

Speech communication in cars goes wideband

the new ITU-T Focus Group CarCom

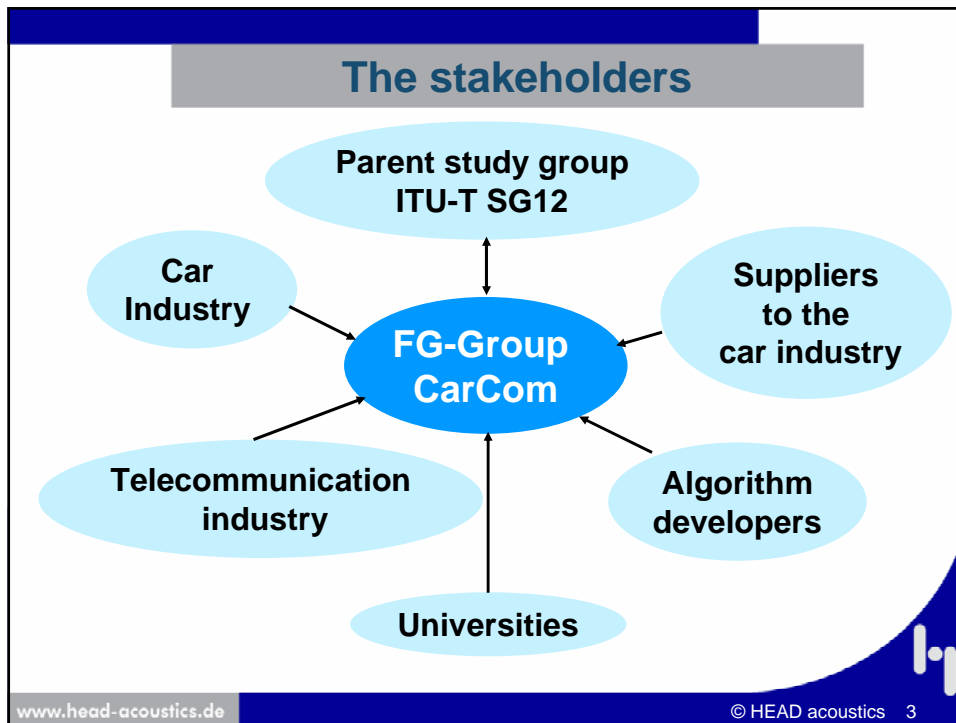
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Outline

- The stakeholders
- The goals
- The challenges
- Schedule and future work
- Conclusions





Why we do the work?

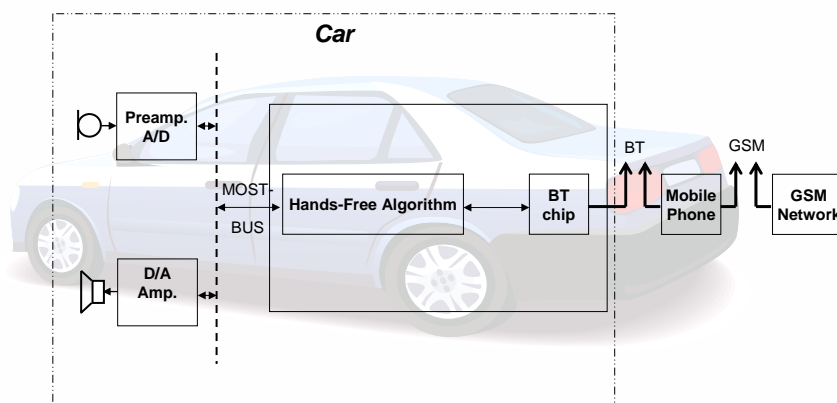
- Wideband services in mobile networks available soon
->
- Enabling wideband telephony (100 Hz- 8 kHz) in cars
 - Fullband 
 - Narrow band 
 - Wideband 
- **Efficient use of the high quality audio systems in cars:**
 - Getting superior sound quality
 - Increasing speech intelligibility
 - Increasing naturalness of a conversation
 - Reduce drivers distraction due to poor speech quality

