

**Oral Statement of
The Honorable Lawrence E. Strickling
Before the
Subcommittee on Communications and Technology
Committee on Energy and Commerce
Hearing on “Federal Government Spectrum Use”
July 6, 2011
*[As prepared for delivery]***

Thank you Chairman Walden and in particular thank you for the consideration of giving me some extra time for my opening remarks. I also want to thank Vice Chairman Terry, Congresswoman Matsui, Ranking Member Waxman, and all the members of the committee for attending this hearing today. Thank you for the opportunity to testify on behalf of NTIA regarding the use of spectrum by Federal government agencies. I am pleased to join you today to describe NTIA’s ongoing and critical work in managing Federal agency use of spectrum and to update you on our efforts to identify and reallocate spectrum to meet the nation’s rapidly-growing demand for commercial wireless broadband service.

Through his National Wireless Initiative, President Obama has set forth a bold vision for spurring innovation, expanding economic growth and job creation, and preserving America's global technology leadership. For NTIA, a critical component of the National Wireless Initiative is the President's directive to us last June to work with the FCC to identify and make available an additional 500 megahertz (MHz) of spectrum for fixed and mobile broadband use over the next ten years. This effort will double the amount of spectrum available for commercial wireless broadband.

As directed by the President, NTIA released two reports last year. The first was our Ten-Year Plan and Timetable, identifying 2,200 megahertz of spectrum for evaluation and detailing the process we and the FCC would follow to evaluate these bands for possible reallocation to commercial broadband service. In addition, we released a Fast Track Evaluation report on four bands of spectrum that we evaluated to determine if any of those bands could be reallocated for commercial use while leaving the existing Federal agency operations in place. By doing

so, we would be able to make this spectrum available within five years. We concluded that 115 megahertz of spectrum in two bands could be reallocated within five years while accommodating the existing Federal agency uses which were NOAA weather satellites and Department of Defense radar systems.

In our work both to manage Federal agency spectrum use on a day to day basis as well as to look for 500 megahertz of spectrum to reallocate to commercial service, we face a number of challenges.

First, compared to commercial services, Federal agencies do not have a lot of spectrum in the prime bands between 225 megahertz and 3.7 gigahertz. In that range, Federal agencies have exclusive use of only about 18% of that spectrum as compared to commercial and non-Federal users, who control 30% of this spectrum on an exclusive basis. The remaining 51% is shared between Federal and non-Federal users.

Second, Federal agencies use this spectrum assigned to them to perform critical missions assigned to them by Congress. These missions can range from NOAA weather satellites to FAA air traffic control

systems to Department of Defense drone missions. When a Federal agency needs spectrum to perform one of its missions, we only assign the agency the minimum amount of spectrum it needs and only within the geographic area within which it needs the spectrum. In virtually no case do we provide an agency exclusive use of an entire band of spectrum. With 60 agencies holding around 244,000 individual frequency assignments, Federal agencies must share spectrum with each other and in many cases, with commercial users.

Third, the variety and complexity of spectrum uses by Federal agencies complicates our day-to-day assignment processes as well as challenges us when we evaluate a band for reallocation. Federal spectrum management is much more complicated than in the commercial world. Generally, any particular commercial band is devoted to a uniform set of commercial users providing similar services using comparable systems and technology. In the case of cellular and similar land mobile radio services, the commercial operator typically has the exclusive right to use a given frequency within a geographic area.

This general uniformity among commercial providers makes it easier to design and implement efficiency enhancements.

The Federal government, on the other hand, often operates a variety of systems within a specific band that may have little in common from a technological perspective. A single Federal band, for example, could include operations as diverse and technologically unrelated as high-power radars, satellite communications, drone operations and covert law enforcement surveillance operations.

To illustrate these points, I would like to go through a slide presentation we have prepared for today's hearing. This presentation is based on the studies we are currently performing on the 1755-1850 megahertz frequencies to determine if any or all of that spectrum can be reallocated to commercial wireless broadband service. We began this study in January and expect to complete the detailed evaluation by September 30 of this year. Over 20 Federal agencies operate in this band utilizing over 3300 individual frequency assignments.

Before we get to the specifics of that band, I'd like to start with the slide up here on the screen relating to commercial use of spectrum. This slide shows how the FCC has divided up the United States into cellular market areas. [Next slide] So, when the FCC conducts an auction of spectrum, it can offer spectrum in geographic areas as small as those individual cellular market areas or, as shown here in the case of the AWS-1 auction, it can combine the cellular market areas into larger regions for bidding. In the case of the 90 megahertz auctioned by the FCC for AWS-1, the FCC organized the spectrum into six blocks—20 megahertz at the cellular market area level; 30 megahertz (two blocks) at the level of basic economic areas (usually large portions within a single state roughly the size of a state or a little smaller) and 40 megahertz (three blocks) at a regional level such as depicted here. Within each of these regions, the winning bidder has exclusive control of the spectrum. It decides what technology to deploy and how to build out its system. It does not have to share its spectrum on a primary basis with anyone else.

