# WGPB-FM CHANNEL 249 (97.7 MHz)
# CLASS C3 MINOR MODIFICATION OF LICENSED FACILITY APPLICATION
## *ROME, GEORGIA*
*(GEORGIA PUBLIC TELECOMMUNICATIONS COMMISSION)*

KESSLER AND GEHMAN ASSOCIATES, INC.
TELECOMMUNICATIONS CONSULTING ENGINEERS

20080403

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**ENGINEERING TECHNICAL STATEMENT PREPARED BY WILLIAM T. GODFREY, JR. OF THE FIRM KESSLER AND GEHMAN ASSOCIATES, INC., TELECOMMUNICATIONS CONSULTING ENGINEERS IN CONNECTION WITH A MINOR MODIFICATION OF LICENSE APPLICATION TO REPLACE THE ANTENNA AND TOWER FOR THE WGPB-FM CHANNEL 249 CLASS C3, ROME, GEORGIA COMMERCIAL FM BROADCAST FACILITY (BLH-19980708KA) FOR THE GEORGIA PUBLIC TELECOMMUNICATIONS COMMISSION (GPTC) IN ACCORDANCE WITH SECTION 73.1690(C)(2) AND (C)(8) OF THE FCC RULES.**

The firm Kessler and Gehman Associates, Inc. (KGA) has been retained by the Georgia Public Telecommunications Commission (GPTC), Atlanta, Georgia, to prepare engineering studies and the engineering portion of a minor modification of license application for the WGPB-FM Channel 249 Class C3 Commercial FM broadcast facility (BLH-19980708KA) requesting authorization to replace the existing antenna with an exact replacement and move from the existing tower to a new monopole which was built next to it.

## Discussion

GPTC is licensed to operate WGPB-FM Channel 249 C3 with an ERP of 4.3 kW (circular polarization) using a Shively model 6810 side-mounted, directional, one-bay antenna with an antenna height radiation center of 44 meters AGL. The existing antenna and tower have deteriorated and GPTC proposes to mount an exact replacement Shively model 6810-1A-DA antenna on a new 160 foot AGL monopole located next to the existing tower. The only difference between the existing antenna and the new antenna is the deicers which the new antenna will operate with. The antenna height radiation center for the new antenna will be 45.7 m (150 ft) which is 1.7 meters higher than the licensed antenna height radiation center. Therefore, this application proposed to decrease the ERP from the licensed 4.3 kW to 4.2 kW to compensate for the slight increase in antenna height. The antenna height change is within +2/-4 meters of the licensed height. The new monopole has the same geographical coordinates as the

existing tower and the new monopole height is identical to the existing tower height. Therefore, in accordance with §73.1690 of the FCC rules, the proposed changes can be requested using the FCC 302-FM form to make minor modifications to the existing license.

According to §73.1690(C)(2) of the FCC rules, the measured composite directional antenna pattern of the replacement directional FM antenna must not exceed the licensed composite directional pattern at any azimuth. The F(50,50) 60.0 dBuV/m protected service contours for the licensed (black) and proposed (dashed red) WGPB-FM facilities are depicted in "KGA Exhibit 2." It can be seen that the licensed facility would completely encompass the proposed facility is all azimuthal directions. "KGA Exhibit 3" is a distance to contour tabulation of the WGPB-FM Channel 249 C3 licensed facility. This exhibit depicts the distance, in kilometers, from the transmitter to the licensed WGPB-FM 1 mV/m (60 dBuV/m) protected service contour in all azimuthal directions. "KGA Exhibit 4" is a distance to contour tabulation of the proposed WGPB-FM Channel 249 C3 facility. This exhibit depicts the distance, in kilometers, from the transmitter to the proposed WGPB-FM 1 mV/m protected service contour in all azimuthal directions. "KGA Exhibit 5" is a distance to contour comparison spreadsheet which compares the distance from the transmitter to the 1 mV/m protected service contour of the licensed facility ("KGA Exhibit 3") and the proposed facility ("KGA Exhibit 4"). "KGA Exhibit 5", Column 4 depicts "PASS" if the proposed distance to contour values are less than or equal to the licensed distance to contour values or "FAIL" if the proposed distance to contour values are greater than the licensed distance to contour values. It can be seen that the licensed distance to contour values are greater than or equal to the proposed distance to contour values in all azimuthal directions which further verifies quantitatively that the coverage of the proposed facility will not be increased in any direction. Since the proposed 1 mV/m contour will be equal to, or only 0.1 km less than, the licensed 1 mV/m contour in all directions, there will be no ERP change in any direction (rounding).

