IEEE 802 EC 5G/IMT-2020 SC draft report

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5G SC report
Philosophy

- Include and describe all options
  - That are derivatives of the four requested cases
- Expand cost/benefit for each
- SC conclusion recommended
  - Consensus preferred on preference
    - not required
    - Worst case straw poll preference
  - Recommend way forward for preference (s)
What are “costs and benefits”?

• This is a cost-benefit analysis
  ▫ But without monetary cost, only relative costs
  ▫ A quantitative pros vs cons
  ▫ Strengths, Weaknesses, Opportunities and Threats

• Brainstorm all costs and benefits
  ▫ E.g., resource cost, installation cost, operational cost, energy cost, etc.
  ▫ Are the unexpected costs?
  ▫ Are there unanticipated benefits?

• Estimate value relative to a baseline
Proposed Table of Contents

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What is 5G?
5G architecture

... simplified
Will the SC define 5G?

- There will be two contexts
  - **IEEE 5G**
    - Some sort of description will be required
    - This may include use cases and requirements
  - **IMT-2020**
    - This is (or will be) defined by ITU-R
What are all the derivatives of options?
1. IEEE 5G

• Description
  ▫ Not related to IMT-2020
  ▫ At least simplified architecture, but likely more
  ▫ A combination of multiple IEEE standard technologies, profiled in a single standard

a) IEEE 802 wireless 5G
b) All IEEE 802 5G
c) All IEEE 5G
2. IMT-2020 - single technology

- Description
  - Just radio interface of simplified architecture
    - E.g., 802.11, 802.15.4, ...
  - IMT-2020 proposal by IEEE
    a) Hotspot (<6GHz)
      i. IEEE 802.11ax
      ii. IEEE 802.11ac
      iii. IEEE 802.11n
    b) Hotspot (>6GHz)
      i. IEEE 802.11ay
      ii. IEEE 802.11aj
      iii. IEEE 802.11ad
    c) Low latency – IEEE 802.11p
    d) MTC – IEEE 802.11ah
    e) P802.15.3d
    f) 100Gb/s THz project
    g) P802.15.7 REVa, Optical Wireless Communications,
    h) P802.15.4 family.
3. IMT-2020 - set of technologies

- **Description**
  - At least radio interface of simplified architecture, but likely more
    - Single or multiple radio interfaces
    - Management and Control
    - Backhaul/fronthaul
  - A combination of multiple IEEE 802 standard technologies, profiled in a single standard
  - IMT-2020 proposal by IEEE
  a) **IEEE 802.11**
    i. Hotspot (<6GHz) – IEEE 802.11 ax,ac,n
    ii. Hotspot (>6GHz) – IEEE 802.11 ay,aj,ad
    iii. Low latency – IEEE 802.11p
    iv. MTC – IEEE 802.11ah
  b) **IEEE 802.11 with 802.1/3**
  c) **IEEE 802.15**
    - P802.15.3d
    - 100Gb/s THz project
    - P802.15.7 REVa, Optical Wireless Communications,
    - P802.15.4 family.
4. IMT-2020 - external proposal

- Description
  - Part of a complete architecture
    - multiple radio interfaces
    - Management and Control
    - Backhaul/fronthaul
  - A combination of IEEE 802 standard technologies with other technologies (e.g., 3GPP)
  - IMT-2020 proposal by external party (e.g., 3GPP)
    a) IEEE 802.11 with LWA
    b) IEEE 802.11 with LWIP
Next Steps
Contributions requested

- 802 projects
  - Indicate relationship to 5G
  - Indicate which options are applicable

- Report content
  - Indicate which option
  - Expand costs and benefits