



June 25, 2020

Mr. Travis Hall
Telecommunications Policy Specialist
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue NW
Room 4725
Attn: Secure 5G RFC
Washington, DC 20230

Via email: secure5G@ntia.gov

Docket No. 200521–0144

Dear Mr. Hall:

Samsung Electronics America (Samsung) appreciates this opportunity to respond to the Department of Commerce’s request for comments to inform the development of an Implementation Plan for the National Strategy to Secure 5G. A decade after Americans first experienced 4G technologies that changed how we live and work, the 5G era is presenting us with another critical point of transformation. The leap forward in technical performance of 5G is demonstrating a revolutionary platform for accelerated disruption. With speeds up to 20 times faster than 4G, extremely low, 1ms latency, and the ability to support up to one million device connections per square kilometer, 5G is ushering in the next generation of mobile networking—a world in which everyone and everything has almost instantaneous connectivity.

With 5G’s high data capacity and low latency, consumers as well as enterprises—everything from government services and entertainment venues to hospitals and factories—can benefit from access to new applications that improve performance, efficiency, safety, and security. This new environment will generate billions of dollars in revenue, drive innovation, and greatly influence the world economy. That is why the security of next generation wireless communications systems and infrastructure is paramount.

Samsung is a 5G leader with a strong U.S. presence.

In 2018, Samsung celebrated our 40th anniversary in the United States. What started as a small sales office in New York City has grown to more than 20,000 Samsung U.S. employees. Over the decades, we have not only provided U.S. customers with great products and services, we have delivered meaningful, transformative innovation. Our work developing and now deploying 5G is the next step in that journey. To enable 5G’s benefits, we have made major investments

and have become a global leader in 5G chips, devices, and network equipment, all from a vertically integrated, trusted, and secure supply chain.

We have been an instrumental contributor and partner in the effort to deploy 5G in the U.S from the outset. Samsung provided the equipment for the launch markets of Verizon 5G Home, a fixed wireless broadband service that launched in October 2018 as the world’s first commercial 5G service.¹ In 2019, we supported the launch of 5G New Radio (NR) mobility networks for Verizon² and Sprint.³ We are also supplying 5G equipment to AT&T⁴ and most recently, US Cellular.⁵

In addition to delivering network equipment, we supply 5G devices such as our flagship Galaxy S20 series to all major U.S. carriers⁶ and are helping to democratize 5G by offering a range of 5G device options and capabilities, including our mid-range Galaxy A series.⁷

Samsung manufactures 5G mmWave modem chips—the key processor component of a 5G base station—for its network equipment at its advanced-manufacturing semiconductor factory in Austin, Texas (Samsung Austin Semiconductor). This factory supports nearly 11,000 jobs, including Samsung employees, partner company workers and contractors, and represents a U.S. investment by Samsung of more than \$17 billion over more than 20 years. By producing its advanced 5G modem chips, Samsung is able to help improve performance and capacity and reduce the size, weight and power consumption of its 5G base stations. Innovations like these help to advance 5G’s evolution and commercial deployment.

To facilitate U.S. innovation in 5G, we have demonstrated compelling 5G use cases here. For example:

- In partnership with AT&T, we created America’s first manufacturing-focused 5G Innovation Zone in Austin, Texas to gain insights into how 5G can lay a foundation for smart factories.⁸
- Samsung’s work with fixed wireless broadband services, including both network equipment and home routers, promises to foster greater competition in the home and enterprise broadband market and reach more unserved communities.
- At CES 2020, Samsung joined BMW to showcase new approaches to creating the mobility experiences of the future with the world’s first commercialized 5G Telematics

¹ <https://news.samsung.com/us/samsung-supports-verizons-5g-home-launch-5g-end-end-solutions/>

² <https://news.samsung.com/us/verizon-samsung-5g-network-motorola-qualcomm-achieves-4-2-gbps/>

³ <https://news.samsung.com/us/samsung-technology-provides-foundation-sprint-mobile-5g-network-chicago/>

⁴ <https://news.samsung.com/us/att-selects-samsung-technology-supplier-cbrs-5g-initiatives/>

⁵ <https://news.samsung.com/us/us-cellular-selects-samsung-5g-4g-lte-network-solutions/>

⁶ <https://news.samsung.com/us/samsung-galaxy-s20-5g-series-available-today-capture-your-world/>

⁷ <https://news.samsung.com/us/galaxy-a71-5g-a-series-announcement/>

⁸ <https://news.samsung.com/us/manufacturing-stands-at-edge-of-5g-innovation-wave/>

