

Comments on TRAI Consultation Paper on “Issues Relating to Mobile Television Service”

Clause 2.3 (Page 5) - Mobile Television through Broadcasting Technology

Mobile TV is already quickly developing in some regions of the world (like in Europe) on existing cellular infrastructures in point to point mode. But this mode is not optimized to deliver the same content to many users at the same time, preventing mass-market deployment.

For massive access to mainstream TV channels on mobile, overlay broadcast networks, complementary to existing cellular networks, are recommended. But the design of such broadcast infrastructure shall be geared to meet the following challenges in order to contribute to the Mobile TV market take-off:

- A business model based on an attractive subscription plan allowing unlimited usage,
- A good in-building performance similar to the one offered by cellular network,
- A harmonized technology and frequency framework to prevent market fragmentation and favor a wide terminal choice.

End of Clause 3.3.2 (Page 13)

On 14th February 2007, the DVB Forum approved the DVB-SH specifications. DVB-Satellite Handheld (DVB-SH) is the name of the latest mobile broadcast standard designed to deliver video, audio and data services to small handheld devices such as mobile phones or vehicle-mounted devices, and is an evolution of the DVB-Handheld (DVB-H) standard.

DVB-H key technologies such as Orthogonal Frequency Division Multiplexing (OFDM) modulation, time slicing and IP data-casting are maintained while an improved link budget is achieved by employing turbo-codes and deeper interleaving. Furthermore, since the system can operate up to 3 GHz frequency range, significant improvements can be made within the terminals (higher antenna gains and reception diversity).

The system uses network of medium and low-power repeaters, co-located with mobile operators' base stations, to provide urban and good indoor coverage. Cost effective nationwide coverage can be achieved by employing a high-power geo-stationary satellite.

DVB-SH specifications allow the development of products and services for user terminals that can be operated in dual mode with DVB-H.

DVB-SH is being currently trialed in Europe and in the US.

Reference: DVB approves DVB-SH specification

www.dvb.org/news_events/press_releases/press_releases/DVB_pr154%20SVB-SH.final.pdf

Clause 4.9 (Page 18) (In the table)

DVB-SH France – Spain – Italy – US S-Band, UHF

Clause 4.24 (Page 22) – additional information

S-Band (2170 MHz to 2200 MHz)- On 14 February 2007, the European Commission adopted a decision making the 2.2 GHz spectrum harmonized and available throughout Europe and giving approval that this spectrum can be used both by satellites and terrestrial networks.

(EU Announcement: Commission Decision on the harmonised use of radio spectrum in the 2 GHz frequency bands for the implementation of systems providing mobile satellite services

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32007D0098:EN:HTML>

Clause 6.2.1 (Page 36)

European Union has favored both Digital Video Broadcasting-Handheld (DVB-H) and Satellite to Handheld (DVB-SH) standards for mobile television.

DVB-SH being the evolution of DVB-H standards overcomes the deficiencies of DVB-H. Its wider frequency range (up to 3 GHz) and being the hybrid system (satellite & terrestrial), DVB-SH may turn out to be the decisive technology choice.

Related EU announcements:

August 22, 2007

Commission boost for mobile satellite services paves the way for EU-wide high speed data communications

<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/1243>

July 25, 2007

Mergers: Commission approves proposed joint venture between SES Astra and Eutelsat

<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/1176>

Clause 6.2.2 (Page 36)

In February 2007, the European Commission has confirmed that 30 MHz of S-Band spectrum could be used for mobile television, using a hybrid satellite/terrestrial system.

Clause 6.2.4(Page 37) France

France officially adopted DVB-H and DVB-SH standards for mobile TV on 24th September 07 and announced that it is targeting the Beijing Olympics for a service opening.

DVB-SH is being trialed in Toulouse with Orange and in Pau with SFR (Vodafone Group)

Latest Announcement

France backs mobile TV standard DVB-H

26 Sep 07

Country: France

Source: Online Services/Intelligence/Mobile/Updates

The French government has adopted two decrees regarding technical specifications for mobile broadcast TV. According to those decrees, broadcast mobile TV services must use the DVB-H or DVB-SH standards. Local media regulator CSA is preparing the call for applications for mobile TV licenses which should be published by the end of October. Mobile TV services are expected to launch mid 2008, before the Olympics. Our take...

This decision does not come as a surprise after the EC backed DVB-H as a European mobile TV standard last July. The French government has invested €45m in the technology and most of the stakeholders favour the standard. However, the choice upon which business model to adopt is creating tensions between broadcasters and mobile operators in France thus delaying commercial deployments. On the other side of the Rhine, The German Bundesrat (Federal council) recently condemned the EC intention to make DVB-H mandatory in Europe. Germany has already deployed an alternative technology, T-DMB, currently operated by Mobiles Fernsehen Deutschland (MFD).

Clause 6.2.5 (Page 37) Spain

DVB-SH is being trialed in Madrid with Telefonica

Clause 6.4.3 (Page 43) USA

In July 2007, ICO has announced an Alpha Trial of mobile interactive media services using DVB-SH standard for 2008 in 2 cities.

Clause 6.4.4 (Page 44)(in the table)

1 Italy	DVB-SH	Trial
2 France	DVB-SH	Trial
3 Spain	DVB-SH	Trial
18 USA	DVB-SH	Trial

Chapter VII: Issue for consultation

Clause 2 (Page 45)

Current mobile TV solutions running in 3G networks using unicast streaming of mobile TV channels to individual users work, but are encountering capacity limits as the number of mobile TV users and their average daily viewing time increases.

