Wireless broadband in the 700MHz band - Europe after the German auction

The 700 MHz award process in Germany

10.9.15 Digital Executive Club - Brussels

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Director Regulatory Affairs
Telefónica Germany
 Agenda

The 700 MHz award process in Germany

1. 700 MHz in the context of the German broadband strategy
2. 2015 auction for 700 / 900 / 1500 / 1800 MHz usage rights
3. Coverage obligations
4. Migration of existing services and availability of 700 MHz spectrum for mobile
5. After the German 700 MHz award process
700 MHz in the context of the German broadband strategy

- Broadband strategy of the federal government
- Future usage of UHF spectrum
- Spectrum Demand
  - Development mobile
  - Development broadcast
  - PPDR demand
  - UHF-Spectrum (incl. 700)
    - Policies and regulations (EU / CEPT / ECC)

- Technical development
  - 4G → 5G

German government
- “Koalitionsvertrag”
- „Netz-Allianz“
- „IT-Gipfel“
- …
Overall political goals

02/2009: Initial German broadband strategy

- 1 Mbit/s for everyone until 2010, 50 Mbit/s for 75% households until 2014
- Goals to be reached by using all fixed and mobile technologies
- Early 800 MHz auction to help reaching the goals (1st EU auction)

08/2014: Update of initial German broadband strategy in “Digitale Agenda 2014-2017”

- 50 Mbit/s for everyone until 2018
- Goals to be reached by using all fixed and mobile technologies (including by broadband state aid programs)
- Early 700 MHz auction to help reaching the goals (1st EU auction)
Corresponding BNetzA proceedings (“Projekt 2016”)

02/2012: MWC-12 identifies 700 MHz spectrum for mobile on co-primary basis

05/2012: BNetzA envisages to include 700 MHz spectrum in ongoing proceedings concerning 900 / 1800 MHz legacy spectrum

06/2013: BNetzA intends to auction expiring 900 / 1800 MHz with newly available 700 (and 1500 MHz usage rights)

07/2013-08/2014: Announcement and approval of Telefónica Deutschland / E-Plus merger

12/2014: Political consensus between German government, federal states and broadcasters to include 700 MHz in envisaged auction, based on:

• Financial agreement to split (700 MHz) auction revenue 50/50 between Bund + Länder
• Financial compensation for migration of PMSE users
• Implementation transition-period for migration DVB-T → DVB/T2

01/2015: Final BNetzA decision to auction 700, 900, 1500 and 1800 MHz usage rights

03/2015: BNetzA admits DT, TEF.DE and VF to participate in 2015 spectrum auction
2015 auction for 700/900/1500/1800 MHz usage rights

Auction details:
- From 27.5.-19.6.2015: SMR auction with 3 admitted bidders (DT, TEF.DE + VF)
- Tough bidding competition during 181 rounds on 16 bidding days
- **Total auction prices:** 5,081,236,000 €

700 MHz details:
- 2 x 30 MHz were auctioned in 6 blocks à 2x5 MHz
- Reserve price per 2 x 5 MHz: 75 million €
- Lowest block ("700-A"): Concrete Allocation (due to usage restrictions)
- Other blocks ("700-B" to "700-F"): Abstract Allocation
- **Total amount of 700 MHz prices:** 1,000,445,000 €

<table>
<thead>
<tr>
<th>Frequenzbereich</th>
<th>Block</th>
<th>Ausstattung</th>
<th>Höchstbieter</th>
<th>Höchstgebot (€ in Tsd.)</th>
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<tr>
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<td>700 A</td>
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2015 auction for 700/900/1500/1800 MHz usage rights

### Rundenergebnis der Runde 181

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**Summe aller gehaltenen Höchstgebote (€ in Tsd.):** 6.081.236

**Zahlungsverpflichtung aufgrund zurückgenommener Höchstgebote (€ in Tsd.):** 0

**Summe (€ in Tsd.):** 6.081.236
Paired 700, 800, 900, 1.800, 2.100, 2.600 and new 1.500 download spectrum shown. Unpaired 2.100 and 2.600 not shown.
MNO-specific coverage obligation:

Within 3 years of spectrum allocation:

• 50 Mbit/s download speed per antenna sector so that 10 Mbit/s download speed is reached in / at
  • at least 98% of nationwide households AND
  • at least 97% of the households within every federal state AND
  • all main traffic routes

Obligations can be fulfilled with any spectrum (not only 700 MHz)
Phased approach for 700 MHz band (incl. DVB-T Simulcast):

BNetzA auction decision (28.01.2015):

- 700 MHz partly available as of mid-2017
- 700 MHz full availability around mid-2019
- Annex 7 describes phased national approach incl. simulcast phase
- Annex 8 describes info re DVB-T usage in neighbouring countries

Kanal 49 bis 60 – AUT (Österreich)

<table>
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<th>Rundfunksender</th>
<th>Kanal</th>
<th>ERP in dBW</th>
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After the German 700 MHz award process

- **Cross-border issues**
  - BNetzA discusses with neighboring countries to quickly dedicate 700 MHz for mobile to prevent interference in border regions
  - EU policy deadline would be helpful that 700 MHz band shall asap be made available for mobile in entire EU

- **700 MHz payment terms**
  - “Pay when available” rule in 700 MHz award processes might help to speed-up in-country band clearance for mobile

- **MWC-15**
  - Final 700 MHz assignment for mobile on co-primary basis