MARANATHA CHRISTIAN FELLOWSHIP

the Lord is coming ...

MM 97-75

RECEIVED

MAY 11 1995

FCC MAIL ROOM

AUDIO SERVICES DIVISION

May 10, 1995

Mr. William F. Caton, Acting Secretary
Federal Communications Commission
1919 M Street NW
Washington DC 20554

Dear Mr. Caton:

Please find enclosed in triplicate, a file of Form 340 for minor modification of license of WQKO Channel 220A in Howe, Indiana to raise ERP to 6kw.

Let it be noted that this application might be mutually exclusive with the application in Defiance, Ohio - Number BLPED 950210MD.

Please address any questions concerning the application to this office.

Respectfully submitted.

Vernon Egli

Enc.

VE/cp

6200 E. STATE ROAD 120 HOWE, IN 46746 219-562-3236

Federal Communications Commission
Washington, D. C. 20554

FCC 340

Approved by OMB
3060-0034
Expires 11/30/94
See Page 23 for information regarding public burden estimate

APPLICATION FOR CONSTRUCTION PERMIT FOR NONCOMMERCIAL EDUCATIONAL BROADCAST STATION

(Carefully read instructions before filing form) Return only form to FCC

MM 97-75

For Commission Use Only
File No. BPED-950511 IE

Section I - GENERAL INFORMATION

1. Name of Applicant		
Maranatha Christian Fellowship Inc.		
Street Address or P.O. Box		
6200 East State Road 120		
City	State	ZIP Code
Howe	IN	46746
Telephone No. (Include Area Code)		
219-562-3236		

Send notices and communications to the following person at the address below:		
Name		
Vern Egli		
Street Address or P.O. Box		
6200 East State Road 120		
City	State	ZIP Code
Howe	IN	46746
Telephone No. (Include Area Code)		
219-562-2242		

2. This application is for: ☐ AM ☒ FM ☐ TV

(a) Channel No. or Frequency	(b) Principal Community	City	State
220A		Howe	IN

(c) Check one of the following boxes:

☐ Application for **NEW** station

☐ **MAJOR** change in licensed facilities; call sign: .....

☒ **MINOR** change in licensed facilities; call sign: ..... WQKO

☐ **MAJOR** modification of construction permit; call sign: .....

File No. of construction permit: .....

☐ **MINOR** modification of construction permit; call sign: .....

File No. of construction permit: .....

☐ **AMENDMENT** to pending application; application file number: .....

AUDIO DIVISION
MAY 11 1995
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NOTE: It is not necessary to use this form to amend a previously filed application. Should you do so, however, please submit only Section I and those other portions of the form that contain the amended information.

3. Is this application mutually exclusive with a renewal application? ☐ Yes ☒ No

If Yes, state:	Call letters	Community of License	
		City	State

91.9MHZ

BPED - 950511IE WQKO
HOWE IN

Section V-B - FM BROADCAST ENGINEERING DATA	FOR COMMISSION USE ONLY File No. _____ ASB Referral Date _____ Referred by _____

Name of Applicant

Maranatha Christian Fellowship

Call letters *(if issued)*

WQKO

Is this application being filed in response to a window? ☐ Yes ☒ No

If Yes, specify closing date: _____

Purpose of Application: *(check appropriate box(es))*

- ☐ Construct a new (main) facility
- ☐ Construct a new auxiliary facility
- ☐ Modify existing construction permit for main facility
- ☐ Modify existing construction permit for auxiliary facility
- ☐ Modify licensed main facility
- ☐ Modify licensed auxiliary facility

If purpose is to modify, indicate below the nature of change(s) and specify the file number(s) of the authorizations affected.

- ☐ Antenna supporting-structure height
- ☒ Effective radiated power
- ☐ Antenna height above average terrain
- ☐ Frequency
- ☐ Antenna location
- ☐ Class
- ☐ Main Studio location
- ☐ Other *(Summarize briefly)*

File Number(s) _____

1. Allocation:

Channel No.	Principal community to be served:		
	City	County	State
220A	Howe	LaGrange	IN

Class *(check only one box below)*

☒ A ☐ B1 ☐ B ☐ C3

☐ C2 ☐ C1 ☐ C ☐ D

2. Exact location of antenna.

(a) Specify address, city, county and state. If no address, specify distance and bearing relative to the nearest town or landmark.

(b) Geographical coordinates (to nearest second). If mounted on element of an AM array, specify coordinates of center of array. Otherwise, specify tower location. Specify South Latitude or East Longitude where applicable; otherwise, North Latitude or West Longitude will be presumed.

Latitude ° ' "	Longitude ° ' "

3. Is the supporting structure the same as that of another station(s) or proposed in another pending application(s)? ☒ Yes ☐ No

If Yes, give call letter(s) or file number(s) or both. WNIN 837, WTHD

If proposal involves a change in height of an existing structure, specify existing height above ground level including antenna, all other appurtenances, and lighting, if any.

4. Does the application propose to correct previous site coordinates? ☐ Yes ☒ No
If Yes, list old coordinates.

Latitude	°	'	"	Longitude	°	'	"

5. Has the FAA been notified of the proposed construction? ☐ Yes ☒ No
If Yes, give date and office where notice was filed and attach as an Exhibit a copy of FAA determination, if available.

Exhibit No. N/A

Date _____ Office where filed _____

6. List all landing areas within 8 km of antenna site. Specify distance and bearing from structure to nearest point of the nearest runway.

	Landing Area	Distance (km)	Bearing (degrees True)
(a)	Reid-Eash Airport	7.9	319°
(b)			

7. (a) Elevation: *(to the nearest meter)*

(1) of site above mean sea level; 313.7 meters

(2) of the top of supporting structure above ground (including antenna, all other appurtenances, and lighting, if any); and 121.3 meters

(3) of the top of supporting structure above mean sea level [(aX1) + (aX2)] 435.0 meters

(b) Height of radiation center: *(to the nearest meter)* H = Horizontal; V = Vertical

(1) above ground 70.3 meters (H)

70.3 meters (V)

(2) above mean sea level [(aX1) + (bX1)] 384 meters (H)

384 meters (V)

(3) above average terrain 100 meters (H)

100 meters (V)

8. Attach as an Exhibit sketch(es) of the supporting structure, labelling all elevations required in Question 7 above, except item 7(bX3). If mounted on an AM directional-array element, specify heights and orientations of all array towers, as well as location of FM radiator.

Exhibit No. 1

9. Effective Radiated Power:
(a) ERP in the horizontal plane 6 kw (H*) 6 kw (V*)

(b) Is beam tilt proposed? ☐ Yes ☒ No

If Yes, specify maximum ERP in the plane of the tilted beam, and attach as an Exhibit a vertical elevational plot of radiated field.

Exhibit No. N/A

_____ kw (H*) _____ kw (V*)

*Polarization

10. Is a directional antenna proposed? [X] Yes [ ] No

If Yes, attach as an Exhibit a statement with all data specified in 47 C.F.R. Section 73.316, including plot(s) and tabulations of horizontally and vertically polarized radiated components in terms of relative field. Exhibit No. 2

11. Will the main studio be located within the 70 dBu or 3.16 mV/m contour? [X] Yes [ ] No

If No, attach as an Exhibit justification pursuant to 47 C.F.R. Section 73.1125. Exhibit No.

