

BRIEFLY NOTED

Why Couldn't the FCC and FAA Solve Their 5G Problem?

BY THOMAS W. HAZLETT AND MICHAEL J. MARCUS

The United States is racing to deploy fifth generation (5G) cellular communications, and regulators may be proud of the progress made in allocating airwaves appropriate for the task. But a fight between the Federal Communications Commission and the Federal Aviation Administration threatens to eclipse the gains.

The backstory: In the summer of 2017, Intel and Intelsat asked the FCC to allow satellite systems to change radio use in “C-Band” frequencies between 3.7 and 4.2 GHz. In the 1950s, these airwaves had been licensed for long-distance telephone, and since the 1960s they had been shared with domestic and international firms to transmit video to cable TV operators. But the technologies supplying those services have changed significantly. Satellite operators saw an opportunity: invest in new systems to reduce their bandwidth requirements, and free up spectrum. They asked the FCC for permission to sell the new rights to mobile carriers, financing the transition.

Spectrum reallocation typically is a six- to 13-year process, as per the FCC’s own calculations, but policymakers moved with uncharacteristic speed. The FCC evaluated the C-Band “re-harvesting,” proposed new rules, and invited public comment.

In 2018, U.S. jetliner manufacturer Boeing told the agency that, to be cautious, it should leave a buffer of 100 MHz between the new 5G transmissions and a band set aside for jetliner navigation. The FCC went further, allotting a 220 MHz “guard band.”

In December 2020, the FCC launched Auction 107 for 5G rights, reassigning 280 MHz of the C-Band, between 3.7 to 3.98GHz. The auction closed in February

of last year, with winning bids of \$94 billion — the FCC’s largest spectrum rights sale by a factor of two. Of the total, \$81 billion was deposited in the U.S. Treasury, with \$13 billion going to the incumbent satellite owners as compensation for clearing the band.

Wireless users would soon experience galloping speeds and superior networks, with U.S. tech leadership juiced. The C-Band reallocation had increased the availability of prime radio spectrum for mobile broadband by an impressive 36%. Verizon and AT&T, which had paid the lion’s share of the money, were set to deploy their new capabilities last December.

The FAA steps in / But as the roll-out approached, the FAA began voicing concern that the new 5G traffic could disrupt in-flight navigational systems, interfering with altimeters providing crucial data for bad-weather landings. Endangering the safety of commercial jetliners is no small matter. International carriers from Japan, India, and the United Arab Emirates announced they were cutting service to the United States because of concerns about the impending 5G.

Last November, Verizon and AT&T agreed to delay their new wireless deployments, and early this year they volunteered to reduce, for six months, the power of their 5G base stations around 50 U.S. airports. The pause should lead to a deal between the FCC, FAA, and their constituents. But why did a last-minute plea — after nearly \$100 billion in assets had been sold

by the U.S. Government, and when millions of mobile subscribers were poised to upgrade to next-generation wireless — take the place of a timely adjudication?

Back when the FCC was considering the satellite companies’ request, it solicited comments, but the FAA demurred. In 2021, a politically charged back-and-forth broke out between the agencies. Both scored points; peaceful resolution was the victim. According to the *New York Times*, the FAA claimed it issued a formal letter outlining its concerns just prior to Auction 107, but the Commerce Department — the president’s agent for federal spectrum use — failed to pass the letter along to the FCC. Interestingly, when challenged on this by Commerce, the FAA declined to provide documentation of the letter.

Is there a risk? / Electronic devices — even iWatches — create some minute signal spillovers for cockpit instruments. A 2005 Carnegie Mellon study documented just one instance of a traceable effect on a plane’s avionics, involving a DVD being turned on and off by a passenger. But the consequence was trivial, and no banning of such devices has been considered. Today, jetliner passenger cabins are thick with personal electronic devices and — in airplane mode or (accidentally, we presume) cellular mode — these devices emit incidental airwave traffic with no detrimental consequences.

The FCC did investigate concerns about 5G phones (and base stations) and airplane systems and found interference not to be an issue. Yet, the FCC has — given evidence in its proceeding — been conservative all along. The agency has imposed a current “guard band” of 400 MHz (four times the size of that suggested by Boeing), which is planned to close to 220 MHz in late 2023.

