FM Spacing study

itle: PROPOSED READING, OHIO
Channel 207A (89.3 MHz)

Latitude: 39-13-23
Longitude: 84-25-57

Call City of License	Auth	Licensee name St FCC File no.	Chan Freq	ERP-kW EAH-m	Latitude Longitude	Br-to -from	Dist. (km)	Req. (km)
W207AJ	CP	Appalshop, Inc.	*207FT	0DA	37-15-27	153.1	244.0	
Hazard		KY BPFT-880211TE	89.3		83-11-03	333.9		
TRANSLATOR FOR WMMT, WHITESBURG, KY; Cut-off 06/01/88								
WHSS	LIC	Hamilton City School Dis	*208A	.19	39-25-51	324.0	28.56	64
Hamilton		OH BLED-780829AG	89.5	87	84-37-40	143.9	-35.4	SHORT
WDPS	LIC	Dayton City Schools	*208A	.20	39-45-26	18.0	62.41	64
Dayton		OH BLED-840921DM	89.5	61	84-12-24	198.1	-1.59	SHORT
SHARE TIME OPERATION WITH WDPR, DAYTON, OHIO								
WDPR	LIC	Dayton Public Radio, Inc	*208A	.20	39-45-26	18.0	62.41	64
Dayton		OH BLED-840629DO	89.5	61	84-12-24	198.1	-1.59	SHORT
SHARE TIME OPERATION WITH WDPS, DAYTON, OH.								
WDPR	CP	Dayton Public Radio, Inc	*208B1	6DA	39-45-28	19.0	62.83	88
Dayton		OH BPED-861125ML	89.5	64	84-11-36	199.1	-25.2	SHORT
SHARE TIME OPERATION WITH WDPS, DAYTON, OH.; Cut-off 12/29/87								
EW	CP	Xavier University	*208B1	3.20	38-51-36	119.4	81.70	88
est Union		OH BPED-871228MA	89.5	114	83-36-42	299.9	-6.30	SHORT
Cut-off 09/27/88								
W208AA	LIC	The Cedarville College	*208FT	.03	39-51-24	329.6	81.74	
Richmond		IN BLFT-850306TA	89.5		84-55-00	149.3		
To Channel 210								
W208AB	LIC	The Cedarville College	*208FT	.02DA	38-43-22	113.8	135.9	
Portsmouth, etc.		OH BLFT-860930TF	89.5		83-00-05	294.7		
TRANSLATOR FOR WCDRFM, CEDARVILLE, OH. -TO CHANNEL 202								
WNKU	LIC	Northern Kentucky Univer	*209C2	12DA	39-02-21	188.0	20.62	55
Highland Heights		KY BLED-850422KK	89.7	97	84-27-57	8.0	-34.4	SHORT
WLHS	LIC	Lakota Local School Dist	*210A	.10	39-19-10	27.4	12.07	27
West Chester		OH BLED-820521AW	89.9	104	84-22-04	207.5	-14.9	SHORT
WMHS	LIC	Miamisburg School Dist.	*210D	.01	39-37-40	18.4	47.38	
Miamisburg		OH BLED-1666	89.9		84-15-29	198.5		
W210AB	APC	The Cedarville College	*210FT	.03DA	39-51-24	329.6	81.74	
Richmond		IN BPFT-880616TB	89.9		84-55-00	149.3		
FROM CHANNEL 208; Cut-off 09/01/88								
.JD-FM	LIC	University of Dayton	260B	50	39-44-07	21.5	61.21	16
attering		OH BLH-6455	99.9	152	84-10-10	201.7	45.21	CLEAR

FM Spacing study

itle: PROPOSED READING, OHIO
Channel 207A (89.3 MHz)

Latitude: 39-13-23
Longitude: 84-25-57

Call City of License	Auth	Licensee name St	FCC File no.	Chan Freq	ERP-kW EAH-m	Latitude Longitude	Br-to -from	Dist. (km)	Req. (km)
WIKI	LIC	WIKI, Inc.		261A	3	38-39-43	227.1	91.22	8
Carrollton		KY	BLH-801104AK	100.1	91	85-12-04	46.6	83.22	CLEAR

*To Channel 237A per D88-31

>> End of channel 207A study <<

TABLE 10
Louis A. Williams, Jr. and Associates
Cincinnati, Ohio
March, 1989
Terrain Averaging Program

