TECHNICAL EXHIBIT

MODIFICATION OF
FM CONSTRUCTION PERMIT
BPH-19970515MD

NEW(FM)
FCC FACILITY ID: 86803

WARRIOR BROADCASTING, INC.
GREENSBORO, ALABAMA

CH 256C3 3.2 KW 190 M HAAT

MARCH 2001

T.Z. Sawyer Technical Consultants
5272 River Road, Suite 460
Bethesda, Maryland 20816-1440

Telephone (301) 913-9287
TeleFAX (301) 913-5799
Internet E-mail: *engineers@sawyer.com*

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TABLE OF CONTENTS

	FCC Form 301.
	Technical Narrative.
Figure 1	Technical Specifications.
Exhibit E-1	FAA Notice of Proposed Construction -FAA 7460-1
Exhibit E-2	Proposed Antenna and Supporting Structure - Vertical Sketch.
Exhibit E-3	Transmitter/Antenna Location - Site Map.
Exhibit E-4	Map Showing Predicted Coverage Contours - 70 dBu & 60 dBu FCC(F50,50) Service Contours. 70 dBu Supplemental Predicted Method (Longley-Rice)
Exhibit E-5	Allocation Study - FM Channel 256C3
Exhibit E-6	Allocation Study - 47 C.F.R. § 73.215 Showing.

SECTION III PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name **Timothy Z. Sawyer**	Relationship to Applicant (e.g., Consulting Engineer) **Technical Consultant**	
Signature	Date **MARCH 26, 2001**	
Mailing Address **T.Z. Sawyer Technical Consultants, 5272 River Road, Suite 460**		
City **Bethesda**	State or Country (if foreign address) **MD**	ZIP Code **20816**
Telephone Number (include area code) **(301)913-9287**	E-Mail Address (if available) **tzsawyer@sawyer.com**	

WILLFUL FALSE STATEMENTS 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).

SECTION III-B FM Engineering

TECHNICAL SPECIFICATIONS

Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

TECH BOX

1. Channel: **256**

2. Class: ☐ A ☐ B1 ☐ B ☒ C3 ☐ C2 ☐ C1 ☐ C ☐ D

3. Antenna Location Coordinates: (NAD 27)

32 ° **52** ' **40** " ☒ N ☐ S Latitude
87 ° **36** ' **53** " ☐ E ☒ W Longitude

4. One-Step Proposal Allotment Coordinates: (NAD 27) ☒ Not applicable

____ ° ____ ' ____ " ☐ N ☐ S Latitude
____ ° ____ ' ____ " ☐ E ☐ W Longitude

5. Antenna Structure Registration Number: **TO BE FILED**

☐ Not applicable ☒ FAA Notification Filed with FAA

6. Antenna Location Site Elevation Above Mean Sea Level: **121.9** meters

7. Overall Tower Height Above Ground Level: **153.3** meters

8. Height of Radiation Center Above Ground Level: **143.0** meters (H) **143.0** meters (V)

9. Height of Radiation Center Above Average Terrain: **190.0** meters (H) **190.0** meters (V)

10. Effective Radiated Power: **3.2** kW (H) **3.2** kW (V)

11. Maximum Effective Radiated Power: ☒ Not applicable ____ kW (H) ____ kW (V)
(Beam-Tilt Antenna ONLY)

12. Directional Antenna Relative Field Values: ☒ Not applicable (Nondirectional)

Rotation: ____ ° ☐ No rotation

Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value
0		60		120		180		240		300	
10		70		130		190		250		310	
20		80		140		200		260		320	
30		90		150		210		270		330	
40		100		160		220		280		340	
50		110		170		230		290		350	
Additional Azimuths											

NOTE: **In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a ''No'' response is provided.**

CERTIFICATION

AUXILIARY ANTENNA APPLICANTS ARE NOT REQUIRED TO RESPOND TO ITEMS 13-16. PROCEED TO ITEM 17.

13. **Allotment.** The proposed facility complies with the allotment requirements of 47 C.F.R. Section 73.203. ☒ Yes ☐ No — See Explanation Exhibit No

14. **Community Coverage.** The proposed facility complies with 47 C.F.R. Section 73.315. ☐ Yes ☒ No — See Explanation Exhibit No **TECH. & E-4**

15. **Main Studio Location.** The proposed main studio location complies with 47 C.F.R. Section 73.1125. ☒ Yes ☐ No — See Explanation Exhibit No

16. Interference. The proposed facility complies with all of the following applicable rule sections. Check all those that apply. ☒ Yes ☐ No — See Explanation Exhibit No

Separation Requirements.

a. ☐ 47 C.F.R. Section 73.207.

Grandfathered Short-Spaced.

b. ☐ 47 C.F.R. Section 73.213(a) with respect to station(s): _____ **Exhibit Required.** — Exhibit No

c. ☐ 47 C.F.R. Section 73.213(b) with respect to station(s): _____ **Exhibit Required.** — Exhibit No

d. ☐ 47 C.F.R. Section 73.213(c) with respect to station(s): _____ **Exhibit Required.** — Exhibit No

Contour Protection.

e. ☒ 47 C.F.R. Section 73.215 with respect to station(s): **WAHR** **Exhibit Required.** — Exhibit No **E-6**

17. **Environmental Protection Act.** The proposed facility is excluded from environmental processing under 47 C.F.R. Section 1.1306 (i.e., the facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine compliance through the use of the RF worksheets in Appendix A, an **Exhibit is required.** ☒ Yes ☐ No — See Explanation Exhibit No **TECH.**

By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.

PREPARER'S CERTIFICATION ON PAGE 3 MUST BE COMPLETED AND SIGNED.

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GREENSBORO, ALABAMA

CH 256C3 3.2 KW 190 M HAAT

MARCH 2001

TECHNICAL NARRATIVE

The technical exhibit, of which this narrative is part, was prepared on behalf of Warrior Broadcasting, Inc., in support of an application to improve the facilities of FM Broadcast Station NEW(FM), Channel 256C3, Greensboro, Alabama. FCC facility identification number 86803.

The applicant proposes to specify changes in effective radiated power, antenna height above average terrain, antenna (center of radiation) height above ground, the overall height of the supporting structure and antenna location. The changes proposed herein, in accordance with the Commission's rules, are designated as minor changes to the existing FCC Construction Permit BPH-19970515MD.

The proposed station will operate on FM Channel 256C3 (99.1 MHz) with an effective radiated power of 3.2 kilowatts (H&V) and an antenna height above average terrain (HAAT) of 190 meters.

This proposal meets the minimum power requirements of §73.211(a)(3) for Class C3 stations. The proposed reference contour is greater than that of the next lower FM Class of Station (FM Class A).

The proposal would not be subject to environmental processing in accordance with 47 C.F.R. §1.1306. This proposal does not involve a site location specified under 47 C.F.R. §1.1307 (a)(1)-(7), or involve high intensity lighting under 47 C.F.R. §1.1307(a)(8) or result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in 47 C.F.R. §1.1307(b).

This application conforms with all applicable rules and regulations of the Federal Communications Commission. General specifications for the proposed operation are included herein as Figure 1. Exhibit E-5 contains a FM channel separation study, which shows that this proposal meets all required FM spacings in accordance with 47 C.F.R. §73.207, with the exception of a short-spacing to WAHR, FM Channel 256C at Huntsville, Alabama. The applicant proposes operation in accordance with 47 C.F.R. § 73.215 (contour protection) to this station.

FAA NOTICE OF PROPOSED TOWER CONSTRUCTION (EXHIBIT E-1)

The Federal Aviation Administration has been notified of this proposal, and the Audio Service Division of the FCC will be advised of the tower registration number once FAA approval has been received.

ANTENNA SUPPORTING STRUCTURE (EXHIBIT E-2)

The proposed transmitting facility will consist of a 4-bay FM antenna side-mounted on a guyed, uniform cross-section, steel tower. Exhibit E-2 contains a vertical sketch of the proposed

antenna location and supporting structure.

TRANSMITTER SITE MAP (EXHIBIT E-3)

The antenna location is uniquely described by the following geographic coordinates, which were verified on the "MOUNDSVILLE EAST, AL " U.S.G.S. 7-½ minute quadrangle map:

32° 52' 40" North Latitude
87° 36' 53" West Longitude.

The coordinates of the tower have been rounded to the nearest second to conform with the current FCC practice. A transmitter site map is not required as indicated in the instructions to the electronic FCC Form 301-FM. The geographical coordinates are presented herein as referenced to the North American Datum of 1927 as is current practice of Audio Service Division of the Federal Communication Commission. The transmitter site address (or description) is: County Road 31, Hale County, Alabama.

FCC F(50,50)COVERAGE CONTOURS (EXHIBIT E-4-1)

The predicted coverage contours were calculated in accordance with the provisions of 47 C.F.R. §73.313. In accordance with current FCC practice, no consideration was given to terrain roughness correction factors.

The average terrain elevations from 3 to 16 kilometers from the proposed site were obtained from the N.G.D.C. 3-second terrain database. The standard eight radials evenly spaced at 45-degree intervals were used for determining the average terrain elevations and the distance to the service contours.

The antenna radiation center heights above average terrain in the individual radial directions and the effective radiated power in the appropriate directions were used in conjunction

with the F(50,50) curves of 47 C.F.R. §73.333 to determine the distances to the 70 dBu and 60 dBu contours.

Exhibit E-4-1 is a map showing the predicted 70 dBu and 60 dBu F(50,50) service contours. As the map in Exhibit E-4-1 shows, the 70 dBu (3.16 mV/m) contour from this proposal does not completely encompass Greensboro, Alabama using the standard contour prediction method.

SUPPLEMENTAL METHOD FOR CONTOUR PREDICTION (EXHIBIT E-4-3)

As noted in paragraphs 68 to 72, of the Commission Report and Order, concerning MM Docket 96-58, released August, 22, 1997, the Commission has accepted the use of supplemental contour prediction methods, such as NBS Technical Note 101, terrain roughness, or Longley-Rice analyses, in circumstances where applicants who were faced with unusual terrain considerations have sought to demonstrate that the principal community contour will encompass the community of license, contrary to the result which would be predicted by the standard contour prediction methods in 47 C.F.R. § 73.313.

