Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Section 73.622(i),	)	MB Docket No. 21-9
Post-Transition Table of DTV Allotments,	)	RM-11872
Television Broadcast Stations	)	
(Tulsa, Oklahoma)	)	

To: The Commission

OPPOSITION
OF THE
LAND MOBILE COMMUNICATIONS COUNCIL

The Land Mobile Communications Council ("LMCC") hereby submits its opposition to the channel 14 substitution proposed in the above-identified Notice of Proposed Rulemaking ("NPRM").[1] The NPRM was adopted by the Media Bureau ("MB") of the Federal Communications Commission ("FCC" or "Commission") in response to a Petition for Rulemaking ("Petition") filed November 27, 2020 by KTUL Licensee, LLC ("KTUL") requesting the substitution of channel 14 for KTUL's current channel 10 in the DTV Table of Allotments for Tulsa, Oklahoma. The LMCC opposes this substitution as it poses an unacceptably high risk of causing harmful interference to protected land mobile operations as defined in FCC Rule Sections 73.687(e)(4). Prior to acting on the Petition, the Commission should investigate whether alternative UHF channels are viable substitutes for channel 10 in the Tulsa market. If not, and if the FCC grants KTUL authority to test the impact of its proposed l000 kw transmitter on the well over 100 land mobile systems authorized within 40 miles of KTUL's site, and more within its Grade B

[1] *Television Broadcasting Services*, Tulsa, Oklahoma, MB Docket No. 21-9, Notice of Proposed Rulemaking, 86 FR 13684 ("MB Jan. 12, 2021) ("NPRM").

contour, it should require KTUL to have an individual designated as a "stop buzzer" contact and another as a backup with 24/7 responsibility to turn the transmitter off until what the LMCC anticipates will be inevitable instances of reported interference are addressed.

I. Introduction

The LMCC is a non-profit association of organizations representing virtually all users of land mobile radio systems, providers of land mobile services, and manufacturers of land mobile radio equipment. The LMCC acts with the consensus and on behalf of the vast majority of public safety, business, industrial, transportation, and private commercial radio users, as well as a diverse group of land mobile service providers and equipment manufacturers. Membership includes the following organizations:

- American Association of State Highway and Transportation Officials ("AASHTO")
- American Automobile Association ("AAA")
- American Petroleum Institute ("API")
- Association of American Railroads ("AAR")
- Association of Public-Safety Communications Officials-International, Inc. ("APCO")
- Aviation Spectrum Resources, Inc. ("ASRI")
- Enterprise Wireless Alliance ("EWA")
- Forest Industries Telecommunications ("FIT")
- Forestry-Conservation Communications Association ("FCCA")
- Government Wireless Technology & Communications Association ("GWTCA")
- International Association of Fire Chiefs ("IAFC")
- International Municipal Signal Association ("IMSA")
- MRFAC, Inc. ("MRFAC")
- Telecommunications Industry Association ("TIA")
- The Monitoring Association ("TMA")
- Utilities Technology Council ("UTC")
- Wireless Infrastructure Association ("WIA")

These organizations collectively represent at least 140 Public Safety ("PS") and Industrial/Business ("I/B") systems in the Tulsa area whose UHF operations authorized, respectively, under Rule Sections 90.20 and 90.35 would be affected by an immediately adjacent television channel 14 should the Petition be granted. These PS and I/B systems are used by public

safety entities, municipalities, Native American businesses, utilities, religious and educational institutions, transportation providers, and a variety of other business enterprises, all of which provide essential services to this community.

II. KTUL's 1000 kw Transmitter Will Adversely Affect Land Mobile Operations

The FCC and the land mobile community have experience with the interference created by high-power television stations transmitting on spectrum immediately adjacent to land mobile systems whose facilities operate at power levels that are only a very small fraction of a full-power television station transmitter. It is that experience that resulted in adoption of Rule Section 73.687(e)(4), which requires a new TV permittee on channel 14 to eliminate potential interference to land mobile operations caused by out-of-band emissions ("OOBE"), land mobile receiver desensitization, intermodulation, or a combination of these elements before it is granted authority to transmit programming.[2] Recently, there have been multiple instances of interference from low-power channel 14 transmitters to land mobile systems.[3] Most have been addressed by the broadcaster installing antennas with appropriate filtering, but even aggressive filtering has not resolved all situations. More important, as discussed below, filtering may be successful in addressing one type of interference but will have no impact on the receiver desensitization that is expected to result from grant of the Petition. For this reason, the LMCC does not share KTUL's confidence that it will be able to satisfy the FCC's condition for the grant of programming authority.[4]

[2] The rule also applies to channel 69, which is immediately adjacent to 800 MHz spectrum licensed under Rule Section 90.601 *et. seq.*

[3] The LMCC has reported this problem and other interference situations that have arisen from the post-transition DTV Table of Allotments. See Attachment A.

[4] This concern was first brought to the attention of KTUL in a February 19, 2021 letter from Mark E. Crosby, President, Enterprise Wireless Alliance, to Paul A. Cicelski, Esq., counsel to KTUL.

