Title: Technical and editorial amendment of 802.16-2004 facilitating license-exempt and uncoordinated band operation

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Purpose:

Technical and editorial amendment of 802.16-2004 facilitating license-exempt and uncoordinated band operation

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Presentation overview

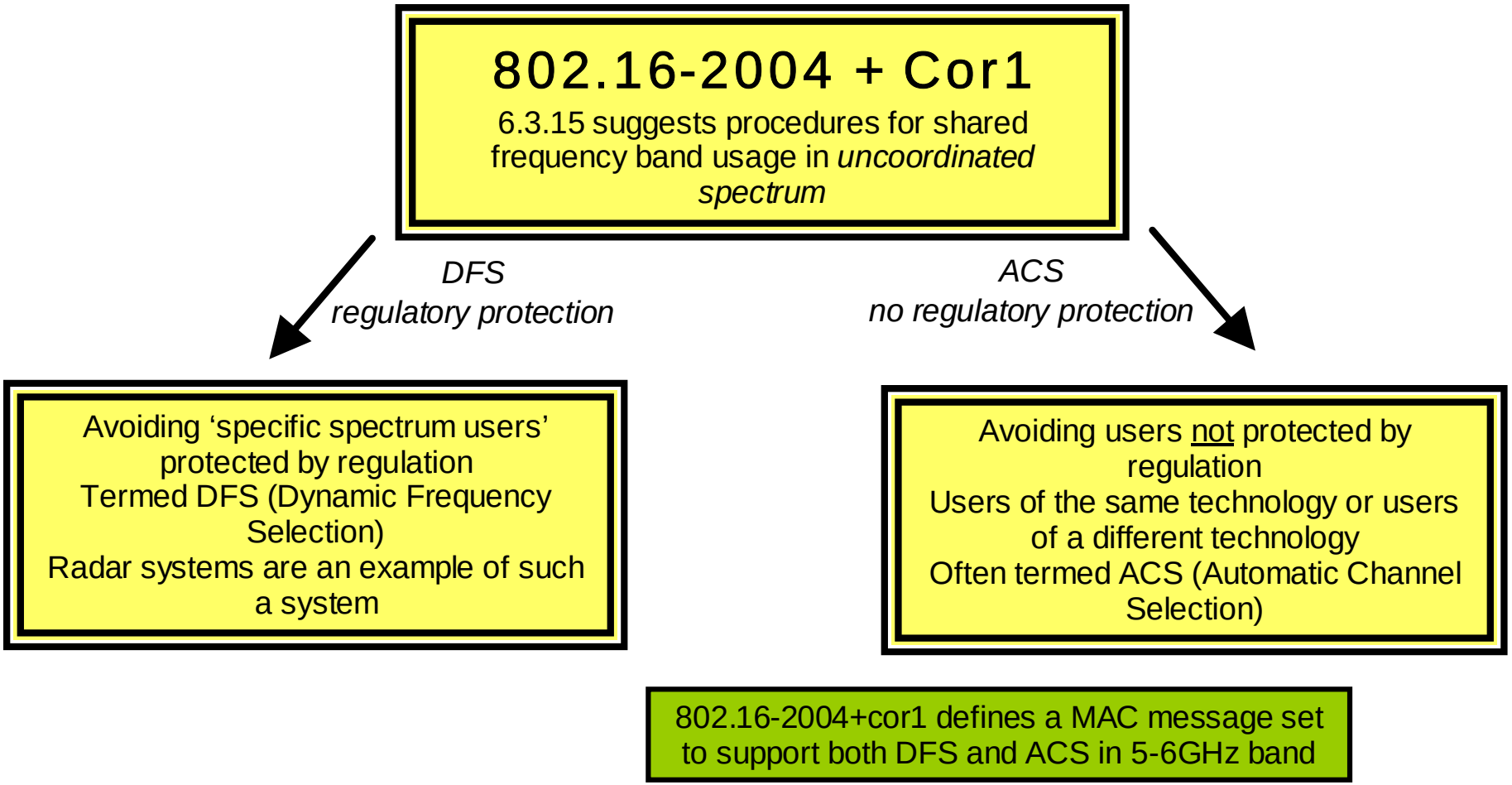
- Motivations
- Presentation of the idea of a *Co-existence zone*
- Specific editorial changes
- Editorial amendment of previous contribution

Motivations

This contribution is motivated from:

- Low cost LE system based on base standard and expected profiles.
- Facilitating a framework for MAC schemes supporting LE and uncoordinated operation. Specific editorial suggestions to the base standard.
- Provide clarification in the introductory section of the amendment to ‘set the scene’ for the work of the amendment. This is added in a new section 1.5. Also a new entry is added in table 1.
- Developing the idea of a new section 6.4 entitled ‘*MAC enhancement for coexistence*’.
- Adding a new section 6.4.1 to provide *MAC specific functions* and 6.4.2 to provide *MAC support for the PHY*.
- Assumes the option of system profiles for improved co-existence in license-exempt and uncoordinated bands.