The applicant proposed the use of a Longley-Rice analyses (based upon NBS Technical Note 101) to demonstrate that the proposed operation will provide service to the city of license as required by the Commission's rules. 47 C.F.R. § 73.313(e) permits the use of supplemental showings for demonstrating a station's coverage.

As the map in Exhibit E-4-3 clearly shows, the 70 dBu (3.16 mV/m) contour from this proposal will encompass all of Greensboro, Alabama, using the supplemental contour prediction method.

The proposed station is located within a part of the state of Alabama, where the terrain varies greatly over the standard 3 to 16 kilometer distance used by the Commission to predict elevations above average terrain. The average terrain varies from a low of 50 meters to a high of approximately 130 meters above sea level (a ratio of 2.6 :1) along the path to the city of license.

A series of terrain profile radials (graphs) have been prepared in the directions of concern (bearings from the transmitter site) to the city of license, and are provided within Exhibit E-4-4.

As can be determined from the map in Exhibit E-4-3, the distance to the 70 dBu contour as predicted by the supplemental method (along the pertinent bearings) is at least 10% larger than the distance to the 70 dBu contour of the standard contour prediction method. Details concerning the calculations using the supplemental method are included as Exhibit E-4-5.

OPERATION IN ACCORDANCE WITH 47 C.F.R. § 73.215 IS REQUESTED (EXHIBITS E-5 & E-6)

This proposal meets all required FM spacings in accordance with 47 C.F.R. §73.207, with the exception of a short-spacing to WAHR, FM Channel 256C at Huntsville, Alabama. The applicant proposes operation in accordance with 47 C.F.R. § 73.215 (contour protection) to this station.

POPULATION AND AREA

The population to be served within the predicted 60 dBu contour was determined by a computer program that adds the population of census districts (at the block level) whose centroids lie within the contour. The 1990 U.S. Census data was employed. The area within the 60 dBu contour was calculated by a computer program using a root mean square algorithm. The predicted 60 dBu contour encompasses 3,357 square kilometers in which 33,642 persons reside.

OTHER CONSIDERATIONS

The "blanketing" contour of a 3.2-kilowatt FM station extends from the tower site a distance of 0.70 kilometers. The applicant recognizes its responsibility to remedy complaints of blanketing interference as required by 47 C.F.R. §73.318, and to protect existing facilities in accordance with the applicable rules.

No adverse impact (intermodulation or otherwise) on existing facilities or pending applications is anticipated. However, the applicant recognizes its responsibility to correct such matters if they occur as a result of its operation.

ENVIRONMENTAL CONSIDERATIONS

The proposed facilities were evaluated in terms of potential radiofrequency radiation exposure at ground level in accordance with OET Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields."

Power density contributions from the proposed operation were computed using the appropriate equations of the OST Bulletin. The combined maximum radiated power (H & V) is 6.4-kilowatts. Using a "worst-case" relative field pattern of 1.0 for values all values below the horizon from the proposed antenna, the power density was computed at a level of 2 meters above ground to be 0.0108 mW/cm^2 or 1.08 % of the recommended limit of 1.0 mW/cm^2 for a controlled area at the base of the tower and 5.4 % of the recommended limit of 0.2 mW/cm^2 for an uncontrolled area.

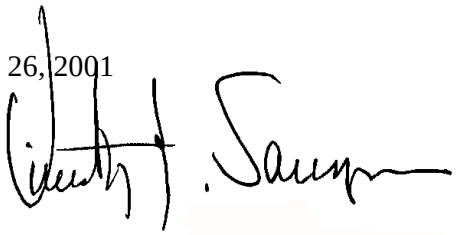
Therefore, at ground level (and 2 meters above), at the base of the tower, the potential for radiofrequency radiation exposure will be well within the FCC guidelines.

The "worst-case" minimum distance from the antenna was computed to be 14.6 meters for a controlled environment. As the minimum distance is more than 128 meters above ground level, no exposure in excess of the guidelines to workers is predicted to occur from this proposal at ground level.

Suitable warning signs and a fence or other devices will be placed at the base of the tower to prevent unauthorized access. If work is required on the tower, the power to the antenna will be terminated or reduced as required. The applicant will fully comply with the provisions contained within the OET bulletin.

Inquiries concerning the technical portion of this application should be directed to the office of the undersigned.

March 26, 2001



Digitzed Signature - Original ON FILE - Timothy Z. Sawyer

Timothy Z. Sawyer

T.Z. Sawyer Technical Consultants
5272 River Road, Suite 460
Bethesda, MD 20816-1440
Tel.: (301) 913-9287
Internet E-mail: tzsawyer@sawyer.com

TECHNICAL EXHIBIT

MODIFICATION OF
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BPH-19970515MD

NEW(FM)
FCC FACILITY ID: 86803

WARRIOR BROADCASTING, INC.
GREENSBORO, ALABAMA

CH 256C3 3.2 KW 190 M HAAT

MARCH 2001

TECHNICAL SPECIFICATIONS

FM Channel:	256C3
Frequency:	93.7 MHz
Site coordinates: (NAD1927)	32° 52' 40" North Latitude 87° 36' 53" West Longitude
Site elevation above mean sea level:	121.9 m
Average elevation above mean sea level of standard eight radials, 3-16 kilometers N.D.G.C. 3-Second Terrain Database:	74.9 m
Overall height of antenna structure:	
Above ground:	153.3 m
Above mean sea level:	275.2 m
Height of FM antenna radiation center	
Above ground:	143.0 m
Above mean sea level:	264.9 m
Above average terrain:	190.0 m

Transmitter:	FCC type accepted
Maximum rated power output:	5.0 kW
Transmission line:	* Andrew HJ7-50A
Nominal diameter (over protective jacket):	50.3 mm (1-5/8")
Nominal inside transverse dimensions:	3.99 cm
Dielectric:	Air
Length:	143.2 m
Efficiency (0.968 dB loss):	80.0 %
Nondirectional FM Antenna:	* Jampro JMPC-4
Number of Bays:	4
Input power rating:	10 kW
Polarization:	Circular
Power gain:	
Horizontal polarization:	2.1
Vertical polarization:	2.1

Proposed Operation

Transmitter power output:	1.90 kW
Transmission line loss:	. 0.38 kW
Antenna input power:	1.52 kW
Effective radiated power:	
Horizontal polarization:	3.20 kW
Vertical polarization:	3.20 kW

*Or equivalent device

Please Type or Print on This Form

Form Approved OMB No. 2120-0001

U.S. Department of Transportation
Federal Aviation Administration

Failure To Provide All Requested Information May Delay Processing of Your Notice

Notice of Proposed Construction or Alteration

FOR FAA USE ONLY
Aeronautical Study Number
- - -OE

1. Sponsor *(person, company, etc. proposing this action)* **:**
Attn. of: **Mr. James E. Shaw**
Name: **Warrior Broadcasting Incorporated**
Address: **P.O. BOX 41039**
City: **TUSCALOOSA** State: **AL** Zip: **35404**
Telephone: **(205) 553-7242** Fax:

2. Sponsor's Representative *(if other than #1)* **:**
Attn. of: Timothy Z. Sawyer
Name: T. Z. Sawyer Technical Consultants
Address: 5272 River Road, Suite 460
City: Bethesda State: MD Zip: 20816
Telephone: (301) 913-9287 Fax: (301) 913-5799

3. Notice of: ☒ New Construction ☐ Alteration ☐ Existing

4. Duration: ☐ Permanent ☐ Temporary (months, days)

5. Work Schedule: Beginning **FCC GRANT** End **6 MO AFTER**

6. Type: ☒ Antenna Tower ☐ Crane ☐ Building ☐ Power Line ☐ Landfill ☐ Water Tank ☐ Other

7. Marking / Painting and/or Lighting Preferred:
☒ Red Lights and Paint ☐ Dual - Red and Medium Intensity White
☐ White - Medium Intensity ☐ Dual - Red and High Intensity White
☐ White - High Intensity ☐ Other

8. FCC Antenna Structure Registration Number (if applicable):
TO BE FILED UPON DETERMINATION RESULTS

9. Latitude: **32** 0 **52** ' **40.4** " North

10. Longitude: **87** 0 **36** ' **53.0** " West

11. Datum: ☒ NAD 83 ☐ NAD 27 ☐ Other

12. Nearest: City: **MOUNDSVILLE** State: **AL**

13. Nearest Public-use (not private-use) or Military Airport or Heliport:
7A0 (GREENSBORO MUNI)

14. Distance from #13. to Structure: **13.8 MILES**

15. Direction from #13. to Structure: **11.5 DEGREES TRUE**

16. Site Elevation *(AMSL)*: **400** ft.

17. Total Structure Height *(AGL)*: **503** ft.

18. Overall height (#16. + #17.) *(AMSL)*: **903** ft.

19. Previous FAA Aeronautical Study Number (if applicable):
-OE

20. Description of Location: (Attach a USGS 7.5 minute Quadrangle Map with the precise site marked and any certified survey.)
EXHIBIT E-1 SITE MAP
EXHIBIT E-2 VERTICAL SKETCH OF ANTENNA/TOWER

COUNTY ROAD 31, HALE COUNTY, ALABAMA

21. Complete Description of Proposal:
UNIFORM CROSS SECTION, GUYED STEEL RADIO TOWER.

COMMERCIAL FM TRANSMITTING ANTENNA - 99.1 MHZ
MAXIMUM POWER OUTPUT 6.6 KILOWATTS.

STANDARD PAINT AND RED LIGHTS REQUESTED.

Frequency/Power (kW)	
99.1 MHZ	**6.6 KW**

Notice is required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718. Persons who knowingly and willingly violate the notice requirements of part 77 are subject to a civil penalty of $1,000 per day until the notice is received, pursuant to 49 U.S.C., section 46301 (a).

I hereby certify that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to mark and/or light the structure in accordance with established marking and lighting standards as necessary.

