Regulatory aspect of 5G mmW

Eric Fournier
Chairman, Electronic Communications Committee
Frequency bands already harmonised by ECC for 2G/3G/4G

<table>
<thead>
<tr>
<th>Band</th>
<th>Size (MHz)</th>
<th>Ref</th>
</tr>
</thead>
<tbody>
<tr>
<td>800 MHz</td>
<td>2x30</td>
<td>ECC DEC(09)03</td>
</tr>
<tr>
<td>900 MHz</td>
<td>2x35</td>
<td>ERC DEC(94)01 &amp; ERC DEC(97)02 &amp; ECC DEC(06)13</td>
</tr>
<tr>
<td>1452-1492 MHz</td>
<td>40</td>
<td>ECC DEC(13)03</td>
</tr>
<tr>
<td>1.8 GHz</td>
<td>2x75</td>
<td>ERC DEC(95)03 &amp; ECC DEC(06)13</td>
</tr>
<tr>
<td>2 GHz</td>
<td>2x60</td>
<td>ECC DEC(06)01</td>
</tr>
<tr>
<td>2.6 GHz</td>
<td>2x70+50</td>
<td>ECC DEC(05)05</td>
</tr>
<tr>
<td>3.4-3.8 GHz</td>
<td>400</td>
<td>ECC DEC(11)06</td>
</tr>
<tr>
<td><strong>Sub-Total : 1030 MHz</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>700 MHz</td>
<td>2x30 + 20</td>
<td>ECC DEC(15)01</td>
</tr>
<tr>
<td>2.3-2.4 GHz</td>
<td>100</td>
<td>ECC DEC(14)02</td>
</tr>
<tr>
<td><strong>Total : 1210 MHz</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ECC actions for 5G

- **5G features are already in today’s discussion**
  - Wider bandwidth: 2.3, 2.6 and/or 3.6 GHz bands
  - M2M (700 MHz)
  - Small cells, femtocells
  - Cognitive technology and new sharing solutions (LSA)
  - Better adjacent band coexistence requirement

- **Securing WRC-19 agenda item on 5G**
  - Inputs from industry justifying the spectrum need for 5G at WRC-19
  - Exact formulation yet to be discussed:
The process for securing WRC-19 Agenda Item on 5G

Industry

ECC/PT1

Administrations

CPG PTA develops an ECP on WRC-15 Agenda Item 10

CPG adopts ECP

ASMG

ATU

APT

CITEL

RCC

WRC-15 2-27 Nov.15

CPM19-1 30 Nov – 1st Dec 15

4 years studies …

WRC-19
Focus WRC-19 on certain frequency bands?

- Studying all bands > 6 GHz? *Enormous work*
- Limiting on certain bands? *We may miss opportunity*

CPG will adopt the ECP in September

<table>
<thead>
<tr>
<th>Frequency range</th>
<th>6-20 GHz</th>
<th>20-40 GHz</th>
<th>40-60 GHz</th>
<th>60-100 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific bands identified</td>
<td><strong>10 GHz band</strong> 10.125-10.225 GHz / 10.475-10.575 GHz</td>
<td><strong>32 GHz band</strong> 31.8-33.4 GHz</td>
<td><strong>40 GHz band</strong> 40.5-43.5 GHz</td>
<td><strong>66 GHz band</strong> 66-71 GHz</td>
</tr>
<tr>
<td>Potential bandwidth</td>
<td>2 x100 MHz</td>
<td>1.6 GHz</td>
<td>5.8 GHz total</td>
<td>5 GHz</td>
</tr>
</tbody>
</table>

OFCOM
What will happen in ITU after WRC-15?

- CPM 19-1 (immediately after WRC-15) will organize the preparatory work.
- One ITU group responsible for studying and proposing solutions: 5D, TG 5X, JTG.
- 3 years intensive studies within ITU on coexistence issues with other services.
- CPM 19-2 (beginning 2019) will adopt the “CPM Report”.

Final decision will be at WRC-19.
Necessary coexistence studies in all bands, eg ...

- 24.5-26.5 GHz: fixed service (inc. NATO), WLL, Satellite data relays, FSS uplink
- 31.8-33.4 GHz: fixed service, radionavigation
- 40.5-43.5 GHz: fixed/broadcasting satellite service, radioastronomy
- 45.5-48.2 GHz: fixed satellite service
- ...

What about 5G?

• Use of wider bandwidth and higher spectrum
  Fine, the spectrum below 6 GHz is overcrowded

• Convergence between access and backhauling
  Will it be the reality? From the beginning?

• Small cells
  Any regulatory impact?
What about 5G?

- Waveform with better **adjacent band performance**
  
  Good news, LTE was challenging in adjacent band coexistence!

- New **sharing mechanism**
  
  Which one? Intra or Inter services?
Preparation of WRC-19 (including all sharing studies)

- Ensuring good progress in harmonisation of technologies/standards (through ITU)
- Consequence of 5G in existing bands
Thanks ...