




# Digital Television Migration: spectrum and mobile broadband

**Barbados, May 2012**  
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Radiocommunication Bureau

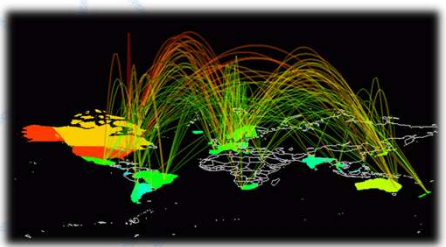

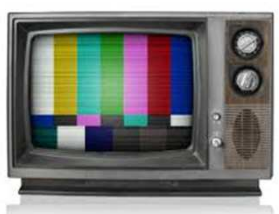


Committed to connecting the world



## Overview

Digital Dividend  $\neq$  Digital Divide!






# Overview


## Digital Dividend: digital terrestrial TV

Use spectrum more efficiently: more TV in less spectrum



More spectrum for mobile broadband: 4G





**RR5-54**

**460-890 MHz**

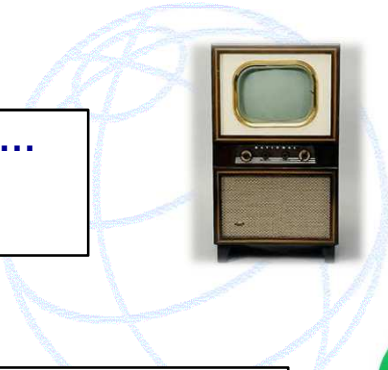
**Allocation to services**

Region 1	Region 2	Region 3
<p><b>460-470</b></p>	<p>FIXED MOBILE 5.286AA Meteorological-satellite (space-to-Earth) 5.287 5.288 5.289 5.290</p>	
<p><b>470-790</b> BROADCASTING</p>	<p><b>470-512</b> BROADCASTING Fixed Mobile 5.292 5.293</p>	<p><b>470-585</b> FIXED MOBILE BROADCASTING</p>
	<p><b>512-608</b> BROADCASTING 5.297</p>	<p>5.291 5.298</p>
	<p><b>608-614</b> RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)</p>	<p><b>585-610</b> FIXED MOBILE BROADCASTING RADIONAVIGATION 5.149 5.305 5.306 5.307</p>
<p>5.149 5.291A 5.294 5.296 5.300 5.302 5.304 5.306 5.311A 5.312</p>	<p><b>614-698</b> BROADCASTING Fixed Mobile 5.293 5.309 5.311A</p>	<p><b>610-890</b> FIXED MOBILE 5.313A 5.317A BROADCASTING</p>
	<p><b>698-806</b> BROADCASTING Fixed MOBILE 5.313B 5.317A</p>	
	<p>5.293 5.309 5.311A</p>	
<p><b>790-862</b> FIXED BROADCASTING MOBILE except aeronautical mobile 5.316B 5.317A 5.312 5.314 5.315 5.316 5.316A 5.319</p>	<p><b>806-890</b> FIXED MOBILE 5.317A BROADCASTING</p>	
<p><b>862-890</b> FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.319 5.323</p>	<p>5.317 5.318</p>	<p>5.149 5.305 5.306 5.307 5.311A 5.320</p>



# Implications: hardware availability

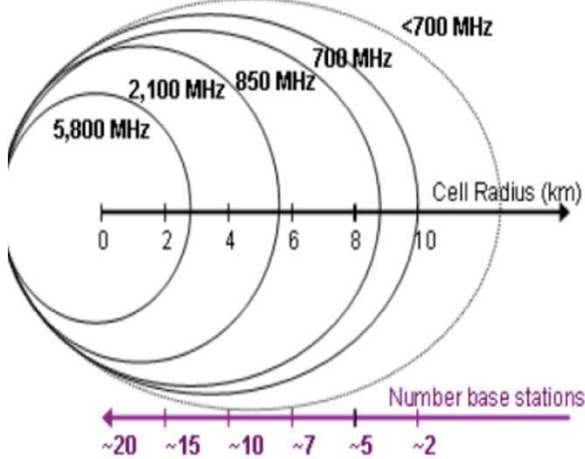
More digital TV...  
less analogue  
hardware