At the outset, the LMCC wishes to make clear that it has no desire to prevent KTUL from improving its service by upgrading from a VHF to UHF channel. If that desire can be addressed by substituting an alternative UHF channel, indeed any UHF channel other than channel 14, the LMCC would fully support grant of that request. Since the conversion to digital technology has eliminated many of the traditional "TV taboos" that required substantial distances between co-channel and even proximate channel allotments, the LMCC encourages the FCC and KTUL to consider whether channels 18, 19, or 20 could be substituted for channel 10 in the Tulsa market.

The Petition justifies KTUL's proposed use of channel 14 based on what it describes as the successful experience of its engineers and its counsel in using the proposed Dielectric antenna in other channel 14 deployments around the country that were accomplished with "minimal interference to land mobile operations."[5] It may be that this antenna is effective at preventing OOBE interference, and that may have been the only type of interference land mobile users in those areas understood to be at issue. Unfortunately, filtering the signal from a 1000 kw television transmitter will not prevent front end overload of land mobile receivers in the area.[6] This will cause the land mobile receiver desensitization that Rule Section 73.687(e)(4) identifies as impermissible interference to land mobile operations. It will affect not only mobiles operating in the area but base stations that receive on frequencies in the 465-470 MHz range. The impact can be an overall reduction of, or holes in, system coverage, an impact that land mobile licensees might not recognize as associated with the introduction of a transmitter operating at power levels that can be 5,000 or even 10,000 times greater than that of the typical land mobile system. The LMCC is unaware of any technical "fix" KTUL could employ to address that type of interference.

[5] Petition at 3.
[6] It is not expected that low-power television stations would have this same impact.

If the FCC grants the Petition and allows KTUL to begin testing, the LMCC will work with land mobile licensees in the area to ensure that they are aware of the types of interference they might experience. Given the impact a 1000 kw station is expected to have, it would be appropriate for the FCC to require designation of a "stop buzzer" contact, as typically is required for experimental authorizations so that interference can be reported 24/7 to an individual with the ability to stop the testing until the matter is addressed.

III. Conclusion

If OOBE were the only possible source of interference to land mobile operations from an immediately adjacent 1000 kw television transmitter, KTUL's use of the Dielectric antenna might satisfactorily address the issue. Unfortunately, filtering its transmitter will not address the receiver desensitization and intermodulation that Rule Section 73.687(e)(4) recognizes as impermissible interference to land mobile systems. The LMCC urges the FCC to determine whether a different UHF channel could be allocated to this market for KTUL's use, a solution that would address the interests of this broadcaster and the many land mobile systems operating in close proximity to its transmitter.

Respectfully submitted,

LAND MOBILE COMMUNICATIONS COUNCIL

Klaus Bender, PE
President
2121 Cooperative Way, Suite 225
Herndon, VA 20171

April 9, 2021

Attachment A

LAND MOBILE COMMUNICATIONS COUNCIL

November 25, 2020

Mr. Thomas Reed
Special Attorney Advisor
Wireless Telecommunications Bureau
Federal Communications Commission
45 L Street, N.E.
Washington, D.C. 20554

Re: DTV Interference Resolution

Dear Mr. Reed:

On behalf of the private land mobile incumbents who are experiencing harmful interference from repacked and new DTV stations, the LMCC appreciated the opportunity to meet on October 22 with FCC personnel representing the various bureaus that have a potential role in resolving these situations. Subsequently, the LMCC organized a "DTV Resolution" Task Force whose participating organizations, at the moment, include:

- American Association of State Highway and Transportation Officials;
- Association of Public-Safety Communications Officials;
- Enterprise Wireless Alliance;
- Government Wireless Technology & Communications Association;
- Forest Industries Telecommunications;
- MRFAC, Inc.;
- Society of Broadcast Engineers; and
- Utilities Telecom Council

These industry associations represent the numerous public safety, critical infrastructure, business enterprises and private carrier incumbent licensees who are experiencing harmful interference from DTV stations, as well as the Society of Broadcast Engineers ("SBE"), which is providing technical assistance. The Task Force convened on November 4 and agreed to pursue the following critical next steps and to seek FCC intervention in those instances that may be resolved simply through FCC rule enforcement.

Interferer Verification – During the October 22 meeting, the FCC noted that a certain number of DTV stations were not recently relocated, and thus not considered "repacked."

The Task Force has updated the attached "Summary of TV Interference into Land Mobile Systems ("Summary")" to specifically identify those DTV stations that were in fact "repacked".[1] If there are other analyses or considerations the Task Force should incorporate in the Summary, please advise so that we may enhance the opportunities to identify collaborative interference solutions.

