

Possible directions in drafting 802.16e amendments to support Fix and Mobile applications

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Purpose:

Explain authors view on fix-mobile convergence and backward compatibility issues

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**Possible directions in drafting 802.16e
amendments to support Fix and Mobile
applications**

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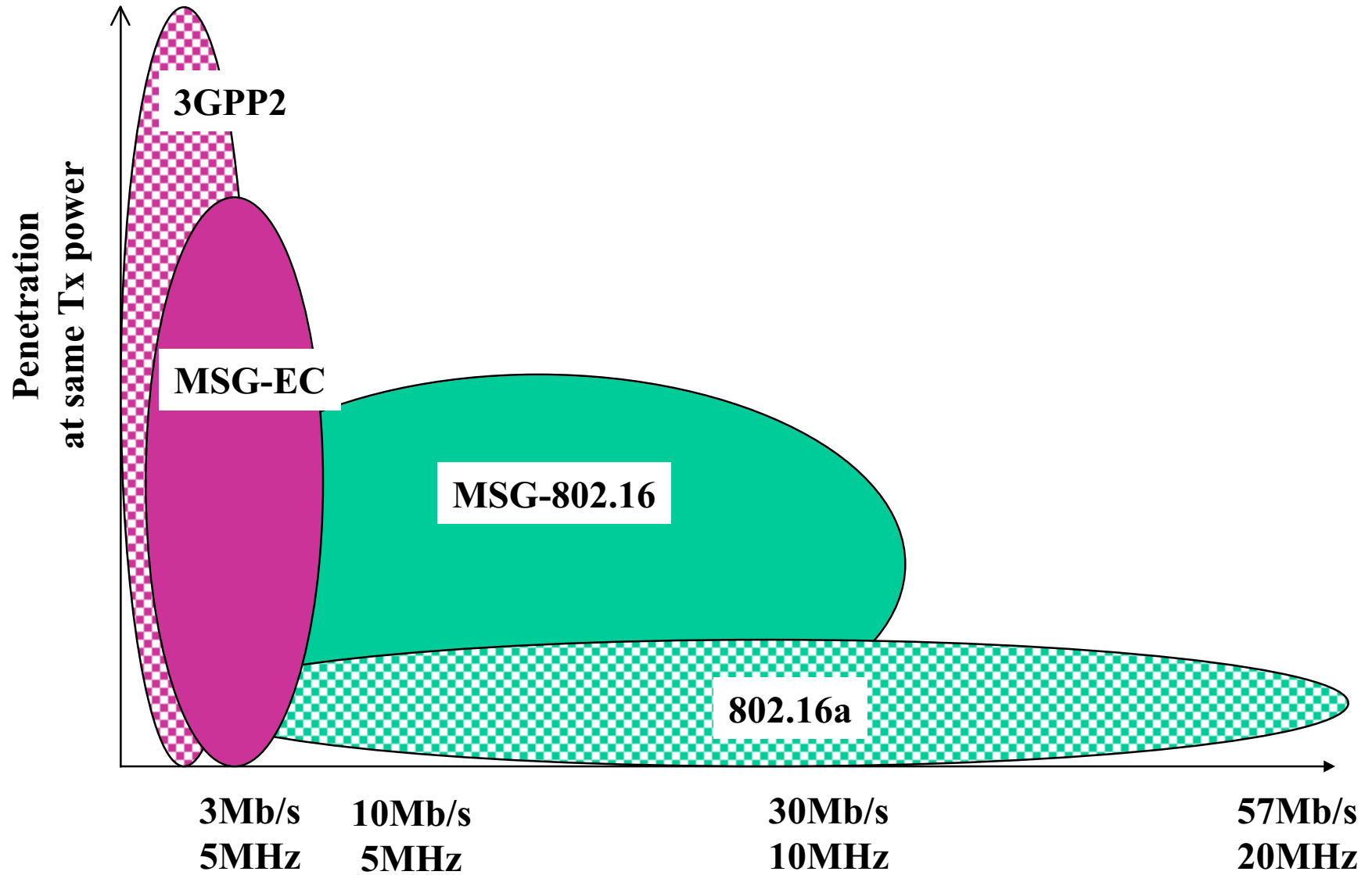
Contents

- View of the 2 PARs
- Backwards compatibility
- Conclusions

Actual Differences

- Bandwidth
 - EC-SG: up to 5MHz, focus on 1.25MHz
 - 802.16 SG
 - Has to define the maximum channel width
 - Proposal: 10MHz
- Data rates
 - EC-SG: not clear, probably the target spectral efficiency is 2b/s/Hz
 - 802.16 SG
 - 3-4 bit/s/Hz
- Receive sensitivity level / data rate
 - Cannot be actually defined now

