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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In re Applications of	)	MM Docket No. 92-98
	)	
THE PRESIDENT AND BOARD OF TRUSTEES OF THE MIAMI UNIVERSITY	)	File No. BPED-890530MA
	)	
SOUTHWESTERN OHIO SENIORS' SERVICES, INC.	)	File No. BPED-910412MC
	)	
For Construction Permit for a New Non-Commercial FM Station on Channel 207A at Reading, Ohio	)	

RECEIVED
AUG 24 1992
Federal Communications Commission
Office of the Secretary

To: The Honorable John M. Frysiak
Administrative Law Judge

PETITION FOR LEAVE TO AMEND

Southwestern Ohio Seniors' Services, Inc. ("SOSSI"), by its attorneys, and pursuant to Section 73.3522(b) of the Commission's Rules, hereby petitions for leave to amend its above-captioned application. In support thereof the following is stated:

1. The accompanying amendment seeks to substitute the engineering proposal previously submitted by The President and Board of Trustees of The Miami University ("University") for the proposal by SOSSI. Pursuant to a settlement agreement between the parties, submitted concurrently herewith, SOSSI agreed to amend its application to include University's engineering proposal in return for granting University an option and right of first refusal.

2. The proposed amendment meets the test of *Erwin O'Connor Broadcasting, Co.*, 22 FCC 2d 140 (Rev.Bd. 1970). The amendment will eliminate the need for a hearing on the mutually exclusive applications of the parties and allow settlement of the proceeding. As the amendment is submitted as part of a proposed settlement no party

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will be prejudiced or gain a competitive advantage by acceptance of the amendment. In addition, the resources of the parties and the Commission will be conserved by approval of the amendment and the settlement agreement. Finally, acceptance of the amendment, thereby allowing approval of the proposed settlement, will allow SOSSI to promptly initiate service to Reading and the surrounding community.

3. Precedent supports the use of amendments to eliminate mutual exclusivity and allow a settlement of the comparative proceeding. *See The Cedarville College*, MM Docket No. 90-654, FCC 91M-1861, released June 12, 1991.

WHEREFORE, the premises considered, Southwestern Ohio Seniors' Services, Inc. respectfully requests that the Presiding Judge grant its Petition for Leave to Amend and that he accept the accompanying amendment.

Respectfully submitted,

SOUTHWESTERN OHIO SENIORS' SERVICES, INC.

By: _____
Lee W. Shubert
Dawn M. Sciarrino

Its Attorneys

HALEY, BADER & POTTS
Suite 600
2000 M Street, N.W.
Washington, DC 20036-3374
202/331-0606

August 24, 1992

RECEIVED
AUG 24 1992
Federal Communications Commission
Office of the Secretary

AMENDMENT

Please amend the pending application (FCC Form 340) of Southwestern Ohio Seniors' Services, Inc., (File No. BPED-910412MC) for authority to construct a new non-commercial educational FM broadcasting station on FM Channel 207 at Reading, Ohio, in the following respects:

> Section V-B and related Engineering Exhibits: Delete the previously submitted Section V-B and related engineering exhibits and substitute in lieu thereof the Amended Section V-B and related engineering exhibits that are transmitted herewith.

CERTIFICATION

I, Jerry D. Smart, hereby certify that the statements contained in this amendment are true, complete and correct, to the best of my knowledge and belief, and are made in good faith.

Signed and dated this 20TH day of August, 1992.

SOUTHWESTERN OHIO SENIORS' SERVICES, INC.

By _____
Jerry D. Smart, President

FM Broadcast Engineering Data

Name of Applicant: The President and Board of Trustees of The Miami University

1. Purpose of authorization applied for:

☒ Construct a new station ☐ Install Auxiliary system

Change: ☐ Effective radiated power ☐ Frequency

☐ Antenna height above average terrain ☐ Transmitter location

☐ Studio location outside community of license

☐ Other (*Summarize briefly the nature of the changes proposed.*)

2. Community of license: State: Ohio City or Town: Reading

3. Facilities requested: Frequency: 89.3 MHz Channel No.: 207

Class (Check one below): ☒ A ☐ B ☐ B1 ☐ C ☐ C1 ☐ C2 ☐ D

4. Geographic coordinates of antenna (to nearest second)

North Latitude 39° 13' 23" West Longitude 84° 25' 57"

5. Effective radiated power:

Polarization	Horizontal Plane	Maximum (Beam tilt only)
Horizontal	1.50 kW	No beam tilt kW
Vertical	1.50 kW	No beam tilt kW

6. Height in meters of antenna radiation center:

	Above Average terrain (HAAT)	Above Mean Sea Level	Above Ground
Horizontal	72 meters	287.9 meters	57.77 meters
Vertical	72 meters	287.9 meters	57.77 meters

7. Is a directional antenna being proposed? ☒ YES ☐ NO

If Yes, attach as Exhibit No. ENG an engineering statement with all data specified in Section 73.316(d) of the Commission's Rules.

