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QUALCOMM Incorporated would like to thank the Commerce, Industry and Technology Bureau (CITB) for the opportunity to provide comments on the CITB's Consultation *Digital Broadcasting: Mobile Television and Related Issues* released on January 26th, 2007.

QUALCOMM is a leader and innovator in the development of digital wireless technologies including those based on Code Division Multiple Access (CDMA), Orthogonal Frequency Division Multiplexing (OFDM), and other advanced digital technologies. These solutions are available today for a number of communications applications, including mobile cellular, fixed wireless access, broadband wireless access and satellite services. QUALCOMM has also developed a number of other technology solutions including MediaFLO™[1], an end-to-end solution that enables broadcasting of high-quality video streams, audio channels, as well as other multimedia applications (video clips, IP datacasting applications, etc.) to mobile handsets.

QUALCOMM strongly supports the CITB's proposal to allocate spectrum for the provision of mobile broadcasting services to Hong Kong consumers prior to the completion of the DTV transition. We also applaud the CITB's efforts to facilitate the launch of mobile TV services in Hong Kong "so as to promote investment, innovation and competition for the benefits of the consumers and the further development of Hong Kong's communications market."

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.

MediaFLO is an end-to-end solution that enables broadcasting of high-quality video streams, audio channels, and other multimedia applications (video clips, IP datacasting applications, etc.) to mobile handsets. FLO (Forward-Link-Only) technology, a key component of the MediaFLO system, is a new mobile broadcast air interface – based on coded OFDM modulation – that is designed and optimized to increase capacity and coverage while reducing the cost of multimedia content delivery to mobile handsets. FLO's air interface supports a broad range of data rates ranging from .47 to 1.87 bits per second per hertz. The different data rates available enable an operator to make tradeoffs between coverage and throughput to optimize service for subscribers. For example, at 10 dB Signal-to-Noise ratio (C/N) MediaFLO technology can enable an operator to deliver up to 30 multimedia channels with QVGA[2] resolution at up to 25 frames per second video in a single 8 MHz channel.

[1] www.mediaflo.com.
[2] Quarter Video Graphic Array

QUALCOMM recognizes that operators may opt to deploy other mobile broadcast technologies and that, in today's global marketplace, operators wish to take advantage, to the greatest extent possible, of economies of scale and leverage support for multiple standards. In recognition of this trend, QUALCOMM is developing a single integrated chip for mobile phones that will support multiple mobile TV standards in addition to FLO. QUALCOMM announced the 2007 commercial availability of this mobile broadcast modem that will support the MediaFLO, DVB-H, and ISDB-T standards on a single chip in the UHF band.

QUALCOMM also recognizes and supports the need for standardized solutions supported by large eco-systems of vendors and developers. As a result, the FLO technology has been standardized by TIA « Telecommunication Industry Association » which approved the following technical standards: TIA-1099 (Radio interface), TIA-1102 (Receiver minimum performance specification), TIA-1103 (transmitter minimum performance specification), TIA-1104 (Test application protocol) and TIA-1120 (transport specification).[3] ETSI standardization is also under consideration and a new work item has been created, "Forward Link Only Air Interface Specification for Terrestrial Mobile Multimedia Multicast," which makes normative reference to the TIA-1099 standard and is aimed at the publication of an ETSI technical specification (TS 102 589).

In addition, FLO technical specifications are supported by the FLO Forum, an international organization with over 70 leading wireless and broadcast industry companies from all regions of the world. The FLO Forum works collaboratively to generate technical specifications for submission to global standards and regulatory bodies and is in charge of developing and finalizing a variety of technical specifications for FLO. These specifications address the complete MediaFLO end-to-end system based on approved service and user requirements and will include equipment test and certification specifications.

The International Telecommunications Union (ITU) Radiocommunication Sector is also considering a Recommendation on "Broadcasting of multimedia and data applications for mobile reception by handheld receivers," for final adoption. This Recommendation includes normative references to FLO and other mobile broadcast technologies.

To facilitate the deployment of mobile broadcasting technologies, such as MediaFLO, QUALCOMM encourages the Government of Hong Kong to continue its adherence to pro-competitive market-led policies that facilitate the roll-out of innovative technologies and services and enable the market to determine the standards that will ultimately be adopted. The CITB should also ensure there are no regulatory barriers to entry – that is, the CITB should make spectrum available and develop a flexible policy framework suitable for the introduction and widespread adoption of mobile TV services in Hong Kong.

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.

