



# Innovations by Sennheiser at ISE '23

SCHOMS Session, Tuesday, January 31,'23



**Inesh Patel**

Business Development Manager  
Sennheiser (UK)

# Live Experience at the Sennheiser Stand 3C600 (Hall 3)





**TeamConnect Ceiling Solutions**  
*Be heard in the room – everywhere.*



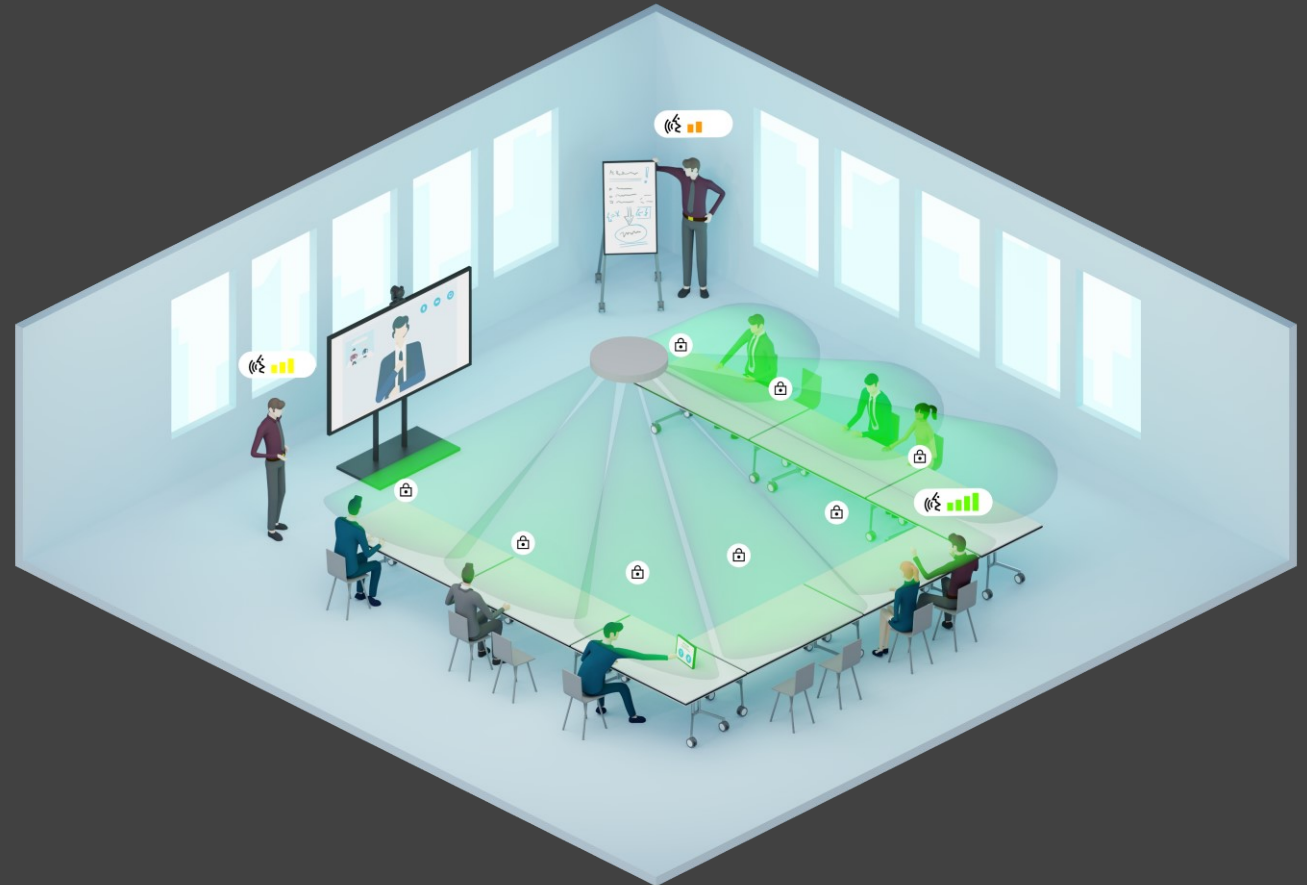
**SENNHEISER**

# Beamforming Microphone Arrays

## Traditional fixed / static Beamforming



- ▶ Limited room usage
- ▶ Inconsistent audio
- ▶ Re-adjustment effort



# TeamConnect Ceiling Solutions

## Automatic Dynamic Beamforming



- ▶ Flexible talker position
- ▶ Consistent audio
- ▶ No adjustment effort



Patented Automatic  
Beamforming



## TeamConnect Ceiling Medium

*for **mid-sized** meeting, collaboration or lecture spaces*

# TeamConnect Ceiling Medium Details

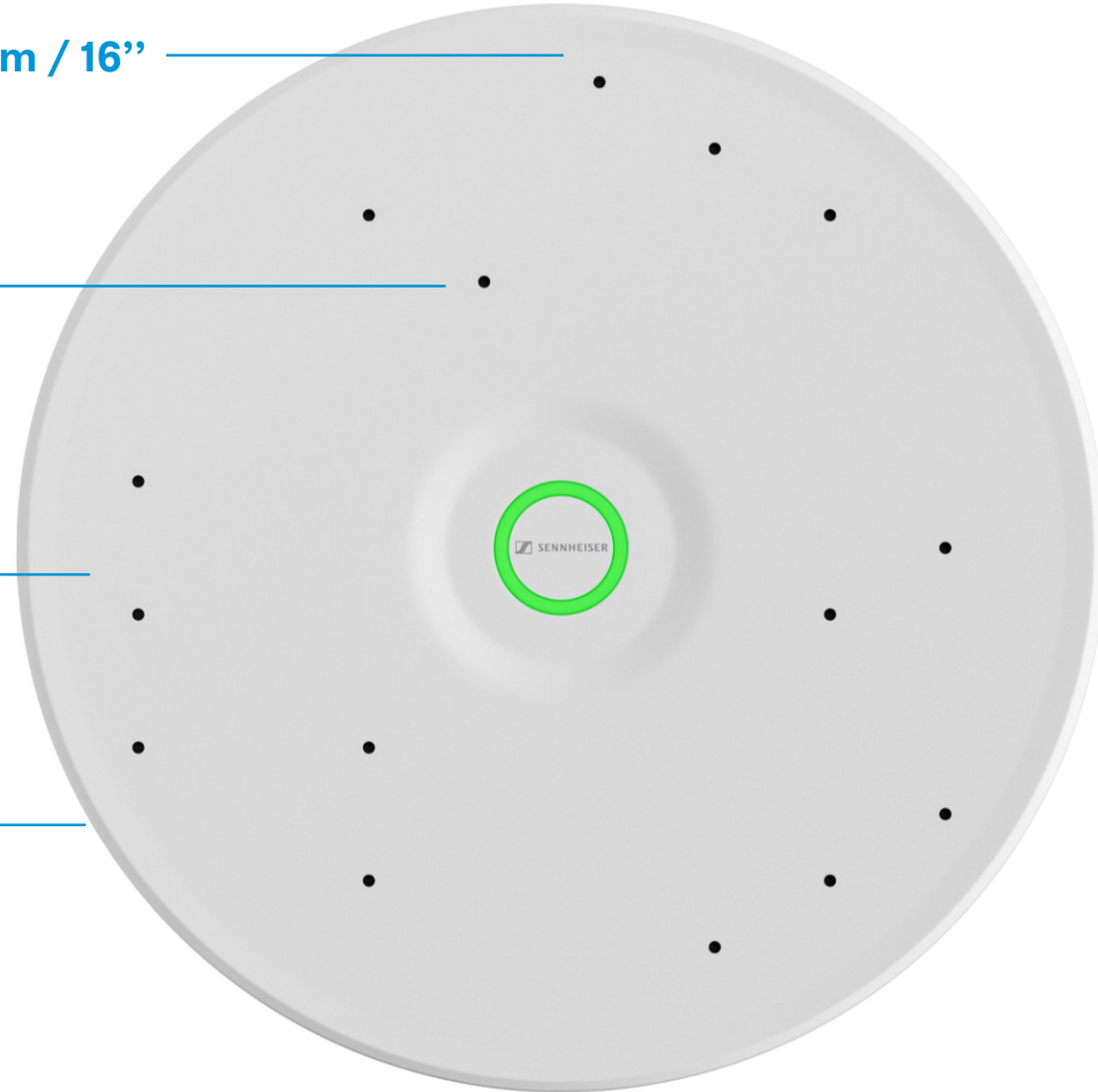


407mm / 16"

15 SMD electret  
condenser capsules

- **Coverage:**  
up to 40 m<sup>2</sup>/ 425 sq.  
ft. coverage
- **Radius:**  
3.5m/ 11ft

