



# Mobile TV in Europe: Who Needs a Standard?

## A Parks Associates White Paper

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## **Table of Contents**

<b>List of Figures.....</b>	<b>ii</b>
<b>1.0 The Standards Battle .....</b>	<b>1</b>
<b>2.0 Standards for Standard’s Sake.....</b>	<b>3</b>
2.1 Purported Reason #1: Economies of Scale .....	3
2.2 Purported Reason #2: Mobile TV Roaming .....	3
<b>3.0 Conclusion: Doing What Works Best .....</b>	<b>4</b>

## **List of Figures**

<b>Figure 1 Mobile TV Solutions.....</b>	<b>1</b>
<b>Figure 2 Spectrum Availability.....</b>	<b>2</b>

## 1.0 The Standards Battle

A fierce battle is being waged in Europe right now over mobile TV standards. The two leading candidates are DVB-H and T-DMB, technologies derived from digital TV and radio standards, respectively. Nokia has thrown its full weight behind the former, and numerous DVB-H trials have been conducted across Europe with the company's help. The latter's chief base of support has been in Korea, where the technology was formulated and strongly promoted by the Korean government. Added to these two technologies are numerous dark horse candidates, each with key backers. Qualcomm is promoting its own proprietary MediaFLO solution. Ericsson is optimistic that MBMS, once available, will be able to deliver mobile TV. Alcatel has proposed a variant of DVB-H (sometimes referred to as DVB-H+) that incorporates satellites for broader coverage. Last but not least, IP Wireless is offering a 3GPP-compliant solution, TDtv, which makes use of the unused, unpaired spectrum bands that many European operators received as part of their 3G licenses.

Spectrum issues largely shape the battlefield. DVB-H was designed with UHF spectrum in mind, frequencies currently used by analog TV broadcasters. T-DMB, on the other hand, was created to work with the spectrum used for DAB radio broadcasts. Yet the availability of these bands varies greatly from market to market. The analog broadcasters using UHF frequencies are not required to vacate them until around 2010<sup>1</sup>. Some will give up their channels before the deadline, but this will vary from case to case. DAB networks, for their part, are widely deployed in countries like the UK, Germany, Belgium, and Denmark; coverage elsewhere is often limited.

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<sup>1</sup> The exact date of the analog-digital switchover varies from country to country.

## Mobile TV Solutions

Technology	Notes
DVB-H	<ul style="list-style-type: none"> <li>• Related to DVB-T, a terrestrial broadcast technology</li> <li>• Strongly backed by Nokia</li> <li>• Channel width: 5, 6, 7, or 8 MHz</li> <li>• Open standard approved by ETSI in November 2004</li> <li>• Has strong support in Europe and North America</li> <li>• Limited amount of spectrum currently available, but migration to digital TV will gradually make room for DVB-H</li> <li>• Extensively trialed</li> </ul>
S-DMB	<ul style="list-style-type: none"> <li>• Satellite-based offshoot of DAB, a common digital radio technology</li> <li>• Channel width: Uses 1.7 MHz</li> </ul>
T-DMB	<ul style="list-style-type: none"> <li>• Strongly supported by the Korean government</li> <li>• Channel width: 1.7 MHz</li> </ul>
MediaFLO	<ul style="list-style-type: none"> <li>• Proprietary technology developed by Qualcomm</li> <li>• In addition to broadband, it offers trickle-download capability for viewing content on demand</li> <li>• Channel width: 5, 6, 7 or 8 MHz</li> </ul>
MBMS	<ul style="list-style-type: none"> <li>• Based on W-CDMA technology (HSPDA) and part of 3GPP</li> <li>• Utilizes W-CDMA spectrum and works in conjunction with voice services</li> <li>• Combines elements of broadcast and unicast technologies so that it is more scalable than the latter and more customizable than the former</li> <li>• Ericsson is a key backer</li> <li>• Equipment expected to be available in 2007</li> </ul>
TDtv	<ul style="list-style-type: none"> <li>• A proprietary technology offered by IPWireless</li> <li>• Based on TD-CDMA and MBMS technologies</li> <li>• Compliant with 3GPP specification</li> <li>• Utilizes unpaired spectrum bands awarded to many carriers as part of their 3G licenses</li> <li>• Low-cost base station upgrade for 3G operators</li> <li>• Can offer 10 broadcast channels + content on-demand</li> </ul>
ISDB-T	<ul style="list-style-type: none"> <li>• Developed in Japan for NHK (Japan Broadcasting Corp.) and only used in Japan for mobile TV</li> <li>• Channel width: 6, 7, or 8 MHz</li> <li>• Expensive hardware costs make it unlikely it will be used elsewhere</li> </ul>
DVB-H+	<ul style="list-style-type: none"> <li>• Proposal to use S-Band spectrum for DVB-H (instead of UHF) and compliment it with satellite-based coverage</li> <li>• Would overcome the challenge of limited UHF spectrum availability in Europe</li> <li>• Alcatel is the chief proponent of this approach</li> </ul>