8. Transmitter location: State Ohio County Hamilton

City or Town: Reading

Street Address (*or other identification*): 601 Columbia Avenue

9. Overall height of complete structure above ground, including all appurtenances and lighting (if any, see Part 17). 60.06 meters

10. Attach as Exhibit No. ENG map(s) (*Sectional Aeronautical charts or equivalent*) of the area proposed to be served and shown thereon:

(a) Proposed transmitter location and the radials along which the profile graphs have been prepared;

(b) The 1mV/m predicted contour;

(c) Area (*sq. mi.*) and population (*latest census*) within 1 mV/m contour;

(d) Scale of miles or kilometers (*kilometers if available*).

11. Attach as Exhibit No. ENG a map (*Sectional Aeronautical charts where obtainable*) showing the present and proposed 1 mV/m (60 dbu) contours.

Enter the following from Exhibit above: Gain Area 175.2 sq. mi.
Loss Area 0.0 sq. mi.

Percent change (gain area plus loss area as percentage of present area) DNA %.
If 50% or more this constitutes a major change. Indicate in question 2(e), Section I, accordingly.

12. If the main studio will not be within the boundaries of the principal community to be served, attach as Exhibit No. ENG a justification pursuant to Section 73.1125(f) of the Commission's Rules.
Proposed station will simultaneously broadcast the programming of WMUB, Oxford, Ohio.

13. Attach as Exhibit No. ENG map(s) (*7.5 minute U.S. Geographic Survey topographic quadrangles if available*) of the proposed antenna location showing the following information:

(a) Proposed transmitter location accurately plotted with the latitude, the longitude lines clearly marked and showing a scale of statute kilometers.

(b) Transmitter location and call letters of all AM broadcast stations within 2 miles of the proposed antenna location.
No AM broadcast within 2 miles.

14. If there are any FM or TV stations within 200 feet of proposed antenna or non-broadcast radio stations (*except amateur and citizens band*), or established commercial and government receiving stations in the general vicinity which may be adversely affected by the proposed operation, attach as Exhibit No. ENG the expected effect, a description of remedial steps that may be pursued if necessary, and a statement from the applicant accepting full responsibility for the elimination of any objectionable effect on existing stations.
No FM, TV, or non-broadcast radio stations within 200 feet.

Tabulation of Terrain Data. *(Calculated in accordance with the procedure prescribed in Section 73.313 of the Commission's Rules utilizing 7.5 minute topographic maps, if available.)*

Radial bearing *(degrees true)*	Height of antenna, radiation center above average elevation of radial (3-16 kilometers) Meters	Predicted Distance To the 1 mV/m contour Kilometers
0°	90.9	9.01
45°	30.5	6.22
90°	68.2	12.62
135°	62.4	13.32
180°	102.6	15.49
225°	113.5	12.71
270°	43.4	11.57
315°	64.8	8.79
AVG.	72.0	

Allocation Studies
(See Subpart C of Part 73 of the Commission's Rules and Regulations)

16. Is the proposed antenna location within 320 kilometers (199 miles) of the common border between the United States and Mexico?
Proposed site is 1863 km from the US/Mexican border. ☐ Yes ☒ No
If Yes, attach as Exhibit No. DNA a showing of compliance with all provisions of the Agreement between the United States of America and the United Mexican States concerning Frequency Modulation Broadcasting in the 88 to 108 MHz band.

17. With regard to stations within 320 kilometers (199 miles) of the common border between the United States and Mexico, attach as Exhibit No. DNA information required in 1/.

18. If the proposed operation is for a channel in the range from channel 201 through 220 (88.1 through 91.9 MHz), then with regard to stations more than 320 kilometers (199 miles) from the common border between the United States and Mexico or if this proposed operation is for a class D station in the range from Channel 221 through 300 (92.1 through 107.9 MHz), attach as Exhibit No. ENG a complete allocation study to establish the lack of prohibited overlap of contours involving these stations. The allocation study should include the following:

(a) The normally protected interference-free and the interfering contours for the proposed operation along all azimuths.
(b) Complete normally protected interference-free contours of all other proposals and existing stations to which objectionable interference would be caused.
(c) Interfering contours over pertinent arcs of all other proposals and existing stations from which objectionable interference would be received.
(d) Normally protected and interfering contours over pertinent arcs, of all other proposals and existing stations, which require study to show the absence of objectionable interference.
(e) Plot of the transmitter location of each station or proposal requiring investigation, with identifying call letters, file numbers and operating or proposed facilities.
(f) When necessary to show more detail, an additional allocation study will be attached utilizing a map with a larger scale to clearly show interference or absence thereof.
(g) A scale of miles and properly labeled longitude and latitude lines, shown across the entire (Exhibit(s). Sufficient lines should be shown so that the location of the sites may be verified.
(h) The name of the map(s) used in the exhibit(s).