12. Are there: (a) within 60 meters of the proposed antenna, any proposed or authorized FM or TV transmitters, or any nonbroadcast *(except citizens band or amateur)* radio stations; or (b) within the blanketing contour, any established commercial or government receiving stations, cable head-end facilities, or populated areas; or (c) within ten (10) kilometers of the proposed antenna, any proposed or authorized FM or TV transmitters which may produce receiver-induced intermodulation interference? [X] Yes [ ] No

If Yes, attach as an Exhibit a description of any expected, undesired effects of operations and remedial steps to be pursued if necessary, and a statement accepting full responsibility for the elimination of any objectionable interference (including that caused by receiver-induced or other types of modulation) to facilities in existence or authorized or to radio receivers in use prior to grant of this application. *(See 47 C.F.R. Sections 73.315(b), 73.316(d) and 73.318.)* Exhibit No. 3

13. Attach as an Exhibit a 7.5 minute series U.S. Geological Survey topographic quadrangle map that shows clearly, legibly, and accurately, the location of the proposed transmitting antenna. This map must comply with the requirements set forth in Instruction D for Section V. Further, the map must clearly and legibly display the original printed contour lines and data as well as latitude and longitude markings, and must bear a scale of distance in kilometers. Exhibit No. 4

14. Attach as an Exhibit *(name the source)* a map which shows clearly, legibly, and accurately, and with the original printed latitude and longitude markings and a scale of distance in kilometers: Exhibit No. 5

(a) the proposed transmitter location, and the radials along with profile graphs have been prepared;

(b) the 1 mV/m predicted contour and, for noncommercial educational applicants applying on a commercial channel, the 3.16 mV/m contour; and

(c) the legal boundaries of the principal community to be served.

15. Specify area in square kilometers (1 sq. mi. = 2.59 sq. km.) and population (latest census) within the predicted 1 mV/m contour.

Area 2329.6 sq. km. Population 82,472

16. Attach as an Exhibit a map *(Sectional Aeronautical charts where obtainable)* showing the present and proposed 1 mV/m (60 dbu) contours. Exhibit No. 6

Enter the following from Exhibit above: Gain Area 234.44 sq. mi.
Loss Area _____ sq. mi.

Percent change (gain area plus loss area as percentage of present area) 37 %.
If 50% or more this constitutes a major change. Indicate in question 2(c), Section I, accordingly.

17. For an application involving an auxiliary facility only, attach as an Exhibit a map *(Sectional Aeronautical Chart or equivalent)* that shows clearly, legibly, and accurately, and with latitude and longitude markings and a scale of distance in kilometers:

Exhibit No. N/A

(a) the proposed auxiliary 1 mV/m contour; and

(b) the 1 mV/m contour of the licensed main facility for which the applied-for facility will be auxiliary. Also specify the file number of the license. See 47 C.F.R. Section 73.1675. (File No.: _____)

18. Terrain and coverage data *(to be calculated in accordance with 47 C.F.R. Section 73.313).*

Source of terrain data: *(check only one box below)*

[X] Linearly interpolated 30-second database [ ] 7.5 minute topographic map

(Source: NGDC-TPG 0050)

[ ] Other *(briefly summarize)*

Radial bearing (degrees True)	Height of radiation center above average elevation of radial from 3 to 16 km (meters)	Predicted Distances to the 1 mV/m contour (kilometers)
0	107.3	29.2
45	93.7	23.3
90	90.1	26.9
135	88.8	26.8
180	93.1	24.2
225	98.4	28.1
270	108.0	29.3
315	120.5	28.1

Allocation Studies

(See Subpart C of 47 C.F.R. Part 73)

19. Is the proposed antenna location within 320 kilometers (199 miles) of the common border between the United States and Mexico? [ ] Yes [X] No

If Yes, attach as an Exhibit 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.

Exhibit No. N/A

20. Is the proposed antenna location within 320 kilometers of the common border between the United States and Canada? [X] Yes [ ] No

If Yes, attach as an Exhibit 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. Exhibit No. 7

21. If the proposed operation is for a channel in the range from channel 201 through 220 (88.1 through 91.9 MHz), 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 an Exhibit a complete allocation study to establish the lack of prohibited overlap of contours with other U.S. stations. The allocation study should include the following: Exhibit No. 7

(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 kilometers 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).

22. With regard to any stations separated by 53 or 54 channels (10.6 or 10.8 MHz) attach as an Exhibit information required in 1/ *(separation requirements involving intermediate frequency (i.f.) interference).* Exhibit No. 7

23.(a) Is the proposed operation on Channel 218, 219, or 220? [X] Yes [ ] No

(b) If the answer to (a) is yes, does the proposed operation satisfy the requirements of 47 C.F.R. Section 73.207? [X] Yes [ ] No

(c) If the answer to (b) is yes, attach as an Exhibit information required in 1/ regarding separation requirements with respect to stations on Channels 221, 222 and 223. Exhibit No. 7

(d) If the answer to (b) is no, attach as an Exhibit a statement describing the short spacing(s) and how it or they arose. Exhibit No.

1/ A showing that the proposed operation meets the minimum distance separation requirements. Include existing stations, proposed stations, and cities which appear in the Table of Allotments; the location and geographic coordinates of each antenna, proposed antenna or reference point, as appropriate; and distance to each from proposed antenna location.

SECTION V-B – FM BROADCAST ENGINEERING DATA (Page 6)

(e) If authorization pursuant to 47 C.F.R. Section 73.215 is requested, attach as an Exhibit a complete engineering study to establish the lack of prohibited overlap of contours involving affected stations. The engineering study must include the following:

Exhibit No. 7

(1) Protected and interfering contours, in all directions (360), for the proposed operation.
(2) Protected and interfering contours, over pertinent arcs, of all short-spaced assignments, applications and allotments, including a plot showing each transmitter location, with identifying call letters or file numbers, and indication of whether facility is operating or proposed. For vacant allotments, use the reference coordinates as transmitter location.
(3) When necessary to show more detail, an additional allocation study utilizing a map with a larger scale to clearly show prohibited overlap will not occur.
(4) A scale of kilometers 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.
(5) The official title(s) of the map(s) used in the exhibits(s).

24. Is the proposed station for a channel in the range from Channel 201 to 220 (88.1 through 91.9 MHz) and the proposed antenna location within the distance to an affected TV Channel 6 station(s) as defined in 47 C.F.R. Section 73.525?

[X] Yes [ ] No

If Yes, attach as an Exhibit either a TV Channel 6 agreement letter dated and signed by both parties or a map and an engineering statement with calculations demonstrating compliance with 47 C.F.R. Section 73.525 for each affected TV Channel 6 station.

Exhibit No. 8

25. Is the proposed station for a channel in the range from Channel 221 to 300 (92.1-107.9 MHz)?

[ ] Yes [X] No

If Yes, attach as an Exhibit information required in 1/. *(Except for Class D (secondary) proposals.)*

Exhibit No.

26. Environmental Statement *(See 47 C.F.R. Section 1.1301 et seq.)*

Would a Commission grant of this application come within Section 1.1307 of the FCC Rules, such that it may have a significant environmental impact?

[ ] Yes [X] No

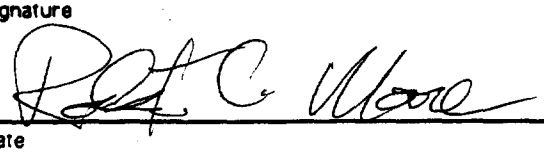
If you answer Yes, submit as an Exhibit an Environmental Assessment required by Section 1.1311.

Exhibit No.

If No, explain briefly why not.

CERTIFICATION

I certify that I have prepared this Section of this application on behalf of the applicant, and that after such preparation, I have examined the foregoing and found it to be accurate and true to the best of my knowledge and belief.

Name *(Typed or Printed)*	Relationship to Applicant *(e.g., Consulting Engineer)*
Robert C. Moore	Consulting Engineer
Signature 	Address *(Include ZIP Code)* 1908 Sweetbriar Drive Goshen, Indiana 46526
Date May 10, 1995	Telephone No. *(Include Area Code)* (219) 534-2002

SECTION VI – EQUAL EMPLOYMENT OPPORTUNITY PROGRAM

1. Does the applicant propose to employ five or more full-time employees? ☐ Yes ☒ No

If Yes, the applicant must include an EEO program called for in the separate Broadcast Equal Employment Opportunity Program Report (FCC 396-A).

