



Code 7810

# coreBT2LE-IMP

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

# OVERVIEW

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## 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-EVO*. 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

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Impairing Bluetooth LE Audio streams

- > Unicast point-to-point connection
- > Auracast™ broadcast audio

## APPLICATIONS

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Assessing the performance and robustness of  
Bluetooth LE Audio devices



# DETAILS

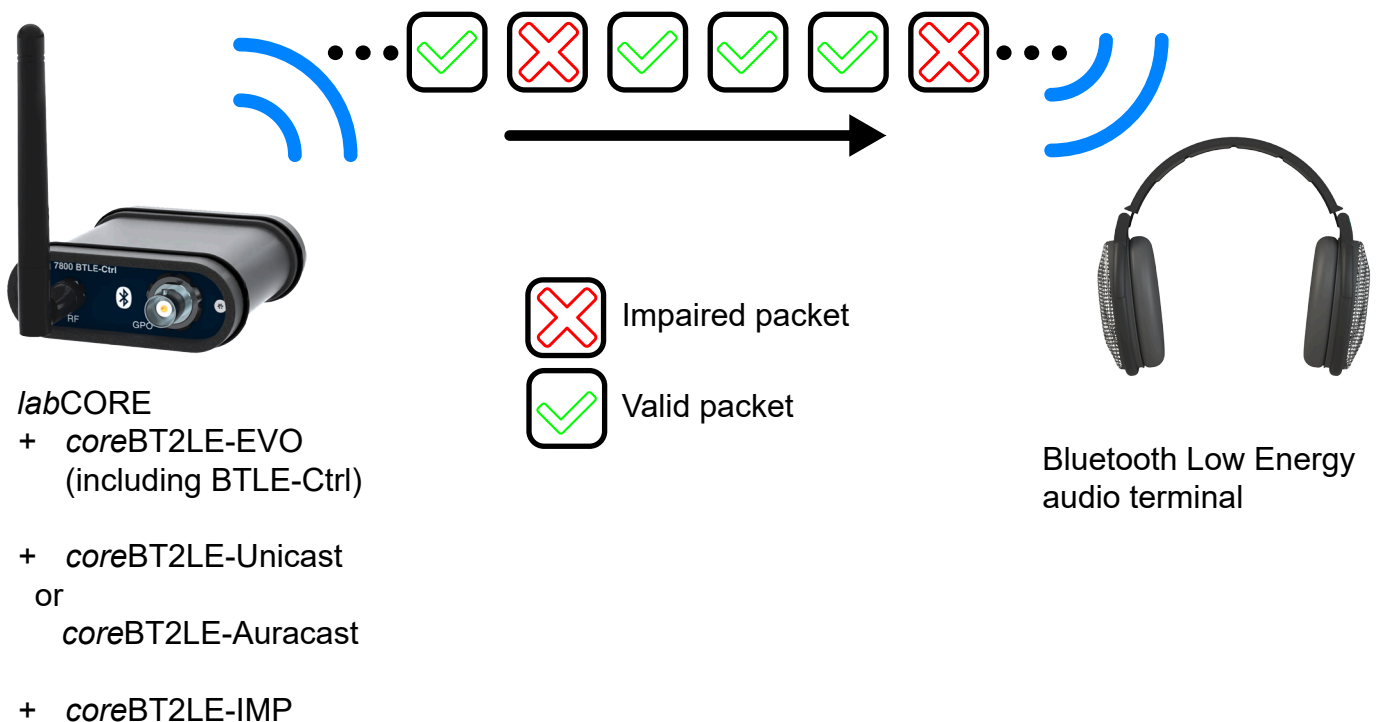
## DESCRIPTION

### 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 terminal, such as headsets, headphones, or speakers. The impairment function is available for Unicast point-to-point streams, and Auracast broadcast audio streams if *labCORE* acts as source.

### Implementation

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.



Unicast stream with enabled impairments in ACQUA

# GENERAL REQUIREMENTS

## Hardware

- labCORE* (Code 7700)
  - › Modular multi-channel hardware platform
- coreBT2LE-EVO* (Code 7805)
  - › *labCORE* I/O Module, Bluetooth reference access point version 3, Base for Low Energy Audio (LC3), delivery includes
- › BTLE-Ctrl (Code 7800)
  - » Bluetooth LE Audio Controller for *labCORE*, *coreBT2LE-EVO* (USB-based)

One of the following *labCORE* extensions

- coreBT2LE-Auracast* (Code 7788)
  - › *labCORE* Bluetooth Low Energy Audio (LC3), Option Auracast (*coreBT2LE-EVO* required)
- coreBT2LE-Unicast* (Code 7789)
  - › *labCORE* Bluetooth Low Energy Audio (LC3), Option Unicast (*coreBT2LE-EVO* required)