§73.1690(C)(2) also states that the principal community coverage requirement of §73.315(a) must be maintained by the measured directional pattern and the antenna must be

mounted not more than 2 meters above or 4 meters below the authorized values.. Referring to "KGA Exhibit 6," it can be seen that the proposed WGPB-FM 70 dBuV/m F(50,50) community of license contour would encompass the community of Rome, GA is all azimuth directions. As previously mentioned, the proposed antenna height radiation center will be increased by only 1.7 meters which is within the +2/-4 meter requirement.

§73.1690(C)(2) of the FCC also rules states that antenna replacement applications filed using modification of license Form 302-FM must contain the following data:

***1)*** A measured directional antenna pattern and tabulation on the antenna manufacturer's letterhead showing both the horizontally and vertically polarized radiation components and demonstrating that neither of the components exceeds the authorized composite antenna pattern along any azimuth – ***SEE APPLICATION EXHIBIT 24: Proof of Performance prepared by antenna manufacturer (Shively).***

***2)*** Contour protection stations authorized pursuant to §73.215 or §73.509 must attach a showing that the RMS (root mean square) of the composite measured directional antenna pattern is 85% or more of the RMS of the authorized composite antenna pattern. See §73.316(c)(9). If this requirement cannot be met, the licensee may include new relative field values with the license application to reduce the authorized composite antenna pattern so as to bring the measured composite antenna pattern into compliance with the 85% requirement – ***SEE APPLICATION EXHIBIT 24: Proof of Performance prepared by antenna manufacturer (Shively).***

***3)*** A description from the manufacturer as to the procedures used to measure the directional antenna pattern. The antenna measurements must be performed with the antenna mounted on a tower, tower section, or scale model equivalent to that on which the antenna will be permanently mounted, and the tower or tower section must include transmission lines, ladders, conduits, other antennas, and any other installations which

may affect the measured directional pattern – ***SEE APPLICATION EXHIBIT 24: Proof of Performance prepared by antenna manufacturer (Shively).***

***4)*** A certification from a licensed surveyor that the antenna has been oriented to the proper azimuth – ***SEE APPLICATION EXHIBIT 27 - Antenna Orientation Certification.***

***5)*** A certification from a qualified engineer who oversaw installation of the directional antenna that the antenna was installed pursuant to the manufacturer's instructions – ***SEE APPLICATION EXHIBIT 26 - Antenna Installation Certification.***

GPTC has commenced program test operations at full power in accordance with §73.1690(C) of the FCC rules for stations replacing a licensed directional FM antenna with an exact replacement direction FM antenna.

As previously mentioned, GPTC proposes to reduce the ERP by 0.1 kW to compensate for the 1.7 m antenna height increase. §73.1690(C)(8) states that FM commercial stations and FM noncommercial educational stations may decrease ERP on a modification of license application provided that exhibits are included to demonstrate that all six of the following requirements are met:

***1)*** Commercial FM stations must continue to provide a 70 dBu principal community contour over the community of license, as required by §73.315(a). Noncommercial educational FM stations must continue to provide a 60 dBu contour over at least a portion of the community of license. The 60 and 70 dBu contours must be predicted by use of the standard contour prediction method in §73.313(b), (c), and (d) – ***SEE "KGA EXHIBIT 6."***

