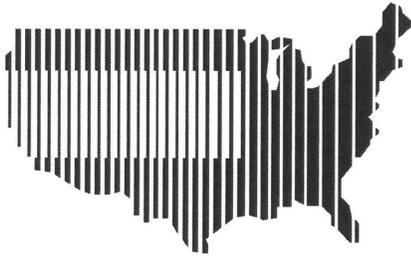


Stamp & Return



LAND MOBILE COMMUNICATIONS COUNCIL

Received & Inspected

JUL 06 2021

FCC Mail Room

July 6, 2021

Jessica Rosenworcel, Acting Chairwoman
Federal Communications Commission
45 L Street, N.E.
Washington, DC 20554

Re: Immediate Request for Relief from Interference
from Digital Television Stations

Dear Acting Chairwoman Rosenworcel:

The Land Mobile Communications Council (LMCC), a non-profit organization representing virtually all public safety, business enterprise, and commercial providers using land mobile radio systems,¹ respectfully requests the assistance of your office in addressing a critical issue brought to the attention of the Federal Communications Commission (FCC) more than ten months ago that remains unaddressed and unresolved. The matter is urgent as it involves interference to numerous land mobile systems around the nation.

The LMCC sent the attached letter to the identified FCC offices on August 28, 2020. That letter detailed multiple instances of interference to land mobile systems from new full-power and low-power digital television stations. The situations described included interference from channel 14 transmitters to land mobile systems operating on immediately adjacent UHF Part 90 spectrum, as well as both co-channel and adjacent channel interference from digital television stations to land mobile systems operating on T-Band (470-512 MHz) Part 90 spectrum. LMCC representatives had a follow-up video

¹ LMCC member organizations include the American Association of State Highway and Transportation Officials; American Automobile Association; American Petroleum Institute; Association of American Railroads; Association of Public-Safety Communications Officials-International; Aviation Spectrum Resources; Enterprise Wireless Alliance; Forest Industries Telecommunications; Forestry-Conservation Communications Association; Government Wireless Technology & Communications Association; International Association of Fire Chiefs; International Municipal Signal Association; MRFAC, Inc.; Telecommunications Industry Association; The Monitoring Association; Utilities Technology Council; and, Wireless Infrastructure Association.

conference with representatives from the FCC on October 22, 2020, to discuss these situations and to seek guidance from the FCC as to their resolution. As recommended by the FCC, the LMCC undertook an effort to identify potential solutions to the problems. It created a DTV Resolution Task Force and presented its recommendations to the FCC along with additional information about the ongoing interference situations in the attached November 25, 2020, letter.

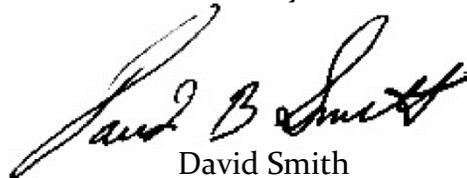
We have heard nothing further. A number of the interference problems continue unabated. In some instances, the interference has been so unremitting that licensees have had no choice but to relocate to other spectrum at their own considerable expense. But even this “solution” is possible only when suitable replacement spectrum is available for purchase, which is not always the case, particularly in T-Band markets where all spectrum is used intensively.

The LMCC recognizes that all FCC Bureaus and Offices have many important matters with which they must contend. However, the LMCC is requesting the attention of your office, as it is confident that the FCC under your leadership will want to address this matter.

The LMCC remains committed to working with the FCC in addressing these matters. One important first step would be an immediate stop to all new channel 14 assignments, as they are an egregious, well-known source of interference to land mobile systems around the country. We also request your immediate attention to the detailed interference situations outlined in our letter of August 2020.

Please feel free to contact me if you have any questions or comments.

