

**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554**

In the Matter of:)	
)	
Expanding the Economic and Innovation)	GN Docket No. 12-268
Opportunities of Spectrum Through Incentive)	
Auctions)	
)	
Incentive Auction Task Force and Media)	MB Docket No. 16-306
Bureau Seek Comment on Post-Incentive)	
Auction Transition Scheduling Plan)	

To: The Secretary

COMMENTS

Entravision Holdings, LLC ("Entravision"), the licensee of Digital Television Station KCEC(TV), Denver, CO (FIN: 24515) (the "Station" or "KCEC"), by its attorneys, hereby submits these Comments in support of the recent filing submitted by Ion Media Networks ("Ion") in the above-referenced proceedings.¹ As with three of the Ion stations discussed in ION's Comments, the Commission reassigned KCEC to Channel 14 in the Commission's post-Incentive Auction repack of the broadcast

¹ Ion styled its pleading as Comments on the pending Petition for Reconsideration of the National Association of Broadcasters filed on March 17, 2017 and the pending Petition for Reconsideration filed by the ABC, CBS, Fox, and NBC Network Affiliates Associations filed on September 15, 2014, and as a Petition for Reconsideration of the FCC's commencement of the post-auction repack of the television spectrum, as set forth in *Incentive Auction Closing and Channel Reassignment Public Notice*, Public Notice, GN Docket No. 12-268 et al., 32 FCC Rcd 2786 (MB 2017) ("Repack Commencement PN"). Given the extraordinary burdens facing stations reassigned to Channel 14 and the fact that repack deadlines are already underway, Ion filed its Comments without waiting for the Repack Commencement PN to appear in the Federal Register. Based on the same extraordinary circumstances, Entravision has chosen to file its Comments now rather than according to a traditional pleading cycle.

television spectrum. Like ION, Entravision has conducted an engineering analysis of its Station's proposed Channel 14 operation,² and discovered the full extent of the potential engineering problems which it faced as a result of being a Channel 14 reassignee.

Contrary to the reassurances and commitments made by Congress and the Commission, in the wake of the Incentive Auction, Entravision now finds itself in a lose-lose position: accept inferior facilities, and potentially reduced operations for KCEC on Channel 14 or cease operations altogether upon vacating KCEC's current operating channel. As Entravision and its fellow Channel 14 reassignees can attest, the complex, on-the-ground reality of the television repack has outpaced the Commission's overly-optimistic plans and projections in this instance. In order to make good on its commitments – to prevent disruptions in television service for the viewing public, to protect years of planning, investment, and labor on the part of broadcasters – the Commission must recognize and address Channel 14 repack assignments as exceptional hard cases requiring extraordinary relief measures. Entravision submits that the Commission must either: (i) locate alternative channels for those stations assigned to Channel 14, something broadcasters have been unable to do themselves, or (ii) adopt policy measures and subsidize technical solutions to relieve repacked stations operating on Channel 14 from the regulatory and financial burden of mitigating interference to land mobile ("LM") operations. In support thereof, Entravision states as follows.

With respect to procedure, Entravision submits that the instant Comments, along with those previously filed by Ion, are properly before the Commission under Section

² See Land Mobile Interference Analysis, Television Station KCEC(TV), Denver, Colorado, Channel 14 414 KW (MAX-DA) 244 M (Repack Reassignment), prepared by du Treil, Lundin & Rackley, Inc. ("Engineering Statement"), attached hereto as "Exhibit A."

1.429 of the Commission's Rules.³ First, Entravision and other Channel 14 assignees are in the unenviable position of having new facts for the Commission's consideration in connection with the Commission's repacking plan, as most recently set forth by the Commission in the Repack Commencement PN. The engineering analysis produced by Entravision's consultants offers a detailed technical analysis of the Station's proposed Channel 14 operation based on real-world facts and real-time conditions – substantive information largely missing from the Commission's prior work product. Second, the public interest requires the Commission to take account of the information provided by Entravision and other Channel 14 assignees. The diminished broadcast facilities that may well be necessitated in order to comply with LM interference protection requirements and the resulting decline in television service contravene Congress's intentions in the Spectrum Act.⁴ It is the Commission's duty to consider the unintended consequences of its repacking plan and to help broadcasters with the technical quandaries and operational jams in which the Commission's plan has put them. The instant Comments, as well as Ion's, provide the Commission with the opportunity to do so. In the alternative, Entravision submits these Comments as an informal request for action pursuant to Section 1.41 of the Commission's Rules.⁵

³ See 47 CFR §1.429.

⁴ Congress wished to minimize post-auction disruptions in television service and to prevent the imposition of auction-related costs on broadcasters. See Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, §§6402-6405, 126 Stat. 156 (2012) (the "Spectrum Act") at § 6403(b)(2) (directing Commission to make "all reasonable efforts" to maintain current television service of post-auction broadcasters). As discussed below, the Commission's Channel 14 reassignments, including KCEC's reassignment in Denver, fail on both counts.