Job Title: WOBO
HAAT (m): 142

Latitude: 39-03-43
Longitude: 84-05-50

	Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
	0.0	274.0	128.3
	45.0	274.5	127.8
	90.0	275.2	127.1
	135.0	271.8	130.5
	180.0	251.2	151.1
	225.0	246.1	156.2
	270.0	244.9	157.4
	315.0	245.0	157.3
*	10.0	274.3	128.0
*	230.0	251.2	151.1
*	240.0	249.4	152.9
*	250.0	248.9	153.4
*	260.0	250.1	152.2
*	270.0	244.9	157.4
*	280.0	240.5	161.8
*	290.0	231.9	170.4
*	299.0	218.4	183.9
*	300.0	215.1	187.2
*	301.0	212.4	189.9
*	301.2	212.0	190.3
*	301.4	211.7	190.6
*	301.6	211.4	190.9
*	301.7	211.3	191.0
*	301.8	211.2	191.1
*	302.0	211.1	191.2
*	302.2	211.0	191.3
*	302.4	210.9	191.4
*	302.6	210.9	191.4
*	302.7	210.9	191.4
*	302.8	210.9	191.4
*	303.0	211.0	191.3
*	303.2	211.2	191.1
*	303.4	211.3	191.0
*	303.5	211.4	190.9
*	303.6	211.5	190.8
*	303.8	211.8	190.5
*	304.0	212.0	190.3
*	305.0	213.5	188.8
*	306.0	215.5	186.8
*	310.0	229.4	172.9
*	320.0	260.4	141.9
*	330.0	263.5	138.8
*	340.0	267.6	134.7
*	350.0	272.4	129.9
	Average:	260.3	142.0

* Radial not included in average

TABLE 11
Louis A. Williams, Jr. and Associates
Cincinnati, Ohio
March, 1989
Terrain Averaging Program

Job Title: Proposed Site toward WOBO
HAAT (m): 72

Latitude: 39-13-23
Longitude: 84-25-57

	Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
	0.0	197.0	90.9
	45.0	257.4	30.5
	90.0	219.7	68.2
	135.0	225.5	62.4
	180.0	185.3	102.6
	225.0	174.4	113.5
	270.0	244.5	43.4
	315.0	223.1	64.8
*	60.2	230.4	57.5
*	65.4	224.4	63.5
*	77.8	218.6	69.3
*	81.6	224.4	63.5
*	84.5	222.7	65.2
*	85.5	222.1	65.8
*	87.7	220.5	67.4
*	92.3	219.7	68.2
*	95.9	214.9	73.0
*	100.9	222.0	65.9
*	104.0	224.8	63.1
*	105.8	222.1	65.8
*	109.6	220.9	67.0
*	114.5	218.5	69.4
*	117.9	218.2	69.7
*	118.0	218.2	69.7
*	118.2	218.2	69.7
*	118.5	218.1	69.8
*	119.0	218.1	69.8
*	119.1	218.2	69.7
*	120.1	218.9	69.0
*	120.9	220.1	67.8
*	121.8	222.2	65.7
*	122.6	224.0	63.9
*	122.9	224.5	63.4
*	123.2	224.9	63.0
*	124.1	226.2	61.7
*	125.1	227.4	60.5
*	125.3	227.6	60.3
*	126.1	228.4	59.5
*	127.2	229.1	58.8
*	127.5	229.1	58.8
*	127.9	229.0	58.9
*	131.0	226.6	61.3
*	134.1	224.9	63.0
*	137.0	224.9	63.0
*	147.2	208.4	79.5
*	152.5	195.6	92.3
	Average:	215.9	72.0

