DEPARTMENT OF COMMERCE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION

NOTICE OF INQUIRY

DOCKET NO: 130809703-3703-01
RIN 0660-XC007

SPECTRUM MONITORING PILOT PROGRAM

COMMENTS OF THE ENTERPRISE WIRELESS ALLIANCE

The Enterprise Wireless Alliance ("EWA" or "Alliance") respectfully submits its Comments in the above-entitled proceeding. The National Telecommunications and Information Administration ("NTIA") has issued this Notice of Inquiry ("NOI") in response to the President's June 2013 Executive Memorandum directing NTIA to design and conduct a pilot program to monitor spectrum usage in real time in selected communities throughout the country.[1] NTIA intends to use the input received in response to the NOI to help design and implement a spectrum monitoring program in up to 10 metropolitan areas in the country.[2]

The Alliance has been a Federal Communications Commission ("FCC")-certified Frequency Advisory Committee for decades. It processes many thousands of requests for frequency coordination on FCC Part 90 frequencies each year and also assists entities in identifying spectrum solutions and strategies. Additionally, pursuant to a Memorandum of Understanding with the FCC, EWA is actively engaged in helping to resolve interference problems on Part 90 spectrum. Thus, the Alliance has extensive experience with the various

[1] Executive Memorandum, *Expanding America's Leadership in Wireless Innovation*, 78 FR 119 (2013).
[2] NOI at 1-2.

mechanisms for attempting to optimize spectrum utilization, including the use of monitoring in support of that goal.

As described in the NOI, this undertaking was mandated by the President and is intended to help investigate whether technology advances will permit shared use of spectrum by a variety of wireless services, including commercial, unlicensed, and government. Historically, one way the FCC has created spectrum opportunities for advanced wireless services is by allowing incumbent licensees to be relocated to alternative, comparable frequencies. While that "repurposing" approach has been successful in many instances, the NOI states that it has become increasingly difficult to find replacement spectrum for federal government users that can be made available on a timely basis and at a reasonable cost.[3] Among other potential uses, Federal government spectrum sharing is being considered as an alternative source of spectrum to contribute to commercial wireless broadband capacity.

If spectrum sharing is to be given serious consideration, the NOI notes that information with regard to "the nature and extent of actual spectrum usage" must be collected.[4] EWA agrees. It is not possible to assess whether and/or where sharing might be feasible, without accurate data identifying what federal government spectrum is being used, where, how frequently, with what technical parameters, and for what purpose. Collecting that information is an essential first step in assessing spectrum sharing opportunities. Thus, the NOI requests comment on the monitoring system's design, features, deployment, operation, utility, and benefits, including the monitoring parameters that should be used for the myriad types of transmitting equipment that would need to be considered in such a program.

[3] *Id.* at 3.
[4] *Id.*

While the Alliance does not dispute that monitoring can provide useful data in specific, defined circumstances, it urges NTIA, first, to ensure that it has an accurate database of systems that are understood to be operational, a database comparable to those developed by the FCC such as its Universal Licensing System. Data identifying where specific frequencies have been deployed, the technical parameters of their use, at a minimum the antenna height and effective radiated power, when they were placed into operation, and the term of the authorization is the essential benchmark against which monitoring results can be evaluated. It is not possible without it to assess whether monitoring information is accurately capturing the spectrum environment since, as evidenced by the questions raised in the NOI, the complexities of monitoring are substantial. Moreover, until NTIA knows where systems are believed to be operating and the details of those operations, it is exceedingly difficult to establish monitoring parameters that will either confirm that they are operational or provide evidence that they are not. Monitoring without that level of information is not likely to yield meaningful data from which strategic national spectrum policy repurposing or reallocation decisions should be made.

