

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)
)
Promotion of Spectrum Efficient) RM-9332
Technologies on Certain Part 90)
Frequencies)

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TO: The Commission

COMMENTS OF UTC

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Summary

UTC, representing electric, gas and water utilities and natural gas pipelines, opposes the request of the American Mobile Telecommunications Association (AMTA) for mandatory deadlines by which licensees of Industrial/Land Transportation or Business Radio channels at 800 MHz would be required to meet certain narrowbanding requirements. Although UTC is reluctant to see any further delay or uncertainty in connection with "refarming" of the bands below 512 MHz, UTC could support conversion deadlines for the 450-512 MHz band if the transition periods are more in line with the schedules previously recommended in the refarming proceeding itself.

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Pursuant to Section 1.405 of the Commission's Rules, UTC¹ hereby submits its comments on the above-captioned Petition for Rulemaking filed on June 19, 1998, by the American Mobile Telecommunications Association, Inc. (AMTA).² Through this petition, AMTA requests the FCC to initiate a rulemaking intended to require certain private land mobile radio licensees on certain channels between 222 and 896 MHz to achieve certain standards of spectrum efficiency by suggested target dates or be relegated to secondary status.

UTC is a not-for-profit association representing the telecommunications interests of the nation's electric, gas and water utilities and natural gas pipelines. More than 1,000 utilities are members of UTC, ranging in size from large multi-state utilities serving

¹ UTC was formerly known as the Utilities Telecommunications Council.

² Public Notice of the petition was given on July 31, 1998, Report No. 2288 (mimeo no. 84760).

millions of consumers, to small rural electric cooperatives and water districts serving only a few thousand customers each. All utilities rely on telecommunications and information services in support of their public service operations, and most operate private land mobile facilities licensed under Part 90 of the FCC's Rules. UTC is also the FCC's certified frequency coordinator for the Power Radio channels below 512 MHz. Because AMTA's proposals, if adopted, would significantly affect the operation of UTC's member utilities and pipelines, UTC has a strong interest in this matter and is pleased to offer the following comments.

I. Background

AMTA claims that its members, specialized mobile radio (SMR) operators providing commercial radio service, are "inherently disposed" to make efficient use of their channels because of their profit-maximizing motive.³ However, it claims that these commercial service providers are not inclined to make this investment if they do not have exclusive rights to the new spectrum capacity thus created. AMTA points to the shared channels below 512 MHz as a situation in which its members are unwilling to install more efficient equipment if they cannot claim exclusive rights to the new capacity thus created.

³ AMTA Petition, pp. 2-3.

AMTA acknowledges that these shared channels support a large number of users operating only private, internal use radio systems needed to safely and efficiently operate their underlying businesses or public safety functions, and that these users do not have the pure motive of securing profit from spectrum use, as do AMTA's members.

Nevertheless, AMTA argues that private users of private land mobile channels have no incentive to install more efficient technologies that would create new spectrum (and profit) opportunities for its members.

AMTA therefore requests the FCC to initiate a rulemaking looking toward the adoption of the following regulatory framework:

- All non-Public Safety Part 90 licensees in bands between 222 and 896 Mhz would be required to implement technology that achieves the equivalent of one voice path per 12.5 kHz of spectrum by the relevant deadline or accept secondary status on their channel(s).⁴
- Deadlines would be based on the markets defined in Section 90.741 of the FCC's Rules, and would be as follows:
 - Markets 1-50: December 31, 2003
 - Markets 51-100: December 31, 2008
 - All Other Markets: December 31, 2020
- Public Safety Channels and any channels at 800 MHz that are subject to auction would be excluded from the efficiency standards; that is, AMTA's

⁴ For convenience, UTC will generically refer to AMTA's proposal as calling for "narrowbanding," even though it is acknowledged that the proposed efficiency standard could be met through other means; *e.g.*, time division multiplexing.

recommended standards would only apply to the “Industrial/Land Transportation” and “Business” category channels at 800 MHz, and to “Industrial/Business” category channels at 450-512 MHz.