Date	Typed or Printed name and Title of Person Filing Notice	Signature
MARCH 23, 2001	**Timothy Z. Sawyer, Technical Consultant**	

FAA Form 7460-1 (11-98) Supersedes Previous Edition — Electronic Version (3-99) per ACE-625 — NSN: 0052-00-012-0008

T.Z. Sawyer Technical Consultants

FAA NOTICE OF PROPOSED CONSTRUCTION

NEW(FM) CH. 256C3
GREENSBORO, ALABAMA

Exhibit E-1

BETHESDA, MARYLAND 20816 U.S.A

SIZE	FSCM NO	DWG NO	REV
A	N/A	WBI20010323-E1	NONE

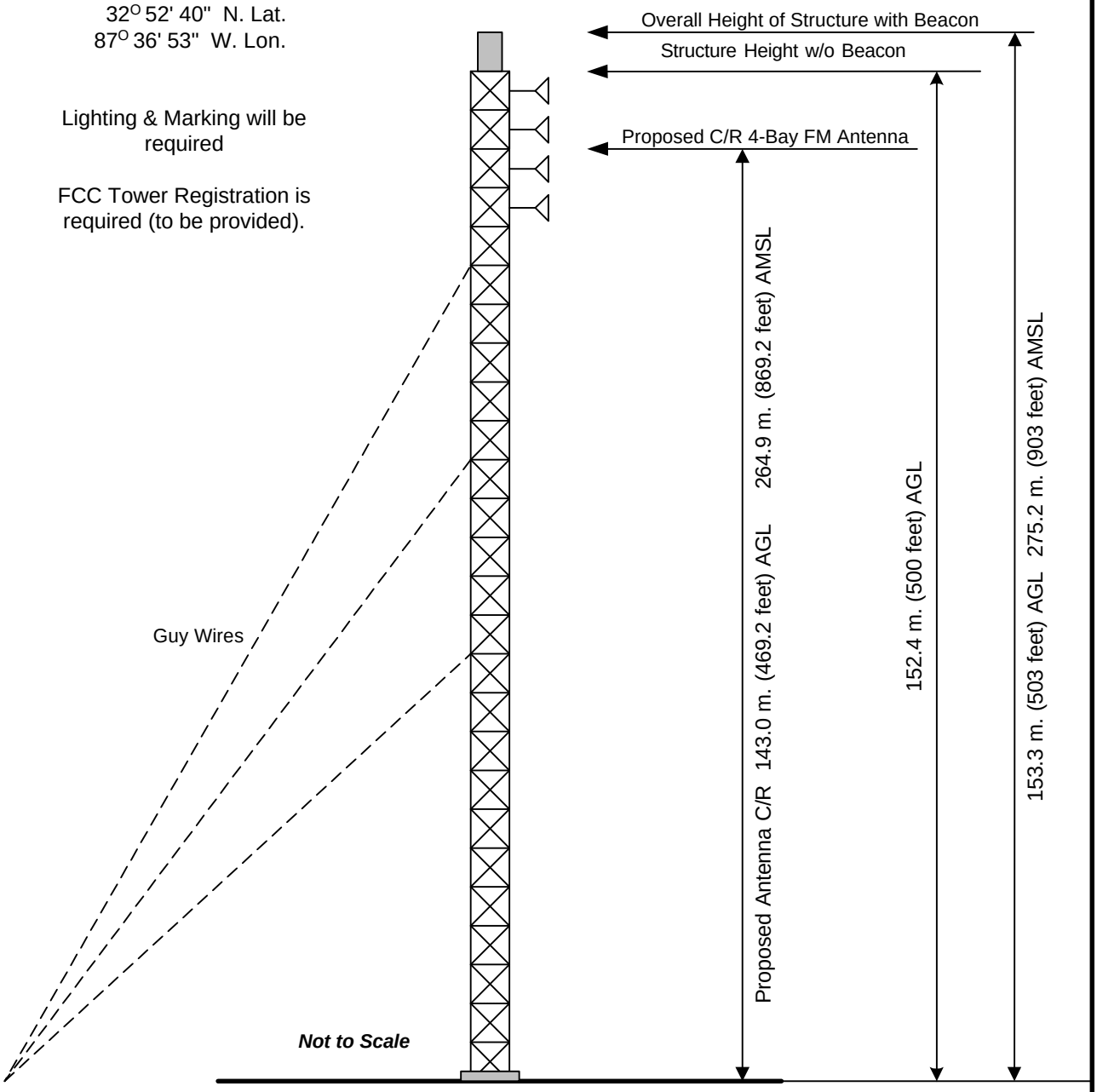
SCALE		SHEET	
N/A	March 2001	1 OF 1	

Site Coordinates:
(NAD1927)

32° 52' 40" N. Lat.
87° 36' 53" W. Lon.

Lighting & Marking will be required

FCC Tower Registration is required (to be provided).



Site Elevation: 121.9 m. (400 feet) AMSL

T.Z. Sawyer Technical Consultants	**VERTICAL SKETCH OF ANTENNA / TOWER**			
	Ch. 256C3 - 99.1 MHz GREENSBORO, ALABAMA			EXHIBIT E-2
BETHESDA, MARYLAND U.S.A	SIZE A	FSCM NO N/A	DWG NO WBI20010323-E2	REV NONE
	SCALE N/A	March 2001	SHEET 1 OF 1	

The geographical coordinates of the proposed tower site are:

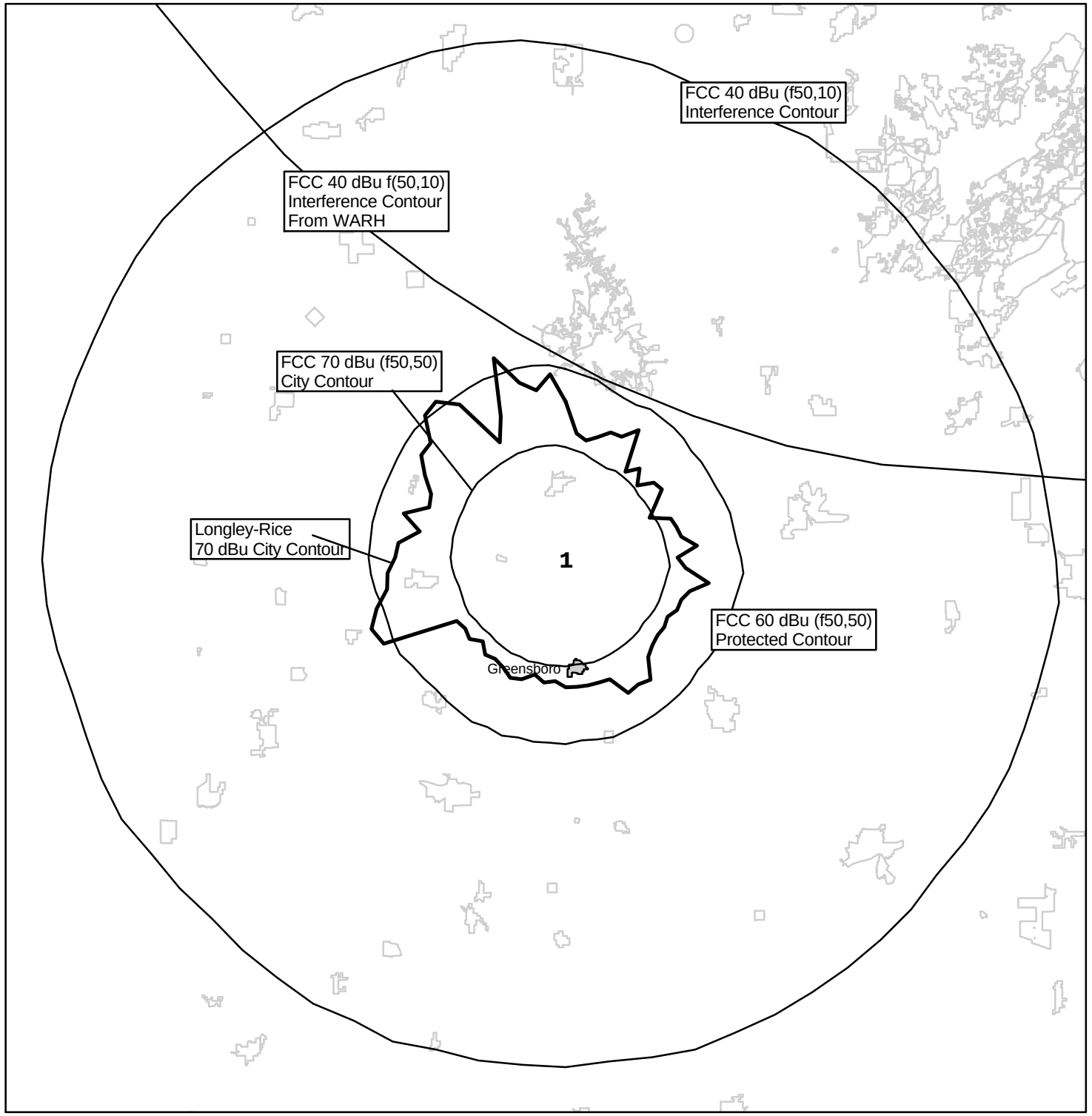
North American Datum of 1927
32 º 52 ' 40 " North. Latitude
87 º 36 ' 53 " West Longitude

North American Datum of 1982
32 º 52 ' 40.4 " North. Latitude
87 º 36 ' 53.0 " West Longitude

Ground elevation at site 121.9 meters (400 feet)
Above Mean Sea Level

A site map is not required per the instructions for FCC Form 301-FM

T.Z. Sawyer Technical Consultants	**PROPOSED TRANSMITTER SITE**			
	NEW(FM) CH. 256C3 GREENSBORO, ALABAMA			**Exhibit E-3**
BETHESDA, MARYLAND U.S.A	SIZE A	FSCM NO N/A	DWG NO WBI200126E-3	REV NONE
	SCALE N/A	MARCH 2001	SHEET 1 OF 1	



Channel 256C3

Greensboro, AL

Predicted Service Contours

Kilometers

0 10 20 30 40 50

Map Scale: 1: 1,000,000

Map Source:
U.S.G.S. Digital Line Graph - 100K Series
Dept. of Commerce - TigerLine 95 Digital Data

Map Legend - Exhibit E-4-1

- Corp. Limits Greensboro, AL
- Predicted Contours
- Longley-Rice Tech. Note 101 Contour

T.Z. Sawyer Technical Consultants
Bethesda, Maryland, U.S.A.