***2)*** For both commercial FM and noncommercial educational FM stations, the location of the main studio remains within the 70 dBu principal community contour, as required by §73.1125, or otherwise complies with that rule. The 70 dBu contour must be predicted

by use of the standard contour prediction method in §73.313(b), (c), and (d). – ***SEE APPLICATION EXHIBIT 6.***

***3)*** For commercial FM stations only, there is no change in the authorized station class as defined in §73.211 – ***No change in Station Class is proposed. Proposed station will remain Class C3.***

***4)*** For commercial FM stations only, the power decrease is not necessary to achieve compliance with the multiple ownership rule, §73.3555 – ***The 0.1 kW ERP decrease is only to compensate for the 1.7 meter antenna height increase.***

***5)*** Commercial FM stations, noncommercial educational FM stations on Channels 221 through 300, and noncommercial educational FM stations on Channels 200 through 220 which are located in excess of the distances in Table A of §73.525 with respect to a Channel 6 TV station, may not use this rule to decrease the horizontally polarized ERP below the value of the vertically polarized ERP – ***This application does not propose to reduce the horizontally polarized ERP below the vertically polarized ERP.***

***6)*** Noncommercial educational FM stations on Channels 201 through 220 which are within the Table A distance separations of §73.525, or Class D stations on Channel 200, may not use the license modification process to eliminate an authorized horizontally polarized component in favor of vertically polarized-only operation. In addition, noncommercial educational stations operating on Channels 201 through 220, or Class D stations on Channel 200, which employ separate horizontally and vertically polarized antennas mounted at different heights, may not use the license modification process to increase or decrease either the horizontal ERP or vertical ERP without a construction permit – ***This application does not propose to eliminate the horizontally polarized component and does not propose to operate with a system that has separate horizontal and vertical antennas mounted at different heights. Also, this station does not operate within the reserved FM band (201-220).***

## Environmental Impact

The proposed WGPB-FM Channel 249 Class C3 facility would have no significant environmental impact as defined in §1.1307 of the FCC Rules. The FM transmitter, transmission line and antenna system will produce a maximum ERP of 4.2 kW in the horizontal component and 4.2 kW in the vertical component. It was determined that the maximum lobe of radiation from the base of the tower would occur at approximately 139.1 feet from the base of the tower (200.2-foot radial distance from the antenna center). At approximately 139.1 feet from the base of the tower, the depression angle of the main lobe would be approximately 46.0° below the horizontal. At that point, the relative field is 0.705 and the power density six feet above the ground would be approximately 0.03747 mW/cm². This would only be 3.75% of the Maximum Permissible Exposure (MPE) limits for Occupational/Controlled Exposure and only 18.74% of the MPE limits for General Population/Uncontrolled Exposure authorized by the American National Standards Institute (ANSI). Since the operation of the proposed WGPB-FM Channel 249 facility will exceed 5.0% of the MPE limit for Occupational/Controlled Exposure and General Population/Uncontrolled Exposure at various points on the ground, WGPB-FM will be considered a "contributor" to the RF exposure environment pursuant to OET Bulletin 65, Edition 97-01. Therefore, all broadcast antennas on the WGPB-FM tower must be analyzed and a composite study must be prepared to demonstrate that the total power density of all broadcast antennas mounted on the tower would not exceed 100% of the MPE allowable.

Since the only broadcast antenna mounted on the WGPB-FM support structure is the WGPB-FM antenna, the composite power density on the support structure is equal to the power density produced by the WGPB-FM facility. Therefore, the total RF energy emanating from the single antenna mounted on the WGPB-FM support structure will be 3.75% of the MPE limits for Occupational/Controlled Exposure and 18.74% of the MPE limits for General Population/Uncontrolled Exposure. Accordingly, the total exposure, which is generated by the WGPB-FM facility alone, will result in exposure levels well below the allowable exposure

threshold authorized by the ANSI and the FCC. It is safe to conclude that the emissions will be insignificant and well within the maximum allowable requirements.