SECTION VII – CERTIFICATION

1. Has or will the applicant comply with the public notice requirements of 47 C.F.R. Section 73.3580? ☒ Yes ☐ No

2. The applicant certifies that, in the case of an individual applicant, he or she is not subject to a denial of federal benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862, or, in the case of a non-individual applicant (e.g., corporation, partnership or other unincorporated association), no party to the application is subject to a denial of federal benefits pursuant to that section. For the definition of a "party" for these purposes, see 47 C.F.R. 1.2002(b). ☒ Yes ☐ No

The APPLICANT hereby waives any claim to the use of any particular frequency as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. *(See Section 304 of the Communications Act of 1934, as amended.)*

The APPLICANT acknowledges that all the statements made in this application and attached exhibits are considered material representations, and that all exhibits are a material part hereof and incorporated herein.

The APPLICANT represents that this application is not filed for the purpose of impeding, obstructing, or delaying determination on any other application with which it may be in conflict.

In accordance with 47 C.F.R. Section 1.65, the APPLICANT has a continuing obligation to advise the Commission, through amendments, of any substantial and significant changes in information furnished.

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

I certify that the statements in this application are true and correct to the best of my knowledge and belief, and are made in good faith.

Name of Applicant	Title
Ronald L. Hyre	President
Signature: Ronald L Hyre	Date: 5/10/95

FCC NOTICE TO INDIVIDUALS REQUIRED BY THE PRIVACY ACT AND THE PAPERWORK REDUCTION ACT

The solicitation of personal information requested in this application is authorized by the Communications Act of 1934, as amended. The Commission will use the information provided in this form to determine whether grant of this application is in the public interest. In reaching that determination, or for law enforcement purposes, it may be necessary to refer personal information contained in this form to another government agency. In addition, all information provided in this form will be available for public inspection. If information requested on the form is not provided, processing of the application may be delayed or the application may be returned without action pursuant to the Commission's rules. Your response is required to obtain the requested authority.

Public reporting burden for this collection of information is estimated to vary from 78 to 302 hours 20 minutes with an average of 171 hours 36 minutes per response. These estimates includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, can be sent to the Federal Communications Commission, Information Resources Branch, Room 416, Paperwork Reduction Project, Washington, D.C. 20554, and to the Office of Management and Budget, Paperwork Reduction Project (3060-0034), Washington, D.C. 20503.

THE FOREGOING NOTICE IS REQUIRED BY THE PRIVACY ACT OF 1974, P.L. 93-579, DECEMBER 31, 1974, 5 U.S.C. 552a(e)(3), AND THE PAPERWORK REDUCTION ACT OF 1980, P.L. 96-511, DECEMBER 11, 1980, 44 U.S.C. 3507.

Certification of Consultant

Robert Moore, at 1908 Sweetbriar Drive, Goshen, IN, has been retained as broadcast engineering consultant for the purposes of preparing the technical data included in this report.

I declare under penalty of perjury that the contents of this report are true and accurate to the best of my knowlege and belief.

Robert C. Moore

May 8,1995

1908 Sweetbriar Drive
Goshen, Indiana 46526

(219)534-2002

DISCUSSION

WQKO proposes a power upgrade to 6kw at present transmitter site and raising a H.A.A.T. to 100 meters. This should not be an interference from any existing or proposed stations as under provision of 47.F.R. Section 73215.

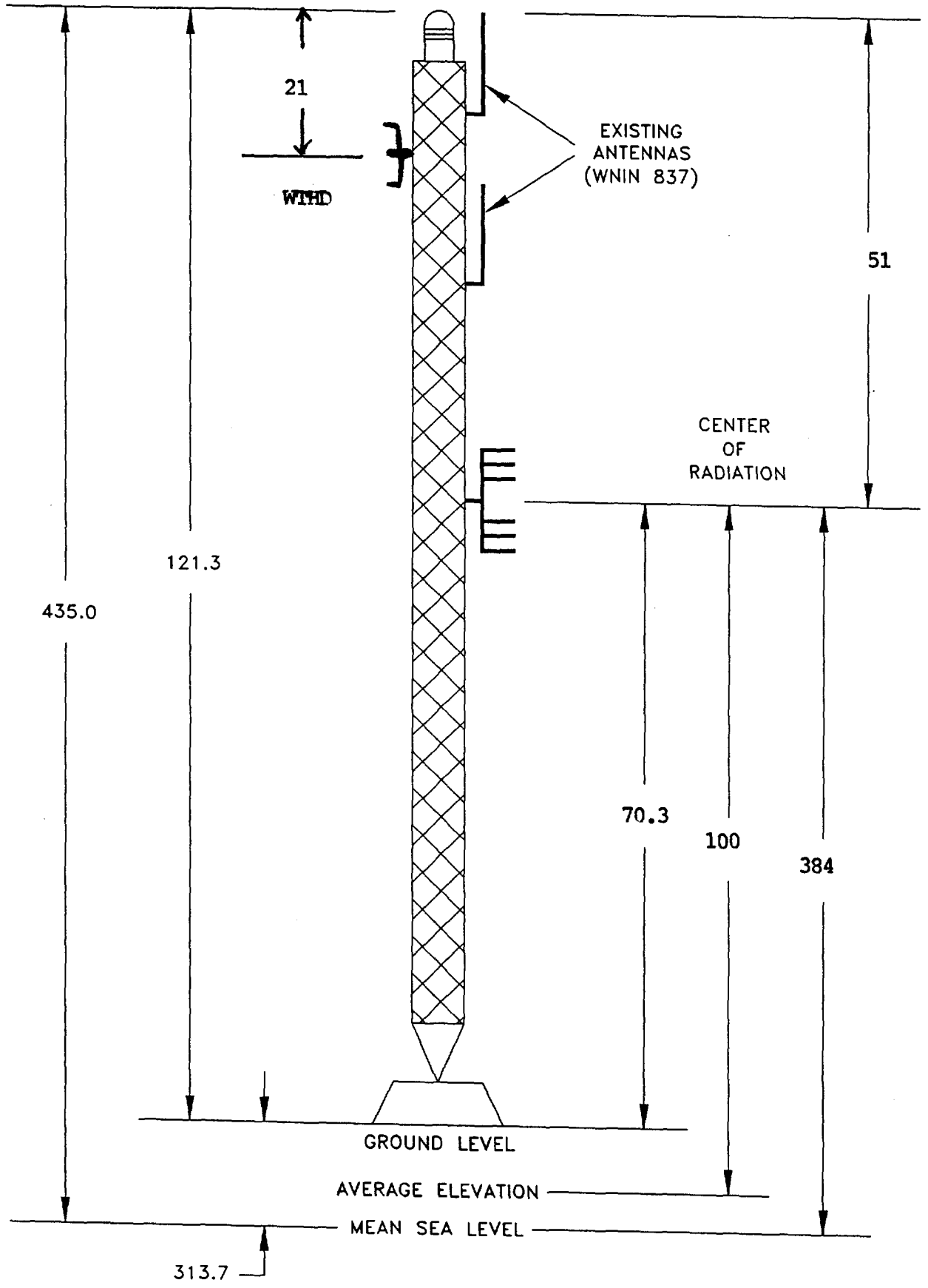
The proposed 6kw upgrade in this application constitutes a 37 percent increase in areas and as such qualifies as a minor modification to license.

The transmitter site in this application is located within the affected radius of a television channel 6. Concerning the provision of interference is included in Exhibit number 8 of this report.

It is proposed to side mount a directional circular polarized antenna model LP-8C-DA-HW. See Exhibit number 2 of this report.