1/ A showing that the proposed operation meets the minimum distance separation requirements. If any separations are proposed that are less than the applicable minimum separation requirements plus 15 kilometers, include these stations. Also include existing stations, proposed stations, and cities which appear in the Table of Assignments; the location and geographic coordinates of each antenna, proposed antenna or reference point, as appropriate; and distance to each from proposed antenna location.

19. Is the proposed antenna location within 320 kilometers of the common border between the United States and Canada? ☒ Yes ☐ No

If Yes, attach as Exhibit No. ENG a showing of compliance with all provisions of the Working Agreement for Allocation of FM Broadcasting Stations on Channels 201-300 under The Canada-United States FM Agreement of 1947.
Proposed site is 310 km from the US/Canadian border. No Canadian-US channel relationships.

20. With regard to station separated by 53 or 54 channels (10.6 or 10.8 MHz) attach as Exhibit No. ENG information required in 1/*(separation requirements involving intermediate frequency [i.f.] interference).*

21. Is the proposed operation on Channel 218, 219 or 220? ☐ Yes ☒ No

If Yes, attach as Exhibit No. DNA information required in 1/ regarding separation requirements with respect to stations on Channels 221, 222, and 223.

22. Is the proposed station for a channel in the range from Channel 201 to 221 (88.1-91.9 MHz) and the proposed antenna location within the Grade B contour of a channel 6 television station or sufficiently near the Grade B contour that a question of interference to channel 6 may be raised? ☒ Yes ☐ No

If Yes, attach as Exhibit No. ENG a map showing the Grade B contour of the television station and the proposed antenna location. Also include discussion of the possibility of interference to the Channel 6 station and the steps proposed to remedy any interference which may occur.
See Exhibit ENG. No interference created by proposed station.

23. Is the proposed station for a channel in the range from Channel 221 to 300 (92.1-107.9 MHz)? ☐ Yes ☒ No

If Yes, attach as Exhibit No. DNA information required in 1/ *(Except for class D [secondary] proposals.)*

24. If the proposed antenna location is in or near a populated area, attach Exhibit No. ENG a discussion of blanketing and the steps proposed to remedy any interference which may occur.

25. Environmental Statement, See Part I, Subpart 1 of the Commission's Rules.

Would a Commission grant of this application be a major action as defined by Section 1.1305 of the Commission's Rules? ☐ Yes ☒ No

If Yes, attach as Exhibit No. DNA a narrative statement in accordance with Section 1.1311 of the Commission's Rules.
See Exhibit ENG.

If No, explain briefly. Compliance with Guidelines for Human Exposure to Radiofrequency Radiation is included as part of Exhibit ENG.

I certify that I represent the applicant in the capacity indicated below and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief.

April 6, 1989
Date

Louis A. Williams, Jr.
Name

Louis A. Williams Jr.
Signature *(check appropriate box below)*

2092 Arrowood Place
Address *(include ZIP Code)*

Cincinnati, OH 45231

513-851-4964
Telephone No. *(include Area Code)*

☐ Technical Director ☒ Registered Professional Engineer ☐ Chief Operator

☐ Technical Consultant ☐ Other *(Specify)*

Name of Applicant: The President and Board of Trustees of The Miami University

Call Sign:

Station Location: Reading, Ohio

Purpose of Application (Put "X" in appropriate box)

- [X] New antenna construction
- [ ] Alteration of existing antenna structure
- [ ] Change in location

Facilities Requested: Channel 207 1.50 kW Horiz., 1.50 kW Vert. (Directional) On 173' self-supporting tower with 24' pole (total height 197')

1. Location of Antenna:

State: Ohio

County: Hamilton

City or Town: Reading

Exact antenna location (*street address*). If outside city limits, give name of nearest town and distance and direction of antenna from town.