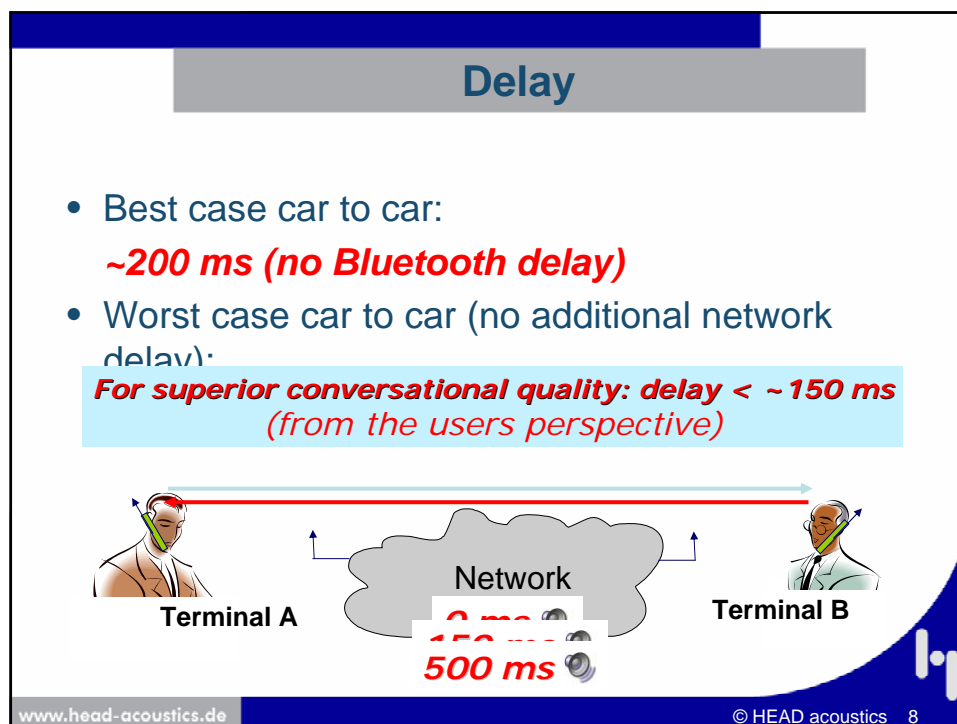
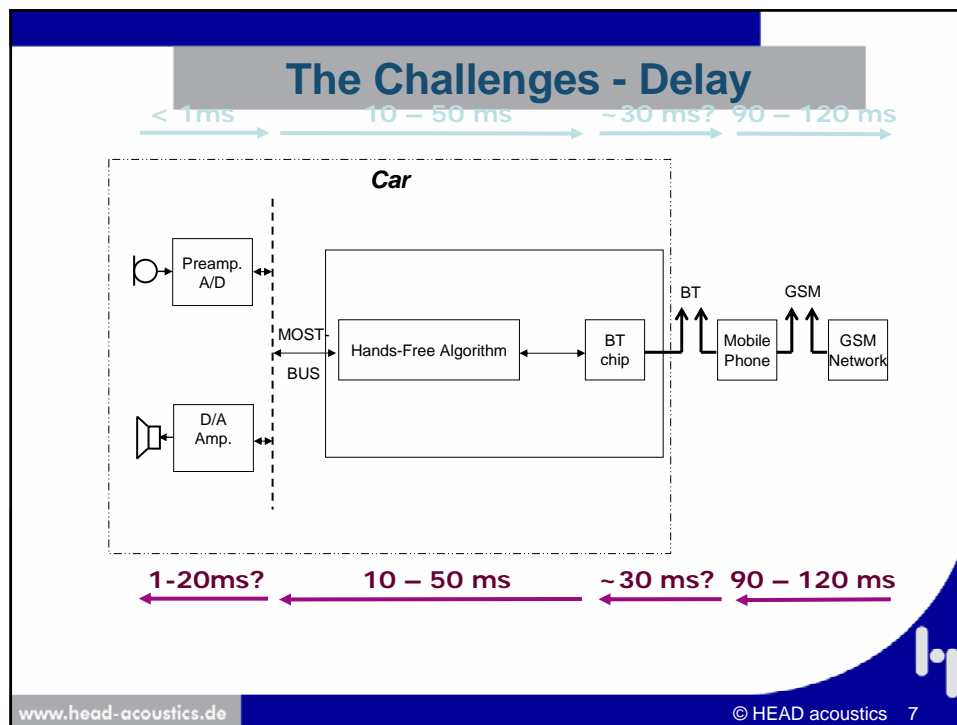
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