QUALCOMM believes there is significant interest in mobile broadcast multimedia services in Hong Kong and other countries around the world. For example, ABI Research estimates that there will be 250 million mobile video users worldwide by 2010 and the Yankee Group estimates the market for mobile TV/video to be $11 billion by 2010.[4] Based on this anticipation of future market demand, the MediaFLO solution was designed to address the existing and future needs of both the wireless and media broadcast industries. QUALCOMM will continue to be active in supporting regional market players in Hong Kong and other countries around the world who are interested in the MediaFLO system. Notably, MediaFLO has gained significant traction in recent months.

In the United States, QUALCOMM's subsidiary, the multiplex operator MediaFLO USA, Inc., is using a national license acquired by QUALCOMM in 2003 to cover the entire United States using 716-722 MHz (6 MHz Channel 55). This UHF spectrum is well suited to mobile TV because of the inherently favorable radio propagation signals and the higher power levels allowed compared to traditional cellular frequency

[3] http://www.tiaonline.org/standards/catalog/. Other specifications can be found at www.floforum.org.

[4] Allied Business Intelligence Inc., June 2006; "Mobile Video/Broadcast TV Market Assessment: Will Operators Get the Picture Right," Yankee Group, November 2006.

bands. MediaFLO USA has deployed a nationwide network based on the FLO technology in a single frequency network (SFN) configuration using a fraction of the number of transmitters that a cellular system would require at either 800 MHz or 1.9 GHz.[5] The primary network topology is based on high power, high tower transmitters re-using, in most cases, existing broadcast infrastructure in order to optimize network cost and design. This prime frequency band, together with the inherent efficiency of the FLO technology, is enabling the delivery of mobile TV service to consumers at mass market prices.

MediaFLO USA is delivering its mobile TV service as a wholesaler to the wireless carriers. It has contracted with major broadcasters and content providers (e.g., ESPN, CBS, Fox) to deliver their content, which includes news, entertainment, sports, and children's programming. MediaFLO USA has entered into commercial agreements with wireless carriers whereby the carriers will offer the MediaFLO mobile TV service to their subscribers on a retail basis. To date, MediaFLO USA has entered into these agreements with the top two wireless carriers in the United States (based on numbers of subscribers), Verizon Wireless (CDMA2000 carrier) and AT&T/Cingular Wireless (HSDPA/UMTS/GSM carrier). These two mobile operators combined have over 120 million wireless subscribers.[6] On March 1st 2007, Verizon Wireless began offering commercial mobile TV services to its subscribers utilizing the MediaFLO USA network and, as of today, this service is available in a total of 27 major markets.[7] AT&T (Cingular Wireless) has also announced plans to launch commercial MediaFLO services later this year.[8]

In the United Kingdom, British Sky Broadcasting Limited (BSkyB), a key content owner and distributor in the multimedia market, announced the realization of two technical trials of MediaFLO in Manchester and Cambridge using a SFN configuration in the lower 700 MHz UHF band and in partnership with local broadcast network operators including Arqiva. The objective was for BSkyB to evaluate the impact of the technology on the cost of deployment and distribution of mobile TV as these services represent an essential part of their strategy today. In order to demonstrate the technical performance of MediaFLO, the trials were carried out in both laboratory and mixed field test environments. The parameters tested included total throughput, efficiency in a SFN configuration, channel switching times, layered modulation, and video codec performance. The findings of these trials were publicly released in December 2006 and January 2007 by BSkyB and QUALCOMM, and MediaFLO either met or exceeded QUALCOMM's previous performance claims.[9] The trial established several key results:

- MediaFLO physical layer field performance was measured to be around 4.5 dB overall better for non-layered modes with comparable bit per second per hertz capacity.
- The FLO physical layer performed better than previously published. The measured lab performance was 0.5 to 1 dB better than described in the San Diego Field Test Report Rev A.
- A 4.5 dB advantage will allow a MediaFLO network to either cover twice the geographical area per transmitter when applying modes of equal capacity - resulting in a substantial reduction in network expense - or provide double the service offering on a channel count basis for a constant cell size with the same spectrum and transmitter deployment.
- Measurements of channel switching time yielded an average physical layer channel change time of < 1.5 seconds and an average video to video channel change time of 2.1 seconds.

In Taiwan, China Network Systems (CNS), Taiwan Television Enterprise Ltd. (TTV) and QUALCOMM have recently initiated a trial of MediaFLO in Taipei, leveraging CNS' expertise as one of the largest pay TV providers with TTV's free-to-air terrestrial broadcast infrastructure. This trial will feature four live channels of CNS content and up to three live channels of TTV content and is intended to allow CNS and TTV to closely evaluate the performance of MediaFLO technology.

