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28 March 2022

Response to PTS Consultation regarding the planned auction procedure for allocation of spectrum licenses in the 900 MHz, 2.1 GHz and 2.6 GHz spectrum bands ("**Consultation**").

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**To:** Post och Telestyrelsen ("**PTS**")  
**From:** Huawei Technologies Sweden AB ("**Huawei**")  
**Date:** 28 March 2022

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Huawei would like to thank PTS for the opportunity to comment on the Consultation and would like to express the following opinion.

**1. INTRODUCTION**

- (1) PTS expects that the use of radio transmitters in the 900 MHz, 2.1 GHz and 2.6 GHz spectrum bands (the "**Spectrum Bands**") will not differ from those in the use for the 3.5 GHz and 2.3 GHz bands and states that PTS intends to combine the new licenses with similar generic and special conditions of importance for Sweden's security as those previously used (the "**Security Conditions**").<sup>1</sup>
- (2) In Huawei's view, PTS should consider a different approach in these auctions that would benefit predictability, competition, innovation, cost effectiveness for operators and end users and Sweden's security, all in a proportionate way.

**2. THE USE CASES OF SPECTRUM BANDS MAY BE DIFFERENT FROM 3.5 GHZ AND 2.3 GHZ**

- (3) The use of radio transmitters in the Spectrum Bands will likely differ from the use in the 3.5 GHz and 2.3 GHz bands which are used only for 5G spectrums.
- (4) The Spectrum Bands are more likely to involve use cases which require lower transmission speeds, lower volumes of data traffic and higher tolerance for latency. Some parts of the Spectrum Bands are likely to be used for 4G LTE network technologies for years to come. As a result, the security related conditions should be considered differently. For example, the 900MHz is more suitable for less densely populated areas and therefore will not represent the same use as 3.5 GHz and 2.3 GHz bands (which are best bands for 5G networks). As an example of such use case is a remote reading of a water meter.

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<sup>1</sup> The Consultation, page 30.

- (5) The fact that the potential risks vary depending on the application and intent of the operator, means that applying the same Security Conditions to the Spectrum Bands which were applied to 3.5 GHz and 2.3 GHz bands may not be the best overall solution.

### 3. PROPORTIONALITY

- (6) Pursuant to the principle of proportionality, no Security Conditions should go beyond what is *necessary* to achieve the objective of the conditions. And such the conditions should be based on the real, current and sufficiently serious threats in relation to each license.
- (7) Huawei would suggest PTS to impose technical measures such as end-to-end encryption, proper management access authorization and other related solutions to control security risks.
- (8) Another measure to consider is to adopt a multi-provider strategy by using different equipment providers for different network elements, where stricter requirements are applied for providers in most sensitive network elements (the core network). Another example is to implement different vendor equipments in different geographic locations.
- (9) Furthermore, cyber security is evolving and there are measures to control security concerns such as existing guidelines and standards (including PTS's ordinances). Cyber security management is a continuous approach, and more and more stakeholders agree that cybersecurity is verifiable and manageable by stakeholders across the full ecosystem working with each other, following the industry guidelines, for example, 5G Knowledge Base from GSMA, which collates the industry-recognized threat landscape, role-specific mitigation measures and suggestions, and standards and best practice for reference. These guidelines are updated regularly to guide the stakeholders to ensure the end to end network security.
- (10) As a result of the requirement of proportionality, it should be considered that there are other less restrictive measures available to achieve the goal. For these reasons, and as will be developed below, Huawei believes that there is the need to involve relevant stakeholders in the development of new Security Conditions.
- (11) Given that these Spectrum Bands are all in use relying on legacy infrastructure and Spectrum Bands are most relevant for less densely populated areas rather than major cities the economic costs for new Security Conditions should be assessed carefully.

### 4. INVOLVEMENT OF STAKEHOLDERS

- (12) The conditions considered should also be communicated to relevant stakeholders (such as operators, equipment providers or industry associations) to allow such stakeholders to provide their comments. By involving stakeholders and guaranteeing the stakeholders' fundamental and procedural rights, different technological and organizational measures may be considered thereby leading to more proportionate Security Conditions. It would also allow PTS and the stakeholders to remedy any non-clarities concerning the conditions, thereby ensuring that operators, suppliers and other stakeholders have a firm understanding on the conditions and how they are to be interpreted and adhered to.
- (13) The decisive factor for assessing risks should be fact-based and on whether the *equipment or functions* as such can lead to security risks and if so, how these risks can best be managed and mitigated.

- (14) Going forward, the process would benefit from involving concerned stakeholders. This would also be in line with the International Telecommunication Union (ITU) G5 collaborative regulation framework.<sup>2</sup>

**5. CONCLUSION**

- (15) Proportionate conditions reached in collaboration with relevant stakeholder should be considered. We think that diversity of equipment providers would increase security, competition and innovation, and would ensure fair cost and reasonable service prices.

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<sup>2</sup> <https://www.itu.int/en/ITU-D/Regulatory-Market/Pages/Policy-&-Regulatory-Frameworks.aspx>