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National Telecommunications and Information Administration (NTIA)

United States Department of Commerce

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This letter is submitted by Sigfox Inc. ("Sigfox") in response to the notice published by the National Telecommunications and Information Administration ("NTIA") within the U.S. Department of Commerce ("Department"), which seeks inputs about the green paper "Fostering the Advancement of the Internet of Things" [1] that lays out an approach and areas of engagement for the Department's possible future work on the Internet of Things (IoT). Hence, we hereby provide comments on the issues and proposed approach, current initiatives, and next steps laid out in this paper.

Sigfox is a world's leading Internet of things (IoT) services provider that is building an enhanced integrated global low-power wide area network (LPWAN) for powering low-cost and low-energy consumption devices. Sigfox's unique approach to device-to-cloud communications addresses the three greatest barriers to massive IoT adoption: cost, energy consumption, and global scalability.

Sigfox appreciates the intention of the Department's initiative and congratulates NTIA for the excellent work done in capturing the wide range of feedback received during the first RFC. We believe that the resulting green paper captures well the essence of the needs to realize the full potential of IoT. Our response to the NTIA's IoT RFC aims to share our market knowledge and to offer guidance on the emerging IoT technologies which should be the strategic focus for the U.S. Department of Commerce's future role and resources.

We strongly believe that the full potential of IoT can only be achieved by implementing the right policies, and by enabling the establishment of the required infrastructure to provide the associated benefits to consumers, society and economy in general. Therefore, we would like to stress the importance of the following points in supporting the development of IoT in the U.S.:

- Availability and ease of access to existing and new infrastructure is key for connectivity. Massive IoT will encompass several vertical markets in different urban and rural regions. Therefore, both existing and new infrastructure should be considered to enable ubiquitous connectivity to address all current and future IoT use cases.

- In order to foster the economy and promote IoT innovation in the U.S., especially with small and medium-size businesses that rely on low cost technological developments, there is a strong need for unlicensed and globally-harmonized spectrum. In particular, some bands are better suited for massive IoT, requiring low-power consumption and providing long range and strong

penetration – like sub-1 GHz bands, as mentioned in the previous RFC responses submitted by Hewlett Packard Enterprise (HPE) [2], Silver Spring Networks [3], and the Wi-Fi Alliance [4]. In Europe, the European Conference of Postal and Telecommunications Administrations (CEPT) is recommending the European Commission (EC) to liberalize the 915-921 MHz band with the intent to harmonize with the North American ISM band allocation. Also, lower frequency bands like the 450-470 MHz band should be considered for unlicensed use to support IoT applications. Sigfox would like to encourage administrations to apply common rules to access the shared spectrum, so that technical neutrality is maintained and local businesses can benefit from the global economy of scale.

- It is important to support and encourage the adoption of open Internet standards developed by well-established standards development organizations (SDOs), such as the Internet Engineering Task Force (IETF) [5], notably IPv6 and the suit of IoT-specific communication protocols. These standards can enable interoperability of IoT applications as well as IoT-based services, like those based on data semantics.

- Foster multistakeholder collaboration and provide a platform for discussion on issues such as security and privacy implications of IoT, whereby different actors in the IoT chain can help each other and hence protect consumers, operators, service providers, and the economy in general. Sigfox's agrees with the previous RFC response provided by the Internet Society (ISOC) [6] in that a bottom-up approach is needed, where security issues can be addressed close to where they occur, instead of centralizing responsibility amongst a few. Also, Sigfox strongly believes that different levels of security should be implemented considering both, risk-based approaches that take into account the criticality and type of application, as well as cost of implementation to allow for ease of innovation. Sigfox also strongly supports the protection of individual's data and cross-border data flows.

- Support open and low-cost royalty standards and policies that promote innovation. In this sense, it is important to allow innovators to operate within frameworks that provide clear guidelines on intellectual property licensing, with fair, reasonable and non-discriminatory (FRAND) terms and reasonable rates. These reasonable rates should consider the value of the relevant functionality of the smallest saleable compliant implementation, as well as the value that the intellectual property contributes to this smallest saleable compliant implementation.

- All IoT market forecasts indicate an exponential growth of IoT devices and applications, where the figures differ only in the number of billions of IoT devices that are expected to connect in the future. Sigfox is a pioneer in IoT connectivity and in just a few years we have already witnessed this exponential growth. For instance, one impact of Sigfox as a technology enabler, is that several start-ups and businesses are being created around the limitless possibilities given by the disruptive nature of our network. The IoT Valley, created around Sigfox headquarters, is a perfect illustration of the impact on local economies. Also, since the beginning of the operations in France in 2014, there have been over 400 start-ups that have joined the ecosystem with innovations ranging from IoT modules and devices, to Internet applications and cloud platforms. In the U.S. we are experiencing a similar trend, where since 2016 there have been over 200 local start-ups that have joined the ecosystem that globally encompasses close to 1000 small-medium enterprises (SMEs). The fact that all these new enterprises can benefit from the global economy of scale, makes IoT one of the most attractive fields to invest their resources. IoT also allows unlimited applications and verticals to benefit from new business models, cost savings, etc.

Typical examples of these include location-based services, smart home, smart cities, agriculture, and industrial applications. Thanks to its low-cost, low-power and cloud-based network properties, Sigfox addresses the mass of objects, that do not make economic sense to connect with other radio technologies. Asset tracking, forest fire detection, domestic water leak detection, car parts monitoring, and automated button replenishment, are some examples of these mass IoT applications. For these applications to make economic sense, devices should cost below $5, and should work for several years on simple AA-type batteries. These figures can only be achieved with the right technologies, like LPWAN, and with the right regulatory frameworks in place.

Sigfox encourages NTIA and the U.S. Department of Commerce to continue fostering an enabling environment for IoT technology to grow by collaborating with the private sector, and by promoting technology-neutral standards and consensus-based multistakeholder approaches to policy making.

Sigfox appreciates the opportunity to provide its views on the Department's possible future work, and we look forward to collaborating with NTIA and the U.S. Department of Commerce to continue realizing the technological, economic and societal benefits of IoT.

Respectfully submitted,

By: */s/ Allen A Proithis*

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Sigfox Inc.

REFERENCES

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