Channel 14 Adjacent Channel Interference – Interference caused to land mobile incumbent systems operating in the Part 90 460-470 MHz band immediately adjacent to Channel 14 creates the optimum resolution opportunity as the solution is found in FCC Rule Section 73.687(e)(4)(ii). However, not all repacked Channel 14 station operators appear to appreciate their obligation to take steps prior to construction to identify potential interference to land mobile operations, to install filters and take other precautions as necessary to ensure that no interference is caused. To the best of the Task Force's knowledge, in every instance where a Channel 14 TV station has added proper filters, the interference to PLMRS incumbents was resolved, albeit generally after the fact. *We request that the FCC contact the Channel 14 licensees in Northern California (KDTS, KQTA, KMMW, KSAO and KMCE) and remind them of their obligation to take appropriate measures to comply with Section 73.687(e)(4)(ii).*[2] We also suggest that any new Channel 14 licensee, including low-power stations, be reminded of this obligation, preferably by direct communication from the FCC. Please advise if the request for assistance requires a more formal approach on the part of the Task Force, and what additional information may facilitate the FCC's intervention, for example the results of any efforts by incumbent licensees to seek a resolution directly with the interfering Channel 14 station.

Low-Power Interference – There are multiple cases of Low Power and Translator television stations which have been causing interference to T-Band PLMR systems, including Public Safety. The Commission is aware of the long-standing interference being caused by KHSC-LD, Fresno, California to the Los Angeles County Sheriff's Department, as well as non-public safety PLMR systems in the San Francisco area. However, this is not a singular example. In some cases, the TV stations were placed on these channels as part of repacking. In some cases, the TV stations were permitted on these channels due to inadvertent errors. For example, in the case of KHSC-LD, Channel 16 was available

[1] KHCE, Channel 16 in San Antonio, was identified because it has caused intermittent "atmospheric" interference to T-Band incumbents in Houston for years. Unlike the interference now being experienced from KBTX and KSHV, this was sufficiently sporadic that the incumbents have tolerated it. WYBN, Channel 14 in Albany, was not repacked but modified its facilities in such a way that it caused interference that had not existed previously. The low-power Channel 14 stations in Northern California are new.

[2] Station WYBN in Albany, New York, after a substantial effort on the part of the affected land mobile licensee, vacated its use of Channel 14 thus eliminating the harmful interference after a thirteen-month effort. This instance was particularly frustrating given that WYBN was a low-power station that, in accordance with FCC Rule Section 74.703(e), operated on a secondary basis to existing land mobile uses and had an obligation to correct the interference or cease operations.

because the prior TV station needed to move as it was causing interference to the Los Angeles County Sheriff's Department.[3] Thus, by permitting the KHSC-LD relocation, the interference reoccurred. Similarly, the Commission permitted the assignment of TV Channel 15 to Tijuana, Mexico and Bakersfield, California without consideration of the transmitter sites which Los Angeles County had previously licensed.

The Commission's Rules and Policies with regard to such TV stations are clear; they are secondary to land mobile operations. In these cases, the Commission must take swift action. However, documented interference has continued for over a year in more than one case.

Co-Channel Interference – The Task Force understands that the more difficult cases to resolve are those involving interference to T-Band systems from full-power DTV stations operating on a co-channel basis. Incidences of this form of interference have been identified by the Task Force in Dallas, Houston, Los Angeles, San Francisco, New York, Chicago, and Miami.

We appreciate that it may be difficult for the FCC to implement its long-standing policy that the last licensee in is responsible for resolving interference caused by their operations, the channels having been assigned by the FCC in accordance with the mileage separations in FCC Rule Section 73.623(e). We also understand that the DTV broadcast stations are not interested in either modifying their systems to mitigate instances of co-channel interference or funding incumbent system modifications that would address the problem if replacement channels were available.

Task Force Recommendations - Nevertheless, a failure to enforce the "last-in" policy in these cases could have repercussions for communications policy far beyond DTV interference to PLMRS. Without prejudice to our position in this respect, but in deference to the Commission's request that the Task Force provide alternative suggestions, the Task Force offers the following approaches that individually or collectively may provide meaningful solutions.

- Repacking DTV Stations - Auction 1000 was conducted pursuant to Title VI of the Middle Class Tax Relief and Job Creation Act of 2012 (Spectrum Act)[4] and required the "repacking" or reorganizing of broadcast television bands. The Spectrum Act requires "all reasonable efforts to preserve [as of the date of the enactment of this

[3] Digital Television Broadcast Stations (Fresno, California), 19 FCC Rcd, 21891 (Chief, Video Division), released November 5, 2004.

[4] Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, §§ 6402 (codified at 47 U.S.C. § 309(j)(8)(G)), 6403 (codified at 47 U.S.C. § 1452), 126 Stat. 156 (2012) (the Spectrum Act).

Act] the coverage area and population served of each broadcast television licensee, as determined using the methodology described in OET Bulletin 69."[5]

In addition to the data required to carry out the statutory preservation mandate of the Spectrum Act [§ 6403(b)(2)], FCC Rule Section 73.623(e) requires broadcast channel assignments to protect T-Band incumbents. Unfortunately, despite the Commission's best efforts, co-channel land mobile radio interference has occurred in a number of repack situations. The assignment of a repack channel that is compromised by actual interference to incumbent land mobile licensees entitled to protection should be changed by relocating the television station to a different channel. Unless the station sought that channel itself, as a variation from the repack channel assignment, the reassignment should be paid for from the Auction 1000 net revenues.

The Commission accommodated, during the repack process, changes in the channel assignment if a television broadcast station was dissatisfied with its new channel assignment due to terrain losses. While the Spectrum Act precludes more than one repack (and more than one reverse auction), a correction in a repack channel assignment is part of the original process and remediates interference created by the initial assignment.

