Why DMB is an alternative to DVB-H in Germany

Frank Strässle-Wendelstein, Bayerische Medien Technik GmbH
Why DMB is an alternative to DVB-H in Germany >>

Agenda

- About bmt
- DMB-Trials in Bavaria and Central Europe
  - Target Structure
  - Time Schedule
  - Economical, technical, user and content related Goals
- L-Band Commercial Service for World Cup 2006
Why DMB is an alternative to DVB-H in Germany >>

About BMT

50 %

Bayerischer Rundfunk

Bayerische Landeszentrale für neue Medien

Bayerische Medien Technik

…we pave the way for digital broadcasting!
Why DMB is an alternative to DVB-H in Germany

About BMT

... we pave the way to digital broadcasting!

Development and service support for:

- Digital Radio data services
- DVB-T
- MHP Applications
- Traffic telematics
- Playout and transmission technology
- DRM etc.
Why DMB is an alternative to DVB-H in Germany >>

DAB coverage in Germany

Channel 12
VHF-Band
End 2004

Bavaria:
- Area coverage: ca. 92 %
- Population coverage: (fixed) ca. 91 %
DMB-Trials in Bavaria and Central Europe >>

DMB-Trials

Call for proposals 15th of March 2005

DMB-TRIALS
DMB – JOINT-PROJECT in planning: 80 proposals/applications from 9 countries

33% content services business-models
33% technology applications transmission
15% devices
15% user-related proposals monitoring
4% research, coordination and others
DMB-Trials in Bavaria and Central Europe >>

Target Structure

DMB TRIALS

call for proposals
15th of March 2005
DMB-Trials in Bavaria and Central Europe >>

Spatial structure

A
DMB project „REGENSBURG“

B
DMB project „FIFA WORLD CUP 2006 MUNICH“

C
DMB „cross-border project Lake of Constance“ Bregenz AT/CH/DE

D
DMB project „South Tyrol/TRANSALP“ Northern Italy Province Bozen

JOINT European CELTIC project Digital Advanced Broadcasting

DMB test trials for the Call3 – CELTIC application
DMB-Trials in Bavaria and Central Europe >>

Germany and Central Europe

FIFA WorldCup Munich 2006

South Tyrol/TRANSALP
Northern Italy

REGensburg

Crossborder
Lake of Constance
Channel 12A
Coverage area:
mobile reception: 331852 people, 1950 km²
indoor reception: 195906 people, 461 km²
**DMB-Trials in Bavaria and Central Europe >>**

**Schedule**

<table>
<thead>
<tr>
<th>Projects</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMB Trials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REGensburg</td>
<td>T-DMB + T- DAB (MPEG 4 + MPEG1 Lay II)</td>
<td>B + hybrid System + Storage</td>
<td>C + DRM-Chip + GPS and DVB-H?</td>
</tr>
<tr>
<td></td>
<td>VIDEO + AUDIO</td>
<td>Top-Video News</td>
<td></td>
</tr>
</tbody>
</table>

**Year**

- **2005**
  - T-DMB + T- DAB (MPEG 4 + MPEG1 Lay II)
  - VIDEO + AUDIO

- **2006**
  - B + hybrid System + Storage
  - Top-Video News

- **2007**
  - C + DRM-Chip + GPS and DVB-H?
Technical Goals

1. Parallel use of audio and video services within one ensemble
2. Testing of individual use of content by storing it to storage of receiver - Virtual channel
3. Test of return channel applications
4. Test of DMB equipment and receivers
5. Integration of existing multimedia services
6. Adding metadata to facilitate recording (tagging)
Digital Advanced Broadcasting >>

DMB-Tagging

... audiostream ... audiostream ... audiostream ... audiostream ...
... videostream ... videostream ... videostream ...

Category: Weather
Title: Storm warning
Priority: High

Category: Sports
Title: Formula 1 Race

Category: International
Title: New pope's name is Benedikt XVI
Type: Report

Audio/Video
Item

Metadata

Storage

Audio/Video
Item

Metadata

Audio/Video
Item

Metadata

Digital Advanced Broadcasting >>
DMB-Tagging
Tagging

Sports
- DFB- Team beats South Africa
- US-Open: Federer in Final
- 1.FC Nürnberg lost Keeper
- Golf: Results