Round shape



# TeamConnect Ceiling Medium Details



Analog Out

POE Out/Dante

POE In /  
Control/Dante



## Configurable

**Port 1:** PoE + Control + Dante

Or

**Port 1:** PoE + Control

**Port 2:** Dante

## Daisy Chain up to 3

Poe + Control + Dante





# TeamConnect Ceiling Medium Mounting Options



**Surface Mounted**

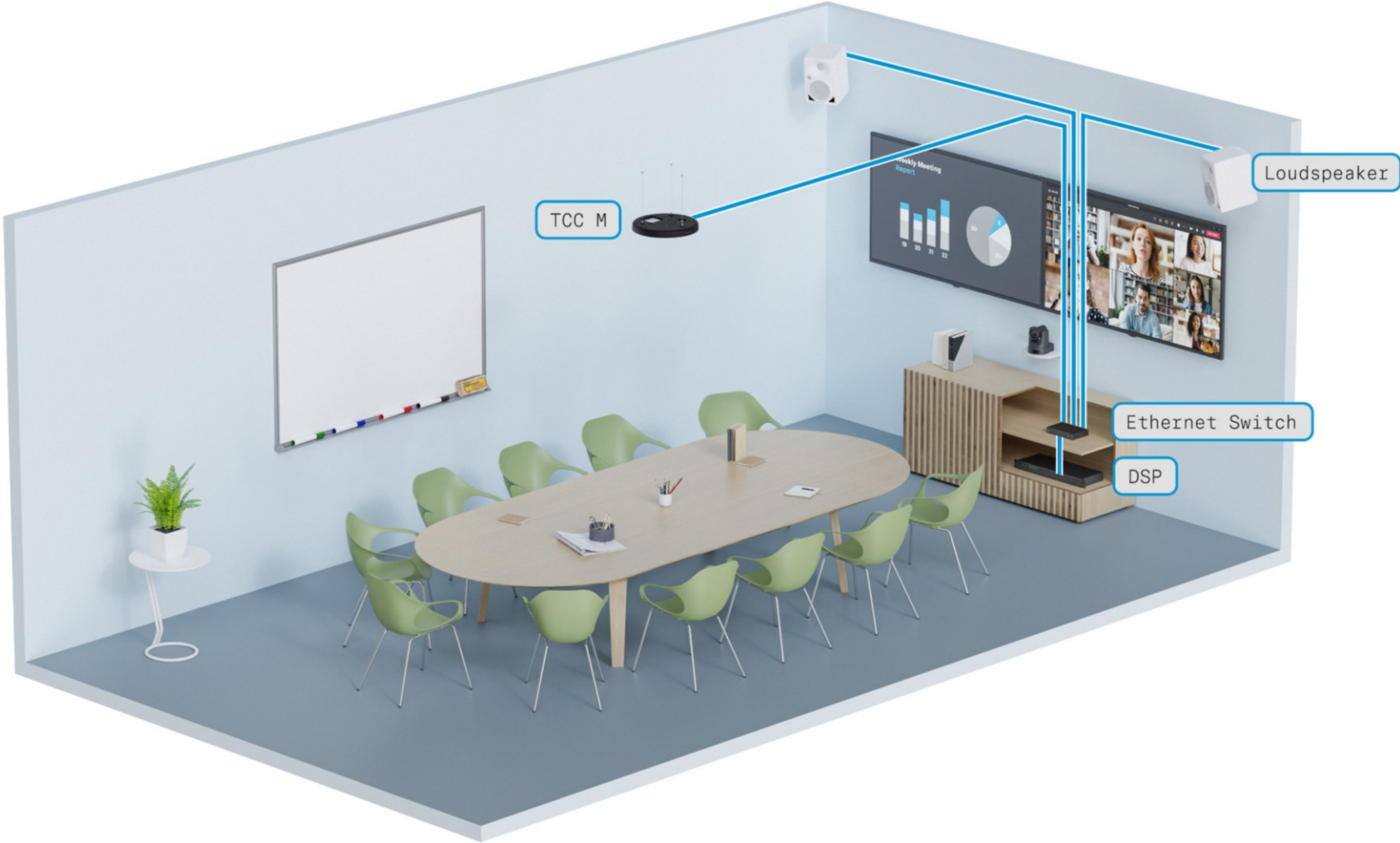


**Suspended**



**Flush-Mounted**

# TeamConnect Ceiling Medium Setup



# TeamConnect Ceiling Solutions

## Config & monitoring via **Sennheiser Control Cockpit (SCC)**



Type Name Location Device Information Transmitter Type Battery RF Quality Pairing Identify

TCOM Room

### Properties

Audio Zones Device Network

TeamConnect Ceiling Medium 1 selected

**Sound Profile** (Custom)

**Input Level (digital)** (Manual gain)

**TruVoicelift Settings** (Deactivated)

**Noise Gate Settings** (Deactivated)

**Far End Output (digital)** (Gain)

**Local Output (digital)** (Gain)

**Microphone Level**

**Audio Output (analog)**

**Mute** (Deactivated)

**Sensitivity Threshold** (Normal)

**Installation Type** (Flush mount)

**Audio Default Settings** (Reset)

- ▶ Full network integration
- ▶ Browser-based access
- ▶ Live monitoring

# TeamConnect Ceiling Solutions – Exclusion Zones

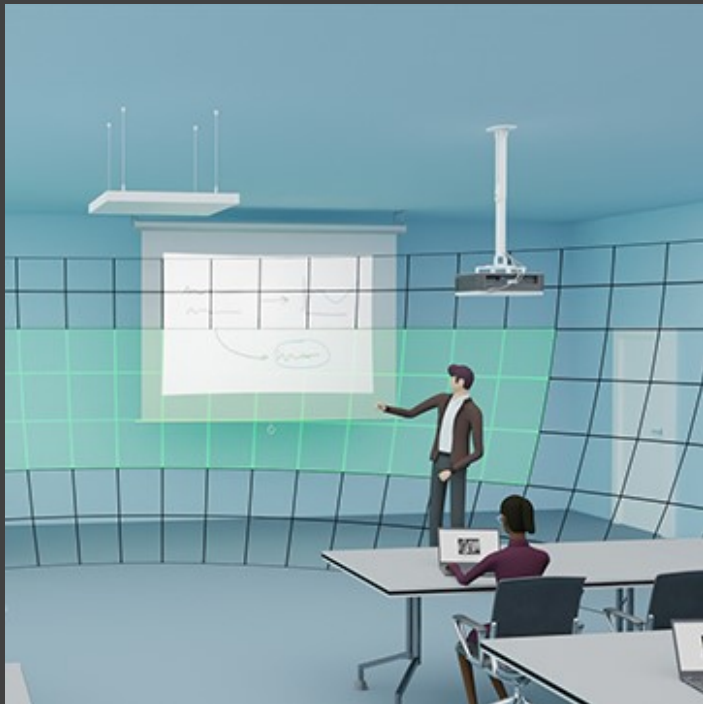


The screenshot displays the TeamConnect software interface. On the left is a 2D floor plan of a room with several desks and chairs. A large blue circular area covers the room, with two wedge-shaped exclusion zones. One exclusion zone is labeled "EXCLUSION 45°". In the center, there is a control panel with the following sections:

- Zones** (with an information icon):
  - Priority Zone**: Zone 1 is **Off** (with a pause icon and an "Edit" button). Weight is set to "Mid".
  - Exclusion Zones**:
    - Zone 1: **On** (with a pause icon and an "Edit" button)
    - Zone 2: **Off** (with a pause icon and an "Edit" button)
    - Zone 3: **On** (with a pause icon and an "Edit" button)
    - Zone 4: **Off** (with a pause icon and an "Edit" button)
    - Zone 5: **Off** (with a pause icon and an "Edit" button)
- 3D Overall View** (with an information icon):
  - Text: "Rotate the 3D model by dragging it to the left or right with the mouse cursor."
  - A 3D wireframe model of the ceiling with a yellow beam of light. Below the model, it says "Beam 332° / 11°".


- ▶ Create 5 advanced exclusion zones
- ▶ Avoid unwanted noise sources

# TeamConnect Ceiling Solutions – Priority Zone




### Zones ⓘ

Priority Zone 1



Vertical Zone: 15° / 55°

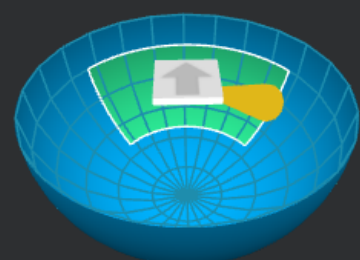


Horizontal Zone: 310° / 55°

[Apply](#) [Revert](#)

### 3D Overall View ⓘ

Rotate the 3D model by dragging it to the left or right with the mouse cursor.



Beam  
51° / 33°

► Prioritize the presenter

# TeamConnect Ceiling Solutions – TruVoicelift

More gain before feedback!