II. Comments

A. Mandatory Conversion Should Not Apply to Industrial/Land Transportation or Business Channels at 800 MHz

AMTA premises its petition on the lack of incentive for licensees on shared channels to make investment in more efficient technologies. It also argues that in bands shared by commercial and non-commercial system operators, its members are denied the opportunity to construct additional for-profit radio systems because licensees using their radio systems to meet their internal communications requirements are not driven by the same economic incentives. However, AMTA fails to explain how either of these arguments has any relevance to its position that 800 MHz channels allocated for exclusive use by non-commercial radio systems should be subject to mandatory narrowbanding.

First, AMTA has not shown how its members would benefit from a requirement that licensees of private land mobile systems convert to narrowband technologies on the I/LT and Business category channels. For-profit radio systems are not permitted on these channels, and even though some SMR operators are operating on these channels because of earlier “intercategory sharing” rules, these same entities would not be permitted to

license any "new" channels that might be freed-up because of a narrowbanding requirement.

In any event, SMR operators at 800 MHz are free to implement more efficient technologies to increase capacity of their current radio systems and do not need further rule changes mandating that other licensees increase the communications throughput of their assigned bandwidth.⁵ Indeed, the FCC specifically limited its "refarming" proceeding to channels below 800 MHz:

[T]he rules governing the spectrum above 800 MHz already contain incentives designed to foster the research and development of advanced, spectrum efficient techniques. For example, the rules governing spectrum allocations above 800 MHz permit and encourage the use of spectrum efficient technology and equipment. Users may also establish their own radio systems or purchase service from commercial providers. Channel exclusivity provides incentives for users to operate in the most efficient mode available. Users also have flexibility to install highly efficient technologies, such as various analog or digital multiple access techniques, designed for either voice or data applications. Our goal for this proceeding is to develop a regulatory environment for the spectrum below 470 MHz that will provide users the same technical flexibility and licensing options available at 800 MHz and above.⁶

AMTA makes the case in its Petition that its members have a marketplace incentive to deploy more efficient technologies. Thus, its proposal to require narrowbanding on "private" 800 MHz channels cannot be based on its members' own spectrum needs. Moreover, AMTA's members have opportunities to participate at auction for additional spectrum at 800 MHz, as well as other bands -- something which is not practical or economically-justifiable for users such as utilities and pipelines which

⁵ 47 C.F.R. §90.645 (d)-(g).

⁶ Notice of Inquiry in PR Docket No. 91-170, 6 FCC Rcd 4125 (1991), at para. 4.

must develop radio systems to meet their internal operating requirements throughout well-defined utility operating areas.

On the other hand, if AMTA's proposal is based solely on the overall public interest in promoting efficient use of the spectrum, AMTA has not explained why its proposal is limited to the I/LT and Business channels, and why it does not extend also to Public Safety channels, to 800 MHz channels that are subject to auction, or to other spectrum bands, for that matter. Thus, AMTA's only apparent motivation in suggesting mandatory narrowbanding at 800 MHz is to force users of private, internal radio systems to make unnecessary expenditures with the hope that many of these users will be compelled to take service from AMTA's members.

AMTA acknowledges that "in recent years a number of entities have elected to replace or supplement their internal radio systems with service provided by one of the burgeoning number of commercial wireless providers."⁷ This being the case, there is no need for the FCC to adopt rules that will force others, with legitimate need for private internal radio systems, to incur expenses just for the benefit AMTA's for-profit service providers. Underlying AMTA's proposal seems to be its desire for continuing regulatory uncertainty, which will again accrue to the benefit of AMTA's members. Its proposal to change the regulatory status of large, multi-million dollar radio systems after only a few years' time would signal to the marketplace that FCC allocation and licensing decisions

⁷ AMTA petition, p. 4.

are fraught with uncertainty, and that anyone who invests in such a radio system -- even to meet critical public safety/public service communications needs -- might see that investment evaporate in a fairly short time.