In Europe Mobile network operators and broadcasters have launched mobile TV services (purely subscription based) on 3G networks, with a number of subscribers ramping up. They have done thorough investigations of the service from a technical and a marketing stand point and consider that 3G is not the appropriate technical solution for a truly "mass market " mobile TV service (they confirm that the network collapses above 6 users in a same cell) and are now launching dedicated "out-of-band broadcast solutions.

We can assume that a probable revenue model for mobile TV in India will be based on low subscription fees/high advertising revenues. Such a mobile TV service will draw advertisers only if it addresses "mass market", covering millions, in most part of the country. Therefore we believe a broadcast solution should be considered.

The new DVB-SH standard has been designed for frequencies below 3 GHz, typically in the S-band (but can also work in UHF), and enhances the DVB-H standards with the use of turbo codes, modified interleaving and other improvements.

The system uses network of medium and low-power repeaters, co-located with mobile operators base stations, to provide urban and a truly indoor coverage. Significant savings in deployment cost are expected wherever cellular site reuse, including 3G antennas, will be made possible. Cost effective nationwide coverage can be achieved by employing a high-power geo-stationary satellite.

Since its publication in February 2007, the new standard has gained significant momentum in Europe and in the US, demonstrating both technical robustness and fitness to enter the regulatory scene, at a time when frequency availability is at premium.

Clause 8 (Page 46)

We recommend SFN for better performances and management of the system, especially for a nationwide coverage.

[News Clippings: Additional Information on the eco-system around DVB-SH](#)

Sept. 7, 2007

Alcatel-Lucent and Samsung demonstrate live interactive broadcast mobile TV in S-Band based on DVB-SH at IBC

(http://www.alcatel-lucent.com/wps/portal!/ut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4x3tXDUL8h2VAQAURh_Yw!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2007/News_Article_000497.xml)

August 23, 2007

Alcatel-Lucent broadcasts IFA International TV at IFA trade show in Berlin using both DVB-H and DVB-SH

(http://www.alcatel-lucent.com/wps/portal!/ut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4x3tXDUL8h2VAQAURh_Yw!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2007/News_Article_000475)

July 9, 2007

Alcatel-Lucent tests DVB-SH technology for broadcast mobile TV in the S Band with SFR

(http://www.alcatel-lucent.com/wps/portal!/ut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4x3tXDUL8h2VAQAURh_Yw!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2007/News_Article_000411)

July 2, 2007

ICO and Alcatel-Lucent finalize agreement for mobile interactive media services

<http://investor.ico.com/ReleaseDetail.cfm?ReleaseID=252190>

May 30, 2007

Jersey Telecom to provide live TV to mobile phones

<http://www.jerseytelecom.com/templates/LayoutB.aspx?id=1652>

May 2, 2007

ICO Selects Alcatel-Lucent and Hughes for Alpha Trial

<http://investor.ico.com/releasedetail.cfm?ReleaseID=240320>

Sept. 5, 2007

ICO Selects DiBcom for DVB-SH Trial in US

<http://investor.ico.com/ReleaseDetail.cfm?ReleaseID=262676>

March 8, 2007

Alcatel-Lucent premières unified access to 3G and broadcast Mobile TV in Germany

http://www.alcatel-lucent.com/wps/portal!/ut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4w3cQ7SL8h2VAQAu32oaA!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2007/News_Article_000163

Feb. 14, 2007

Alcatel-Lucent demonstrates world's first unified Mobile TV experience across 3G and broadcast networks

[http://www.alcatel-](http://www.alcatel-lucent.com/wps/portal/lut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4w3cQ7SL8h2VAQAU32oaA!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2007/News_Article_000118)

[lucent.com/wps/portal/lut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4w3cQ7SL8h2VAQAU32oaA!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2007/News_Article_000118](http://www.alcatel-lucent.com/wps/portal/lut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4w3cQ7SL8h2VAQAU32oaA!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2007/News_Article_000118)

Feb. 12, 2007

Abertis Telecom and Alcatel-Lucent perform live Mobile TV demonstrations at 3GSM

[http://www.alcatel-](http://www.alcatel-lucent.com/wps/portal/lut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4w3cQ7SL8h2VAQAU32oaA!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2007/News_Article_000100)

[lucent.com/wps/portal/lut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4w3cQ7SL8h2VAQAU32oaA!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2007/News_Article_000100](http://www.alcatel-lucent.com/wps/portal/lut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4w3cQ7SL8h2VAQAU32oaA!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2007/News_Article_000100)

Feb. 8, 2007

Telefónica presents with Alcatel-Lucent a multimedia mobile interactive TV, radio and music pilot project for mobile devices

[http://www.alcatel-](http://www.alcatel-lucent.com/wps/portal/lut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4w3cQ7SL8h2VAQAU32oaA!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2007/News_Article_000091)

[lucent.com/wps/portal/lut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4w3cQ7SL8h2VAQAU32oaA!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2007/News_Article_000091](http://www.alcatel-lucent.com/wps/portal/lut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_QjzKLd4w3cQ7SL8h2VAQAU32oaA!!?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=News_Releases_2007/News_Article_000091)

Nov. 28, 2006

Alcatel demonstrates Europe's first live Mobile TV in S-band

[http://www1.alcatel-](http://www1.alcatel-lucent.com/vpr/?body=http://www.home.alcatel.com/vpr/vpr.nsf/DateKey/28112006uk)

[lucent.com/vpr/?body=http://www.home.alcatel.com/vpr/vpr.nsf/DateKey/28112006uk](http://www1.alcatel-lucent.com/vpr/?body=http://www.home.alcatel.com/vpr/vpr.nsf/DateKey/28112006uk)