MARANATHA RADIO

EXHIBIT 1



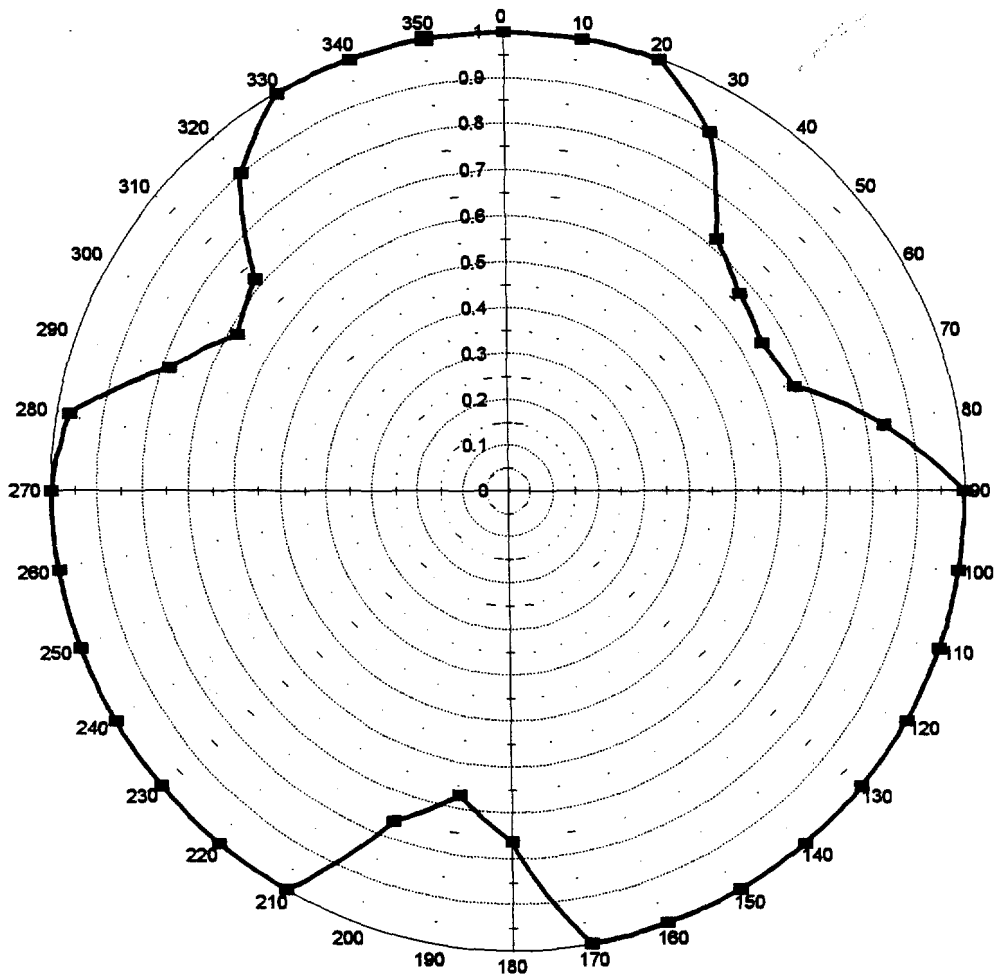
NOTE 1: ALL VALUES IN METERS

NOTE 2: EXISTING TOWER

FM VERTICAL PLAN

WQKO Antenna Pattern

Relative Voltage



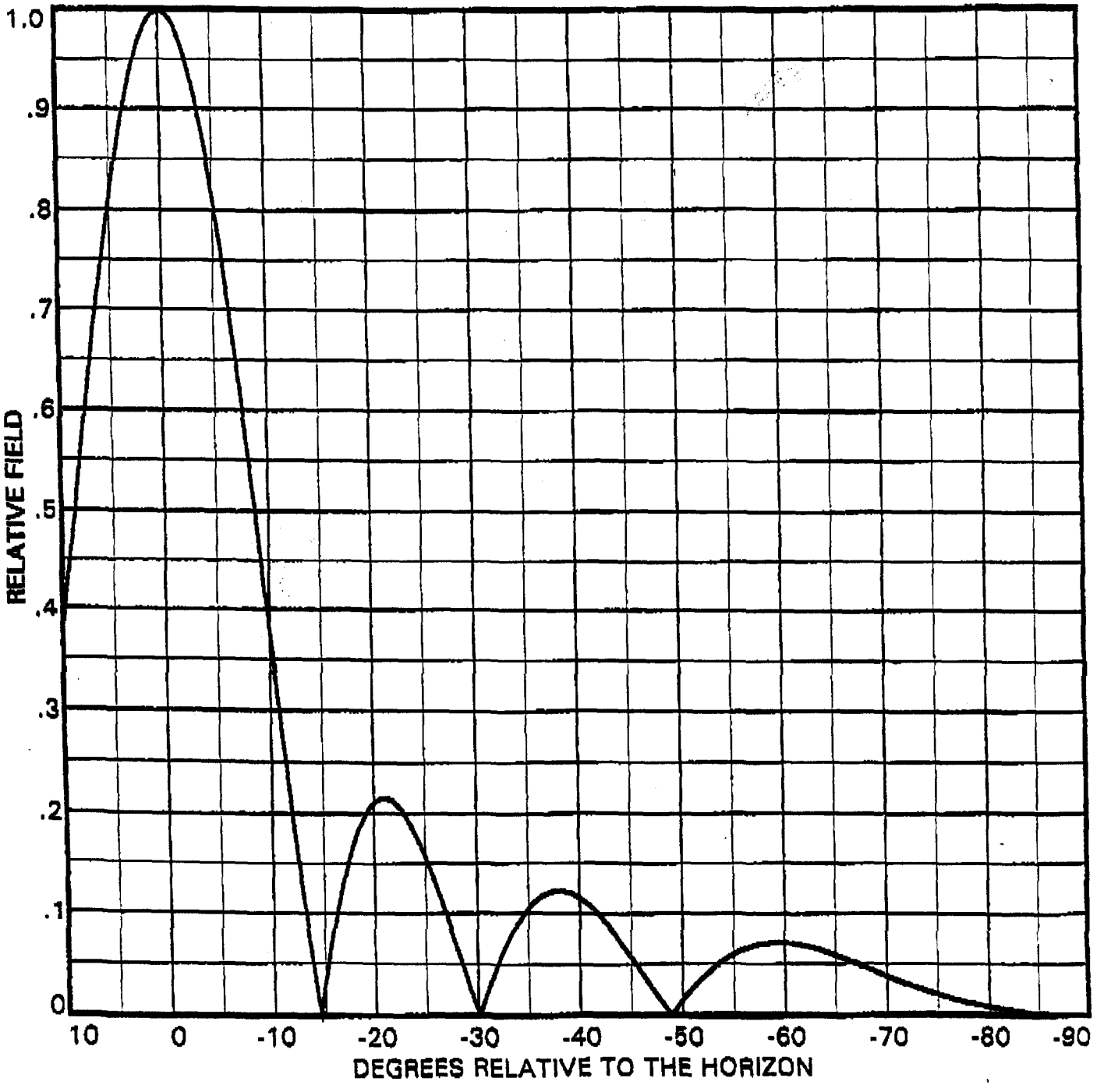
WQKO Antenna Pattern

Azimuth	Relative Voltage	ERP (kW)	dBK
0	1.00000	6.000	7.7815
10	1.00000	6.000	7.7815
20	1.00000	6.000	7.7815
30	0.90370	4.900	6.9020
40	0.71880	3.100	4.9137
50	0.67080	2.700	4.3134
60	0.64550	2.500	3.9794
70	0.67080	2.700	4.3134
80	0.83666	4.200	6.2325
90	1.00000	6.000	7.7815
100	1.00000	6.000	7.7815
110	1.00000	6.000	7.7815
120	1.00000	6.000	7.7815
130	1.00000	6.000	7.7815
140	1.00000	6.000	7.7815
150	1.00000	6.000	7.7815
160	1.00000	6.000	7.7815
170	1.00000	6.000	7.7815
180	0.76376	3.500	5.7816
190	0.67082	2.700	4.3136
200	0.76376	3.500	5.7816
210	1.00000	6.000	7.7815
220	1.00000	6.000	7.7815
230	1.00000	6.000	7.7815
240	1.00000	6.000	7.7815
250	1.00000	6.000	7.7815
260	1.00000	6.000	7.7815
270	1.00000	6.000	7.7815
280	0.97470	5.700	7.5589
290	0.78528	3.700	5.6820
300	0.68313	2.800	4.4716
310	0.71880	3.100	4.9137
320	0.90370	4.900	6.9020
330	1.00000	6.000	7.7815
340	1.00000	6.000	7.7815
350	1.00000	6.000	7.7815