If other antennas are placed on the tower in the future, the licensee will cooperate with those users by reducing or completely terminating the power to the antenna when maintenance workers are in danger from the electromagnetic radiation emanating from the antenna. It is also understood that additional antennas on the support structure could increase the overall RF exposure levels and it is the responsibility of each licensee to ensure that the total RF exposure resulting from the operation of all antennas on the support structure do not exceed the maximum permissible exposure level at any point on the ground.

## Certification

This technical statement was prepared by William T. Godfrey, Jr., Telecommunications Technical Consultant with Kessler and Gehman Associates, Inc. having offices in Gainesville, Florida and has been working in the field of radio and television broadcast consulting since 1998. He graduated from the University of North Florida with a Bachelor of Arts degree in Criminal Justice and a minor in Mathematics in 1993. As a Professional in the field of Telecommunications he states under penalty of perjury that the information contained in this report is true and correct to the best of his knowledge and belief.

KESSLER AND GEHMAN ASSOCIATES, INC.

WILLIAM T. GODFREY, JR.
Telecommunications Technical Consultant 3 April, 2008

# WGPB-FM CHANNEL 249 CLASS C3

*ROME, GEORGIA*

## ENGINEERING SPECIFICATIONS

***A.*** ***Transmitter Site:***

Geographic coordinates (NAD27): **North Latitude** **34° 14' 05"**
**West Longitude** **85° 13' 48"**

Location: **6.5 km ENE (67.6°) of Rome, GA**

***B.*** ***Licensee:***

Mailing Address **260 14th Street N.W. Atlanta, Georgia 30318**

***C.*** ***Proposed Facility:***

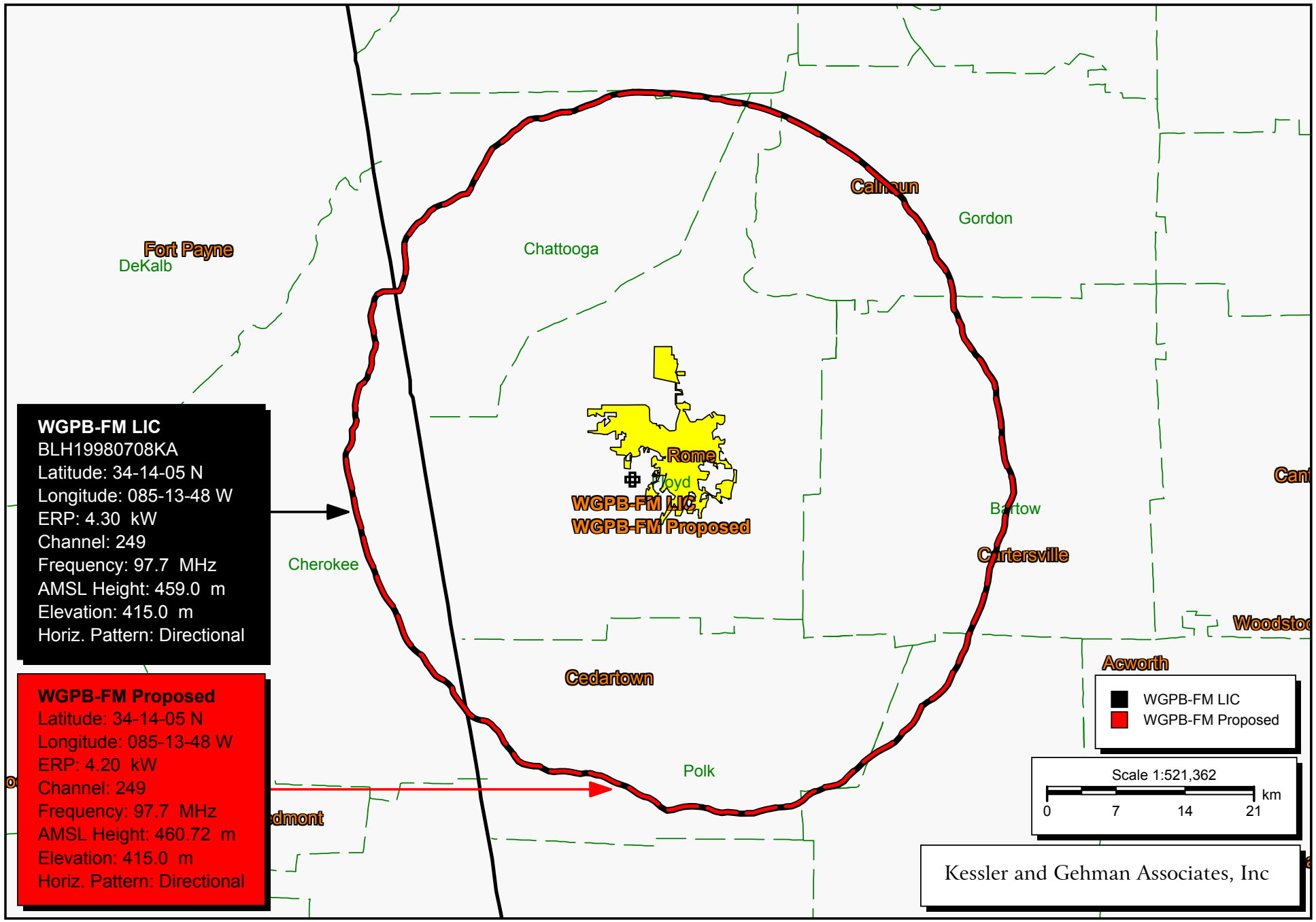
FM Channel Number: **249**
Frequency: **97.7 MHz**
Class: **C3**

