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***Perspectives from FSF Scholars***  
***October 26, 2016***  
***Vol. 11, No. 36***

**Avoid Creating Ruts in the 5G Runway:  
The Potential Pitfalls of the Spectrum Frontiers Proceeding**

by

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The next phase of the Federal Communication Commission’s [Spectrum Frontiers proceeding](#), which is expected to identify and reallocate additional high band or millimeter-wave spectrum for mobile broadband use, is well underway. Such efforts are critical to help meet Internet of Things and 5G wireless deployment needs. The FCC [announced](#) that through its initial allocation and the further inquiry in this proceeding that it “has created a runway for U.S. companies to launch” 5G technologies.

If the 5G “runway” is going to be successful, the FCC needs to avoid creating ruts in it that hinder 5G product development and needed infrastructure investment.

As an additional important point, remember that deploying millimeter-wave band spectrum is only one part of the 5G spectrum equation. The government should actively continue to reallocate additional sub-6 GHz spectrum to meet the Obama Administration’s 2010 [goal](#) of an additional 500 MHz of mobile broadband spectrum by 2020 to support current and future wireless communications.

This summer the FCC laudably allocated some additional 11 GHz of spectrum for mobile broadband use in its *Spectrum Frontiers* proceeding. In that proceeding, the FCC allocated 7 GHz of spectrum for unlicensed use, and 3.85 GHz for dedicated use.

The FCC rightfully was not satisfied with these efforts and therefore issued a *Further Notice of Proposed Rulemaking* (FNPRM) identifying additional millimeter-wave spectrum for potential reallocation. The FNPRM identified another 18 GHz of spectrum in eight high-frequency bands for 5G. Each band identified for reallocation has unique issues regarding usability and sharing with existing government and/or private licensees. The Commission should promptly resolve the issues raised in the FNPRM in favor of more flexible, investment-promoting policies.

The comments filed in early October 2016 in the proceeding identify three areas, that is, potential ruts in the 5G runway, that should be addressed by the FCC in resolving the additional reallocation questions raised by the FNPRM.

First, the Commission should allocate a significant share of additional millimeter-wave spectrum for exclusive commercial use. The Commission has already allocated a disproportionate share of millimeter-wave spectrum for unlicensed use, almost double the amount for dedicated use. Although unlicensed spectrum is important to meeting modern wireless needs, the allocation must remain balanced to ensure that all uses promised by 5G technologies and capabilities are met. Congressional efforts, such as the MOBILE NOW Act and Senator Rubio's wireless legislation, recognized the need for balancing between licensed and unlicensed use, as I pointed out [here](#) and [here](#). Building wireless networks is enormously expensive, funded largely through private dollars. Dedicated spectrum will allow certain sized blocks of spectrum to be licensed to ensure that existing and new carriers can deploy service using reliable and unencumbered bandwidth that would justify the infrastructure investment required.

Second, encumbrances that restrict the usability of spectrum should be minimized to ensure maximum value. Encumbered spectrum increases engineering and operating costs, and reduces potential investment incentives, which could undermine deployment of 5G services throughout the country. Exclusion zones are just one example of a serious encumbrance on the usability of spectrum, such as is potentially involved in the [incentive auction](#) currently being conducted to transform some over-the-air broadcasting spectrum into mobile broadband spectrum.

Third, spectrum sharing should be kept to a minimum. I have previously [identified](#) a number of reasons why sharing reduces the value of spectrum, limiting both auction revenues and the sufficiency of the shared bands for attaining spectrum allocation goals. The FCC proposes to use shared access signaling ("SAS") technology for certain millimeter-wave band allocations. SAS is a hypothetical sharing technique slated for deployment in the 3.5GHz band. Actual 3.5 GHz service is not expected for several years and may be poorly utilized given the short license terms, large exclusion zones, and restrictive licensing rules. Because no real world applications of SAS have been deployed, it is premature and unwise to mandate further deployment of SAS at this time.

It is commendable that the FCC is moving forward in identifying additional spectrum for 5G use, including in the millimeter-wave bands. The FCC should redouble its efforts, however, to ensure that such spectrum is useful, and promotes infrastructure investment, so that the United States can maintain its worldwide lead in wireless service and technology deployment. The government also needs to redouble its efforts to reallocate sub-6 GHz spectrum to meet the Obama Administration's 500 MHz goal by 2020.

A much greater dedicated commercial use allocation would further 5G spectrum efforts and avoid creating ruts in the runway that risk preventing 5G technologies from actually taking off.

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