601 Columbia Avenue

Geographical coordinates (*to nearest second*). For directional antenna give coordinates of center of array. For single vertical radiator *give tower location.*

North Latitude 39° 13' 23" West Longitude 84° 25' 57"

2. Is the proposed site the same transmitter-antenna site of other stations authorized by the Commission or specified in another application pending before the Commission? [ ] YES [X] NO

If Yes, give call sign:

3. Has the FAA been notified of proposed construction? [X] YES [ ] NO

If Yes, give date and office where notice was filed.

Notification to Great Lakes Regional Office concurrent with this application.

4. List all landing areas within 5 miles of antenna site. Give distance and direction to the nearest boundary of each landing area from the antenna site.

	Landing Area	Distance	Direction
(a)	Cincinnati-Blue Ash	4.05 km (2.52 mi.)	N55.3°E
(b)	Keeler (Heliport)	6.42 km (3.99 mi.)	1.5
(c)	Valley Asphalt (Heliport)	6.97 km (4.33 mi.)	1.6
(d)	Mays (Heliport)	7.16 km (4.45 mi.)	95.7
(e)	Armel-Byrnes (Heliport)	7.96 km (4.95 mi.)	44.4

5. Attach as Exhibit No. ENG a description of the antenna system, including whether tower(s) are self-supporting or guyed. If a directional antenna, give spacing and orientation of towers. Tapered, self-supported steel tower 52.74 m (173') in height with 7.32 m (24') pole on top.

Tower		#1	XXX	XXX	XXX	XXX	XXX
Overall height above ground (include obstruction lighting)	meters	60.06					
	feet	197					
Overall height above mean sea level (include obstruction lighting)	meters	290.2					
	feet	952					

6. Attach as Exhibit No. ENG a vertical plan sketch for the proposed total structure (including supporting building, if any) giving heights above ground in feet and meters for all significant features. Clearly indicate existing portions, noting lighting, and distinguish between the skeletal or other main supporting structure and the antenna elements.

I certify that I represent the applicant in the capacity indicated below and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief.

Louis A. Williams, Jr.
Name

Louis A. Williams Jr.
Signature (*Check appropriate box below*)

2092 Arrowood Place
Address (*include ZIP Code*)

Cincinnati, OH 45231

513-851-4964
Telephone No. (*Include Area Code*)

☐ Technical Director ☒ Registered Professional Engineer ☐ Other (*specify*)

☐ Technical Consultant ☐ Chief Operator

ENGINEERING EXHIBIT SUPPORTING THE APPLICATION
OF THE PRESIDENT AND BOARD OF TRUSTEES OF
THE MIAMI UNIVERSITY, OXFORD, OHIO
FOR A NEW NONCOMMERCIAL FM BROADCAST
IN READING, OHIO

MARCH 1989

CHANNEL 207 | 1.50 KW ERP | 72 METERS HAAT

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ENGINEERING EXHIBIT SUPPORTING THE APPLICATION
OF THE PRESIDENT AND BOARD OF TRUSTEES OF
THE MIAMI UNIVERSITY, OXFORD, OHIO
FOR A NEW NONCOMMERCIAL FM BROADCAST
IN READING, OHIO

MARCH 1989

I. General

This engineering exhibit supports the application of the President and Board of Trustees of The Miami University, Oxford, Ohio for a new Noncommercial Educational FM Broadcast Station in Reading, Ohio on Channel 207 (89.3 MHz) with a height of 72 m above average terrain and an effective radiated power (ERP) of 1.50 kW directional. The proposed tower location is 39°13'23" North latitude, 84°25'57" West longitude.

This exhibit demonstrates that the proposed Reading station meets all the current requirements for antenna directionality, lack of interference to other stations, lack of interference to the proposed station, lack of interference to TV Channel 6, and lack of environmental impact. The proposed station complies with current guidelines for human exposure to radio frequency radiation.

The proposed station directional antenna pattern provides protection to WOBO in Batavia, Ohio, to WFPL in Louisville, Kentucky, to WNKU in Highland Heights, Kentucky, and to WLHS in West Chester, Ohio. By virtue of these protection limits, protection is also provided to WCNE in Batavia, Ohio, to WLMH in Morrow, Ohio, to WVXR in Richmond, Indiana, to WHSS in Hamilton, Ohio, to WDPR in Dayton, Ohio, to WDPS in Dayton, Ohio, to a construction permit for WDPR in Dayton, Ohio, and to a construction permit for WVXM in West Union, Ohio.

The protection limitations for the proposed Reading station are complex and this engineering exhibit devotes more than average attention to a thorough development of these limitations.

The complexity of the proposed protection limitations stems in part from the fact that two of the protected stations are also directional stations. Additional complexity is introduced because of the hilly terrain in the Cincinnati area. The lowest allowable power limit does not necessarily coincide with the bearing to a protected station, nor does the lowest allowable power limit necessarily coincide with the shortest distance to the relevant contour.

