

June 28, 2018

Marlene H. Dortch, Esq.
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
Attn: Audio Division, Media Bureau

Request for Experimental Authority
WWFD(AM), Frederick, Maryland
FCC Facility ID 47104

Dear Ms. Dortch:

Washington DC FCC License Sub, LLC, the licensee of WWFD(AM), Frederick, Maryland (“WWFD”), by its counsel and pursuant to Section 5.203 of the Commission’s rules, 47 C.F.R. § 5.203, hereby respectfully requests Experimental Authority to conduct testing of all-digital AM transmission technology utilizing the existing antenna facilities of WWFD.¹ Testing of an all-digital technology will permit the licensee to conduct technical experimentation directed toward improvement of the technical phases of operation and service. A testing period of one year is being proposed herein, commencing within 10 days of the grant of experimental authority. Experimental authority is requested commencing on or before July 16, 2018.

The proposed experimental operation is in keeping with the FCC’s previous statement that broadcasters “are encouraged to experiment with an all-digital service, with appropriate authorization.”² In this instance, the purpose of the tests to be undertaken will be multifocal, involving demonstrations of representative equipment, methods and techniques, subjective coverage testing, and assessing the increasing potential for the general public (through HD-Radio systems) to readily receive all digital AM transmissions with commercially-available receivers (e.g., receiving systems already in use by listeners).

¹ Per the guidance of Audio Division staff, this request is being submitted via CDBS as an Engineering STA request.

² See Digital Audio Broadcasting Systems, Second Report and Order, 22 FCC Rcd 10344, 10353 ¶ 22 (2007).

During the testing period, all-digital operation of WWFD is contemplated. However, analog operation of WWFD may be temporarily utilized from time to time. In any event, WWFD's associated FM translator facility, W232DG, Frederick, Maryland, FID 139260 ("W232DG"), will continue providing service to analog listeners during periods of all-digital operations, as further described below.

All-digital testing of WWFD will be of significant value to the broadcast and consumer electronics industries, and is intended to support the feasibility of a possible transition to all-digital AM transmissions.

Testing will be conducted in cooperation and association with the National Association of Broadcaster's PILOT program, Xperi (formerly iBiquity), Kintronic Laboratories, and Cavell, Mertz & Associates, Inc.³ Each of these entities has extensively participated in digital radio experiments and research over the past several years and will be lending their expertise and support to this effort.

Technical Information

WWFD is a Class B station operating on 820 kHz with 4.3 kW (non-directional) during the daytime hours, and 0.43 kW (directional) during nighttime hours. It is proposed to operate WWFD with all-digital operation during both daytime and nighttime hours. The digital mode of operation to be employed is "MA3", as defined in the in-band/on-channel (IBOC) Digital Radio Broadcasting Standard (NRSC-5-D) developed by the National Radio Systems Committee (NRSC). This mode effectively replaces the usual analog modulation components between the carrier and +/- 10 kHz from the carrier, with multiple digital subcarriers. The amplitude of the subcarriers will not exceed the limits specified in FCC Rule Section 73.44 and will be compliant with that Rule Section.

Representatives of Xperi, Kintronic Laboratories, Cavell, Mertz & Associates, Inc. and senior station engineering personnel will confirm proper adjustment of the exciter and associated RF systems to assure optimum all-digital transmission and compliance with the Commission's Rules regarding occupied bandwidth and spurious emissions. The main transmitter to be used for this experiment will be a Broadcast Electronics (BE) AM-6A using a Nautel HD AM exciter. The auxiliary transmitter that may be alternatively employed during these tests will be a Gates Five using a BE ASi-10 HD AM exciter. The digital power level will be equivalent to and not exceed the analog power level by more

³ PILOT is a coalition of innovators, educators and advocates dedicated to advancing broadcast technology and cultivating new media opportunities. PILOT provides a platform for innovation, an engine for incubation, a venue for testing new technologies, and a forum for broadcaster education.