Exhibit E-4-2

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MARCH 2001

TABULATION OF DISTANCE TO SERVICE CONTOURS

NEW FM GREENSBORO, AL Channel 256C3 3.200 kW ERP

Azimuth (Deg T)	HAAT (m)	Relative Field	Equiv Power	Rough Correct	70.0 dBu f(50,50) (km)	60.0 dBu f(50,50) (km)	40.0 dBu f(50,10) (km)
0.00	195.17	1.000	3.200	.000	19.49	33.33	90.83
45.00	154.86	1.000	3.200	.000	17.35	29.75	85.57
90.00	173.46	1.000	3.200	.000	18.45	31.45	88.08
135.00	174.18	1.000	3.200	.000	18.48	31.52	88.17
180.00	192.67	1.000	3.200	.000	19.37	33.12	90.52
225.00	192.22	1.000	3.200	.000	19.35	33.08	90.46
270.00	221.76	1.000	3.200	.000	20.71	35.44	94.02
315.00	215.90	1.000	3.200	.000	20.45	35.01	93.35

Avg. HAAT 190.03 meters (rounds to 190 meters)

Exhibit E-4-3

NEW(FM)
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WARRIOR BROADCASTING, INC.
GREENSBORO, ALABAMA
CH 256C3 3.2 KW 190 M HAAT

