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Communications and Technology Branch
Commerce, Industry and Technology Bureau
2/F, Murray Building
Garden Road
Hong Kong

Email: wwchong@citb.gov.hk

Dear Sir

Thank you for the opportunity to respond to the Consultation on Digital Broadcasting: Mobile Television and Related Issues released by the Commerce, Industry and Technology Bureau and dated 26 January 2007. Please find enclosed a submission from Broadcast Australia.

Should you have any further enquires please contact me on +61 418 384 622 or email, Chris.Jaeger@broadcastustralia.com.au or alternately, Linda Andersen, Policy and Regulatory Affairs Executive on +61 2 8113 4654 or, email Linda.Andersen@broadcastaustralia.com.au.

Yours faithfully

Chris Jaeger
**MANAGING DIRECTOR**
**INTERNATIONAL BUSINESS GROUP**

**Submission from Broadcast Australia on Digital Broadcasting:**
**Mobile Television and Related Issues**

## 1. Background

Broadcast Australia (BA) is Australia's leading broadcast transmission provider and plays a critical role in the Australian free to air sector. BA's core business is the provision of services for the transmission of television and radio broadcasts to audiences across Australia. BA is a wholly-owned business of Macquarie Communications Infrastructure Group (MCIG), an entity listed on the Australian Stock Exchange (ASX) code: MCG. MCIG's major shareholders include a broad range of institutional and retail investors.

BA owns and operates an extensive broadcast transmission infrastructure network in Australia. The company provides transmission services from approximately 600 strategically located transmission sites across metropolitan, regional and rural Australia and reaches over 99% of the country's population. BA's principal customers are the ABC and SBS to whom it delivers television and radio managed transmission services. The company also provides services and/or co-hosting for commercial FTA broadcasters, the community broadcasting sector, telecommunications companies and radio-communications users (such as emergency services organisations).

BA and its predecessor organisations have many decades of broadcast transmission experience with its current activities including the provision of both analogue and digital broadcasting services. Its aim is to harness the full benefits of new digital communications technology to provide its customers with world-class broadcasting solutions, both now and in the future. To this end, BA has worked with a range of partners to establish trial services for Datacasting (Sydney, launched March 2004), Mobile TV (Sydney, commenced July 2005) and Digital Radio (Melbourne, commenced November 2003).

The Australian government has now announced its timetable for the release of two UHF digital channels for the provision of new digital services including datacasting and mobile TV. These channels will be allocated during the 3rd quarter 2007. This provides a major opportunity to generate greater consumer interest in digital television services which were first introduced into Australia in 2001.

BA also operates in the Asia-Pacific Region providing technical & business consultancy services and as well seeking partnerships in the development and operation of digital broadcast networks (including MobileTV).

The comments provided below reflect the principles which we believe deserve consideration in Hong Kong in the context of setting the policy for the introduction of new digital services.

## 2. Response to Issues Raised

The following comments have been made specific to the issues raised in the consultation paper which sets out the issues facing the Government clearly and concisely:

D. Digital Broadcasting – An overview

Clauses (7) to (8)

We welcome advice on other emerging mobile technologies that support video transmission services and what forward planning the Government should take to facilitate the deployment of such technologies in Hong Kong.

The consultation paper identifies the key technologies likely to emerge to offer broadcast based mobile TV services. These technologies are at varying stages of development and implementation and it is likely that different markets will adopt different technologies depending on the availability of spectrum, specific geographic and market characteristics and the status of existing broadcast infrastructure development (both radio and TV). Hong Kong faces issues similar to those faced in Australia i.e. a small population and hence market (in world terms) and an embryonic digital television industry. The small market size means that Hong Kong (like Australia) must adopt spectrum and technology solutions which follow the same evolution paths as those adopted by other major markets. Failure to do this could expose Hong Kong to the risks associated with the adoption of proprietary solutions which can result in limited or no handset manufacturer support and an unclear evolutionary path. This is discussed further in response to Clause 26 below.

Clauses (9) to (12)

We welcome views and information on the trial or rollout of mobile TV services in other parts of the world and comments on the risks and opportunities afforded by mobile TV services for Hong Kong's communications industry and market.

Both BA and our sister company Arqiva located in the United Kingdom (UK) have conducted a number of trials of mobile TV technologies in that past few years. These include:

| | |
|---|---|
| DVB-H Technology Trial, Sydney, Australia | 2005 to 2007 |
| DVB-H End User Trial, Sydney, Australia | 2005 to 2006 |
| Mobile TV showcase at 2006 Melbourne Commonwealth Games | 2006 |
| DVB-H Trial, Oxford, UK | 2005 to 2006 |
| MediaFLO Trial, Cambridge, UK | 2006 |
| DAB / DMB L-Band Trial, London, UK | 2005 to 2006 |

Arqiva also owns and operates the network which supports the BT *Movio* DAB-IP based mobile TV service, launched commercially in the UK in 2006.