Sincerely,

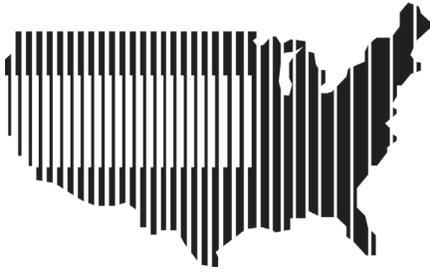
A handwritten signature in black ink that reads "David B. Smith". The signature is written in a cursive, flowing style.

David Smith
President

Attachments

cc: Michelle M. Carey, MB
Lisa M. Fowlkes, PSHSB
David Furth, PSHSB
Rosemary Harold, EB
Roger Noel, WTB
Joel Taubenblatt, WTB

ATTACHMENT A



LAND MOBILE COMMUNICATIONS COUNCIL

August 28, 2020

Michelle M. Carey, Chief, Media Bureau
Lisa M. Fowlkes, Chief, Public Safety and Homeland Security Bureau
Rosemary Harold, Chief, Enforcement Bureau
Donald Stockdale, Chief, Wireless Telecommunications Bureau
Ron Repasi, Acting Chief Engineer
Federal Communications Commission
445 12th Street, S. W.
Washington, D.C. 20554

Re: Request for Relief from Interference from Digital Television Stations

Dear FCC Bureau Chiefs:

The Land Mobile Communications Council (“LMCC”), in accordance with Section 1.41 of the Federal Communications Commission (“FCC”) rules, urgently requests expedited FCC action to address multiple instances of harmful interference from newly authorized digital television (“DTV”) stations to long-standing Part 90 private land mobile radio (PLMR) systems. This interference has rendered affected PLMR facilities entirely unusable in certain markets, resulting in hundreds of thousands of dollars of lost revenue as customers of commercial systems are forced to search for alternative communication options and incurred expenses as licensees have sought remedial action by the broadcasters and/or acquired other spectrum to which their operations could be moved. The interference with what had been reliable communications endangers the safety of employees, disrupts operations at affected facilities, and poses a major threat to public safety in certain instances. The urgency of the problems demand FCC action to enforce those regulations and policies as promptly as possible and to avoid the creation of similar problems in the future.

The LMCC is a non-profit association of organizations representing virtually all users of land mobile radio systems.¹ It is bringing this issue to the attention of the FCC

¹ LMCC member organizations include the American Association of State Highway and Transportation Officials; American Automobile Association; American Petroleum Institute; Association of American Railroads; Association of Public-Safety Communications Officials-International; Aviation Spectrum Resources; Enterprise Wireless Alliance; Forest Industries Telecommunications; Forestry-Conservation

both because the problem is wide-spread among a number of licensee members of the LMCC organizations² and because requests for action from individual licensees, for the most part, have not resolved the interference in a timely fashion, or in some cases, at all.

Yet these situations require rapid resolution. The fact patterns are entirely consistent. PLMR licensees begin experiencing interference once a new DTV station repacked to a channel between 14-20 begins operating, or, in some cases, testing. This is not a competitive situation in which there might be a business motivation for a licensee to lodge an interference complaint against a newcomer. PLMR licensees have no reason to seek FCC assistance in resolving the problem other than the need to maintain their own operations. There should be a process in place that allows these matters to be fast-tracked given existing FCC rules and policies.

As detailed in Attachment A, there are two categories of interference situations, both of which involve DTV stations that have been moved to Channels 14-20. Some of the DTV stations are full-power while others are low-power and, thus, are subject to different rules regarding their interference-correction responsibilities.

- 1) Co-channel interference from DTV stations to PLMR systems operating on spectrum in the 470-512 MHz band (“T-Band”) that was allocated for PLMR use in certain major markets more than fifty years ago (“T-Band Interference”). Because these are co-channel facilities, filtering is not a solution.
- 2) Adjacent channel interference from DTV stations on Channel 14 (470-476 MHz) to PLMR licensees operating in the UHF band below 470 MHz (“Ch 14 Interference”). As discussed below, appropriate filtering has been successful in certain situations.