THEORETICAL VERTICAL PLANE RELATIVE FIELD PATTERN

FIGURE # 3
Howe, Indiana
WQKO
91.9MHz
8 BAY LP-8C-DA-HW ANTENNA

May 5, 1995
0 DEGREE BEAM TILT
0 PERCENT FIRST NULL FILL
0 PERCENT SECOND NULL FILL
.5 WAVELENGTH SPACING



ERI ELECTRONICS RESEARCH, INC. 7777 Gardner Rd. Chandler, In. 47610 Phone: (812) 925-6000 Fax: (812) 925-4030

ELECTRONICS RESEARCH INC.
7777 Gardner Rd. Chandler, In 47610 Phone (812) 925-6000 Fax (812) 925-4030

CIRCULARLY POLARIZED DIRECTIONAL FM ANTENNA

Antenna Model: LP-8C-DA-HW

ERI proposes to custom build a directionalized side mounted FM antenna that meets the stations needs. The final patterns of the HPOL and VPOL will remain within the given pattern envelope.

RULE COMPLIANCE

1. The antenna will reach the required ERP in the maximum while not exceeding the required ERP in the protection areas.
2. It must not exceed 2 dB per any 10 degree change in azimuth.
3. It must not exceed a 15 dB null.

WQKO Blanketing Study

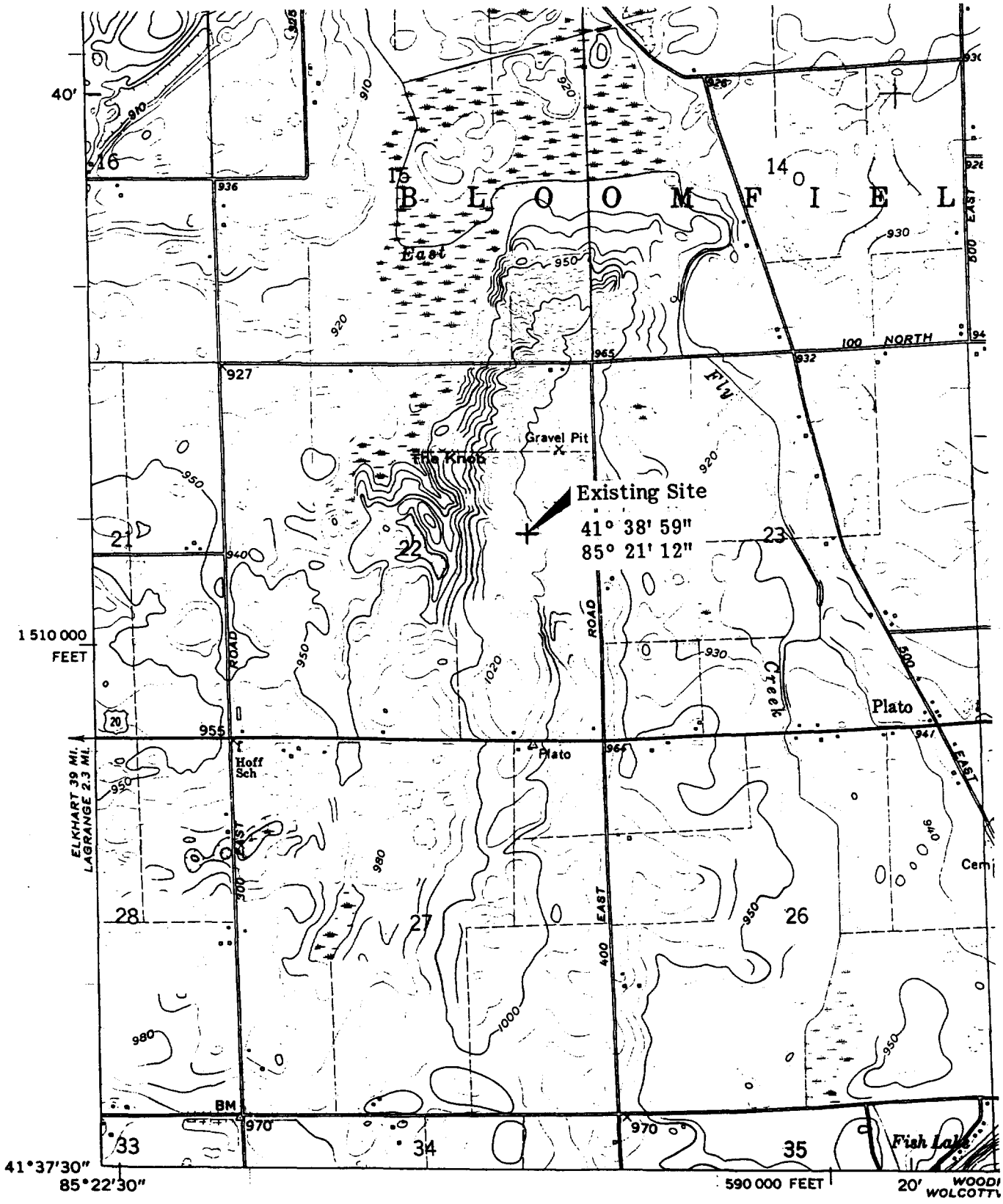
Although the transmitter is located within 10 km of an existing transmitter, this applicant does not believe that there would be any adverse effects on the operation of any other facility as a result of a grant of this application. The frequency separations and physical distance between the facilities should preclude any harmful effects.

The transmitting facility is located so that there is little resident population in the 115 dBu blanketing zone defined in 47 CFR 73.318 (less than 1 km for the 6 kW ERP proposed). The applicant agrees that full compliance with the proceedures and requirements of 73.318(b)(d) will be attained, including (but not limited to) the installation of filters, traps or other devices to satisfy any complaints arising within the specified time period. This applicant accepts full responsibility for the elimination of any objectionable interference.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

MONGO QUADRANGLE
INDIANA—LAGRANGE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