***D.*** ***Antenna Height:***

Height of Site Above Mean Sea Level (AMSL): **415.0 M**
Overall Height of Structure Above Ground: **48.8 M**
(including all appurtenances)
Overall Height of Structure Above Mean Sea Level: **463.8 M**
(including all appurtenances)
Height of Site Above Average Terrain: **194.1 M**
Antenna Height Radiation Center (R/C) Above Ground: **45.7 M**
Antenna Height R/C Above Mean Sea Level: **460.7 M**
Antenna Height R/C Above Average Terrain: **239.8 M**
Average of All Non-Odd Radials: **220.9 M**

***E.*** ***System Parameters – Circular Polarization:***

Transmitter Power Required: **5.9 kW**
Maximum Power Input to Antenna: **5.4 kW**
Transmission Line Loss: **0.35 dB**
Transmission Line Efficiency: **92.3%**
Peak Antenna Gain: **-1.09 dB**
Maximum Effective Radiated Power (V-POL): **6.23 dBk**
In Beam Maximum (V-POL): **4.2 kW**
Maximum Effective Radiated Power (H-POL): **6.23 dBk**
In Beam Maximum (H-POL): **4.2 kW**




WGPB-FM (Licensed) F(50,50) 1 mV/m Contour (black) vs. WGPB-FM (Proposed) F(50,50) 1 mV/m Contour (dashed red) EXHIBIT 2

Call Letters: WGPB-FM LIC
File Number: BLH19980708KA
Latitude: 34-14-05 N
Longitude: 085-13-48 W
ERP: 4.30 kW
Channel: 249
Frequency: 97.7 MHz
AMSL Height: 459.0 m
Elevation: 415.0 m
Horiz. Antenna Pattern: Directional

Type of contour:  FCC
Location Variability: 50.0 %
Time Variability: 50.0 %
# of Radials Calculated: 360
Field Strength: 60.00 dBuV/m