TECH. NOTE 101 - LONGELY-RICE - SUPPLEMENTAL SHOWING

COMPUTED FIELD VALUES - LONGLEY-RICE MODEL (VER 1.2.2)

```
NEW FM GREENSBORO, AL
GREENSBORO; NEW FM
Transmitter Latitude: 32:52:40.0N   Longitude:  87:36:53.0W
Transmitter center of radiation:  264.9 m  AMSL (  143.00 m  AGL)
Frequency:   99.1000 MHz;  Power:   3.200 kW
Receiver antenna:     9.1 m  AGL; 1.333 earth curvature

  Mode of variability:  11 (Individual mode)
  Confidence:  50.0%  Reliability:  50.0%
  Polarization:  Horizontal
  Relative permittivity:   15.  Conductivity:   .005
  Climate:  5 (Continental temperate)
  Sea level refractivity:    0.  Surface refractivity:  301.

Az 170.0    3.200 kW   16.00 km   80.86 dBu (net received field)
     Free-space field:  87.89  Computed transmission loss:  7.03
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    161 points;  .100 km interval; Delta-H:    96.7 m
     Effective antenna heights:   190.7 m     13.3 m
         Site elevations (MSL):   121.9 m     89.9 m

Az 170.0    3.200 kW   16.50 km   83.50 dBu (net received field)
     Free-space field:  87.62  Computed transmission loss:  4.12
     Line-of-sight path
     Profile:    166 points;  .100 km interval; Delta-H:    94.5 m
     Effective antenna heights:   198.1 m     14.6 m
         Site elevations (MSL):   121.9 m     91.0 m

Az 170.0    3.200 kW   17.00 km   82.58 dBu (net received field)
     Free-space field:  87.36  Computed transmission loss:  4.78
     Line-of-sight path
     Profile:    171 points;  .100 km interval; Delta-H:    91.4 m
     Effective antenna heights:   198.5 m     13.4 m
         Site elevations (MSL):   121.9 m     91.0 m

Az 170.0    3.200 kW   17.50 km   81.35 dBu (net received field)
     Free-space field:  87.11  Computed transmission loss:  5.76
     Line-of-sight path
     Profile:    176 points;  .100 km interval; Delta-H:    87.1 m
     Effective antenna heights:   199.9 m     11.8 m
         Site elevations (MSL):   121.9 m     91.0 m
```

```
Az 170.0    3.200 kW   18.00 km   80.27 dBu (net received field)
     Free-space field:  86.87  Computed transmission loss:  6.60
     Line-of-sight path
     Profile:    181 points;  .100 km interval; Delta-H:    84.4 m
     Effective antenna heights:   200.1 m     10.8 m
         Site elevations (MSL):   121.9 m     91.0 m

Az 170.0    3.200 kW   18.50 km   79.02 dBu (net received field)
     Free-space field:  86.63  Computed transmission loss:  7.61
     Line-of-sight path
     Profile:    186 points;  .100 km interval; Delta-H:    80.5 m
     Effective antenna heights:   201.1 m      9.7 m
         Site elevations (MSL):   121.9 m     91.1 m

Az 170.0    3.200 kW   19.00 km   78.05 dBu (net received field)
     Free-space field:  86.40  Computed transmission loss:  8.34
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    191 points;  .100 km interval; Delta-H:    77.7 m
     Effective antenna heights:   200.5 m     12.9 m
         Site elevations (MSL):   121.9 m     76.0 m

Az 170.0    3.200 kW   19.50 km   77.60 dBu (net received field)
     Free-space field:  86.17  Computed transmission loss:  8.57
     Line-of-sight path
     Profile:    196 points;  .100 km interval; Delta-H:    75.8 m
     Effective antenna heights:   200.2 m      9.1 m
         Site elevations (MSL):   121.9 m     76.0 m

Az 170.0    3.200 kW   20.00 km   77.10 dBu (net received field)
     Free-space field:  85.95  Computed transmission loss:  8.85
     Line-of-sight path
     Profile:    201 points;  .100 km interval; Delta-H:    75.4 m
     Effective antenna heights:   199.2 m      9.1 m
         Site elevations (MSL):   121.9 m     76.2 m


Az 170.0    3.200 kW   20.50 km   76.64 dBu (net received field)
     Free-space field:  85.74  Computed transmission loss:  9.10
     Line-of-sight path
     Profile:    206 points;  .100 km interval; Delta-H:    74.7 m
     Effective antenna heights:   198.9 m      9.1 m
         Site elevations (MSL):   121.9 m     76.1 m

Az 170.0    3.200 kW   21.00 km   76.17 dBu (net received field)
     Free-space field:  85.53  Computed transmission loss:  9.36
     Line-of-sight path
     Profile:    211 points;  .100 km interval; Delta-H:    73.8 m
     Effective antenna heights:   198.3 m      9.1 m
         Site elevations (MSL):   121.9 m     70.1 m
```

```
Az 170.0    3.200 kW   21.50 km   75.66 dBu (net received field)
      Free-space field:  85.32  Computed transmission loss:  9.66
      Line-of-sight path
      Profile:    216 points;  .100 km interval; Delta-H:    74.8 m
      Effective antenna heights:   196.9 m      9.1 m
          Site elevations (MSL):   121.9 m     62.0 m

Az 170.0    3.200 kW   22.00 km   75.14 dBu (net received field)
      Free-space field:  85.12  Computed transmission loss:  9.98
      Line-of-sight path
      Profile:    221 points;  .100 km interval; Delta-H:    75.9 m
      Effective antenna heights:   195.3 m      9.1 m
          Site elevations (MSL):   121.9 m     61.0 m

 Az 170.0    3.200 kW   22.50 km   74.63 dBu (net received field)
      Free-space field:  84.93  Computed transmission loss: 10.30
      Line-of-sight path
      Profile:    226 points;  .100 km interval; Delta-H:    77.5 m
      Effective antenna heights:   193.9 m      9.1 m
          Site elevations (MSL):   121.9 m     61.1 m

 Az 170.0    3.200 kW   23.00 km   74.16 dBu (net received field)
      Free-space field:  84.74  Computed transmission loss: 10.58
      Line-of-sight path
      Profile:    231 points;  .100 km interval; Delta-H:    74.9 m
      Effective antenna heights:   192.7 m      9.1 m
          Site elevations (MSL):   121.9 m     65.9 m


 Az 170.0    3.200 kW   23.50 km   73.71 dBu (net received field)
      Free-space field:  84.55  Computed transmission loss: 10.84
      Line-of-sight path
      Profile:    236 points;  .100 km interval; Delta-H:    72.0 m
      Effective antenna heights:   191.9 m      9.1 m
          Site elevations (MSL):   121.9 m     70.6 m

 Az 170.0    3.200 kW   24.00 km   73.28 dBu (net received field)
      Free-space field:  84.37  Computed transmission loss: 11.09
      Line-of-sight path
      Profile:    241 points;  .100 km interval; Delta-H:    69.3 m
      Effective antenna heights:   191.4 m      9.1 m
          Site elevations (MSL):   121.9 m     69.0 m

 Az 170.0    3.200 kW   24.50 km   72.84 dBu (net received field)
      Free-space field:  84.19  Computed transmission loss: 11.34
      Line-of-sight path
      Profile:    246 points;  .100 km interval; Delta-H:    67.2 m
      Effective antenna heights:   190.8 m      9.1 m
          Site elevations (MSL):   121.9 m     67.8 m
```

```
Az 170.0    3.200 kW   25.00 km   72.42 dBu (net received field)
     Free-space field:  84.01  Computed transmission loss: 11.60
     Line-of-sight path
     Profile:    251 points;  .100 km interval; Delta-H:    65.3 m
     Effective antenna heights:   190.3 m      9.1 m
         Site elevations (MSL):   121.9 m     68.7 m

Az 172.0    3.200 kW   16.00 km   76.99 dBu (net received field)
     Free-space field:  87.89  Computed transmission loss: 10.90
     Double-horizon path
     Dominant mode:  Diffraction
     Profile:    161 points;  .100 km interval; Delta-H:    98.9 m
     Effective antenna heights:   193.8 m     10.2 m
         Site elevations (MSL):   121.9 m     76.8 m

Az 172.0    3.200 kW   16.50 km   83.33 dBu (net received field)
     Free-space field:  87.62  Computed transmission loss:  4.29
     Line-of-sight path
     Profile:    166 points;  .100 km interval; Delta-H:    89.8 m
     Effective antenna heights:   200.7 m     13.8 m
         Site elevations (MSL):   121.9 m     90.9 m

Az 172.0    3.200 kW   17.00 km   79.94 dBu (net received field)
     Free-space field:  87.36  Computed transmission loss:  7.42
     Line-of-sight path
     Profile:    171 points;  .100 km interval; Delta-H:    88.6 m
     Effective antenna heights:   201.1 m      9.1 m
         Site elevations (MSL):   121.9 m     85.7 m

Az 172.0    3.200 kW   17.50 km   79.73 dBu (net received field)
     Free-space field:  87.11  Computed transmission loss:  7.38
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    176 points;  .100 km interval; Delta-H:    89.1 m
     Effective antenna heights:   200.8 m     12.8 m
         Site elevations (MSL):   121.9 m     76.0 m

Az 172.0    3.200 kW   18.00 km   78.98 dBu (net received field)
     Free-space field:  86.87  Computed transmission loss:  7.89
     Line-of-sight path
     Profile:    181 points;  .100 km interval; Delta-H:    84.5 m
     Effective antenna heights:   200.6 m      9.1 m
         Site elevations (MSL):   121.9 m     75.2 m
```

```
Az 172.0    3.200 kW   18.50 km   78.50 dBu (net received field)
     Free-space field:  86.63  Computed transmission loss:  8.12
     Line-of-sight path
     Profile:    186 points;  .100 km interval; Delta-H:    83.6 m
     Effective antenna heights:   200.5 m      9.1 m
         Site elevations (MSL):   121.9 m     73.0 m

Az 172.0    3.200 kW   19.00 km   78.03 dBu (net received field)
     Free-space field:  86.40  Computed transmission loss:  8.36
     Line-of-sight path
     Profile:    191 points;  .100 km interval; Delta-H:    82.7 m
     Effective antenna heights:   200.3 m      9.1 m
         Site elevations (MSL):   121.9 m     76.2 m

Az 172.0    3.200 kW   19.50 km   77.54 dBu (net received field)
     Free-space field:  86.17  Computed transmission loss:  8.63
     Line-of-sight path
     Profile:    196 points;  .100 km interval; Delta-H:    81.8 m
     Effective antenna heights:   199.6 m      9.1 m
         Site elevations (MSL):   121.9 m     77.0 m

Az 172.0    3.200 kW   20.00 km   77.07 dBu (net received field)
     Free-space field:  85.95  Computed transmission loss:  8.88
     Line-of-sight path
     Profile:    201 points;  .100 km interval; Delta-H:    80.1 m
     Effective antenna heights:   199.0 m      9.1 m
         Site elevations (MSL):   121.9 m     79.0 m

Az 172.0    3.200 kW   20.50 km   76.63 dBu (net received field)
     Free-space field:  85.74  Computed transmission loss:  9.11
     Line-of-sight path
     Profile:    206 points;  .100 km interval; Delta-H:    79.1 m
     Effective antenna heights:   199.1 m      9.1 m
         Site elevations (MSL):   121.9 m     75.7 m

Az 172.0    3.200 kW   21.00 km   76.17 dBu (net received field)
     Free-space field:  85.53  Computed transmission loss:  9.36
     Line-of-sight path
     Profile:    211 points;  .100 km interval; Delta-H:    78.1 m
     Effective antenna heights:   198.7 m      9.1 m
         Site elevations (MSL):   121.9 m     69.3 m

Az 172.0    3.200 kW   21.50 km   75.67 dBu (net received field)
     Free-space field:  85.32  Computed transmission loss:  9.65
     Line-of-sight path
     Profile:    216 points;  .100 km interval; Delta-H:    78.3 m
     Effective antenna heights:   197.5 m      9.1 m
         Site elevations (MSL):   121.9 m     61.9 m
```

```
Az 172.0    3.200 kW   22.00 km   75.16 dBu (net received field)
     Free-space field:  85.12  Computed transmission loss:  9.96
     Line-of-sight path
     Profile:    221 points;  .100 km interval; Delta-H:    79.2 m
     Effective antenna heights:   196.1 m      9.1 m
         Site elevations (MSL):   121.9 m     61.0 m

Az 172.0    3.200 kW   22.50 km   74.68 dBu (net received field)
     Free-space field:  84.93  Computed transmission loss: 10.25
     Line-of-sight path
     Profile:    226 points;  .100 km interval; Delta-H:    77.6 m
     Effective antenna heights:   194.8 m      9.1 m
         Site elevations (MSL):   121.9 m     61.0 m

Az 172.0    3.200 kW   23.00 km   74.21 dBu (net received field)
     Free-space field:  84.74  Computed transmission loss: 10.53
     Line-of-sight path
     Profile:    231 points;  .100 km interval; Delta-H:    74.9 m
     Effective antenna heights:   193.7 m      9.1 m
         Site elevations (MSL):   121.9 m     61.0 m

Az 172.0    3.200 kW   23.50 km   73.74 dBu (net received field)
     Free-space field:  84.55  Computed transmission loss: 10.81
     Line-of-sight path
     Profile:    236 points;  .100 km interval; Delta-H:    74.2 m
     Effective antenna heights:   192.8 m      9.1 m
         Site elevations (MSL):   121.9 m     63.2 m

Az 172.0    3.200 kW   24.00 km   73.30 dBu (net received field)
     Free-space field:  84.37  Computed transmission loss: 11.06
     Line-of-sight path
     Profile:    241 points;  .100 km interval; Delta-H:    71.4 m
     Effective antenna heights:   192.0 m      9.1 m