## 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
- RC-*labCORE* (Code 6984)
  - › Remote control software for *labCORE*

# SCOPE OF DELIVERY

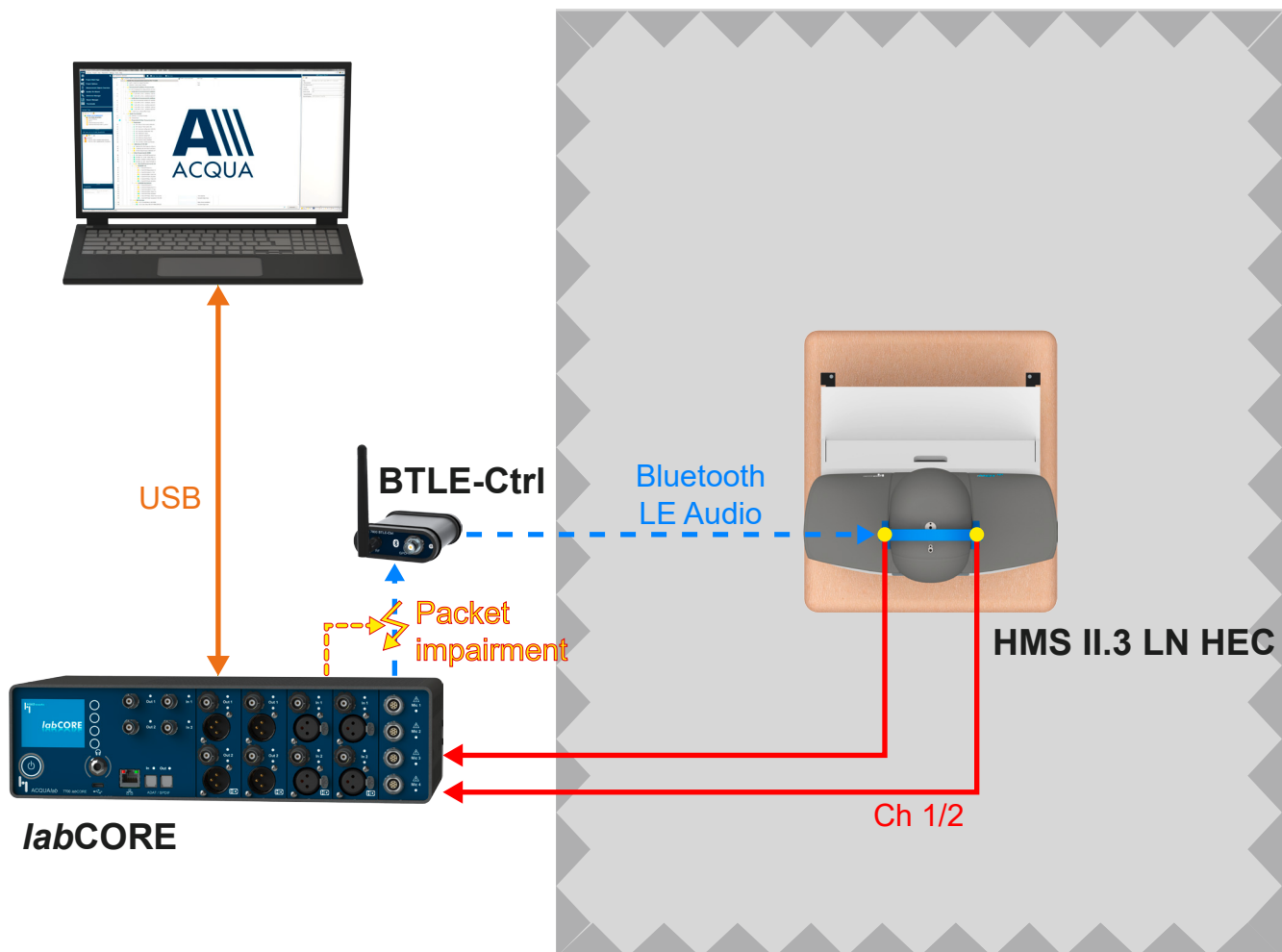
- coreBT2LE-IMP* (Code 7810)
  - › *labCORE* Bluetooth Reference Access Point Vers. 2 Low Energy Audio Statistical Impairments

# IN PRACTICE

## APPLICATION EXAMPLE

### Testing Packet Loss Concealment of a Bluetooth LE Audio Headset

*labCORE* connects to the headset via *coreBT2LE-Unicast*. *ACQUA* generates signals and sends them to the headset via Unicast audio stream. Some packets of the audio stream 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.



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