In Japan, KDDI, the second largest wireless operator with 26.7 million 3G subscribers,[10] and QUALCOMM announced in December 2005 the creation of a joint-venture, "MediaFLO Japan Inc." MediaFLO Japan

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[5] More information about MediaFLO USA can be found at www.mediaflousa.com.
[6] World Cellular Information Service, March 2007.
[7] http://news.vzw.com/news/2007/01/pr2007-01-07d.html; For further information about the mobile TV service offered by Verizon Wireless via MediaFLO USA's network, please see http://getitnow.vzwshop.com/index.aspx?id=mobileTV#overview.
[8] http://www.qualcomm.com/press/releases/2007/070212_att_selects_s.html
[9] http://www.qualcomm.com/press/releases/2007/070212_british_sky_broadcasting_print.html
[10] Telecommunications Carrier Association, Japan, March 2007.

Inc.'s objectives are to introduce the service and to realize an eco-system and a business model suited to the Japanese market. In addition, Softbank Mobile Corporation, with over 15 million subscribers, has created a planning entity called "Mobile Media Planning CORP" for the development of mobile TV services in Japan based on the MediaFLO system.

To maintain Hong Kong's position as a technology leader and regional telecommunications hub and to bring new and innovative services to Hong Kong consumers, QUALCOMM encourages the CITB to allow mobile broadcast network deployment in the remaining two UHF SFN multiplexes based on a flexible policy framework that would provide incentives to local market players.

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.

The FLO air interface is designed to support frequency bandwidths of 5, 6, 7 and 8 MHz and can operate in a number of frequency bands. The frequency bands suitable for multi-cast distribution (including FLO technology) range from 450 MHz to 3 GHz. Frequencies above 1 GHz are less efficient due to higher propagation loss and thus require more transmit sites. Upper UHF frequencies, in addition to favorable propagation characteristics and suitable frequency channelization, enable a favorable electrical length for the receive antenna relative to the dimensions of a mobile device, thereby providing ideal spectrum for mobile broadcasting. Lower UHF frequencies are preferable for fixed television due to the lower propagation loss and the fact that receive antenna size is not as critical a factor for fixed television reception. Additionally, restricting the band of reception allocated for the mobile TV signal allows for a more efficient antenna system and lower deployment costs as compared to a wideband UHF antenna system.

Moreover, Governments around the world have begun to introduce greater flexibility in UHF band policy and regulations intended to favor the introduction of mobile broadcast services. In Europe a number of countries are planning mobile broadcasting network deployments. And European regulators consider that the UHF "broadcasting" allocation in their national frequency plan allows for the introduction of mobile broadcasting services without requiring any regulatory or policy changes. In addition, in February 2007, the European Commission Radio Spectrum Policy Group (RSPG) adopted an "Opinion on EU Spectrum Policy Implications of the Digital Dividend"[11] which was followed by a European Commission mandate to the CEPT / ECC Task Group 4 (TG4) to study the technical feasibility of a pan-European UHF "sub-band" harmonized for mobile multimedia services. The first TG4 Report is now available and this will be followed by an ECC Report outlining the technical guidelines for the implementation of mobile broadcast networks conforming to such a spectrum configuration.

In the United States, in 2002 and 2003 the Federal Communications Commission (FCC) auctioned a portion of the UHF band (referred to as the "Lower 700 MHz" and including Channel 55) and applied flexible technical and service rules, including allowance for up to a 50 kW transmit power, to facilitate new broadcast operations such as MediaFLO.[12] In certain markets, TV stations are using this spectrum but by law they must vacate these frequencies at the end of the digital TV transition set to occur on February 17th 2009. On that date, the "Lower 700 MHz" spectrum will become fully available to the new licensees. Until then, the new licensees are allowed to use the frequencies provided that they do not cause harmful interference to incumbent TV stations on the same or immediately adjacent channels. The FCC has set certain interference thresholds so the licensees are permitted to cause low levels of interference not deemed to be harmful. In making this ruling, the FCC wrote with respect to MediaFLO that "we find it to be in the public interest for this innovative new service offering to be available to consumers."[13] As a result of these flexible regulations, MediaFLO USA is today using Channel 55 for its nationwide SFN mobile TV service based on FLO technology.