         Site elevations (MSL):   121.9 m     67.1 m

Az 172.0    3.200 kW   24.50 km   72.88 dBu (net received field)
     Free-space field:  84.19  Computed transmission loss: 11.31
     Line-of-sight path
     Profile:    246 points;  .100 km interval; Delta-H:    69.9 m
     Effective antenna heights:   191.7 m      9.1 m
         Site elevations (MSL):   121.9 m     69.9 m

Az 172.0    3.200 kW   25.00 km   72.46 dBu (net received field)
     Free-space field:  84.01  Computed transmission loss: 11.56
     Line-of-sight path
     Profile:    251 points;  .100 km interval; Delta-H:    68.6 m
     Effective antenna heights:   191.3 m      9.1 m
         Site elevations (MSL):   121.9 m     64.7 m
```

```
Az 174.0    3.200 kW   16.00 km   76.72 dBu (net received field)
     Free-space field:  87.89  Computed transmission loss: 11.17
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    161 points;  .100 km interval; Delta-H:   114.7 m
     Effective antenna heights:   190.1 m      9.1 m
         Site elevations (MSL):   121.9 m     88.3 m

Az 174.0    3.200 kW   16.50 km   77.96 dBu (net received field)
     Free-space field:  87.62  Computed transmission loss:  9.66
     Double-horizon path
     Dominant mode:  Diffraction
     Profile:    166 points;  .100 km interval; Delta-H:   114.0 m
     Effective antenna heights:   190.1 m     13.6 m
         Site elevations (MSL):   121.9 m     75.0 m

Az 174.0    3.200 kW   17.00 km   79.49 dBu (net received field)
     Free-space field:  87.36  Computed transmission loss:  7.87
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    171 points;  .100 km interval; Delta-H:   110.4 m
     Effective antenna heights:   190.1 m     16.5 m
         Site elevations (MSL):   121.9 m     72.4 m

Az 174.0    3.200 kW   17.50 km   81.38 dBu (net received field)
     Free-space field:  87.11  Computed transmission loss:  5.74
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    176 points;  .100 km interval; Delta-H:   111.8 m
     Effective antenna heights:   190.1 m     22.4 m
         Site elevations (MSL):   121.9 m     74.5 m

Az 174.0    3.200 kW   18.00 km   78.87 dBu (net received field)
     Free-space field:  86.87  Computed transmission loss:  8.00
     Line-of-sight path
     Profile:    181 points;  .100 km interval; Delta-H:   104.6 m
     Effective antenna heights:   201.4 m      9.1 m
         Site elevations (MSL):   121.9 m     83.1 m

Az 174.0    3.200 kW   18.50 km   78.45 dBu (net received field)
     Free-space field:  86.63  Computed transmission loss:  8.18
     Line-of-sight path
     Profile:    186 points;  .100 km interval; Delta-H:   102.2 m
     Effective antenna heights:   202.2 m      9.1 m
         Site elevations (MSL):   121.9 m     89.4 m
```

```
Az 174.0    3.200 kW   19.00 km   78.00 dBu (net received field)
      Free-space field:  86.40  Computed transmission loss:  8.40
      Line-of-sight path
      Profile:    191 points;  .100 km interval; Delta-H:   102.0 m
      Effective antenna heights:   202.4 m      9.1 m
          Site elevations (MSL):   121.9 m     79.3 m

 Az 174.0    3.200 kW   19.50 km   77.52 dBu (net received field)
      Free-space field:  86.17  Computed transmission loss:  8.65
      Line-of-sight path
      Profile:    196 points;  .100 km interval; Delta-H:    99.8 m
      Effective antenna heights:   201.6 m      9.1 m
          Site elevations (MSL):   121.9 m     84.1 m

 Az 174.0    3.200 kW   20.00 km   77.05 dBu (net received field)
      Free-space field:  85.95  Computed transmission loss:  8.90
      Line-of-sight path
      Profile:    201 points;  .100 km interval; Delta-H:    99.1 m
      Effective antenna heights:   201.1 m      9.1 m
          Site elevations (MSL):   121.9 m     77.2 m

 Az 174.0    3.200 kW   20.50 km   76.58 dBu (net received field)
      Free-space field:  85.74  Computed transmission loss:  9.15
      Line-of-sight path
      Profile:    206 points;  .100 km interval; Delta-H:    99.5 m
      Effective antenna heights:   200.7 m      9.1 m
          Site elevations (MSL):   121.9 m     73.7 m

 Az 174.0    3.200 kW   21.00 km   76.12 dBu (net received field)
      Free-space field:  85.53  Computed transmission loss:  9.41
      Line-of-sight path
      Profile:    211 points;  .100 km interval; Delta-H:    98.2 m
      Effective antenna heights:   200.0 m      9.1 m
          Site elevations (MSL):   121.9 m     69.2 m

 Az 174.0    3.200 kW   21.50 km   75.60 dBu (net received field)
      Free-space field:  85.32  Computed transmission loss:  9.72
      Line-of-sight path
      Profile:    216 points;  .100 km interval; Delta-H:    99.8 m
      Effective antenna heights:   198.6 m      9.1 m
          Site elevations (MSL):   121.9 m     63.0 m

 Az 174.0    3.200 kW   22.00 km   75.07 dBu (net received field)
      Free-space field:  85.12  Computed transmission loss: 10.05
      Line-of-sight path
      Profile:    221 points;  .100 km interval; Delta-H:   102.8 m
      Effective antenna heights:   197.0 m      9.1 m
          Site elevations (MSL):   121.9 m     61.0 m
```

```
Az 174.0    3.200 kW   22.50 km   74.55 dBu (net received field)
      Free-space field:  84.93  Computed transmission loss: 10.37
      Line-of-sight path
      Profile:    226 points;  .100 km interval; Delta-H:   105.1 m
      Effective antenna heights:   195.5 m      9.1 m
          Site elevations (MSL):   121.9 m     61.0 m

 Az 174.0    3.200 kW   23.00 km   74.08 dBu (net received field)
      Free-space field:  84.74  Computed transmission loss: 10.66
      Line-of-sight path
      Profile:    231 points;  .100 km interval; Delta-H:   102.1 m
      Effective antenna heights:   194.1 m      9.1 m
          Site elevations (MSL):   121.9 m     58.9 m

 Az 174.0    3.200 kW   23.50 km   73.59 dBu (net received field)
      Free-space field:  84.55  Computed transmission loss: 10.96
      Line-of-sight path
      Profile:    236 points;  .100 km interval; Delta-H:   102.0 m
      Effective antenna heights:   192.8 m      9.1 m
          Site elevations (MSL):   121.9 m     56.8 m

 Az 174.0    3.200 kW   24.00 km   73.12 dBu (net received field)
      Free-space field:  84.37  Computed transmission loss: 11.25
      Line-of-sight path
      Profile:    241 points;  .100 km interval; Delta-H:   100.3 m
      Effective antenna heights:   191.5 m      9.1 m
          Site elevations (MSL):   121.9 m     57.8 m

 Az 174.0    3.200 kW   24.50 km   72.67 dBu (net received field)
      Free-space field:  84.19  Computed transmission loss: 11.52
      Line-of-sight path
      Profile:    246 points;  .100 km interval; Delta-H:    97.5 m
      Effective antenna heights:   190.4 m      9.1 m
          Site elevations (MSL):   121.9 m     57.1 m

 Az 174.0    3.200 kW   25.00 km   72.24 dBu (net received field)
      Free-space field:  84.01  Computed transmission loss: 11.77
      Line-of-sight path
      Profile:    251 points;  .100 km interval; Delta-H:    91.8 m
      Effective antenna heights:   189.4 m      9.1 m
          Site elevations (MSL):   121.9 m     57.1 m

 Az 176.0    3.200 kW   16.00 km   76.21 dBu (net received field)
      Free-space field:  87.89  Computed transmission loss: 11.68
      Single-horizon path
      Dominant mode:  Diffraction
      Profile:    161 points;  .100 km interval; Delta-H:   105.0 m
      Effective antenna heights:   196.8 m      9.1 m
          Site elevations (MSL):   121.9 m     85.8 m
```

```
Az 176.0    3.200 kW   16.50 km   78.11 dBu (net received field)
     Free-space field:  87.62  Computed transmission loss:  9.51
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    166 points;  .100 km interval; Delta-H:   103.8 m
     Effective antenna heights:   196.8 m     14.4 m
         Site elevations (MSL):   121.9 m     73.2 m

Az 176.0    3.200 kW   17.00 km   79.69 dBu (net received field)
     Free-space field:  87.36  Computed transmission loss:  7.67
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    171 points;  .100 km interval; Delta-H:   104.0 m
     Effective antenna heights:   196.8 m     16.2 m
         Site elevations (MSL):   121.9 m     71.2 m

Az 176.0    3.200 kW   17.50 km   79.30 dBu (net received field)
     Free-space field:  87.11  Computed transmission loss:  7.81
     Line-of-sight path
     Profile:    176 points;  .100 km interval; Delta-H:   101.8 m
     Effective antenna heights:   200.0 m      9.1 m
         Site elevations (MSL):   121.9 m     76.5 m

Az 176.0    3.200 kW   18.00 km   78.83 dBu (net received field)
     Free-space field:  86.87  Computed transmission loss:  8.04
     Line-of-sight path
     Profile:    181 points;  .100 km interval; Delta-H:    96.2 m
     Effective antenna heights:   199.2 m      9.1 m
         Site elevations (MSL):   121.9 m     78.4 m

Az 176.0    3.200 kW   18.50 km   78.38 dBu (net received field)
     Free-space field:  86.63  Computed transmission loss:  8.25
     Line-of-sight path
     Profile:    186 points;  .100 km interval; Delta-H:    94.6 m
     Effective antenna heights:   199.4 m      9.1 m
         Site elevations (MSL):   121.9 m     77.5 m

Az 176.0    3.200 kW   19.00 km   77.95 dBu (net received field)
     Free-space field:  86.40  Computed transmission loss:  8.45
     Line-of-sight path
     Profile:    191 points;  .100 km interval; Delta-H:    89.3 m
     Effective antenna heights:   199.5 m      9.1 m
         Site elevations (MSL):   121.9 m     80.8 m

Az 176.0    3.200 kW   19.50 km   77.48 dBu (net received field)
     Free-space field:  86.17  Computed transmission loss:  8.69
     Line-of-sight path
     Profile:    196 points;  .100 km interval; Delta-H:    87.5 m
     Effective antenna heights:   199.2 m      9.1 m
         Site elevations (MSL):   121.9 m     85.0 m
```

```
Az 176.0    3.200 kW   20.00 km   77.03 dBu (net received field)
     Free-space field:  85.95  Computed transmission loss:  8.93
     Line-of-sight path
     Profile:    201 points;  .100 km interval; Delta-H:    86.1 m
     Effective antenna heights:   198.9 m      9.1 m
         Site elevations (MSL):   121.9 m     78.5 m

Az 176.0    3.200 kW   22.00 km   72.83 dBu (net received field)
     Free-space field:  85.12  Computed transmission loss: 12.29
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    221 points;  .100 km interval; Delta-H:    80.4 m
     Effective antenna heights:   200.3 m     10.2 m
         Site elevations (MSL):   121.9 m     61.7 m

Az 176.0    3.200 kW   22.50 km   73.05 dBu (net received field)
     Free-space field:  84.93  Computed transmission loss: 11.87
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    226 points;  .100 km interval; Delta-H:    82.9 m
     Effective antenna heights:   200.3 m     10.8 m
         Site elevations (MSL):   121.9 m     56.8 m

Az 176.0    3.200 kW   23.00 km   70.22 dBu (net received field)
     Free-space field:  84.74  Computed transmission loss: 14.52
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    231 points;  .100 km interval; Delta-H:    84.5 m
     Effective antenna heights:   200.3 m      9.1 m
         Site elevations (MSL):   121.9 m     46.8 m

Az 176.0    3.200 kW   23.50 km   73.70 dBu (net received field)
     Free-space field:  84.55  Computed transmission loss: 10.85
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    236 points;  .100 km interval; Delta-H:    86.6 m
     Effective antenna heights:   200.3 m     13.9 m
         Site elevations (MSL):   121.9 m     46.0 m

Az 176.0    3.200 kW   24.00 km   74.36 dBu (net received field)
     Free-space field:  84.37  Computed transmission loss: 10.01
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    241 points;  .100 km interval; Delta-H:    90.6 m
     Effective antenna heights:   200.3 m     14.9 m
         Site elevations (MSL):   121.9 m     46.0 m
```

```
Az 176.0    3.200 kW   24.50 km   72.59 dBu (net received field)
      Free-space field:  84.19  Computed transmission loss: 11.60
      Line-of-sight path
      Profile:    246 points;  .100 km interval; Delta-H:    93.0 m
      Effective antenna heights:   188.5 m      9.1 m
          Site elevations (MSL):   121.9 m     46.2 m

 Az 176.0    3.200 kW   25.00 km   72.10 dBu (net received field)
      Free-space field:  84.01  Computed transmission loss: 11.91
      Line-of-sight path
      Profile:    251 points;  .100 km interval; Delta-H:    93.1 m
      Effective antenna heights:   187.0 m      9.1 m
          Site elevations (MSL):   121.9 m     42.5 m

 Az 178.0    3.200 kW   16.00 km   79.77 dBu (net received field)