**TruVoicelift Settings** ⓘ

TruVoicelift  Activated

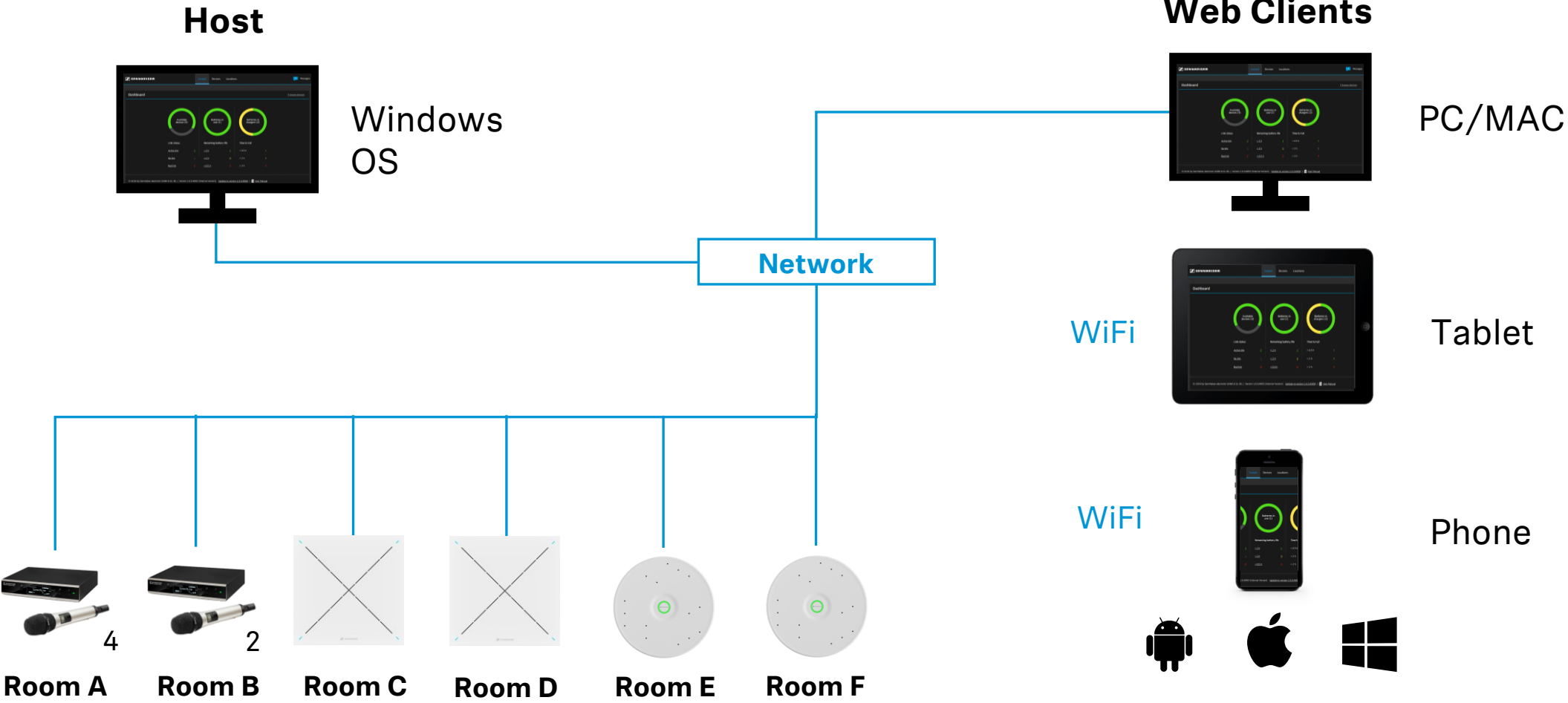
Mute Threshold  -50 -20 dB -3

Mute Interval Time  1.0 3 s 30.0



# TeamConnect Ceiling Solutions

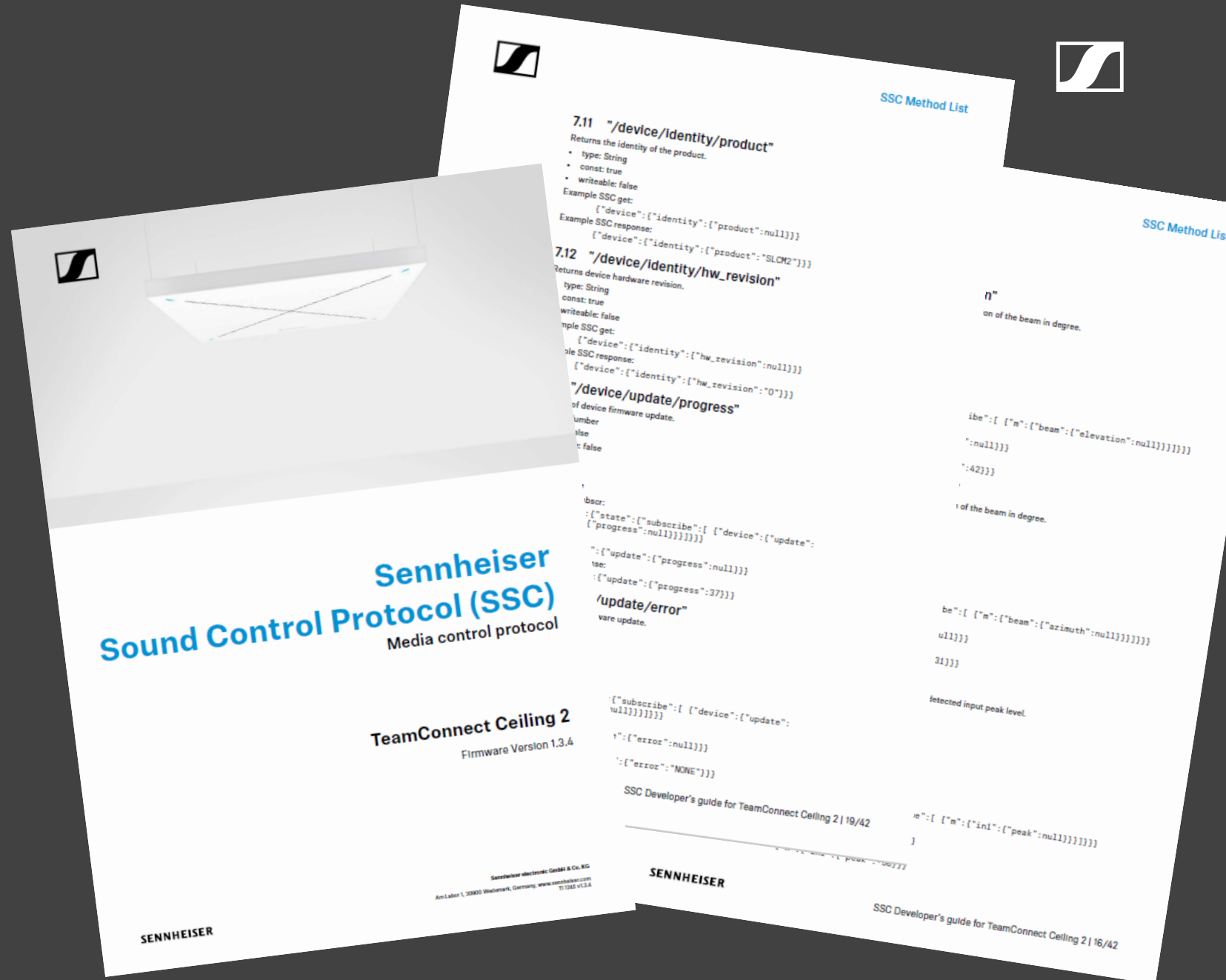
## Network setup



# Media Control Protocol

## Sennheiser Sound Control (SSC)

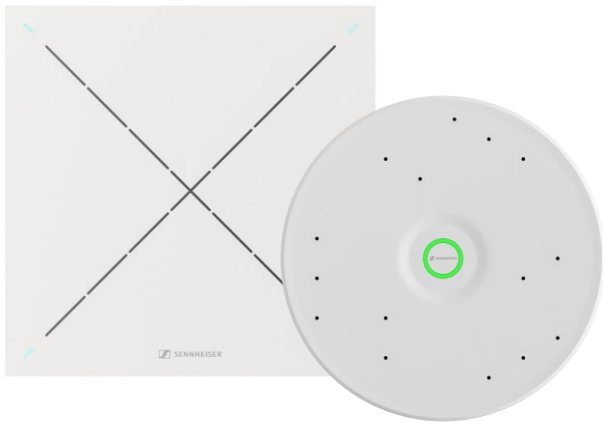
- ▶ Audio settings (e.g. MUTE)
- ▶ Beam orientation angles for camera preset positions with 3<sup>rd</sup> party controllers.
- ▶ LED control
- ▶ Etc.