In order to minimize the likelihood of disagreement, all contours are computed using a common database (the NGDC 30-second database) and the FCC computer code TVFMFS is used to compute the contours. To obtain the maximum accuracy from the TVFMFS code while avoiding contour overlaps, the program is run iteratively in the field strength versus distance mode to arrive at distances to the nearest 0.01 kilometer where such resolution is appropriate.

II. Location and Structure

A. Transmitter

The proposed tower location is 39°13'23" North latitude, 84°25'57" West longitude, at 601 Columbia Avenue in Reading, Ohio. The tower will be owned by The Miami University and will be on land leased from the City of Reading. A 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle is given in Figure 1 showing the proposed transmitter location.

The proposed tower is a self supporting, tapered steel structure with an height above ground of 52.74 m (173'). On top of the tower is a 7.32 m (24') mast 27.3 cm (10.75") in diameter. The overall height is 60.06 m (197') and no obstruction lighting is proposed. A vertical plan sketch for the proposed structure is shown in Figure 2.

The FAA Great Lakes Region Office is being notified concurrently of the proposed construction on FAA Form 7460-1. If painting and obstruction lighting should be required by the FAA it

will be in accordance with FAA regulations. The nearest edge of the nearest airport landing area is the Cincinnati - Blue Ash Airport at a distance of 4.05 km (2.52 miles) and a bearing of N55.3°E. Several heliports are also within 5 miles of the antenna site.

B. Main Studio

The Miami University requests permission to locate the main studio for the proposed Reading station outside the proposed station's principal community contour. The proposed station's principal community contour is taken as 1 mV/m in accordance with FCC §73.315(a) note and (c). The Miami University proposes to simultaneously broadcast the programming of its presently owned station, WMUB, Oxford, Ohio. The Miami University believes that the proposed Reading station's studio location of Oxford, Ohio will be consistent with operating the proposed station in the public interest. This request is in accordance with FCC §73.1125(a)(4).

By simultaneously broadcasting the same programming on both WMUB and the proposed Reading station, The Miami University will be able to provide 24 hour quality public interest, news, and music programming to the city of Reading. By including Reading area news in its local newscasts and public affairs programming, The Miami University can serve Reading on a broader scale than by attempting at this time to establish a separate studio within the city of Reading.

It is The Miami University's intent to maintain a close relationship with the City of Reading's administration. Contingent upon the proposed Reading construction permit being granted by the FCC, the City of Reading has agreed to enter into a long term lease of the proposed tower site, and further agreed to house the proposed transmitter in the adjacent fire station. Maintaining this relationship will require the university to serve the needs of the City of Reading.

It is also the intent of the university to ascertain the community problems and needs of Reading and to address these with appropriate programming. The Reading telephone directory and the combined Reading and WMUB monthly program guide will indicate a number to call collect to contact the studio at Oxford, Ohio.

The university will initially use its existing staff and resources to provide programming that addresses the above determined needs. As circumstances and funding permit, the university will consider adding staff and resources to make live broadcasts from Reading when events warrant. The WMUB Oxford, Ohio studios and the City of Reading are separated by not more than 45 minutes under normal automobile driving conditions, so facilities for program production for the proposed Reading station are also readily available.

III. Antenna Input Power

Approximately 60 m (196.9') of 1-5/8 inch pressurized transmission line such as Andrew HJ7-50A Heliax is needed for the proposed facility. Andrew HJ7-50A has a loss at 89.3 MHz of 0.640 dB per 100 m, so the total transmission line loss is 0.384 dB and the transmission line efficiency is 91.5 percent.

For the purposes of these calculations a circularly polarized two bay antenna such as a Jampro JSCP-2R(DA) is used. While the final horizontal pattern gain cannot be determined until final antenna range measurements are made, an approximate pattern gain of 1.8 can be used for transmitter sizing purposes.

Based on this approximate pattern gain, a transmitter rated at one kilowatt output power should be adequate. In accordance with FCC §73.212(a) the power levels are specified as follows:

	Nominal	Specified
Transmitter Output Power	0.913 kW	0.91 kW
Transmission Line Efficiency	0.915	0.915
Antenna Input Power	0.836 kW	
Antenna Gain	1.8	
Effective Radiated Power	1.504 kW	1.50 kW

IV. Directional Antenna Characteristics

The proposed Reading antenna directional pattern will be adjusted to eliminate harmful interference to or from co- and adjacent channel stations. The final antenna pattern will be measured by the manufacturer; for example, the measurements can be made by duplicating a section of tower with one bay of the antenna full scale on a flat 7000 foot antenna range and profiling the antenna in the receive mode by rotating the antenna to produce the measured pattern.