Exhibit 4



SCALE 1:24000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

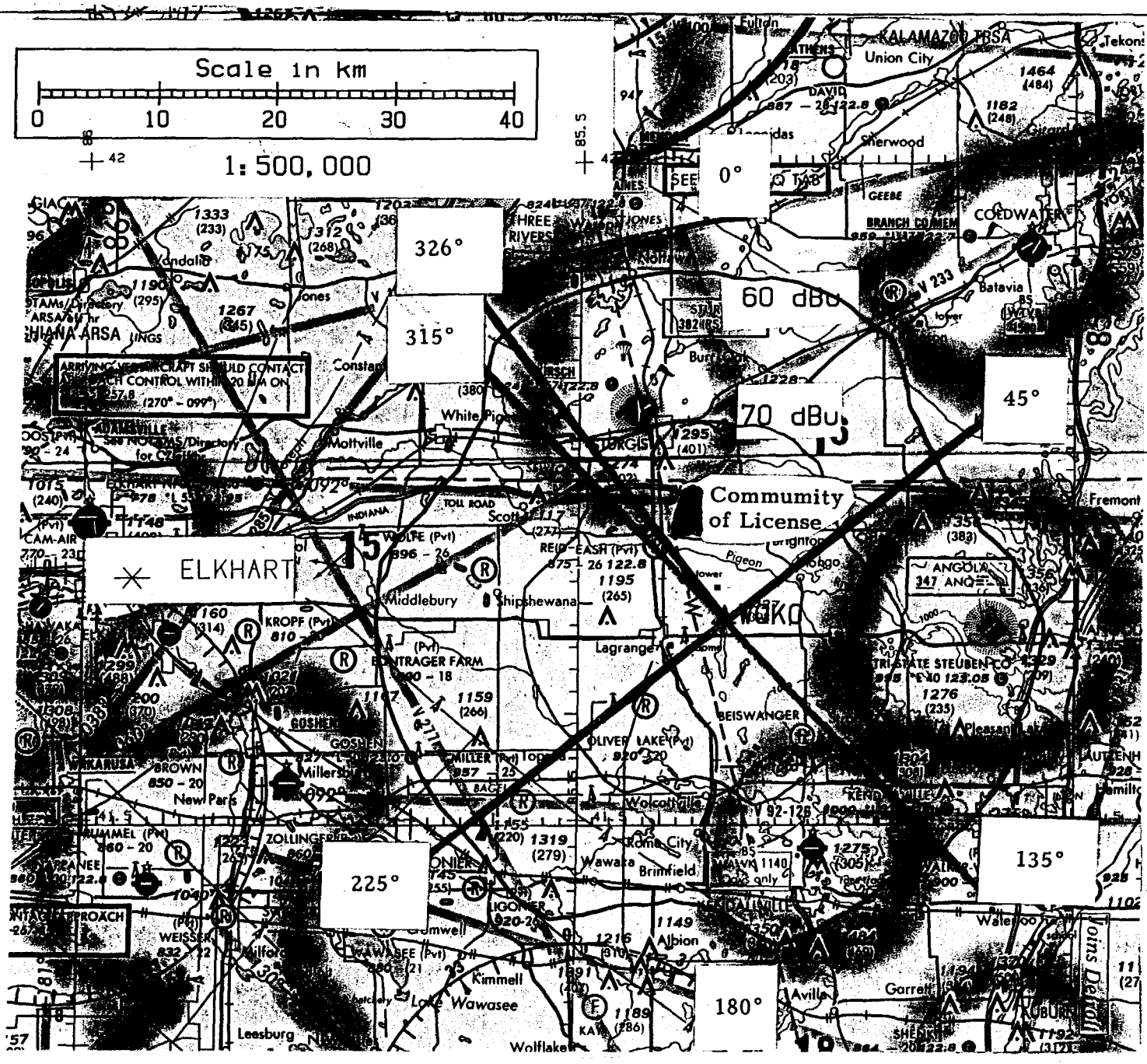
1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

MONGO, IND.
N4137.5—W8515/7.5

1960

Exhibit #5

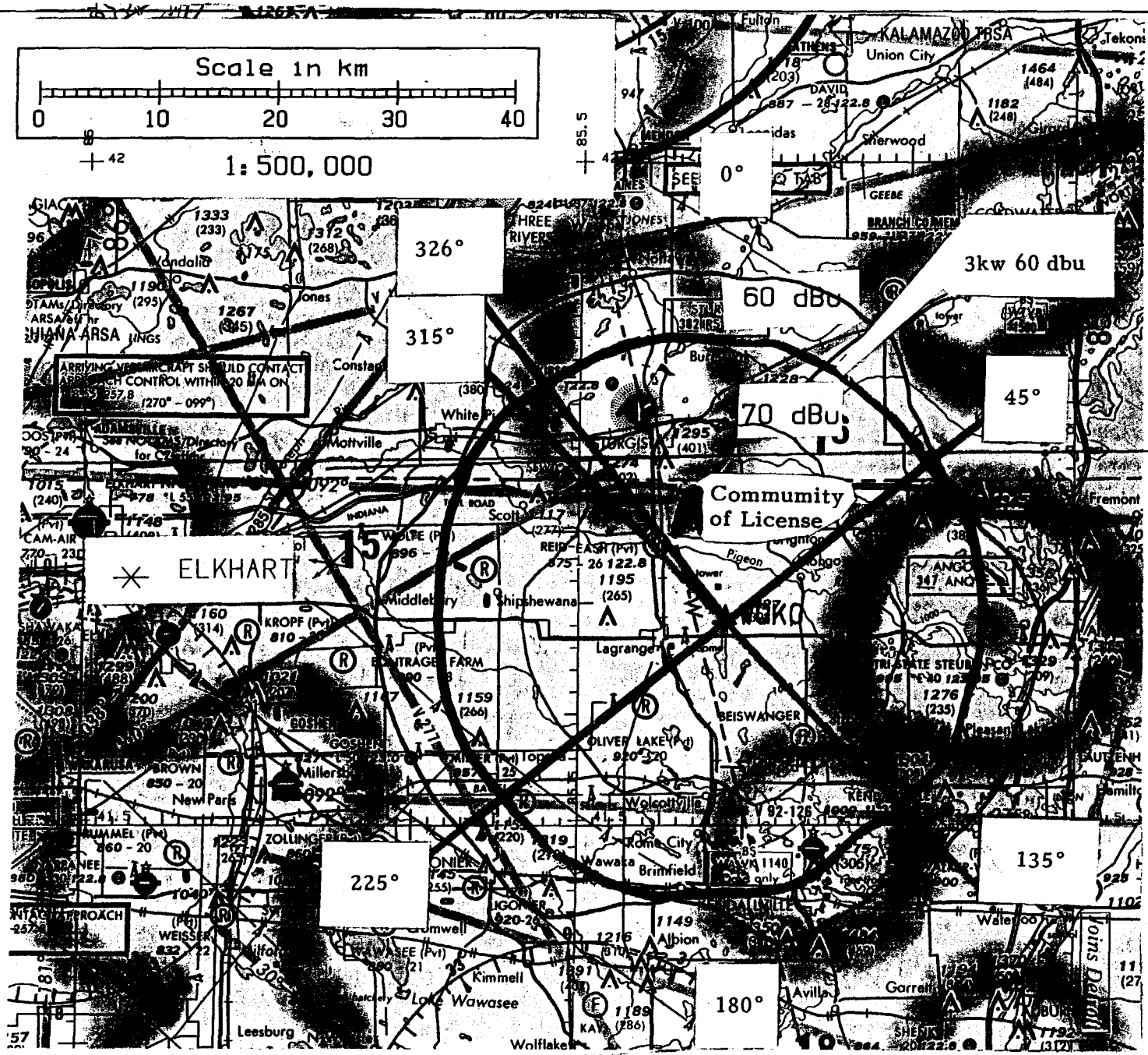


INTERCHK

WQKO 220A - 6kW

41°38'59"
85°21'12"

220A - 6kW



INTERCHK

WQKO 220A - 6kW

220A - 6kW

Exhibit #6

WQKO Short Spaced Coverage

The instant proposal requests an upgrade of WQKO to a full 6 kw ERP at 100 meters HAAT from a 3 kw at 91 meters HAAT. This upgrade has been requested by listeners at the four major cities around the WQKO transmitting site.

Evaluating the data around WQKO, interference rules show that contour protection for the existing stations in the restricted noncommercial band is unnecessary except for WVSH, Huntington IN. A directional antenna is therefore needed to prevent contour overlap with WVSH.