* Radial not included in average

LOUIS A. WILLIAMS, JR. & ASSOCIATES
MARCH 1989

TABLE 12A

WOBO/PROPOSED READING CONTOURS

Bearing from WOBO (Degrees)	WOBO Effective Height (Meters)	WOBO ERP (kW)	WOBO F(50,50) 1 mV/m (km)	Bearing from Proposed to WOBO 1 mV/m (Degrees)	Distance from Proposed to WOBO 1 mV/m (km)	Proposed Effective Height (Meters)	Proposed ERP (kW)	Proposed F(50,10) 100 mV/m (km)	Margin (km)
N299.0E	183.9	2.839	31.42	N152.5E	3.06	92.3	1.401/10.347*	1.76	1.30
300.0	187.2	2.893	31.84	147.2	2.42	79.5	1.265/ 5.324*	1.63	0.79
301.0	189.9	2.946	32.21	137.0	1.86	63.0	0.791/ 2.572*	1.61	0.25
301.2	190.3	2.974	32.33	134.1	1.73	63.0	0.692/ 1.975*	1.61	0.12
301.4	190.6	2.987	32.39	131.0	1.65	61.3	0.600/ 1.717*	1.61	0.04
301.6	190.9	2.987	32.41	127.5	1.63	58.8	0.510/ 1.722*	1.59	0.04
301.7	191.0	3.001	32.46	125.3	1.55	60.3	0.487	1.55	0.00
301.8	191.1	3.001	32.47	122.9	1.54	63.4	0.481	1.54	0.00
302.0	191.2	3.001	32.48	119.0	1.53	69.8	0.474	1.53	0.00
302.2	191.3	3.014	32.52	114.5	1.50	69.4	0.456	1.50	0.00
302.4	191.4	3.028	32.57	109.6	1.48	67.0	0.444	1.48	0.00
302.6	191.4	3.042	32.61	105.8	1.47	65.8	0.438	1.47	0.00
302.8	191.4	3.056	32.64	100.9	1.47	65.9	0.438	1.47	0.00
303.0	191.3	3.069	32.67	95.9	1.49	73.0	0.450	1.49	0.00
303.2	191.1	3.083	32.69	92.3	1.54	68.2	0.481	1.54	0.00
303.4	191.0	3.097	32.72	87.7	1.56	67.4	0.493	1.56	0.00
303.5	190.9	3.111	32.75	85.5	1.59	65.8	0.512	1.59	0.00
303.6	190.8	3.111	32.74	84.5	1.61	65.2	0.531/ 1.490*	1.61	0.00
303.8	190.5	3.125	32.75	81.6	1.70	63.5	0.607/ 1.841*	1.61	0.09
304.0	190.3	3.139	32.77	77.8	1.77	69.3	0.604/ 1.940*	1.61	0.16
305.0	188.8	3.223	32.86	65.4	2.16	63.5	0.341/ 4.582*	1.30	0.86
306.0	186.8	3.280	32.83	60.2	2.68	57.5	0.268/13.29*	1.15	1.53

* neglecting other limits

LOUIS A. WILLIAMS, JR. & ASSOCIATES
MARCH 1989

TABLE 12B

WOBO/PROPOSED READING CONTOURS

Bearing from WOBO (Degrees)	WOBO Effective Height (Meters)	WOBO ERP (kW)	WOBO F(50,10) 100 mV/m (km)	Bearing from Proposed to WOBO 100 mV/m (Degrees)	Distance from Proposed to WOBO 100 mV/m (km)	Proposed Effective Height (Meters)	Proposed ERP (kW)	Proposed F(50,50) 1 mV/m (km)	Margin (km)
N230E	151.1	9.945	3.79	N127.9E	33.07	58.9	0.520	12.03	21.04
240	152.9	7.573	3.51	127.2	32.54	58.8	0.503	11.93	20.61
250	153.4	5.396	3.16	126.1	32.19	59.5	0.490	11.92	20.27
260	152.2	3.953	2.85	125.1	31.99	60.5	0.486	11.98	20.01
270	157.4	2.542	2.51	124.1	31.94	61.7	0.484	12.07	19.87
280	161.8	1.792	2.26	123.2	31.96	63.0	0.482	12.22	19.74
290	170.4	2.297	2.50	122.6	31.61	63.9	0.480	12.22	19.39
300	187.2	2.866	2.77	121.8	31.29	65.7	0.479	12.36	18.93
310	172.9	3.571	2.91	120.9	31.17	67.8	0.478	12.52	18.65
320	141.9	4.354	2.86	120.1	31.35	69.0	0.477	12.61	18.74
330	138.8	5.214	2.99	119.1	31.46	69.7	0.474	12.65	18.81
340	134.7	4.604	2.85	118.5	31.86	69.8	0.472	12.65	19.21
350	129.9	3.798	2.65	118.2	32.35	69.7	0.471	12.63	19.72
0	128.3	3.069	2.48	118.0	32.83	69.7	0.471	12.63	20.20
10	128.0	2.669	2.38	117.9	33.25	69.7	0.470	12.63	20.62