# TeamConnect Ceiling Solutions

## Example camera control



Beam angle information



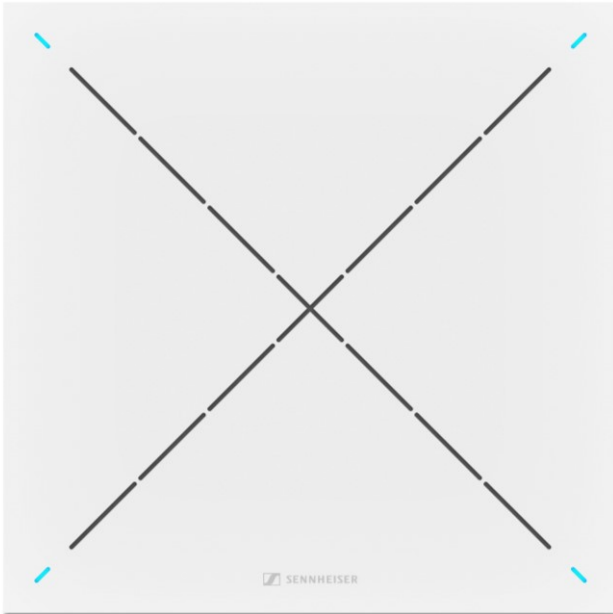
Recalls camera selection & position data,  
depending on  
- angle information  
- Which mic input active



Receives control information,  
move to position

# TeamConnect Ceiling Solutions

## Brand Agnostic Integration

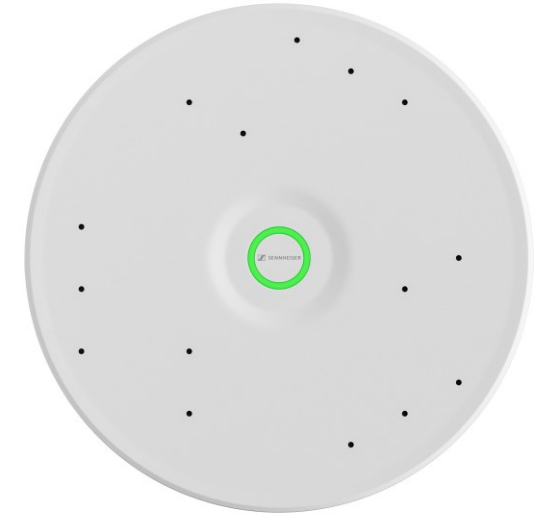


**TeamConnect Ceiling 2**  
for *larger* meeting-, collaboration- or  
lecture spaces

\*



Certified for Tencent



**TeamConnect Ceiling Medium**  
for *mid-sized* meeting-, collaboration- or  
lecture spaces

*\*All certifications pending for TCC M*

# TeamConnect Ceiling Solutions Partners

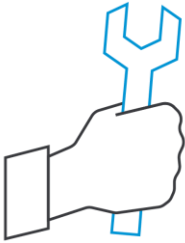


# TeamConnect Ceiling Solutions

## Benefits



Trusted Sennheiser  
Audio Quality



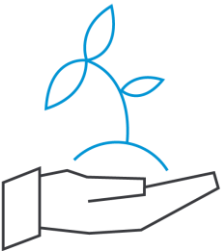
Efficient  
Setup



Management &  
Control



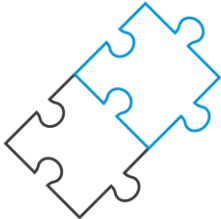
Sleek  
Design



Sustainable  
Impact



Real  
Problem Solver



Brand Agnostic  
Integration



Security

# TeamConnect Ceiling Solutions

## Real Problem Solver



Use the **full room potential** of your space without any limitations or compromises in microphone pickup and **speech intelligibility**.



# SENNHEISER MOBILECONNECT

Hear clearly. Respond effortlessly. Interact live.

SENNHEISER



# MobileConnect

## Value for Users

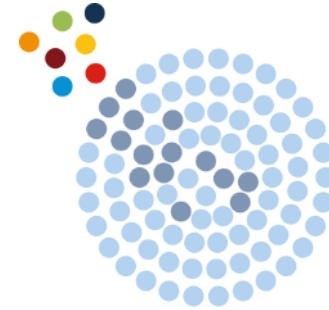


### Bring-Your-Own-Device

*Personal smartphone as audio receiver and microphone*

- ✓ Familiar device
- ✓ Little adaption time
- ✓ Convenient use
- ✓ High compatibility with personal hearing aids
- ✓ No waiting for handout listening devices
- ✓ No dedicated seating area
- ✓ Hygiene factor
- ✓ No waiting for handout microphone

➤ **True Inclusion**



Exclusion



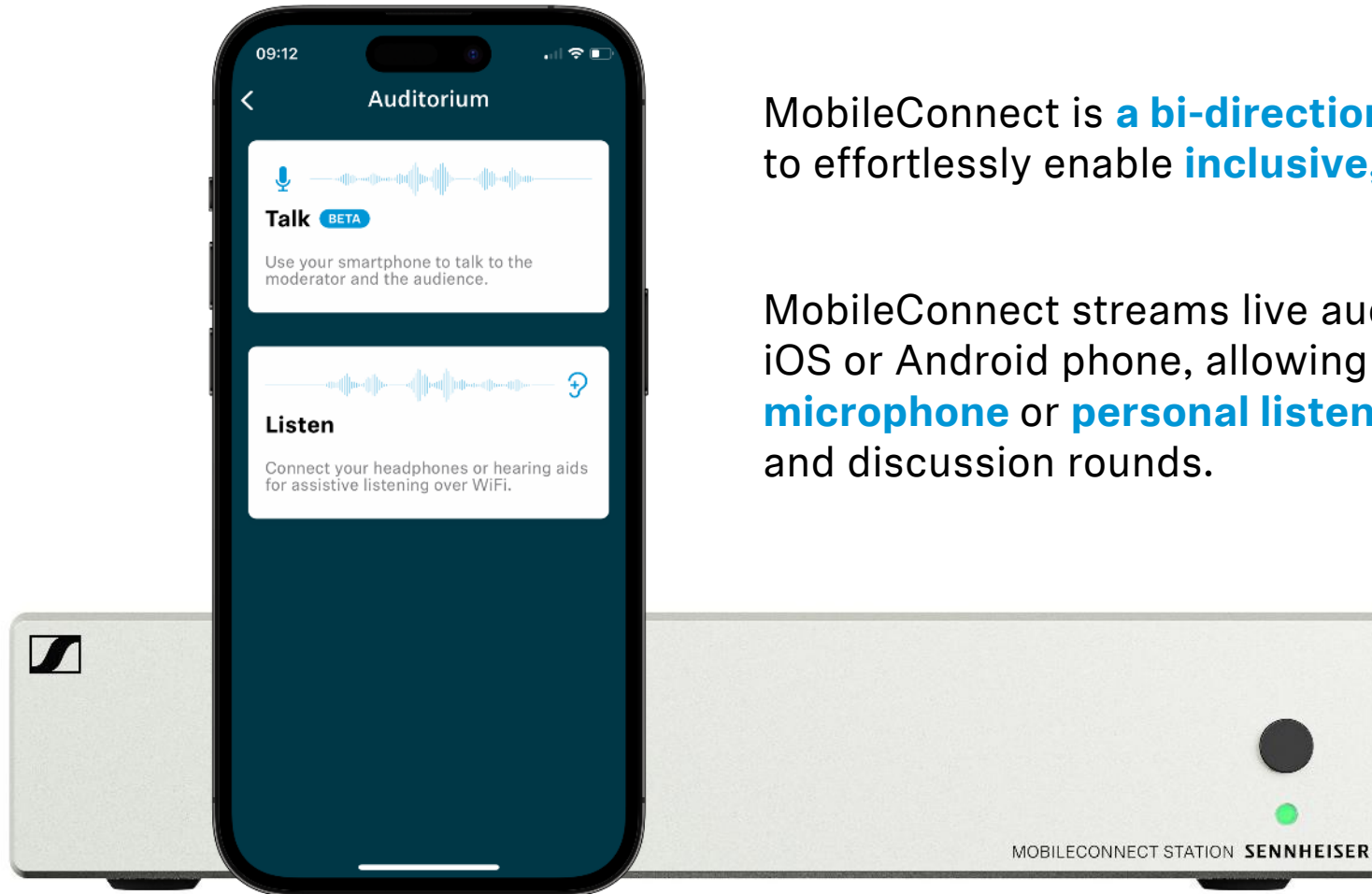
Integration



Inclusion

# MobileConnect

## What is MobileConnect?



MobileConnect is a **bi-directional communication solution** designed to effortlessly enable **inclusive, live audience engagement**.

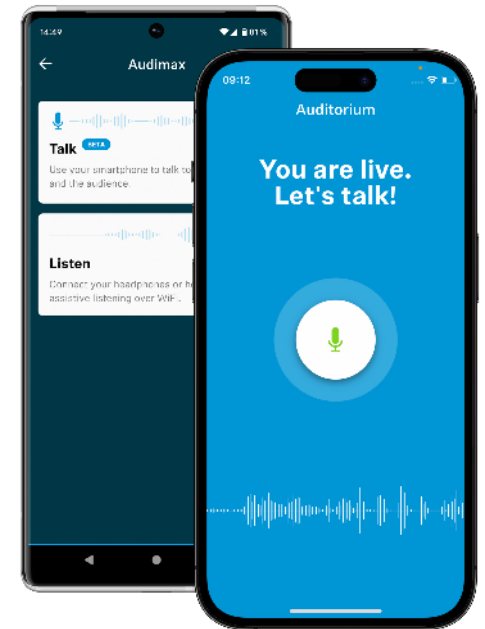
MobileConnect streams live audio content via WiFi **to and from** any iOS or Android phone, allowing **anyone** to use their smartphone as a **microphone** or **personal listening** device **to engage** in Q&A sessions and discussion rounds.