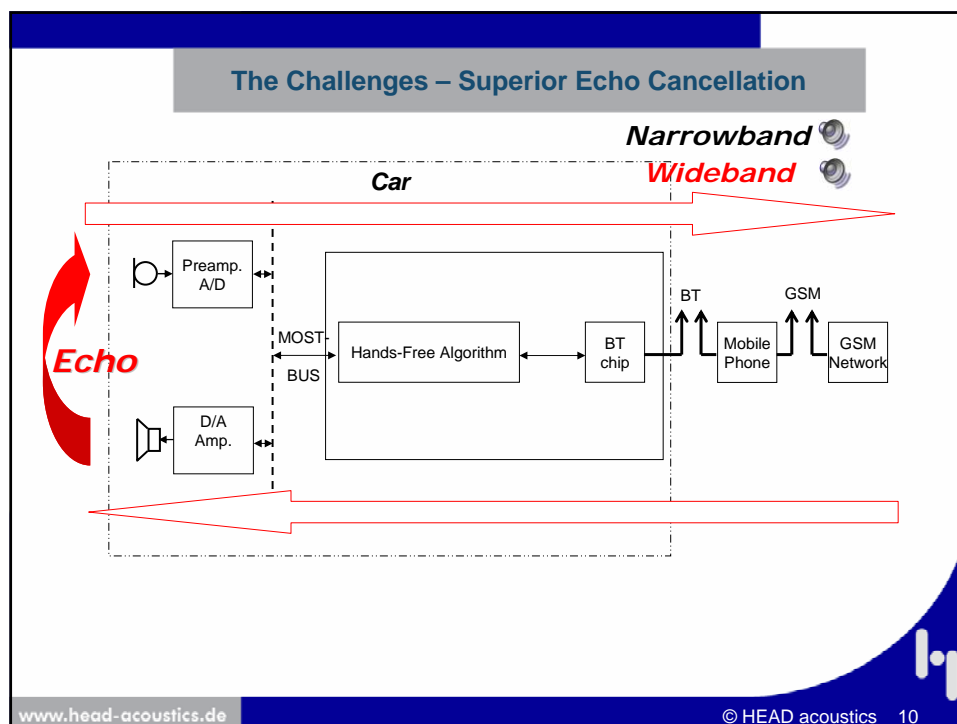
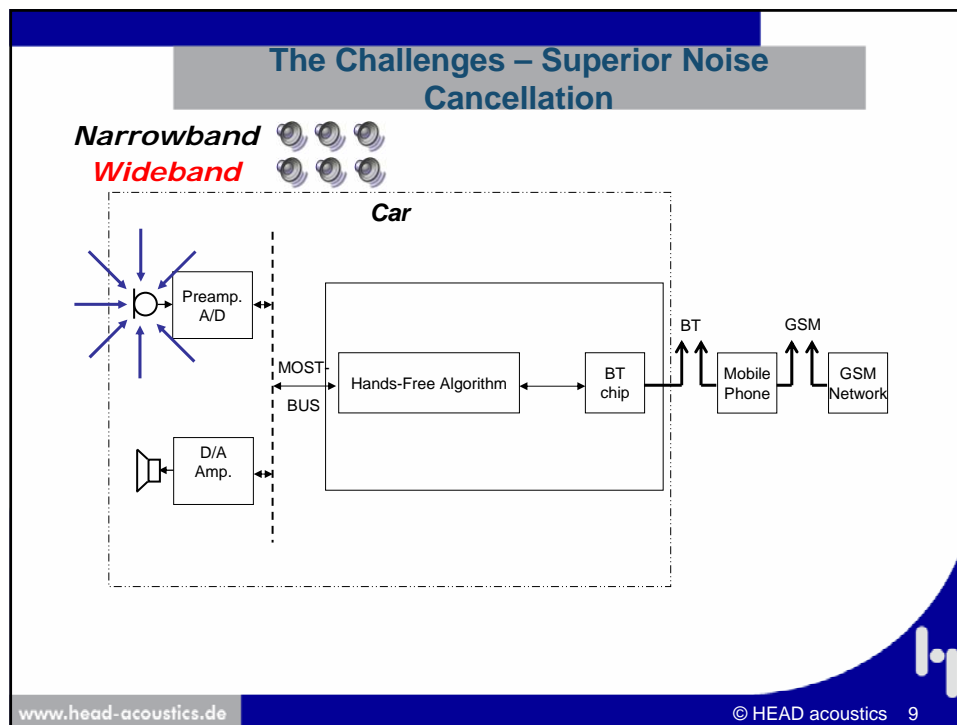
The Goal