In this regard, before embarking on the large-scale monitoring exercise contemplated in the NOI, NTIA might find it instructive to investigate the experience of the FCC in this area. As early as the 1970s, the FCC undertook a pilot program in Chicago, the purpose of which was to use monitoring information to explore the possibilities for increased utilization of land mobile frequencies through expanded land mobile inter-service sharing and through the development of new frequency allocation and assignment techniques. It even contemplated spectrum sharing with Federal government users:

> The major functions of a Regional Spectrum Management Center insofar as they relate, at this time, to the Land Mobile allocation, will be monitoring, spectrum engineering and data generation and maintenance.[5]
>
> The initial operation of the Chicago Center will be primarily concerned with accumulation of data on present usage of the Land Mobile portion of the spectrum, the development of channel loading statistics and criteria, and development and implementation of frequency assignment and licensing procedures for more efficient and effective use of the spectrum. The experience gained and the assignment system developed will be indispensible to the optimum utilization of any additional spectrum space which may be made available to the Land Mobile Services in the future. Further, the Center will be flexible enough and equipped to handle services other than Land Mobile, including cooperative ventures with the Federal Government should such operations become desirable.[6]

That regional spectrum management program ultimately was abandoned in 1976 and its personnel reassigned to Washington "to implement a nationwide automated system for spectrum management."[7] The difficulty of using monitoring to identify meaningful spectrum sharing opportunities was not the only reason the program was discontinued, but it was a major cause.

More recently, the FCC elected not to rely on sensing (monitoring) as the mechanism by which unlicensed TV "white space" devices would search for usable television channels in a market.[8] The FCC concluded that the real world spectrum environment was sufficiently complex and variable as to make it impractical to rely on sensing for this purpose. While the Alliance appreciates that the FCC's conclusion addressed only sensing by low power devices and not the types of monitoring equipment NTIA might deploy, sensing was deemed inadequate even for purposes of identifying always-on, multi-million watt television stations, surely the easiest of all transmitters to locate. Instead, the FCC required white space devices to be equipped with

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[5] Spectrum Management; Establishment of First Regional Spectrum Management Center in Chicago, IL; and Amendment of Parts 1, 2, 21, 74, 89, 91, 93 and 95 of the Commission's Rules Relating to Land Mobile Allocations and Assignments, *Notice of Proposed Rulemaking*, Docket No. 19150, 27 FCC 2d 400 at ¶ 14 (1971).

[6] *Id.* at ¶ 11.

[7] Amendment of Part 21 of the Commission's Rules to Delete Section 21.10 Requiring Applicants in the Domestic Public Land Mobile Radio Services Located in the Chicago Region to Submit Special Application Information, *Order*, 61 FCC 2d 1020 (1976).

[8] *See* In the Matter of Unlicensed Operation in the TV Broadcast Bands, ET Docket No. 04-186, *Second Report and order and Memorandum Opinion and Order*, 23 FCC Rcd 16807 (2008).

geolocation capability and the capacity for online access to a license database of protected facilities. It imposed additional requirements to protect against interference to systems operating mobile devices, which, by their nature, are transient, transmit intermittently, operate at relatively low-power, and, thus, are highly susceptible to being missed in an approach that relies on sensing to avoid interference. Those same characteristics make monitoring a less than fully reliable means of capturing mobile utilization of spectrum.

There undoubtedly have been major improvements in spectrum monitoring techniques since the FCC's failed Chicago experiment in the 1970s, and EWA appreciates that monitoring, if done correctly, can provide useful confirmatory information about spectrum sharing opportunities. Yet the where, when and how of monitoring, including factors such as detection thresholds, are critical and have proven difficult to define in previous efforts because of the very broad variety of transmissions that must be considered. For this reason, the Alliance urges NTIA to evaluate the results of monitoring programs in conjunction with a database of operational systems to test the accuracy of monitoring data. Monitoring should not be relied upon exclusively as the measure of utilization of particular frequencies in a market.

The need for additional wireless spectrum already is compelling and continues to grow exponentially. EWA supports all efforts to identify usable capacity, including shared use of Federal government spectrum, when that approach satisfies the needs of both the non-Federal and Federal users. However, it cautions NTIA that assessing meaningful sharing opportunities will require more than monitoring, an activity that should be undertaken only in conjunction with the development of a reliable database of Federal government spectrum usage compiled from information other than monitoring.

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