TABLE 13

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: WFPL
HAAT (m): 72

Latitude: 38-14-40
Longitude: 85-45-27

	Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
	0.0	136.1	82.3
	45.0	123.3	95.1
	90.0	159.8	58.6
	135.0	151.3	67.1
	180.0	132.5	85.9
	225.0	123.8	94.6
	270.0	169.3	49.1
	315.0	174.9	43.5
*	44.6	123.5	94.9
*	44.8	123.4	95.0
*	45.2	123.3	95.1
*	45.4	123.2	95.2
*	45.6	123.2	95.2
*	45.8	123.2	95.2
*	46.0	123.1	95.3
*	46.2	123.1	95.3
*	46.4	123.2	95.2
*	46.6	123.2	95.2
*	46.8	123.2	95.2
*	47.0	123.3	95.1
*	47.2	123.4	95.0
*	47.4	123.5	94.9
*	47.6	123.7	94.7
*	47.8	123.9	94.5
*	48.0	124.1	94.3
*	48.2	124.4	94.0
*	48.4	124.7	93.7
*	48.6	125.0	93.4
*	48.8	125.4	93.0
*	49.0	125.8	92.6
*	49.2	126.2	92.2
*	49.4	126.7	91.7
*	49.6	127.2	91.2
	Average:	146.4	72.0

* Radial not included in average

TABLE 14

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: Proposed Site toward WFPL
HAAT (m): 72

Latitude: 39-13-23
Longitude: 84-25-57

	Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
	0.0	197.0	90.9
	45.0	257.4	30.5
	90.0	219.7	68.2
	135.0	225.5	62.4
	180.0	185.3	102.6
	225.0	174.4	113.5
	270.0	244.5	43.4
	315.0	223.1	64.8
*	194.5	194.1	93.8
*	195.7	192.2	95.7
*	197.1	190.6	97.3
*	198.6	189.5	98.4
*	200.1	189.3	98.6
*	201.7	190.2	97.7
*	203.4	191.9	96.0
*	205.2	192.4	95.5
*	207.0	192.3	95.6
*	209.0	193.0	94.9
*	211.0	192.9	95.0
*	213.0	192.2	95.7
*	215.2	190.8	97.1
*	217.4	187.0	100.9
*	219.6	182.4	105.5
*	221.8	179.6	108.3
*	224.1	175.9	112.0
*	226.5	172.3	115.6
*	228.8	173.3	114.6
*	231.0	178.0	109.9
*	233.3	183.5	104.4
*	235.5	190.4	97.5
*	237.8	192.9	95.0
*	239.8	196.8	91.1
*	242.1	205.5	82.4
*	244.1	217.7	70.2
	Average:	215.9	72.0

* Radial not included in average

LOUIS A. WILLIAMS, JR. & ASSOCIATES
MARCH 1989

TABLE 15

WFPL/PROPOSED READING CONTOURS

Bearing from WFPL (Degrees)	WFPL Effective Height (Meters)	WFPL F(50,10) 0.1 mV/m (km)	Bearing from Proposed to WFPL 0.1 mV/m (Degrees)	Distance from Proposed to WFPL 0.1 mV/m (km)	Proposed Effective Height (Meters)	Proposed ERP (kW)	Proposed F(50,50) 1 mV/m (km)	Margin (km)
N44.6E	94.9	145.51	N244.1E	13.42	70.2	0.384/0.600*	12.08	1.34
44.8	95.0	145.53	242.1	13.25	82.4	0.350/0.417*	12.71	0.54
45.0	95.1	145.55	239.8	13.09	91.1	0.315/0.324*	13.00	0.09
45.2	95.1	145.55	237.8	12.98	95.0	0.287	12.98	0.00
45.4	95.2	145.56	235.5	12.88	97.5	0.264	12.88	0.00
45.6	95.2	145.56	233.3	12.81	104.4	0.225	12.81	0.00
45.8	95.2	145.56	231.0	12.75	109.9	0.200	12.75	0.00
46.0	95.3	145.58	228.8	12.69	114.6	0.180	12.69	0.00
46.2	95.3	145.58	226.5	12.69	115.6	0.177	12.69	0.00
46.4	95.2	145.56	224.1	12.73	112.0	0.191	12.73	0.00
46.6	95.2	145.56	221.8	12.76	108.3	0.206	12.76	0.00
46.8	95.2	145.56	219.6	12.82	105.5	0.221	12.82	0.00
47.0	95.1	145.55	217.4	12.90	100.9	0.248	12.90	0.00
47.2	95.0	145.53	215.2	13.03	97.1	0.279	13.03	0.00
47.4	94.9	145.51	213.0	13.18	95.7	0.302	13.18	0.00
47.6	94.7	145.48	211.0	13.33	95.0	0.321	13.33	0.00
47.8	94.5	145.44	209.0	13.55	94.9	0.343	13.55	0.00
48.0	94.3	145.41	207.0	13.75	95.6	0.359	13.75	0.00
48.2	94.0	145.36	205.2	13.99	95.5	0.385	13.99	0.00
48.4	93.7	145.30	203.4	14.26	96.0	0.411	14.26	0.00
48.6	93.4	145.25	201.7	14.51	97.7	0.425	14.51	0.00
48.8	93.0	145.18	200.1	14.82	98.6	0.452	14.82	0.00
49.0	92.6	145.11	198.6	15.13	98.4	0.484/0.490*	15.08	0.05
49.2	92.2	145.05	197.1	15.46	97.3	0.519/0.543*	15.27	0.19
49.4	91.7	144.96	195.7	15.80	95.7	0.554/0.608*	15.40	0.40
49.6	91.2	144.87	194.5	16.18	93.8	0.585/0.689*	15.45	0.73