# MobileConnect Applications

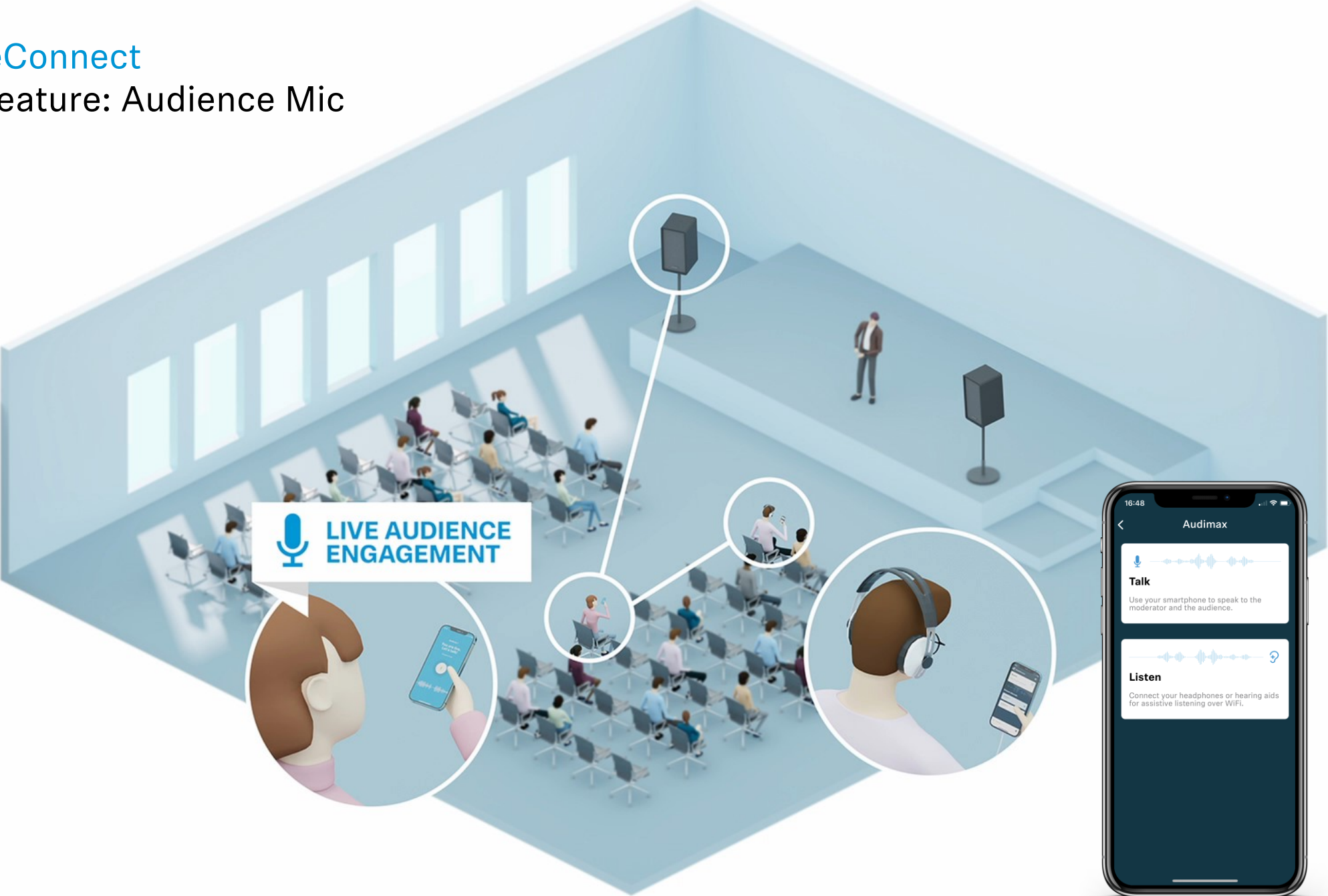


- ▶ **Assistive listening** – people with hearing loss can finally discreetly access quality audio, configurable to their individual needs, anywhere in the room;
- ▶ **Interpretation streaming** – effortless delivery of live translations during multilingual events;
- ▶ **Personal listening** – focus on the presenter even in the most challenging and crowded environments;
- ▶ **NEW Bi-directional live audience engagement** – transform your smartphone into a microphone. Listen, talk, ask and engage with your peers and presenter – with just a click of a button on your own phone.



# MobileConnect

## New Feature: Audience Mic



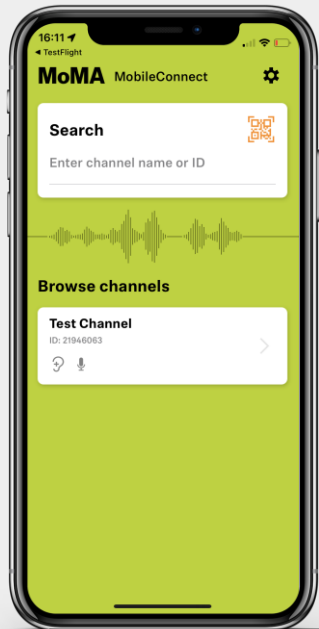
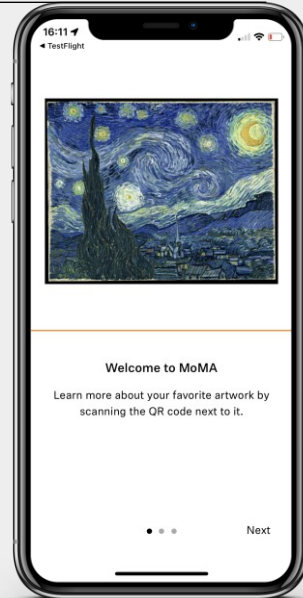
# MobileConnect

## New Feature: App Customization



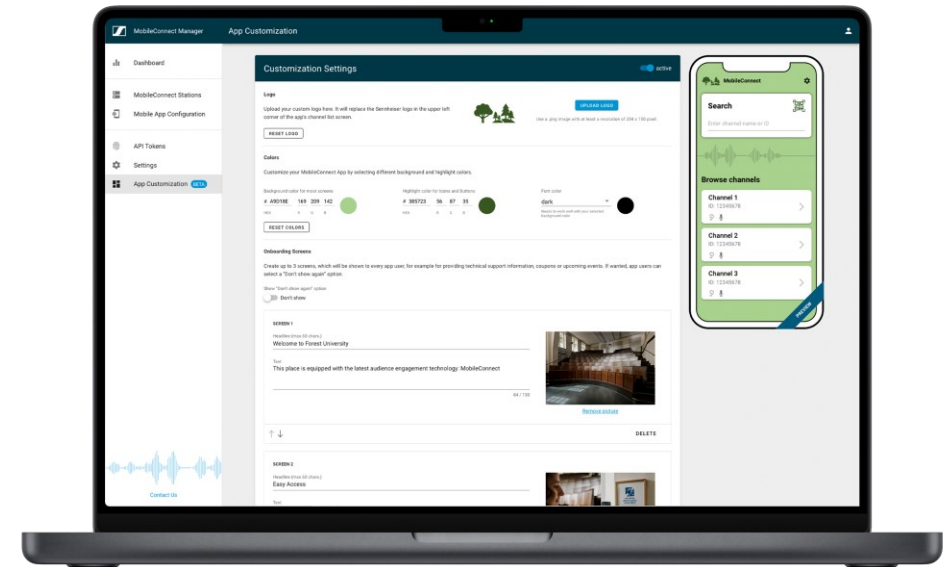
### Custom Onboarding Screens

Interact with your users by providing up to 3 customized onboarding screens with additional content and information.



### Custom App Design

Using your personal logo and theme colors provides a high level of branded user experience while keeping the benefits of the proven app usability.



### MobileConnect Manager

Customizing your users' app experience requires using the MobileConnect Manager software.

It is available for free and requires an on-premise Linux server.

# MobileConnect Concept



The basic concept of MobileConnect is the usage of **the existing facility-wide network infrastructure** and the **Bring Your Own Device (BYOD)** approach. The audio is transmitted via the existing WiFi and available to Android and iOS users in the MobileConnect App. MobileConnect App is free of charge and requires no registration.

