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Aileen Chia (Ms)
Deputy Director-General (Telecoms & Post)

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RESPONSE TO THE CONSULTATION PAPER ON THE PROPOSED ALLOCATION OF SPECTRUM FOR INTERNATIONAL MOBLE TELECOMMUNICATIONS ("IMT") AND IMT-ADVANCED SERVICES AND OPTIONS TO ENHANCE MOBILE COMPETITION

Dear Ms Chia,

Grid Communications Pte Ltd ("GRID") is licensed to provide public digital trunked radio service with island wide coverage. We are existing users in the 800MHz band.

We would like to thank IDA for the opportunity to provide comments on the "PROPOSED ALLOCATION OF SPECTRUM FOR INTERNATIONAL MOBLE TELECOMMUNICATIONS ("IMT") AND IMT-ADVANCED SERVICES AND OPTIONS TO ENHANCE MOBILE COMPETITION".

GRID understands that the consultation paper focuses on potential spectrum allocations for mobile services and regulatory framework and policy to enhance competition in the mobile market. However, our submission focuses only on "Part II: Spectrum Bands to be allocated" and in particular question 2 on the 800MHz band.

GRID welcomes any opportunity to discuss further with the IDA as you develop and review the band strategy for 800 MHz band. Please do not hesitate to contact us if you have any questions.

Yours sincerely,

Lim Meng Poo
CEO, GRID Communications Pte Ltd

Question 2: IDA seeks views on:

(a) whether the 800 MHz band should be re-farmed for mobile services;

(b) the band plan that should be preferred by Singapore and the underlying reasons;

(c) details of transitional issues to migrate existing services and systems in the 800 MHz band to the revised band plan;

(d) possible impact to end users of digital trunked radio and SRD/RFID, if, as a result of the eventual 800 MHz band plan: (i) the end users do not have to be migrated but will have to coexist with mobile broadband services; or (ii) the end users have to be migrated; and

(e) possible co-existence issues between mobile broadband, and digital trunked radio and SRD/RFID.

(a) ***Whether the 800 MHz band should be re-farmed for mobile services;***

1. IDA mentioned in Paragraph 17 of the consultation paper that IDA is inclined to re-farm the 800 MHz band towards 3GPP band 26 but only availing 2x25MHz for mobile services and minimizing impact on existing users. However, IDA did not specifically identify the 2x25MHz within band 26 to avail for mobile services. The full band 26 occupies 814 – 849MHz/859 -894MHz which overlaps with the trunked radio band of 806 – 821MHz/851 – 866MHz.

2. While GRID has no objection to the co-existence of mobile services within the 800MHz band, we have serious concern if IDA were to re-farm part of 806 – 821/851 - 866MHz for mobile services as GRID is currently using this band for the trunked radio services. This will have huge impact to our current users as well as other private trunked radio users.

3. In our view, IDA should prudently consider retaining the existing trunked radio band in the 800 MHz as trunked radio service is extensively used by many industries key to our nation's growth and the service cannot be easily replaced by other mobile broadband services in term of frequency utilization efficiency and the Push-To-Talk ("PTT") performance.

4. GRID believes the trunked radio services can co-exist with the mobile broadband services within the same 800 MHz band with careful planning and sufficient guard band in-between the 2 services. By keeping the existing trunked radio band at 806 – 821/851 - 866MHz, the impact to the existing users can be minimized.

5. As the current allocations within the 806-821MHz/851-866MHz band are sporadic and fragmented, GRID is happy to work with IDA, along with other private trunked radio operators occupying the 806-821MHz/851-866MHz band, in consolidating or re-farming the current fragmented frequency allocations into a more contiguous and spectrally efficient one. This will open up opportunity for GRID to migrate our existing narrowband trunked radio technology to a broadband trunked radio technology in future.

(b) ***The band plan that should be preferred by Singapore and the underlying reasons;***

GRID proposes that the IDA retains the existing trunked radio band 806-821MHz/851-866MHz in the revised 800MHz band plan so as to minimize the impact to the trunked radio users in this band.

