

406-420 MHz Band Issue Brief

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SUMMARY

Energy and water utilities often build, operate, and maintain their own Information and Communications Technology (ICT) networks to facilitate the safe, reliable, and resilient delivery of electricity, water, and natural gas services. These networks use both wireline and wireless elements and are also crucial to the development of the smart grid and new distributed generation technologies such as rooftop and community solar and battery storage.

The key ingredient to any wireless network is radio-frequency spectrum. Spectrum is a naturally occurring phenomena which enables all wireless communications. Utilities and any other commercial entity must purchase spectrum in certain bands in order to operate their wireless networks. Radio spectrum is subdivided into various bands (measured by "hertz") that have different properties.

The 406-420 MHz (megahertz) band appears to be suitable to meet electric, gas, and water utility spectrum requirements. The band has sufficient capacity and would provide favorable coverage for utilities to communicate over wide areas. In addition, it is roughly the same frequency range as many existing utility ICT systems which means utilities could use much of the same infrastructure currently in operation to support a broadband communications network. Finally, the band is supported by several wireless standards, including LTE (long-term evolution) and TETRA (terrestrial trunked radio, a professional mobile radio and two-way transceiver specification).

UTC POSITION

Utilities are proposing to share 406-420 MHz spectrum with federal government users and

have briefed the National Telecommunications and Information Administration's (NTIA) Interdepartmental Radio Advisory Committee on this issue. The Utilities Technology Council (UTC) is proposing only to share this spectrum, not reallocate it on a dedicated basis. Sharing will enable spectrum use more quickly and thus will make more efficient use of the spectrum by both utilities and federal government users. In addition, it will avoid disruption of federal government incumbents that would otherwise be relocated, if the spectrum was reallocated.

BACKGROUND

The 406-420 MHz band is currently allocated for use by federal government agencies, and it was identified in a President's Council of Advisors on Science and Technology (PCAST) report as a potential band that would be suitable for spectrum sharing by other non-governmental radio frequency operations. It was also the subject of a spectrum-sharing test bed, which included studies of the use of the spectrum by federal government users. Testing done by NTIA has demonstrated that the spectrum band was only being used three to five percent during the busiest times of the day in Washington, D.C., which was the most heavily used geographic part of the country for this band. The band therefore appears to be lightly used and could be shared with utilities.

Also, equipment is commercially available that would work in the 406-420 MHz band, and standards efforts are underway in Europe and South America to use the 400 MHz band for public protection and disaster relief (PPDR) and the 400 MHz PMR (professional mobile radio) frequencies. The European Utilities Telecom Council (EUTC) and UTC America Latina (UTCAL) are involved in these efforts to promote the use of the 400 MHz band by

utilities.

There is LTE equipment and TETRA equipment that is commercially available for use in the 400 MHz band in Europe, and UTC believes that this equipment could be used in the 406-420 MHz band in the U.S. as well.

SITUATIONAL AWARENESS

Utilities would use this spectrum primarily for data and field force management voice communications. While each utility would have its unique communications requirements, depending on a variety of factors, including the types of applications supported and the territory to be served, UTC believes that utilities would use the spectrum nationwide in order to promote interoperability during mutual aid, and to enable economies of scale that would reduce the cost of equipment in the band.

One of the principal attributes of the 406-420 MHz band is the similar propagation characteristics as existing utility UHF systems, such that utilities could leverage existing infrastructure for towers and backhaul to these existing sites. By leveraging this existing infrastructure, utilities could accelerate deployment of the network while keeping costs down. UTC notes that this spectrum is currently used by federal utilities like the Tennessee Valley Authority (TVA) and Bonneville Power Authority (BPA), thereby promoting interoperability and greater efficiencies across the utility industry.

In addition to leveraging existing infrastructure, utilities could leverage existing equipment that is both commercially available and standardized. This would promote economies of scale that would reduce deployment costs. In addition, these economies of scale would be expanded if the 406-420 MHz band is made available internationally for use by utilities and other entities for mission critical communications. Therefore, UTC is involved in various international spectrum allocation efforts to

promote the use of the band by utilities and others for mission critical communications.

UTC was instrumental in hosting a seminar in late 2017 with the Organization of American States' Inter-American Telecommunications Commission on utilities' telecommunication needs in Colombia. This meeting was an excellent opportunity to explore international spectrum allocation 406-420 MHz band.

ABOUT UTC

The Utilities Technology Council (UTC) is a global trade association dedicated to serving critical infrastructure providers. Through advocacy, education and collaboration, UTC creates a favorable business, regulatory and technological environment for companies that own, manage or provide critical telecommunications systems in support of their core business.

History: UTC was founded in 1948, to advocate for the allocation of additional radio spectrum for power utilities. Over the last 70 years, UTC has evolved into a dynamic organization that represents electric, gas and water utilities, as well as natural gas pipelines, critical infrastructure companies and other industry stakeholders.

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