M1'S RESPONSE TO IDA'S PUBLIC CONSULTATION PAPER ON THE REGULATORY FRAMEWORK FOR DEVICES USING ULTRA-WIDEBAND TECHNOLOGY

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1. M1 welcomes the opportunity to submit our views and comments to IDA for its consideration in formulating a coherent regulatory framework for devices using ultra-wideband ('UWB") technology.

2. M1 has been providing cellular mobile services to the Singapore market since 1 April 1997 and in 2000, we launched our international telephone services. In February 2005, M1 took the lead in introducing 3G technology and launching our 3G services. We launched the M1 Broadband service in December 2006, reaffirming M1's commitment to offer customers high quality services that complements mobility with high speed and wide area coverage for data intensive applications in the home, office and mobile broadband market.

3. There is significant world-wide effort ongoing to explore the compatibility of UWB systems and systems operating under various radiocommunication services, as well as to develop standards and regulations for the introduction and use of UWB systems. M1 supports IDA's formulation of a regulatory framework for devices using UWB technology to draw a good balance between facilitating the introduction of new technologies such as UWB, while protecting the current radiocommunication services from harmful interference.

M1's Views on IDA's Proposed Regulatory Framework for UWB

4. In 2004, IDA conducted a joint study with M1 on the co-existence of UWB devices and GSM1800/3G devices on M1's 2G/3G networks. The test concluded that UWB devices caused harmful interference to the GSM1800/3G terminals under certain situations. The emission limit of the UWB device used in the test was capped at -61 dBm/MHz.

5. In this current consultation, IDA proposed to cap the emission at -70dBm/MHz within the operating frequency range from 3.4GHz to 6 GHz. Although this proposed emission limit will reduce the interference to the GSM1800/3G devices, we would recommend that IDA conduct tests on the new emission mask to ensure that the proposed emission mask is low enough to minimise the interference caused by the UWB devices.

6. A few possible scenarios of the interference from UWB devices are as follows: -

   a. The UWB devices will potentially cause interference to GSM1800 and 3G devices, especially when the UWB devices are in close proximity to these devices. In the case of 3G devices, if any of the device experience poor Block

Error Rate, the Base Transceiver Station ("BTS") will be asked to increase the transmit power. This will further degrade the Ec/No and impact other 3G terminals operating in the vicinity. On the BTS end, the higher power required to serve the affected 3G terminal will result in reduced cell coverage area and capacity.

b. The UWB devices may degrade the Ec/No of the 3G terminal to the extent that the 3G terminal may be forced to perform Intersystem Handover to the 2G network. This is not desirable especially if the user is using packet services, as the throughput will be reduced significantly.

c. In the event that the interference caused by the UWB device is intermittent, it is likely that the 3G terminal will toggle between 2G and 3G networks and this will increase the signalling load in both the 2G and 3G networks.

7. IDA has proposed 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. This approach is feasible provided that IDA is able to ensure that all UWB devices in this group are operating within the peak emission level. To this end, all UWB should be type-approved before they are allowed to be operated in Singapore.

8. We would not recommend that IDA allow licence-exempt UWB devices implemented with mitigation techniques to operate at higher peak emission level within the 3400 to 4800 MHz band, unless there is a way to verify the effectiveness of UWB devices implemented with mitigation techniques.

9. M1 supports the proposed licensing of UWB devices used for imaging systems with peak emission below the 960 MHz or in the 3400 to 10600 MHz band, as these devices are expected to be operating at a higher transmit power. If strict control is not put in place, there could be severe disruption to the GSM1800 and 3G networks within the vicinity of their deployment. To avoid such a situation, mobile operators should be notified each time such a license is issued. In practical terms, M1 proposes that IDA and the mobile operators jointly establish a closed feedback system to assist IDA to ascertain the permissible location for deployment of UWB devices. We reiterate that these UWB devices should also be type-approved prior to deployment.

10. As further safeguards to existing users in the above-mentioned band, M1 recommends that IDA's licence conditions should include: -
    a. Permissible usage location/area;
    b. Maximum number of UWB devices operating at the same time and place; and
    c. Maximum emission level.

11. Finally, M1 supports the imposition of a licensing fee on the use of UWB devices, based on a per-use-basis, to deter any unnecessary use of UWB devices.