* neglecting other limits

TABLE 16

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: WNKU
HAAT (m): 97

Latitude: 39-02-21
Longitude: 84-27-57

	Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
	0.0	202.9	98.2
	45.0	174.4	126.7
	90.0	192.2	108.9
	135.0	222.4	78.7
	180.0	198.5	102.6
	225.0	223.6	77.5
	270.0	228.1	73.0
	315.0	190.5	110.6
*	5.0	209.7	91.4
*	10.0	208.8	92.3
*	15.0	204.2	96.9
*	20.0	199.6	101.5
*	25.0	186.1	115.0
*	30.0	171.9	129.2
*	35.0	171.9	129.2
*	40.0	170.9	130.2
*	50.0	186.7	114.4
*	55.0	201.0	100.1
*	60.0	213.6	87.5
*	345.0	186.9	114.2
*	350.0	187.4	113.7
*	355.0	194.4	106.7
	Average:	204.1	97.0

* Radial not included in average

TABLE 17

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: Proposed Site toward WNKU
HAAT (m): 72

Latitude: 39-13-23
Longitude: 84-25-57

	Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
	0.0	197.0	90.9
	45.0	257.4	30.5
	90.0	219.7	68.2
	135.0	225.5	62.4
	180.0	185.3	102.6
	225.0	174.4	113.5
	270.0	244.5	43.4
	315.0	223.1	64.8
*	128.6	228.8	59.1
*	150.2	203.2	84.7
*	163.1	182.4	105.5
*	171.5	186.2	101.7
*	171.9	185.8	102.1
*	172.4	185.5	102.4
*	173.4	184.9	103.0
*	174.0	185.0	102.9
*	176.0	187.8	100.1
*	178.2	187.6	100.3
*	180.2	185.0	102.9
*	182.8	195.1	92.8
*	184.0	200.1	87.8
*	184.6	202.7	85.2
*	193.9	195.6	92.3
*	209.8	193.0	94.9
*	231.8	179.6	108.3
*	249.9	244.2	43.7
*	259.5	252.9	35.0
	Average:	215.9	72.0

* Radial not included in average

LOUIS A. WILLIAMS, JR. & ASSOCIATES
MARCH 1989

TABLE 18

WNKU/PROPOSED READING CONTOURS

Bearing from WNKU (Degrees)	WNKU Effective Height (Meters)	WNKU ERP (kW)	WNKU F(50,50) 1 mV/m (km)	Bearing from Proposed to WNKU 1 mV/m (Degrees)	Distance from Proposed to WNKU 1 mV/m (km)	Proposed Effective Height (Meters)	Proposed ERP (kW)	Proposed F(50,10) 10 mV/m (km)	Margin (km)
N345E	114.2	0.941	19.64	N259.5E	8.10	35.0	0.822	3.23	4.87
350	113.7	0.750	18.49	249.9	6.49	43.7	0.528	3.25	3.24
355	106.7	0.635	17.07	231.8	5.55	108.3	0.230	4.13	1.42
0	98.2	0.529	15.43	209.8	5.77	94.9	0.406	4.50	1.27
5	91.4	0.389	13.71	193.9	6.99	92.3	0.845	5.38	1.61
10	92.3	0.389	13.78	184.0	6.86	87.8	0.586	4.76	2.10
15	96.9	0.389	14.13	173.4	6.83	103.0	0.536	5.07	1.76
20	101.5	0.389	14.48	163.1	7.13	105.5	0.860	5.80	1.33
25	115.0	0.389	15.49	150.2	7.36	84.7	1.452	5.88	1.48
30	129.2	0.529	17.97	128.6	7.81	59.1	0.537	3.84	3.97

