

## **REQUEST TO WAIVE FILING DEADLINE FOR CONSTRUCTION PERMIT APPLICATION**

Unimas Sacramento LLC, licensee of Class A television station KEZT-CD, Sacramento, California (the “Station”), Facility ID No. 52891, has determined it is unable to construct the post-Incentive Auction facilities assigned to the Station in the *Closing and Reassignment PN*.<sup>1</sup> Accordingly, the Station hereby requests a waiver of the initial construction permit application deadline for reassigned stations so that the Station may apply for an alternate channel in the first priority window.<sup>2</sup> Grant of this waiver will serve the public interest by allowing the Station to efficiently construct post-Auction facilities while avoiding unnecessary interference.

The Station has been reassigned from channel 23 to channel 14 as a result of the post-Auction repacking process. An analysis conducted by Hatfield & Dawson, the Station’s engineering consultants, determined that the Station would be unable to construct a facility on channel 14 because it would not be possible for the Station to deploy sufficient filtering to protect the operations of a 460 MHz licensee present at the same transmitter site from interference. (For the Commission’s convenience and reference, the results of that analysis have been included with this submission.) Because the Station cannot “construct facilities that meet the technical parameters specified in the *Closing and Reassignment Public Notice* within the permissible contour coverage variance,” the Station qualifies for a waiver of the initial construction permit application deadline.<sup>3</sup>

Moreover, there is good cause for granting the requested waiver.<sup>4</sup> A waiver is appropriate “where the particular facts make strict compliance inconsistent with the public interest” and a deviation from the general rule would relieve hardship or produce a “more effective implementation of overall policy on an individual basis.”<sup>5</sup> In this case, it would not be consistent with the public interest to require the Station to apply for post-Auction facilities that its engineering analysis shows cannot be constructed in compliance with the Commission’s technical parameters, nor would it be in the public interest to cause the incumbent 460 MHz licensee undue interference as a result of the post-Auction repacking.

Accordingly, for the foregoing reasons, the Commission should grant the Station’s request for waiver of the initial construction permit application deadline.

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<sup>1</sup> See *Incentive Auction Closing and Channel Reassignment Public Notice*, Public Notice, DA 17-314, AU Docket No. 14-252 *et al.* (MB & WTB Apr. 13, 2017).

<sup>2</sup> See *id.* ¶ 70.

<sup>3</sup> See *Incentive Auction Task Force and Media Bureau Announce Procedures for the Post-Incentive Auction Broadcast Transition*, Public Notice, 32 FCC Rcd. 858, 865 (¶ 24) (MB 2017).

<sup>4</sup> See *id.* at 865 (¶ 24 n.36) (citing 47 C.F.R. § 1.3).

<sup>5</sup> *Id.* (citing *Ne. Cellular Tel. Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969)).

THOMAS M. ECKELS, PE  
STEPHEN S. LOCKWOOD, PE  
DAVID J. PINION, PE  
ERIK C. SWANSON, PE

THOMAS S. GORTON, PE  
GREGORY J. FORREST, P.E.  
MICHAEL H. MEHIGAN, PE

JAMES B. HATFIELD, PE  
BENJAMIN F. DAWSON III, PE  
CONSULTANTS

HATFIELD & DAWSON  
CONSULTING ELECTRICAL ENGINEERS  
9500 GREENWOOD AVE. N.  
SEATTLE, WASHINGTON 98103

TELEPHONE (206) 783-9151  
FACSIMILE (206) 789-9834  
E-MAIL hatdaw@hatdaw.com

MAURY L. HATFIELD, PE  
(1942-2009)  
PAUL W. LEONARD, PE  
(1925-2011)

**Engineering Statement  
KEZT-CD Sacramento  
Request for Waiver of Initial Construction Permit Filing Deadline  
June 2017**

This Engineering Statement has been prepared on behalf of Unimas Sacramento LLC (“Unimas”), licensee of Class A digital television station KEZT-CD at Sacramento, California. KEZT-CD presently operates on Channel 23. The Commission’s *Channel Reassignment Public Notice* (DA 17-314), released on April 13, 2017, specifies post-auction facilities for KEZT-CD on Channel 14.

Unimas is requesting a waiver of the initial construction permit filing deadline for KEZT-CD. We have determined that KEZT-CD would be unable to construct a facility on Channel 14 owing to incumbent 460 MHz licensed operation at the same transmitter site. Our analysis of this situation finds that it would not be possible for KEZT-CD to deploy sufficient filtering to protect the operations of the incumbent 460 MHz licensee. Unimas is therefore requesting authorization to participate in the first “priority” filing window, in order that KEZT-CD may file for a construction permit on an alternate channel which has been identified.

**Analysis**

The KEZT-CD transmitting antenna is located on a tower at 1811 22<sup>nd</sup> Street in Sacramento, with FCC ASR number 1021057. The site manager has confirmed to Unimas that the following 460 MHz uplink and downlink frequencies are in use on this tower, under a license held by Fisher Wireless Services for a UHF trunked radio system at the site (see WQWW865):

<b>Downlink</b>	<b>Uplink</b>
452.1500 MHz	457.1500 MHz
454.4375 MHz	459.4375 MHz
462.4500 MHz	467.4500 MHz
463.2875 MHz	468.2875 MHz
463.9500 MHz	468.9500 MHz
464.4375 MHz	469.4375 MHz

Of particular concern is the interference which would be caused to Fisher's uplink channels, one of which is only 0.5625 MHz from the lower edge of Channel 14 (470 to 476 MHz). These are the frequencies which are used to receive transmissions from mobile receivers licensed under WQWW865.