Allowing further reassignments to eliminate interference, with expenses reimbursed, would be consistent with FCC policy of assigning *comparable replacement facilities* to displaced licensees following a reallocation or auction process across many different radio services. See, e.g. 47 C.F.R. § 90.699(d) (replacement system provided to an incumbent during an involuntary relocation must be at least equivalent to existing 800 MHz system); 47 C.F.R. § 101.89(d) and § 101.91(b) (relocation of FS licensees to comparable facilities by FSS licensees); *Second Report and Order and Second Memorandum Opinion and Order*, ET Docket 95-18, 15 FCC Rcd 12315 (2000); Redesignation of the 17.7-19.7 GHz Frequency Band, *First Order on Reconsideration*, ET Docket 98-172, 16 FCC Rcd 19808 (2001). The Commission's *Emerging Technologies* principles, by which new entrants are obligated to provide incumbents with comparable facilities in order to obtain earlier access to the spectrum was the genesis of the policy.[6]

- DTV Station Modifications – Task Force representatives will, on an individual incident basis, in cooperation with the interfering station, explore DTV station

[5] *Id.*, §§ 6403(b)(1)(B), (b)(2).

[6] *See,* Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems, ET Docket No. 00-258, *Memorandum Opinion and Order and Further Notice of Proposed Rule Making, 16 FCC Rcd 16043 at 16061, ¶ 40. (2001).*

technical system reconfigurations that may mitigate the co-channel interference to incumbent PLMRS operations. We are aware that the likelihood of a technical solution is remote given the disparate power levels, capital necessary to fund system modifications, and potentially the lack of interest by the DTV stations to consider solutions other than a channel reassignment if an alternative channel is available. However, as an integral part of this approach, we ask that the Commission consider issuing a formal letter of inquiry to the TV licensee seeking data and documents relevant to its efforts to resolve the interference.

- Replacement Spectrum – T-Band channels generally are assigned on an exclusive basis and function as control channels that are critical to the operation of advanced digital trunked systems, whether in T-Band-only systems or, commonly, in systems utilizing both T-Band and 460-470 MHz channels. The 460-470 MHz bands are saturated in the areas experiencing co-channel TV interference with most channels operating on a shared basis. Replacing a T-Band channel with a shared 460-470 MHz channel would not provide the same functionality and could not be considered comparable. While 800 MHz channels generally are exclusive, it is unlikely that there are enough in any of the affected markets to replace all T-Band channels receiving interference. Also, it is not possible to add 800 MHz channels to a system that also uses 460-470 MHz or T-Band spectrum. Some affected business enterprises and private carrier operators have added 460-470 MHz shared channels at their own expense to maintain some measure of system reliability out of employee and public safety concerns, and to stem their loss of customers.

  Identifying alternative sources of exclusive channels is a near impossible challenge. As a potential solution that would appear not to jeopardize broadcast operations in any way, the Task Force will be preparing a formal request for the FCC to approve the use of available UHF remote pickup broadcast channels, licensed under FCC Rule Section 74.402 as replacements for Part 90 T-band channels in those urban areas where comparable replacement spectrum is unavailable.

  To be clear, the Task Force does not anticipate the need for affected PLMR incumbents to access, possibly through the waiver process, a substantial number of remote pickup broadcast channels. Their trunked systems typically rely on a few exclusive use channels for control purposes coupled with shared channels. The PLMR incumbents have significant investments in TDMA and FDMA digital technology, which maximizes the efficient use of 12.5 kHz and 25 kHz channel bandwidths, creating multiple voice/data paths. A single remote pickup broadcast channel can effectively provide up to four (4) communication paths, and address many of the more egregious instances of harmful interference.

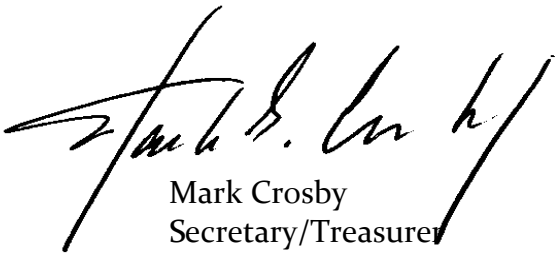
- Must Carry Policies – Current FCC rules require that broadcasters maintain certain operations in order to have their programming carried over local cable systems.[7] Some TV stations maintain their over-the-air operations strictly to retain must carry status. As a potential additional solution, the Task Force will be preparing a formal request for the FCC to permit affected DTV stations to operate at reduced power levels to mitigate co-channel interference to T-Band incumbents (or interference from Channel 14 to adjacent channel 460-470 MHz systems) while maintaining their must carry rights. If the FCC does not wish to consider this solution in these unique circumstances, it would be helpful to know in advance.

The Task Force also strongly recommends that the FCC not assign Channel 14 to any new full-power or low-power television stations. If future assignments are made, they should be conditioned on the installation of filtering sufficient to prevent interference to adjacent PLMR systems prior to any testing and not as an after-the-fact cure.