Bearing from WNKU (Degrees)	WNKU Effective Height (Meters)	WNKU ERP (kW)	WNKU F(50,10) 10 mV/m (km)	Bearing from Proposed to WNKU 10 mV/m (Degrees)	Distance from Proposed to WNKU 10 mV/m (km)	Proposed Effective Height (Meters)	Proposed ERP (kW)	Proposed F(50,50) 1 mV/m (km)	Margin (km)
N20E	101.5	0.389	4.61	N184.6E	16.15	85.2	0.602/0.837*	14.76	1.39
25	115.0	0.389	4.92	182.8	15.99	92.8	0.554/0.676*	15.13	0.86
30	129.2	0.529	5.63	180.2	15.54	102.9	0.493	15.54	0.00
35	129.2	0.635	5.90	178.2	15.58	100.3	0.524	15.58	0.00
40	130.2	0.750	6.18	176.0	15.73	100.1	0.545	15.73	0.00
45	126.7	0.941	6.45	174.0	15.94	102.9	0.539	15.94	0.00
50	114.4	1.229	6.58	172.4	16.33	102.4	0.560/0.592*	16.07	0.26
55	100.1	1.470	6.43	171.9	16.91	102.1	0.573/0.673*	16.15	0.76
60	87.5	1.825	6.31	171.5	17.46	101.7	0.584/0.762*	16.20	1.26

* neglecting other limits

TABLE 19

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: WLHS
HAAT (m): 104

Latitude: 39-19-10
Longitude: 84-22-04

	Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
	0.0	245.0	89.1
	45.0	237.0	97.1
	90.0	244.9	89.2
	135.0	232.2	101.9
	180.0	237.8	96.3
	225.0	203.9	130.2
	270.0	212.9	121.2
	315.0	227.4	106.7
*	202.0	219.2	114.9
*	202.5	218.5	115.6
*	203.0	217.8	116.3
*	203.5	217.2	116.9
*	204.0	216.5	117.6
*	204.5	215.8	118.3
*	205.0	215.2	118.9
*	205.5	214.5	119.6
*	206.0	213.7	120.4
*	206.5	212.8	121.3
*	207.0	211.8	122.3
*	207.5	210.7	123.4
*	208.0	209.3	124.8
*	208.2	208.8	125.3
*	208.4	208.2	125.9
*	208.6	207.5	126.6
*	208.8	206.9	127.2
*	209.0	206.2	127.9
*	209.5	204.5	129.6
*	210.0	202.8	131.3
*	210.5	201.1	133.0
*	211.0	199.5	134.6
*	211.5	198.0	136.1
*	212.0	196.6	137.5
*	212.5	195.4	138.7
*	213.0	194.3	139.8
	Average:	230.1	104.0

* Radial not included in average

TABLE 20

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: Proposed Site toward WLHS
HAAT (m): 72

Latitude: 39-13-23
Longitude: 84-25-57

	Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
	0.0	197.0	90.9
	45.0	257.4	30.5
	90.0	219.7	68.2
	135.0	225.5	62.4
	180.0	185.3	102.6
	225.0	174.4	113.5
	270.0	244.5	43.4
	315.0	223.1	64.8
*	6.4	207.3	80.6
*	11.1	210.3	77.6
*	14.6	215.3	72.6
*	19.4	230.6	57.3
*	26.7	246.6	41.3
*	34.8	251.7	36.2
*	41.7	257.5	30.4
*	47.6	255.0	32.9
*	51.5	248.0	39.9
*	54.9	240.7	47.2
*	59.8	231.0	56.9
*	62.1	227.7	60.2
*	65.4	224.4	63.5
*	67.1	224.3	63.6
*	68.5	223.8	64.1
*	71.3	221.2	66.7
*	298.3	229.6	58.3
*	301.4	230.5	57.4
*	305.1	233.2	54.7
*	307.9	232.1	55.8
*	316.5	222.2	65.7
*	323.5	225.9	62.0
*	332.7	213.1	74.8
*	344.1	205.9	82.0
*	356.7	191.8	96.1
	Average:	215.9	72.0