More fundamentally, however, AMTA's position on the 800 MHz band seems to be based on the myth that because some users have made the decision to take service from commercial providers all such licensees (except Public Safety and others with "comparably unique requirements") should convert to commercial service providers. Radio systems operated by electric, gas and water utilities and natural gas pipelines are typically installed because their coverage and service requirements cannot be met by commercial service providers, because of the need to maintain control and reliability of service, and to minimize dependence on other critical infrastructure (*i.e.*, public telecommunications networks) in order to promote service restoration following widespread disasters.⁸ If utility service were only offered, or pipelines were only constructed, in areas with populations sufficient to support commercial wireless services, then there might be some validity to AMTA's suggestion.

These infrastructure investments are particularly acute in the case of 800 MHz systems operated by utilities and pipelines due to their generally greater cost and

⁸ In the refarming proceeding, the FCC acknowledged that utilities, pipelines and railroads have quasi-public safety attributes that distinguish their need for reliable wireless communications from other private radio users. Second Report and Order in PR Docket No. 92-235, 12 FCC Rcd 14307, 14329-30 (1997). More recently, Congress recognized the public safety nature of utility and pipeline use of spectrum by classifying such radio use in the Balanced Budget Act of 1997 as "public safety radio service" and exempting these services from the vagaries of spectrum auctions.

sophistication. A few of UTC's member companies with 800 MHz systems have explained the hardship that would confront them if forced to change-out their systems as requested by AMTA:

- American Electric Power (AEP) is a publicly-owned electric utility operating across seven states. AEP operates an enormous 800 MHz trunked two-way dispatch radio system across its large geographic area. Internal crews rely on the numerous benefits of trunking for normal daily work activities, but especially in storm restoration efforts to provide quality, quick restoration of customers' electricity. AEP has been constructing its 800 MHz system for almost seven years. Upon final build-out, the radio system will include over 130 sites, nearly 500 repeaters, and approximately 100 separate frequency pairs. The large infrastructure will accommodate over 7,000 radio users. AEP foresees operating the system for a useful life of at least 15 years.
- FirstEnergy (formerly Ohio Edison and Cleveland Electric Illuminating Company) estimates it would cost millions of dollars to convert its wide area 800 MHz system to narrowbanding. In addition, because most of the utility's service territory is in the US/Canada border region, cross-border coordination and channel availability could impose additional constraints on complying with such a narrowbanding requirement.
- Arizona Public Service Company (APS) is an investor-owned utility serving more than 750,000 customers throughout most of the state of Arizona. APS employees depend on a reliable, well-designed two-way radio system to implement construction activities, dispatch switching orders, perform emergency repairs, and render other important utility communications for customer support. APS has migrated to the 800 MHz band to overcome problems inherent in the 150 MHz band, including high noise levels and adjacent channel interference in the Phoenix metropolitan area that made two-way radio use impossible and impacted employee safety.

APS is in the process of constructing a new statewide 800 MHz trunking system at a cost of approximately \$18 million. APS is licensed for "slow growth," and expects full construction by 2002. The entire system is designed and will be built to use 25 kHz bandwidth. The system will be used for mobile data as well as voice. Dedicated mobile data is currently unable to achieve 19.2 kbps throughput at bandwidths less than 25 kHz. At 12.5 kHz, 9600 bps is believed to be the highest rate possible with existing technology, and for this reason, APS selected the 800 MHz band over the 900 MHz band, where the maximum bandwidth is only 12.5 kHz.

A forced conversion to 12.5 kHz or equivalent technology would have significant financial impact to APS, including replacement of almost new equipment, retrofitting other equipment for the new bandwidth, re-engineering parts of the system to alleviate noise problems, and other difficulties that would only become apparent once the system is reconfigured. APS has elected to make the investment in a private 800 MHz system because, from its recent experience, a commercial system does not provide the reliability needed for electric utility communication users, nor do the new non-APCO 25 digital technologies currently support critical dispatch functions to any significant degree.