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[11] Document RSPG07-161at http://rspg.groups.eu.int/doc/documents/opinions/rspg07_161_final_op_digdiv.pdf.

[12] *See* FCC Report & Order in the Matter of Reallocation and Service Rules for the 698-746 MHz Spectrum Band – GN Docket No. 01-74 (FCC 01-364).

[13] In the Matter of QUALCOMM Incorporated, Order, 21 FCC Rcd 11683, 11697 (2006).

In this region, Australia has recently concluded a second consultation process regarding the allocation of "two unassigned UHF channels" for new and innovative digital services, including one specifically for mobile TV. These channels are planned to be assigned via auction later this year.

For these reasons – technical, regulatory, and operational – QUALCOMM strongly urges the CITB to allocate spectrum in the UHF band for mobile television services and to reserve the remaining UHF SFN multiplexes for mobile broadcast technologies including MediaFLO.

SFN Feasibility

QUALCOMM agrees with the CITB that the current policy framework on DTT must be revisited. More specifically, we support the statements in the Consultation paper that the 2004 policy framework on DTT that has reserved the remaining two unassigned SFN multiplexes needs to be reviewed in light of the latest digital developments.[14]

The whitepaper in **Attachment 1**, "FLO Technology Single Frequency Network Planning Considerations," describes how the technical feasibility of both local and wide areas in a SFN configuration has been confirmed for FLO networks. As mentioned, FLO technology uses an OFDM-based modulation which is also used by Terrestrial and Handheld Digital Video Broadcasting (DVB-T and DVB-H), Digital Audio Broadcasting (DAB), and Terrestrial Integrated Services Digital Broadcasting (ISDB-T). OFDM-based technology and efficient error correction techniques can be used to facilitate SFNs and examples exist worldwide that broadcast systems can support large area SFNs based on high power levels.[15] A typical cell size on the FLO network in the US has a radii of up to 27 km and metropolitan market areas exist in the United States encompassing large geographic regions. Smaller cell sizes can also be achieved by using lower power and lower tower heights but the economic benefits may be significantly reduced. The successful transmission of FLO signals via a SFN requires overall time and frequency synchronization. This is achieved via readily available technology such as GPS.

Access to Hill-Top Sites

In order to bring mobile TV services to Hong Kong consumers, mobile broadcast network operators will benefit considerably by locating transmitter equipment at the limited number of "hill-top" TV broadcast site facilities in Hong Kong. This is a significant issue the CITB must address**.**

As we understand the existing UHF broadcast environment, there are six "hill-top" locations in Hong Kong where transmitters with radiated power levels, up to 10 kW ERP, are currently authorized for analog broadcasting transmissions. These locations include Temple Hill, Castle Peak, Kowloon Peak, Golden Hill, Cloudy Hill, and Lamma Island. The transmitter power level at all other "rooftop" locations is limited to a maximum of 100 W ERP. Future mobile broadcast network operators must be permitted to access these "hill-top" locations where higher transmission power levels have been authorized in order to enable the build-out of a cost-effective mobile broadcast network. Moreover, with respect to interference, the co-location of mobile TV transmitters with existing television sites is beneficial to both networks.

A MediaFLO mobile broadcasting network can be designed to accommodate a broad range of transmit powers. The lower the maximum transmitter power, the higher the number of transmitter sites that will be required to cover a given geographic area. As the required number of transmit sites increases, the cost per byte rises, and economic efficiency declines. In view of market topology and site availability, the mobile broadcast network for the Hong Kong market is likely to deploy a combination of high power transmitters and lower powered transmitters or repeaters depending upon regulatory requirements. Allowance for higher powered transmitters reduces the nominal number of sites, thereby reducing the mobile TV network expenditure, and ensuring the economic viability of the service to Hong Kong consumers. As mentioned above, in the United States, current technology and licensing practice allow power levels up to 50 kW ERP in the upper UHF frequencies allowing for a reduced number of sites per large metropolitan area. Not allowing access to the TV broadcast "hill-top" sites would severely impact the mobile TV business case and

[14] *See* Consultation paper at para. 28.

[15] *See* "Single Frequency Networks in DTV", Anders Mattsson, IEEE Transactions on Broadcasting, Vol. 51, No.4, December 2005.

be a significant challenge for the deployment and adoption of mobile TV services in Hong Kong. QUALCOMM strongly urges the CITB to take this into consideration as it develops its mobile TV policy.

