



July 2020

WHAT YOU NEED TO KNOW ABOUT The 5.9 GHz Band

PRO POINTS

- **The FCC and DOT are at war over a slice of spectrum** that was supposed to be used by cars that communicate with each other to avoid crashes and improve the flow of traffic.
- **The band in question is currently underutilized.** According to one FCC commissioner, in 2018 only 3.5 percent of potential licensees actually used the band. However, rapidly evolving self-driving car development could soon put connected car technology to work on a broader scale.
- **The FCC is moving forward with a rule that** would give most of the so-called “safety band” to unlicensed uses like WiFi while reserving some for vehicle safety.
- **The particular communications technology** the FCC originally reserved the band for is outdated and has been overtaken by cellular technology.

HOW WE GOT HERE

In 1999, the Federal Communications Commission set aside 75 megahertz of spectrum — the entire 5.9 gigahertz band — for vehicle safety technology. At the time, they envisioned these radio frequencies being used for traffic light control and automatic toll collection. Now, one of the key uses for the band is wireless communication between vehicles (vehicle-to-vehicle, or V2V) and between vehicles and infrastructure (V2I). Sometimes it’s referred to as V2X — vehicle- to-everything communication, including pedestrians and bicyclists.

HOW V2X CAN SAVE LIVES:

Some cars have sensors that warn the driver if there’s a car approaching in its blind spot or that help keep the vehicle in its lane, but they’re limited to what they can “see.” V2V communications can see “through” objects to warn

a driver, for instance, that a vehicle two or three cars in front has braked hard, or to sense approaching traffic at an intersection with poor visibility. This kind of wireless communication also beats sensors at night and in foggy or snowy weather.

Rather than prompt the driver to avoid hazards, cars with more advanced driver-assist technology can take action themselves, braking to avoid a collision or steering the vehicle back into its lane. In the future, more cars will have these capabilities and will even drive themselves — the full realization of the potential of V2X communications.

Connected vehicle deployment projects on the 5.9 GHz band

As of May 19, 2020

139 total projects

72 planned projects

2,965 vehicle-based devices
2,417 infrastructure devices

67 operational projects

20,037 vehicle-based devices
7,782 infrastructure devices

SOURCE: DOT



THE COMPETITION:

The wireless and cable industries say the ever-increasing uses of WiFi demand more spectrum and that the vehicle industry has let the 5.9 GHz band lie fallow for more than 20 years. DOT refutes that assertion, claiming that there are already more than 139 planned and operational deployments of V2X communications involving 20,000 vehicles on the 5.9 GHz band.

A recent report by New America called the “vacant” 5.9 GHz band “a roadblock on a potential next-generation WiFi superhighway,” especially since it sits between the two most valuable and highly-utilized bands for high-capacity WiFi. The WiFi industry says unlicensed uses can harmoniously co-exist in the 5.9 GHz band with vehicle safety technology.

But joint DOT and FCC testing on that question is still ongoing, and up to now has shown the potential for harmful interference from non-vehicle uses.

But the WiFi lobby and tech interests have a very powerful ally: The entire FCC.

WHAT THE FCC DID:

In December 2019, the FCC unanimously approved a new plan to carve up the vehicle safety band, giving the lower 45 MHz to unlicensed uses like WiFi and keeping the remaining 30 MHz for transportation safety uses. But most or all of that would be dedicated to a different technology than the one originally envisioned for the band.

