Transition to digital TV and allocation of the digital dividend

François Rancy
Radiocommunication Bureau
Director
Is the amount of spectrum in the frequency band 470-862 MHz to be released after the switch-off of analogue TV

DD1: The band 790-862 MHz (WRC-07) Region 1

DD2: The band 694-790 MHz band (WRC-12) Region 1
Why 700 MHz for MEA?

- Several countries in MEA use 850MHz for other services and so cannot make the 800 MHz band available for Mobile.
- The penetration of fixed broadband is very low or infrastructure not sufficient.
- Demand for mobile data services is growing and more spectrum is needed to accommodate this demand.
- A dynamic wireless broadband industry to contribute in the economic growth and job creation.

Limited use of terrestrial TV

- Low penetration for Terrestrial broadcasting, compared with other TV platforms and/or provides few TV channels.
- Limited number of TV channels.
- Late introduction allows the choice of DVB-T2/MPEG4 → very efficient spectrum consuming: Larger DD

- the 700MHz allocation in Region1 raises the prospect of harmonization with other ITU world regions.
Benefits of Harmonization

Economies of scale,
- Can decrease terminal costs by 50% (also offer better performing phones, more choice)
- Reduces the complexity of the radio design

International roaming

Interoperability,
- Reduces interference with adjacent services and helps managing cross-border interference...
Countries in MEA started planning DSO later than European and are well positioned to use newer technologies, such as DVB-T2 and MPEG-4/H.256, which offer better spectral efficiency.

Spectrum in the 700MHz band could be made available by most regulators in the MEA by WRC-15, when it is expected to be allocated worldwide.

In Europe, in contrast, most countries planned DSO some years ago and hence use DVB-T with multi-frequency networks (MFNs) for an extensive DTT.

Substantial replanning will be needed to DVB-T2 and extensive use of single-frequency networks (SFNs). Expected to be available in Europe in 2020–2022.
Europe (example of countries)

Terrestrial TV Coverage actual/Planned

- DVB-T 57%
- DVB-T2 14%
- DVB-T/DVB-T2 23%
- Not yet Defined 3%
- Mobile service only 3%
- No DTT 3%
- Not planned yet 50%

Allocation date of the 800 MHz

- 2010 EC Decision 2010/267/EU to harmonize the 800 MHz band the 800 MHz band for Mobile Broadband: By 1 January 2013.
- The Commission shall grant specific derogations until 31 December 2015 for Member States with exceptions.
ATU Ministerial Summits in December 2011 (Nairobi), September 2012 (Accra) and May 2014 (Nairobi)

Decided to allocate the digital dividend to the mobile service under 694 MHz

Recommended the adoption of DVB-T2 and MPEG4

Decided to replan GE06 Plan on the basis of 4 national layers per country. Negotiations started in March 2012 and were completed in July 2013 at iteration 33.

Recommended the end of analog switch-off by 17 June 2015
coordination meetings for Sub-saharan Africa

Percentage of assignable channels, average satisfied req.: 97.37%

Countries having modified the GE06 Plan

- Yes: 87%
- No: 13%

Identified DD (21 Countries)

- 694-862 MHz
- 790-862 MHz: 15%
- 694-790 MHz: 10%
- ND: 25%

Terminée 2%
Lancée 15%
Stade planification 83%
Arab countries

(Questionnaire replies nov. 2011)

Level of implementation of digital TV

ASO date

Identified DD (10 countries)
GE06 Plan for the Arab countries

Number of layers in GE06 Plan- May 2014

From Bad To better

0 Channels (%) - 1 Channel (%) - 2 Channels (%) - 3 Channels (%) - 4+ Channels (%)
Worst and best cases - Layers (GE06)

4+ Channels (%)

- BHR: 16%
- QAT: 14%
- UAE: 13%
- YEM: 10%
- KWT: 10%
- LBN: 8%
- EGY: 8%
- IRQ: 7%
- JOR: 7%
- MRC: 6%
- ARS: 5%
- OMA: 3%
- SYR: 2%

0 Channel (%)

- BHR: 26%
- QAT: 13%
- UAE: 8%
- YEM: 7%
- KWT: 7%
- LBN: 5%
- EGY: 2%
- IRQ: 2%
- JOR: 2%
- MRC: 2%
- ARS: 0%
- OMA: 0%
- SYR: 0%
Proposed process of coordination for the Arab countries

Adm. Requirements

ITU Database:
- GE06 Plan
- GE06L
- MIFR

Compatibility analysis (iteration)- BR

Modification of the GE06 Plan

Database of results

Coordination btw Adm.
The requirements generated by the BR as to reach 4 layers, with analysis for channels in the whole band 470-694 MHz
BR actions

- Generated the initial requirements with flexible channels (to reach 4 layers);
- Adapted the necessary software and tools for the Arab Region;
- Will assist in the frequency coordination meetings, regional iterations (compatibility analysis), ...
- One iteration each 2 weeks until the 3rd and final meeting;
- Will take in charge to find available channels for the ‘absent’ administrations’ (4 layers), if any;
- Assistance all along the process.

...
## Proposed timeline and activities

<table>
<thead>
<tr>
<th>Dates</th>
<th>Meeting place</th>
<th>Iterations/Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr-14</td>
<td></td>
<td>1st ASMG/ITU meeting Dubai-UAE</td>
</tr>
<tr>
<td>18/5/14</td>
<td></td>
<td>Tools and Planning criteria</td>
</tr>
<tr>
<td>19/5/14</td>
<td></td>
<td>Channel search and coord.</td>
</tr>
<tr>
<td>20/5/14</td>
<td></td>
<td>2nd ASMG/ITU meeting TBD</td>
</tr>
<tr>
<td>21/5/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>22/5/14</td>
<td></td>
<td>3rd ASMG/ITU meeting TBD</td>
</tr>
<tr>
<td>23/5/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>26/5/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>Jun-14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>20/6/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>21/6/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>22/6/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>23/6/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>Jul-14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>1/7/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>2/7/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>3/7/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>4/7/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>5/7/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>Aug-14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>6/8/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>7/8/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>8/8/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>9/8/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>10/8/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>11/8/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>12/8/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>Sep-14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>13/9/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>14/9/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>Oct-14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>15/10/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>Nov-14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>16/11/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>17/11/14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
<tr>
<td>Dec-14</td>
<td></td>
<td>Results analysis, channel search and coord.</td>
</tr>
</tbody>
</table>

GE06 plan modification
You need to decide on the process of assigning additional channels and the criteria for the Regional coordination, such as min/max number of layers, the protection margin...
Thank you for your attention

Francois Rancy
Director of the BR