Weather

Sports

Cinema

Culture
**Amount of time to store a video/audio stream to memory**

<table>
<thead>
<tr>
<th>Storage</th>
<th>32 kbit/s 240 kB/m</th>
<th>96 kbit/s 720 kB/m</th>
<th>160 kbit/s 1200 kB/m</th>
<th>400 kbit/s 3000 kB/m</th>
<th>800 kbit/s 6000 kB/m</th>
<th>1,5 Mbit/s 11250 kB/m</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MB</td>
<td>4,2 Min</td>
<td>1,4 Min</td>
<td>&lt; 1 Min</td>
<td>&lt; 1 Min</td>
<td>&lt; 1 Min</td>
<td>&lt; 1 Min</td>
</tr>
<tr>
<td>16 MB</td>
<td>68 Min</td>
<td>22 Min</td>
<td>13 Min</td>
<td>5 Min</td>
<td>3 Min</td>
<td>1 Min</td>
</tr>
<tr>
<td>128 MB</td>
<td>9 Std.</td>
<td>3 Std.</td>
<td>100 Min</td>
<td>40 Min</td>
<td>21 Min</td>
<td>12 Min</td>
</tr>
<tr>
<td>512 MB</td>
<td>36 Std.</td>
<td>12 Std.</td>
<td>6,5 Std.</td>
<td>2,5 Std.</td>
<td>84 Min</td>
<td>48 Min</td>
</tr>
<tr>
<td>1 GB</td>
<td>72 Std.</td>
<td>24 Std.</td>
<td>13 Std.</td>
<td>5 Std.</td>
<td>2,8 Std.</td>
<td>1,6 Std.</td>
</tr>
<tr>
<td>20 GB</td>
<td>60 Tage</td>
<td>20 Tage</td>
<td>12 Tage</td>
<td>4,8 Tage</td>
<td>2,4 Tage</td>
<td>1,3 Tage</td>
</tr>
<tr>
<td>400 GB</td>
<td>3 Jahre</td>
<td>1 Jahr</td>
<td>7 Monate</td>
<td>3 Monate</td>
<td>1,5 Monate</td>
<td>26 Tage</td>
</tr>
</tbody>
</table>

32-96 kbit/s is a typical MUSICAM audio service (news, reports, audio book)

160 kbit/s is a typical MUSICAM music service (e.g. normal radio program)

400-800 kbit/s is a typical DMB video service

1,5 Mbit/s is the capacity of a DAB/DMB ensemble

32-96 kbit/s is a typical MUSICAM audio service (news, reports, audio book)

160 kbit/s is a typical MUSICAM music service (e.g. normal radio program)

400-800 kbit/s is a typical DMB video service

1,5 Mbit/s is the capacity of a DAB/DMB ensemble

512 GB is the size of typical SD/MMC cards

20 GB is the capacity of portable devices e.g. iPod

400 GB is the capacity of a hard disk
Economical Goals

B 1 INFRASTRUCTURE COSTS FOR DMB L-BAND vs. BAND III
B 2 ENTRY FOR SMALL AND MEDIUM COMPANIES
B 3 NEW TYPES OF BUSINESS MODELS (e.g. payment via return channel)
B 4 COST BENEFIT ANALYSIS
B 5 GROWTH THROUGH INNOVATION
Content related Goals

C 1
DEVELOPMENT OF ESG/EPG's

C 2
DEVELOPMENT OF DIFFERENT CONTENTS AND SERVICES ON A BROADCAST PLATFORM IN A „LIVE-STREAM“ MODE

C 3
DEVELOPMENT OF DIFFERENT CONTENTS AND SERVICES ON A HYBRID PLATFORM

C 4
DEVELOPMENT OF DIFFERENT CONTENTS AND SERVICES ON A HYBRID PLATFORM IN A „FOREWARD & STORE“ (= STORAGE)- MODE
User related Goals

D 1
USER TRIALS WITH approx. 200-500 TEST PERSONS

D 2
VALIDATION OF USABILITY AND NAVIGATION CONCEPTS

D 3
VALIDATION OF SERVICE CONCEPTS

D 4
EXTENSION OF THE PROJECT FOR WORLD CUP 2006
DMB-Trials in Bavaria and Central Europe >>

Digital Advanced Broadcasting

"Integrated Telecommunication Solution"

"Service & Applications Multimedia Management" + Infrastructures"

PAN-EUROPEAN Laboratory

Digital Advanced Broadcasting
DMB-Trials in Bavaria and Central Europe >>

DMB-Devices

- LG
- Samsung
- Pantech
- Perstel
The Project “Digital Advanced Broadcasting” wants to develop and test in 4 joint DMB-Trials.
Current Situation:
Why DMB is an alternative to DVB-H in Germany >>

L-Band Germany (Maastricht Coverage)
DMB Rollout 2006, Germany

• Start FIFA Soccer World Cup 2006
• 31 Transmitters
• More than 30 Repeaters
• In 12 Cities with World Cup Stadiums
DMB- Commercial Service from T-Systems

L-Band in Germany

Interactivity with Voting Application
Return Channel with 2.5 or 3 G

Samsung
First L-Band Mobile Phone

Samsung
First L-Band Mobile Phone
Summary

- For DAB/DMB spectrum is available - now!
  - Maastricht and Wiesbaden Coverage in L-Band is usable
  - RRC06 is the spectrum in UHF for DVB-H to use?
  - L-Band Commercial Service starting FIFA World Cup 2006
- What kind of Mobile Media is important on the move?
  - Every DMB Receiver is also an DAB Receiver
- Less spectrum - more TV channels: DMB Tagging
  - ESG/EPG, marked content and storage is key!
…to create new successful ways for the future of broadcasting

Frank Strässle-Wendelstein
Managing Director

Bayerische Medien Technik GmbH
Pfälzer-Wald-Str. 32
81539 München

Tel.: +49 89 451 151 - 11  Fax: - 99
Email: frank.strassle@bmt-online.de

For further Information...
www.bmt-online.de

Thank you for your attention!