

5G Wireless in the C-Band: A Good Neighbor to Aviation

C-BAND COEXISTENCE BY THE NUMBERS

~40

Number of countries safely using C-band spectrum for 5G today.

17+

Years of study by international agencies.

10,000x

U.S. government already safely operates radar systems near C-band at power levels 10,000x higher than 5G will have.

\$25B

For every 6-month delay in 5G deployment, the U.S. will lose \$25B of economic growth.



The Commission concluded that our rules would protect radio altimeters used by aircraft, and we continue to have no reason to believe that 5G operations in the C-band will cause harmful interference to radio altimeters.”

— Federal Communications Commission

The U.S. is scheduled for Phase 1 rollout of 5G in the C-band this year—joining dozens of countries that have deployed in the C-band for years with no reports of harmful interference to altimeters.

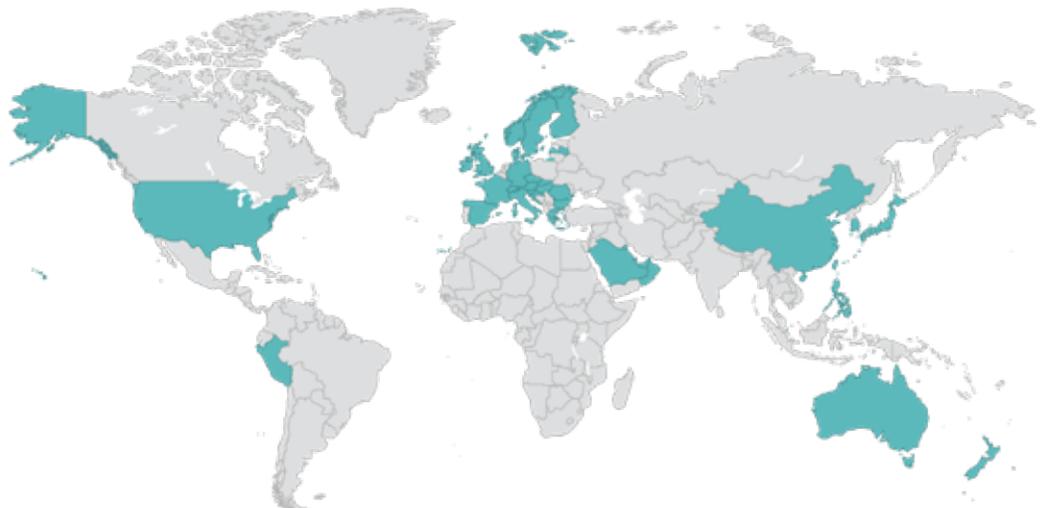
C-Band Spectrum Is Key to Continued U.S. 5G Success

C-band spectrum is located in the mid-band frequency range, which provides the high capacity and broad geographic coverage needed to serve suburban and rural America and will enable 5G to drive technological innovation. This is especially important as the government is poised to invest billions to ensure all Americans have access to broadband. Today, the U.S. has access to just 70 megahertz of mid-band spectrum. The FCC recognized the tremendous value of mid-band spectrum and auctioned 280 megahertz of the C-band in December 2020.

5G is critical for U.S. economic growth. Boston Consulting Group projects it will add 4.5 million new jobs and \$1.5 trillion to the U.S. economy by 2030—with 1.3 million jobs and \$274 billion alone attributed to making 400 megahertz of mid-band spectrum available. Ensuring the C-band transition remains on track is critical to our 5G economy, as every six-month delay in rollout decreases these benefits by \$25 billion.

Dozens of Countries Have Launched 5G in the C-Band— With No Interference

Nearly 40 countries across the globe have already adopted rules and begun safely launching 5G in the C-band at similar frequencies and the same or similar power levels as U.S. C-band 5G—and in some instances, at closer proximity to aviation operations than 5G will be in the U.S. No incidents of harmful interference from wireless operations have been reported, and flight tests have confirmed that.



**INTERNATIONAL EXAMPLES
OF SAFE MID-BAND 5G
OPERATIONS:**



Japan

Tens of thousands of 5G base stations have been deployed with a quarter of the guard band as will exist in U.S. Phase 1 deployments.

In Japan, there are no mitigations in the spectrum overlapping where the U.S. will operate.



Europe

5G has been operating in nearly two dozen countries for up to three years without interference claims—including in the band segment where Phase 1 5G operations will launch in the U.S. this year.



Australia

Carriers are successfully operating thousands of 5G base stations in the 3475-3700 MHz band, despite the aviation report's suggestion that operations below 3700 MHz would have coexistence impacts.

No 5G or wireless interference with altimeters has been reported in these countries or anywhere else in the world.

One Flawed Study Contradicts Years of Expert Analysis and Real-World Evidence

After years of analysis, input from aviation and spectrum experts, and consultation with other federal agencies, the FCC found that 5G can operate in the C-band without causing harmful interference to aviation equipment. This decision has been reinforced by real-world deployments and testing across the globe. The FCC also put strong safeguards in place to further ensure coexistence with 5G and its neighbors, including at least 220 megahertz of spectrum separating 5G from aviation operations (and 400 megahertz from the first tranche of deployments scheduled for 2021).

A critically flawed study released by the aviation group RTCA suggested that using C-band spectrum for 5G could interfere with aviation equipment, contradicting real-world evidence from global operations. Among its flaws, the aviation report uses:

Extreme Testing Standards That Some Aviation Equipment Could Never Pass. The aviation study used testing standards that were so extreme, aviation equipment that is in use today and operating to manufacturer specifications would fail its tests—even without 5G operating in the C-band.

Assumptions That Contradict Prior Aviation Testing. Aviation made up its own testing standards that went far beyond FAA requirements and contradicted previous aviation testing showing aviation's own wireless operations could operate without harmful interference. This means that if the study were correct, testing for aviation's own wireless systems would be showing interference.

Incorrect 5G Models That Ignore How Networks Are Built. The aviation study assumed a 5G signal level much higher than would be measured over a real-world operating network and ignored a variety of other factors, resulting in a report that greatly exaggerates the potential impact from wireless operations.

Unrealistic Scenarios That Are Contradictory and Implausible. The tests combined multiple worst-case inputs to create extreme hypothetical scenarios—including modeling an aircraft that is simultaneously landing on both rough and smooth terrain. These assumptions are unrealistic and contradictory.

Policymakers Should Reject the Aviation Group's Deeply Flawed Report

The aviation industry is using this one flawed report to encourage some governments to reconsider their plans to deploy 5G in the C-band—despite years of wireless coexistence with aviation operations in dozens of other nations, with no reports of harmful interference. Aviation's conclusions come from extremely flawed testing methodology, and any concerns arising from its report are misguided.

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The evidence overwhelmingly confirms that C-band spectrum can be used for 5G without harmful interference to altimeters. U.S. wireless 5G networks are scheduled to launch in the C-band this year. Following this timeline without delay will ensure the U.S. can unlock the immense workforce and economic benefits promised by 5G.