

NARRATIVE STATEMENT

Pursuant to Section 5.51 of the Commission's rules, 47 C.F.R. §5.51 (2011), Gray Television Licensee, LLC, ("Gray") respectfully requests an experimental license to facilitate the development of spectrum efficient digital technologies for television broadcast auxiliary remote pickup operations.

In support of this request, the following is shown:

- 1) Applicant's Name, Address, and FCC Registration Number ("FRN"):

Gray Television Licensee, LLC.
4370 Peachtree Road, NE
Atlanta, GA 30319
FCC Registration Number: 0018223693

- 2) **Description of Operation and Purpose of Test:**

The experimental operations will involve tests of a system that will utilized fixed sectorized antennas mounted at high locations to communicate with television mobile units that will use steerable antennas mounted under radomes on mobile units (as contrasted with traditional temporarily fixed antennas on telescoping masts associated with vehicles). The goal is to test the ability of the system under development to function in a "real world" environment. The applicant is the licensee of television broadcast stations including KBTX-TV, Bryan, Texas. Experiments will include support of KBTX-TV's remote broadcasting operations, including remote pick-ups for its newscasts.

Experiments will include objective assessments of the modulation and system architecture (*e.g.*, bit error rate and signal-to-noise ratios, minimum link budget, and fading,) as well as subjective evaluations of audio and video quality. Tests will be conducted while the mobile unit is operating at temporary fixed locations and while it is in motion. Evaluations will also assess the ease-of-use and durability of the steerable antenna design. Additionally, the experimental operation will study how the proposed operations may be phased into the Broadcast Auxiliary Service spectrum without resulting in interference to existing users so that any future proposals for amendment of the Part 74 rules can include recommendations for the phase-in of new techniques such as may emerge from the program of experimentation proposed in this request. If initial

operations are successful in this moderately-sized television market, Gray contemplates seeking authority to evaluate the system under development in a larger market.

- 3) **Dates of Operation:**
February 1, 2013, through February 1, 2015

- 4) **Classes of Stations:**

The proposed operation will utilize both fixed and mobile stations that will operate within a radius of 10 miles (16 km) around the fixed stations.

- 5) **Location(s) of Proposed Fixed Operations:**

(1) Kyle Field (football stadium)
Texas A&M University
300 Joe Routh Blvd.
College Station, TX 77840

30° 36' 34 " N Latitude (NAD83)
96° 20' 29" W Longitude

(2) KBTX Studio Tower
4141 E 29th Street
Bryan, Texas 77802

30° 38' 35 " N Latitude (NAD83)
96° 19 ' 53 " W Longitude

- 7) **Equipment To Be Used:**

The equipment to be used consists of custom-developed transmitters and receivers designed to operate in the 2 GHz broadcast auxiliary spectrum. Radwin is assisting in the development of the antennas and associated equipment. The mobile antennas can be characterized as follows:

Mobile: Primary antenna will be a prototype, steerable grid, mounted atop a vehicle

Antenna Beamwidths: 8/15/30/360 degrees

Gain 19 dBi

Mobile omni directional

Gain 10 dBi

Base station: RADWIN panel antennas will be tested having beamwidths of 120/90/60/30 degrees. Gain will be a max of 19 dBi. At each of the two fixed sites, four antennas will be used in the horizontal plane and four antennas in the vertical plane in order to achieve cross polarization to accommodate the OFDM modulation that is proposed.

8) Frequencies Desired:

The proposed operations would be conducted in Band A as specified in Section 74.602(a) of the FCC Rules. The band spans 1990 – 2485.5 MHz. Although the band is channelized into 17 to 18 MHz wide channels, this application requests authority to operate with emissions that vary in width from 5 to 40 MHz in order to test operations at various data rates and to simulate multiple users accessing the system using time division multiplexing techniques.

9) Power Levels:

Maximum average transmitter output will 25 dBm (317 mW; 0.317 Watts) adjusted so that the EIRP does not exceed 45 dBm (32 Watts) in the horizontal and in the vertical plane for the base stations. For both polarizations, the total will not exceed 48 dBm EIRP (18 dBW or 63.905 watts), substantially less than the maximum permitted 35 dBW mobile and 45 dBW fixed as set forth in Section 74.636 of the FCC Rules. Authority to operate with variations in power down to 5% of the maximum authorized is requested.

10) Type of Emission, Modulation Technique, and Bandwidth Required:

The modulation technique will be a time division multiplexing scheme using OFDM techniques. Emissions of various bandwidths will be tested. These include:

For 5 MHz: 5M00W7W
For 10 MHz: 10M0W7W
For 20 MHz: 20M0W7W
For 40 MHz: 40M0W7W

11) Overall Height of Antenna(s) Above Ground:

- (1) Kyle Field: 60M AGL
- (2) KBTX Tower: 111M AGL

Note: The KBTX tower is FCC registered: ASR No. 1062866.

12) Other Matters:

The proposed operations will be coordinated with other broadcast auxiliary users who utilize the 2 GHz band in the market and with the SBE frequency coordinator. Gray understands that all operations are subject to the conditions that no harmful interference be caused to FCC licensees and that any interference received from lawful operations must be accepted.

13) Contact Information:

Local contact for immediate interference resolution:

Peter Gogas
KBTX-TV
4141 E. 29th Street
Bryan, TX 77802
979.846.7777 x542 (office)
979.575.5464 (mobile)
Email: gogas@kbtv.com

For technical information about the proposed operations:

Jim Ocon
Vice President - Technology
Gray Television, Inc.
3100 North Nevada Ave.
Colorado Springs, CO 80907
Email: James.Ocon@gray.tv

Legal Counsel:

David Hilliard
Joan Stewart
Wiley Rein LLP
1776 K Street, NW
Washington, DC 20006

Direct phone for David Hilliard: 202-719-7058
Direct phone for Joan Stewart: 202-719-7438
Fax: 202-719-7058

dhilliard@wileyrein.com

jstewart@wileyrein.com

In accordance with the FCC's Fee Schedule, an electronic payment for \$60.00 (Fee Type Code "EAE") and a completed FCC Form 159 have been filed in accordance with the FCC's fee filing program. Should you have any questions or need further information regarding this request, please contact Peter Gogas or our FCC counsel David Hilliard.