So let's now segue to the Federal agency use of the 1755-1850 band. [Next slide] Most of the 3300 assignments in this band are for point-to-point fixed microwave licenses which we've depicted here on this first chart. Agencies such as the Departments of Energy, Homeland Security and the FAA use these links to transmit data supporting such operations as energy grid control, border monitoring, and air traffic control. While these uses are the most numerous, they are also the easiest to relocate as technology does exist to establish these links in other spectrum bands.

[Next slide] We will overlay on the fixed microwave licenses military bases where training is conducted with mobile tactical radios which use spectrum in this band. These radios are the military versions of mobile point-to-point and cellular systems. Over the last several years the DOD has had to increase the number of training locations in order to provide for training of National Guard and reserve units prior to their deployment to Afghanistan, Iraq or other locations.

[Next slide] Here we overlay military satellites operated by the Department of Defense. In particular, what we see here are the earth stations that use frequencies in this band to control these satellites. Due to the high power of these systems, these earth stations impact the spectrum within the yellow shaded areas on the map. Remember that Satellites generally have a useful life of over 20 years. So once a satellite is launched, there is no opportunity to change out its radio. What that means is that as long as the satellite is in active use, there will need to be ground stations from the east coast to the west coast as the satellite passes over the country to control the operations of the satellite. As we did with the NOAA weather satellites we evaluated in the fast track report, we can carve out exclusion zones around these earth stations in which no commercial service would be allowed.

[Next slide] This slide overlays the training sites for bomb squads working with robots controlled through wireless technology. Please keep in mind that while the agencies train at the locations depicted on this map, checking the color I guess they're in black on the map must be

able to deploy this equipment anywhere in the country without radio interference.

[Next slide] This slide shows Department of Defense operations regarding training for the use of precision guided munitions. The large diameter of the circle showing the spectrum use is due to the fact that these munitions are delivered from tactical aircraft flying at high altitude and the radio spectrum is impacted from the aircraft to the horizon. Therefore, The higher the aircraft operates, the larger the impact on spectrum use on the ground.

[Next slide] Here the blue circles added to the map depict spectrum used by the Defense Department. We now overlay spectrum use by the Department of Defense for air combat training systems. These systems communicate data on pilot and aircraft performance to evaluators who can provide immediate feedback to pilots at the completion of their training runs. The transmission devices are installed on most tactical aircraft and, as with the previous slide on precision

guided munitions, the area of impact is determined from according to the high altitude at which these planes operate.

[Next slide] A number of agencies are now flying unmanned aerial vehicles or drones in this band. Much of this use is for military training but increasingly other agencies are utilizing drones for border security and disaster relief. These orange circles reflect where training is conducted today but with the expanding use of drones, they could be deployed anywhere in the country.

[Next slide] The Department of Defense develops and tests missile and aircraft technology. To support that effort, researchers must download large amounts of data from airborne devices during testing. This data is critical to monitor performance and to analyze malfunctions. Again, these systems operate at high altitudes and can impact communications over long distances as shown by the light blue circles.

[Last slide] Many law enforcement agencies conduct surveillance operations in this band. These operations produce data and video that could be critical evidence in court but just as important, we need these

links to monitor and safeguard undercover agents that may be in harm's way. These systems operate throughout the country whenever and wherever needed. Accordingly, we have shaded the entire country gray, although given all the other uses in this band, you can only see the gray shading up there in the northern Midwest.

That concludes the slide presentation and Mr. Chairman I would respectfully request that the slide deck be inserted into the record of this hearing. I hope these slides give you a flavor for the challenge we face at NTIA to manage Federal agency spectrum assignments and to evaluate various frequencies for possible reallocation.

And let me close my opening remarks with some suggestions for possible legislation in this area, particularly dealing with the relocation of Federal operations. Before we can recommend reallocation of any spectrum to commercial wireless broadband service, we first need to determine the cost of relocating Federal systems or modifying them to allow sharing with commercial users. We then need to compare that cost to the expected revenue from any auction of that spectrum to make

sure that the auction revenues exceed the costs of reallocation. We must also determine to what new spectrum the Federal agencies can relocate their operations and determine whether there is space in those bands to accommodate these operations once they're moved. But even after we have completed that analysis and have recommended reallocation of a band, we face the practical problem of the agencies' actually relocating their operations in a reasonable timeframe.

The single most important step that Congress can take to facilitate the reallocation of spectrum is to provide the Federal agencies the resources and flexibility they need to plan for and undertake relocation and sharing activities. Specifically, agencies need resources for up-front planning prior to holding an auction to determine costs and determine the timeline for relocation. The current Commercial Spectrum Enhancement Act only allows for reimbursement of agency expenses to relocate *after* an auction is conducted. Additionally, the CSEA should be amended to allow for reimbursement of agency expenses undertaken to facilitate sharing of spectrum with commercial entities. Finally, as I

hope my presentation made clear, given the diverse uses of spectrum by Federal agencies, we need flexibility in terms of setting schedules for relocation that take into account the particular technology and resource needs of each agency. With your support, we will meet the President's goal of reallocating 500 megahertz to meet the growing needs for commercial wireless broadband service.

Thank you, members of the Committee. I look forward to working with you on these important issues and I now would be happy to answer your questions.

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