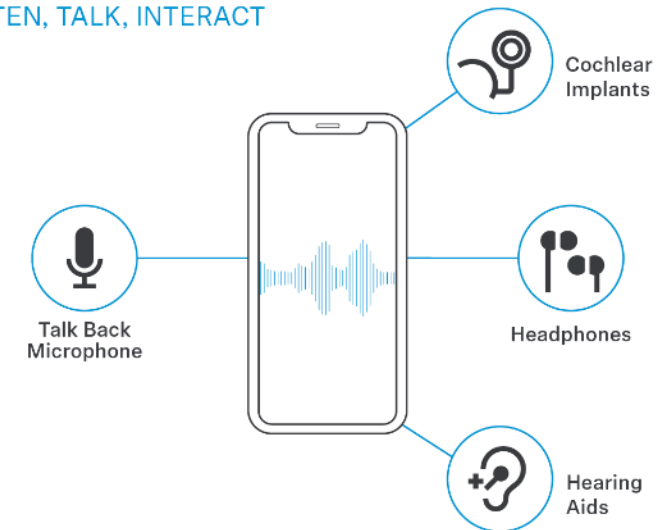
## Use of existing WiFi infrastructure

FACILITY-WIDE NETWORK



## Bring Your Own Device

LISTEN, TALK, INTERACT



# MobileConnect Features



## Scalable To Your Needs

*Effortlessly adapt the system to your needs, facility and audience.*



## Individually Optimized Listening

*The app's intuitive interface makes it easy for users to optimize their listening experience.*



## 3rd-party Plugin Integration

*Connects to 3rd-party user control systems through Crestron, Extron, QSC plugins or other systems using the MobileConnect API.*



## App Customization **NEW**

*Customize your users' experience with personalized app design and onboarding screens.*



## Intuitive System Management

*The MobileConnect Manager keeps everything in view and at your fingertips.*



## Secure Streaming Access

*You decide which streaming channels are available and how they are accessed.*



## Bring Your Own Device (BYOD)

*The app-based design turns audiences' smartphones into personal microphones and assistive listening devices.*



## Dante Integration

*Implement decentralized installments and hybrid deployments via Dante audio distribution.*



## Low-latency Audio

*Enjoy clear, precise audio from anywhere in the room.*



## Quick and Flexible Access

*Your audience can access their preferred audio stream quickly, easily and in a way that works for them.*



## True, Discreet Inclusion

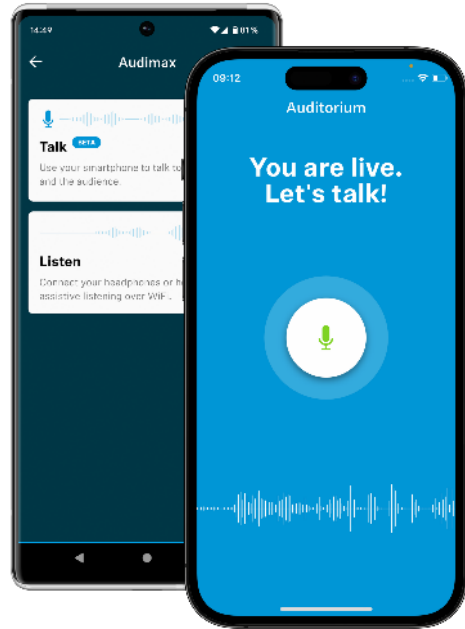
*Trusted, low-profile audio accessibility through personal induction neck loops, headphones, and hearing aids.*



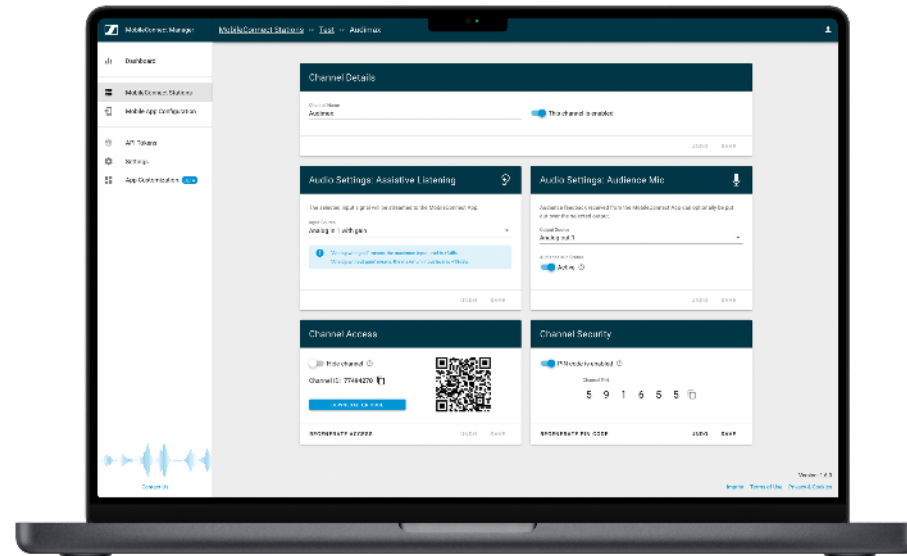
## Live Audience Engagement **NEW**

*Talk-back functionality allows local and remote participants to respond, listen, and interact from anywhere in the room.*

# MobileConnect System Components



MobileConnect  
App



MobileConnect  
Manager



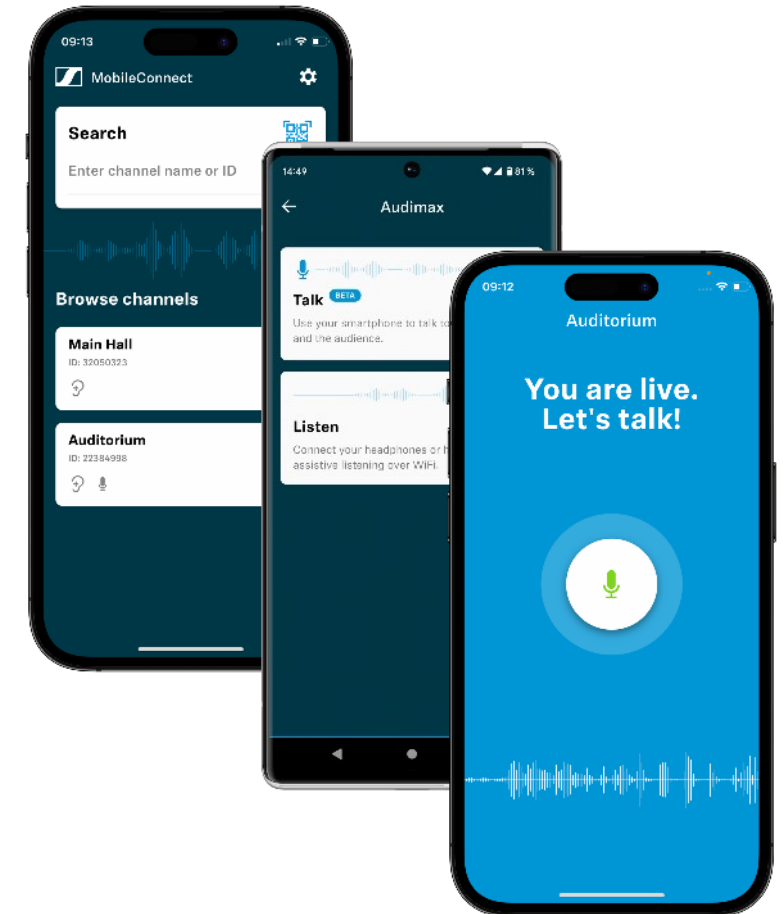
MobileConnect  
Station

# MobileConnect

## MobileConnect App



- ▶ Assistive and personal listening over an existing WiFi network
- ▶ Enjoy clear and precise audio quality anywhere in the room
- ▶ Bring Your Own Device
- ▶ Bi-directional communication through personal iOS and Android devices
- ▶ Your talk-back microphone is already in your pocket
- ▶ No equipment sharing eliminates hygienic concerns
- ▶ Unicast audio streaming with as little as 25 ms latency\*
- ▶ QR-Code Scanner and pin codes offer secure access to streaming channels
- ▶ Intuitive, individually customizable app design
- ▶ Administrator-personalized onboarding screens
- ▶ Easy-to-navigate channel list with a convenient search function
- ▶ Screen reader support for people with vision loss
- ▶ **Free for participants with no registration required**



*\*Depending on the network and device used – average is 40-60 ms.*

# MobileConnect

## MobileConnect Station



- ▶ Via Dante digital audio, Stations sit across networks removing installation proximity requirements
- ▶ Offers either two Assistive Listening channels per Station or one bi-directional channel per Station (Assistive Listening & Audience Mic)
- ▶ Unicast audio streaming with as little as 25 ms latency\*
- ▶ Supports up to 100 clients per Station
- ▶ Two available integration modes
  - Standalone Mode: Individual installations with a single Station
  - Manager Mode: Larger, advanced installation with multiple stations
- ▶ Audio streams are available in either mono or stereo operation
- ▶ Powered over Ethernet
- ▶ Dante and XLR compatible
- ▶ Connects to 3rd-party user control systems through Crestron, Extron, QSC plugins, or other systems using the MobileConnect API
- ▶ **Roughly 4000 Euro**



*\*Depending on the network and device used – average is 40-60 ms.*



# MobileConnect

## MobileConnect Station



Power Button

Status LED



XLR  
Outputs

XLR Inputs

Dante®

Control Port  
(Local Admin  
Interface, 2 Port  
Mode)

