

NOKIA

Response on

“Second Consultation on Digital Terrestrial Broadcasting

in Hong Kong”

**Communications and Technology Branch
Commerce, Industry and Technology Bureau
Hong Kong Special Administrative Region Government**

Nokia welcomes the “*Second Consultation on Digital Terrestrial Broadcasting in Hong Kong*” and sees that it is an important action to get valuable information for the switchover plans in Hong Kong.

Nokia has contributed widely in the switchover process in Europe and Nokia wants to share these own experiences with Hong Kong Government. Nokia highlights the role of the regulatory, spectrum and standardization issues to achieve the successful transition, which will have far-reaching impact in the future.

Nokia is basing these comments mainly on switchover experiences in Europe. Many countries in Europe, including European Union entrants 2004, have digital terrestrial services on air already today or within few years. Most ambitious targets for the national switch-off analog terrestrial signal are set to 2006, while some countries plan to simulcast both analog and digital longer.

The scope of Nokia response on consultation has been

- To highlight the key aspects of the regulatory environment for the switchover,
- To clarify the role of broadcast frequency usage, especially for the new mobile broadcast services, and
- To link the latest technical development in the standardization area.

Overall, Nokia believes that the second consultation is an important and positive step to activate the switchover debate further and to facilitate the concrete preparation of the switchover in Hong Kong.

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1. INTRODUCTION

Nokia wants to response on the selected key topics and statements from the “*Second Consultation on Digital Terrestrial Broadcasting in Hong Kong*”. The structure of this document is formed in a way that first there has been mentioned the specific page number and paragraph number referring to Hong Kong consultation document and after that Nokia’s comment.

2. COMMENTS

2.1 Hong Kong Experience (page 4)

In digital environment it can be foreseen that digital broadcast content will be consumed by using various kinds of end user devices. The access for those services can be directly via radio interface i.e. terrestrial network or from another broadcast networks like satellite or cable networks.

One new issue which should be highlighted more in the switchover debate is the new opportunity to distribute TV like services in mobile environment, not only to fixed TV set in living room.

One example of this kind of new future device is mobile phone TV in which 2G/3G digital broadcast technology has been integrated with telecommunication technology. This concept utilizes the benefits of the both technologies and combines the usage of systems from consumer point of view. Broadcast content will be brought via terrestrial broadcast network to the handset. The content will be selected from the Electronic Service Guide (ESG), which will be distributed as well via broadcast network and can be as one application. The payment and other interactive services can be done via return channel, which is in this case existing 2G/3G cellular network.

2.2 Benefits of DTT broadcasting (page 6)

It is essential that the switchover process is seen important by all stakeholders in the value chain; consumers, content providers, broadcasters, retailers, network operators, equipment manufacturers. These market players should act together with governments and administrations targeting at the common goals for the switchover.

The added value for the consumer must be the key point, which will drive the process. The new services, enhanced quality, increased programs and product types and the interactivity, which DTT platform will offer, can receive the added value. The digital broadcast distribution offers channel for all kind of content; files of songs, games, brochures, software applications, etc.

Digitalization means as well increased reception modes which will support better traditional roof top antenna reception but as well mobility including portable devices and handheld terminals.

2.3 Framework for the introduction of DTT broadcasting (pages 6 - 7)

The switchover process should be market driven process in which administrations should facilitate in creation of stable enough regulatory environment having enough flexibility to pilot and test new potential services.

Based on the ongoing intensive development and technical work among industry players to create new business opportunities over broadcast networks there can be seen pressure to accelerate the switchover and to shorten the simulcast period. The simulcast period is not good for anybody and to certain extent it prevents the efficient spectrum management.

From the manufacturer point of view the DTT launch schedule including all the phases; launch time, coverage targets, service targets and the clear decision on switch off year should be agreed and well communicated to all stakeholders.

2.4 Frequency Planning and Coordination (page 7)

In Europe the broadcast spectrum replanning process by CEPT is ongoing and more than 120 countries are involved. In year 2004 there will be the first regional radio conference, which should encourage from technical coordination point of view the transition process.

Due to the technical development and the increased standardization work to support mobility issue in broadcast area CEPT has put more focus on mobility aspects.

The traditional network planning is based on the strict coordination of the transmission towers and the power levels of each specific transmission mast. When the network planning requires more flexibility, like in mobile and portable environment, the principles of the allotment planning have been introduced. This is good approach from radio network planning perspective and gives the needed flexibility to implement and to maintain the network.

When planning national scenario it is vital that those plans will take into the account the specific requirements of the mobility. As well it is important that multiplex capacity reservations linked with frequency usage will be planned for both environment; both fixed and mobile broadcast networks.

There are existing technical recommendations from EICTA (European Industry Association) to specify radio parameters suitable for mobile, portable and hand held portable devices capable of receiving DTT services. The specification covers the areas like frequency ranges, supported modes, definition of receiving conditions, definition of the receiver RF-reference model and definition of Quality of Service (QoS) criteria.

At the same time there is technical specification work ongoing in DVB Project organization for DVB-H (handheld), which is meant to be the digital terrestrial broadcast standard for the handheld devices in mobile environment. DVB-H is using the DVB-T physical layer and therefore there is a direct possible path from DVB-T to DVB-H. DVB-H uses optimally the time slicing method to overcome the power consumption challenge in mobile environment. DVB Technical Module has accepted the final specifications for DVB-H in January 2004.

