Questions for the Record
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Chair Maria Cantwell

Radio Altimeters and Safety of Flight. As a result of the Federal Communications Commission's ("FCC") C-band spectrum auction, new 5G wireless deployments are scheduled to begin operating in the C-Band on or about January 5, 2021.[1] The FCC's order establishing technical rules for the C-band concluded that the power and emission limitations it imposed would be sufficient to offer protection against interference, even below the level of harmful interference, but encouraged stakeholders to convene multi-stakeholder groups to develop frameworks for interference prevention, detection, mitigation, and enforcement in the band.

Since then, the Radio Technical Commission for Aeronautics was formed and filed a report in October 2020 that showed that 5G services would interfere with aircraft altimeters operating in the nearby 4.2-4.4 GHz band. The Department of Transportation, labor unions, and other aviation stakeholders agree that these 5G systems have the potential to cause harmful interference to radio altimeters, and recently the Federal Aviation Administration ("FAA") released a Special Airworthiness Information Bulletin ("SAIB") titled "Risk of Potential Adverse Effects on Radio Altimeters." According to FAA, without a satisfactory written set of mitigations, further agency actions beyond this SAIB may still be necessary to ensure safety. These FAA actions could have enormous economic impacts, resulting in significant travel and shipping and supply chain delays, disruption, and cancellations.

Aviation stakeholders have submitted numerous *ex parte* filings in the FCC's docket, concluding that the public's safety will be impacted due to interference to radio altimeters. The communications industry has likewise made numerous filings disagreeing with these claims.

Chairwoman Rosenworcel, we know that there are ongoing discussions between telecommunications and aviation stakeholders to resolve disagreements on the use of this spectrum for 5G. Are we on a path to resolving this matter in a way that all stakeholders will have been heard? If not, what additional steps are required? Are any mitigation efforts being considered to resolve this issue?

Yes, I believe we are on a path to resolving this matter in a way that all stakeholders will have been heard.

At the outset, it is important to recognize that supporting public safety is a priority for the FCC under the law. The very first sentence of the Communications Act charges the agency with

[1] Although the FCC order authorized service beginning December 4, 2021, AT&T and Verizon, the only two carriers scheduled to begin 5G cellular systems operating in 3.7 GHz before December 2023, announced they will delay operations until January 5, 2022. https://www.wsj.com/articles/at-t-verizon-to-delay-5g-rollout-over-faas-airplane-safety-concerns-11636039555?mod=Searchresults_pos3&page=1.

promoting the safety of life and property through wire and radio communications. It is essential that the FCC is mindful of this in everything it does. This means that as the Nation's expert federal agency responsible for managing spectrum, the FCC is committed to ensuring air safety when moving forward with the development of new technologies that support American business and consumer needs.

To put these principles in practice, I believe it is essential to improve the Nation's interagency processes involving spectrum decisions. If confirmed, I will work to do so. In fact, since the start of this year, I have instructed the FCC staff to work more closely with our federal counterparts in a manner that puts a premium on consultation, openness, and the rule of law. These are the values that have helped to thoughtfully and safely grow opportunities for wireless activity in the past and I believe it is essential that we recommit to them now.

The FCC's C-band rules represent the culmination of more than 15 years of international and domestic work. The 3.7 GHz band at issue in this proceeding has been the subject of global harmonization activity for mobile broadband both at the International Telecommunication Union and within regional groups around the world. More than 40 countries have allocated and assigned this spectrum for wireless deployments, and more countries are following suit. In many countries, deployment has already occurred or is underway.

Here at home, the United States has permitted wireless deployments in the 3 GHz band since 2007. Today there is robust commercial deployment up to 3.7 GHz. The FCC first sought comment on extending these deployments in 2017. In 2018, in the MOBILE NOW Act, Congress specifically directed the FCC to start a process to examine the feasibility of permitting wireless deployments up to 4.2 GHz. In 2020, the FCC adopted its C-Band Report and Order, which authorized wireless deployments up to 3.98 GHz, in order to create a guard band to protect nearby operations.