- Central and South West (CSW) is an investor-owned utility operating in Arkansas, Louisiana, Oklahoma and Texas, with a service territory of 152,000 square miles. CSW operates an wide-area 800 MHz trunked mobile radio system with 128 sites. Complete system change-out to achieve a narrowbanding requirement is estimated to be in excess of \$40 million.

CSW operates the radio system as a corporate resource during disaster recoveries. All radio system users have the same technology, which enables CSW to rapidly deploy disaster recovery teams. Switching a single area (such as the Tulsa, OK area) to a different technology would drastically affect the company's capabilities to operate safely and efficiently during storm or disaster recovery situations. During the weekend of June 21, 1998, a severe windstorm struck Tulsa, and many residents were without power. Crews from Arkansas and southern and western Oklahoma assisted with service restoration. CSW personnel utilized the radio system to safely repair downed lines and restore service. The compatibility of the radio system allowed work crews from different areas to safely and efficiently work together to make repairs during the emergency restoration period.

- Consumers Energy Company is an investor-owned gas and electric utility serving approximately 1.5 million customers in the state of Michigan. Consumers Energy made an investment in private wireless technology because of several factors. First, the state Public Service Commission expected to see improvement in responsiveness to residents' requests for emergency services. The safety of the utility's own field workforce was also paramount. A wide area 800 MHz radio system was therefore installed. Operating efficiencies were gained far beyond pre-project plans. Mobile data offered significant gains in service quality, speed and efficiency of services provided. Technology advances to split channels will have a negative impact on data throughput, thus negating those advances.

If AMTA's proposal is adopted and Consumers Energy is forced to make an early change-out of its radio system in the Detroit area, the company will be

faced with the decision of whether to (1) change-out the entire radio network to avoid segmenting its workforce field communications systems into non-interoperable units, (2) forego the safety and efficiency of the workforce and only change-out that portion in the Detroit area, or (3) give up primary license status and let a premier radio system die a premature death with no public wireless system available to replace it -- a choice no responsible utility could make.

The foregoing examples are by no means unique. Many utilities and pipelines have constructed or are constructing wide area 800 MHz radio systems because of the spectrum efficiency gains, sophisticated features, and potential for interoperability with other users and agencies. Investment in 800 MHz technology is not a casual business decision or one that can be easily altered once a system has been planned and/or installed.⁹ Nor is it an acceptable response to suggest that utilities and pipelines could operate their radio systems on a secondary basis. UTC therefore urges the FCC to decline AMTA's recommendation that non-SMR radio systems at 800 MHz be subjected to a mandatory narrowbanding process.

B. Recommended Deadlines for Narrowbanding at 450-512 MHz Should Be Extended

UTC was one of the first user groups to embrace a phased-in approach to narrowbanding in the private land mobile bands below 512 MHz, and UTC developed a consensus plan for such conversion with 13 other groups, which collectively represented

⁹ Concern has been expressed in the SMR community over the cost and logistics in "retuning" incumbent 800 MHz SMR systems and mobile users as a result of auctioning of 800 MHz SMR channels. UTC submits that the logistics in changing-out a typical utility 800 MHz system would be even more complicated due to the generally larger service areas and the need to avoid any disruption to ongoing business activities.

about 95% of private land mobile licensees.¹⁰ A copy of the industry consensus plan was presented to the FCC on January 13, 1995 as an *ex parte* submission in PR Docket No. 92-235.¹¹ The plan represented a comprehensive approach to land mobile refarming, placing initial burdens on radio equipment manufacturers to develop narrowband technologies, and phased-in the narrowbanding requirement on incumbent radio systems based on whether a system is located in an "urban" or "rural" area, defined by reference to a 100 mile radius of any of the top 60 markets listed in Section 90.741. The user community agreed that existing systems located in the top-60 urban areas should convert to 12.5 kHz or equivalent technologies within 10 years after such narrowband equipment becomes generally available in the market, with all existing systems (urban and rural) migrating to very narrowband technology (*e.g.*, 6.25 kHz or equivalent) within 10 years after manufacturers are subject to a corresponding requirement to produce very narrowband radio equipment.