Two stations in the commercial band adjacent to WQKO in frequency violate the separation rules for a 6 kW class A station. In particular, both WCSR and WVHQ violate the separation rules given in 73.207, Table A (for 6 kw A) but not those shown in 73.213 (for a 3 kw A). It is understood that these stations need to be protected to their full 6 kW, 100 meter HAAT facility, even though they currently use less power and height.

The directional pattern of WQKO's antenna is therefore designed to protect both these stations at their maximum facility limits. For the purposes of designing the antenna, both stations were increased from their present facility to 6 kw 100 meter HAAT omnidirectional sites. Then the antenna pattern was adjusted to prevent contour overlap for protected and interfering contours for both incoming and outgoing interference.

The resulting antenna pattern was smoothed to prevent the pattern from changing more than 2 dB per 10 degrees. A plot of the relative field strength (with zero degrees oriented to true north) is provided as is a tabular description of the antenna pattern. The pattern has been submitted to several manufacturers for evaluation, and their response is appended to describe the expected achievable results.

The final plots show the predicted incoming and outgoing interference contours for WQKO toward each of these three stations in both graphical and tabular form. The data clearly shows that the goal of protecting the listenership within the protected contours of all four stations from interference (due to the facility upgrade at WQKO) has been achieved, and the upgrade potential of the two commercial stations has been preserved.

HOW TO READ THE FM COMPUTER PRINT-OUT

The computer print-out should be self-explanatory for the most part. The parameters of the station being checked, (reference station) are printed in the heading. The 60 dBu protected contour is predicted from the Commission's F(50-50) table, while the 40, 54, 80 and 100 dBu contours are interference contours derived from the Commission's F(50-10) table. Contour distances are in kilometers and are predicted using spline interpolation from data points identical to those published in Report No. RS 76-01 by Gary C. Kalagian. Critical contour distances are determined using the Commission's TVFMINT FORTRAN subroutine. When interference contour distances are less than 16 kilometers the F(50-50) tables are used. If signal contour distances are less than 1.6 km the free-space equation is used.

The column listed "* IN *" is the sum of the reference station's 60 dBu protected contour and the data file station's interference contour subtracted from the distance between the stations. (All distances are derived by the method detailed in Sec. 73.208 of the Rules and Regulations as amended in Docket 80-90.) Therefore, the column is a measure of incoming interference. Negative distances in this column indicate the presence of interference. Listed antenna heights are the average heights of eight standard radials as found in the Commission's records unless otherwise noted, in which case the specific antenna heights along the azimuths between the reference station and the database station are used and visa versa. The column labeled "* OUT *" shows the distance of kilometers of overlap or clearance between the reference station's interference contour and the database station's protected contour. Negative distance figures in this column indicate outgoing interference.

Under the "BEARING" column, the first row of numbers indicate the bearings from true north of the data base stations in relationship with the reference station, while the numbers in the second row indicate the reverse bearings from the database station to the reference station.

The columns labeled "INT" and "PRO" hold the distance in kilometers of the appropriate interference contour and the protected contour of a data base station.

For I.F. relationships the "IN" and "OUT" columns change their significance. The letter "R" stands for the minimum required distance in kilometers, while the letter "M" in the next column follows the available clear space separation in kilometers or "Margin". This same procedure is used for all Canadian and Mexican spacing. Minimum separation distances were taken from Sec 73.207 of the rules as amended. Canadian separation distances were derived from the "Canadian/American Working Agreement". The first three letters of the "TYPE" column identify the current F.C.C. status of the stations. The fourth letter will be a "D" or "Z" (Sec. 73.215) if the facility is directional. The fifth letter will be an E, H or V depending on the type of antenna polarization. The sixth letter will be a "Y" if the antenna uses beam tilt.

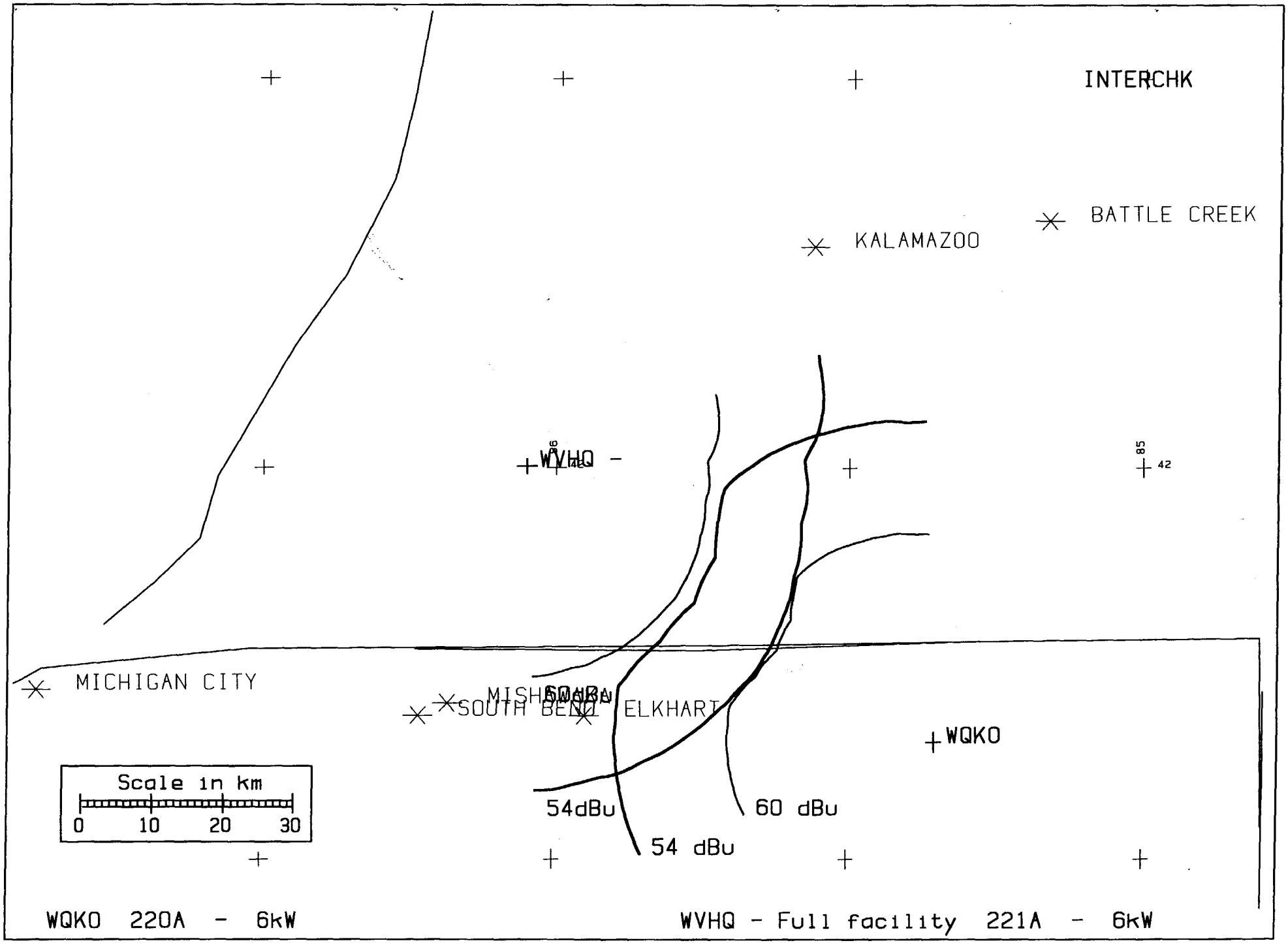
05-01-1995 BOB MOORE CONSULTANT 219 534-2002