Control Unit. BMW announced that 2021's BMW iNEXT will be the first car in the world to be equipped with 5G technology from Samsung and our HARMAN subsidiary.⁹

- We joined with Verizon on pioneering research into 5G, including the first 5G video call held at a large sporting event in 2018.¹⁰ This collaboration led to our latest test this year with Verizon and Qualcomm, in which we reached 5G peak speeds of 4.2 gigabits per second on a live 5G network, another first.¹¹
- We also collaborated with AT&T to connect fans to new kinds of immersive experiences with live sports in the nation's first 5G-enabled stadium.¹²

Globally, we leverage our business scope, R&D capacity, diversified manufacturing, financial strength, and trusted, secure supply chain to compete in markets around the world. Recent global 5G network business partnerships include all three Korean mobile operators,¹³ KDDI in Japan,¹⁴ Spark in New Zealand,¹⁵ and Telus¹⁶ and Videotron¹⁷ in Canada. We have also participated in numerous 5G trials in Asia, North America, and Europe. Furthermore, we have participated in 5G pilots with the U.S. Department of Defense (DOD) and the German Ministry of Defense and are a subcontractor on an ongoing DOD project providing secure 5G.

Samsung is deeply engaged in 5G R&D at our research centers worldwide, including our telecommunications R&D center in Plano, Texas, which was one of the leading centers for our 5G mmWave development and is now researching 6G technologies. Samsung is also a leader in international standards bodies such as the 3rd Generation Partnership Project (3GPP), which is the key venue responsible for developing global 5G specifications. As a result of this longstanding commitment to 5G standards and R&D, a January 2020 study by Iplytics GmbH found that Samsung leads the world in 5G patent families granted.¹⁸

Based on this history of commitment to U.S. and global engagement in developing and deploying trusted, secure 5G, Samsung offers the following specific responses to the Department of Commerce's questions in its request for comments.

⁹ <https://news.samsung.com/global/samsung-unveils-latest-5g-telematics-control-unit-tcu-technology-and-bmw-partnership-at-ces-2020>

¹⁰ <https://news.samsung.com/us/kt-verizon-samsung-to-demonstrate-5g-innovation/>

¹¹ <https://www.samsung.com/global/business/networks/insights/blog/samsung-networks-joins-verizon-to-demonstrate-another-5g-first/>

¹² https://about.att.com/story/2019/5g_at_att_stadium.html

¹³ <https://news.samsung.com/us/samsung-achieves-largest-share-5g-network-solutions-korea-advances-next-level-5g-service/>

¹⁴ <https://news.samsung.com/global/samsung-selected-as-a-5g-network-solution-provider-for-kddi-in-japan>

¹⁵ <https://news.samsung.com/us/samsung-spark-new-zealand-5g-networks-deal/>

¹⁶ <https://news.samsung.com/us/samsung-telus-5g-provider-canadian-operator/>

¹⁷ <https://news.samsung.com/us/samsung-selected-4g-lte-5g-network-solution-provider-videotron-canada/>

¹⁸ <https://news.samsung.com/us/samsung-leader-patents-granted-5g-iplytics/>

Line of Effort 1: The U.S. Government can best facilitate the domestic rollout of 5G technologies by increasing spectrum availability, streamlining infrastructure deployment, promoting end-to-end security, and supporting development, testing, and evaluation.

Samsung believes that, just as the right policies and regulations have played a pivotal role in the success of each generation of mobile technology, they will also help drive the industry ecosystem toward rapid, widespread deployment of 5G. We look forward to working with our government partners as they bring more spectrum to commercial use, streamline regulations on infrastructure deployment, and promote end-to-end security:

- U.S. competitiveness in 5G requires a combination of low, mid and high band spectrum. The Federal Communications Commission (FCC) made the U.S. a world leader in commercialization of high-band and low-band spectrum, in which carriers are deploying 5G. The FCC is now making crucially important progress on mid-band spectrum. The FCC should complete its scheduled CBRS and C-band auctions in a timely manner and proceed with additional mid-band spectrum allocations.
- U.S. 5G competitiveness also requires rapid deployment of infrastructure. Every level of government has a role in modernizing infrastructure siting rules. The FCC has adopted rules that guide local governments in avoiding unreasonable fees and delays in small-cell site approvals. Some forward-looking state and local governments have raced ahead with streamlined regulations and have reaped the reward in early 5G investments.
- The U.S. Government should support 5G security through its procurement policies, including by establishing clear security requirements for its own deployment of 5G networks. For example, the National Spectrum Consortium (NSC), on behalf of DoD, this year released four Requests for Prototype Proposals (RPPs) focused on 5G applications for smart warehouses, augmented reality/virtual reality, and dynamic spectrum sharing. These RPPs are excellent models for how government can stimulate enterprise 5G by procuring secure, trusted 5G for its own use. Additionally, the U.S. Government, in partnership with industry, can host educational and technical events that showcase the advantages and capabilities of the 5G ecosystem.