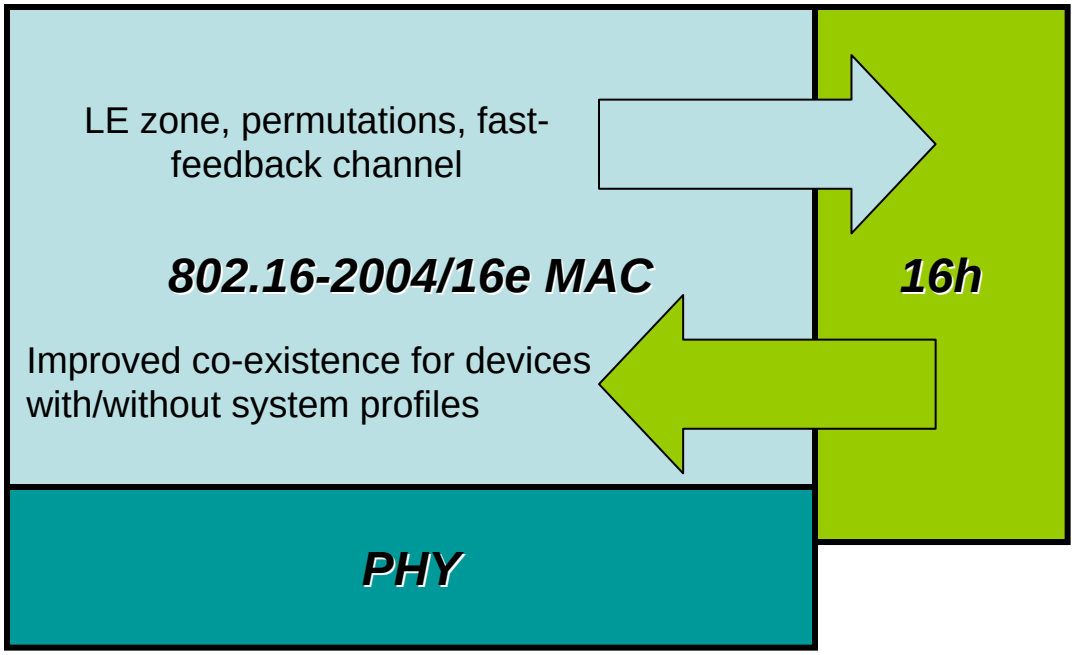
Review of session #40 contribution



→ Developing the idea of ACS via a route similar to WirelessHUMAN

Functionality division

How can functionality be conceptually partitioned?
This is one possible solution…



Co-existence Zone

The Co-existence Zone (CXZ) is proposed to provide the following features:

- A suitable partition to add co-existence MAC enhancements. This has the ability to simplify the implementation and amendment to the base standard.
- Further addition of co-existence support structures at the MAC layer can be implemented with reduced impact on the base standard.
- The CXZ, in this contribution at least, does not support any of the higher capacity features e.g. AAS and STC concepts. This could be addressed in later contributions.
- Zone concept is applicable to OFDMA PHY, also possible for OFDM PHY.

CXZ specific editorial changes

To realize the CXZ the following modifications to the base standard are proposed:

- Modify '*Extended DIUC Code Assignment for DIUC=15*' table 275a, section 8.4.5.3.2.1 for the downlink. This assigns a code for the case DIUC=15 and provides a code specification for the extended DIUC.
- Modify '*Extended UIUC Code Assignment for UIUC=15*' table 289a, section 8.4.5.4.4.1 for the uplink. This assigns a code for the case UIUC=15 and provides a code specification for the extended UIUC.
  - The DL and UL CXZ is terminated by another CXZ IE or the end of the frame.
  - Multiple CXZ zones can exist within the same frame.
- CXZ is added to the generic diagram figure 219 (Section 8.4.4.2) describing the zones supported by the standard.