Interference Concerns

In many respects interference planning for MediaFLO mobile TV and digital television, such as DVB-T, are similar. Both are based on OFDM modulation and have uniform average power spectral density in band. Thus, with respect to the potential for interference into co- and adjacent channel television operations, a new mobile broadcast network operating in one of the UHF SFN multiplexes should be subject to interference protection criteria similar to that of any terrestrial TV network. These requirements are independent of the technology (e.g., FLO, DVB-H) or service (e.g., mobile broadcast, terrestrial broadcast) deployed. QUALCOMM encourages the CITB to further evaluate and provide clarification of adjacent channel protection requirements (for Hong Kong) and co-channel protection requirements (for areas bordering with the Mainland.)

The CITB may wish to consult the FCC's Office of Engineering and Technology Bulletin No. 69 (OET-69) regarding interference between mobile broadcast transmitters and fixed TV services operating on adjacent channels.[16] This is the planning tool used by the FCC and the United States broadcast industry to compare field strengths of existing and proposed TV stations (both analog and digital) to determine whether a proposed station meets the FCC's interference protection requirements. The FCC interference protection criteria is set forth in Section 27.60 (a) of the FCC's Rules and requires protection of co- and direct adjacent channel TV operations by ensuring that the minimum desired signal-to-undesired signal (D/U) protection ratios are met.[17] In October 2006, the FCC ruled that that QUALCOMM may use OET-69 to calculate the predicted interference from MediaFLO to an existing analog TV or digital TV station.[18] The key feature of OET-69 that should be preserved is the consideration of population density in the calculation of interference impact. Other prediction methods such as those contained in ITU-R P.1546-2 are also appropriate.

As the FCC itself found, the MediaFLO waveform is very similar to an ATSC (Advanced Television Systems Committee) waveform for purposes of assessing the potential for interference. By substituting a MediaFLO transmitter (or a group of MediaFLO transmitters whose signals have been combined using a root sum squared (RSS) method) for a proposed DTV station, the OET-69 program can assess the likelihood of interference from MediaFLO to the existing TV stations. The CITB may also want to consider **Attachment 2**, "ATSC A/74," which provides information on recommended D/U ratios for ATSC to ATSC interference.[19] ATSC and DTV signals in general are uniform in power density and a reasonable proxy for FLO or DVB-H signals. In addition, the architecture of FLO handset receivers is more robust to adjacent channel interference than a TV set, because it does not use a dual gate FET as the LNA. The input IP3 of a FLO receiver actually increases with input signal level rather than decreasing as it does for a TV set. The behavior of the MediaFLO device is, in this respect, more like a cell phone than a TV.

The FCC also established certain interference thresholds permitting licensees to cause low levels of interference not deemed to be harmful.[20] These thresholds were reached as a compromise to achieve two important goals: minimizing interference to existing TV services and enabling the new MediaFLO service to be deployed.

Other criteria are also being considered at the national level in Europe. The CITB may wish to refer to some of these technical studies as it develops the criteria best suited for the Hong Kong market.

In border areas with Mainland China, protection of or co-existence with co-channel TV operations would need to be governed through special bi-lateral coordination agreements between Hong Kong and Mainland

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[16] http://www.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet69/oet69.pdf.
[17] 47 C.F.R. Section 27.60 (a).
[18] In the Matter of QUALCOMM Incorporated, Order, 21 FCC Rcd at 11692.
[19] *See* Table 4.2.
[20] The thresholds are as follows: (1) for the period from October 13, 2006 through October 13, 2007, interference of up to 0.5% of the population covered by analog TV or digital TV stations is permitted, (2) from October 13, 2007 to October 13, 2008, interference of up to 1% of the population served by analog TV or digital TV stations is permitted and finally (3) after October 13, 2008, interference of up to 1.5% of the population served by analog TV or digital TV stations is permitted.

China. Further clarification of these cross-border protection requirements will also be needed. Again, these requirements are independent of the technology (e.g., FLO, DVB-H) or service (e.g., mobile broadcast, terrestrial broadcast) deployed. It is important to emphasize that techniques exist to mitigate adjacent channel interference between fixed and mobile broadcast applications. Mitigation, however, could have some impact on the coverage of the mobile broadcast network.

Additionally, QUALCOMM believes further study is needed of the maximum transmitter power limits that would be applicable to mobile broadcast networks operating in Hong Kong. Because broadcast systems do not include a return link, an increased cell size does not lower capacity. For this reason, network economics will benefit from high power, high tower usage whenever possible. Such transmissions should, however, respect both national and cross-border interference requirements. In order to increase coverage in challenging areas (e.g., indoor, underground), it is technically feasible to combine both small and large cells for proper planning.