The FCC's C-band proceeding carefully and methodically worked through very complex technical issues presented in the record. The order that resulted reflected thorough analysis and consideration of the interests of aviation stakeholders that participated in the proceeding, including the adoption of a guard band that was larger than what the aviation community requested in the underlying record. This process included dozens of parties filing many reports, briefs, studies, and letters. The agency worked carefully to survey this record and address the issues as the Communications Act and Administrative Procedure Act require.

Nonetheless, as you note, additional information was supplied by RTCA after the adoption of the FCC's decision, including a report titled, "Assessment of C-Band Mobile Telecommunications Interference Impact on Low Range Radar Altimeter Operations." The report, in conjunction with other test data in the record, suggested that a subset of altimeters may not sufficiently reject unwanted signals that are outside or within the 4.2-4.4 GHz band for C-band base stations that may be near landing zones. As such, the RTCA report concluded that for these altimeters, the presence of nearby C-band operations could cause erroneous altimeter readings.

The FCC is taking this report very seriously. We have an open proceeding to review and assess the findings of this report and consider whether or not any changes to our C-band rules are warranted. We also initiated interagency meetings with the Federal Aviation Administration and targeted outreach to the aviation industry to understand their concerns and to align on a path forward both in the short term and in the long term. Furthermore, we are reaching out to our global peers to understand their experiences and to supplement our record with additional information, studies, flight tests, and real-world experiences.

As the FAA Administrator recently noted at an event in Washington on November 16, 2021, the FCC and the FAA "are having very productive discussions and we will figure this out."[2] We are engaging in these discussions with the goal of ensuring that we honor the safety needs of the aviation industry while C-band deployments proceed. As part of these discussions, and out of an abundance of caution, a wide range of mitigation measures are being considered while the agencies complete their assessments of the RTCA report. These include technical mitigations on wireless deployments, such as creating exclusion zones for some operations around airports and helipads, reducing power nationwide, and limiting transmissions skyward. The FAA also has issued specific guidance to the aviation industry via a Special Airworthiness Information Bulletin, and we anticipate additional guidance will be issued as appropriate. If confirmed, I pledge to continue to work on this effort in good faith and keep you updated as it continues.

24GHz Spectrum. Real-time satellite generated information is crucial for predictions of severe weather, which is key to protection of life, property and successful economic contributions of several industries like aviation and marine transportation. That is why I expressed concerns with the FCC's decision to auction 24GHz spectrum for commercial applications, despite NOAA and NASA's concerns that these applications interfere with their use of this spectrum band.

Question. Will you work with me to ensure that current and future auctions are informed by NOAA approved research and include mitigation solutions that fully account for the threat to life, property and economic interference to weather information?

Yes. As I noted above, I believe it is essential to improve the Nation's interagency processes involving spectrum decisions. If confirmed, I will work to do so. Moreover, since the start of this year, I have instructed the FCC staff to work more closely with our federal counterparts in a manner that puts a premium on consultation, openness, and the rule of law.

[2] *See* Bloomberg, "FCC and FAA Are Making 'Progress' on 5G Signal Woes," *available at* https://www.bloomberg.com/news/articles/2021-11-16/u-s-aviation-regulators-making-progress-on-5g-signal-woes.

Senator Richard Blumenthal

Monitoring the 3G Shutdown. As carriers transition to 5G services, all three nationwide wireless providers have announced the shutdown of their legacy 3G services over the next year. While it is important that consumers have access to faster and more efficient wireless services, each transition requires an effort to ensure that customers are not cut off based on having older devices or being located in areas where newer service is not available.

Question 1. Would you commit to providing my office an update on the legacy 3G transition prior to the shutdown of services?

Yes.

Amateur Radio Operators. Radio amateurs voluntarily provide an array of public services, especially emergency and disaster-related support communications when infrastructure has been destroyed by a hurricane or similar disaster. Their contributions in this area are regularly recognized by local and state authorities.

