

**Alereon letter to  
Info-Communications Development Authority of Singapore  
on  
Public Consultation Paper  
Regulatory Framework for Devices Using Ultra-Wideband  
Technology**

Alereon is pleased to submit comments regarding the Draft Regulatory Framework for Ultrawideband Devices as proposed by iDA Singapore. We commend iDA on its diligent work to help bring this new technology to market; the experimental rules for a UWB\_Friendly Zone (UFZ) that iDA approved in early 2003 were widely considered progressive and provided stimulus to the UWB community. Alereon looks forward to working with iDA Singapore in continued efforts to improve spectrum capacity, management, and coexistence.

Alereon has extensive experience in developing UWB technology, both pulsed and OFDM based. We believe UWB technology represents an important step forward in developing the high data rate communications needed for the future, and its deployment will have a significant positive impact on the economies of countries where it is sold, while causing minimal impact on incumbent services. With these in mind, Alereon has the following specific comments to the proposed regulatory framework:

**Question 1**

*Q1: IDA invites views and comments on the proposal to allow UWB devices to operate in frequency bands which are used for other radiocommunication services such as fixed-satellite (FSS), fixed services (FS) and radionavigation.*

R1: Analysis presented at meetings in ITU-R, ECC TG3, IEEE and other venues show conclusively that UWB emissions will not cause significant interference to services such as C-band satellite and radionavigation. Alereon agrees with iDA that the -70dBm/MHz emission limits for UWB devices without mitigation techniques will adequately protect those services. A power spectral density of -41.3dBm/MHz for devices employing mitigation techniques is consistent with regulations in other countries – see R4 below.

## **Question 2**

*Q2: IDA also seeks views on the possible scenarios of harmful interference from UWB devices to other licensed bands and the possible measures to reduce the risk of interference.*

R2: Alereon does not believe UWB devices are likely to cause “harmful interference” to other licensed bands, especially in outdoor usage. In indoor usage, the only interference potential of merit is the possible interaction with Broadband Wireless Access (BWA) in the 3.5GHz band. To the extent there is the potential for interference to BWA, Alereon and other companies in the WiMedia Alliance have worked closely with other regulators and the WiMax Forum to develop Detect and Avoid (DAA) strategies that effectively manage the possible interference between these systems.

## **Question 3**

*Q3: 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 specification and operate with peak emission within the 3400 MHz and 10600 MHz band.*

R3: Alereon agrees that the economic benefits of global deployment of WiMedia’s UWB technology are best realized under license-exempt regulations. This philosophy is consistent with the approach taken in other countries in the world as well as ITU.

## **Question 4**

*Q4: 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.*

R4: While operation with mitigation techniques between 3.4-4.8GHz is consistent with most other regulatory requirements in Europe and Asia, every other country has allowed the use of 4.2-4.8GHz without mitigation techniques until some future time. Alereon requests that the 4.2-4.8GHz band be allowed for UWB use at -41.3dBm/MHz without mitigation techniques until the end of 2010. This will allow the UWB industry to work with regulators and other industries to develop appropriate DAA technology.

## **Question 5**

*Q5: 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.*

R5: No comment.

**Question 6**

*Q6: 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.*

R6: No comment.

**Question 7**

*Q7: 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.*

R7: No comment.

**Question 8**

*Q8: IDA welcomes views and comments on the proposed licensing fee structure for UWB devices. Please provide supporting reasons to justify your view.*

R8: Alereon does not believe licensing fees are appropriate for high volume, globally deployed, consumer devices such as those that will employ WiMedia and Wireless USB technology. No other regulatory agency, including ITU-R, has recommended or implemented licensing fees for these types of devices. Other wireless technologies designed for similar use, such as Wi-Fi and Bluetooth, are not assessed licensing fees. We believe a licensing fee for Wireless USB and other UWB devices based on WiMedia will deter shipment of these products into Singapore and dramatically reduce the economic and consumer benefits of this technology

**Other Comments:**

**Out of band emission limits below 3.4GHz**

R9: The suppression limit of -85dBm/MHz at 3.4GHz is extremely difficult to meet without a transition band; Alereon would prefer to see a transition band where the limit is -70dBm/MHz down to 2.7GHz, then drops to -85dBm/MHz. This would still protect UMTS at 2.7GHz, but would give the UWB industry emission limits that are more reasonable and practical to measure.

### Extension of upper UWB band from 8.5 to 9GHz

R10: Alereon strongly supports use of the frequencies above 6GHz for UWB devices. Thus, Alereon recommends opening the band from 8.5-9GHz. This would harmonize Singapore's regulations with Japan and Korea; we believe the EC is also likely to open this band up for UWB devices. A more progressive approach would be to open 6-10.6GHz for UWB devices, which would give the UWB and Wireless USB industries an additional incentive to build products for these bands.

### Increased transmit power in 6-9GHz UWB band

R11: As mentioned in the previous response, Alereon believes the bands above 6GHz should be available globally without the need for mitigation techniques. Furthermore, because of the path losses in this band, we believe UWB devices would benefit from additional transmission power. iDA's UFZ regulations allowed power levels of -35dBm/MHz, and we believe this power level is still appropriate for UWB devices between 6-9GHz. We do not believe this additional power level will adversely impact any existing services in this band, and will allow UWB devices to operate at distances substantially equal to those designed for the 3-5GHz band. Additional power in this band would send a strong message to the UWB industry that regulatory agencies want devices to use the higher frequencies. Allowing power levels of -35dBm/MHz in the 6-9GHz band will demonstrate Singapore's continued progressive policies toward UWB, just as did the UFZ regulations.

Respectfully submitted,  
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