

FCC Announces 5G Spectrum Frontiers & Auctions

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This week, the Federal Communications Commission took the first step toward fulfilling its promise to bring additional high-band 5G radio spectrum to market – spectrum needed to support spectrum-intensive, real-time applications like telehealth. This spectrum will unlock new mobile 5G networks and allow innovators to bring applications to market that could not otherwise operate. Technologists, investors and entrepreneurs should pay close attention to the FCC's actions, as they could have significant impact on the development of new products and services.

Imagine a patient in rural Arkansas who suffers from a rare heart issue that only a handful of doctors in the country can properly treat and that those experts are located in major population centers like Los Angeles, Miami and New York. This patient must choose between seeking advice from nearby doctors who are not familiar with her condition and trying to work with the specialists despite the distance. In the future, wireless 5G networks will solve this problem by allowing the specialists to perform medical procedures remotely and, after the procedure, follow the patient's progress using remote health monitoring equipment connected to the internet of things.

What is 5G?

5G networks are the next step in the development of the mobile wireless ecosystem. 5G networks will allow wireless providers to offer:

- download speeds up to 1 GB/sec
- substantially higher bandwidth capacities
- significantly lower network latency

These characteristics are crucial to the development of spectrum-intensive, real-time network applications such as telemedicine, connected cars and smart cities. Advanced 5G networks also are critical to support the burgeoning IoT industry and other related applications.

To support 5G, the FCC plans to auction or allocate spectrum in a range of spectrum bands such as 3.7 GHz–4.2 GHz, 24 GHz, 28 GHz, 37 GHz and 39 GHz. To start, the FCC proposes to auction 1.55 GHz of spectrum in the 24 GHz and 28 GHz bands starting this fall.

How will the spectrum auctions work?

The FCC has released a public notice proposing bidding procedures for two spectrum auctions. The first, an auction of spectrum in the 28 GHz band, would start on November 14 and the second, an auction of spectrum in the 24 GHz band, would start shortly thereafter. Between the two auctions, approximately 6,000 new spectrum licenses will be available.

The 28 GHz band auction (Auction 101) would use the FCC's standard simultaneous multiple-round auction format. This format offers every license for bid at the same time and consists of bidding rounds in which bidders may place bids on individual licenses. The licenses will be offered in two 425 MHz blocks by county.

The 24 GHz band auction (Auction 102) would use a structure similar to the auction structure used for the Broadcast Incentive Auction that concluded in 2017. Auction 102 will use a clock auction format that allows bidding on generic blocks in successive clock bidding rounds. After the clock-round bidding concludes, the FCC will hold an "assignment phase" of bidding for frequency-specific license assignments that will allow auction

winners to bid for contiguous block assignments. The licenses will be offered in seven 100 MHz blocks within each of the 416 Partial Economic Areas in the US.

The FCC proposes to use its standard auction rules for both auctions, including its anti-collusion rule, which prohibits certain communications between auction applicants. The anti-collusion rule could create difficulties for auction participants if the auctions last for an extended period of time because it can inhibit some business communications. The FCC also proposes bidding credits for certain small businesses and rural service providers.

What are next steps?

In May, the FCC will accept comments on its proposed auction rules. Later this summer, the FCC will announce the final auction rules and set the filing windows for parties to participate in the two auctions. Parties interested in participating in the auctions, or following the progression to 5G generally, should keep a close watch on the FCC's actions going forward.

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