We look forward to hearing from you in response to these recommendations and would welcome other solutions the FCC may suggest. We are available to meet at the FCC's convenience, please contact the undersigned if you have any questions or comments in the interim.

Sincerely,

Klaus Bender
President



Mark Crosby
Secretary/Treasurer

Attachment

cc: David Furth, PSHSB
Roger Noel, WTB
Ira Keltz, OET
Jeremy Marcus, EB
Robert Weller, NAB

[7] See 47 CFR 76.55.

Summary
TV Interference into Land Mobile Systems
November 25, 2020

Dallas Market
T-Band Interference on Channel 16

Interfering TV Stations	**KBTX-Channel 16 (Repacked): GRAY TELEVISION LICENSEE, Bryan, TX** **KHCE-Channel 16: SAN ANTONIO COMMUNITY EDUCATIONAL TV, INC., San Antonio, TX** **KSHV-Channel 16 (Repacked): WHITE KNIGHT BROADCASTING OF SHREVEPORT LICENSE CORPORATION, Shreveport, LA** **Note - Interference from KBTX masks the interference from KSHV**

Licensee	Self Communications Licensee name: Self Radio Inc
Impacted Call Signs	WQXM642, WIJ389, WPKM616, WQBY576, WPLR982, WIM566, KNS428, WPMC359, WNAS361, WPLR672, WPJR757, WIL556, WPKV404, WPKM623, WPKV412, WPKW417, WPKW426, WPLQ505, KX8389, WPJP712, WPKM290, WPMW912, WPLQ520, WPOV621, WPMW908, WPQD624, WPKK217, WPKM635, WPQE404
Resolution Efforts	• Efforts to secure alternative exclusive use spectrum in the 450-470 MHz band has not resulted in the identification of sufficient capacity to replicate a 50-channel private carrier wireless system that serves over 4,000 customer devices.
Economic Impact	▪ Licensee has invested approximately $200,000 securing new frequencies including system retune upgrades, new combiners, multi-coupler, new antennas, and lines at multiple sites. ▪ This investment does not include lost business revenues due to customers terminating contracts resulting from degraded service attributable to the TV interference.

Licensee	Megahertz Technology Licensee name: Hopper Jr., James T
Impacted Call Signs	WIM446, WIM303, WIM329, WIM446, WQBY580, WRFY813, WPKC839, WQBY580, WQZV347, WQBG879, WQBY576, WRFX998, WPKY902, WPXP470, WPYC727, WRHV227, WQVX225, WIM304, WIM574, WNXQ371, WPKK703, WPSS977, WPTU767, WQCA906, WQMM550, WQTN553, WNSW656, WQDI610, WQUN782, WPKC848, WPMK989, WPPA916, WPVA505, WPVB757, WPXU766, WPYC714, WQBC525, WQBY627, WQBY653, WQUN585, WIM320, WQTN553, WIM556
Resolution Efforts	▪ Efforts to secure alternative exclusive use channels has failed to identify comparable spectrum capacity. ▪ Numerous conversations have been held with FCC Enforcement Bureau representatives, which have included a review of interference measurements from TV Channels 15, 16, and 17. It is believed that addressing the Channel 16 interference would return the situation to an acceptable spectrum environment. ▪ Interference persists severely limiting operations and reducing customer quality of service.
Economic Impact	▪ Interference used to occur 2-3 times per year, now 2-3 times per week over many months, a situation well beyond ducting or other random atmospheric events. ▪ Incumbent has expended $10,000 to date seeking alternative channels. ▪ Business revenue losses due to customers terminating use of the private carrier system substantial. ▪ Finding RF alternatives take significant software changes to 1500 radios and multiple weeks to complete. ▪ Customers use these radios for responding to auto breakdowns, school bus coordination, high voltage electrical repairs and hospital uses. ▪ Biggest threat to safety would be the air ambulance company, which operates throughout the Dallas metroplex with mobile ambulances and helicopters using this RF spectrum.

Licensee	General Motors Licensee name: General Motors Research Corporation
Impacted Call Signs	WQUE874
Resolution Efforts	• Pursuing alternative Part 22 channels to lease. • Current technology is supported through the use of exclusive use channels to operate effectively, otherwise all equipment must be upgraded at affected plant. • Interference is affecting their operations even though the facilities are primarily indoors using low antenna heights.
Economic Impact	▪ Annual spectrum lease costs will be substantial. ▪ Costs were incurred to identify the TV interference. ▪ System transition costs will be substantial. ▪ Costs associated with maintaining plant productivity.