In the First Report and Order in PR Docket No. 92-235, the FCC declined industry's offer to accept a reasonable mandatory conversion timetable, opting instead to impose a narrowband type-acceptance requirement on manufacturers, and thereby rely on marketplace forces:

. . . We believe that as systems wear out, and new radios are bought, users will have a natural inducement, without a Government mandate, to use the narrower bandwidth of the multi-mode radios in order to avoid excessive adjacent channel interference. This will allow a natural transition to more

¹⁰ AMTA did not participate in these industry discussions.

¹¹ A copy of the transition plan is attached hereto as Appendix A.

efficient systems as new equipment is bought within each users normal replacement cycle. . . .¹²

AMTA now requests reconsideration of this decision. However, AMTA proposes to significantly reduce the transition schedule that was almost universally agreed would be needed for the most expedient introduction of new technologies and with the least impact on incumbent users. It is apparent that because SMRs are only now becoming prevalent in the 450-512 MHz band, AMTA's members do not have anywhere near the level of investment in this band as do utilities, pipelines, and other private land mobile radio operators. Thus, AMTA's request for expedited conversion of these bands will have minimal impact on commercial service providers, who stand to pick up additional channels and customers as users are effectively forced off their channels, while it will pose a severe burden on incumbent operators of large private, internal use systems who will be forced to change-out technologies with no corresponding benefit to themselves.

UTC would like nothing better than certainty and finality to the "refarming" process, which has already caused significant delays in equipment purchasing decisions and necessary system modifications simply due to regulatory uncertainty. However, to the extent the FCC initiates yet further action in this matter, UTC recommends that mandatory conversion deadlines be proposed along the following lines to allow at least 10 years amortization of existing systems:¹³

¹² 10 FCC Rcd 10076, 10100 (1995).

¹³ These dates assume, of course, prompt adoption of a transition timetable. If decisions are delayed, the actual dates would have to be extended accordingly.

- Markets 1-50: December 31, 2008
- Markets 51-100: December 31, 2012
- All Other Markets: December 31, 2020

UTC further recommends that any user converting to 12.5 kHz technology should have the opportunity to apply for any “new” channels created as part of such a mandatory conversion process as long as it meets any applicable loading criteria. Moreover, because of the many spectrum opportunities now available to commercial radio service providers, UTC would urge the FCC to impose strict limitations on use of such channels to render a purely for-profit communications service. As has been abundantly demonstrated by the “Petition for Rulemaking” (RM-9262) of the Land Mobile Communications Council (LMCC), there is a pressing need for additional private land mobile radio spectrum. UTC also presented the FCC with a detailed study by the Utility Spectrum Assessment Taskforce (USAT) demonstrated a growing need among utilities for additional private spectrum allocations.¹⁴

These needs can hardly be fulfilled by the “refarming” process, even if successfully implemented. However, it would only exacerbate the dilemma faced by the private wireless community if commercial entrepreneurs are allowed to continue hoarding scarce land mobile channels in the private land mobile bands below 800 MHz and if private wireless licensees are expected to change-out their systems just for the benefit of these commercial service providers.

¹⁴ See Comments of UTC in RM-9262. A copy of the USAT Report is also available from the UTC homepage: www.utc.org/usat/

III. Conclusion

UTC strongly opposes AMTA's call for mandatory narrowbanding of 800 MHz radio systems operating on Industrial/Land Transportation and Business channels. AMTA has not demonstrated that its members have any legitimate interest in forcing utilities, pipelines and other users of these channels to make costly and difficult equipment change-outs. If the FCC takes up AMTA's request for mandatory conversion deadlines for the bands between 450-512 MHz, UTC recommends that the FCC allow sufficient time for incumbent users, which are generally not commercial radio providers, to amortize existing investment and make a graceful transition to new technologies. UTC further recommends that if any such change-outs are ordered, that the beneficiaries should be those users who have borne the expense of installing these technologies as well as other entities needing spectrum for private, internal-use systems.

