4 km

WMNO-CD	D18	DC	APP	COLUMBUS, OH		210.2
WVVA	D17	DT	CP	BLUEFIELD, WV	BLANK0000027470	144.7
WKYI-CD	D18	DC	APP	LOUISVILLE, KY	BLANK0000034220	354.1
WCCB	D18	DT	CP	CHARLOTTE, NC	BLANK0000027051	367.8
WSTR-TV	D18	DT	CP	CINCINNATI, OH	BLANK0000027774	251.3
WPXK-TV	D18	DT	CP	JELLICO, TN	BLANK0000026977	334.5
WJPW-CD	D18	DC	LIC	WEIRTON, WV	BLDTA20130417ABH	234.1

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
27553.0	1,021,159	26226.6	957,312	25993.0	936,052	25983.0	935,468	0.04	0.06

Undesired		Total IX		Unique IX, before		Unique IX, after	
WMNO-CD D18 DC BL	0.0	0		0.0	0		
WMNO-CD D18 DC APP	30.8	2,332				9.9	584
WVVA D17 DT CP	29.4	203		22.3	78	22.3	78
WCCB D18 DT CP	7.1	443		2.0	435	2.0	435
WSTR-TV D18 DT CP	174.9	19,986		163.8	19,825	143.0	18,077
WPXK-TV D18 DT CP	43.5	903		22.3	617	22.3	617
WJPW-CD D18 DC LIC	2.0	19		2.0	19	2.0	19

Interference to BLDTA20110616AAM LIC, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WCLL-CD	D19	DC	LIC	COLUMBUS, OH	BLDTA20110616AAM	
Undesireds:	WMNO-CD	D18	DC	BL	MARION, OH	DTVBL1104	73.5 km
	WMNO-CD	D18	DC	APP	COLUMBUS, OH		16.5
	WIPB	D19	DT	CP	MUNCIE, IN	BLANK0000027189	201.7
	WDKY-TV	D19	DT	CP	DANVILLE, KY	BLANK0000027289	257.8
	WKYC	D19	DT	CP	CLEVELAND, OH	BLANK0000028024	193.6
	WOHZ-CD	D20	DC	CP	MANSFIELD, OH	BLANK0000026543	94.7

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
6708.7	1,676,297	6660.5	1,666,173	6599.3	1,660,714	6598.3	1,660,533	0.02	0.01

Undesired		Total IX		Unique IX, before		Unique IX, after	
WMNO-CD D18 DC BL	0.0	0		0.0	0		

WMNO-CD D18 DC APP	1.0	181			1.0	181
WIPB D19 DT CP	17.0	2,708	7.0	1,878	7.0	1,878
WKYC D19 DT CP	54.2	3,581	44.2	2,751	44.2	2,751

Interference to proposal, scenario 1
2.56% interference

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WMNO-CD	D18	DC	APP	COLUMBUS, OH		
Undesireds:	WFWA	D18	DT	CP	FORT WAYNE, IN	BLANK0000025074	216.4 km
	WKYI-CD	D18	DC	APP	LOUISVILLE, KY	BLANK0000034220	313.6
	WSTR-TV	D18	DT	CP	CINCINNATI, OH	BLANK0000027774	166.5
	WLPX-TV	D18	DT	CP	CHARLESTON, WV	BLANK0000026970	210.2
	WCLL-CD	D19	DC	LIC	COLUMBUS, OH	BLDTA20110616AAM	16.5

Service area		Terrain-limited		IX-free		Percent IX	
6141.5	1,585,655	6122.5	1,584,551	5440.7	1,543,916	11.13	2.56

Undesired	Total IX		Unique IX		Prcnt Unique IX	
WFWA D18 DT CP	6.0	147	0.0	0	0.00	0.00
WSTR-TV D18 DT CP	78.2	1,582	60.0	901	0.98	0.06
WLPX-TV D18 DT CP	59.4	2,096	23.1	974	0.38	0.06
WCLL-CD D19 DC LIC	593.5	38,576	557.3	37,458	9.10	2.36