HEAD acoustics

DATA SHEET

APPLICATION EXAMPLE INCLUDED

Code 60030

GOST 33468-NB

GOST 33468 (ERA-GLONASS), Emergency Call (eCall) Devices, Narrowband Part

OVERVIEW

GOST 33468-NB

Code 60030

GOST 33468 (ERA-GLONASS), Emergency Call (eCall) Devices, Narrowband Part

In the event of a car accident, emergency call systems trigger an automatic hands-free call to an emergency call (eCall) center. For ensuring optimal call quality between car and response service, the EASC (Euro-Asian Council for Standardization, Metrology and Certification) specified comprehensive test methods for hands-free emergency calls in the standard GOST 33468-2023. These methods have been implemented for narrowband communication in the ACQUA standard GOST 33468-NB.

Special emphasis lays on full repeatability of all test scenarios including recordings for auditory tests. As such, GOST 33468-NB enables manufacturers and suppliers of the automotive industry to qualify and optimize their emergency call systems for compliance with GOST 33468-2023.

KEY FEATURES

Complete implementation in ACQUA of GOST 33468-2023

Extensive auditory testing with recorded results for post-analysis

Full repeatability of all tests due to triggered background noise simulation

APPLICATIONS

Automated quality analysis, experimental development, and optimization of in-vehicle emergency call systems in accordance with EASC standard GOST 33468-2023

DETAILS

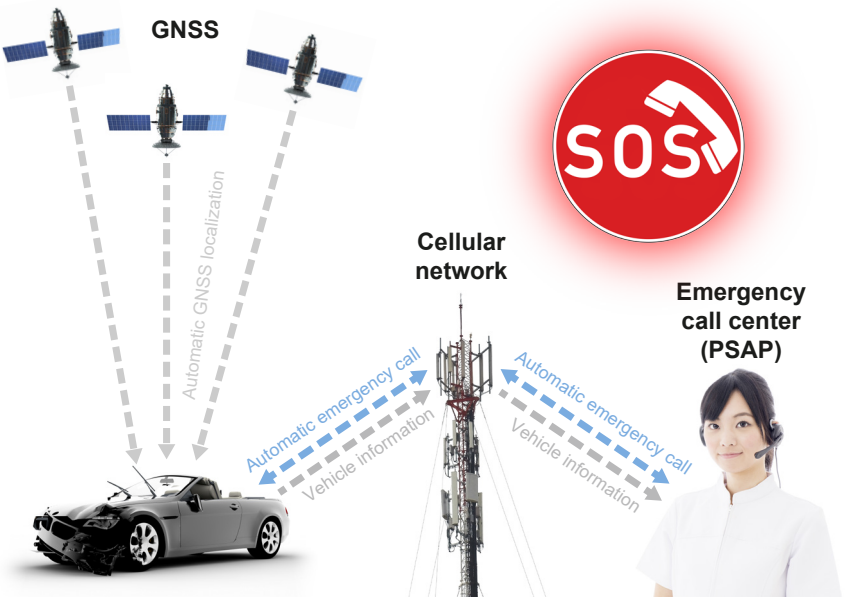
GOST 33468-2023 is administered by EASC, the Euro-Asian Council for Standardization, Metrology, and Certification. The standard specifies basic and advanced quality criteria for in-vehicle hands-free communication via emergency call systems.

DESCRIPTION

The implementation of EASC standard GOST 33468-2023 provides fully reproducible test conditions. An artificial head simulates the driver conducting a hands-free emergency call. The background noise of typical driving situations is simulated via the HAE-car background noise simulation software. Tests are fully synchronized to repeat any scenario accurately. Testing is performed in laboratory conditions with a stationary car. Therefore, GOST 33468-NB enables fast and convenient testing and optimization of in-vehicle emergency call systems for compliance with the EASC standard.

In terms of acoustic scenarios inside and outside of the vehicle, GOST 33468-2023 contains combinations of the following factors to create lifelike emergency call situations:

- Vehicle engine (on/off)
- Vehicle velocity (0 km/h | 60 km/h | 120 km/h)
- Vehicle windows (open/closed)
- Vehicle A/C fan noise (off/low/medium)
- Vehicle environment (inner city traffic, highway traffic)
- Talker location in the car cabin (driver seat, passenger seat, rear seat)
- Talker speech level (incl. Lombard effect)



Another important aspect of GOST 33468-2023 are its mandatory auditory tests. After optimizing the eCall system with instrumental methods, auditory third-party listening tests (TPLT) serve to verify system performance in various close-to-life eCall scenarios. GOST 33468-NB takes an advanced approach on TPLTs based on prerecorded conversations between the vehicle occupant and the emergency call center dispatcher. Afterwards, the recordings can be evaluated by arbitrary large groups of test persons to judge all aspects of communication quality.