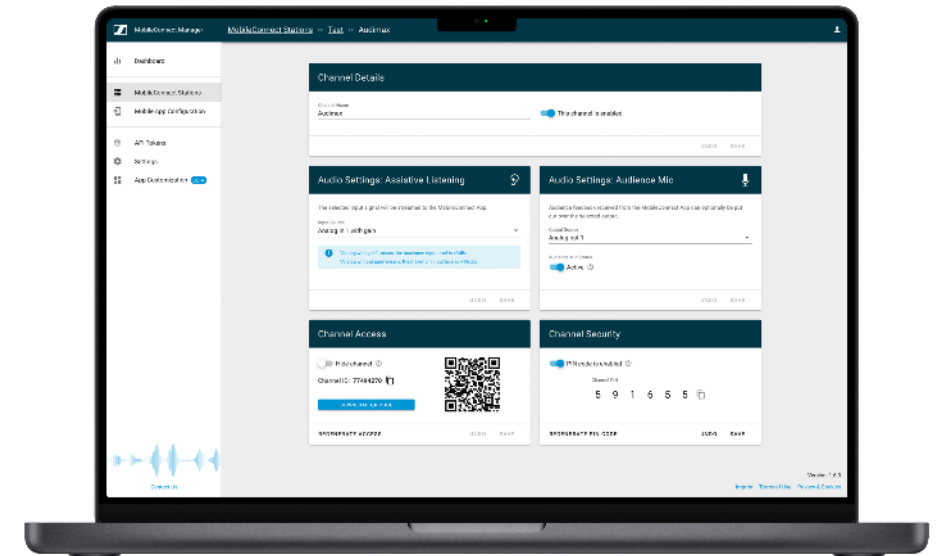
PoE / Audio Streaming Port  
IEEE 802.3af Class 3

# MobileConnect

## MobileConnect Manager

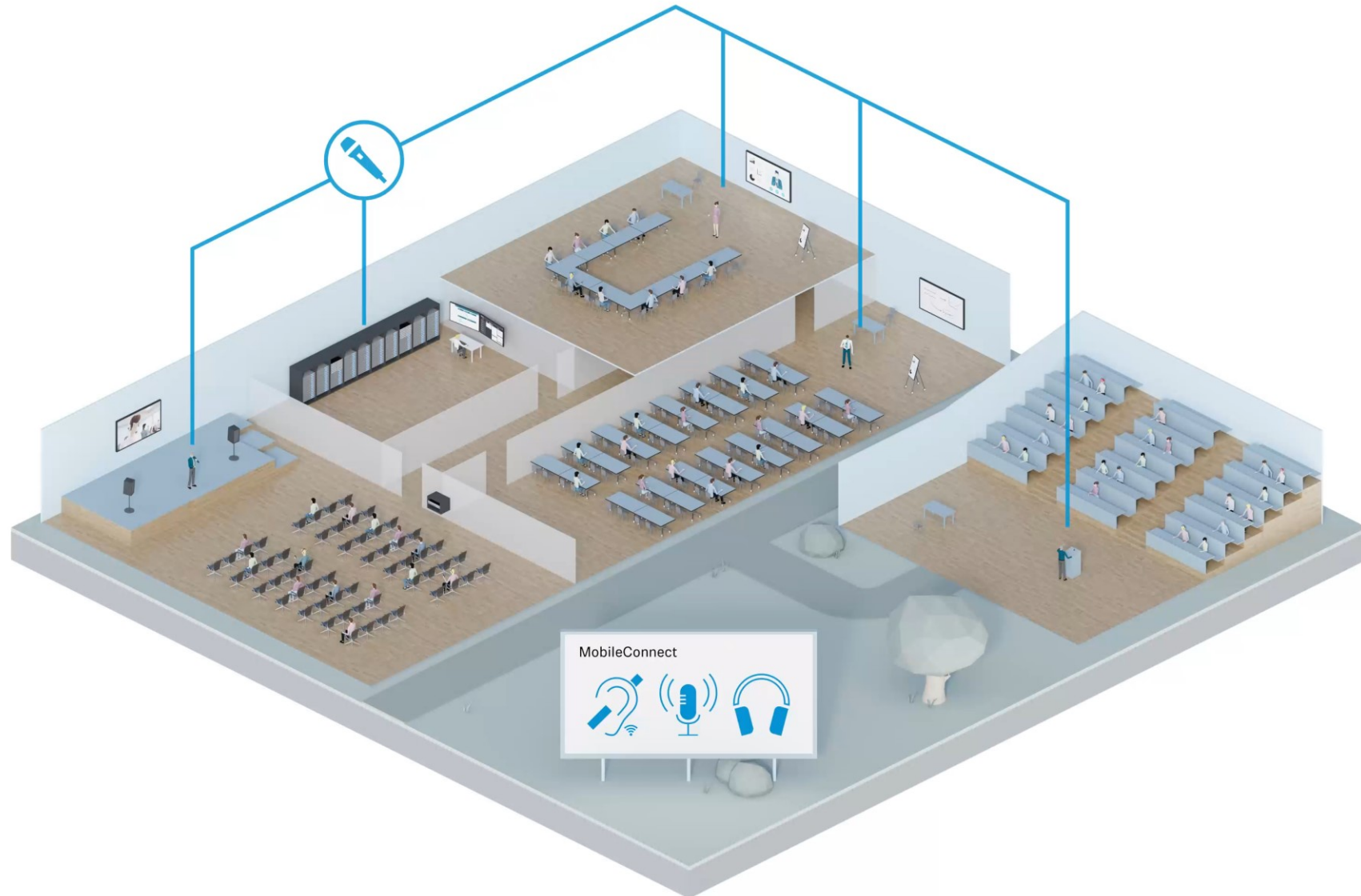


- ▶ Centrally managed control of all MobileConnect Stations in the network
- ▶ On-premise server installation
- ▶ Available separation of streaming and control networks
- ▶ Fully scalable design by easily adding additional MobileConnect Stations
- ▶ Access to all MobileConnect capabilities, such as cloud updates and app customization
- ▶ Connects to 3rd-party user control systems through Crestron, Extron, QSC plugins, or other systems using the MobileConnect API
- ▶ MobileConnect API supports remote process automation
- ▶ Generate audio stream QR codes to display on room signage
- ▶ Assign individual administrator roles and access rights
- ▶ Simultaneously supports hundreds of MobileConnect Stations
- ▶ MobileConnect Manager use is optional but unlocks system's full networking potential
- ▶ **Free of charge for any MobileConnect user or operator**



# MobileConnect

MobileConnect Manager – a single, centrally managed point of administration



## MobileConnect

Sennheiser Control Cockpit – facility-wide monitoring and control



Simple and intuitive monitoring and control software



Control all your Sennheiser devices in Control Cockpit



View current status of MobileConnect Manager (running/not running)



# MobileConnect

## Application Scenarios



### Standalone Mode

*Usage of customer network*

- ✓ Ease of installation
- ✓ Limited IT support required
- Manager functionalities not available
- Application with few Stations

**Equip a single or few rooms with audio streams.**

### Manager Mode

*Usage of customer network + Manager installation*

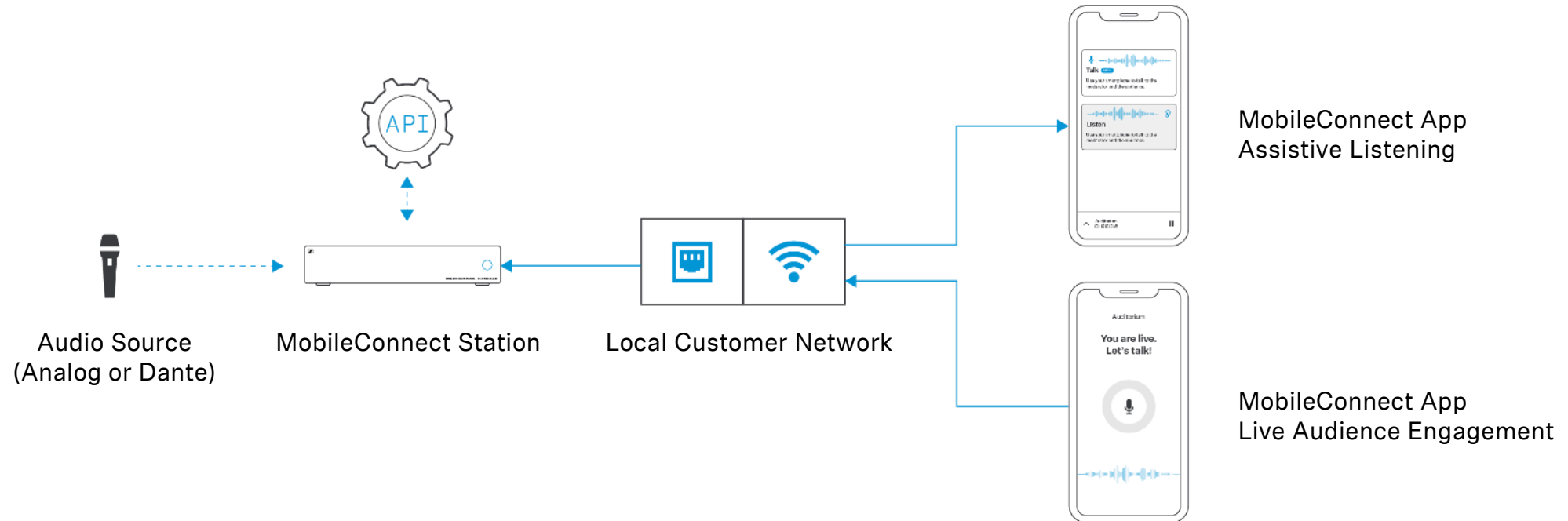
- ✓ Single point of administration for multiple Stations
- ✓ Enables the usage of all MobileConnect features
- Setup effort for Manager and DNS
- IT support required
- Larger venues up to campus-wide installations

