

**Scope of Requested Experimental Service:**

The purpose of requested application is to research the practicality of operating an AM signal on 1710 KHz for a variety of purposes, including:

- A. *Compilation of data for use in future petition for proposed rulemaking for providing a viable, beyond campus radio service for educational institutions that are ineligible for full power or LPFM allocations due to overcrowding of the local spectrum.*
- B. *Compilation of data for use in future petition for proposed rulemaking for providing a dedicated channel receivable on AM broadcast receivers but located outside the broadcast band as a legal alternative in preventing illegal, or “pirate” operators from interfering with nearby local services.*

The application request is being filed under the following corresponding sections of 47 C.F.R 5, specifically:

Section 5.3(a) *“Experimentations in scientific or technical radio research.*

Section 5.3(i) *“Development of radio technique, equipment, operational data or engineering data related to an existing or proposed radio service.”*

While taking no direct participation with the operation of the proposed station, a group of broadcast engineers, high school and university educators along with interested parties from the CampusBroadcaster.net forum community will provide input during the course of the station operational period. An opportunity will also be offered for several local students interested in learning about RF technology to participate in the research and to contribute commentary on how a station may provide benefit their campus and/or curriculum should the eventuality of a proposed service be realized.

The applicant, SBE certified, has been involved in broadcast engineering for more than 38 years having previously served as Director of Engineering for WMMM(AM) / WCFS(AM) in Westport, CT in addition to providing contract engineering services for stations in the Southern Connecticut corridor.

**Equipment Utilization:**

The designated transmitter will be Radio Systems TR-6000 AM transmitter (FCC equipment authorization # B7MTR-6000TIS-WB). The manufacturer of this transmitter had received an equipment waiver for operation at 1710 KHz for TIS station WQFG689 on March 18, 2010 [reference FCC document:

<https://wireless2.fcc.gov/UlsEntry/attachments/attachmentViewRD.jsp?applType=search&fileKey=1688691106&attachmentKey=18531005&attachmentInd=licAttach> ], so the equipment has been previously recognized for satisfactory operation on the requested frequency. Maximum transmitter power output requested is ten (10) watts with usual test operations to utilize a transmitter power output of five (5) watts or lower except when required.

**Supplemental Information**  
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Modulation levels will be monitored and compared using several type-accepted monitors including the Belar AMM-3, Belar AMMA-1 AM “Wizard” as well as an Inovonics 520 modulation monitor. Audio processing will be utilized to maintain compliance with the requested audio bandwidth. While maximum requested bandwidth is 15 KHz, typical operations will consist of audio processed to comply with the NRSC-1 audio standards.

The intentional radiator will consist of a single 15-foot freestanding, ground mounted whip antenna, which will serve to limit the radiated signal due to its less than optimal length for the transmission frequency. Connection between the transmitter and radiator will utilize a Radio Systems CP-15 antenna matching coupler (currently in production) as the primary matching device. Secondary testing will utilize a model TCU-30 antenna-coupling unit manufactured by Low Power Broadcasting, Inc. (a/k/a LPB Inc.), the latter manufacturer having ceased operations. Various ground methods to be tested include a solitary 8-foot ground rod in addition to various buried radial techniques consisting of discrete radials and mesh screening. Antenna cabling will consist of RG-8/U cable and antenna current monitoring will be made using a Delta Electronics TCA-5EXR/TCT-5 RF ammeter.

Overall system performance will be observed and recorded using a Potomac Instruments FIM-41 field intensity meter. Measurements to be made will be recorded not only to ascertain general system performance, but also to measure the performance impact of different ground techniques, signal degradation as a result of man made and naturally occurring obstructions in addition to any impact due to weather and environmental conditions.

**Due Diligence:**

Local monitoring of the requested frequency yielded no receivable signal within a 20-mile radius from the proposed station location. The only licensed co-channel according to the ULS is WQFG689 in Jersey City, NJ (lat/long 40-44-25.2 N, 074-03-27.6 W) with a maximum ERP of ten (10) watts. Line of sight distance from WQFG689 is approximately 65 miles from the proposed station location. ULS indicates this is currently the only active and licensed co-channel allocation.

The closest licensed lower first adjacent channel (1700 KHz) is WEUP in Huntsville, AL, whose 10 KW day/1 KW night signal is approximately 835 miles from the proposed station location. It was also determined through the use of the ULS that there are currently no licensed first upper adjacent frequency stations (1720 KHz) in operation.

The proposed station location is located at 45 feet above sea level and is located in a valley with surrounding terrain of elevations up to and greater than 300 feet. The geographical confines of the test location will further serve to limit any possibility of interference to WQFG689.

The nearest airport is the Waterbury/Oxford airport (lat/long 41° 28' 39.7668N, 73° 8' 28.6764W), which is 8.67 miles away from the proposed station location with an elevation of 646 feet.