A vertical or elevation pattern plot will be measured in order to show the absence of undesirable lobes at angles off the horizontal plane. The azimuth direction will be specified by the manufacturer and the antenna will be aligned in azimuth with respect to true north during installation using the services of a licensed surveyor. Final measured pattern data from the antenna range will be used to show compliance with FCC requirements.

As shown later in this exhibit, the critical bearings and powers are as follows:

Bearing	ERP	Limitation
308.3°-65.0°	Figure 3	WLHS 1 mV/m contour
85.0°-126.7°	Figure 4	WOBO 1 mV/m contour
173.2°-180.3°	Figure 5	WNKU 10 mV/m contour
200.3°-238.2°	Figure 6	WFPL 0.1 mV/m contour

The antenna will be circularly polarized and the vertically polarized component will not exceed the horizontally

polarized component in any direction. The maximum-to-minimum ratio will be less than 15 dB. The maximum rate of change in gain will be 2 dB or less per 10 degrees in azimuth.

The nominal peak horizontal pattern gain for the antenna is estimated at about 1.8, which gives an overall peak power gain of 1.8 for two bays. With a major lobe gain of 1.8, the nominal transmitter output for 1.504 kW maximum horizontally polarized ERP is 0.913 kW with a transmission line efficiency of 91.5 percent.

The proposed antenna is a Jampro type JSCP-2R(DA) two bay directional circularly polarized FM antenna. The antenna will be equipped with radomes. Directionality will be achieved using parasitic elements.

The maximum azimuth pattern provided by the above limits is shown in Figure 7. A representative vertical pattern plot for a JSCP-2 antenna is given in Figure 8. The horizontally polarized azimuth pattern is given in tabular form in Table 1. The representative vertical pattern plot is given in tabular form in Table 2. Table 1 also gives the free space field strength in mV/m at 1 mile and the effective radiated power in dBk. Additional tabular ERP data at critical bearings is given as part of Table 5. The maximum-to-minimum ratio for the pattern in Figure 7 is 13.32 dB.

V. Terrain Data

The 0 to 16 kilometer ground elevation data for eight equally spaced radials at the proposed Reading site is given in tabular form in Table 3 and is taken from the NGDC 30-second data base in accordance with FCC §73.312(d). The ground elevations used in the calculation of the proposed coverage contours are also taken from the NGDC 30-second data base. The same method is used to calculate the elevations for pertinent co- and adjacent channel stations.

Data taken from the NGDC 30-second data base may differ by a few feet on specific radials when compared with prior

computations of average elevation for specific stations and radials. One purpose in using the same data base for both the proposed Reading and the relevant co- and adjacent channel stations is to reduce the computational variations among the different elevation calculations.

VI. Height Above Average Terrain

The proposed Reading center of radiation above mean sea level (CRAMSL) and center of radiation height above average terrain (HAAT) are computed as follows:

Tower Base	230.1 m	(755')	AMSL
Antenna Mid-Point	57.77	(189.5)	AGL
CRAMSL	287.9	(944.6)	AMSL
Avg. Terrain Elev.	215.9	(708.3)	AMSL
HAAT	72.0	(236.2)	

The height of the proposed Reading antenna radiation center above the average elevation of eight uniform radials is given in Table 4. Also shown in the table are the heights for radials toward the critical co- and adjacent channels. In accordance with FCC Rules and Regulations §73.212(b) the proposed Reading antenna height above average terrain is specified as 72 m.

VII. Proposed Contour

Table 5 shows the 1 mV/m F(50,50) contour in tabular form for the proposed Reading station. This data is plotted in Figure 9. Figure 9 is a composite portion of the St. Louis and Cincinnati Sectional Aeronautical Charts showing the 1 mV/m F(50,50) contour for the proposed Reading station. The cardinal radials along which the profiles are measured are also shown in Figure 9.

VIII. Population and Area Data

The area within the 1 mV/m contour for the proposed Reading station is 453.8 square kilometers (175.2 square miles). The population within the 1 mV/m contour for the proposed Reading station is 518,794 based on the corrected 1980 census.

Population and area calculations were made using the Dataworld POPCOUNT computer code. Past experience with this code has indicated acceptable accuracy when compared with techniques using a calibrated compensating polar planimeter in the method described in FCC §73.525(e)(2). The printout of the population tabulation by minor civil division for the proposed Reading station is given in Table 6.