**Equip and administrate multiple rooms in a facility with audio streams.**

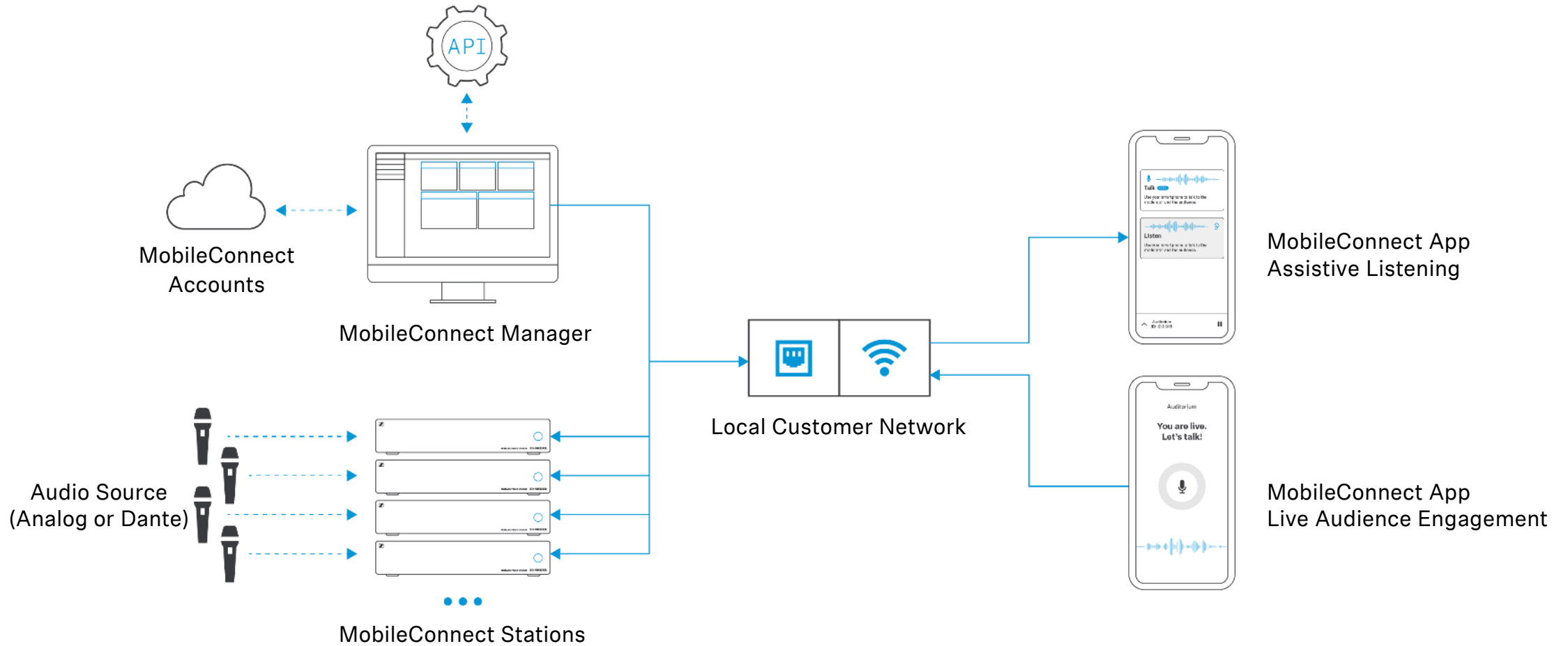
Both modes require customer network.

# MobileConnect

## Standalone Mode Network Integration



# MobileConnect Manager Mode Network Integration



# MobileConnect

## Value for Operators



### **Bring-Your-Own-Device (BYOD) approach and usage of existing network infrastructure**

*Suitable for new constructions as well as existing structures*

- ✓ Equipment of entire campus/facility
- ✓ Easy integration into existing network
- ✓ Effortless administration with MobileConnect Manager
- ✓ Low total cost of ownership
- ✓ Low maintenance effort and cost
- ✓ System satisfying the highest IT and security standards

MobileConnect is a **convenient and easy-to-use** system with **built-in features** that give facility administrators the necessary **tools** to **securely integrate** it into their **networks**.

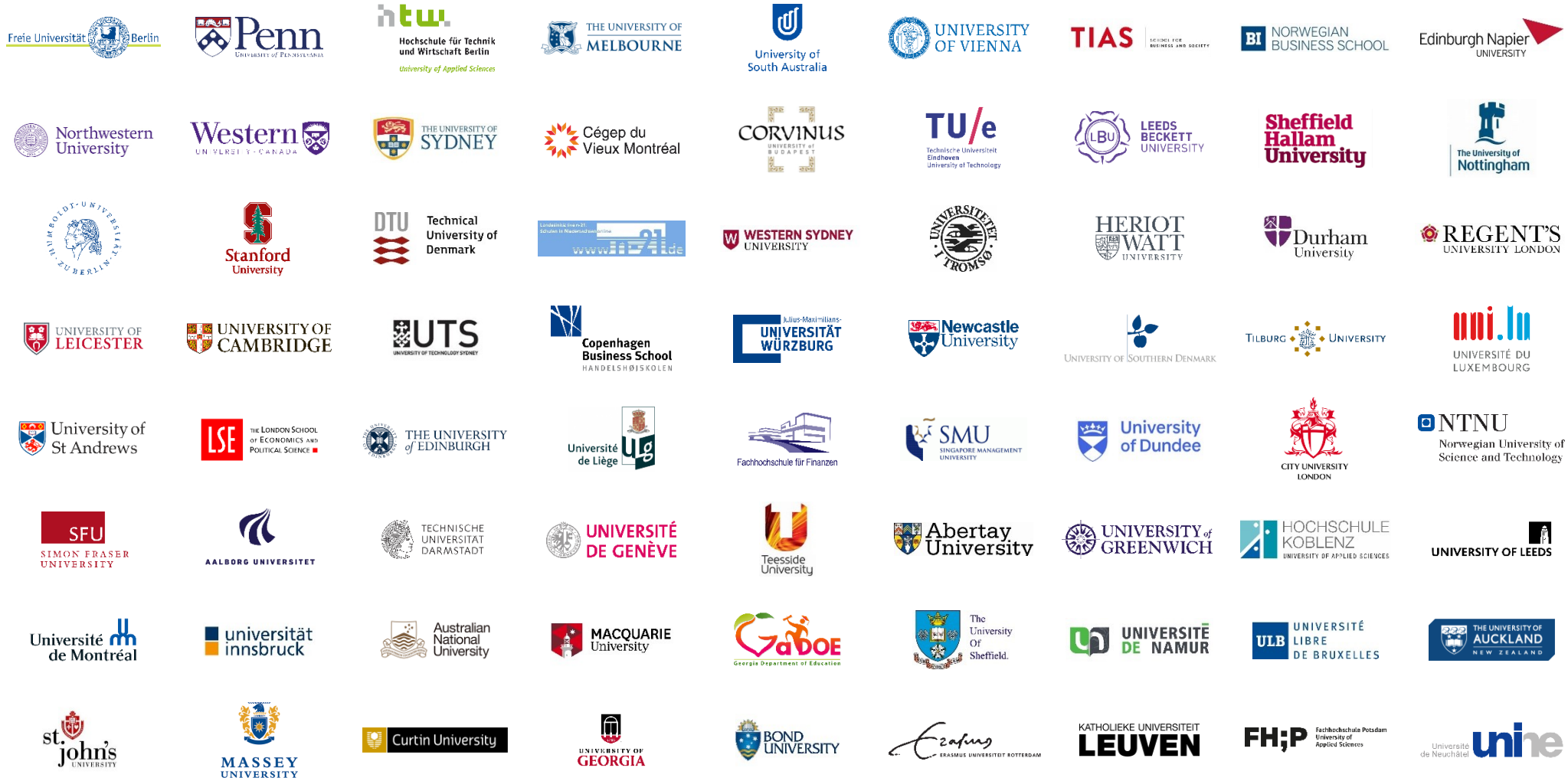




## Let's discover the MobileConnect advantage.

- Bring-your-own-device (BYOD) approach
- True, Discreet Inclusion
- Live Audience Engagement
- Individually Optimized Listening
- App Customization
- Quick and Flexible Access
- Low-latency Audio
- Secure Streaming
- Intuitive System Management
- 3<sup>rd</sup> Party Plugin Integration
- Scalable To Your Needs
- Dante® Integration

# Trusted by Universities globally...





Questions?

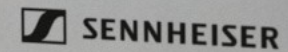


### Live Audience Engagement Available

This place is equipped with the **Sennheiser MobileConnect** communication system allowing you to turn your smartphone into **talk-back microphone** and **personal hearing device**.



1. Join the Wifi
2. Download the app
3. Select your audio channel or scan the channel QR code



# Live Experience at the Sennheiser Stand 3C600 (Hall 3)





# Thank you



Learn more at  
[Sennheiser.com/Education](https://www.sennheiser.com/Education)



[Inesh.Patel@Sennheiser.com](mailto:Inesh.Patel@Sennheiser.com)