* Radial not included in average

LOUIS A. WILLIAMS, JR. & ASSOCIATES
MARCH 1989

TABLE 21

WLNS/PROPOSED READING CONTOURS

Bearing from WLNS (Degrees)	WLNS Effective Height (Meters)	WLNS F(50,50) 1 mV/m (km)	Bearing from Proposed to WLNS 1 mV/m (Degrees)	Distance from Proposed to WLNS 1 mV/m (km)	Proposed Effective Height (Meters)	Proposed ERP (kW)	Proposed F(50,10) 100 mV/m (km)	Margin (km)
N202.0E	114.9	11.02	N71.3E	1.54	66.7	0.430/0.481*	1.46	0.08
202.5	115.6	11.05	68.5	1.44	64.1	0.378/0.420*	1.37	0.07
203.0	116.3	11.08	67.1	1.35	63.6	0.354/0.369*	1.33	0.02
203.5	116.9	11.10	65.4	1.27	63.5	0.327	1.27	0.00
204.0	117.6	11.13	62.1	1.19	60.2	0.287	1.19	0.00
204.5	118.3	11.17	59.8	1.11	56.9	0.249	1.11	0.00
205.0	118.9	11.19	54.9	1.02	47.2	0.211	1.02	0.00
205.5	119.6	11.22	51.5	0.95	39.9	0.180/0.183*	0.95	0.00
206.0	120.4	11.26	47.6	0.87	32.9	0.153	0.87	0.00
206.5	121.3	11.29	41.7	0.83	30.4	0.139	0.83	0.00
207.0	122.3	11.34	34.8	0.75	36.2	0.114	0.75	0.00
207.5	123.4	11.38	26.7	0.69	41.3	0.096	0.69	0.00
208.0	124.8	11.44	19.4	0.65	57.3	0.085	0.65	0.00
208.2	125.3	11.46	14.6	0.64	72.6	0.083	0.64	0.00
208.4	125.9	11.49	11.1	0.63	77.6	0.080	0.63	0.00
208.6	126.6	11.52	6.4	0.62	80.6	0.077	0.62	0.00
208.8	127.2	11.55	0.0	0.59	90.9	0.070	0.59	0.00
209.0	127.9	11.58	356.7	0.59	96.1	0.070	0.59	0.00
209.5	129.6	11.65	344.1	0.61	82.0	0.075	0.61	0.00
210.0	131.3	11.72	332.7	0.63	74.8	0.080	0.63	0.00
210.5	133.0	11.80	323.5	0.69	62.0	0.096	0.69	0.00
211.0	134.6	11.87	316.5	0.77	65.7	0.120	0.77	0.00
211.5	136.1	11.94	307.9	0.85	55.8	0.146/0.146*	0.85	0.00
212.0	137.5	12.00	305.1	0.97	54.7	0.166/0.190*	0.91	0.06
212.5	138.7	12.06	301.4	1.07	57.4	0.196/0.232*	0.99	0.08
213.0	139.8	12.11	298.3	1.17	58.3	0.226/0.277*	1.06	0.11

* neglecting other limits

TABLE 22

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

REMAINING BEARING AND HEIGHT PARAMETERS

Station	Bearing from Station to Proposed Site (Degrees)	Station Effective Height Toward Site (Meters)	Bearing to Station from Proposed Site (Degrees)	Proposed site Effective Height Toward Station (Meters)
WCNE	290.2	67.7	110.0	67.1
WLMH	241.5	45.8	61.4	59.2
WVXR/CP	156.4	31.4	336.6	77.2
WFPL	46.2	95.3	227.0	115.9
WHSS	143.9	104.1	324.0	61.9
WDPS/WDPR	198.1	83.3	18.0	62.8
WDPR/CP	199.1	82.5	19.0	59.0
WVXM/CP	299.9	84.6	119.4	69.6
WLHS	207.5	123.4	27.4	41.0