New mobile technologies...  
market choices

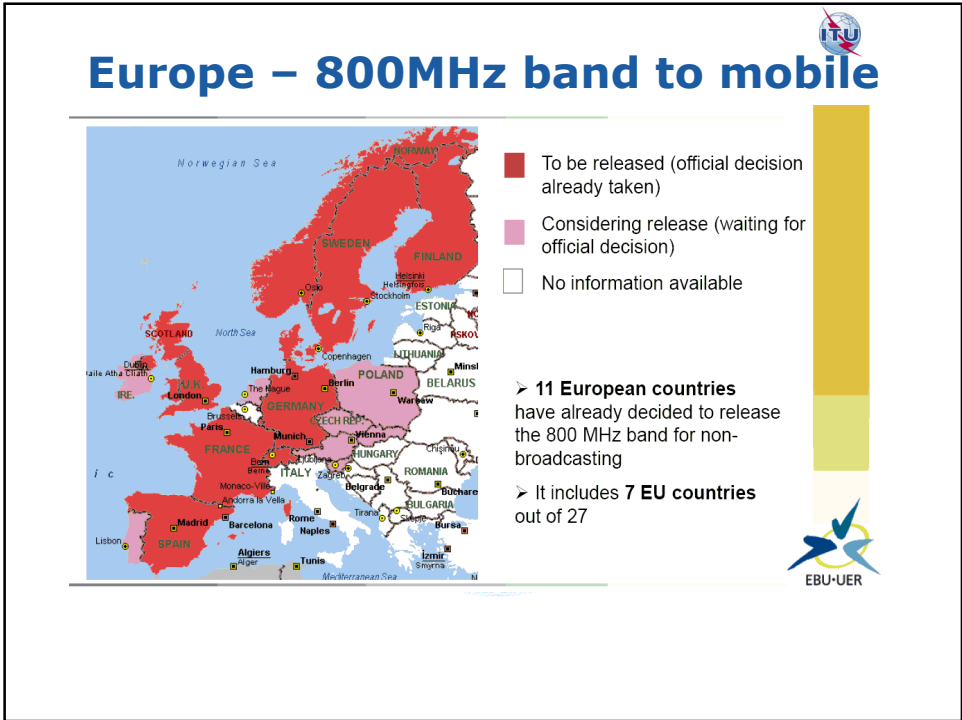
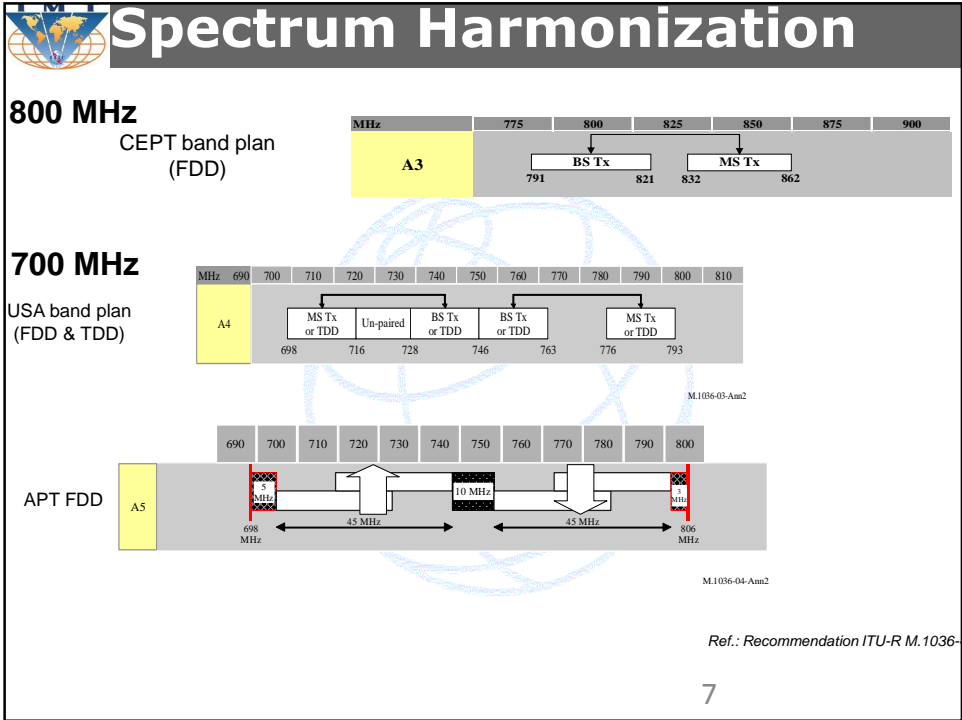


Optimum propagation at UHF for  
mobile and reduced cost of  
deployment

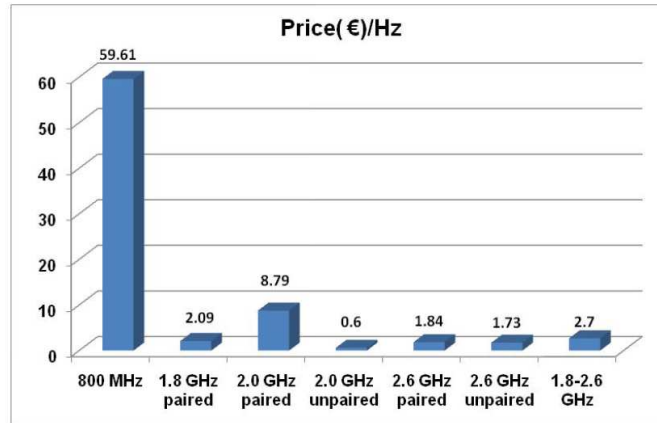


The propagation characteristics of spectrum

Source: BBC R&D.



