



The Federal Communications Commission (FCC) is seeking [public comment](#) on the feasibility, benefits, and limitations of techniques that can help advance the FCC's understanding of "nonfederal" spectrum usage.

The FCC has exclusive jurisdiction over all uses of the spectrum, except for that allocated for federal government use (e.g., it regulates spectrum use by commercial organizations, nonprofits, and state or local governmental entities). In particular, the FCC is interested in how it can leverage new technologies such as artificial intelligence and machine learning (AI/ML) to manage and support nonfederal spectrum usage. This Update summarizes the new proceeding, launched through a Notice of Inquiry (NOI) released earlier this month, in which comments are due on October 3, 2023, and replies are due on November 2, 2023.

Existing Monitoring of Spectrum Usage

Currently, the FCC has limited access to real-time data regarding spectrum usage. For instance, its database for most wireless radio licenses, known as the Universal Licensing System, contains limited information on the identity of the licensees, the intensity and patterns of spectrum usage by licensees, the precise purposes for the licenses, and the spectrum bands in which the licensees operate. Previous government inquiries have underscored the barriers to collecting real-time spectrum use data. For example, in 2014, the National Telecommunications and Information Administration (NTIA) found real-time monitoring could improve spectrum management but identified cost, band-specific considerations, and data collection requirements as challenges to such efforts. Now, the FCC is hoping recent technological advancements will improve real-time monitoring.

Definition of Spectrum Usage

One of the key inquiries in the NOI concerns how spectrum usage should be defined and whether existing definitions are useful to understanding and managing nonfederal spectrum. Among other things, the FCC is evaluating which discrete components (e.g., geography, frequency, time, etc.) could inform such a definition and how to combine those metrics to obtain a holistic understanding of the spectrum or band.

Use of nonfederal spectrum also varies by band, with different bands having different requirements or technical characteristics. The FCC seeks public input on whether this fact weighs against the adoption of a single definition for spectrum usage, and if so, how the definition may change across bands. The FCC also seeks comment on how it should prioritize data collection based on the specific issues and challenge of each band.

Data Collection Considerations

The NOI poses questions about how to overcome the barriers to real-time monitoring and data collection. Among other things, the FCC is seeking to understand whether costs with respect to data monitoring have decreased and whether newer methodologies such as crowdsourcing, external data sources, modeling, and direct observation can or should be used.

The FCC also seeks public comment on how new collection methodologies could ensure uniformity and accuracy. It seeks insight into whether long-standing technical challenges to obtaining precise data in congested spectrum bands can be overcome. In this context, the FCC asks whether AI/ML may be leveraged to improve the collection of data through algorithmic extrapolation and seeks comment on how accurate and granular the data must be for effective measurements.

Finally, the NOI invites comment on any concerns that may arise with respect to its data collection goals, particularly those related to data protection, privacy, and security.

Key Takeaways

The NOI offers the public a meaningful opportunity to weigh in on how nonfederal spectrum may be put to best use in the digital age. Central among those uses is AI/ML. It is particularly noteworthy that in her statement accompanying the NOI, FCC Chairwoman Jessica Rosenworcel highlighted the value that AI/ML could bring to the Internet of Things, device management, network resiliency efforts, and a host of other advances. By better understanding spectrum utilization, the FCC hopes to be able to allocate spectrum in ways that foster a vibrant and more efficient technological ecosystem.

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