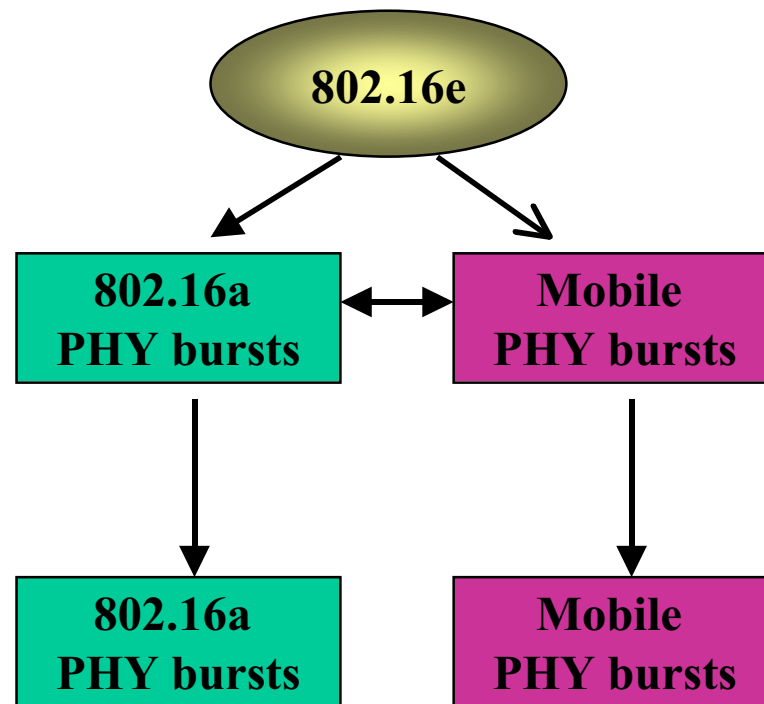
Comparison between the 2 PAR scope



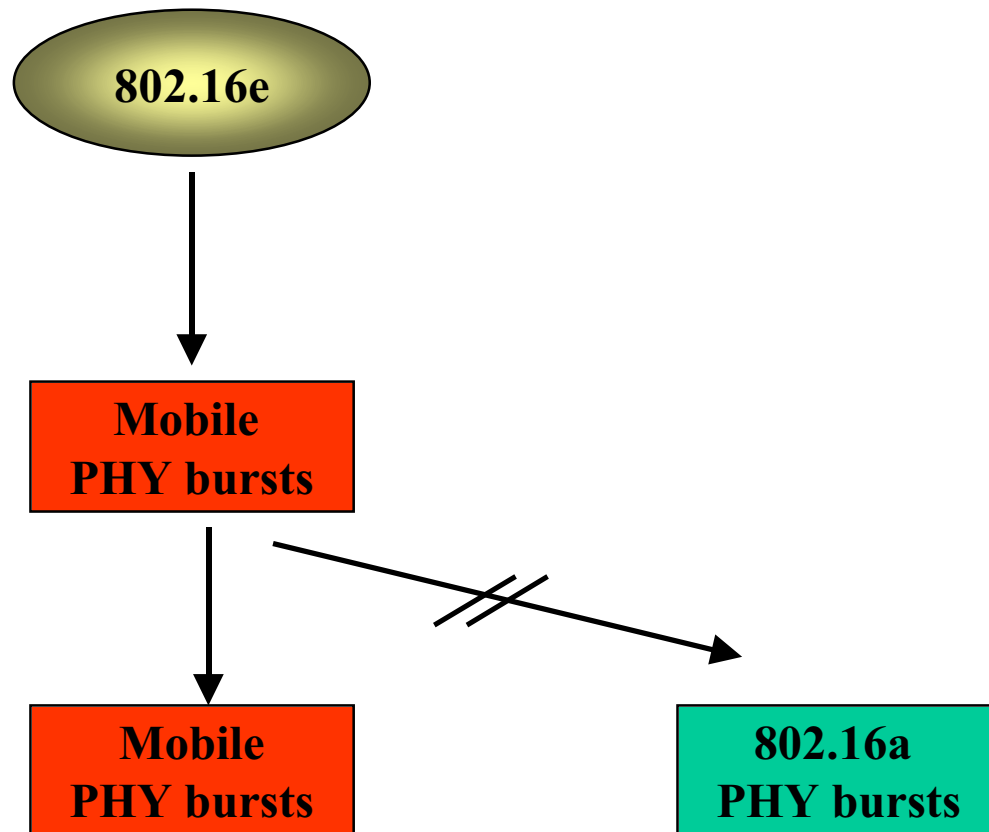
802.16e Scope

- Channel BW: 3-10MHz
- Maximum spectral efficiency: 3-4 bit/s/Hz
 - Reduced channel spacing (802.16a : up to 28MHz)
 - Does not target 1.25MHz
 - Keep existing maximum 802.16a data rates in the target channels
- Traffic symmetry
 - Up to symmetrical data rates
- Speed
 - Up to 120km/h moving subscriber
 - Up to 250km/h train (mobile feeding)

Backward compatibility for 802.16e OFDM PHY



802.16e – not backward compatible



Comparison between different variants

	Variant 1 Back-ward compatible	Variant 2 Not backward compatible
Backward 802.16a SS compatibility	Yes	No
Robustness to mobile situations	Yes	Yes
Overhead in fix use	Minimum	Higher
Up-grade of 802.16a FWA cells to MB cells	Possible	Not possible

What Mobile OFDM PHY burst profile could be?

- Higher multi-path support
 - Higher FFT size
- Adaptation to faster channel variation
 - Use mid-amblers
- Faster ARQ
 - Insert CRC per data sub-block
 - Avoid the granularity problem with fix block code

Conclusion

- Backward compatibility with 802.16a may be possible
 - We did not study enough all the details to be 100% convinced
- The 5 Criteria can mention it, but not as binding requirement
 - The effect of converging FWA and MB brings a higher market potential