Primary Terrain: 3 Second US Terrain

| Bearing (deg) | Distance (km) | HAAT (m) |
|---|---|---|
| 0.0 | 39.3 | 244.9 |
| 10.0 | 39.5 | 250.6 |
| 20.0 | 40.0 | 263.3 |
| 30.0 | 39.8 | 266.0 |
| 40.0 | 39.6 | 267.9 |
| 50.0 | 38.9 | 262.0 |
| 60.0 | 37.6 | 243.9 |
| 70.0 | 37.0 | 235.0 |
| 80.0 | 37.9 | 245.3 |
| 90.0 | 38.6 | 257.0 |
| 100.0 | 37.6 | 238.5 |
| 110.0 | 37.7 | 229.4 |
| 120.0 | 38.0 | 227.2 |
| 130.0 | 37.6 | 219.9 |
| 140.0 | 37.1 | 212.1 |
| 150.0 | 36.6 | 208.7 |
| 160.0 | 36.0 | 207.2 |
| 170.0 | 33.7 | 197.7 |
| 180.0 | 31.5 | 192.8 |
| 190.0 | 30.3 | 203.8 |
| 200.0 | 30.9 | 236.8 |
| 210.0 | 28.7 | 229.6 |
| 220.0 | 28.3 | 240.8 |
| 230.0 | 27.9 | 253.2 |
| 240.0 | 27.6 | 253.3 |
| 250.0 | 27.7 | 262.7 |
| 260.0 | 28.0 | 261.8 |
| 270.0 | 28.7 | 264.3 |
| 280.0 | 28.9 | 252.1 |
| 290.0 | 28.9 | 229.9 |
| 300.0 | 30.4 | 225.9 |
| 310.0 | 30.5 | 198.1 |
| 320.0 | 34.0 | 215.3 |
| 330.0 | 33.5 | 189.1 |
| 340.0 | 37.0 | 217.8 |
| 350.0 | 37.9 | 225.3 |

Call Letters: WGPB-FM GPT6
Latitude: 34-14-05 N
Longitude: 085-13-48 W
ERP: 4.20 kW
Channel: 249
Frequency: 97.7 MHz
AMSL Height: 460.72 m
Elevation: 415.0 m
Horiz. Antenna Pattern: Directional