Question 2. Would you commit to providing my office an update on the steps that the FCC is taking to support amateur radio operators, including with respect to transitions to digital technologies?

Yes.

Senator Ed Markey

Legacy Technologies. As the telecommunications industry transitions to new services and technologies reliant on 5G networks, consumers utilizing legacy technologies that operate on 3G—who are often seniors or low-income families—may be impacted.

How do you view the need to protect these consumers still reliant on legacy technologies?

The transition from 3G wireless networks to more advanced 4G and 5G networks will produce significant benefits for all consumers, including faster speeds, greater capacity, better security, as well as new and innovative services. These updates are important because they strengthen our communications infrastructure and provide more opportunities for innovation and growth at national scale. At the same time, the FCC must be mindful that these changes can be challenging for those who rely on older networks and work to prevent consumers from being left behind.

To this end, on July 30, 2021, the FCC released a public notice seeking comment on a Petition for Emergency Relief filed by the Alarm Industry Communications Committee. Additionally, at my direction, the agency sent letters to each of the nationwide carriers requesting information about their policies, practices, and plans in connection with the discontinuance of their 3G service. The FCC also has been coordinating with its partners at the Department of Justice as this relates to activities under their purview.

As a result, the FCC is reviewing the wide range of materials it has before it on the transition and working to identify the consumers and stakeholders that are most likely to be impacted by this change, including, but not limited to, low-income households and senior citizens. Specifically, we are taking a close look at the plans of the nationwide carriers to ensure they are acting in accordance with the law and precedent in this area and right now are working with our colleagues to identify the steps to take to help ensure consumers are not left behind in this transition.

12 GHz Spectrum. How do you view the challenge of adopting a balanced approach to spectrum policy—including modernizing the 12 GHz band—that will help the United States achieve the promise of 5G, protect our economic security, and bolster competition?

I agree that the United States needs a balanced approach to spectrum policy. In practice, this means spectrum allocation that recognizes the importance of a mix of wireless opportunities, including licensed and unlicensed spectrum, federal and non-federal operations, fixed and mobile services, and new and existing uses of our airwaves.

With respect to next-generation 5G networks, the FCC has identified five key principles to help guide our 5G future. First, the agency is focused on freeing up more spectrum, and especially mid-band spectrum, for 5G. Second, the agency recognizes that we need to expand the reach of our fiber facilities, because this kind of ground-based activity is key to making next-generation wireless networks work. Third, the agency is supporting the diversification of equipment in our networks, with a special focus on open and interoperable equipment, like

Open Radio Access Networks, or Open RAN. Fourth, the agency is building greater resiliency and security into our supply chains by taking action to keep untrusted equipment and vendors out of our networks. Fifth, the agency is working to foster American leadership in setting the technology standards of the future.

Consistent with these principles, the FCC has started a proceeding to explore opportunities for making more intensive use of 500 megahertz of spectrum in the 12 GHz band. Today, this band is used for Direct Broadcast Satellite Service and Multi-Channel Video and Data Distribution Service. More recently, proponents of a new generation of satellite operations have received authorization from the agency to launch and operate constellations of hundreds or thousands of satellites using several frequency bands, including the 12 GHz band. Thousands of satellites have been launched already, with new commercial satellite broadband services rolling out across the country. The FCC is reviewing whether there may be additional opportunities to open this band up for new terrestrial use, including 5G, without causing harmful interference to existing users. That will require examining the characteristics of this spectrum band—including its propagation and capacity characteristics, the nature of in-band and adjacent band incumbent use, and the potential for international harmonization—before deciding whether and, if so, how to make it available for more intensive terrestrial or satellite use. At present, FCC staff is carefully assessing the technical record that has been developed thus far and is reviewing next steps.

Senator Tammy Baldwin

Text Messaging and 10-Digit Long Codes (10DLC). Earlier this year, mobile carriers began implementing rules changes, commonly referred to as "10DLC," purportedly to address spam text messages. These rules require high-volume text purveyors to either register, pay higher messaging fees, or see their messages blocked. There is significant concern among non-profit advocacy organizations that these changes will substantially limit their ability to effectively communicate with their membership and engage voters.