IX. Blanketing Interference

The 115 dBu blanketing contour for the proposed Reading station is given in Table 7 and is calculated in accordance with FCC §73.318. The blanketing contour is plotted in Figure 1. There are no known government receiving stations within the blanketing contour.

A case-by-case resolution is proposed for any complaints which are received. Station personnel will investigate such complaints and provide assistance in eliminating fundamental frequency overload problems. Traps, down lead replacement, and similar remedies are expected to be sufficient. Difficult cases will be referred to a qualified technical consultant.

The applicant intends for no one to be denied normal reception of broadcast, business, or other communications due to the operation of the proposed facilities. Because of the low power of the proposed station, little, if any, problem with blanketing is anticipated.

X. Potential Interference to Other Stations

Table 8 is a site survey showing the closest AM, FM, TV, and other tower locations with respect to the proposed Reading

facility. No FM or TV broadcast stations are located within 200 feet of the proposed site. The nearest FM is WJVS at a distance of 7.50 km. The nearest TV is WCPO-TV at a distance of 12.29 km. In accordance with FCC §73.316(d) no additional showing as to the possible effect of the proposed Reading station on TV or other FM stations is needed.

The nearest AM Broadcast station is a three tower directional, WSAI, at a distance of 8.94 km. There are no AM Broadcast stations within 3.2 km (2 miles) of the proposed station. Because of the large geographic separations, there should be no significant impact on any AM Broadcast field strength contours because of the proposed antenna.

XI. Allocation Study Including I.F. Interference

Table 9 shows the FM Broadcast co- and adjacent channels which must be investigated for the proposed Reading station. Table 9 is a single channel study for the proposed Reading station based on Class A operation. Table 9 includes the separation requirements for limiting intermediate frequency (I.F.) interference and for TV Channel 6 interference. Stations which do not meet the geographical separation requirements for full Class A operation of the proposed Reading station are marked on the right as "SHORT."

Table 9 shows the proposed Reading station meets the requirements for limiting intermediate frequency (I.F.) interference. TV Channel 6 interference is discussed below in Section XII.

As can be seen from Table 9, additional analysis is needed on twelve co- and adjacent channel stations to verify the proposed Reading station meets the noncommercial educational FM requirements for protection from interference. These twelve stations are listed below:

Station	Location	Channel
WCNE	Batavia, OH	204
WOBO	Batavia, OH	204
WLMH	Morrow, OH	206
WVXR*	Richmond, IN	207
WFPL	Louisville, KY	207
WHSS	Hamilton, OH	208
WDPS	Dayton, OH	208
WDPR	Dayton, OH	208
WDPR/CP	Dayton, OH	208
WVXM/CP*	West Union, OH	208
WNKU	Highland Heights, KY	209
WLHS	West Chester, OH	210

* Call recently assigned.

Stations WCNE and WOBO share channel 204 with separate facilities. Stations WDPS and WDPR share channel 208 with common facilities, although station WDPR has a construction permit granted in March of 1988 to establish separate facilities with increased power and height. Stations WOBO, WNKU, and the WDPR construction permit employ directional antennas.

As it turns out, if the WOBO 1 mV/m, WFPL 0.1 mV/m, WNKU 10 mV/m, and WLHS 1 mV/m contours are protected by the proposed Reading station, the remaining contours and stations are also protected. The critical contours for stations WOBO, WFPL, WNKU, and WLHS are considered first, and then a showing is made that the other contours and stations are protected by the resulting proposed Reading contours.

For each station, the terrain elevation is calculated using the NGDC 30-second data base. The effective antenna height in the direction of the radial being considered is calculated by taking the effective average height (HAAT) from Table 9, adding the average terrain elevation for eight uniform radials, and

subtracting the average terrain elevation for the radial being considered.

For WOBO, radials on either side of the direct bearing toward the proposed Reading station are investigated in detail in order to include the effect of the WOBO directional antenna. The ERP for WOBO is taken from the WOBO azimuth pattern plot in the Jampro report dated September 28, 1987 and submitted to the FCC as an attachment to WOBO's Application for License BLED-880202KB. A copy of the plot is included herein as Figure 10 for reference.

The effective antenna heights for WOBO are given in Table 10. The effective antenna heights for the proposed Reading station are given in Table 11. The 1 mV/m contours are calculated using the F(50,50) curves, while the 100 mV/m undesired contours are calculated using the F(50,10) curves. For distances below those given in the F(50,10) curves, the F(50,50) curves are used. For distances below 1.61 km, the FCC's TVFMFS code uses the free space formula.