MEASUREMENTS AND ANALYSES

Microphone Parameters

Parameters for microphones in anechoic conditions
- Frequency response
- Distortion (sinusoidal)
- Noise
- Level

Parameters for microphones in the car
- Frequency response
- Distortion (sinusoidal)
- Noise
- Level

Hands-Free Parameters

Ambient noise in test lab
- Frequency response
- Noise

Delay measurements
- Delay in sending/receiving direction
- Echo delay

Measurements in receiving direction (RCV) with artificial head
- Loudness rating
- Distortion (sinusoidal)
- Frequency response
- Noise

Measurements in receiving direction with external microphone
- Level vs. time
- Distortion (sinusoidal)

Measurements in sending (SND) direction
- Loudness rating
- Frequency response
- Distortion (sinusoidal)
- Level vs. time
- Double Talk analysis
- Level

Echo measurements
- Echo loss
- Level vs. time
- Frequency response
- Level

GENERAL REQUIREMENTS

Hardware

Hardware Platform

*lab*CORE (Code 7700)
- Modular multi-channel hardware platform

*core*BUS (Code 7710)
- I/O bus mainboard

*core*OUT-Amp2 (Code 7720)
- *lab*CORE power amplifier board

*core*IN-Mic4 (Code 7730)
- *lab*CORE microphone input board

*core*BEQ (Code 7740)
- Binaural equalization for one artificial head

Head Measurement System

One of the following Head Measurement Systems:

HMS II.3
- HMS II.3 (Code 1703)
  - Head Measurement System, basic version with right ear simulator, 3.3 pinna, and artificial mouth
- HIS L (Code 1701)
  - Head Impedance Simulator, left

HMS II.3 LN
- HMS II.3 LN (Code 1703.1)
  - Head Measurement System, low-noise version with right ear simulator, 3.3 pinna, and artificial mouth
- HIS L LN (Code 1701.1)
  - Head Impedance Simulator, left, low-noise version

HMS II.3 LN HEC
- HMS II.3 LN HEC (Code 1703.2)
  - Head Measurement System, low-noise version with human-like ear canal simulator right and artificial mouth
- HIS L LN HEC (Code 1701.2)
  - Head Impedance Simulator, left, low noise, human-like ear canal version

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Background noise (BGN) measurements
- Level
- Level vs. time
- Frequency response

Subjective quality assessment of IVS loudspeaker communication
- Time response
- Level
- Loudness rating
- Active speech level

OPTIONS

UG GOST 33468-NB (Code 60031)
- Upgrade P.1100 > GOST 33468, (ERA-GLONASS), Narrowband part

UG GOST 33468-WB (Code 60032)
- GOST 33468 (ERA-GLONASS), Wideband extension, Code 60030 required

ACOPT 10 (Code 6820)
- Option TOSQA

RELEASE NOTES

Database revision and specification version		
Database revision	**Based on specification**	**ACQUA version**
Revision 05	GOST 33468-2023	at least 6.1.100

GENERAL REQUIREMENTS

HMS II.6
- HMS II.6 (Code 1706)
  - Head Measurement System, with artificial mouth and free-field microphones (left and right)

HMS II.7
- HMS II.7 (Code 1706)
  - Head Measurement System, with artificial mouth and free-field ICP® microphones (left and right)

Radio Communication Tester

Radio communication tester (third-party equipment)

Software

Control Software

One of the following software applications:

ACQUA (Code 6810)
- Advanced Communication Quality Analysis Software, full license version