Houston Market
T-Band Interference on Channel 17

Interfering TV Stations	**KNCT-Channel 17(Repacked): GRAY TELEVISION LICENSEE, Belton, TX** **KNVO-Channel 17 (Repacked): ENTRAVISION HOLDINGS, McAllen, TX** **KCRP-LP-Channel 17 Repacked): Corpus Christi, TX**

Licensee	Channel Industries Mutual Aid (CIMA, 101 individual members) Licensee name: CIMA Organization
Impacted Call Signs	WIH777, WIH776, WIH775, WQOK35, WIH854
Resolution Efforts	▪ Currently researching potential for alternative channels. ▪ FCC has advised licensee (1) that the problem is atmospheric and not the responsibility of the TV station, and (2) that the FCC would conduct further investigations. No further responses have been received by the FCC.
Economic Impact	▪ It is estimated that a new system necessary to remove the public safety and environmental risks will cost $1 million for new equipment plus additional investments to purchase necessary spectrum capacity. ▪ The impact is risk based. Among other emergency events, this system was used to mitigate the ITC fire on the Houston Ship Channel and reopen the Ship Channel. Losses can easily run into several millions of dollars a day when the Ship Channel is closed to CIMA members.

Licensee	LyondellBassel Licensee name: Equistar Chemicals, LP
Impacted Call Signs	WPMM820
Resolution Efforts	▪ The LaPorte petrochemical facility loses T-Band radio communications monthly, leaving employees without essential communications capabilities critical to protect employee and public safety. ▪ LyondellBassel Legal team is conducting a risk assessment to determine the scope of the problem and its effect on plant operations. ▪ LyondelBassel is in the process of purchasing exclusive use UHF channels to alleviate the need for a complete shutdown of plant operations due to extreme safety of life concerns caused by the TV interference with no resolution anticipated.
Economic Impact	▪ Has invested $6,000 seeking alternative spectrum. ▪ Moving part of the system to the 450 MHz band is estimated to cost $1.4M utilizing spectrum that is already available to them. ▪ The impact is risk based, not only interrupting operations of the facility but interfering with site-based fire and emergency response personnel. ▪ This issue is impacting the entire Port of Houston area and puts 9% of US economy at risk if this interference continues.

T Band Licensee	Shell Deer Park Licensee name: Shell Chemical Company
Resolution Efforts	▪ FCC advises that both the TV station and the T-Band licensee are operating according to FCC rules, so there are no resolution approaches the FCC may conduct as the interference is environmental. ▪ Licensee plans to coordinate with CIMA to turn off all radios and use TS Reader during next outage to find exact source of interference. ▪ Currently reviewing the costs associated with securing alternative spectrum in order to secure more stable radio operations.
Economic Impact	▪ Shell has incurred costs to attempt to detect the source of interference, and the unpredictable radio system interference has resulted in various operational constraints, which have had a financial impact.

Los Angeles Market
T-Band Interference on Channels 15, 16

Interfering TV Stations	**KHSC-LD-Channel 16: Cocola Broadcasting Companies, LLC** **KDTF-Channel 16: ENTRAVISION HOLDINGS, LLC** **K08MM-Channel 15** **XHTJB-Channel 15: Tijuana, Mexico** **K12PO-Channel 15**

Licensee	County of Los Angeles, California Licensee name: Los Angeles, County of
Resolution Efforts	▪ FCC determined interference into Land Mobile operations at Tejon Peak and TV station KHSC is required to resolve its portion of the interference. ▪ FCC requested continued coordination and testing to find mutual solution to resolve interference to Tejon Peak from KHSC. ▪ KDTF agreed to change antenna and pattern, not yet implemented. ▪ Working with FCC International Bureau to resolve issues related to treaty for interfering Mexico TV station XHTJB. ▪ K12PO agreed to move to Channel 3.
Economic Impact	▪ Legal, engineering, installation costs for Land Mobile licensee to install new antennas to abate interference is currently over $75,000. ▪ Mitigating interference from Tijuana is forcing a system redesign that has cost $1 million.

Chicago Market
T-Band Interference on Channels 14, 15

Interfering TV Stations	**WGBA-Channel 14(Repacked): SCRIPPS BROADCASTING HOLDINGS LLC, Green Bay, WI** **WLAJ-Channel 14(Repacked): WLAJ-TV LLC, Lansing, Michigan**

Licensee	ESP Wireless Technology Group, Inc. Licensee name: ESP Wireless Technology Group, Inc.
Resolution Efforts	▪ Land Mobile operators at the Willis Tower are completely eliminated including B/ILT operators and police communications. ▪ More prevalent interference during hot and humid weather. ▪ TV station is cordial but not cooperative with mitigating interference being caused by their operations.
Economic Impact	▪ Operator is extending financial credits to customers when system is not operational, currently an expense in the thousands of dollars.

Interfering TV Stations	**WICS-Channel 15(Repacked): WICS LICENSEE, LLC, Springfield, IL**

Licensee	City of Chicago, IL Licensee name: City of Chicago OEMC
Impacted Call Signs	WPKY459, WPYZ554, WQEV648, WQEV649, WQEW220, WQOU931
Resolution Efforts	▪ Chicago Fire Department communications system encountering interference almost once a week that can last up to several hours across the full Channel 15 T-Band spectrum. ▪ OEMC notices the noise floor rises to a point that their portables are unable to access the system. ▪ Incidents started earlier in 2020. ▪ Interference most noticeable on the inbound channel operations. ▪ When interference arises, alternate resources are utilized but their performance and reliability is less than ideal.
Economic Impact	▪ OEMC is considering moving the entire Chicago Fire Department T-Band radio operations to mitigate these problems. ▪ Cost estimates to transition from T-Band are substantial.

