

FCC Frees Up Unlicensed Spectrum by Driving Out Transportation Systems Operators

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TAKEAWAYS

- *The FCC will immediately permit access to the 5.850-5.895 GHz band for indoor unlicensed services.*
- *The FCC will require ITS licensees to cease operating in this lower 45 MHz band within one year of the Report and Order's effective date.*
- *The FCC also seeks comment on proposed rules for outdoor unlicensed operations and the DSRC to C-V2X transition.*

As a part of the FCC's continued efforts to keep up with demand for high-speed wireless service such as Wi-Fi, the FCC released a Report and Order on Friday, November 20, 2020, reallocating more than half of the 5.9 GHz band for unlicensed use. That spectrum had previously been reserved for transportation safety operations.

The COVID-19 pandemic has forced much of the country to remain in their homes, resulting in increased usage of broadband applications including telework, telehealth, distance learning, and other voice and video communications. Even before this recent spike, demand for spectrum to support such unlicensed operations has been increasing for several years. This demand, along with the needs of Wireless Internet Service Providers (who use unlicensed spectrum to provide high-speed internet in rural and underserved areas) has prompted the FCC to free up additional spectrum for unlicensed use.

To this end, the FCC identified one swath of nearly untapped spectrum that was previously dedicated to intelligent transportation system (ITS) operations. In 1999, the FCC voted to reserve the 5.850-5.925 GHz band for ITS, which was expected to operate on the then-promising Dedicated Short-Range Communications (DSRC) technical standard. This mid-band spectrum is highly desirable due to its range, propagation characteristics, and capacity for high-speed communications. DSRC operations were expected to improve efficiency and safety across the nation's transportation infrastructure, such as traffic light control, traffic monitoring and other automated services. However, critics have claimed that this spectrum has been lying fallow for decades, while new transportation communication technologies have gained traction, including short and long-range radar, cell phone apps and optical cameras. These technologies often use existing mobile broadband networks or higher bands that are in lesser demand, and have benefitted from widespread adoption of the "cellular vehicle to everything" (C-V2X) technical standard, which has effectively surpassed the DSRC standard. Operations on the C-V2X standard can improve road safety with better communications and compatibility between vehicles, road users and infrastructure systems, including mobile broadband networks.

In the Report and Order, the FCC will immediately permit access to the 5.850-5.895 GHz band for indoor unlicensed services. The FCC concluded that most users of existing Wi-Fi access points across the country will be able to benefit immediately by way of software or firmware changes. Further, by freeing up this “lower” 45 MHz, the FCC has established a contiguous 140-MHz unlicensed channel within the 5.725-5.850 GHz band that can be used to support next-generation Wi-Fi and 5G deployment. The FCC also noted that it will allow limited outdoor operations via special temporary authorization or other existing regulatory processes for operations that will not cause harmful interference to incumbent operations. The FCC will coordinate such requests with the National Telecommunications and Information Administration (NTIA), the agency responsible for managing the federal government’s spectrum use.

At the same time, the FCC will require ITS licensees to cease operating in this lower 45 MHz band within one year of the Report and Order’s effective date. ITS licensees will be limited to operating in the remaining “upper” 30 MHz (5.895-5.925 GHz); the FCC will unilaterally modify all active 5.850-5.895 GHz ITS authorizations to facilitate this change. Further, all ITS licensees that operate on the DSRC standard must eventually transition to the modern C-V2X standard. As the FCC determines how long that transition will be, ITS licensees may either continue DSRC-based operations or request a waiver to begin operating on C-V2X.

In the midst of all of these changes, the FCC also established certain limitations to protect existing users across the band. Unlicensed operations in the lower 45 MHz will generally be limited to indoor operations in order to protect incumbent federal government users and ITS licensees prior to their move to the upper 30 MHz. To further reduce the risk of harmful interference, the FCC adopted additional design and labeling requirements to ensure that indoor devices operating in this band are not deployed outdoors.

At the same time, the FCC will require C-V2X equipment operators to coordinate with nearby federal government operators, closely mirroring the existing coordination rule for DSRC operators.

The FCC also adopted an accompanying Further Notice of Proposed Rulemaking (FNPRM), in which it seeks comment on proposed rules for outdoor unlicensed operations in the 5.850-5.895 band once ITS operations have completely transitioned. Commenters are asked to address proposals such as incorporating geolocation capability, a coordination database, and mitigation measures recommended by NTIA to avoid potential interference, as well as general operational parameters that would impact both indoor and outdoor systems.

The FNPRM also seeks comment on the various elements of a transition process for ITS operations that will be converting from DSRC to C-V2X, such as a timeline, emissions limits, power levels, antenna heights, potential channel subdivisions, and other operational parameters. Interested parties are encouraged to provide information about the state of C-V2X technology and supply chains, and what would happen to existing infrastructure and on-board units (communications devices installed in vehicles) that operate on the DSRC standard. The FCC also raised the prospect of compensation for affected users. In addition, the FCC seeks comment on a proposal from public interest groups that would prohibit commercial operations in ITS spectrum.