⁵ See 47 CFR § 1.41.

As for the gravamen of Entravision's complaint, the Commission is well aware of the difficulties facing broadcast operations on Channel 14. Channel 14 utilizes 470-476 MHz spectrum immediately adjacent to 460-470 MHz band LM operations. Because of interference concerns, under Section 73.623(e), television stations are generally not given Channel 14-20 allotments absent sufficient distances separating digital television operations and LM operations.⁶ The Commission's repack model disfavored Channel 14 assignments for this reason.⁷ Unfortunately, in the course of the actual repack, 32 television stations, including KCEC and three of ION's stations, have found themselves assigned to Channel 14 with no new answers to the old problem of LM interference. As ION argues, "[e]ven where broadcasters can construct the assigned facilities on Channel 14, additional expensive filtering and ongoing coordination with land mobile users is required. There is no basis for imposing these costs on ION or any other broadcaster where a successful Channel 14 build is unlikely by any date, let alone by the FCC's assigned phase deadlines."⁸

Entravision's engineering confirms ION's pessimism. Based on KCEC's transmitter site location on Lookout Mountain, a multi-use broadcast and non-broadcast transmission site outside Denver, Entravision's engineers determined that the Station's Channel 14 operation could result in unresolvable interference to land mobile facilities, even with installation of sharp-tuned filtering on the KCEC facility.⁹ In fact, the issues facing KCEC in Denver look ominously like those faced by Station KTNC-TV in

⁶ See 47 CFR §73.623(e).

⁷ See *Procedures for Competitive Bidding in Auction 1000*, Public Notice, 30 FCC Rcd 9101, 9104 (MB 2015).

⁸ ION at 6.

⁹ See Engineering Statement at 7.

Concord, California. As detailed in the Engineering Statement, eight years of work and \$500,000 in expenditures have failed to mitigate LM interference in KTNC-TV's case. Instead, KTNC-TV has been forced to operate at reduced power indefinitely.¹⁰ As Entravision has previously disclosed to the Commission, factors specific to Lookout Mountain give Entravision even less reason to hope that filtering will prove a viable option for KCEC's Channel 14 operation.¹¹

The Incentive Auction was emphatically not supposed to give to benefits to forward auction winners by taking away from broadcasters, and yet, through its Channel 14 reassignments, the Commission's repack plan potentially does that, especially in markets with a substantial LM presence, such as Denver. In view of these inequitable outcomes, the Commission must find channel options or economic backstops for KCEC, ION's Channel 14 stations and other affected Channel 14 assignees.

In cases where channel reassignments prove impossible, as appears to be the case for KCEC, the Commission must shift the burden of interference remediation from broadcasters to LM operators, for instance, by requiring LM facilities to install additional filtering. Entravision notes that such remediation efforts do not appear, at least on its face, to be reimbursable by the Commission through the TV Broadcaster Relocation Fund (the "Fund") and the Catalog of Reimbursement Expenses,¹² and that the Commission needs to craft a new policy allowing LM operator reimbursements, either directly or

¹⁰ *Id.* at 5.

¹¹ See Letter to Mr. Shaun Maher, Video Division, Media Bureau, Federal Communications Commission from Mr. Barry Friedman, dated May 8, 2017, at 2 (discussing the unsuitability of the current transmitter building at Lookout Mountain for a bandpass filter and local opposition to expansion or construction of new facilities).

¹² See *Incentive Auction Task Force and Media Bureau Finalize Catalog of Reimbursement Expenses*, Public Notice, 32 FCC Rcd 1199 (IATF and MB 2017).

indirectly through broadcasters, in Channel 14 cases. As for Channel 14 broadcast licensees, Entravision submits that they should be required only to alert local LM stations of potential interference issues and to work in good faith with LM engineering advisers to aid LM operators' mitigation efforts. But, the Channel 14 reassignees cannot be placed in the same position found by Station KTNC-TV, where LM remediation prevents operation under full licensed operating parameters.

In sum, the Commission must address the inequities and policy failures created by its repacking plan by providing Channel 14 reassignees with suitable channel alternatives or adopting policy measures and subsidizing technical solutions to Channel 14 licensees to remove from them the time and expense of resolving land mobile interference issues and disputes

WHEREFORE, for the foregoing reasons, Entravision Holdings, LLC respectfully requests that the Commission reconsider the Channel 14 assignments in its repacking plan and adopt the relief proposed above.