Line of Effort 2: Stakeholder-driven standards bodies and public-private partnerships should be leveraged by the U.S. Government to promote adoption of policies, requirements, guidelines, and procurement strategies necessary to establish secure, effective, and reliable 5G infrastructure.

Samsung is actively participating in developing global 5G standards within the 3rd Generation Partnership Project (3GPP). Because of the efforts of the 3GPP working group for security, SA3,

which is tackling key improvements and lessons learned from 4G, 5G is more secure than any previous wireless generation. The U.S. Government should defer to industry stakeholders to lead in developing these security standards in what has been a fair and transparent process, acknowledging that certain categories of networks (e.g. national security and critical infrastructure) will require higher levels of security.

In addition to technical standardization, there is also a role for stakeholder-driven development of voluntary guidelines and government procurement specifications to enhance 5G security and trustworthiness. Samsung serves on the Executive Committee of the Department of Homeland Security (DHS) Information Technology Sector Coordinating Council (ITSCC) and as a member of the Communications Sector Coordinating Council (CSCC). These organizations are the principal entities for private sector coordination with the government on a wide range of critical infrastructure protection and cybersecurity activities, including 5G security issues. Samsung also serves on the Executive Committee and co-chairs one of the working groups of the DHS Information and Communication Technology Supply Chain Risk Management Task Force (TF). The TF is a public-private partnership formed to develop consensus recommendations to identify and manage risk to the global ICT supply chain, including stimulating best practices through education and government procurement. Samsung appreciates DHS's leadership in this area, fully supports these government and industry collaborations, and recommends that the TF be the key forum to address core issues of concern around 5G security.

Additionally, Samsung is a founding member of the Council to Secure the Digital Economy (CSDE), which brings together companies from across the ICT sector to combat increasingly sophisticated and emerging cyber threats through collaborative actions. As the architect of the successful C2 Consensus on IoT Device Security Baseline Capabilities¹⁹, the CSDE convened 20 trade associations, standards development organizations, industry alliances and coalitions to develop technically deep industry consensus on IoT security. The CSDE is another important stakeholder entity that the government should leverage to tackle challenging 5G policy issues.

Line of Effort 4: The U.S. Government can best lead the responsible international development and deployment of trusted and secure 5G technology by promoting international operationalization of the Prague Proposals, supporting flexible financing tools, and enacting the Multilateral Telecom Security Fund.

Samsung recommends that the U.S. Government collaborate with governments around the world to raise awareness of the importance of deployment of trusted and secure global 5G infrastructure. This includes encouraging the international community toward operationalizing the 5G security recommendations from the May 2019 Prague 5G Security Conference (the

¹⁹ https://securingdigitaleconomy.org/wp-content/uploads/2019/09/CSDE_IoT-C2-Consensus-Report_FINAL.pdf

“Prague Proposals”).²⁰ By using the Prague Proposals as a foundation for policymaking, global governments can further promote procurement of trusted and secure 5G equipment.

The U.S. Government should also support flexible financing tools to assist nations in deploying secure 5G networks. For example, two existing entities, the U.S. Development Finance Corporation (DFC) and the U.S. Export-Import Bank (EXIM), are working to support suppliers of trusted, secure 5G network equipment with competitive financing options. Facilitating and streamlining DFC/EXIM authorities regarding telecommunications infrastructure projects worldwide would go far to enhance global 5G.

A proposed new tool in support of global deployment of secure and trusted telecommunications technologies is the Multilateral Telecom Security Fund (part of the USA Telecom Act introduced in the Congress this year), and we recommend it be enacted. The fund would help the Department of State to support the development, adoption, and deployment of secure and trusted telecommunications technologies.

Thank you for the opportunity to offer our views. Please do not hesitate to contact the undersigned if you have any questions or need additional information.

Sincerely,



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²⁰ <https://www.vlada.cz/en/media-centrum/aktualne/prague-5g-security-conference-announced-series-of-recommendations-the-prague-proposals-173422/>