      Free-space field:  87.89  Computed transmission loss:  8.12
      Single-horizon path
      Dominant mode:  Diffraction
      Profile:    161 points;  .100 km interval; Delta-H:   105.9 m
      Effective antenna heights:   191.5 m     11.9 m
          Site elevations (MSL):   121.9 m     73.1 m

 Az 178.0    3.200 kW   16.50 km   78.58 dBu (net received field)
      Free-space field:  87.62  Computed transmission loss:  9.04
      Single-horizon path
      Dominant mode:  Diffraction
      Profile:    166 points;  .100 km interval; Delta-H:   104.4 m
      Effective antenna heights:   191.5 m     10.6 m
          Site elevations (MSL):   121.9 m     68.7 m

 Az 178.0    3.200 kW   17.00 km   80.19 dBu (net received field)
      Free-space field:  87.36  Computed transmission loss:  7.18
      Line-of-sight path
      Profile:    171 points;  .100 km interval; Delta-H:    99.5 m
      Effective antenna heights:   194.4 m      9.9 m
          Site elevations (MSL):   121.9 m     82.5 m

 Az 178.0    3.200 kW   17.50 km   79.14 dBu (net received field)
      Free-space field:  87.11  Computed transmission loss:  7.97
      Line-of-sight path
      Profile:    176 points;  .100 km interval; Delta-H:    95.6 m
      Effective antenna heights:   195.3 m      9.1 m
          Site elevations (MSL):   121.9 m     76.1 m

 Az 178.0    3.200 kW   18.00 km   78.63 dBu (net received field)
      Free-space field:  86.87  Computed transmission loss:  8.24
      Line-of-sight path
      Profile:    181 points;  .100 km interval; Delta-H:    95.7 m
      Effective antenna heights:   194.9 m      9.1 m
          Site elevations (MSL):   121.9 m     77.0 m
```

```
Az 178.0    3.200 kW   18.50 km   78.22 dBu (net received field)
     Free-space field:  86.63  Computed transmission loss:  8.41
     Line-of-sight path
     Profile:    186 points;  .100 km interval; Delta-H:    89.9 m
     Effective antenna heights:   195.4 m      9.1 m
         Site elevations (MSL):   121.9 m     80.1 m

Az 178.0    3.200 kW   19.00 km   78.94 dBu (net received field)
     Free-space field:  86.40  Computed transmission loss:  7.45
     Line-of-sight path
     Profile:    191 points;  .100 km interval; Delta-H:    88.5 m
     Effective antenna heights:   196.1 m     10.6 m
         Site elevations (MSL):   121.9 m     84.2 m

Az 178.0    3.200 kW   19.50 km   78.67 dBu (net received field)
     Free-space field:  86.17  Computed transmission loss:  7.50
     Line-of-sight path
     Profile:    196 points;  .100 km interval; Delta-H:    86.9 m
     Effective antenna heights:   196.2 m     10.8 m
         Site elevations (MSL):   121.9 m     85.0 m

Az 178.0    3.200 kW   20.00 km   76.91 dBu (net received field)
     Free-space field:  85.95  Computed transmission loss:  9.04
     Line-of-sight path
     Profile:    201 points;  .100 km interval; Delta-H:    84.2 m
     Effective antenna heights:   196.2 m      9.1 m
         Site elevations (MSL):   121.9 m     79.8 m

Az 178.0    3.200 kW   20.50 km   76.49 dBu (net received field)
     Free-space field:  85.74  Computed transmission loss:  9.25
     Line-of-sight path
     Profile:    206 points;  .100 km interval; Delta-H:    80.8 m
     Effective antenna heights:   196.4 m      9.1 m
         Site elevations (MSL):   121.9 m     77.0 m

Az 178.0    3.200 kW   21.00 km   76.04 dBu (net received field)
     Free-space field:  85.53  Computed transmission loss:  9.48
     Line-of-sight path
     Profile:    211 points;  .100 km interval; Delta-H:    80.3 m
     Effective antenna heights:   196.4 m      9.1 m
         Site elevations (MSL):   121.9 m     76.3 m

Az 178.0    3.200 kW   21.50 km   75.59 dBu (net received field)
     Free-space field:  85.32  Computed transmission loss:  9.73
     Line-of-sight path
     Profile:    216 points;  .100 km interval; Delta-H:    77.6 m
     Effective antenna heights:   195.9 m      9.1 m
         Site elevations (MSL):   121.9 m     76.0 m
```

```
Az 178.0    3.200 kW   22.00 km   75.13 dBu (net received field)
     Free-space field:  85.12  Computed transmission loss:  9.99
     Line-of-sight path
     Profile:    221 points;  .100 km interval; Delta-H:    77.1 m
     Effective antenna heights:   195.3 m      9.1 m
         Site elevations (MSL):   121.9 m     65.9 m

Az 178.0    3.200 kW   22.50 km   74.64 dBu (net received field)
     Free-space field:  84.93  Computed transmission loss: 10.29
     Line-of-sight path
     Profile:    226 points;  .100 km interval; Delta-H:    77.5 m
     Effective antenna heights:   194.1 m      9.1 m
         Site elevations (MSL):   121.9 m     61.0 m

Az 178.0    3.200 kW   23.00 km   74.15 dBu (net received field)
     Free-space field:  84.74  Computed transmission loss: 10.58
     Line-of-sight path
     Profile:    231 points;  .100 km interval; Delta-H:    77.6 m
     Effective antenna heights:   192.9 m      9.1 m
         Site elevations (MSL):   121.9 m     61.4 m

Az 178.0    3.200 kW   23.50 km   73.70 dBu (net received field)
     Free-space field:  84.55  Computed transmission loss: 10.85
     Line-of-sight path
     Profile:    236 points;  .100 km interval; Delta-H:    73.4 m
     Effective antenna heights:   191.9 m      9.1 m
         Site elevations (MSL):   121.9 m     61.0 m

Az 178.0    3.200 kW   24.00 km   73.22 dBu (net received field)
     Free-space field:  84.37  Computed transmission loss: 11.15
     Line-of-sight path
     Profile:    241 points;  .100 km interval; Delta-H:    74.6 m
     Effective antenna heights:   190.8 m      9.1 m
         Site elevations (MSL):   121.9 m     56.7 m

Az 178.0    3.200 kW   24.50 km   72.75 dBu (net received field)
     Free-space field:  84.19  Computed transmission loss: 11.44
     Line-of-sight path
     Profile:    246 points;  .100 km interval; Delta-H:    74.5 m
     Effective antenna heights:   189.7 m      9.1 m
         Site elevations (MSL):   121.9 m     54.4 m

Az 178.0    3.200 kW   25.00 km   72.28 dBu (net received field)
     Free-space field:  84.01  Computed transmission loss: 11.73
     Line-of-sight path
     Profile:    251 points;  .100 km interval; Delta-H:    74.7 m
     Effective antenna heights:   188.5 m      9.1 m
         Site elevations (MSL):   121.9 m     52.0 m
```

```
Az 180.0    3.200 kW   16.00 km   77.29 dBu (net received field)
     Free-space field:  87.89  Computed transmission loss: 10.60
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    161 points;  .100 km interval; Delta-H:   110.8 m
     Effective antenna heights:   180.3 m      9.1 m
         Site elevations (MSL):   121.9 m     68.5 m

Az 180.0    3.200 kW   16.50 km   86.05 dBu (net received field)
     Free-space field:  87.62  Computed transmission loss:  1.57
     Line-of-sight path
     Profile:    166 points;  .100 km interval; Delta-H:   103.4 m
     Effective antenna heights:   193.1 m     22.6 m
         Site elevations (MSL):   121.9 m     87.8 m

Az 180.0    3.200 kW   17.00 km   86.95 dBu (net received field)
     Free-space field:  87.36  Computed transmission loss:   .41
     Line-of-sight path
     Profile:    171 points;  .100 km interval; Delta-H:    96.1 m
     Effective antenna heights:   194.3 m     26.1 m
         Site elevations (MSL):   121.9 m     93.4 m

Az 180.0    3.200 kW   17.50 km   84.46 dBu (net received field)
     Free-space field:  87.11  Computed transmission loss:  2.65
     Line-of-sight path
     Profile:    176 points;  .100 km interval; Delta-H:    93.3 m
     Effective antenna heights:   196.7 m     19.7 m
         Site elevations (MSL):   121.9 m     89.6 m

Az 180.0    3.200 kW   18.00 km   80.58 dBu (net received field)
     Free-space field:  86.87  Computed transmission loss:  6.29
     Line-of-sight path
     Profile:    181 points;  .100 km interval; Delta-H:    89.4 m
     Effective antenna heights:   197.2 m     11.6 m
         Site elevations (MSL):   121.9 m     82.7 m

Az 180.0    3.200 kW   18.50 km   80.98 dBu (net received field)
     Free-space field:  86.63  Computed transmission loss:  5.65
     Line-of-sight path
     Profile:    186 points;  .100 km interval; Delta-H:    81.7 m
     Effective antenna heights:   198.4 m     12.7 m
         Site elevations (MSL):   121.9 m     84.9 m

Az 180.0    3.200 kW   19.00 km   78.02 dBu (net received field)
     Free-space field:  86.40  Computed transmission loss:  8.38
     Line-of-sight path
     Profile:    191 points;  .100 km interval; Delta-H:    78.2 m
     Effective antenna heights:   199.4 m      9.1 m
         Site elevations (MSL):   121.9 m     79.1 m
```

```
Az 180.0    3.200 kW   19.50 km   77.54 dBu (net received field)
     Free-space field:  86.17  Computed transmission loss:  8.64
     Line-of-sight path
     Profile:    196 points;  .100 km interval; Delta-H:    78.7 m
     Effective antenna heights:   199.1 m      9.1 m
         Site elevations (MSL):   121.9 m     80.4 m

Az 180.0    3.200 kW   20.00 km   77.11 dBu (net received field)
     Free-space field:  85.95  Computed transmission loss:  8.84
     Line-of-sight path
     Profile:    201 points;  .100 km interval; Delta-H:    72.7 m
     Effective antenna heights:   199.1 m      9.1 m
         Site elevations (MSL):   121.9 m     82.3 m

Az 180.0    3.200 kW   20.50 km   76.69 dBu (net received field)
     Free-space field:  85.74  Computed transmission loss:  9.05
     Line-of-sight path
     Profile:    206 points;  .100 km interval; Delta-H:    72.4 m
     Effective antenna heights:   199.6 m      9.1 m
         Site elevations (MSL):   121.9 m     77.2 m

Az 180.0    3.200 kW   21.00 km   76.26 dBu (net received field)
     Free-space field:  85.53  Computed transmission loss:  9.27
     Line-of-sight path
     Profile:    211 points;  .100 km interval; Delta-H:    70.5 m
     Effective antenna heights:   199.8 m      9.1 m
         Site elevations (MSL):   121.9 m     76.0 m

Az 180.0    3.200 kW   21.50 km   75.81 dBu (net received field)
     Free-space field:  85.32  Computed transmission loss:  9.51
     Line-of-sight path
     Profile:    216 points;  .100 km interval; Delta-H:    68.3 m
     Effective antenna heights:   199.3 m      9.1 m
         Site elevations (MSL):   121.9 m     76.4 m

Az 180.0    3.200 kW   22.00 km   75.37 dBu (net received field)
     Free-space field:  85.12  Computed transmission loss:  9.76
     Line-of-sight path
     Profile:    221 points;  .100 km interval; Delta-H:    66.2 m
     Effective antenna heights:   198.9 m      9.1 m
         Site elevations (MSL):   121.9 m     76.0 m

Az 180.0    3.200 kW   22.50 km   74.93 dBu (net received field)
     Free-space field:  84.93  Computed transmission loss: 10.00
     Line-of-sight path
     Profile:    226 points;  .100 km interval; Delta-H:    64.0 m
     Effective antenna heights:   198.5 m      9.1 m
         Site elevations (MSL):   121.9 m     75.3 m
```

```
Az 180.0    3.200 kW   23.00 km   74.48 dBu (net received field)
     Free-space field:  84.74  Computed transmission loss: 10.26
     Line-of-sight path
     Profile:    231 points;  .100 km interval; Delta-H:    63.3 m
     Effective antenna heights:   197.9 m      9.1 m
         Site elevations (MSL):   121.9 m     69.6 m

Az 180.0    3.200 kW   23.50 km   74.01 dBu (net received field)
     Free-space field:  84.55  Computed transmission loss: 10.54
     Line-of-sight path
     Profile:    236 points;  .100 km interval; Delta-H:    65.2 m
     Effective antenna heights:   197.1 m      9.1 m
         Site elevations (MSL):   121.9 m     62.7 m

Az 180.0    3.200 kW   24.00 km   73.53 dBu (net received field)
     Free-space field:  84.37  Computed transmission loss: 10.84
     Line-of-sight path
     Profile:    241 points;  .100 km interval; Delta-H:    66.5 m
     Effective antenna heights:   195.9 m      9.1 m
         Site elevations (MSL):   121.9 m     57.6 m

Az 180.0    3.200 kW   24.50 km   71.28 dBu (net received field)
     Free-space field:  84.19  Computed transmission loss: 12.91
     Single-horizon path
     Dominant mode:  Diffraction
     Profile:    246 points;  .100 km interval; Delta-H:    68.1 m
     Effective antenna heights:   200.3 m      9.9 m
         Site elevations (MSL):   121.9 m     51.9 m

Az 180.0    3.200 kW   25.00 km   72.55 dBu (net received field)
     Free-space field:  84.01  Computed transmission loss: 11.46
     Line-of-sight path
     Profile:    251 points;  .100 km interval; Delta-H:    70.7 m
     Effective antenna heights:   193.2 m      9.1 m
         Site elevations (MSL):   121.9 m     51.4 m
```