Underlying reasons:

1. Trunked radio services in the 800 MHz are critical to the nation's growth and key industries which IDA rightly pointed out in the consultation paper, paragraph 19(a). It serves as a primary communication tools for the blue or grey collar industries. Key customers from various industry sectors rely extensively on our reliable trunked radio services for their daily core operations. These include government and quasi-government agencies, constructions, transportation, oil & gas, manufacturing and various services such as ambulances, airport and hospitality. Without these trunked radio services, their operations and productivity will be adversely affected.

2. ITU-R recommends 806-824/851-869 MHz in Region 3 countries (Asia Pacific countries including Singapore) for public protection and disaster relief ("PPDR") radio communications in accordance with Resolutions ITU-R 53, ITU-R 55 and WRC Resolutions 644 (Rev.WRC-07), 646 (Rev.WRC-12), and 647 (WRC-07). Hence, GRID, which is also a public–private partnership ("PPP") company participates in emergency exercises, believes that it is important to maintain this band for PPDR agencies and organizations as they are vital to the maintenance of law and order, protection of life and property, disaster relief and emergency response.

3. With the already established ITU-R WRC Resolutions 646 (Rev.WRC-12) for PPDR in the Asia Pacific countries, there is no further need for harmonization with neighbor countries on this band i.e. Malaysia is using 806-821/851-866Mhz for Trunked Radio System and Indonesia is also using 806-824/851-869Mhz for PMR.

4. In general, it is expected that narrowband PPDR/Trunked Radio technology will still play an important role in the medium term (i.e. at least in the next 10-15 years). The eco-system for trunked radio technologies in this 806-824/851-869Mhz is very much established and hence able to achieve economies of scale in both the networks and devices. To move away from the eco-system will be costly and counterproductive.

(c) ***Details of transitional issues to migrate existing services and systems in the 800 MHz band to the revised band plan;***

If IDA retains the band 806-821MHz/851-866Mhz for trunked radio services in the revised band plan, the impact on the existing services and system will be minimal provided there is sufficient guard band between our trunked radio service and mobile broadband services.

However, if GRID is required to vacate 806-821MHz/851-866MHz to a new frequency band, the impact to the network and users will be enormous.

1. Depending on IDA's final band plan, there might be technology limitations for migrating into the revised band plan if current PMR/Trunked Radio technologies do not support the new frequency band

2. Huge proportion of the investment in the existing technology would have to be written off and requires new funding for a replacement technology. New investment includes and not limited to network switches, base stations, and infrastructures e.g. antenna, in-building active components and customers' handsets/devices. All the above-mentioned need to be swapped out during the migration.

3. If the revised frequency band for the migration is higher than the existing 800 MHz, more sites will be required to match the existing coverage. This translates to higher capital cost.

4. Migration may affect customer's user-experience and could result in higher customers churn.

(d) ***Possible impact to end users of digital trunked radio and SRD, if, as a result of the eventual 800 MHz band plan: (i) the end users do not have to be migrated but will have to coexist with mobile broadband services; or (ii) the end users have to be migrated; and***

1. For Scenario (i) if the trunked radio frequency band have sufficient guard-band (eg 3 MHz) between the mobile broadband networks, GRID believes there is minimal impact on the existing end users.

2. For Scenario (ii) if the end users have to be migrated to a different frequency band, assuming out of the existing 800 MHz band, the end user devices would have to be replaced. The replacement cost of the devices is significant for 70K subs. It will be a huge burden both to GRID and its end users.

(e) ***Possible co-existence issues between mobile broadband, and digital trunked radio and SRD/RFID.***

GRID believes that as long as sufficient guard-bands are allocated between mobile broadband and narrowband digital trunked radio (e.g. minimum 3 MHz), it is possible for the two different technologies to co-exist within the same 800 MHz band without issues.

According to paragraph 13 on the APT 700 Band Plan of the consultation paper, the upper guard band of 803MHz – 808MHz depicted in Figure 1 is more than guard-band proposed for APT harmonized UHF Band Plan for IMT [1]of 803MHz – 806MHz. GRID suggests IDA adopts the recommended upper guard-band of 3MHz for the APT 700 Band Plan.

[1] APT REPORT on HARMONISED FREQUENCY ARRANGEMENTS FOR THE BAND 698-806 MHZ, No. APT/AWF/REP-14, Edition: September 2010. In section 5. APT Harmonized UHF Band Plan for IMT, it is agreed that "an upper guard-band of 3 MHz should be allocated between 803-806 MHz."