

# **CONSULTATION PAPER ON THE REGULATORY FRAMEWORK FOR DEVICES USING ULTRA-WIDEBAND TECHNOLOGY**

**Submission by the StarHub Group to the  
Info-communications Development Authority of  
Singapore**

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## DETAILED COMMENTS

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### 1 INTRODUCTION

StarHub welcomes the opportunity to comment on the Regulatory Framework for Devices using Ultra-wideband (“UWB”) Technology. As UWB technology is still at a nascent stage, StarHub believes that IDA should exercise caution in allowing devices that use UWB frequencies, particularly when such devices are used in proximity to existing wireless networks. We also propose that IDA should develop guidelines setting out the actions to be taken where such devices interfere with existing networks.

Finally, we would note that IDA’s website states that *“in Singapore, IDA identified UWB technology as one of its strategic technology bets in 2001 and a multi-disciplinary task force was set up within IDA to strategise and execute the IDA UWB Programme.”* As part of IDA UWB programme, we understand that various tests were carried out to determine the functionality and impact of this technology and its associated devices. We would suggest that it might be helpful if IDA could share the results of any UWB tests, so that existing operators can better understand the potential impact on their networks of such technologies.

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### 2 RESPONSE TO SPECIFIC QUESTIONS

StarHub is pleased to provide our comments to specific questions in IDA’s consultation paper.

#### Question 1

**IDA invites comments on the proposal to allow UWB devices to operate in frequency bands which are used for other radio-communication services such as fixed-satellite (FSS), fixed services (FS) and radionavigation.**

#### Question 2

**IDA also seeks views on the possible scenarios of harmful interference from UWB devices to other bands and the possible measures to reduce the risk of interference.**

While StarHub expects the incidences of interference to be relatively remote, we believe that IDA should develop guidelines on the placement of UWB transceivers. We submit that IDA also needs to set the permissible transmission power of such transceivers, given that they can affect other wireless equipment operating in a different frequency band. For example, there may be a need for a minimum separation distance between UWB transceivers and the in-building antennae used by mobile operators, given the possibility of interference caused by harmonics if both types of equipment are used in close proximity.

**Question 3**

**IDA welcomes views and comments on the proposal to adopt a licence-exempt approach for UWB consumer and business data communication systems which comply with the UWB technical specifications and operate with peak emission within the 3400 MHz and 10600 MHz band.**

StarHub believes that, as UWB technology is at a nascent stage, IDA should adopt a cautious approach to regulating the use of UWB equipment. As IDA will be aware, wireless communications are widely used in Singapore, and any disruption to existing wireless networks can create significant inconvenience to users of the existing networks. In addition, each time a disruption caused by interference occurs, the existing network operators will need to incur substantial costs and lost time to troubleshoot and establish the cause of the interference.

StarHub therefore strongly urges IDA to impose a requirement for type-approval for such equipment. This requirement will ensure that the risk of interference is minimized.

**Question 4**

**IDA further invites comments on the proposal to allow licence-exempt UWB devices implemented with mitigation techniques to operate at a higher peak emission level within the 3400 to 4800 MHz band as compared to generic UWB devices without mitigation techniques.**

StarHub understands that UWB frequencies are primarily used for “near-field” applications. Therefore, StarHub submits that there is no need for such devices to operate at a higher peak emission level (whether or not such devices have built-in mitigation techniques). We would therefore not support the proposal to allow licence-exempt UWB devices implemented with mitigation techniques.

**Question 5**

**IDA welcomes views and comments on the proposal to adopt licence-exemption approach for UWB vehicular radar devices which comply with the UWB technical specification and operate with peak emission within frequency bands 21650 – 29500 MHz and 77000 – 81000 MHz.**

StarHub has no comments on this question.

**Question 6**

**IDA welcomes views and comments on the decision to license, on a case-by-case basis, the use of UWB imaging systems with peak emission below the 960 MHz or in the 3400 to 10600 MHz band.**

**Question 7**

**IDA also seeks comments if licensing conditions are required as further safeguards to existing users in the abovementioned band. If so, please identify and explain the potential interference to the mobile and trunked services from the UWB imaging devices operating in the frequency band below 960 MHz. Please also explain what are the safeguard measures that could be adopted.**

As IDA is aware, the 960 MHz band resides in close proximity with the current GSM900 band. With the high penetration of mobile users in Singapore, StarHub submits that any disruption of mobile services, even within a localized area, can lead to significant inconvenience to mobile users. StarHub therefore submits that UWB devices should not be allowed to operate in the 960 MHz band, given the risks inherent in such an allocation.

As UWB devices are not widely available at this time, StarHub is not in a position to comment on the potential interference that can arise from the use of such devices in the 960 MHz band. However, as part of IDA's UWB Programme, such issues may already have been tested and established. IDA and the UWB Programme participants might therefore be in a good position to comment on the potential interference that could arise.

In regard to safeguards, StarHub believes that IDA should develop guidelines for UWB users to address situations where interference occurs. We would propose that these guidelines be developed in consultation with the industry. StarHub would suggest the following "rules of engagement", when interference occurs:

- a) Since mobile networks serve a larger segment of the public, mobile operators should be allowed to continue with their services, and UWB users should be required to shut down their equipment;
- b) UWB operators should be required to establish that their equipment "is not at fault", and are not the cause of the interference before such equipment can be re-activated.

Given that there are more than 4.7 million mobile customers in Singapore, we believe that these conditions are necessary.

**Question 8**

**IDA welcomes views and comments on the proposed licensing fee structure for UWB devices. Please provide supporting reasons to justify your view.**

StarHub does not have any comments on this question.

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### **3 ADDITIONAL COMMENTS**

StarHub would note that UWB devices can potentially use frequencies that are very close to the existing GSM 2G band (such as 960 MHz). As IDA will be aware, mobile equipment manufacturers are already developing 3G equipment that can operate in the 2G band. It is therefore possible that in the near future, with the development of Long Term Evolution for Universal Terrestrial Radio Access Network (“LTE”), there could be a need for IDA to allocate existing 2G spectrum (as well as spectrum in the vicinity of existing 2G spectrum) to provide a migration path for the existing 3G networks.

StarHub also notes that UWB devices can operate within the present WiMax spectrum band, specifically the 3.5 GHz band. Although IDA has not yet allocated this band for WiMax usage, there may be a future requirement for this band, depending on the take up of wireless broadband services.

StarHub therefore submits that IDA should bear in mind the possibility of such future needs when it develops the regulatory framework for UWB devices in Singapore.

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### **4 Conclusion**

Given that UWB devices are meant to operate under “near-field” conditions, StarHub does not anticipate many incidences of interference between UWB “networks” and the existing wireless networks. However, given that any interference will result in significant inconvenience to a large number of mobile users, StarHub would strongly urge IDA to ensure that guidelines are in place to manage any disruptions. StarHub would also propose that UWB devices be type-approved to ensure that cases of interference can be minimized.

StarHub notes that UWB operates in frequencies that can be used for other technologies, and recommends that IDA takes the development of such technologies into account as it develops its framework for regulating UWB devices. StarHub is grateful for the opportunity to comment.