

Sound Field Specification - Whole Class System

'Educational activity within classrooms revolves around speech. Some experts claim that 80% of all classroom activities require listening and speaking. It is important that within any room the acoustic characteristics allow for effective spoken language communication'. * Sound Field shall be installed to provide an integrated whole class system, as detailed in BB93, Section 6. The system shall ensure that the signal level of the speech is delivered to all parts of the classroom at an appropriate level above the background noise.

* **BB93, Section 6**

System Requirement:

All products shall meet or exceed the requirements of BB93, Appendix 8.

- Loudspeakers
- Wireless microphone
- Belt pack transmitter
- Wireless receiver
- Amplifier
- Optional VHF Transmitter

Product Specification:

• Loudspeakers:

Armstrong i-ceilings CS-1000 Sound Panels or equivalent

Speakers shall be ceiling mounted NXT i-ceilings loudspeakers where suspended ceilings are in use. Frequency response shall be +/- 3dB over 150Hz to 8kHz with an average dispersion angle of no less than 150°H x 150°V. Sensitivity shall be >85dB @ 1W with output levels @ RMS >10W.

• APA-IR Infrared Wireless Microphone System:

Chiayo Infrared Beltpack Transmitter, Headset Microphone, Transmitter, Batteries & Charger

Conforming to IR 2030. Transmitter units shall have an on/off switch with operational LED, volume and gain controls. Battery life will be greater than 6 hours from a rechargeable nicad battery. Microphone input shall be compatible with plug-in dynamic and electret microphones with robust locking mechanism and high quality cable retention.

Infrared Wireless Receiver or equivalent

Receivers shall have output volume control and accessible on/off switch, built-in receiver array with 2 optional remote receiver arrays. Frequency response shall be 100Hz to 10kHz +/- 1dB with a dynamic range > 85dB.

• Amplifier Option A:

APA-20/CS Amplifier: (Integrated Armstrong i-ceilings Panel Amplifier)

Amplifier shall provide inputs for microphone and auxillary source. Plus one line level output and speaker output for 8 , 20W systems. Inputs shall be mounted on a control plate within the classroom.

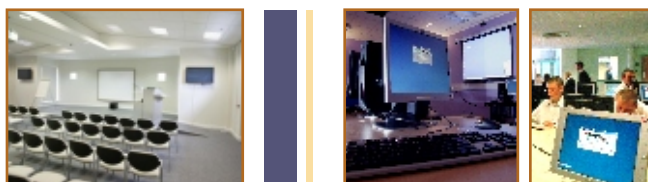
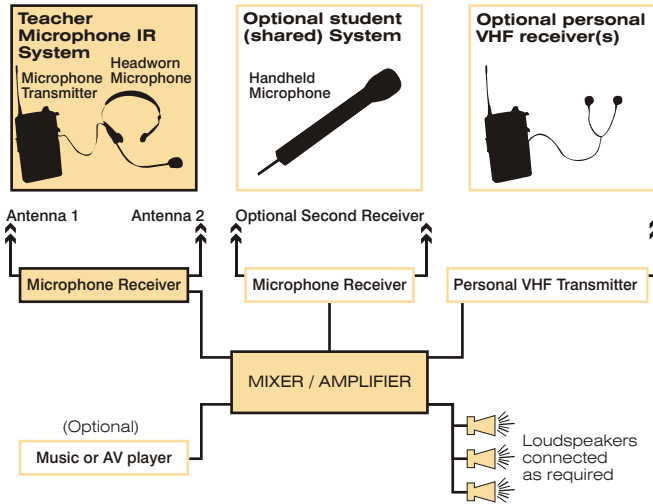
• Amplifier Mixer Option B:

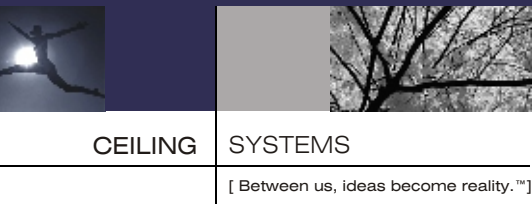
Inter-M PA1000B Desktop Mixer Amplifier or equivalent

Amplifier mixer shall have 3 microphone inputs and 1 auxillary input, providing power for both 100V line and 8 systems. Power output >30W. All other characteristics as per BB93, Appendix 8.