L-Band / S-band

As stated above, MediaFLO technology can also be deployed in the L-band assuming enough flexibility is permitted to radiate the signal over at least a 5 MHz bandwidth. There is interest from some countries internationally for using the L-band. For example, the United Kingdom has announced its intention to auction frequency spectrum in the L-band which could be used to deploy a MediaFLO mobile broadcast network. As previously mentioned, frequencies above 1 GHz are relatively less efficient. The cost of an L-band deployment is greater than that of a similar EIRP UHF deployment. The CITB may, therefore, want to take into consideration handset economies of scale and availability in the L-band which may not be as favorable as the UHF band.

Portions of the S-band, including 2500 – 2690 MHz, have already been identified by the ITU for administrations wishing to implement IMT-2000 or 3G.[21] In this regard, this band has been targeted for 3G expansion and will be needed to sustain the fast market growth of 3G services. As the CITB recognizes, there is a potential for interference between the broadcasting-satellite service (BSS) and 3G or Broadband Wireless Access services. This issue is the subject of significant controversy within the ITU Radiocommunication Sector with regard to the co-existence between space and terrestrial services under World Radio Conference 2007 (WRC-07) Agenda Item 1.9, **"**to review the technical, operational and regulatory provisions applicable to the use of the band 2 500-2 690 MHz by space services in order to facilitate sharing with current and future terrestrial services without placing undue constraint on the services to which the band is allocated." QUALCOMM agrees with the CITB that use of S-band for mobile TV cannot be assessed until after WRC-07.

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.

QUALCOMM supports the pro-mobile TV approach outlined by the CITB. This approach is justified given that mobile multimedia broadcasting is a relatively new service for which consumer demand has been proven. QUALCOMM also urges the CITB to continue its long standing market-led policies in relation to Hong Kong's digital mobile broadcasting transmission standard(s). Based on these considerations, we strongly encourage the CITB not to mandate any particular standard for mobile broadcast given the risks in selecting the "wrong" standard locking country economies into a particular model especially for new services. Instead, we urge the CITB to ensure that various industry recognized standards can be deployed.

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.

QUALCOMM believes the CITB should continue its pursuance of a market-led approach to spectrum assignment and that auctions have proven, both in Hong Kong and other markets, to be an effective method for assigning spectrum in a fair and efficient manner.

[21] ITU Radio Regulations **No. 5.384A** and **Resolution 223**.

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.

QUALCOMM does not foresee any difficulties working under the Telecommunications Ordinance as proposed by the CITB provided that sufficient flexibility is ensured related to the technical planning parameters used by the broadcast industry. A broad range of regimes is being investigated and implemented by policy makers and regulators in other countries. There is no single approach that is appropriate for all markets. Given this, QUALCOMM believes some flexibility on this issue is warranted. We do note the OECD's position that "in view of the fact that mobile TV services are new and innovative, it is important that regulators tread lightly, and delay imposing broadcasting type obligations such as the protection of the public, the promotion of cultural diversity and pluralism of the media until it is clearly determined that they are necessary."[22] We believe that diversity and plurality of the multimedia programming will be ensured by the market due to the large program availability within a SFN channel as well as the essential competition mechanisms enabled by the flexible regulatory regime.

Conclusion

QUALCOMM appreciates this opportunity to provide comments on the CITB's *Consultation on Digital Broadcasting: Mobile Television and Related Issues*. QUALCOMM supports the CITB's proposal to allocate and assign spectrum for new mobile broadcasting services while the Government completes its DTV transition. To better foster deployment and take-up of mobile TV services in Hong Kong, including MediaFLO, QUALCOMM urges the CITB to allow mobile broadcast network deployment in the remaining two UHF SFN multiplexes and to consider a flexible policy regime for these new and innovative services.

Should you have questions, I can be reached by telephone < 2537-5000 > or email < jgwelch@qualcomm.com >.

Respectfully,

Julie Garcia Welch
Director, Government Affairs
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cc: Mr. Edmund Sin, Vice President, Business Development, QUALCOMM International

Enclosures

Attachment 1 – FLO Technology Single Frequency Network Planning Considerations
Attachment 2 – ATSC A/74
Attachment 3 – FLO Technology Overview

[22] *See* OECD, Mobile Multiple Play: New Service Pricing And Policy Implications, DSTI/ICCP/TISP(2006)1/FINAL, January 15, 2007, p. 6.