In New York and Chicago, there is both co-channel interference from the Channel 14 DTV station to Ch 14 T-Band licensees and adjacent channel interference to UHF MHz PLMR licensees.

T-Band Interference

Full-power DTV Stations: Rule Section 73.623² establishes minimum distance separations between full-power DTV stations and PLMR T-Band markets. A DTV transmitter must be 250 km/155 miles from the city center of a co-channel land mobile

Communications Association; Government Wireless Technology & Communications Association; International Association of Fire Chiefs; International Municipal Signal Association; MRFAC, Inc.; Telecommunications Industry Association; The Monitoring Association; Utilities Technology Council; and, Wireless Infrastructure Association.

² The licensees identified in Attachment A are representative of those experiencing interference in each of those situations. Many more PLMR systems are affected by the interfering DTV stations identified.

operation and 176 km/109 miles from an adjacent channel market. Those distances have proven inadequate for providing the intended interference protection in Dallas/Houston, Texas, and Los Angeles/San Francisco, California. In those markets, PLMR systems have been entirely desensed and rendered inoperable by DTV stations that meet (often by the narrowest of margins) the minimum distance separation.

These PLMR facilities have been in operation for decades and provide essential fleet dispatch communications for a broad range of business and governmental users, including hospitals, school buses, roadside assistance, highway maintenance, refining, petrochemical production, high voltage electrical repair, and firefighting.

The systems have not been immune from interference in the past, including seasonal ducting problems from more distant co-channel television stations. That type of intermittent interference is troublesome but temporary and is a reality of congested airwaves. This situation is different. Rather than having a problem on a few days during periods when the seasons change, this interference is so strong that it takes the PLMR systems off the air and is occurring for many hours several days a week or even multiple consecutive days. It is harmful interference as defined by FCC Rule Section 15.3:

[a]ny emission, radiation or induction that endangers the functioning of a radio navigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radio communications service.

The LMCC assumes that the DTV stations are operating in accordance with FCC rules – as are the PLMR stations. In such cases, the FCC has relied on its long-standing “newcomer” policy pursuant to which new licensees are responsible for resolving interference caused by their operations even if all parties are operating in accordance with the rules and the terms of their authorizations.³ In this instance, it is vital that the newcomer DTV stations assume this obligation because there are no anti-interference solutions available to the PLMR licensees. The interference has been measured regularly at -70 dBm at certain PLMR sites and at -86 dBm even at receive antennas on 20’ above ground level. The PLMR systems cannot be reconfigured to reject the overpowering transmissions from too proximate DTV stations, nor should they be required to attempt to do so in accordance with established FCC policy that has been relied upon in multiple decisions over many decades. The newcomer DTV stations must eliminate the interference they are causing and assume full financial responsibility for doing so.

³ See, e.g., *Midnight Sun Broadcasting Company*, 11 FCC 1119 (1947); *Western Slope Communications, Ltd.*, Mimeo No. 4431 (released May 31, 1983); *Broadcast Corporation of Georgia (WVEU-TV)* 96 FCC 2d 901 (1984); *WKLX, Inc.*, 6 FCC Rcd 225 (1991).

Low-Power DTV Stations: The FCC rules could not be more explicit with regard to the rights of these stations vis-à-vis land mobile systems. Rule Section 74.703(e) states the following:

Low power TV and TV translator stations are being authorized on a secondary basis to existing land mobile uses and must correct whatever interference they cause to land mobile stations or cease operations.

There should be no hesitation on the part of the FCC in directing low-power stations to fix the interference they cause promptly or take their transmitters off the air until they can do so.

Channel 14 Interference

Full-Power DTV Stations: The FCC rules also are clear about UHF PLMR protection rights when interference comes from Channel 14 stations. Following multiple instances of interference from Channel 14 stations to adjacent PLMR UHF operations and from Channel 69 TV stations to adjacent PLMR 800 MHz operations in the 1980s, the FCC adopted Rule Section 73.687(e), subsection (ii) that reads in pertinent part:

A TV permittee must take steps before construction to identify potential interference to normal land mobile operations that could be caused by TV emissions outside the authorized channel, land mobile receiver desensitization or intermodulation. It must install filters and take other precautions as necessary, and submit evidence that no interference is being caused before it will be permitted to transmit programming on the new facilities ...