U.S. carriers routinely land in about 40 international markets where C-Band frequencies host cellular service. Dangerous incidents have not been noted and airlines have not re-routed their planes. Many of these countries employ *no guard bands at all*, as the International Telecommunications Union (an arm of the

THOMAS W. HAZLETT is the Hugh H. Macaulay Endowed Professor of Economics at Clemson University, a visiting scholar at the Hoover Institution, and formerly served as the Federal Communications Commission’s chief economist. MICHAEL J. MARCUS is an adjunct professor of engineering at Northeastern University, a fellow of the Institute of Electrical and Electronics Engineers, and formerly served as associate chief for technology at the FCC.

United Nations) spectrum guidelines do not require them. While other parameters (including power levels) merit consideration, the potential risks in those markets may be far higher than here and are yet considered *de minimis*.

So what's the problem? / In an advisory issued January 20, the FAA listed airliners that it deemed safe to operate with 5G deployments. These include all Boeing 737, 767, 787, MD-10 and MD-11 models, as well as Airbus A300, A310, A320 and A380 models. These and some other planes the FAA later added to the

fleet that the FAA has not deemed good-to-go could be done for just \$10 million. That is far less than 0.1% of the \$13 billion spent to clear the band of satellite services. This logjam should disappear for a pittance.

So, why is this simple fix so difficult to obtain?

In a standard boundary dispute, the parties figure out how to solve the conflict and then figure out who pays for it. If they cannot agree, a judge makes the call. The low-cost remedy is adopted, the problem is solved efficiently, and the parties move on.

Here in radio space, that solution is

adjudication could have mandated that the mobile carriers pay. Indeed, the wireless networks paid \$13 billion to satellite providers to make their operations compatible with 5G. The altimeter retrofit — even for the whole U.S. air fleet — would have added less than 1% to the tab. This resolution might have obtained had the FAA raised the issue back in 2018.

The political set-up, however, is that unwarranted silence brings no penalty, after which claims of airwave conflict are made for free. The FAA and air industry do not absorb the costs of delay and would not have been rewarded if they have moved expeditiously to cooperate.

The propensity for airwave regulation to waste valuable spectrum resources is a long-noted bug. Hold-ups at multiple layers in the bureaucracy combust, often rewarding policymakers who become squeaky wheels. Now, this has happened, spectacularly, even though the U.S. Government has exacted \$94 billion for the use of rights it claimed to be selling. As FCC Chair Jessica Rosenworcel said in 2015, “We have yet to coordinate our 5G strategy across the government.”

But the internecine squabbles go back much further. One of the great victories fought in spectrum policy occurred in the 1920s when the U.S. Navy argued that all radio services should be reserved for military use. The argument: what’s more important than national defense? The correct answer is, on some margins, many other radios. There exist tradeoffs, and a rational world requires a balancing. Herbert Hoover, who was secretary of commerce back then, fought for and won civilian control of the airwaves. It was a monumental leap for scientific innovation and economic progress. Ultimately, it helped even the U.S. military to enjoy the gains of vibrant commercial wireless technologies.

But the spectrum wars never really disappeared. It is time for federal policymakers to push modern turf battles into reasonable adjudications, imposing quick, efficient solutions. That might at long last complete Hoover’s triumph. R



list comprise some 90% of U.S. commercial jetliners.

If there is a problem, it isn’t with 5G or jet aircraft, but in the use of obsolete equipment. Most up-to-date altimeters easily filter out far-off transmissions. But older navigational tools are potentially susceptible — in extremely remote scenarios — to harmful interference. Two recent FAA notices (published January 27 and 31) quantify this point. The agency specified Boeing models that it cleared for takeoff (and landing) provided they upgraded navigation equipment. The average cost per plane: \$23,897. At this price point, retrofitting the 10% of the U.S. commercial

elusive because agents are under little pressure to act quickly or wisely. While the actions of the FCC, FAA, international agencies, Boeing, and the airlines reveal that a cheap equipment refresh — most of which has already happened, spontaneously — would end all substantial debate, the process is nonetheless in gridlock. Who should shoulder the modest cost? The FCC has effectively ruled that the airlines should pay for the upgrade if any mitigation strategies beyond the guard bands are needed.

However, if the finding had gone the other way and air carriers were seen as having their wireless services “invaded,” the

Whole Foods in the Brave New World

BY PIERRE LEMIEUX

A case before the National Labor Relations Board (NLRB) illustrates the importance of private property for a private company — in fact, for anybody, because corporations are not owned by ghosts or rocks.

The case is about the right of grocery chain Whole Foods Market to impose a dress code that prevents its employees, on the company's property, from wearing anything with a political or ideological slogan such as "Black Lives Matter" (BLM) or "Make America Great Again" (MAGA). The dress code requires clothing and related items (masks, pins, buttons, and such) to be "without any visible symbol, flag, slogan, message, logo or advertising."