Exhibit E-5

TECHNICAL EXHIBIT
MODIFICATION OF
FM CONSTRUCTION PERMIT

BPH-19970515MD

NEW(FM)
FCC FACILITY ID: 86803

WARRIOR BROADCASTING, INC.
GREENSBORO, ALABAMA

CH 256C3 3.2 KW 190 M HAAT

MARCH 2001

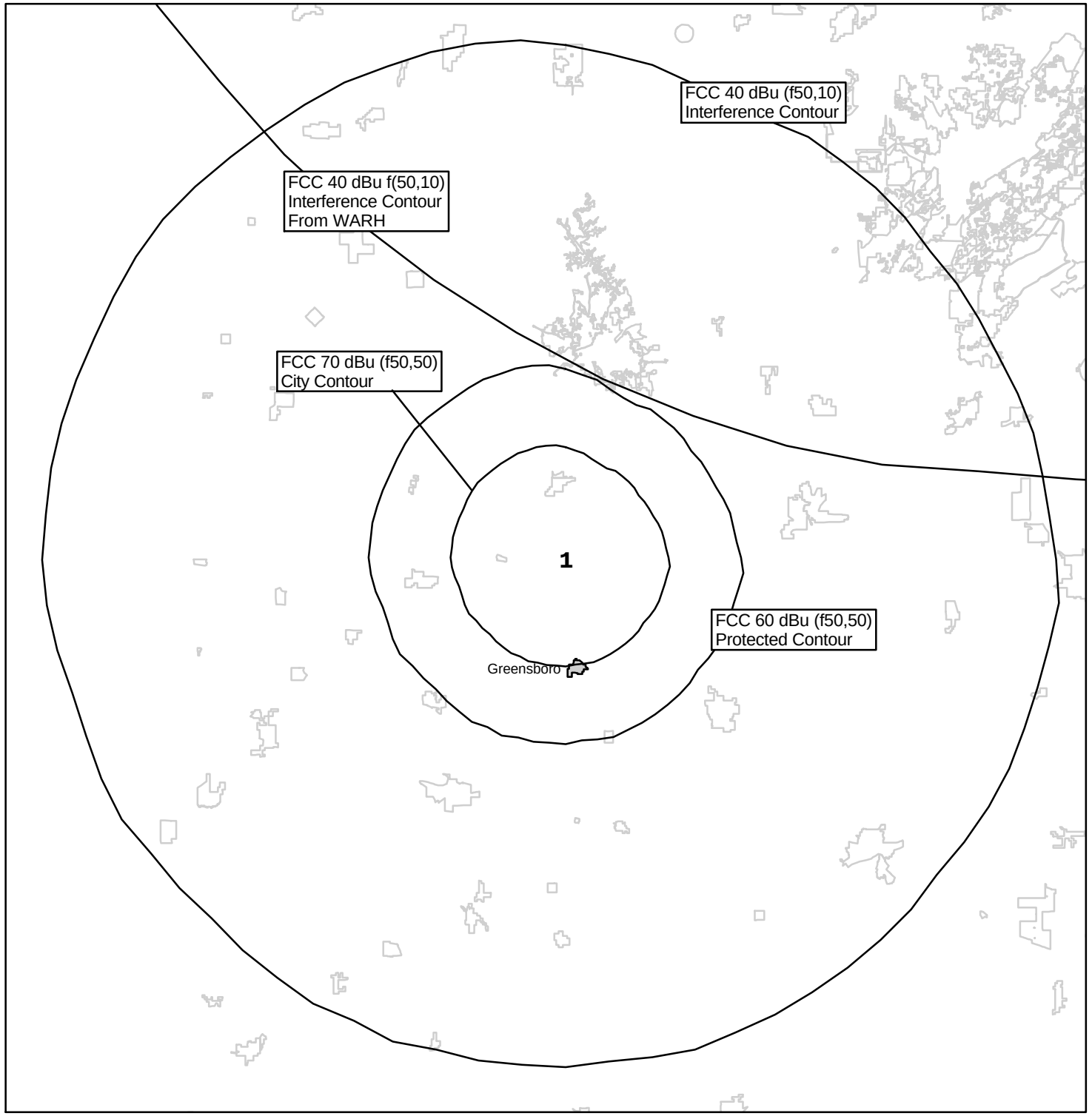
ALLOCATION STUDY

Channel 256C3 (99.1 MHz) Coordinates : 32-52-40 87-36-53

	Call	City	Channel	ERP(kW)	Latitude	Bearing	Dist.	Req.
	Status	State FCC File No.	Freq.	HAAT(m)	Longitude	deg-Tru	(km)	(km)
	WINL	Linden	253C1	100.	32-07-34	187.6	84.11	76
	LIC	AL BLH910627KC	98.5	249.0	87-44-02		8.11	CLOSE
	WBHK	Warrior	254C2	9.4	33-29-04	47.9	101.02	56
	CPM	AL BMPH971204IH	98.7	343.0	86-48-25		45.02	CLEAR
	WAJV	Brooksville	255C3	5.8 DA	33-20-40	301.1	101.21	99
	LIC	MS BLH950905KA	98.9	206.0	88-32-47	SS	2.21	CLOSE
	WBAMFM	Montgomery	255C2	9.9	32-24-11	111.3	143.11	117
	LIC	AL BLH960604KA	98.9	334.0	86-11-48		26.11	CLEAR
	WBAMFM	Montgomery	255C1	100.	32-17-29	115.2	150.91	144
	CP	AL BPH970530IA	98.9	138.0	86-09-52	SS	6.91	CLOSE
	WBAMFM	Montgomery	255C1		32-14-45	116.3	156.49	144
	PADD	AL RM8525	98.9	.0	86-07-30		12.49	CLOSE
*	WAHR	Huntsville	256C	100.	34-47-53	22.6	231.31	237
	LIC	AL BLH891219KC	99.1	300.0	86-38-24		-5.69	SHORT
	WZRR	Birmingham	258C	100.	33-27-45	47.4	96.43	96
	LIC	AL BLH980128KB	99.5	309.0	86-50-59	SS	.43	CLOSE

** End of separation study for channel 256C3 **

NOTES:
* 47 C.F.R. § 73.215 contour protection is provided to this station.



Channel 256C3 - 73.215 Showing

Greensboro, AL

Predicted & Interference Contours

Kilometers

0 10 20 30 40 50

Map Scale: 1: 1,000,000

Map Source:
U.S.G.S. Digital Line Graph - 100K Series
Dept. of Commerce - TigerLine 95 Digital Data

Map Legend - Exhibit E-6-1

Corp. Limits Greensboro, AL

Predicted Service Contours

T.Z. Sawyer Technical Consultants
Bethesda, Maryland, U.S.A.

Exhibit E-6-2

NEW(FM)
FCC FACILITY ID: 86803
WARRIOR BROADCASTING, INC.
GREENSBORO, ALABAMA
CH 256C3 3.2 KW 190 M HAAT

47 C.F.R § 73.215 SHOWING
TABULATION OF DISTANCE TO CONTOURS

NEW FM GREENSBORO, AL Channel 256C3 3.200 kW

Azimuth (Deg T)	HAAT (m)	Relative Field	Equiv Power	Rough Correct	70.0 dBu f(50,50) (km)	60.0 dBu f(50,50) (km)	40.0 dBu f(50,10) (km)
.00	195.17	1.000	3.200	.000	19.49	33.33	90.83
5.00	185.43	1.000	3.200	.000	19.04	32.50	89.61
10.00	178.42	1.000	3.200	.000	18.70	31.90	88.72
15.00	165.00	1.000	3.200	.000	17.98	30.68	86.96
20.00	158.18	1.000	3.200	.000	17.56	30.06	86.03
25.00	156.27	1.000	3.200	.000	17.44	29.88	85.77
30.00	161.43	1.000	3.200	.000	17.76	30.35	86.48
35.00	156.96	1.000	3.200	.000	17.49	29.94	85.86
40.00	156.42	1.000	3.200	.000	17.45	29.89	85.79
45.00	154.86	1.000	3.200	.000	17.35	29.75	85.57
50.00	150.66	1.000	3.200	.000	17.08	29.37	84.98
55.00	151.28	1.000	3.200	.000	17.12	29.43	85.07
60.00	153.08	1.000	3.200	.000	17.24	29.59	85.32

WAHR AS A FULL CLASS C STATION Channel 256C 100.000 kW

Azimuth (Deg T)	HAAT (m)	Relative Field	Equiv Power	Rough Correct	60.0 dBu f(50,50) (km)	40.0 dBu f(50,10) (km)
180.00	621.36	1.000	100.000	.000	92.63	199.18
185.00	611.06	1.000	100.000	.000	92.24	198.50
190.00	626.68	1.000	100.000	.000	92.83	199.53
195.00	631.93	1.000	100.000	.000	93.03	199.87
200.00	630.08	1.000	100.000	.000	92.96	199.75
205.00	629.53	1.000	100.000	.000	92.94	199.71
210.00	624.58	1.000	100.000	.000	92.75	199.39
215.00	622.08	1.000	100.000	.000	92.65	199.23
220.00	620.23	1.000	100.000	.000	92.58	199.11
225.00	615.87	1.000	100.000	.000	92.42	198.82
230.00	607.96	1.000	100.000	.000	92.12	198.30
235.00	612.40	1.000	100.000	.000	92.29	198.59
240.00	613.26	1.000	100.000	.000	92.32	198.65
245.00	614.00	1.000	100.000	.000	92.35	198.70
250.00	616.37	1.000	100.000	.000	92.44	198.86