## Auction results - Germany



3.57/0.81 Billion for 60/300 MHz in 800MHz/other bands

9

## 4G mobile broadband landscape

### USA: 698 – 806 MHz

(2 x 12 MHz blocks + 2 x 11 MHz blocks)

### Europe: 790 – 862 MHz

(2 x 30 MHz blocks with 11 MHz center gap)

### Asia Pacific: 698 – 806 MHz

(2 x 45 MHz blocks with 10 MHz center gap)



## Conclusion: Importance of harmonizing

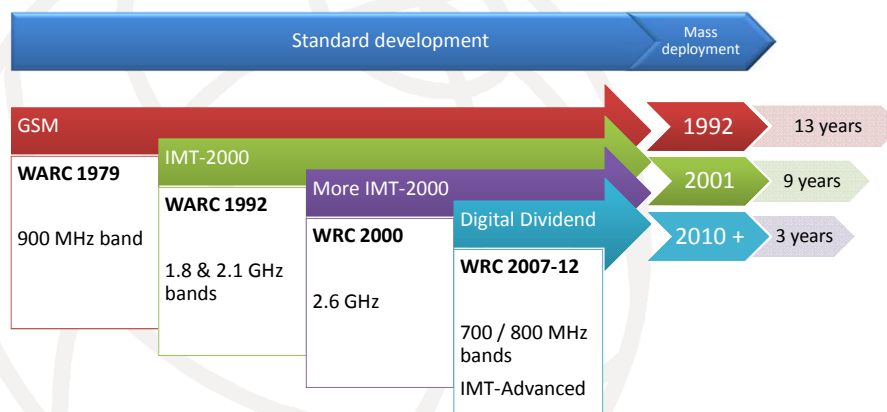
### Achieving maximum spectrum utilisation for mobile data

(channel sizes up to 20 MHz for maximum data rate  $\approx$  100 Mbps in technologies such as LTE and Wimax)

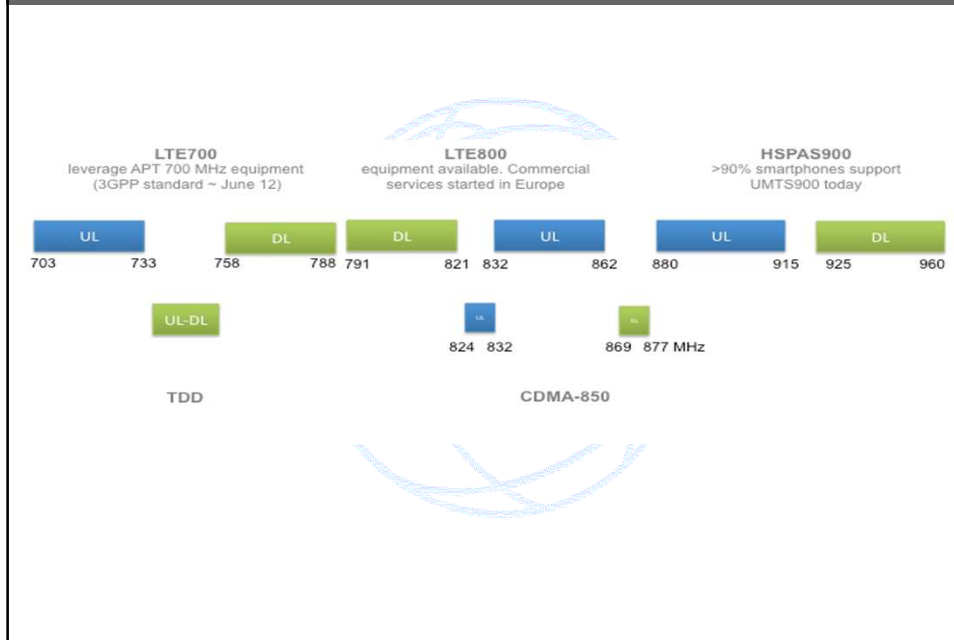
### 4G roaming considerations

Markets for sourcing handsets and base stations: economies of scale + interoperability

## Worldwide harmonization for mobile spectrum



## Example of possible joint harmonization of the 700/800/900 MHz bands



Thank you...

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