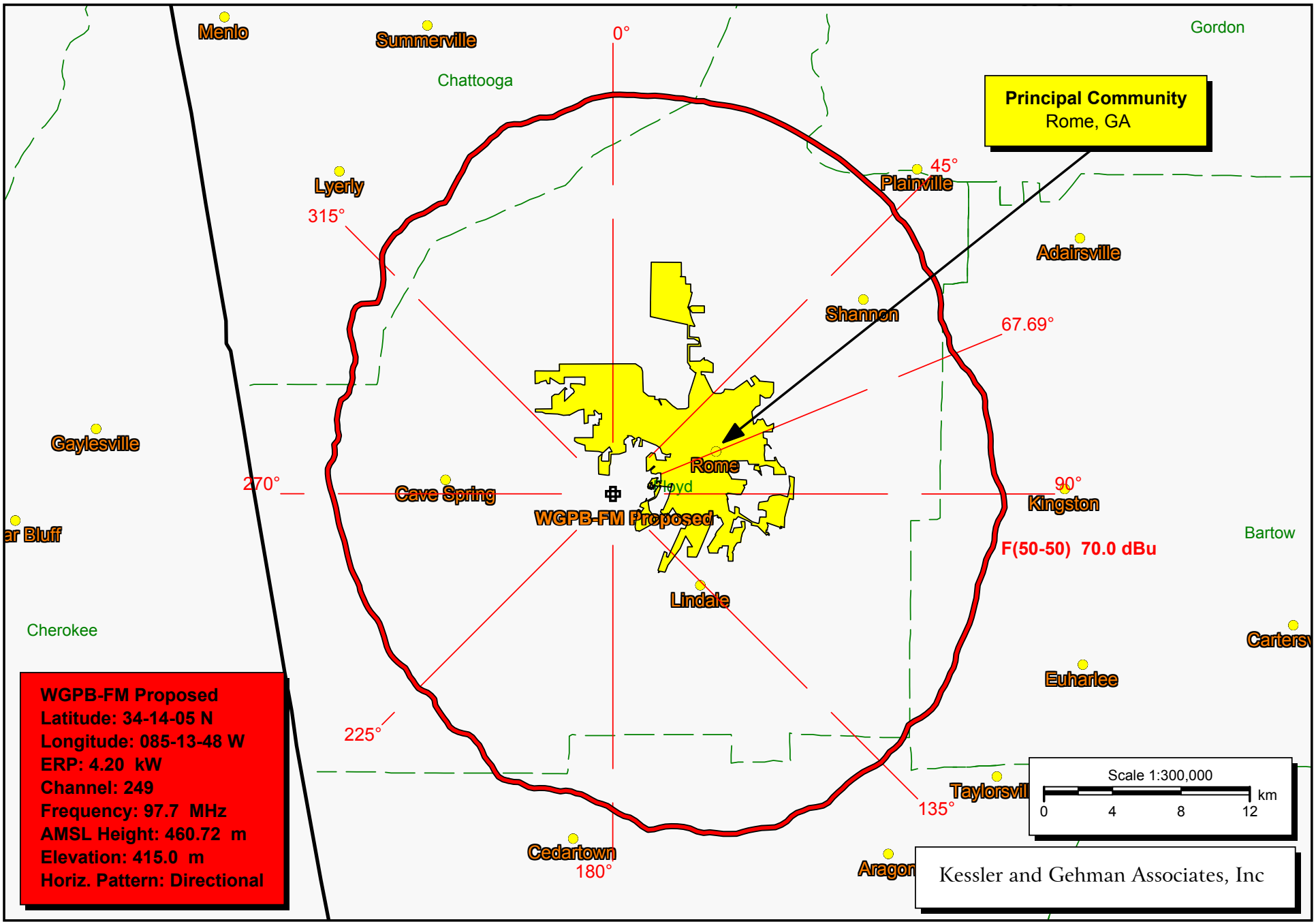
Type of contour:  FCC
Location Variability: 50.0 %
Time Variability: 50.0 %
# of Radials Calculated: 360
Field Strength: 60.00 dBuV/m

Primary Terrain: 3 Second US Terrain

| Bearing (deg) | Distance (km) | HAAT (m) |
|---|---|---|
| 0.0 | 39.2 | 246.6 |
| 10.0 | 39.4 | 252.3 |
| 20.0 | 39.9 | 265.0 |
| 30.0 | 39.7 | 267.7 |
| 40.0 | 39.5 | 269.6 |
| 50.0 | 38.8 | 263.8 |
| 60.0 | 37.5 | 245.6 |
| 70.0 | 37.0 | 236.7 |
| 80.0 | 37.8 | 247.0 |
| 90.0 | 38.5 | 258.7 |
| 100.0 | 37.5 | 240.2 |
| 110.0 | 37.6 | 231.1 |
| 120.0 | 37.9 | 228.9 |
| 130.0 | 37.6 | 221.6 |
| 140.0 | 37.0 | 213.8 |
| 150.0 | 36.6 | 210.4 |
| 160.0 | 36.0 | 209.0 |
| 170.0 | 33.6 | 199.4 |
| 180.0 | 31.5 | 194.5 |
| 190.0 | 30.3 | 205.5 |
| 200.0 | 30.8 | 238.6 |
| 210.0 | 28.6 | 231.3 |
| 220.0 | 28.2 | 242.5 |
| 230.0 | 27.8 | 255.0 |
| 240.0 | 27.5 | 255.0 |
| 250.0 | 27.7 | 264.4 |
| 260.0 | 27.9 | 263.5 |
| 270.0 | 28.6 | 266.0 |
| 280.0 | 28.8 | 253.8 |
| 290.0 | 28.9 | 231.6 |
| 300.0 | 30.3 | 227.6 |
| 310.0 | 30.5 | 199.9 |
| 320.0 | 33.9 | 217.0 |
| 330.0 | 33.5 | 190.8 |
| 340.0 | 36.9 | 219.5 |
| 350.0 | 37.8 | 227.1 |