Assuming that KEZT-CD were to operate with a full-power DTV emission mask, the attenuation requirement at 0.5625 MHz from the channel edge would be -47.869 dB.<sup>1</sup> The station's assigned power on Channel 14 is 3.62 kW (5.59 dBk or 65.59 dBm). The total channel power within the 6 MHz DTV bandwidth needs to be adjusted to provide the equivalent channel power within the 12.5 kHz channel bandwidth used by the LMR station; the adjustment factor to provide the signal power in a 12.5 kHz bandwidth is  $10 \cdot \text{LOG}(6000/12.5) = 26.8$  dB. Based on this adjustment factor, the assigned DTV ERP and mask attenuation requirement shown herein the worst-case out-of-band transmitter noise generated by the DTV station within the receiver bandwidth at the highest land mobile receive frequency (469.4375 MHz) is:  $(65.59 \text{ dBm} - 26.8 \text{ dB} - 47.869 \text{ dB}) = -9.08 \text{ dBm}$ . This spurious energy would appear at the front end of the LMR receivers as broadband noise.

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<sup>1</sup> KEZT-CD is presently licensed to operate with a "stringent" filter. The difference between the stringent and full-power emissions masks at 0.5625 MHz from the channel edge is only 0.15 dB, with the full-power mask requiring the greater attenuation.

The radiation center for the DTV station is 284 feet above ground level, and the base of the land mobile receive antenna is 223 feet. Assuming that the LMR antenna is 8 feet in height, its radiation center is 227 feet, which yields a vertical separation between the antenna radiation centers of 57 feet. In this circumstance, it is valid to use industry-standard calculations for the attenuation provided by the vertical separation between antennas. These values are approximate because of the coupling which exists between the antenna and tower transmission line. The calculations are based on the use of half-wave dipole antennas. This calculation also provides acceptable results for gain type antennas if (1) the spacing is measured between the physical center of the antennas and if (2) one antenna is mounted directly above the other, with no horizontal offset (exactly collinear). In this case no correction factor is required for the antenna gains of the DTV and LMR antennas.

Using the assumed vertical separation between the antenna radiation centers of 57 feet, as shown above, the calculated isolation between the antennas is approximately 70 dB. This is a “best case” number, and the actual isolation achieved in practice may be less than this calculated value.

Combining the isolation value shown above with the noise power level calculated above provides a calculated noise power at the LMR receive antenna of  $-9.08 \text{ dBm} - 70 \text{ dB} = -79.08 \text{ dBm}$ . The noise floor for a typical UHF land mobile base station operating in 12.5 kHz narrowband analog or digital mode (WQWW865 shows emission designators for both analog and digital operation) is around  $-126 \text{ dBm}$ . This assumes that the receiver is not impacted by other ambient site noise cause by stations other than the DTV system operating at this site, but since there are no other UHF land mobile radio systems licensed at this site it is reasonable to assume that there is essentially no additional site noise at the site and that the UHF land mobile receiver’s performance would not be degraded in the absence of the noise generated by the DTV station.

This calculation shows that the operation of the DTV station on Channel 14 would increase the noise floor at the LMR receiver by more than 46 dB and would render the receiver (and the other receivers in the same system licensed under WQWW865) unusable. Because of the close frequency spacing between the lower edge of the DTV channel and the LMR channels, it is not possible to provide additional filtering of the DTV transmitter to reduce the level of DTV transmitter noise to a level that would not impact the operation of the LMR system.

The other issue with respect to the collocation of the DTV station and the LMR station is receiver desensitization caused by the strong in-band DTV signal at the front end of the LMR receiver. Reducing the DTV signal power at the LMR receiver front end would require a 6 MHz wide band stop filter with significant attenuation at 470 MHz and minimal insertion loss at 469.4375 MHz (a little more than 500 kHz away from the DTV band edge). We have examined several commercially available band stop filters that might be considered for this application, and we have determined that there are no available filters that can meet these requirements, and that a filter with these characteristics is probably not feasible, even as a custom design.

### **Conclusion**

Considering the frequencies in use by the incumbent 460 MHz licensee at the KEZT-CD tower site, our analysis finds that Unimas would be unable to construct the station's post-auction facility on Channel 14, because it would be impossible to satisfy the filtering requirements necessary to protect the 460 MHz operations from interference.

**Statement of Engineer**

This Engineering Statement has been prepared by the undersigned. We are Partners in the firm of Hatfield & Dawson Consulting Engineers, and are registered as a Professional Engineer in the State of Washington. We hereby declare that the facts set out in the foregoing Engineering Statement, except those of which official notice may be taken, are true and correct.

Signed this 9<sup>th</sup> day of June 2017



Erik C. Swanson, P.E.



Thomas M. Eckels, P.E.