Some employees in a dozen stores across the country refused to remove their BLM apparel, making them subject to disciplinary measures. Many apparently left the company instead of complying. Some complained to the NLRB, claiming they were "engaged in concerted activities for the purposes of mutual aid and protection by raising concerns about working conditions, including by wearing Black Lives Matter messaging at work." By prohibiting that, they claimed, Whole Foods violated the 1935 National Labor Relations Act.

By the time you read this article, the "trial" should have been held under an NLRB administrative judge. As typical of powerful regulators, the NLRB is both the prosecutor and the judge.

Avoiding constant conflict / Elizabeth Nolan Brown, who reported on the issue in *Reason*, noted that a ruling for the plaintiffs could result in a special carve-out for BLM while allowing employers to continue prohibiting other political and

ideological slogans. Or, "alternately, it could allow any type of political messaging, but something tells me supporters of the staff wearing BLM gear wouldn't be so happy to buy groceries from a guy in a MAGA mask," she notes. Why stop there? Imagine that store customers were greeted with "Let's go Brandon!" or a proclamation that "Fetal Lives Matter," "Blue Lives Matter," or some other political opinion.

In a previous suit over the same dress code provision, Whole Foods employees claimed that preventing them from proselytizing for BLM was discriminatory on the basis of race. Last year, U.S. District Court Judge Allison Burroughs ruled against that claim, noting that "there is no right to free speech in a private workplace."


Both cases are ultimately about property rights, whose function is precisely to avoid constant conflicts in society, to prevent individuals from continuously bumping into each other. The employee decides which political opinions, if any, will be advertised in his apartment, house, or car; the employer decides which opinions, if any, will be advertised on its property. Either of them is free to rent spaces or airtime or to demonstrate with the hope of persuading others to adopt their political ideas. Private property is necessary for economic freedom and individual liberty.

Putting customers first, as Whole Foods and its owner Amazon aim to do, is a formula that has been proven to foster prosperity and individual liberty. Putting workers first — well, that didn't work out too well in the old Soviet Union.

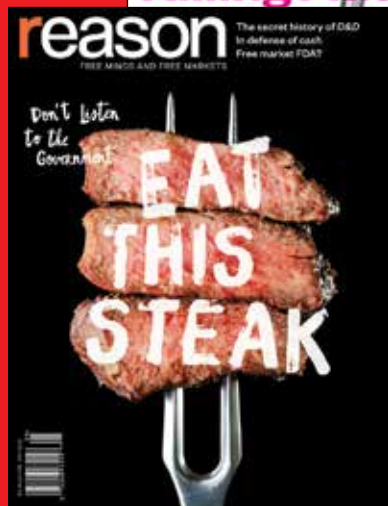
Brave new world / The incoherence of many activists and ideologues on the right and left has been noted. Some on the left want Whole Foods to let its employees promote political causes (at least the correct ones) in its stores, but they deny the right of the owners of social media platforms to let opinions (at least the wrong ones) be expressed freely. Some on the right presumably want Whole Foods to prevent political speech (at least the wrong sort) in its stores, but they don't want social media to "censor" certain opinions (of people on their side). Welcome to the jungle. (See "Facebook: Like Corporation, Like Whistleblower," Winter 2021–2022.)

The NLRB action against Whole Foods surfs on a tidal wave of corporate politicization. Bullied by activists and ivory-tower academics, suppliers and especially large corporations are supposed to embrace "woke" or other political fads. Large corporations subject their philosophically diversified clienteles to advertising messages that are, for some of the customers, annoying, insulting, or even hateful. As former diplomat Dave Seminara wrote in the *Wall Street Journal*:

When I look around my house, I see many products from woke companies that want me to know how strongly they disagree with me on pretty much every issue of the day. ... It doesn't seem like too much to ask that the businesses I patronize refrain from actively and loudly despising me.

On today's ideological scene, as the Whole Foods case illustrates, we encounter strange characters who seem focused on creating a dystopia where activists of identity groups and certain political causes have rights that others don't have. Is their implicit model the benevolent dictatorship of Aldous Huxley's 1932 *Brave New World*? One of the novel's characters repeats the naïve observation of Miranda in Shakespeare's *The Tempest*: "O brave new world, that has such people in it!" More to the point is the view of another of the novel's characters, Lenina. "After all," she says, "everyone belongs to everyone else." 

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