A number of new permittees have been diligent both in identifying potentially affected PLMR systems and, more important, in implementing the necessary filtering to avoid causing interference.⁴ Their success makes clear that those facilities can co-exist when appropriate interference mitigation measures are taken by the DTV station. The FCC rules give the agency full authority to take prompt, decisive action when permittees fail to comply with this obligation and the LMCC urges it to do so.

⁴ For example, KDTS-LD in San Francisco prepared an extensive land mobile impact study as part of its modification application, and now that the station is in a testing phase, they are in constant contact with potentially impacted licensees.

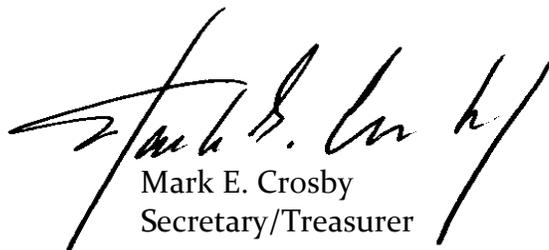
Low-Power DTV Stations: Low-power DTV stations are subject to Rule Section 74.703(e) cited above whether the interference is to co-channel T-Band PLMR systems or adjacent PLMR UHF systems.

The LMCC is not requesting the Commission to take action which is in any way novel. Rather, the LMCC is requesting that the Commission enforce existing Commission Rules without delay. Some of the instances of harmful interference reported in the Attachment have been known by the Commission for over a year without resolution. The number of PLMR systems affected and the extent of the interference requires the LMCC to request a meeting as soon as possible with appropriate FCC personnel. The purpose would be to develop remedial action plans for ongoing interference situations and to discuss how to prevent future occurrences.

Sincerely,



Klaus Bender
President



Mark E. Crosby
Secretary/Treasurer

Attachment

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

Summary

TV Interference into Land Mobile Systems

August 28, 2020

Dallas Market – T Band on Channel 16

Interfering TV Stations	KBTX-Channel 16: GRAY TELEVISION LICENSEE, LLC, Bryan, TX KHCE-Channel 16: SAN ANTONIO COMMUNITY EDUCATIONAL TV, INC. KSHV-Channel 16: WHITE KNIGHT BROADCASTING OF SHREVEPORT LICENSE CORPORATION, Shreveport, LA Note - Interference from KBTX masks the interference from KSHV
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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	<ul style="list-style-type: none"> • Efforts to secure alternative spectrum in the 450-470 MHz band have not produced sufficient capacity to replicate a 50-channel private carrier wireless system that serves over 4,000 customer wireless devices
Economic Impact	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ Efforts to secure exclusive use channels have resulted in no comparable spectrum capacity ▪ Numerous conversations have been convened with Texas-based and Washington, D.C. based FCC Enforcement Bureau representatives, which have included a review of interference measurements that TV Channels 15, 16, and 17 are all affecting operations ▪ It is believed that addressing the Channel 16 interference would return the situation to an acceptable spectrum environment
Economic Impact	<ul style="list-style-type: none"> ▪ 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 ▪ Spent \$10,000 to date seeking alternative channels ▪ Business revenue losses due to customers terminating use of the private carrier system ▪ 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 all over 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> ▪ 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 on Channel 17