Respectfully submitted,

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EXHIBIT A

INITIAL REPORT ON
LAND MOBILE INTERFERENCE ANALYSIS
TELEVISION STATION KCEC(TV)
DENVER, COLORADO
CHANNEL 14 414 KW (MAX-DA) 244 M
(REPACK REASSIGNMENT)

This report was prepared on behalf of television station KCEC(TV), Denver, Colorado, in regard to its given FCC Incentive Auction Repack Assignment on Channel 14. KCEC is licensed for operation on Channel 26 and it operates with a maximum directional effective radiated power (ERP) of 549.5 kW with an antenna height above average terrain of 244 m. According to the information provided to the licensee by the FCC, KCEC will be given a repack reassignment on Channel 14 with a maximum directional ERP of 414 kW with no other changes to the facility.

Channel 14 is immediately adjacent to the 460-470 MHz land mobile (LM) band. This band employs frequency division duplex with the upper 5 MHz segment being designated for mobile transmitting/base station receive. This statement provides the results of an interference analysis regarding LM facilities, and the LM base stations in particular, that are authorized for operation in the adjacent LM band. The analysis is based on the FCC's master frequency database.

The LM interference analysis results can be employed to determine the sharp-tuned filter requirements necessary to provide the required protection to LM services in the 460-470 MHz band.

In addition, this report provides the results of an initial receiver desensitization analysis with respect to a selected nearby land mobile system of concern. Comments on this and other potential issues are provided herein.

Protection of Land Mobile Facilities

An analysis was conducted of all LM facilities in the 460-470 MHz LM band that could be affected by the proposed Channel 14 facility. All LM facilities within 100 km of the transmitter site and in the band segment from 465-470 MHz were examined. This analysis encompassed over 3,700 LM records. The attached tabulation is a summary of the interference analysis.

A sample calculation of the interference analysis with respect to LM facility WPPC331 on 469.4375 MHz is summarized below:

Parameter	Value
Frequency	469.4375 MHz
Ch. 14 Average EIRP (ERPdipole=414 kW)	+88.3 dBm
DTV mask filter requirement at frequency [73.622(h)]	47.9 dB
Filter attenuation*	0.0 dB
Transmitting antenna discrimination†	0.0 dB
DTV coupling into LM (30 kHz assumed LM bandwidth)‡	12.2 dB
Cross-polarization discrimination§	20.0 dB
Free-space path loss to receive antenna at frequency (0.056 km)**	60.9 dB
LM antenna gain	11 dBi
LM line loss	2.0 dB
Received DTV interference power	-43.7 dBm

* No additional filtering above standard FCC mask assumed for this initial study.

† The conservative assumptions of a non-directional azimuthal pattern and no elevation pattern discrimination were assumed for initial study purposes.

‡ This figure is conservative since most LM facilities in this band will operate with a 12.5 kHz bandwidth.

§ The Channel 14 facility is assumed to operate with horizontal-only polarization.

** Based on license information, the WPPC331 antenna is located only 56 meters away from the KCEC transmitting antenna and it would be at nearly the same elevation above mean sea level.

Parameter	Value
Equivalent field strength per Section 73.687(e)(4)(ii)	86.9 dBuV/m
FCC interference criteria per Section 73.687(e)(4)(ii)	17 dBuV/m
Margin to interference per Section 73.687(e)(4)(ii) ^{††}	-79.9 dB
Analysis result ^{††}	Additional filtering required.

This analysis is based on the 17 dBuV/m interference field strength criteria outlined in Section 73.687(e)(4)(ii) of the FCC Rules. As indicated above, the margin to interference relative to the 17 dBuV/m criteria is -79.9 dB. Therefore, the Channel-14 facility would require additional filtering of at least 79.9 dB below the normal FCC mask filter to meet the FCC's 17-dBuV/m required field strength protection requirement. See tabulated results for all of the LM facilities within the given search distance. Also attached is graph showing the calculated protection requirements with reference to the normal FCC emission mask requirement for full-service DTV stations.

This study assumes that the proposed transmitting antenna for the Channel 14 television station is horizontally-polarized-only. A horizontally-polarized-only transmitting antenna is needed to provide the highest level of isolation possible with respect to the adjacent land mobile facilities.

Land Mobile Receiver Desensitization Potential

With respect to the potential for LM receiver desensitization and intermodulation interference, a general analysis was prepared considering the closest LM facility to the KCEC transmitter site, which is WPPC331, located at distance of approximately 56 m west-northwest from the KCEC antenna tower site. The

^{††} This includes an additional 10 dB safety margin.