than 5% of the maximum power authorized. Power will be determined by adjusting the transmitters for 4300 watts day, and 430 watts night into a 50 +J0 dummy load. A Hewlett Packard 8391E spectrum analyzer will then be used to measure analog channel power with no modulation with the channel power bandwidth set to 50 KHz. The transmitters will then be switched to MA3 digital mode, and by using the spectrum analyzer, the power on the transmitter will be set to the same value of channel power measured in unmodulated analog mode. Power metering indications will be noted and maintained during normal operation. The transmitters and control systems are configured for unattended operation but can be directly or remotely controlled as required. Senior station engineering staff will be monitoring the station and will have the capability to cease or modify the operation as necessary.

Based on the nine prior all-digital AM experimental tests conducted by NAB, interference to other authorized facilities is not anticipated using the equivalent power levels proposed herein. In the unlikely event instances of interference are reported, necessary curative steps will be immediately taken, including the cessation or modification of operation. Objectionable interference is therefore not expected to other AM band facilities. The nearest FCC Monitoring Station is more than 62 km distant, which at the proposed operational power levels, is beyond the suggested coordination zone of FCC Rule Section 5.85(f)(3). The proposed operation is located outside of (over 90 km from) the Green Bank NRAO Quiet Zone.

The proposed operation will not have an adverse environmental impact in that no new construction or tower modifications will be required for project implementation. RF exposure considerations and exposure mitigation will not differ from those established for the licensed analog operation. As such, there are no adverse environmental consequences that would be triggered through a grant of the proposed experimental authorization.

Technical Contact Information

Contact information for the individual responsible for WWFD's technical operations, and for use in the event of an interference problem, is as follows:

Dave Garner
Director of Engineering
Hubbard Radio, LLC
3400 Idaho Avenue, NW
Washington, DC 20016
Tel: (202) 895-5056
Email: dgarner@wtop.com

Continued Analog Service

WWFD's FM translator facility, W232DG, provides 70 dB μ service over 88% of the population of Frederick, Maryland, and 100% coverage with its 60 dB μ contour. As such, individuals within the community of Frederick who are employing older generation analog-only AM receivers will not be deprived of continued WWFD programming service while this experimental operation is underway. Additionally, two full-service FM stations (WYPF and WFRE) and one other AM station (WFMD) are licensed to Frederick, Maryland. Other area stations also provide coverage into this region. Therefore the community will not be deprived of local service options during this experiment.

Compliance with Section 5.203

The proposed experimental operations comply with Section 5.203. As noted above, the authorized power of the station will not exceed more than 5% above the maximum power specified.⁴ Emissions outside the authorized bandwidth will be attenuated to the degree required.⁵ WWFD requests authority to operate on an all-digital basis 24 hours per day, subject to non-interference to other stations.⁶ Because WWFD's experimental operations will be in lieu of its analog operations, the prohibition of sponsored programs and commercial announcements does not appear to apply;⁷ to the extent necessary, a waiver of Section 5.203(c)(4) is requested because the all-digital operations of WWFD will essentially serve as a replacement of the analog service. Regularly scheduled programming will be transmitted concurrently with the experimental transmissions without any significant impairment of service.⁸ No charges will be made, either directly or indirectly, for WWFD's experimental operations.⁹

Should there be any questions concerning this request, please contact the undersigned, or Garrison Cavell whose contact information is listed in the Engineering STA accompanying this request.

⁴ 47 C.F.R. § 5.203(c)(1).

⁵ *Id.* § 5.203(c)(2).

⁶ *Id.* § 5.203(c)(3).

⁷ *Id.* § 5.203(c)(4).

⁸ *Id.* § 5.203(c)(5).

⁹ *Id.* § 5.203(c)(6).

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Respectfully submitted,

Washington DC FCC License Sub, LLC

/s/ David A. O'Connor
David A. O'Connor
Its Counsel

cc: James Bradshaw, FCC
Son Nguyen, FCC
Garrison Cavell, Cavell, Mertz & Associates, Inc. Consulting Engineers
Dave Garner, Director of Engineering – Hubbard Radio