*WGPB-FM (LIC) and WGPB-FM (Proposed) Distance to Contour Comparison Chart*

| Radial | WGPB-FM (LIC) distance to contours (km) | WGPB-FM (APP) distance to contours (km) | PASS OR FAIL | Difference |
|---|---|---|---|---|
| 0 | 39.3 | 39.2 | PASS | 0.1 |
| 10 | 39.5 | 39.4 | PASS | 0.1 |
| 20 | 40.0 | 39.9 | PASS | 0.1 |
| 30 | 39.8 | 39.7 | PASS | 0.1 |
| 40 | 39.6 | 39.5 | PASS | 0.1 |
| 50 | 38.9 | 38.8 | PASS | 0.1 |
| 60 | 37.6 | 37.5 | PASS | 0.1 |
| 70 | 37.0 | 37.0 | PASS | 0.0 |
| 80 | 37.9 | 37.8 | PASS | 0.1 |
| 90 | 38.6 | 38.5 | PASS | 0.1 |
| 100 | 37.6 | 37.5 | PASS | 0.1 |
| 110 | 37.7 | 37.6 | PASS | 0.1 |
| 120 | 38.0 | 37.9 | PASS | 0.1 |
| 130 | 37.6 | 37.6 | PASS | 0.0 |
| 140 | 37.1 | 37.0 | PASS | 0.1 |
| 150 | 36.6 | 36.6 | PASS | 0.0 |
| 160 | 36.0 | 36.0 | PASS | 0.0 |
| 170 | 33.7 | 33.6 | PASS | 0.1 |
| 180 | 31.5 | 31.5 | PASS | 0.0 |
| 190 | 30.3 | 30.3 | PASS | 0.0 |
| 200 | 30.9 | 30.8 | PASS | 0.1 |
| 210 | 28.7 | 28.6 | PASS | 0.1 |
| 220 | 28.3 | 28.2 | PASS | 0.1 |
| 230 | 27.9 | 27.8 | PASS | 0.1 |
| 240 | 27.6 | 27.5 | PASS | 0.1 |
| 250 | 27.7 | 27.7 | PASS | 0.0 |
| 260 | 28.0 | 27.9 | PASS | 0.1 |
| 270 | 28.7 | 28.6 | PASS | 0.1 |
| 280 | 28.9 | 28.8 | PASS | 0.1 |
| 290 | 28.9 | 28.9 | PASS | 0.0 |
| 300 | 30.4 | 30.3 | PASS | 0.1 |
| 310 | 30.5 | 30.5 | PASS | 0.0 |
| 320 | 34.0 | 33.9 | PASS | 0.1 |
| 330 | 33.5 | 33.5 | PASS | 0.0 |
| 340 | 37.0 | 36.9 | PASS | 0.1 |
| 350 | 37.9 | 37.8 | PASS | 0.1 |




Proposed WGPB-FM Channel 249 F(50,50) 70.0 dBuV/m Principal Community Contour

**EXHIBIT 6**

# TOWAIR Determination Results

## *** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

| DETERMINATION Results | |
|---|---|
| **Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.** | |
| **Your Specifications** | |
| **NAD83 Coordinates** | |
| Latitude | 34-14-05.0 north |
| Longitude | 085-13-48.0 west |
| **Measurements (Meters)** | |
| Overall Structure Height (AGL) | 48.8 |
| Support Structure Height (AGL) | 48.8 |
| Site Elevation (AMSL) | 415.1 |
| **Structure Type** | |
| POLE - Any type of Pole | |

**Tower Construction Notification**
Notify Tribes and Historic Preservation Officers of your plans to build a tower.
Note: Notification does NOT replace Section 106 Consultation.

**EXHIBIT 7**

CLOSE WINDOW