The results are given in Table 12. As can be seen in Table 12, the proposed Reading station limits vary as a function of bearing to WOBO. Table 12A shows the limits on the proposed station's 100 mV/m contour because of the WOBO 1 mV/m contour. Table 12B shows the limits on the proposed station's 1 mV/m contour because of the WOBO 100 mV/m contour. The 1 mV/m WOBO contour imposes the more severe limit (Table 12A).

The ERP data in Table 12A is plotted in Figure 4 as a function of bearing from the proposed Reading station using a cubic spline interpolation for the eleven radials between 85.5 and 125.3 degrees that are given in the table. Figure 4 shows the maximum proposed station ERP in kilowatts allowed by the WOBO 1 mV/m contour. The lowest limit occurs at 103.9° and is 0.437 kW.

The rate of change for the curve in Figure 4 is less than 0.2 dB per degree when the proposed Reading station's allowed 100 mV/m contour is less than 1.61 km. Because of the shift in code TVFMFS from free space to tabular interpolation at 1.61 km,

the rate of change for the data with asterisks in Table 12A is much more than 0.2 dB per degree. A transition point of 85.0° is arrived at by linear interpolation for 1.60 km between 84.5° (1.61 km) and 85.5° (1.59 km). A transition point of 126.7 degrees is arrived at by linear interpolation for 1.60 km between 125.3° (1.55 km) and 127.5° (1.63 km).

At 85.0 degrees, the ERP limit for the proposed Reading station from Figure 4 is 0.519 kW, and at 126.7 degrees, the ERP limit is 0.492 kW. For the angles immediately outside these critical angles, the 0.2 dB per degree rate of change limits the ERP for the proposed station. (The rate of change limit is not considered in Figure 4.)

For WFPL, the same basic process is used. Radials on either side of the direct bearing toward the proposed Reading station are investigated in detail. While WFPL does not use a directional antenna, terrain variations produce some minor variations in contour distance versus bearing. Only the WFPL F(50,10) 0.1 mV/m contour is critical, as will be shown later.

The effective antenna heights for WFPL are given in Table 13. The effective antenna heights for the proposed Reading station are given in Table 14. The 1 mV/m contour is calculated using the F(50,50) curves, while the 0.1 mV/m undesired contour is calculated using the F(50,10) curves.

The results are given in Table 15. As can be seen in Table 15, the proposed Reading station limits vary as a function of bearing to WFPL. The table shows the limits on the proposed station's 1 mV/m contour because of the WFPL 0.1 mV/m contour.

The ERP data in Table 15 is plotted in Figure 6 as a function of bearing from the proposed Reading station using a cubic spline interpolation for the twenty-three radials between 197.1 and 242.1 degrees that are given in Table 15. Figure 6 shows the maximum proposed Reading station ERP in kilowatts allowed by the WFPL 0.1 mV/m contour. The lowest limit occurs at 227.4° and is 0.176 kW.

The rate of change for the curve in Figure 6 is less than 0.2 dB per degree from 200.3 to 238.2 degrees. At 200.3 degrees, the ERP limit is 0.448 kW, and at 238.2 degrees, the ERP limit is 0.292 kW. For the angles immediately outside these critical angles, the 0.2 dB per degree rate of change limits the ERP for the proposed Reading station. (The rate of change limit is not considered in Figure 6.)

For WNKU, radials on either side of the direct bearing toward the proposed Reading station are investigated in detail in order to include the effect of the WNKU directional antenna. The ERP for WNKU is taken from the WNKU azimuth pattern plot in the Electronics Research, Inc. report dated October 30, 1984 and is believed to be the latest WKNU license data. A copy of the plot is included herein as Figure 11 for reference.

The effective antenna heights for WNKU are given in Table 16. The effective antenna heights for the proposed Reading station are given in Table 17. The 1 mV/m contours are calculated using the F(50,50) curves, while the 10 mV/m undesired contours are calculated using the F(50,10) curves. For distances below those given in the F(50,10) curves, the F(50,50) curves are used.

The results are given in Table 18. As can be seen in Table 18, the proposed limits for the Reading station vary as a function of bearing to WNKU. The upper half of the table shows the limits on the proposed Reading station's 10 mV/m contour because of the WNKU 1 mV/m contour. The lower half of the table shows the limits on the proposed station's 1 mV/m contour because of the WNKU 10 mV/m contour. The 10 mV/m WNKU contour imposes the more severe limit (the lower half of Table 18).

The ERP data in the lower half of Table 18 is plotted in Figure 5 as a function of bearing from the proposed Reading station using a cubic spline interpolation for the nine radials between 171.5 and 184.6 degrees that are given in the Table 18. Figure 5 shows the maximum proposed station ERP in kilowatts