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**The FAA Should Stop Interfering With 5G in the C-Band**

by

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On January 5, 2022, C-Band spectrum is scheduled to go into use for provision of supercharged 5G broadband networks. But now the Federal Aviation Administration (FAA) has floated unproven claims about 5G signals potentially interfering with aviation equipment. These claims fly in the face of real-world experience in nearly 40 foreign countries where wireless services already operate in the C-Band without causing harmful interference. And the Federal Communications Commission, after engaging in a deliberative process and in reliance on its spectrum engineering expertise, has reasonably determined that 5G services won't harmfully interfere with altimeters in neighboring spectrum.

The FCC has legal authority over commercial spectrum – and the FAA does not. Based on all the available information, the Commission should stand by its 2020 *C-Band Order*, its C-Band auction, and fast 5G deployment. It should not allow the integrity of federal commercial spectrum policy to be undermined by executive agencies making last-minute unsubstantiated complaints. The launch of capacious, high-speed, 5G services in the C-Band, a key element to spurring the nation's innovation and investment – and hence productivity – should proceed without further delay.

C-Band spectrum (consisting of 280 MHz of spectrum located between 3.7-3.98 GHz) was repurposed from satellite services to wireless services through a deliberate, even painstaking, decisionmaking process conducted by the FCC. Its C-Band auction proceeding was authorized by the 2018 MOBILE NOW Act. The proceeding provided opportunities for federal agencies, aviation services, equipment vendors, and others to submit public comments. The Commission duly considered all comment submissions, including technical spectrum engineering analyses.

In its March 2020 [C-Band Order](#), the Commission drew on its acknowledged engineering expertise and determined that there was no evidence indicating that 5G wireless signals would harm aviation equipment operating in adjacent spectrum. And the Commission adopted strong measures to protect against any out-of-band interference:

We find the limits we set for the 3.7 GHz Service are sufficient to protect aeronautical services in the 4.2-4.4 GHz band. Specifically, the technical rules on power and emission limits we set for the 3.7 GHz Service and the spectral separation of 220 megahertz should offer all due protection to services in the 4.2-4.4 GHz band.

In other words, by licensing only up to 3.96 GHz as flexible-use spectrum for 5G, the Commission established a spacious 220 MHz guard band between the wireless services operating in the lower C-Band and radio altimeters operating in another band. Also, the power and emissions limits imposed on wireless service providers operating in the lower C-Band further reduces any likelihood of harmful out-of-band interference.

The first phase of the C-Band spectrum license auction was completed in January 2020, generating a record [\\$81 billion](#) in gross proceeds. AT&T and Verizon paid \$23.4 billion and \$45.5 billion dollars respectively for C-Band spectrum licenses. Wireless service providers planned a December 5, 2021, start date for 5G operations in the lower 100 megahertz of the band (3.7-3.8 GHz) in 46 geographic markets.

However, now unfounded claims have been raised by interests in the aviation industry about 5G services causing possible spectrum interference with radio altimeters on aircraft that transmit in the 4.2-4.4 GHz band. On November 2, the FAA put out a [bulletin](#) that stated that "[t]here have not yet been proven reports of harmful interference due to wireless broadband operations internationally, although this issue is continuing to be studied." Indeed, [nearly 40 countries](#) reportedly have wireless services operating in C-Band spectrum without any reports of harmful interference impacting aviation services. According to CTIA, 90,000 base stations operate up to 4.1 GHz in Japan, which leaves only a 100 MHz guard band between wireless broadband and radio altimeter operations.

The bulletin added that "[t]he FAA is currently conducting a risk assessment to ascertain whether further mitigation is warranted." Read in isolation, the bulletin could give one the mistaken impression that the FAA has authority over commercial spectrum use. But the FAA can't require changes in 5G operations. Federal law gives the FCC authority over commercial spectrum.

Unfortunately, the FAA's echoing of unsupported signal interference claims fits a disturbing pattern of executive agencies going outside prescribed interagency processes to disrupt commercial spectrum allocations at the eleventh hour. For instance, just prior to and even after the FCC conducted a successful public auction of spectrum licenses in the 24 GHz band, NASA and NOAA raised dubious claims about potential interference with weather-related services in adjacent bands. NASA and NOAA declined to stick to the 5-year interagency spectrum planning process that was in place and they demanded that the Commission make ad hoc changes to its out-of-band emission standards. (See this June 2019 Free State Foundation [blog post](#) for more.)

In November 2019, the Department of Defense made doubtful claims in the press about out-of-band interference that supposedly would result from Ligado Networks' deployment of next-generation wireless services in the L-Band. The FCC's April 2020 order approving Ligado's proposal was the product of a careful process in which the agency drew upon its engineering expertise and adopted specific safeguards to protect against potential out-of-band interference. Opponents of the *L-Band Order* have attacked the Commission's process by making demonstrably untrue claims that it was hurried and secretive. (See this December 2019 Free State Foundation [blog post](#) and this May 2020 [Perspectives from FSF Scholars](#) for more.)

Absent compelling evidence that harmful interference will occur, the FAA's attempt to stop or stall 5G in the C-Band should be rejected. Further delay in 5G deployment will deprive consumers and the U.S. economy of valuable broadband services and functions. Halting 5G in the C-Band will thwart the reasonable and heavy investment-backed expectations of wireless providers in new broadband networks.

For that matter, the recent pattern of executive agencies trying to thwart the implementation of the FCC's decisions regarding commercial use of spectrum needs to stop. If left unchecked, the continuation of these disruptive tactics by executive agencies could undermine public confidence in commercial spectrum licenses and reduce the value of spectrum in future auctions. Presidential action to ensure that this does not occur would be particularly helpful.

If the FAA has any real evidence of 5G services interfering with altimeters then it should present it to the multi-stakeholder working group of wireless and aviation service providers. But given that nearly 40 countries using C-Band for wireless services have witnessed no harmful interference, it's highly unlikely that such evidence will be proffered. So far, it's only the FAA that is causing potential interference with the timely deployment of 5G in the C-Band.

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