Interfering TV Stations	KNCT-Channel 17: GRAY TELEVISION LICENSEE, LLC (Belton, TX) KNVO-Channel 17: ENTRAVISION HOLDINGS, LLC (McAllen, TX) KCRP-LP-Channel 17 (Corpus Christi, TX)
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Licensee	Channel Industries Mutual Aid (CIMA, 101 individual members) Licensee name: CIMA Organization
Impacted Call Signs	WIH777, WIH776, WIH775, WQOK35, WIH854
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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
Economic Impact	<ul style="list-style-type: none"> ▪ Has invested \$6,000 seeking alternative spectrum ▪ Currently securing bids for a new system to move part of the system to the 450 MHz band that 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ Shell has incurred significant costs to attempt to detect the source of interference, and the unpredictable radio system interference has resulted in various operational constraints, which have also had their own financial impacts

Los Angeles Market – T Band on Channels 15, 16

Interfering TV Stations	KHSC-LD-Channel 16: Cocola Broadcasting Companies, LLC KDTF-Channel 16: ENTRAVISION HOLDINGS, LLC Ko8MM-Channel 15 XHTJB-Channel 15: Tijuana, Mexico K12PO-Channel 15
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Licensee	County of Los Angeles, California Licensee name: Los Angeles, County of
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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

San Francisco Market – T-Band on Channels 16, 17

Interfering TV Station	KCVU-Channel 17: PARADISE (KCVU-TV) LICENSEE, INC., Paradise, CA
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Licensee	RFC Wireless, Inc. Licensee name: RFC Wireless, Inc.
Impacted Call Signs	WPTF232, WPTF213, WPPZ976, WQOL263, WIM692, WQQH714, WQLF324, WPPZ439, WPUB506, WPQK412
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ Mission critical licensees on Mt. Diablo, Black Mountain, Mt. Presson, Monument Ridge, and Mt. Sutro are being fully taken off the air by these TV operations ▪ Customers are being given 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ Mission critical licensees on Mt. Diablo, Black Mountain, Mt. Presson, Monument Ridge, and Mt. Sutro are being fully taken off the air by these TV operations ▪ Building a completely new system to avoid this interference will cost millions of dollars

New York Market – T Band on Channels 14, 15, 16

Interfering TV Station	WYBN-LP-Channel 14 (Albany, NY)
Licensee	Goosetown Radio
Impacted Call Signs	WQFM363
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ \$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

Chicago Market – T Band on Channels 14, 15

Interfering TV Stations	WGBA-Channel 14: SCRIPPS BROADCASTING HOLDINGS LLC, Green Bay, WI WLAJ-Channel 14: WLAJ-TV LLC (Lansing, MI)
Licensee	ESP Wireless Technology Group, Inc. Licensee name: ESP Wireless Technology Group, Inc.
Resolution Efforts	<ul style="list-style-type: none"> ▪ Land Mobile operators at the Willis Tower are completely knocked off the air, 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	<ul style="list-style-type: none"> ▪ Operator is being forced to offer credits to customers when system is not operating, this can cause thousands of dollars of impact

Miami Market – T Band on Channel 14

Interfering TV Station	WOPX-TV-Channel 14: ION MEDIA ORLANDO LICENSE, INC. (Orlando, FL)
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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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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

San Francisco Market Adjacent Channel 14 Interference

Interfering TV Station	KMCE-LD-Channel 14: KMCE, INC. (Azteca) (Monterey, CA)
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Licensee	Silke Communications, Inc. Licensee name: Silke Communications, Inc.
Resolution Efforts	<ul style="list-style-type: none"> ▪ KMCE ceased operations to determine if filtering could solve problem
Economic Impact	<ul style="list-style-type: none"> ▪ Part 90 licensees at Fremont Peak have been unable to operate while KMCE was transmitting

