

**APPLICATION
EXAMPLE
INCLUDED**



Code 7810

coreBT2LE-IMP

**labCORE Bluetooth Reference Access Point Version 2 Low Energy Audio
Statistical Impairments**

OVERVIEW

coreBT2LE-IMP

Code 7810

*lab*CORE Bluetooth Reference Access Point
Version 2 Low Energy Audio Statistical Impairments

HEAD acoustics provides *coreBT2LE-IMP* as a software extension for *coreBT2LE*. The *lab*CORE extension *coreBT2LE-IMP* enables the *lab*CORE hardware platform to impair audio packets of Bluetooth LE Audio streams for evaluating the error concealment of Bluetooth LE Audio devices.

KEY FEATURES

- Impairing Bluetooth LE Audio streams
- Applying Bluetooth Low Energy technology
- Quick and easy setup for existing *lab*CORE

APPLICATIONS

- Assessing the performance and robustness of Bluetooth LE Audio devices



DETAILS

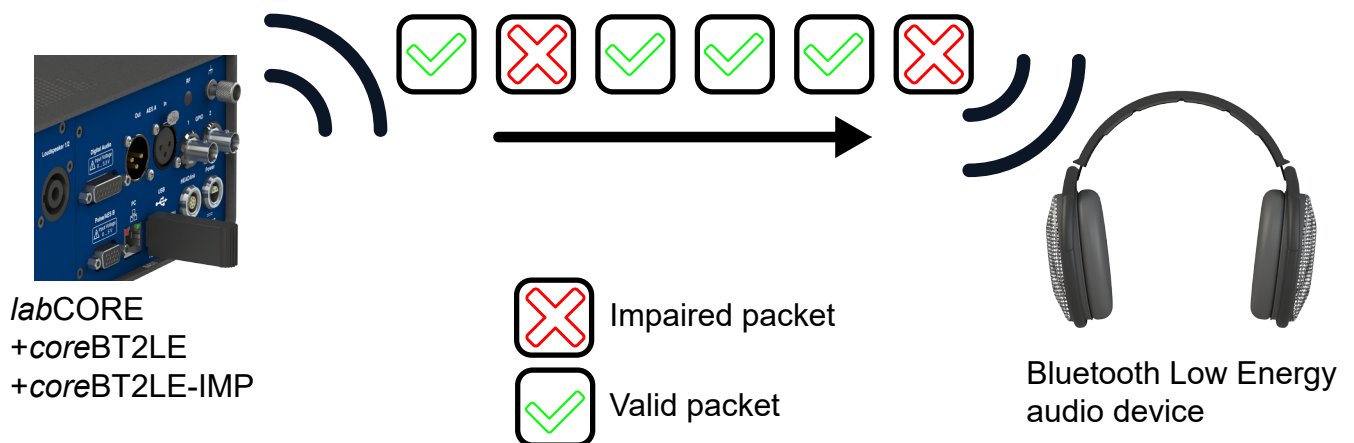
DESCRIPTION

Introduction

In real-life situation, wireless devices often have to deal with non-ideal transmission scenarios by means of missing or erroneous data packets. *labCORE* can simulate a distorted transmission of Bluetooth LE Audio to evaluate the robustness of the connected device. By using *coreBT2LE-IMP*, *labCORE* impairs packets of a Bluetooth LE Audio stream and sends them to a connected Bluetooth LE Audio device, such as headsets, headphones, or speakers. Currently the impairment function is available for Auracast broadcast audio streams and will be available for future Bluetooth LE Audio technologies.

Approach

The user specifies the probability and temporal correlation of corrupted packets in ACQUA to impair the transmission quality of the Bluetooth LE Audio stream. The Bluetooth encoder in *labCORE* realizes the impairment via sending packets containing invalid data. When receiving the impaired packets, the decoder of the device under test activates its packet loss concealment (PLC) to provide a stable and uninterrupted audio stream.



GENERAL REQUIREMENTS

Hardware

labCORE (Code 7700)

- › ACQUA/*lab* modular multi-channel hardware platform for speech and audio quality testing

coreBT2LE (Code 7787)

- › *labCORE* I/O Module, Bluetooth reference access point version 2, Base for Low Energy Audio

Consists of:

- » Software stack (embedded in *labCORE* firmware)
- » CBA V (Code 6603), Bluetooth transceiver for *labCORE* module *coreBT2LE* (USB-based)
- » CUU III.10 (Code 6114-10), Cable extension USB < > USB, Type-A, 10 m

Software

One of the following software applications:

ACQUA (Code 6810)

- › Advanced Communication Quality Analysis Software, Full-license version

or

ACQUA Compact (Code 6860)

- › Compact test system

or

RC-*labCORE* (Code 6984)

- › Remote configuration software for *labCORE*

SCOPE OF DELIVERY

coreBT2LE-IMP (Code 7810)

- › *labCORE* Bluetooth Reference Access Point Vers. 2 Low Energy Audio Statistical Impairments

OPTIONS

coreBT2LE-Auracast (Code 7788)