TABLE 23

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: WCNE
HAAT (m): 49

Latitude: 39-07-45
Longitude: 84-06-05

Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
0.0	271.5	38.1
45.0	279.2	30.4
90.0	274.3	35.3
135.0	275.9	33.7
180.0	257.5	52.1
225.0	243.0	66.6
270.0	219.9	89.7
315.0	263.6	46.0
* 290.2	241.9	67.7
Average:	260.6	49.0

* Radial not included in average

TABLE 24

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: WLMH
HAAT (m): 14

Latitude: 39-20-51
Longitude: 84-08-13

Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
0.0	270.4	0.5
45.0	277.1	-6.2
90.0	266.6	4.3
135.0	267.6	3.3
180.0	256.9	14.0
225.0	237.3	33.6
270.0	233.4	37.5
315.0	246.0	24.9
* 241.5	225.1	45.8
Average:	256.9	14.0

* Radial not included in average

TABLE 25

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: WVXR/CP
HAAT (m): 57

Latitude: 39-52-08
Longitude: 84-47-47

	Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
	0.0	342.7	48.3
	45.0	347.5	43.5
	90.0	349.4	41.6
	135.0	350.3	40.7
	180.0	335.5	55.5
	225.0	300.2	90.8
	270.0	312.4	78.6
	315.0	333.9	57.1
*	156.4	359.6	31.4
	Average:	334.0	57.0

* Radial not included in average

TABLE 26

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: WFPL
HAAT (m): 72

Latitude: 38-14-40
Longitude: 85-45-27

Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
0.0	136.1	82.3
45.0	123.3	95.1
90.0	159.8	58.6
135.0	151.3	67.1
180.0	132.5	85.9
225.0	123.8	94.6
270.0	169.3	49.1
315.0	174.9	43.5
* 46.2	123.1	95.3
Average:	146.4	72.0

* Radial not included in average

TABLE 27

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: WHSS
HAAT (m): 87

Latitude: 39-25-51
Longitude: 84-37-40

Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
0.0	247.2	70.0
45.0	232.6	84.6
90.0	194.9	122.3
135.0	204.4	112.8
180.0	205.1	112.1
225.0	240.1	77.1
270.0	256.4	60.8
315.0	260.6	56.6
* 143.9	213.1	104.1
Average:	230.2	87.0

* Radial not included in average

TABLE 28

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: WDPS/WDPR
HAAT (m): 61

Latitude: 39-45-26
Longitude: 84-12-24

Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
0.0	273.8	58.1
45.0	259.2	72.7
90.0	275.6	56.3
135.0	291.8	40.1
180.0	263.5	68.4
225.0	249.8	82.1
270.0	278.5	53.4
315.0	274.7	57.2
* 198.1	248.6	83.3
Average:	270.9	61.0

* Radial not included in average

TABLE 29

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: WDPR/CP
HAAT (m): 64

Latitude: 39-45-28
Longitude: 84-11-36

Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
0.0	269.0	66.6
45.0	259.7	75.9
90.0	278.0	57.6
135.0	292.9	42.7
180.0	270.5	65.1
225.0	247.6	88.0
270.0	275.7	59.9
315.0	279.7	55.9
* 199.1	253.1	82.5
Average:	271.6	64.0

* Radial not included in average

TABLE 30

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: WVXM/CP
HAAT (m): 114

Latitude: 38-51-36
Longitude: 83-36-42

Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
0.0	271.4	106.5
45.0	237.0	140.9
90.0	244.9	133.0
135.0	267.1	110.8
180.0	264.6	113.3
225.0	244.9	133.0
270.0	278.1	99.8
315.0	303.3	74.6
* 299.9	293.3	84.6
Average:	263.9	114.0

* Radial not included in average

TABLE 31

Louis A. Williams, Jr. and Associates
Cincinnati, Ohio

March, 1989

Terrain Averaging Program

Job Title: WLHS
HAAT (m): 104

Latitude: 39-19-10
Longitude: 84-22-04

Bearing (Deg-true)	3-16 km Avg. Terrain Elev. (m)	Height Above Average Terrain (m)
0.0	245.0	89.1
45.0	237.0	97.1
90.0	244.9	89.2
135.0	232.2	101.9
180.0	237.8	96.3
225.0	203.9	130.2
270.0	212.9	121.2
315.0	227.4	106.7
* 207.5	210.7	123.4
Average:	230.1	104.0

* Radial not included in average