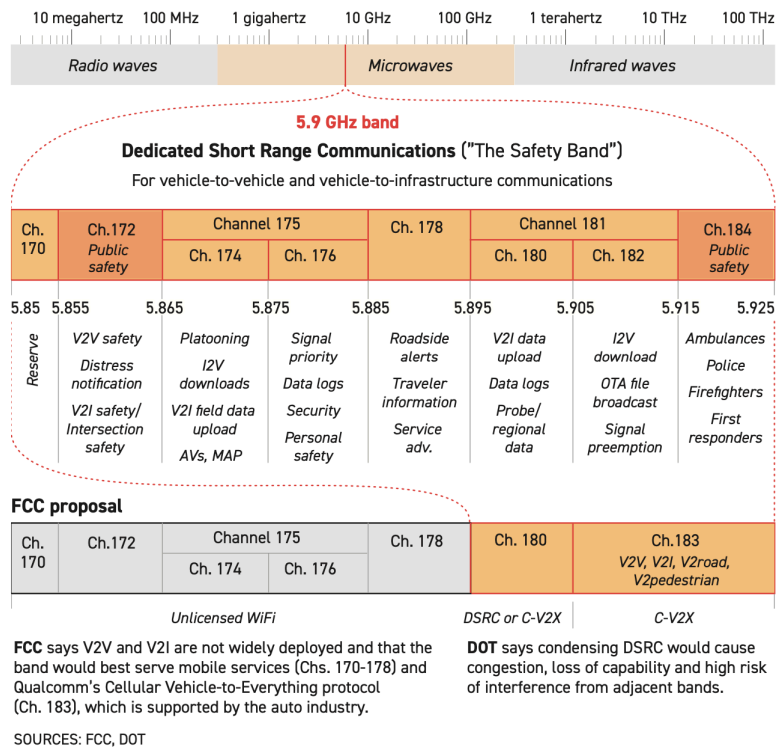
DSRC VS. C-V2X:

When the safety spectrum was set aside in 1999, it was designated for a technology called dedicated short-range communications (DSRC). But other technologies have lapped DSRC in innovation, including cellular vehicle-to-everything (C-V2X), which uses existing cellular networks and builds off the breakneck innovation of 5G and future generations of wireless technology.

In the last days of the Obama administration, DOT issued a proposed rule to require DSRC communication devices in all new light passenger vehicles — a move the DOT secretary at the time called “a no-brainer” that he was confident the incoming Trump administration would advance. But Trump’s DOT shelved the rule.

Even as she has fought back against the FCC’s attempts to reallocate spectrum to other uses, Secretary Elaine Chao has said she’s unwilling to “pick winners and losers” in technology.

FCC proposes curtailing DOT use of the 5.9 GHz “Safety Band”





The lack of regulatory certainty has persuaded several car companies to ditch plans to deploy DSRC. Some have embraced C-V2X.

The FCC plan allocates 20 MHz of spectrum to C-V2X and leaves open whether the remaining 10 MHz would be for C-V2X or DSRC.

WHAT'S NEXT:

The comment period on the FCC's proposal ran out in April 2020, but vehicle safety advocates, DOT and some states continue to pressure the FCC to reconsider before it votes to finalize the rule, which FCC Chair Ajit Pai says will happen "certainly by the end of the year." Meanwhile, lobbying has intensified on both sides of the debate in anticipation of the final vote. Testing is still ongoing to determine whether the spectrum can be shared safely.

POWER PLAYERS



FCC Chair Ajit Pai

After years of FCC grumbling about the latency of the 5.9 band, Pai did what many of his predecessors wanted to in repurposing parts of it. But he earned the ire of much of the tech community by killing net neutrality and then proceeded to make enemies with everyone from the Pentagon on down with his plans to accelerate 5G.



Transportation Secretary Elaine Chao

DOT's actions on connected cars have been a mixed bag, given Chao's refusal to move forward on rulemaking that would mandate the devices and create a level playing field for the industry. But she has been steadfast in her opposition to the FCC's attempts to give away the safety band before V2V technology really gets off the ground.



Shailen Bhatt, president and CEO of ITS America

The Intelligent Transportation Society of America, which first proposed the designation of the 5.9 band for vehicle safety, has been its most stalwart champion. Bhatt, former head of state DOTs in Colorado and Delaware and a champion of pedestrian safety, has been its most enthusiastic spokesperson.



John Bozzella, president and CEO of the Alliance for Automotive Innovation

Automakers pledged earlier this year to deploy at least five million V2X radios on vehicles and roadway infrastructure in the next five years — but only if the FCC drops its plan to break up the 5.9 GHz band.



Michael Calabrese, director of the Wireless Future Project at New America

One of the most dogged champions of the tech interests intent on capturing more spectrum for WiFi. Among his biggest funders are Google, Apple and Facebook.