3GPP TSG-T (Terminals) Meeting #25
Palm Springs, CA, USA
8 - 10 September 2004

TP-040187

APSC – 15

April 2004

ADVISORY PANEL FOR STANDARDS COOPERATION ON TELECOMMUNICATIONS RELATED TO MOTOR VEHICLES (APSC-TELEMOV)

CONTRIBUTION 15

Source: ITU-T Study Group 12

Title: Draft Question D/12 - Hands-free communication in vehicles

Draft Question D/12

Hands-free communication in vehicles

(New Question)

1 Motivation

Mobile communication is used increasingly in vehicles; an increasing number of modern cars are equipped with integrated communication systems. In order to provide a satisfying communication quality under all driving conditions for the driver as well as for the far end communication partner without distracting the driver from his main task, advanced hands-free devices are required which require sophisticated signal processing adapted to the individual car. Until now except the VDA-specification for hands-free telephones from the German car manufacturers association no international standards are available which describe the required performance characteristics and testing techniques for car hands-free terminals. Such requirements and testing techniques are the key for high quality communication devices in vehicles.

The use of headsets, or other hands-free devices, is becoming mandated in an increasing number of countries and states throughout the world. A large percentage of the target market for these vehicles will own headsets prior to purchasing a Telematics vehicle. They will expect to continue to use them in the vehicle, and thus will expect the vehicle to exploit the headset. The introduction of wireless headsets (e.g. Bluetooth, 802.11, DECT) requires the definition of standard behaviours and interactions with the vehicle.

The study within the question can be based on the existing Recommendations P.340, P.313, P.501, P.502 and P.581 which describe performance characteristics and testing techniques for hands-free terminals and mobile terminals in general.

2 Question

The following items are to be considered within the study of the question:

- How can the driving situation be simulated while covering the most relevant parameters influencing the speech quality within a laboratory environment?
- Which are the most influencing communicational speech quality parameters in the driving situation, to what extent are they different from standard hands-free situations?

Contact: Judit Katona-Kiss
TSB
Tel: +41 22 730 5780
Fax: +41 22 730 5853
Email: judit.katona-kiss@itu.int

- What are the most influential parameters for speech recognition systems in the driving situation?
- Which of the existing methodologies known in ITU can be used and/or adapted to the car hands-free situation?
- Do different mobile networks and network configurations require individual setups for specific parameters?
- What is the current state of definition of the behaviour of a wireless or wired headset in the environment of a Telematics enabled Motor Vehicle?
- What support is needed or currently provided for corded headsets in such a vehicle?
- What are the desirable features to be presented by the vehicle, and what is their behaviour when operating with a hands free device?
- What enhancements or new Recommendations need to be developed to ensure seamless support for users of hands free devices?

3 Tasks

The work to be performed should cover the following tasks:

- Define the typical operating conditions to be simulated covering the most relevant parameters influencing the speech quality within a laboratory environment.
- Define the typical operating conditions to be simulated covering the most relevant parameters influencing automated speech recognition performance within a laboratory environment.
- Laboratory setup and general testing conditions in order to simulate the driving situation for subjective and objective testing (“Car-simulator”).
- Definition of the environmental conditions for testing the car hands-free terminal and verifying its acoustical performance characteristics under typical operating conditions.
- Definition of the telephonometric parameters needed in order to describe/evaluate the communicational speech quality in typical operating conditions.
- Specification of all relevant transmission characteristics
- Definition of test signals and testing techniques in order to evaluate all relevant parameters of modern hands-free terminals which include highly non linear and time variant signal processing such as background noise reduction, echo cancellation, AGC, compression.
- Definition of test procedures for evaluating automated speech recognition
- Define requirements, signal levels, and other electrical specifications for a corded headset jack to be fitted to vehicles.
- Capture in Use Cases the proposed behaviour and interactions of a vehicle and hands-free devices.

The work will result in a new Recommendation on “Hands-Free Communication in Vehicles”

4 Relationships

Recommendations: P.313, P.340, P.501, P.502, P.58, P.581

Questions: C/12, F/12, L/21

Study Groups: SG15

Standardisation bodies: VDA, 3GPP, TIA, ETSI, APSC-TELEMOV

_____