- Development of a standard for testing and optimization
 - the communication quality
 - from cars to the mobile/fixed network
 - from the car infrastructure to the mobile devices
 - of audio components installed in a car and used for hands-free communication
 - wireless devices e.g. headsets used in a car

The Configuration







Main Focus of the CarCom Spec

- For a **good conversational performance** we need to ensure:

Superior sound quality in all conversational situations

- define requirements optimum frequency responses and
- optimum loudness
- requirements for good performance in background noise



Main Focus of the CarCom Spec

- We need to ensure:

- **Low delay** including all components of the connection
 - limiting the delay usage in each component
 - get in touch with other standards bodies to
 - enable tandem free operation
 - develop and implement protocols for providing signalling information of signal processing in the components involved in a connection



Main Focus of the CarCom Spec

- We need to ensure:
 - Excellent ***echo performance***
 - define requirements for required echo loss in wideband:
 - ensure superior echo loss in all conversational situations, esp. double talk
 - ensure sufficient echo loss with high delay
 - avoid any impairment in double talk situations

Schedule and Future Work: The Focus Group CarCom

- Mandate form ITU-T SG12 after finalizing narrowband specification as ITU-T Recommendation P.1100
- “Kick off” new group FG CarCom – meeting June 08
- :
- :
- October 2009

- ***Input from FITCAR Specification for Narrowband Hands-Free***
:
- ***Draft specification available***
:
- ***New Specification, Wideband***

FG CarCom -> ITU-T SG12

Transfer of the FG CarCom specification to ITU-T SG12:

- *Specification as an input document to the next ITU-T SG 12 meeting*
- *Adaptation of the specification to ITU-T rules and requirements*
- *Discussion of this draft in ITU-T SG12*
- *Based on the result of the discussions: new Draft Recommendation for approval by members of ITU*



New Topics in FG CarCom

- ***Definition of car hands-free quality on a sub-system level***
- ***In-car communication***
- ***Speech recognition – requirements on preprocessing***



Conclusion

- Wideband speech services in the car would be a great improvement for the user
- The requirements for a superior service are much stronger than for narrowband
- Not all effects are yet fully understood
- The focus group **CarCom specification** is the first comprehensive standard covering all conversational aspects of wideband handset and speakerphone conversation in cars

<http://www.itu.int/md/T09-FG.CARCOM-090306/sum/en>

- Next meeting: Jan. 21.-22. 2010 in Vancouver