• Optional VHF Transmitter Pack VHF -

4mW transmitter pack compatible with standard RF hearing assisted systems can be supplied.





SOUND SYSTEMS

Notes:

In order to meet the varied demands of today's modern classroom, all items have been selected to provide the best possible Sound Field solution. Sound Field systems are required to provide clear, concise speech and music in the working classroom environment and must comply with such regulations as BB93.

'Whilst confirming to the demanding requirements of BB93, the Armstrong i-ceilings loudspeaker, through the use of NXT technology, provides many additional benefits. NXT technology is efficient at reproducing exceptionally clear speech (BB93, Appendix 8) and allows greater coverage of the classroom before any form of feedback occurs. Also, in exactly matching modern ceiling tile finishes, Armstrong i-ceilings speakers provide an 'invisible' solution, significantly reducing vandalism and theft.

Design Assistance/Support

The quantity of each element in a Sound Field System will vary according to room size, application and specification.

If the classroom contains a suspended ceiling (e.g. Armstrong acoustic ceiling tiles), i-ceilings speaker quantity can be easily determined using the Armstrong i-ceilings prediction software. This simple programme considers the room's dimensions and application to accurately calculate the number of required i-ceilings speakers (This can be obtained from either Armstrong or CIE-Audio on 0115 9770075).

An average classroom being used for speech-based purposes i.e. ICT and Languages will require only one speaker.

Ceiling mount loudspeakers forming part of the modular suspended ceiling provide the most even coverage at all frequencies and the least loudspeaker interaction. It is therefore recommended for all rooms where a suspended ceiling exists. Loudspeakers should be selected to provide a wide and even coverage that is constant with frequency.

If the classroom has no suspended ceiling then a standard powered speaker solution is required. This may need a remote slave speaker depending on the room size. A suggested package for this application is the Chiayo Infrared system (part number IR-BS System). This is a complete solution incorporating all of the specified elements.

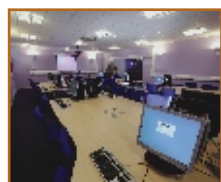
Infrared transmission systems have a number of benefits over standard radio-based systems (i.e. radio mics). Being contained by walls, infrared signals are restricted to operate within each specific classroom eliminating 'overspill' difficulties. Regulations on frequency allocation allow only a limited number of radio-based units to be used in close proximity to each other. Infrared is unaffected by these limitations and multiple systems can be used. Infrared systems come with a wide range of accessories such as drop chargers for staff rooms, spare batteries and spare microphones.

Amplification packages for the Armstrong i-ceilings speaker can be of a table mounting Mixer Amplifier type, which allows multiple inputs such as CD/DVD/Tape units to be connected as well as the infrared microphone unit.

However, the preferred option for classrooms is the Armstrong APA-20 Amplifier. This is an integrated amplifier that fits directly to the speaker and comes with a simple volume plate. Mounted to the classroom wall, the volume plate enables connection to many different sources via its own phono connections. This unit is the most secure option available to teachers today. Table mounting and wall mounting amplifiers are open to both theft and vandalism.

Wireless connection for the ceiling mounted system is via the Chiayo Infrared Receiver Unit, which feeds into the wall mounted volume plate and directly to the ceiling mounted amplifier. The unit can be fitted with extra receiver points (up to two more) for the larger classroom.

Transmission of voice is via a Beltpack Transmitter and headset or Tie-clip Microphone. Each unit is supplied with re-chargeable batteries and a drop charger unit. Each beltpack has an on/off control and variable level control for remote volume settings.



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