ACQUA Compact (Code 6860)
- Compact test system

Background Noise Simulation

HAE-car (Code 6970)
- HEAD acoustics automated equalization for car cabins

ACQUA Options

ACOPT 09 (Code 6819)
- Option SLVM P.56

ACOPT 32 (Code 6859)
- Option Speech-based Double Talk analysis

SCOPE OF DELIVERY

GOST 33468-NB (Code 60030)
- delivered as ACQUA database backup

V2C file
- License file for ACQUA dongle

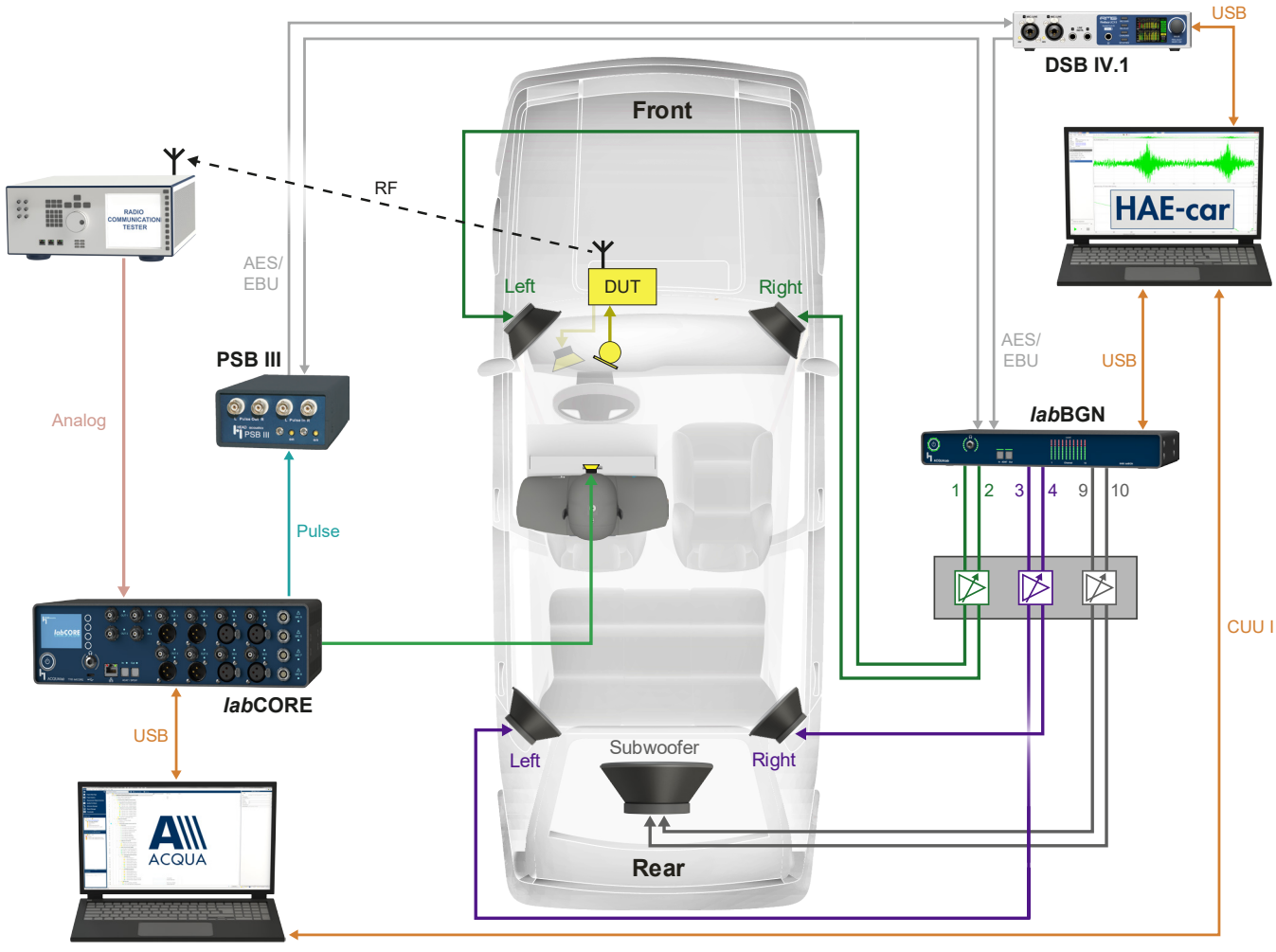
Revision history
- PDF file

IN PRACTICE

APPLICATION EXAMPLE

Measurement Configuration with Background Noise Simulation

HAE-car plays back background noise via *lab*BGN connected to the loudspeakers in the car. Simultaneously, ACQUA sends a speech signal via *lab*CORE to HSM II.3 for playback. The microphone of the device under test picks up the speech signal and background noise. This degraded signal is transmitted from the eCall system (DUT) via radio tester to *lab*CORE and further ACQUA for analysis. Time synchronization of speech signal and background noise signal is executed with a pulse signal via PSB III.



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Contact Information

Ebertstraße 30a
52134 Herzogenrath, Germany
Phone: +49 2407 577-0
E-Mail: sales@head-acoustics.com
Website: www.head-acoustics.com