San Francisco Market
T-Band Interference on Channels 17

Interfering TV Station	**KCVU-Channel 17(Repacked): PARADISE (KCVU-TV) LICENSEE, INC., Paradise, CA**

Licensee	RFC Wireless, Inc. Licensee name: RFC Wireless, Inc.
Impacted Call Signs	WPTF232, WPTF213, WPPZ976, WQOL263, WIM692, WQQH714, WQLF324, WPPZ439, WPUB506, WPQK412
Resolution Efforts	▪ Research has determined that KCVU is causing problems to operations on numerous peaks from its site on Cohasset Peak. ▪ T-Band operations on Mt. Diablo are more seriously impacted. ▪ T-Band licensees have requested the Chief Engineer at the TV station turn off the transmitter so further tests can evaluate the interference.
Economic Impact	▪ Mission critical licensee communications on Mt. Diablo, Black Mountain, Mt. Presson, Monument Ridge, and Mt. Sutro are eliminated due to the interference. ▪ Customers are provided financial allowances to accommodate the loss of radio service. ▪ Building a completely new system to avoid this interference will cost millions of dollars.

Licensee	CRYSTAL SMR INC. Licensee name: CRYSTAL SMR INC.
Resolution Efforts	▪ Research has determined that KCVU is causing problems to operations on numerous peaks from its site on Cohasset Peak. ▪ T-Band operations on Mt. Diablo are experiencing the greatest amount of interference. ▪ T-Band licensees have requested the Chief Engineer at the TV station turn off the transmitter so further tests can evaluate the interference.
Economic Impact	▪ Mission critical licensee communications on Mt. Diablo, Black Mountain, Mt. Presson, Monument Ridge, and Mt. Sutro are eliminated due to the interference. ▪ Building a completely new system to avoid this interference will cost millions of dollars.

Licensee	Fisher Wireless Services, Inc. Licensee name: Fisher Wireless Services, Inc.
Impacted Call Signs	WPRF471, WQEL631
Resolution Efforts	▪ T-Band operations on Mt. Vaca and Allison Peak are experiencing significant amounts of interference. ▪ T-Band licensees have requested the Chief Engineer at the TV station to turn off the transmitter so further tests can evaluate the interference. ▪ KVCU informed licensees they are scheduled to replace the antenna at Cohasset Peak in early December.
Economic Impact	▪ Critical operations at these sites were adversely affected when the TV transmitter was on. Testing after the new antenna is installed will be needed to assess the impact.

Licensee	Metro Mobile Communications Licensee name: CALIFORNIA METRO MOBILE COMMUNICATIONS, INC
Impacted Call Signs	KVW340
Resolution Efforts	▪ Research has determined that KCVU is causing problems to operations on numerous peaks from its site on Cohasset Peak. ▪ Noise floor has been determined using RSSI to be between -95 dBm and -80 dBm. ▪ Licensee has tightened filter system as much as possible and still receives significant interference. ▪ Interference is impacting Public Safety customers on the system. ▪ T-Band licensees have requested the Chief Engineer at the TV station turn off the transmitter so further tests can evaluate the interference.
Economic Impact	▪ Mission critical licensee communications on Mt. Diablo, Black Mountain, Mt. Presson, Monument Ridge, and Mt. Sutro are eliminated due to the interference. ▪ Significant expenditures of technician time and materials to resolve interference without any resolution.

Miami Market
T-Band Interference on Channel 14

Interfering TV Station	**WOPX-TV-Channel 14(Repacked): ION MEDIA ORLANDO LICENSE, INC., Orlando, FL**

Licensee	Sun Talk, LLC, Highland Wireless Services, LLC Licensee name: Sun Talk, LLC, Highland Wireless Services, LLC
Impacted Call Signs	WPSZ313, WPTQ633, WPSF366, WPSI633, WPUX944, WII541, WQAP980, WPTP761, WPSS474
Resolution Efforts	▪ TV station is causing interference to T band licensees in the region. ▪ TV station installed a directional antenna to accommodate and minimize interference to Jacksonville TV station. ▪ TV station has been contacted about interference, stated position is they are operating as authorized. ▪ TV station warned FCC of potential issues and hardships from repacking and are being cordial during phone calls concerning the interference.
Economic Impact	▪ Radio systems in Delray Beach (140 miles from TV station), Ft. Lauderdale, and North Miami, FL are not able to operate when this interference is present (up to 2-3 times per week). ▪ RX noise floor during interference rises up to -90 dBm, customers are complaining about troubles with radios during these interference events.

New York Market
T-Band Interference on Channels 14, 19

Interfering TV Station	**WYPX-TV-Channel 19(Repacked):ION TELEVISION LICENSE, LLC, Amsterdam, NY**

Licensee	Nassau County Police Department
Impacted Call Signs	WQNS771
Resolution Efforts	▪ Interference noticed on core simulcast RF sites channels that operate in the range of the TV Channel 19 broadcast band plan and crippling interference is noticed increasingly more during these events. ▪ There have been incidents where interference has lasted for one full week and public safety users had no communication capabilities. ▪ FCC field agents have been contacted often to investigate this matter, currently there are 30 complaints recently filed about these last interference events. ▪ Radio engineers have very few options when this occurs other than to disable certain sites or allow more interference into receivers to help avoid channels being automatically disabled by the system.
Economic Impact	▪ $12,500 to find source of interference.