Interfering TV License	KQTA-Channel 14: ONE MINISTRIES, INC.
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T Band Licensee	CRYSTAL SMR INC. Licensee name: CRYSTAL SMR INC.
Resolution Efforts	<ul style="list-style-type: none"> ▪ KQTA ceased operations to determine if filtering could solve problem
Economic Impact	<ul style="list-style-type: none"> ▪ 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. KDTS-LD-Channel 14: Word of God Fellowship, Inc. (SF, 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)
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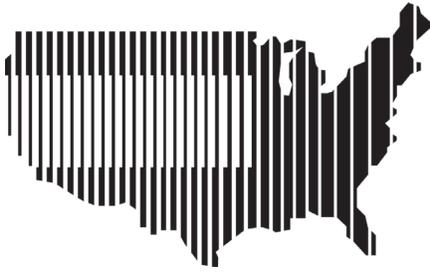
Licensee	Fisher Wireless Services, Inc. Licensee name: Fisher Wireless Services, Inc.
Resolution Efforts	<ul style="list-style-type: none"> ▪ KQTA ceased operations to determine if filtering could solve problem ▪ KDTS-LD announced its intention to begin testing from Sutro Tower on August 17th ▪ Fisher 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 ▪ Further testing to confirm the impact of these changes will be completed as needed ▪ 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, so 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 at Fremont, but if others have experienced interference there, it will also
Economic Impact	<ul style="list-style-type: none"> ▪ Extensive technician costs to date

Jacksonville Market Adjacent Channel 14 Interference

Interfering TV Station	WFOX-TV-Channel 14: COX TELEVISION JACKSONVILLE, LLC (Jacksonville, FL)
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Licensee	Mobile Communications America, Inc. Lone Peak Licensing, LLC
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ Cox has reimbursed the licensee for all labor costs involved in testing so only <i>de minimis</i> internal expenses

ATTACHMENT B



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

¹KHCE, 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
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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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> ▪ 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
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Licensee	Channel Industries Mutual Aid (CIMA, 101 individual members) Licensee name: CIMA Organization
Impacted Call Signs	WIH777, WIH776, WIH775, WQOK35, WIH854
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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 Ko8MM-Channel 15 XHTJB-Channel 15: Tijuana, Mexico K12PO-Channel 15
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Licensee	County of Los Angeles, California Licensee name: Los Angeles, County of
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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
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Licensee	ESP Wireless Technology Group, Inc. Licensee name: ESP Wireless Technology Group, Inc.
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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
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Licensee	City of Chicago, IL Licensee name: City of Chicago OEMC
Impacted Call Signs	WPKY459, WPYZ554, WQEV648, WQEV649, WQEW220, WQOU931
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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
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Licensee	RFC Wireless, Inc. Licensee name: RFC Wireless, Inc.
Impacted Call Signs	WPTF232, WPTF213, WPPZ976, WQOL263, WIM692, WQQH714, WQLF324, WPPZ439, WPUB506, WPQK412
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	WPRF ₄₇₁ , WQEL ₆₃₁
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	KVW ₃₄₀
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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
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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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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
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Licensee	Nassau County Police Department
Impacted Call Signs	WQNS771
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ \$12,500 to find source of interference.

Interfering TV Station	WYBN-LP-Channel 14, Albany, NY
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Licensee	Goosetown Radio
Impacted Call Signs	WQFM363
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ \$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)
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Licensee	Silke Communications, Inc. Licensee name: Silke Communications, Inc.
Resolution Efforts	<ul style="list-style-type: none"> ▪ KMCE ceased operations to determine if filtering could solve problem.
Economic Impact	<ul style="list-style-type: none"> ▪ 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
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T Band Licensee	CRYSTAL SMR INC. Licensee name: CRYSTAL SMR INC.
Resolution Efforts	<ul style="list-style-type: none"> ▪ KQTA ceased operations to determine if filtering could solve problem.
Economic Impact	<ul style="list-style-type: none"> ▪ 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
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Licensee	Fisher Wireless Services, Inc. Licensee name: Fisher Wireless Services, Inc.
Resolution Efforts	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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
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Licensee	Mobile Communications America, Inc. Lone Peak Licensing, LLC
Resolution Efforts	<ul style="list-style-type: none">▪ 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	<ul style="list-style-type: none">▪ Cox has reimbursed the licensee for all labor costs involved in testing so only <i>de minimis</i> internal expenses.