These trials have been essential in two respects as they have provided technical information and feedback from consumers and users:

1. Technical feedback and learning

   Mobile television trials conducted by BA and our sister company have provided vital experience in the deployment of mobile TV technologies and in understanding their actual performance in differing environments. They have also allowed us to better understand issues associated with deploying Single Frequency Networks (SFNs) including the challenges of achieving reliable and stable operation of multi-site SFNs in a mobile environment and management of adjacent channel interference.

2. User / consumer feedback

   As detailed below, the various trials have provided BA with the opportunity to better understand consumer behaviour in the use of mobile TV services, interest in different types of content, quality of service expectations and propensity to pay for mobile TV services.

BA's Sydney trial provided a "line-up" of 16 channels incorporating three existing free to air channels and a mix of popular pay TV channels. The end user trial involved 375 users encompassing a wide range of user profiles in terms of age, mobile spend, income levels, existing TV preferences etc.

Key lessons learnt from these trials found that:

- users use mobile TV services in a wide variety of situations e.g. commuting to and from work, at work, and as a 2nd or 3rd television at home;
- users highly valued the personalized convenience of mobile TV;
- handset design and quality of service were very important to users;
- users are prepared to pay for mobile TV services;
- a wide variety of genres is important, as is a good mix traditional long format and "made for mobile" content.

BA has found through working with our colleagues in the UK and dialogue with other organisations who have trialled and launched mobile TV services elsewhere in the world that the user learning has been very similar in most markets. In a high mobile adoption and "gadget obsessed" market such as Hong Kong we would expect there would be a similarly positive market response to mobile TV services.

The trials have also pointed to the key advantages of broadcasting or "one to many" technology and spectrum which has real advantages over cellular networks when pushing content to large number of people. The additional investment required to provide greater capacity over cellular networks such as 3G as take up increases and contention issues degrade the service to subscribers is avoided through the use of broadcasting technology.

## E. Spectrum Availability

Clauses (19) to (26)

We welcome comments on the above analysis of spectrum availability for digital broadcasting services. In particular, we invite comments on whether the spectrum in Band III and L Band and two SFN multiplexes in the UHF Band should also be made available for mobile TV services, subject to review of the spectrum allocation and assignment arrangements.

As stated above in order to gain the benefits of mass produced low cost handsets it is essential that Hong Kong adopts technology solutions consistent with those being adopted in larger markets elsewhere in the world. Adoption of a technology for example which operates in a band outside the bands nominated by world bodies such as the International Telecommunications Union (ITU) and for which there is limited support in other markets would present an enormous challenge, particularly when it comes to persuading handset/receiver manufacturers to support a non-conforming solution at an acceptable price.

In global terms the key technology and spectrum adoptions to date are as follows:

- DVB-H (UHF) - Commercially launched in Italy, Finland and planned for launch during 2007 in other markets. Strongly supported by the European Commission. Compatible products available from several handset manufacturers
- MediaFLO (UHF) - Commercially launched in the US only. Handsets available but not yet as diverse a range as for DVB-H
- T-DMB (Band III) - Commercially launched in South Korea and trialled in several other markets. There is significant support by several handset manufacturers
- DAB-IP (Band III) - Commercially launched in UK though limited support elsewhere and from handset manufacturers
- DVB-H (L-Band) - Provided in US but has had limited success and support from handset suppliers

- DAB IP & T-DMB (L Band)[1] – No commercial services yet. Technology to be deployed currently unknown
- ISDB-T (VHF & UHF) - Commercially launched in Japan.

Discussions are underway on the licensing of L-Band for mobile TV in several European markets. The outcome of these discussions is unclear as is the timing and the technology that would be deployed. For the reasons already discussed, this could prove a hurdle should L-Band be the only band initially licensed for mobile TV in Hong Kong.

Broadcast Australia remains sceptical as to the case for S-Band based services in many markets. Satellite distribution in itself is unlikely to provide a satisfactory customer experience and will need to be supplemented with multiple infill and in-building solutions. We strongly question the suitability of this technology in the Hong Kong environment.

It should also be noted that the interoperability upper limit for DVB-H (in the UHF band) is 746 MHz, or ch55 in a 8 MHz channel raster, if the GSM900 band is deployed in any given market [2].

## F. Spectrum Allocation

Clauses (27) to (32)

We invite comments on the approach to allocate spectrum resources for the three digital broadcasting services in question. We also welcome any suggestions other than the above three proposed options.