CXZ realization

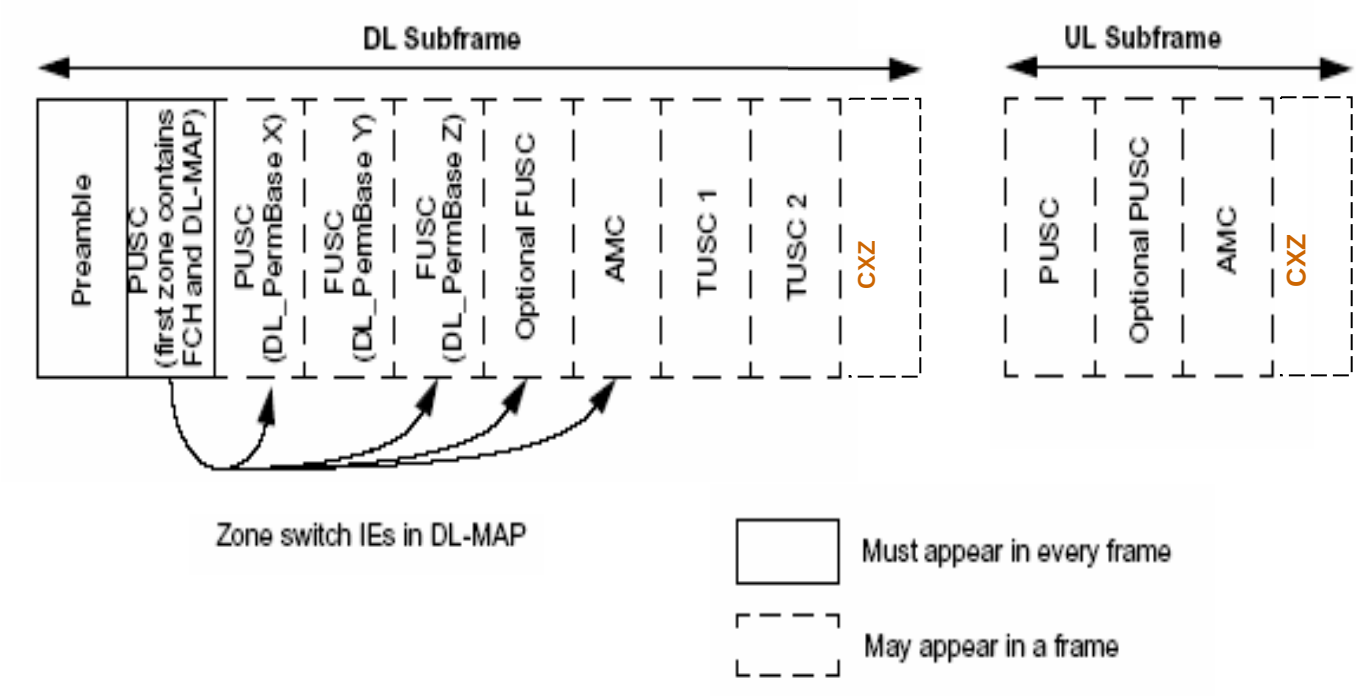


Figure 219—Illustration of OFDMA frame with multiple zones

Specific editorial changes

- Delete sections 1.1, and 1.2 in the draft document and replace with a new section 1.4. This will remove erroneous reference to '*16h*' and '*amendment*'.
- Add a row to table 1.
- Add to: section 3 '*Definitions*', and section 4 '*Abbreviations and Acronyms*'.
- Modifications to 6.4 – *MAC and PHY* support name change [*WirelessHUMAN*] → *WirelessMAN-CX*.
- Modifications to 6.4.1.2: Extended channel numbering structure and addition of diagram.
- Modifications to 6.4.1.3: Measurement and Reporting – informative text.
- Add the following section 6.4.2. *6.4.2 WirelessMAN-CX support for OFDMA PHY*.
- In support of the material added in section 6.4.2 make changes to the OFDMA PHY specification in section 8.4: Diagram and CXZ IEs.
- Modifications to section 11 – change to TLV notation [*WirelessHUMAN*] → *WirelessMAN-CX*

Thank you, questions?

Backup slides

The WirelessHUMAN route for LE operation

At present the base standard as amended by Cor1/D5 uses the WirelessHUMAN PHY to implementation operation in an LE manner (section 8.5). The sections of the standard where this is apparent are:

- Section 8.5 (‘*WirelessHUMAN specific components*’)
  - Channelization
  - Transmit spectral mask
- Section 1.3.3 (‘*License-exempt frequencies below 11 GHz (primarily 5–6 GHz)*’)
  - Scope description and overview
- Table 1 (‘*Air interface nomenclature*’)
  - Limited to TDD
  - Applicable to WirelessMAN-SCa, WirelessMAN-OFDM, and WirelessMAN-OFDMA PHYs
  - Options supported
- Section 6.3.15 (‘*Procedures for shared frequency band usage*’)
  - Introduces ‘specific spectrum users’ and DFS

Backwards compatibility

Policy on how 16h and non-16h devices inter-work:

- This is a device question and goes beyond any deployment situation as the deployment scenario imposed by a given regulatory region is not known ahead of time.
- A device with 16h functionality will need to *interact* with infrastructure that has no knowledge of 16h
- A non-16h device will need to *interact* with 16h compliant infrastructure
- A non-16h device should have the ability to be barred from working in a 16h network – deployment specific and capability negotiation

Calculation of *Channel Centre Frequency*

Channel Centre Frequency [MHz]

= *BaseFrequency(BaseChRef)* [MHz] + (*ExChNr*ChSp* [0.01MHz])