

Waiver Request

Summary of Proposal

This application is for a service rule waiver pursuant to DA-17-106-A1, released January 21, 2017.

Applicant proposes to use its licensed spectrum for broadcasting a single open and free-to-air stream of video and audio. Remaining bandwidth will be organized as a stimulus/response system capable of connecting any two way digital communications devices located within the service area of the presently licensed facilities. Applicant shall establish two way or one way digital communications to clients needing such services within the present service boundary of the station. Applicant's service shall be provided via one or more base stations communicating with client stations.

Waiver Request: Section 73.624(c)(1) of the Rules and Regulations, 47 C.F.R. Sec. 73.624(c)(1)

Retention of Conventional Free, Over-the-Air TV Channel

In compliance with Section 73.624(b) of the Rules, a free-to-air audio and video stream shall be broadcast over all base stations in compliance with the requirement that we provide at least one broadcast television program stream at no charge to the public.

Measures To Assure Interference-Free Service

The applicant shall establish at least as many monitoring points as there are base station transmitting and receiving sites. Monitoring points shall be equipped to report to licensee's headquarters any potential interference, which shall be deemed to be any radio energy at any frequency in excess of the full service spectrum mask as defined by the Advanced System Television Committee.¹ All communications from base station transmitters shall be monitored so as to assure operations are fully contained within the six megahertz TV channel. It is contemplated a 500 Khz guard band will be reserved, so that actual active use shall be 5 MHz of spectrum. Monitor points shall be calibrated and set to analyze spectrum in 500 Khz units. From the center of channel at greater than + and -3 MHZ signal levels shall be less than expected from a mask compliant main transmitter.

Applicant proposes to adopt, for purposes of remediation, the interference policy set forth for operating Low Power FM Stations, Section 73.809(d) and (e) of the Rules and Regulations:

(d) It shall be the responsibility of the licensee of an LPFM station to correct any condition of interference that results from the radiation of radio frequency energy outside its assigned channel. Upon notice by the FCC to the station licensee or operator that such interference is caused by spurious emissions of the station, operation of the station shall be immediately suspended and not resumed until the interference has been eliminated. However, short test transmissions may

¹ See Figure 5.1, FCC DTV emission mask Figure 5.1, FCC DTV emission mask, Transmission Measurement and Compliance for Digital Television, 26 May 2008

be made during the period of suspended operation to check the efficacy of remedial measures.

(e) In each instance where suspension of operation is required, the licensee shall submit a full report to the FCC in Washington, DC, after operation is resumed, containing details of the nature of the interference, the source of the interfering signals, and the remedial steps taken to eliminate the interference.

Detailed Description of Proposal

The Commission has recognized the need for additional spectrum for digital point to point and multipoint communications in its various TV White Space (WS) proceedings. Unused digital TV, cellular guard band space, channel 37, and some other spectrum has been made available for white space links. White space devices hold a promise of delivering high speed internet to rural areas presently not adequately served. However, WS services have serious barriers that must be overcome, not the least of which is greatly reduced available spectrum after repacking. According to the Wikipedia on WS, there are only six manufacturers of WS link radios.² We propose to unleash WS like capacity within our service area.

So as to prevent interference to licensed services transmitter power output of WS links are quite limited, none more than one Watt. Here, we propose to allow, where limited spectrum is available, and limited transmitter power renders a link infeasible, that anyone seeking a link within our service area will have the option to operate at higher power subject to the operation not interfering with any other licensed service.

This approach proposes providing two way digital links within spectrum now occupied by KGMC. A large portion of the service area of the station is rural, not well serviced by existing digital communications operations. Waiver is justified and, given lack of available digital connectivity, we expect there will be demand. Software defined radio is now routine. As software can be changed at will, or for the purposes of one communications need, this application might be one the first to test the waters of software defined radio technology utilizing licensed spectrum. Possible uses might be to provide high speed internet to homes; feed subscription television to set top boxes capable to receiving and caching pay TV and movies up to 4k quality to persons who live in an area not served with Internet capable of such service; control of appliances in order to smooth utility electricity demand and reduce peak loads; control of water irrigation systems in agricultural portions of the service area; dispatch of delivery vehicles, and supplementary delivery of emergency alerts.

The proposed operation shall fit within the spectrum mask of ATSC 1.0 at the present boundary and within the operational and licensed service contour regardless of what mode of modulation the system uses. The applicant proposes to use software defined transmitters and receivers, and may frequently change digital mode to meet the needs of its communication clients, propagation conditions, and the specifics of each link. Therefore we do not propose specific modulation, channeling schemes, or other details.

² Harmonics, Adaptrum, Carlson Wireless, KTS, [Redline Communications](#), and [Metric Systems Corporation](#).

Specific Request for Waiver

Existing rules provide for broad liberality in the types of services that might be authorized, provided that a single conventional channel of free over-the-air broadcast is offered as well. As stated in Section 73.624(c) of the Rules:

(c) Provided that DTV broadcast stations comply with paragraph (b) of this section, DTV broadcast stations are permitted to offer services of any nature, consistent with the public interest, convenience, and necessity, on an ancillary or supplementary basis. The kinds of services that may be provided include, but are not limited to computer software distribution, data transmissions, teletext, interactive materials, aural messages, paging services, audio signals, subscription video, and any other services that do not derogate DTV broadcast stations' obligations under paragraph (b) of this section. Such services may be provided on a broadcast, point-to-point or point-to-multipoint basis, provided, however, that any video broadcast signal provided at no direct charge to viewers shall not be considered ancillary or supplementary.

Given this express charter for innovative service, provided in the Rules, we believe the only necessary waiver is that of Section 73.624(c)(1), which requires that any such supplementary service be compliant "with the Commission regulations that apply to those services. . . ." ³ To the degree that this provision implicates the full measure of Title II regulation (e.g. 47 U.S.C. Sec. 203, Schedule of Charges); Title VI regulation (e.g. Section 623, Regulation of Rates); or even of Title I regulation (e.g. Sec. 10(b) and (c), Forbearance), it is likely to render innovative services impractical. Waiver is well warranted to enable these ancillary services to get started, in an environment of strict non-interference and free market development. Should it prove necessary to apply a strong regulatory hand in the future, the Commission will have many tools for doing so, not least the public service showing required of the Station at renewal time, which encompasses the ancillary services as part of the entire service record, Section 73.624(c).

Further Information

Licensee stands ready to provide further information with respect to this waiver request, as may be requested by Commission staff.

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3(1) Section 73.624(c)(1) DTV licensees that provide ancillary or supplementary services that are analogous to other services subject to regulation by the Commission must comply with the Commission regulations that apply to those services, provided, however, that no ancillary or supplementary services shall have any rights to carriage under §§ 614 or 615 of the Communications Act of 1934, as amended, or be deemed a multichannel video programming distributor for purposes of section 628 of the Communications Act of 1934, as amended.