^{††} This result indicates that at least 27.6 dB of additional suppression beyond the required 47.0 dB mask limit is necessary at 469.8 MHz to ensure protection of the WPLR609 base station receiver.

desensitization analysis with respect to WPPC331 is summarized as follows:

Parameter	Value
Frequency	470 MHz
Ch. 14 Average EIRP (ERPdipole=414 kW)	+88.3 dBm
Transmitting antenna elevation pattern discrimination	0.0 dB
DTV coupling into LM (12.5 kHz LM bandwidth)	-26.3 dB
Cross-polarization discrimination	20.0 dB
Free-space path loss to receive antenna at frequency	60.8 dB
Receiving antenna elevation pattern discrimination	0.0 dB
LM antenna gain	+11.0 dBi
LM line loss	2.0 dB
LM receiver out of band rejection	80.0 dB
Received DTV interference power	-89.8 dBm
Estimated LM receiver noise floor	-116 dBm
Margin to desensitization/intermodulation interference	-26.2 dB
Analysis result	Interference Potential

Based on the above, LM receiver desensitization or intermodulation interference is predicted based on typical system parameters. The potential for these effects diminish rapidly with distance. It appears that all licenses within approximately 1,500 meters could be subject to receiver desensitization or intermodulation effects based on typical parameters. Copies of all potentially affected LM licenses within 1,500 meters are included herein.

It may be necessary to work with each individual licensee to determine the type of equipment in use at the affected locations. In addition, it may be necessary to install additional filtering on the land mobile facility side to meet protection requirements. It is not possible to predict the requirements reliably without very detailed

information about each license. An even then, a case-by-case evaluation may be necessary after the KCEC Channel 14 installation is completed.

Potential for Unresolvable Interference to Land Mobile

There is at least one known and ongoing case of unresolved interference into LM facilities from a Channel 14 digital television facility. This is a case involving Channel-14 station, KTNC-TV, Concord, California. See attached database information sheet on the KTNC-TV, for its long pending Application for License.

In that case, KTNC-TV installed a sharp-tuned filter on its transmission system to protect nearby land mobile facilities operating in the 460-470 MHz band. But despite all efforts, which have continued for at least eight years, the case was never resolved. Due to ongoing interference, it has been necessary for KTNC-TV to operate at reduced power indefinitely.

The latest known status report on the KTNC-TV situation that was filed with the FCC is attached hereto. The details of the various forms of mitigations attempted are explained. It is pointed out that EXTERNAL factors, such as passive intermodulation, appear to be one of the sources of interference to LM facilities. Efforts to eliminate passive intermodulation appear to have been unsuccessful despite expenditures of over \$500,000.00 to mitigate these effects and maximize the protection to LM facilities.

In view of this case, and given that the KCEC transmitter site is located on Lookout Mountain, which the location of numerous broadcast and non-broadcast transmission facilities, it is possible that the KCEC case could be similar to the KTNC-TV case; and could result in unresolvable interference to land mobile facilities.

Former Channel 14 Operation in Denver, CO Market

A review of the FCC's historical records indicates that there was formerly an analog Channel 14 full-service television station located in the Denver market. This station was KTFD-TV, Boulder, Colorado. An FCC engineering database summary sheet of the former KTFD-TV analog Channel 14 facility is attached hereto.

Also attached hereto is the last Application for License by KTFD-TV that addressed the adjacent land mobile issue. Therein it was stated that the facility employed a 13-stage constant impedance waveguide bandpass filter followed by waveguide cavity notch filters to achieve protection of LM facilities.

The KTFD-TV case is distinguished from the instant KCEC case due to the fact that the KTFD-TV Channel-14 transmitter site was located approximately 7 km south of Lookout Mountain. A study of all LM records, including expired LM records, in the near vicinity of the former KTFD-TV Channel 14 location indicates that the closest LM facilities from the KTFD-TV facility were no closer than 2.8 km from the KTFD-TV transmitter site. Therefore, there was much less potential for LM receiver desensitization and greater potential for interference resolution with sharp-tuned filtering on the KTFD-TV facility. But even so, a very high-suppression 13-stage bandpass filter with notches was needed to meet the LM protection requirements.

Conclusion

Based on the foregoing, the sharp-tuned filter requirements for protection of LM facilities from the proposed KCEC Channel 14 reassignment facility were determined.

It was determined that there is the potential for LM receiver desensitization and intermodulation effects from the KCEC facility for LM facilities

located within approximately 1.5 km of the KCEC transmitter site. Just filtering on the KCEC transmitting facility will NOT solve the LM receiver desensitization issue. Additional filtering may be necessary on LM facilities at UNKNOWN expense and effort.

A review of the ongoing KTNC-TV case in the San Francisco, California market provides evidence that the LM interference from the KCEC facility on Channel-14 could be unresolvable. This is due to the fact that Lookout Mountain is a multi-use broadcast and non-broadcast transmitter site with LM facilities in very close proximity to the KCEC transmitter site.

Installation of sharp-tuned filtering on the KCEC facility is not a guarantee of resolution of LM interference issues. As described in the KTNC-TV case status report, unresolvable external effects can cause interference to LM despite all efforts to meet protection requirements.



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