**Figure 1 Mobile TV Solutions**

## Spectrum Availability

Country	Spectrum Notes
Europe-Wide	<ul style="list-style-type: none"> <li>• Many of the major mobile phone operators in Europe and Asia were awarded unpaired 3G spectrum suitable for TDtv including: Vodafone, Orange, SingTel, Telstra, and T-Mobile.</li> </ul>
France	<ul style="list-style-type: none"> <li>• Analog switch off scheduled for 2010.</li> </ul>
Finland	<ul style="list-style-type: none"> <li>• Digita has been awarded a license for DVB-H and signed an agreement with Nokia for equipment.</li> </ul>
Germany	<ul style="list-style-type: none"> <li>• Existing DAB networks cover 90% of the population.</li> <li>• Analog TV switch off scheduled to be complete by 2010.</li> </ul>
Italy	<ul style="list-style-type: none"> <li>• 3 Italia and Mediaset gained UHF spectrum by purchasing TV broadcasters. Both have already deployed DVB-H networks.</li> <li>• Analog TV switch off will commence in 2006.</li> </ul>
United Kingdom	<ul style="list-style-type: none"> <li>• Existing DAB network covers 85% of the population, and BT Modeo is deploying mobile TV services via that spectrum using DAB-IP.</li> <li>• Analog switch off scheduled to begin in 2007 and be completed by 2012.</li> <li>• Ofcom has announced an auction for 1.4GHz spectrum in 2007.</li> </ul>

**Figure 2 Spectrum Availability**

Most European operators are still on the fence and have not made public deployment decisions. Both technologies can claim victories, though. In Italy, Mediaset and 3 Italia have launched commercial DVB-H networks. In both cases, spectrum was acquired by purchasing an analog TV broadcaster with UHF allotments. Similarly in Finland, not just coincidentally the home of key DVB-H proponent Nokia, Digita was awarded a license to provide mobile TV services using DVB-H. In Germany, Mobiles Fernsehen Deutschland (MFD) rolled out a commercial T-DMB network (the first in Europe) on the eve of the 2006 World Cup. British Telecom is also in the process of deploying a commercial mobile TV network that uses DAB-IP, a technology related to T-DMB that can also piggyback on DAB spectrum.

## **2.0 Standards for Standard's Sake**

### **2.1 Purported Reason #1: Economies of Scale**

The battle for Europe's mobile TV standard thus rages on. Few, however, are begging the question of why Europe needs a standard in the first place. The obvious answer is that a common standard allows for greater economies of scale, which translates into cost advantages for equipment. Yet it is important to remember that operators are not only concerned with equipment costs but also with the overall business case for mobile TV. In this respect, many additional factors come into play.

Spectrum acquisition costs are clearly important. 3 Italia spent an undisclosed sum in order to acquire the UHF spectrum it needed; Mediaset spent U.S. \$240m. In the first case, this cost is born directly by the operator and in the second case, spectrum acquisition costs will be shared amongst the operators reselling Mediaset's network capacity, namely Vodafone Italy and Telecom Italia Mobiles (TIM). Moreover, operators relying on a third party's mobile TV network will be forced to share revenues in exchange—on top of the cost of content.

Another concern for operators is the opportunity cost of delayed deployment. MFD was anxious to leverage the German-hosted 2006 World Cup for its mobile TV launch. Spectrum suitable for DVB-H was unavailable, but extensive DAB networks were already in operation. MFD thus had little choice but to use T-DMB if it wanted to launch within the World Cup timeframe. BT faced a similar choice in the UK—deploy immediately through DAB, or wait several years for DVB-H spectrum to become available.

### **2.2 Purported Reason #2: Mobile TV Roaming**

Roaming is yet another reason marshaled in favor of a European mobile TV standard. If all European operators are using the same technology and similar frequencies, so the logic goes, subscribers can enjoy mobile TV content while traveling. This reasoning does not withstand scrutiny, though. Unlike voice, TV is a culture-specific application.

Language differences and program familiarity mean that subscribers will presumably want to see TV shows native to their country rather than local programming. Therefore, roaming mobile TV service has less value unless it can deliver the same programming the subscriber is accustomed to. Broadcast technologies such as DVB-H and T-DMB are ill suited for this job, however.

Broadcast technologies such as DVB-H and T-DMB are designed to deliver the same program to a wide audience. In either case, though, the number of channels available will be limited, and operators will never fill precious broadcast spectrum with niche-market programming (i.e., shows intended for international visitors). Unicast technologies (which use the existing cellular networks) are the more logical option for delivering such content. They can easily tap small pockets of demand, leaving broadcast bandwidth for popular content.

### **3.0 Conclusion: Doing What Works Best**

Operators will rightly choose the technology that presents them with the strongest business case, and this choice will vary from market to market. They cannot (and should not) be expected to forego current savings in exchange for the promise of cheaper equipment further down the road. Likewise, the benefits of roaming do not depend on Europe having a single broadcast standard for mobile TV—existing 3G networks are better suited to play that role. If, therefore, a European standard for mobile TV does not offer operators a cost advantage or a revenue advantage, why have one?

**About the Author:**

*John Barrett* currently analyzes technology-driven products and services for Parks Associates, a digital home research firm and consultancy. He has written more than a dozen industry reports on topics such as broadband adoption, ISP bundling strategies, mobile phone service, digital music, and VoIP telephony.

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