

## Architectural and Engineering Specifications

---

The solution shall be a complete audio solution including wireless microphones.

The solution shall contain a wireless microphone system, line-array speakers, a room processor, and a PoE network switch providing room audio for unified communications application. The complete solution shall be network Dante based with components powered by PoE and audio data sent using Dante over network connections. No analog audio cables between the different components shall be required. All components shall be from the same manufacturer.

The room processor shall provide USB, analog audio, and Bluetooth connectivity. Special analog microphone connections shall be provided to allow for voice lift applications. Besides the PoE powered Dante speakers, the room processor shall also support analog audio out for powered speakers. The room processor shall support room auto-tuning to automatically configure and tune the solution for the room.

Up to 16 wireless microphones shall be supported as part of the solution. Different wireless microphone types might be selected as required for the solution, including omni-directional, directional, and gooseneck microphones. The wireless microphones shall come with intelligent rechargeable batteries providing a talk time of at least 20 hours on a full charge, and one or two charging stations as required, each supporting up to 8 microphones to be charged at the same time.

The wireless transport in the system shall use the DECT frequencies and shall not use Wi-Fi, Bluetooth (2.4 GHz), UHF or VHF frequencies. The system shall support wireless encryption using AES256. The system shall support QPSK to maximize wireless data throughput and highest possible audio quality.

It shall be possible to expand the solution with wired tabletop microphones and/or ceiling microphones, as long as a total of 16 microphones is not exceeded.

Audio post processing shall be included with the solution, including adaptive acoustic echo cancellation, de-reverberation, noise reduction, human voice activity detection, automatic gain control, and audio mixing, beside others.

The solution shall include a web-based management interface, allowing management of the solution as well as components, down to the microphone, to be managed remotely. The wireless solution shall also provide a programmable interface for integrations into third party management systems. Furthermore, the solution shall support SNMP traps for proactive warnings and system information.

Several wireless solutions shall be able to work together synchronized in adjacent spaces to optimize use of the wireless spectrum.

Synchronization of units shall be done using the Dante network. Within the Dante network, several clusters of units might be defined, each synchronizing the units within that cluster.

A wireless spectrum analyzer allowing to analyze wireless traffic in the spectrum over time shall be included. The spectrum analyzer shall help an installer to understand traffic in the area and suggest the number of potential additional wireless microphone solutions.

The Yamaha ADECIA wireless solution is defined.