Question: In 2018, you dissented from the Commission's Declaratory Ruling that wireless messaging services are Title I information services, rather than Title II telecommunications services. You warned that "your carrier now has the legal right to block your text messages and censor the very content of your messages." Do you agree that carriers' shift to 10DLC, and the threat to non-profit advocacy organizations, is possible because of the Commission's classification of text messaging as an information service? Given your prior concerns, should the FCC revisit this classification?

Text messaging is an important part of how we communicate now, with trillions of these messages sent each year by consumers across the country.

As you note, I dissented from the FCC's decision in 2018 to classify text messaging, specifically Short Message Service (SMS) and Multimedia Messaging Service (MMS), as an information service. In doing so, the agency reduced its oversight of these forms of communication, preventing it from serving as a referee in regulatory disputes. As the expert agency with responsibility for modern communications, and in light of how much we now depend on text messaging in our day-to-day lives, I thought this was a mistake.

In general, I believe problems with text messaging would benefit from additional FCC oversight. To this end, I recently shared with my colleagues a proposal to use the Telephone Consumer Protection Act or other sources of authority to try and reduce the growing number of junk messages and robotexts consumers receive. However, more fundamental efforts will require revisiting the decision made in 2018. This would enable the agency to understand and evaluate carrier practices to see if they serve the purpose intended—for example, addressing spam texts in the case of 10DLC—or if those practices have other consumer impacts.

Alternative Connect American Fund Model (ACAM) Speeds. Under the Connect America Fund's ACAM program, hundreds of thousands of rural consumers are gaining access to broadband. However, the ACAM program, initiated in 2016, has build-out obligations with minimum broadband speeds of 10/1 and 25/3, well below the recognized speeds necessary to truly participate in our digital world and inconsistent with more-recently set standards in other broadband subsidy programs. A coalition of ACAM carriers petitioned the FCC in late 2020 to update this program by requiring those companies that agree to participate to build to higher speeds more quickly in return for extending the term of the program.

Question: If confirmed, will you support the FCC acting on a petition pending before the Commission to adopt modifications to the ACAM program to more quickly bring higher speeds to consumers served by participating carriers?

The ACAM program provides model-based support to rate-of-return carriers in return for broadband deployment obligations. There have been two offers to rate-of-return carriers to participate in the program, which ends in 2028 for most electing carriers. Participating carriers receive approximately $1.1 billion in support from the program annually.

On October 30, 2020, the ACAM Broadband Coalition, a coalition of providers that participate in the ACAM program, filed a petition for rulemaking seeking to extend the program until 2034, in return for enhanced obligations to provide higher speeds. Currently, the ACAM program requires 804,871 locations to be served at 25/3 Mbps speeds, 165,725 locations to be served at 10/1 Mbps, and 50,227 locations to be served at 4/1 Mbps speeds. The ACAM Broadband Coalition's petition for rulemaking proposes that in exchange for six additional years of support, at a cost to the Universal Service Fund of approximately $6.6 billion, participants in the ACAM program will serve 605,373 locations at 100/25 Mbps, 300,074 locations at 25/3 Mbps, and 115,376 locations at 10/1 Mbps. The FCC sought comment on the petition for rulemaking on November 4, 2020. Multiple parties filed comments in response. Recently, the Infrastructure Investment and Jobs Act became law, providing a significant infusion of funds for broadband deployment and generally requiring deployment at speeds of 100/20 Mbps. FCC staff are now evaluating the petition for rulemaking in light of the record and other developments, like the passage of the Infrastructure Investment and Jobs Act.

Pole Attachments. In many rural areas of Wisconsin, and many other states, broadband service is delivered via cables attached to utility poles. Carriers looking to expand service in these areas have indicated to me that barriers in accessing these poles are delaying the speedy deployment of broadband to those in need. However, it is also critical that pole owners' interests are taken into account, and that there is a fair and transparent process regard pole access.