CH# 220A - 91.9 MHz

INTERFERENCE CHECKS WITH WQKO.C, HOWE, IN at N. LAT. 41 38 59 W. LNG. 85 21 12
PWR = 6 kW H.A.A.T. = 100 M C.O.R. = 375 M AMSL
Protected F(50-50) 60 dBu = 28.29 km
F(50-10) 40 dBu = 86.66 54 dBu = 43.74 80 dBu = 9.1 100 dBu = 2.75
F(50-10) 37 dBu = 98.21 51 dBu = 51.58 77 dBu = 10.78 97 dBu = 3.32
F(50-10) 34 dBu = 112.55 48 dBu = 59.61 74 dBu = 12.72 94 dBu = 4.01

CH# CALL	TYPE	* IN *	* OUT *	BEARING	DISTANCE	LAT.	PWR(kW)	INT(km)	PRO(km)
CITY	STATE	LICENSEE		<---		LNG.	HAAT(M)	COR(M)	FILE #
218A WJHS	LI	CN	20.5 26.4	192.5	54.81 km	41 10 04	2.65	6.04	19.36
Columbia City	IN	Columbia City Joint High S		12.5	34.06 Mi	85 29 41	67.0	333	BLED850815KF
219A WETL	LI	CN	10.7 6.9	268.0	73.73 km	41 37 24	3.00	34.78	23.14
South Bend	IN	South Bend Community Schoo		88.0	45.81 Mi	86 14 15	91.0	331	BLED830926AG
219B WUOM	LI	CN	19.7 35.5	54.2	145.80 km	42 24 24	93.00	97.86	66.54
Ann Arbor	MI	The Regents of the Univ. o		234.2	90.60 Mi	83 54 54	238.0	513	BLED800527AI
FCC Comment > SPEC. NGTED, SHORT-SPACED ALLOC. - GRANDFATHERED 93KW @ 238M.									
220A WVSH	LI	HN	19.8 -12.0	188.9	85.15 km	40 53 32	0.92	37.02	10.52
Huntington	IN	Huntington County Communit		8.9	52.91 Mi	85 30 38	34.0	279	BLED774
221A WROI	LI	CN	72.0 R 29.3 M	229.4	101.31 km	41 03 14	4.20	31.09	21.08
Rochester	IN	Bair Communications, Inc.		49.4	62.95 Mi	86 16 12	63.0	303	BLH930602KC
221A WVHQ	LI	CN	72.0 R -2.1 M	303.9	69.87 km	41 59 52	3.30	35.70	23.66
Dowagiac	MI	Dowagiac Broadcasting Comp		123.9	43.42 Mi	86 03 14	91.0	342	BMLH911112KA
FCC Comment > Class B1 with respect to Canada-Accepted by Canada 901108									
221A WCSRFM	LI	CN	72.0 R -4.8 M	62.3	67.16 km	41 55 41	6.00	37.61	24.58
Hillsdale	MI	WCSR, Inc.		242.3	41.73 Mi	84 38 10	74.0	411	BLH910918KB
FCC Comment > Class B1 with respect to Canada-Accepted by Canada 901108									
I.F. RELATIONSHIPS:									
274A WLNB	LI	CN	10.0 R 17.3 M	227.6	27.32 km	41 29 02	3.00	2.27	24.22
Ligonier	IN	Ligonier FM Partnership		47.6	16.98 Mi	85 35 43	100.0	372	BLH910614KC

Nearest CH 6 Grade B =WLNSTV at 36.73 km, Distance= 140.7 Azimuth = 34.6 Deg. T.


INTERCHK
BATTLE CREEK
KALAMAZOO
WVHQ -
MICHIGAN CITY
SOUTH BEND
ELKHART
WQKO
Scale in km
0 10 20 30
54dBu
60 dBu
54 dBu
WQKO 220A - 6kW
WVHQ - Full facility 221A - 6kW

Bob Moore Broadcast Engineer
05-02-1995

WQKO
Channel= 220
Max ERP = 6 kW
RCAMSL = 384 M
N. Lat = 413859
W. Lng = 852112

WVHQ - Full facility
Channel = 221
Max ERP = 6 kW
RCAMSL = 368 M
N. Lat = 415952
W. Lng = 860314

Protected
60 dBu

Interfering
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
270.0	6.000	108.1	29.3	143.3	6.000	102.5	48.2	52.5
271.0	6.000	108.0	29.3	142.9	6.000	102.3	47.8	52.6
272.0	6.000	107.8	29.3	142.5	6.000	102.1	47.5	52.7
273.0	6.000	107.6	29.3	142.0	6.000	101.9	47.1	52.8
274.0	6.000	107.4	29.3	141.6	6.000	101.8	46.7	53.0
275.0	6.000	107.6	29.3	141.2	6.000	101.7	46.3	53.1
276.0	6.000	107.8	29.3	140.8	6.000	101.6	45.9	53.3
277.0	6.000	108.0	29.3	140.3	6.000	101.5	45.6	53.4
278.0	6.000	108.3	29.4	139.9	6.000	101.4	45.2	53.5
279.0	6.000	108.5	29.4	139.4	6.000	101.3	44.8	53.7
280.0	6.000	108.7	29.4	138.9	6.000	101.1	44.5	53.8
281.0	5.745	109.1	29.2	138.2	6.000	100.7	44.4	53.8
282.0	5.496	109.6	28.9	137.5	6.000	100.4	44.3	53.8
283.0	5.252	110.3	28.7	136.8	6.000	100.1	44.1	53.9
284.0	5.014	111.1	28.5	136.2	6.000	99.9	44.0	53.9
285.0	4.781	111.9	28.3	135.5	6.000	99.8	44.0	53.9
286.0	4.554	112.6	28.1	134.8	6.000	99.8	43.9	53.9
287.0	4.332	113.2	27.8	134.0	6.000	99.8	43.9	53.9
288.0	4.116	113.9	27.6	133.3	6.000	99.8	43.9	53.9
289.0	3.905	114.6	27.3	132.6	6.000	99.7	43.9	53.9
290.0	3.700	115.4	27.1	131.9	6.000	99.5	44.0	53.9
291.0	3.604	116.1	27.0	131.3	6.000	99.3	43.9	53.9
292.0	3.510	116.7	26.9	130.7	6.000	99.0	43.8	53.9
293.0	3.417	117.3	26.8	130.1	6.000	98.7	43.8	53.9
294.0	3.325	117.8	26.7	129.5	6.000	98.3	43.8	53.9
295.0	3.234	118.3	26.6	128.8	6.000	97.9	43.8	53.8
296.0	3.145	118.7	26.4	128.2	6.000	97.6	43.8	53.8
297.0	3.057	119.1	26.3	127.6	6.000	97.2	43.8	53.7
298.0	2.970	119.5	26.2	127.0	6.000	96.9	43.8	53.7
299.0	2.884	119.9	26.0	126.3	6.000	96.5	43.9	53.6
300.0	2.800	120.4	25.9	125.7	6.000	96.1	44.0	53.6
301.0	2.829	121.0	26.0	125.2	6.000	95.8	43.8	53.6
302.0	2.859	121.4	26.1	124.6	6.000	95.4	43.7	53.6
303.0	2.888	121.8	26.2	124.0	6.000	95.0	43.6	53.6
304.0	2.918	122.1	26.3	123.4	6.000	94.6	43.5	53.6
305.0	2.948	122.4	26.4	122.8	6.000	94.2	43.5	53.6
306.0	2.978	122.6	26.5	122.2	6.000	93.8	43.4	53.6
307.0	3.008	122.8	26.5	121.6	6.000	93.5	43.4	53.6
308.0	3.039	122.9	26.6	120.9	6.000	93.1	43.3	53.6
309.0	3.069	122.9	26.7	120.3	6.000	92.9	43.3	53.6
310.0	3.100	122.8	26.7	119.7	6.000	92.6	43.4	53.5
311.0	3.325	122.5	27.1	119.0	6.000	92.3	43.1	53.6