WHEREFORE, THE PREMISES CONSIDERED, UTC respectfully requests the Commission to take action in this matter in accordance with the views expressed herein.

Respectfully submitted,

UTC

By:



Jeffrey L. Sheldon
VP & General Counsel

UTC
1140 Connecticut Ave., NW
Washington, DC 20036
202-872-0030

Dated: August 31, 1998

PROPOSED PART 88 TRANSITION PLAN

	Year 2 (e.g., 1/1/1997) <i>[Example dates assume 1/1/1995 effective date of new rules]</i>	Year 12 (e.g., 1/1/2007)	Year 16 (e.g., 1/1/2011)	Year 26 (e.g., 1/1/2021)
MANUFACTURERS	All new equipment which is sold must be maximum 12.5 kHz* or 12.5 kHz compatible (e.g., dual-mode 25/12.5 kHz; but not single-mode 25 kHz equipment)		All newly type accepted equipment must be maximum 6.25 kHz* or 6.25 kHz compatible. (e.g., dual-mode 12.5/6.25 kHz, but not single-mode 25 kHz or 12.5 kHz equipment)	All new equipment which is sold must be maximum 6.25 kHz* or maximum 12.5 kHz if convertible to 6.25 kHz.
URBAN** SYSTEMS Existing Systems		All urban systems must operate at no more than 12.5 kHz* bandwidth to retain primary status.		Must operate at no more than 6.25 kHz* bandwidth to retain primary status.
New Systems***	Must operate at no more than 12.5 kHz* bandwidth to attain primary status.		Must operate at no more than 6.25 kHz* bandwidth to attain primary status.	
RURAL** SYSTEMS Existing Systems				Must operate at no more than 6.25 kHz* bandwidth to retain primary status
New Systems***	Must operate at no more than 12.5 kHz* bandwidth to attain primary status.		Must operate at no more than 6.25 kHz* bandwidth to attain primary status.	
SECONDARY OFFSET USERS AT 450-470 MHZ (All Markets)	May attain co-primary status with other new systems if operations are limited to no greater than 12.5 kHz bandwidth.			Must operate at no more than 6.25 kHz* to attain primary status as against all users

* Bandwidth limitations may be exceeded if the system will operate with efficiency equivalent to or better than the stated bandwidth. For purposes of type acceptance, the radio must be capable of net data throughput of at least of 4.8 kbps.

** "Urban Systems" are those located within 100 miles of any of the top 60 urban areas listed at Section 90.741. All other areas would be considered "Rural." Upon request by a petitioning party, other areas of the country may be declared "Urban" upon a showing of increased frequency congestion necessitating early introduction of spectrum efficient technologies.

*** A "new system" is one which is not functionally integrated with an earlier-installed land mobile radio system. To be considered an "existing system," the facilities must be in operation prior to the relevant deadline or must be functionally integrated with such a system. For example, a new repeater site which will be used to extend coverage of an existing system and will relay traffic of mobiles currently operating with an existing system would not be considered a "new system." (See definition of "Land Mobile Radio System" at Section 90.7).

APPENDIX A

CERTIFICATE OF SERVICE

I, Melissa Muscio, hereby certify that I have caused to be sent, by first class mail, postage prepaid, this 31st day of August, 1998, a copy of the foregoing "Comments of UTC" to each of the following persons:

Alan R. Shark
President
American Mobile Telecommunications Association, Inc.
1150 - 18th Street, NW, Suite 250
Washington, DC 20036

Elizabeth R. Sachs, Esq.
Lukas, Nace, Gutierrez & Sachs
1111 - 19th Street, N.W., Suite 1200
Washington, DC 20036
-- Counsel for AMTA



Melissa Muscio