Question: There is a pending Petition for Declaratory Ruling before the Commission requesting clarification of the FCC's existing utility pole attachment rules in order to reduce barriers to broadband deployment for unserved households in rural areas. In November 2020, I wrote to then-Chair Pai encouraging the Commission to promptly consider that petition. If confirmed, will you examine this petition and the FCC's rules in this space?

Yes. The petition that you are referring to asked the FCC to clarify its rules with respect to the cost allocation of pole replacements in "unserved areas."

On January 19, 2021, under my predecessor, the FCC released a declaratory ruling to make clear that it is unreasonable and inconsistent with section 224 of the Communications Act, agency rules, and past precedent, for utilities to impose the entire cost of a pole replacement on a requesting attacher when the attacher is not the sole cause of the pole replacement. However, the

agency declined to address the more specific clarifications requested by the petition, concluding that those issues would be more appropriately addressed in the context of a rulemaking.

I believe we need to find a way to ensure 100 percent of us have access to affordable, reliable, high-speed broadband in this country. If confirmed, I believe that we will need to examine all of our policies, including our pole attachment rules, to help achieve this objective.

Senator Raphael Warnock

3G Sunset. We have heard from a number of industries, including the alarm and home heath monitoring industry, about their concern over the timeline for the shutdown of 3G networks. Some of these industries have filed an emergency relief petition seeking a 10-month delay in AT&T's sunset of 3G, scheduled for next February.

Question. Will you commit to a full and fair review of the petition?

Yes. On July 30, 2021, the FCC issued a public notice seeking comment on the Alarm Industry Communications Committee Petition for Emergency Relief. Initial comments were due on August 30, 2021, with replies to those comments due on September 14, 2021. In addition, I sent letters to each of the nationwide carriers requesting information about their policies, practices, and plans in connection with the discontinuance of their 3G service. The FCC is reviewing the record and identifying next steps.

ACAM. **Access to broadband service in some parts of rural Georgia, and across the country, are below what is needed to perform basic online activities. In Georgia, nine companies that serve some of the most rural parts of the state are successfully bringing broadband to those residents through the FCC's Alternative Connect America Cost Model. Some of those companies have petitioned the FCC to modify its rules to enable them to accelerate that deployment and increase the speeds they make available to consumers.**

Question. Will you commit to expeditiously reviewing this petition and to a full and fair review of the petition?

The ACAM program provides model-based support to rate-of-return carriers in return for broadband deployment obligations. There have been two offers to rate-of-return carriers to participate in the program, which ends in 2028 for most electing carriers. Participating carriers receive approximately $1.1 billion in support from the program annually.

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Satellite Licensing. The FCC has recently authorized a number of low Earth orbit satellite constellations to provide high-speed, low-latency broadband service in the United States, including in Georgia. Historically, satellite licensing has been fairly limited and was able to keep pace with comparably low rates of development in the sector.

Question. What resources does the FCC need to ensure that regulatory process is thorough and transparent while keeping pace with industry growth?

The rapid growth of new low Earth orbit constellations provides extraordinary new opportunities for connectivity while also presenting challenges for old regulatory processes. Among the technical and policy challenges are updating spectrum access policy and mitigation techniques for orbital debris. To address these and other issues created by the growth of these constellations, the FCC will need engineers with experience in satellite matters to analyze and resolve the issues that arise with applications and requests for modification. The FCC also will need attorneys familiar with licensing rules to process the increase in applications and requests for modification and, where necessary, adopt new rules or amend existing rules. Modernizing IT resources, and for example, integrating internal databases used in the agency or in coordination with NTIA, may offer opportunities to improve the review process. Finally, the demands of these new constellations will require FCC staff to coordinate more closely with our federal partners with interest in this area, including NTIA, NASA, and the Department of State, especially with respect to our participation in international events to help support global opportunities for the satellite industry, such as the World Radio Conference in 2023.