



DVB-H and T-DMB in Germany

Frequencies, Regulations and a Short Comparison

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Agenda

- About bmt
- Basics about DVB-H and T-DMB
- Frequencies
- German Goals RRC 06
- Outlook 2007/2008
- T-DMB in Munich





50 %

50 %



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...we pave the way for digital broadcasting!



DVB-H

- Technically based on DVB-T (TV)
 - DVB-T infrastructure can be used for DVB-H at the same time
 - Approx. 5-9 Mbit/s net transfer rate / multiplex in 7/8 MHz channel (14-20 TV programs)
- DVB-H ETSI-Standard is ready, IP Datacasting (ESG/ Interaction...) has not been fully standardized yet. Only proprietary solutions so far
- Handsets still prototypes
- Commercial Roll-Out in 2006 has been announced for Italy, Finland, USA

T-DMB

- Technically based on DAB (Radio)
 - DAB infrastructure can be used for T-DMB at the same time
 - Approx. 1,2 Mbit/s net transfer rate / multiplex in 1,5 MHz channel (4-5 TV programs)
- Fully standardized by ETSI
- Handsets available
- Commercial Roll-Out already implemented in South Korea, planned for 2006 in China, UK and Germany



Key Topics:

Frequencies

Frequencies

Frequencies



DVB-T-Empfangsbereiche deutschlandweit

Stand: 1. März 2006



DVB-T: Das überall Fernsehen



- DVB-T covers mostly urban areas
- 1 Coverage in band III VHF
- 5 Coverages in band IV/V UHF
- Public service broadcasting programs (ARD/ZDF...) in every coverage area
- Commercial programs only in selected areas

- DVB-T in Betrieb
- DVB-T in Betrieb (öffentlich-rechtlich)
- DVB-T Start bis zur Fussball WM 2006 (öffentlich-rechtlich)
- DVB-T Start in Planung 2006 (öffentlich-rechtlich)

Source: Ueberallfernsehen.de, 2006



Source: Digitalradio.de, 2006

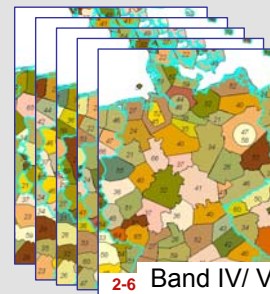
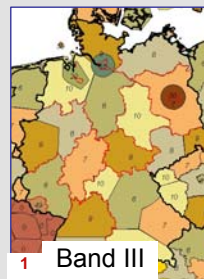
- DAB covers nearly 80% of Germany (outdoor)
- 1 nationwide coverage in band III VHF restricted to usually 1 kW on channel 12
 - Band III coverage widely used for radio programs
- 2 local coverages in L band
 - 1 partially used for local radio programs
 - 1 available for T-DMB by MFD



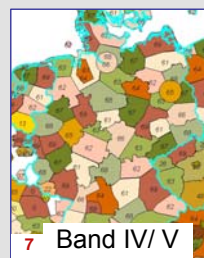
Regional Radiocommunication Conference 2006 (RRC`06) has the goal to restructure broadcasting frequencies in the bands III, IV and V

DVB-T (DVB-H)

- After RRC`06 nationwide 7 coverages, 8 coverages from 2009
 - 1 in band III
 - 7 in band IV and V (1 from 2009 after analogue switch-off)
- Scenarios for DVB-H
 - Usage of new coverage (7) for DVB-T
 - Usage of new coverage (7) for DVB-H (problem ch. >54?)
 - Switch of public broadcasters from coverage (1) band III to (7) band IV/V. Usage of coverage (1) for DVB-H
 - Usage of second coverage (8) for DVB-H from 2009



Before RRC`06



Additional after RRC`06



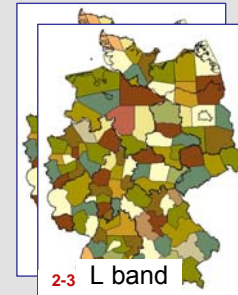
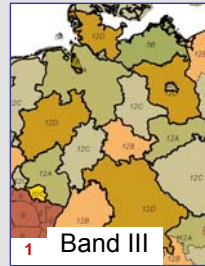
Additional from 2009

Source: BLM, 2006

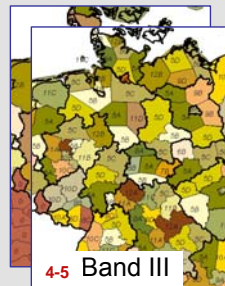


DAB (T-DMB)

- Nationwide 3 coverages in band III and 2 in L band
- Up to 10 kW transmitter power in channel 12 (1)
- Scenarios for T-DMB
 - Commercial roll-out of MFD in L band (2) already in preparation
 - Second L band coverage available after switch from L band radio programs to band III
 - Switch of DVB-T band III programs to new DVB-T coverage. Usage of DVB-T band III coverage for T-DMB (4 ensembles)



Before RRC`06



Additional after RRC`06

Source: BLM, 2006



DVB-H

- Frequencies in urban areas used by DVB-T. One nationwide coverage for DVB-H depends on results of RRC`06.
- Tendering procedure is in process of preparation by federal authorities (Landesmedienanstalten). Commercial Roll-Out not before 2007
- Unclear if standardization process of IP Datacasting will be finalized in 2006/2007

T-DMB

- Frequencies in L band currently available and used by MFD for commercial Roll-Out during FIFA World Cup in 5 cities with 4 TV and 2 radio channels.
- One additional coverage for T-DMB perhaps after RRC`06



1. Convergent chips supporting DVB-H and T-DMB in one handset are currently in development. Not completed before 2007/08
2. The new DXB standard is currently being developed and will combine DVB-H and T-DMB. Completion not before 2008

- Start with MFD and T-DMB in Germany next week
- Later 2nd offer by T-DMB competitor in 2007
- Commercial Roll-Out of DVB-H in 2007/08
- Convergent chipsets or DXB as from 2008/09



- MI FRIENDS Munich
 - 5 Video channels
 - 3 Audio channels
 - Broadcasted in band III, channels 11D and 12A



- MFD and Debitel
 - 4 Video channels
 - 2 Audio channels (1 starts in autumn 2006)
 - Broadcasted in L band





Thank you !

Dipl.-Volkswirt

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