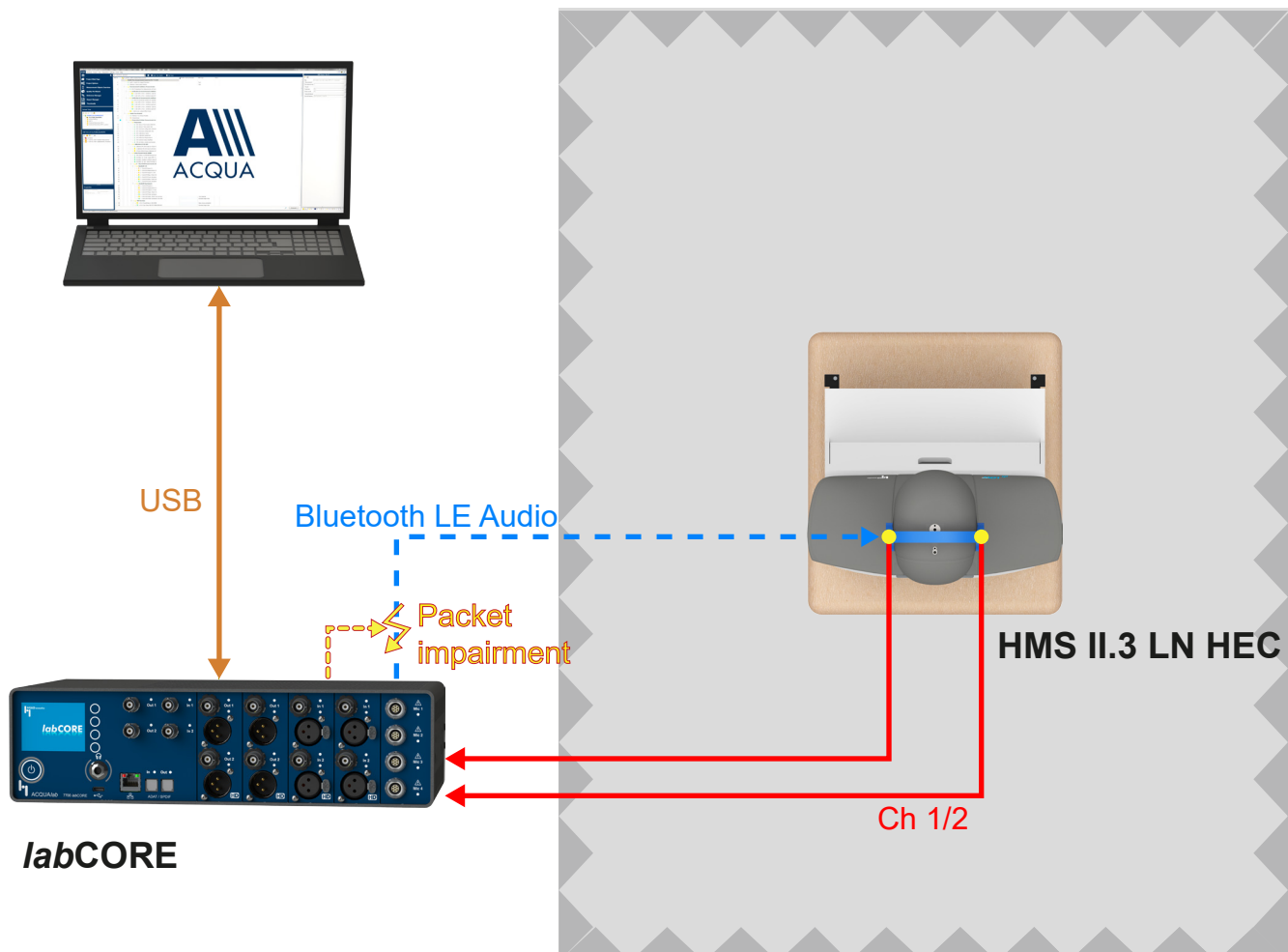
- › *labCORE* Bluetooth Low Energy Audio, Option Auracast (*coreBT2LE* module required)

IN PRACTICE

APPLICATION EXAMPLE

Testing Packet Loss Concealment of a Bluetooth LE Audio Headset

labCORE connects to the headset via *coreBT2LE-Auracast*. An Auracast assistant (e.g., a smartphone) connects the headset initially to the Auracast broadcast. Once the headset is connected, the assistant is not necessary anymore. ACQUA generates signals and sends them to the headset via Auracast broadcast. Some packets of the Auracast broadcast are impaired as specified in ACQUA. Thus, the packet loss concealment of the headset activates to conceal the impairment and keep up a solid audio stream. HMS II.3 LN HEC records the playback from the headset with its ear microphones and transmits the signals to *labCORE*. *labCORE* forwards these signals to ACQUA for recording, analysis, and evaluation.



The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by HEAD acoustics GmbH is under license. Other trademarks and trade names are those of their respective owners.

The Auracast™ word mark and logos are trademarks owned by Bluetooth SIG, Inc. and any use of such marks by HEAD acoustics GmbH is under license. Other trademarks and trade names are those of their respective owners.



Contact Information

Ebertstraße 30a

52134 Herzogenrath, Germany

Phone: +49 2407 577-0

E-Mail: sales@head-acoustics.com

Website: www.head-acoustics.com