2.5 Technical standard (pages 7 – 10)

Like the consultation proposes the “market-led” approach should be the way forward. Nokia shares this view very much.

The consultation paper discusses several issues to be considered in the selection of technical standard for digital terrestrial television (DTT) broadcasting. While we agree on the reasoning for DTT that is consequently used to set the criteria for the standard, we believe that a broader view to television broadcasting and advanced broadcast services beyond traditional television should be considered.

- Firstly, television services may be accompanied with data services targeted to mass audiences that are either associated with TV programming or provided as separate services. Such services are for example media delivery in form of files; e.g. electronic newspapers or web pages. Projecting the current development of digital television and the associated data services, the selection of the technical standard will have long-reaching implications on the capability to provide these services.
- Secondly, reception of broadcast services also with handheld devices should be considered. Here, by handheld we mean a device used in a similar way and in similar environments as mobile phones or personal digital assistants (PDA). Although such devices may not be capable of consuming all the broadcast service available, the device might be capable of accessing certain parts of the broadcast. Consequently, we envision that there will be services especially targeted to such receivers. Therefore it is important that the support for reception by handheld devices is considered in the selection of the technical standard for DTT broadcasting. For that kind of support it is crucial to note that such devices are limited in terms of available power supply (battery), processing power and screen size.
- Thirdly, the content formats evolve. Today the MPEG2 audio-visual source coding is used in many DTT broadcast standards. We believe that the selected DTT standard should provide a capability to be extended to deliver any type of content.

The consultation paper lays out five criteria for selecting the DTT technical standard in paragraph 12. Considering the additional aspects given above, we advice to add the following three criteria:

1. The selected standard should enable the provisioning of data broadcast services that are either associated with television programming or provided separately.
2. The selected standard should allow suitability for reception by mobile and handheld devices with limited power supply (battery), processing power and screen size.
3. The selected standard should enable the provisioning of any content formats by accommodating content type agnostic bearer.

Further, we agree with the analysis and conclusions the consultation paper makes about DVB-T by positioning it as the recommended technical standard for DTT. Besides the benefits already stated in the consultation paper, DVB-T meets the proposed additional criteria above as follows. The first criterion already fulfilled by general data encapsulation capability of DVB-T. Further, deployment of DVB-T enables the use of the new, backwards compatible, standard DVB-H (DVB Handheld) provides the overview of this new standard, which has now been approved and will be published by ETSI by early 2005.

Considering the selection of technical standard for DTT broadcasting, the DVB-H provides the following benefits. The standard allows reuse of DVB-T transmission network on radio layer since DVB-H is using DVB-T physical layer. The DVB-T and DVB-H signals can co-exist in the same multiplex (same frequency), which allows gradual migration path from DVB-T to DVB-H; or; provisioning of mixed DVB-T / DVB-H transmission. Since DVB-H causes modifications to a central network element, the deployment costs of DVB-H on top of DVB-T are marginal.

There are already now technical trials and plans to commercialize broadcast services using both cellular technology and digital broadcast technology in Germany (www.bmco-berlin.de) and Finland.

2.6 Simulcast and transitional arrangements (pages 10 – 12)

The transition period must not be too short or too long. A too short a period gives no real opportunity for the evolution of new value-added services and respective technologies – or nor to develop the market.

A too long period of simulcast of analog and digital networks and services would also raise the transition costs and diminish the transition message.

The simulcast period should not be undetermined; clear phases for the DTT launch, simulcast time period, switch off date should be known and clearly stated. If possible the real incentives should be implemented to facilitate proactive approach for the transition. Positive pressure for the simulcast

time window will accelerate and motivate the evolution. Content providers, manufacturers, service providers, and networks operators will know that consumers have a reason to buy and consumers will benefit from lowering product prices and the DTT increased services.

The spectrum management and regulatory environment should facilitate new service opportunities, like mobile broadcast, and give options to start business verification and potential commercial service launches parallel with simulcast and before analog switch off.

2.7 Multiplex licensing framework

Due to digitalization the broadcast content will be distributed via various networks. To support the mass market evolution and allowing the economies of scale in service/content creation it is important to have horizontal market structure. This means that the consumption, connection and content layers are separated. In broadcast licensing this will mean that network operation is separated and licensed separately from the program license. This especially the case when we are talking about traditional TV environments.

The consultation lists the criteria (paragraph 30) for the DTT implementation. These criteria take into the account the service profile on multiplex, which will give freedom and possibility to develop new additional services. The additional services can be meant for fixed or mobile environments and targeting at various product categories.

In new businesses like datacast over terrestrial broadcast network there is foreseen the trend that network license is taking by one entity which will reserve distribution capacity for several content providers or even tens of content providers. This mechanism should not necessarily be tightened with traditional public TV services, which are guided by cultural and national issues. Datacast services are usually charged but still the content is meant for broadcast type of distribution and the nature of the content is popular media content targeted at mass audiences.

2.8 Analogue Switch-off

Please see the answer in paragraph “2.6 simulcast and transitional arrangements (pages 10 – 12)”.

2.9 Contacts

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