Interfering TV Station	**WYBN-LP-Channel 14, Albany, NY**

Licensee	Goosetown Radio
Impacted Call Signs	WQFM363
Resolution Efforts	▪ Interference began when TV station moved the antenna and changed the pattern of their transmission. ▪ The FCC informed Goosetown that they were prepared to send a letter stating Goosetown is operating correctly and are protected from this TV station interference. Goosetown was informed ten months later that WYBN was directed by FCC to reduce power to stop interfering with Goosetown. The interference still has not been mitigated. ▪ TV station is only 78.7 miles away, it is impacting entire Channel 14 T-band system. ▪ The TV station went off the air in December and the interference ceased until operations commenced again. ▪ Investigations show the signal from the Channel 14 station is in the 466-470 window overloading the preamp that feeds Goosetown's 454/459 Part 22 system at the WYBN transmitter site. Goosetown invested $5,500 to partially resolve the local issue due to WYBN's apparent unwillingness to assist.
Economic Impact	▪ $5,500 on retuning a multi-coupler and adding filters to address adjacent channel interference. ▪ $9,000 on tech time plus coordinating with the FCC ▪ $5,000 in legal fees

San Francisco Market
Adjacent Channel 14 Interference

Interfering TV Station	**KMCE-LD-Channel 14: KMCE, INC. (Azteca) (Monterey, CA)**

Licensee	Silke Communications, Inc. Licensee name: Silke Communications, Inc.
Resolution Efforts	▪ KMCE ceased operations to determine if filtering could solve problem.
Economic Impact	▪ Part 90 licensees at Fremont Peak have been unable to operate while KMCE was transmitting.

Interfering TV License	**KQTA-Channel 14: ONE MINISTRIES, INC., San Francisco, CA**

T Band Licensee	CRYSTAL SMR INC. Licensee name: CRYSTAL SMR INC.
Resolution Efforts	▪ KQTA ceased operations to determine if filtering could solve problem.
Economic Impact	▪ Part 90 licensees at Upper Bear Mountain were unable to operate while KQTA was transmitting.

Interfering TV Station	**KQTA-LD-Channel 14: ONE MINISTRIES, INC., San Francisco, CA** **KDTS-LD-Channel 14: Word of God Fellowship, Inc., San Francisco, CA, Sutro Tower** **KMMW-LD-Channel 14; NBC Telemundo License, LLC, Stockton, CA, Upper Bear** **KSAO-LD-Channel 14; TV Cocola Broadcasting Companies, LLC, (Azteca) Sacramento, CA** **KMCE-LD-Channel 14: KMCE, INC. (Azteca), Monterey, CA**

Licensee	Fisher Wireless Services, Inc. Licensee name: Fisher Wireless Services, Inc.
Resolution Efforts	▪ KQTA ceased operations to determine if filtering could solve problem. ▪ KDTS-LD announced its intention to begin testing from Sutro Tower on August 17th. Fisher has notified the station that it has 16 sites within a 75-mile radius of Sutro and that the proposed testing schedule is inadequate to permit evaluation of the impact of the KDTS-LD transmitter. Fisher asked the station to arrange a workable test schedule and the station's engineer agreed to make the necessary changes to the receive system at Sutro. KDTS-LD is requesting a STA to operate at half power to mitigate interference to incumbent operations while completing the replacement of the Sutro Tower LMR master receiving antenna system. ▪ KMMW is causing desense at certain sites, but since these sites are potentially affected by KSAO in Sacramento as well, both stations may need to be taken down and brought up separately to evaluate the interference levels from each. KMMW has filed a complaint against KSAO saying its antenna pattern is overlapping into Stockton. Any changes in KSAO's technical parameters will require retesting. ▪ KSAO is waiting for a filter to arrive before additional testing can begin. ▪ KMCE has not tested yet at Fremont, but if others have experienced interference there, it will also.
Economic Impact	▪ Extensive technician costs to date.

Jacksonville Market
Adjacent Channel 14 Interference

Interfering TV Station	**WFOX-TV-Channel 14(Repacked): COX TELEVISION JACKSONVILLE, LLC, Jacksonville, FL**

Licensee	Mobile Communications America, Inc. Lone Peak Licensing, LLC
Resolution Efforts	▪ TV station caused interference to multiple licensees in the region, totally disabling all land mobile facilities at a tower approximately one mile away. ▪ TV station returned to its prior channel until it was able to take steps to address the issue; interference appears to be mitigated.
Economic Impact	▪ Cox has reimbursed the licensee for all labor costs involved in testing so only *de minimis* internal expenses.

CERTIFICATE OF SERVICE

I, Linda J. Evans, hereby certify that I, on this 9th day of April 2021, have caused to be mailed, first-class, postage prepaid, a copy of the foregoing Opposition to the following:

Paul A. Cicelski, Esq.
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/s/ Linda J. Evans