BA believes that spectrum should be licensed in a technology neutral manner and that market forces will generally determine the optimum use of any given piece of spectrum.

Overseas experience with the introduction of digital television and radio clearly indicates that consumers must be offered a package of 'existing services plus' to generate interest and investment in digital reception equipment (i.e. a higher quality simulcast of what they already receive in analogue plus new, digital-only services) and drive a successful digital industry. BA believes this can best be achieved through light touch regulation, ensuring that market forces drive innovation through development of new services

While a specific service such as mobile TV may appear to be viable, the environment into which the service is being delivered will in the end determine that viability. Factors such as uptake and pricing of competing technologies, topography and hence cost of rollout etc will all impact on viability. For this reason, it is our view that it should be for the spectrum owner to determine the most viable technology to be applied rather than be pre-determined by government as the most "obvious" services may not in fact be the most productive when compared with alternatives. Pre-determination can also restrict innovation and discourage the evolution of new innovative services.

It should also be noted that service neutrality in a given spectrum block will be restricted by interference issues which may impact on the commercial viability of certain service options. This occurs through an inability to develop the infrastructure sufficiently.

We believe the following broad allocation principles should be applied:

[1] As yet the utilization of L-Band for DAB-IP mobile TV services in unclear. To date no services have been launched. The discussion paper incorrectly indicates that the UK DAB-IP services utilising L-Band spectrum. This service actually utilises Band III.
[2] Refer draft ITU Technical Report 102 377 V 1.2.2.

- Spectrum should be made available consistent with allocation in other major markets to avoid Hong Kong being "forced" down proprietary technology routes;
- Restrictions on the use of spectrum should be predominantly driven by the need to minimise any interference with adjacent users of that spectrum; and
- Regulation of what services could be offered should be "light touch" and aimed only to encourage the development of new services.

G. Spectrum assignment

Clauses (33) to (39)

We invite comments on whether, in pursuance of a market-led approach, we should assign the spectrum available in Band III and L-Band and the two SFN multiplexes in the UHF Band for relevant digital broadcasting services by auction with appropriate rollout obligations, and whether a SUF should be charged for such uses.

BA broadly agrees with the principle of using of price based allocation processes, such as auction, for the allocation of new digital services. Price base allocation allows the market to decide the value of the spectrum and provides a "quick and easy" equitable process.

It should be noted that price based allocation can also be problematic particularly when it is used to acquire valuable spectrum rather than as the means through which new services are made available to the public. Further, should the price of spectrum be too high, then a price based allocation process could inhibit the viability of any future services and threaten their rollout. Consequently, we believe that it is essential for the government to put in place policies which ensure that the allocation process does not distort the market through the imposition of safeguards. These include:

1. pre-qualification of bidders re their financial and technical capability to rollout proposed services;
2. adoption by the regulator of the principle of service first, revenue second;
3. the setting of a realistic reserve by government which does not artificially raise the price;
4. imposition of rollout obligations to deter spectrum squatting;
5. imposition of quality of service obligations to avoid delivery of "minimalist" services;
6. a "polluter pays" principle where the interfering entity pays for resolution of the interference problem.

Experience from our DVB-H trial in Sydney suggests that mobile TV will face a challenge to be viable given the significant cost of building the required infrastructure. The burden of an unrealistic cost of spectrum has the potential to impact on that viability.

BA also believes that it will be important for the government to determine the eligibility of incumbent digital television broadcasters to deliver mobile TV services. A level playing field between incumbent broadcasters, mobile carriers and new entrants will be an important factor in attracting service providers.

H. Licensing Arrangement

Clauses (40) to (52)

We invite comments on whether mobile TV programme services should be licensed under the Broadcasting Ordinance and regulated accordingly through

appropriate licensing conditions and codes of practice by the relevant authorities, and if so, how this should be achieved vis-à-vis the current licensing framework.

Mobile TV is a convergent service which utilises both broadcasting and telecommunications technology and provides services normally contained within the “broadcasting” world to (amongst others) mobile phone customers. For these reasons, legislation which has historically separated these industries is challenged with providing the need for a licensing regime which takes into account these factors.

Mobile TV services offered via broadcast solutions such as those discussed in this document will co-exist and to some degree compete with mobile video based services offered by mobile network operators via 2.5G and 3G networks. As such licensing should be structured so as to ensure that there is a reasonably “level playing field” for both mobile network operators and operators of any broadcast mobile TV networks.

BA recognises the need to regulate television content provided on mobile devices to protect the public, children etc. We also believe that it is important to ensure that the content which can be provided on mobile devices is not unduly restricted so that existing content i.e. from television and pay TV providers as well as new innovate content can be delivered. This will assist the success of the new product.