

# frontrow™

## Specialised sound distribution system

Classroom or meeting room



### Lions Hearing Dogs' Funding Continues Into It's Second Year

Thanks to funds made available from a legacy from the late Beth Klugh Lions Hearing Dogs have, for their second year, generously continued to support hearing impaired children in primary schools.

Many schools throughout Australia, who otherwise could not afford it, have already received Phonic Ear Frontrow™ sound field systems to improve the learning environment in their classrooms.

The benefits of these systems are not just for the hearing impaired individuals for whom the systems are initially installed. Everyone in the classroom benefits from sound field systems, classmates and teachers alike. By providing the best possible learning environment, where instructions are clear and audible and voices no longer need to be raised, the classroom becomes a more positive, productive learning centre for all.

**Some Lions Hearing Dogs' recipients have shared their classroom experiences, the following are excerpts from their testimonials.**

"...teachers find the FM system extremely useful and beneficial..."

...It helps keep students engaged in their learning...

...gives our voices clarity.

We are very grateful to have such a useful piece of technology in our classroom...we would like to have another installed in the future."

*Faith Noonan, 2nd class teacher of The Entrance Primary*

"The sound field system enabled the student with the hearing loss to focus on the teacher's voice without amplification of the surrounding noise in the classroom and could be used in conjunction with the student's hearing aid and FM.

The addition of the sound field technology in the classroom also improved the acoustics in the classroom for all the students.

It helped to increase the students' attention and concentration when listening to the teacher and their ability to learn"

*Clare Moore, teacher - Careenne School for Specific Purposes*

"I have found this to be of tremendous assistance in the class..."

...four speakers allow the students to be immersed in sound...

...sound coming from four directions ensures that whenever the child is in the classroom they will have an equal coverage of both volume and tone.

Our special student finds it beneficial in that it is able to block out some of the background noises and allows her to concentrate more on the instructions being presented.

... It is easy to use...



The Lions Club presents a Tempo System to The Entrance Public School

### When used in general or special education classrooms

#### Frontrow™ Pro:

- fosters a successful learning environment
- increases student attentiveness, participation, comprehension and literacy scores
- significantly reduces behaviour referrals
- reduces teacher absenteeism due to vocal fatigue

#### Key Features

- Robust and easy to operate
- Lightweight infrared wireless pendant microphone offers superior comfort and sound quality
- Optional mic for team-teaching or student pass-around
- Integrates stereo sound seamlessly from other classroom audiovisual equipment

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**To view a power point presentation of Frontrow™ Pro visit [www. soundfield.com.au](http://www.soundfield.com.au). Click on Newsletters and Presentations on left side of home page and go to Sound Distribution Systems for the Classroom.**

...allows freedom of movement of both arms...

...a mute button allows for privacy...

...includes an easy to use overnight recharging system...

The system has the added advantage of taking the pressure off teachers' voices. Allowing them to be heard without straining their vocal chords and damaging their voice box.

Music, TV and/or a microphone can also be put through the system, producing a magnificent sound for the area in which it is installed.

I commend the Lions Club for providing this system, free to students and schools in need and thoroughly recommend."

*Rowland Martin- Principal - Table Top Public School.*



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Actual system has 4 speakers, infrared sensors, emitter and microphone options (lavalier shown)

# Technology Centre

By Andrew Stewart

## Sound Field Systems (SFS)

SFSs are ideal for children with Attention Deficit Disorders or who have hearing loss (or symptoms of a hearing loss in the case of CAPD – Central Auditory Processing Disorder) without hearing aids, due to fluctuating hearing loss, glue ear etc.

For children with hearing aids personal FMs are the best solution and provide wonderful results which can be further enhanced by being integrated with a SFS. When a SFS is used in conjunction with a personal FM (ie FM transmitter is plugged into the base receiver) the child's hearing is no longer limited to the teacher's voice. The FM user is more fully incorporated into the classroom activities by simple connection of the classroom technologies such as TV, CD player, laptop or electronic whiteboard into the base receiver. In this way the FM user will receive these sounds directly into his/her hearing aid. If the SFS includes the optional, large hand held microphone then this will enable the FM user to also hear the other students' responses at question / answer time and when giving presentations or a second teacher in a team teaching situation.

A lot of children tend not to wear the FMs from about the age of 10 or 11, or to only wear the FM some of the time. Where FMs are not used (for whatever reason) then SFS will provide significantly better clarity than the teacher's voice alone, as well as reducing vocal fatigue.

Conclusive research has found that the performance of over 90% of children without hearing loss have also improved when placed in a classroom where a SFS has been installed.

There is a lot of confusion about what a SFS is. It is not a PA system which focuses purely on volume and high quality music. A SFS is designed for voice reproduction with minimal reverberation, thereby dramatically increasing clarity

A SFS is designed specifically to provide a result where the teacher's voice is heard evenly throughout the room, reducing the reverberation, and therefore increasing speech intelligibility. In other words, it is about not just improving the volume, but making the speech clearer and easier to understand.

Sound Field systems consist of (usually) 4 speakers (sometimes more) around the room (correctly located and placed) and the teacher wears a lapel mic. There is also an optional handheld microphone for team teaching or for the children to use. Music systems and televisions can also be played through the SFS utilizing the surround sound amplification.

The following is from the draft Australian Standard AS 1428.5:

A specialised amplified sound system for a meeting room improves communication, by providing low level amplification, an even distribution of sound throughout the room, and reduces the effects of reverberation.

It enables every listener in the room to hear all speech components of the person speaking (or sound source) with minimal reverberation, no matter where the listener is located relative to the person speaking (or sound source).

A SFS shall consist of:

- (a) an audio amplifier
- (b) a lapel wireless microphone

system, or head worn microphone, for the primary user,

(c) one speaker per 10 to 20 square metres,

(d) no less than four speakers,

(e) no position in the room shall be more than 7 metres from a speaker.

(f) each speaker mounted between two and three metres above finished floor level.

A SFS should, and is highly recommended to, also have a handheld radio wireless microphone system. This is to enable children or another teacher to use the SFS e.g. asking questions, team teaching.

This is designed to overcome the limitations caused by meeting room acoustics, where reverberation is commonly the limiting factor for good speech intelligibility.

Research has shown that these systems benefit people with mild hearing loss, with and without hearing aids, as well as those with fluctuating and/or conductive hearing loss, and people with normal hearing.

A SFS is not a replacement for an Assistive Listening System (ALS). People with moderate or worse hearing loss will require ALS regardless of whether a SFS is installed.

For a number of years I have been installing Sound Field Systems (SFS) in classrooms across NSW. The results are fantastic, but are dependant upon correct installation.

*Andrew is hearing impaired and has two hearing impaired children. He is the Technical Manager for Printacall.*

## How does it work?

A typical Frontrow™ Pro system consists of an infrared emitter, a lapel wireless microphone worn by the teacher and 4 speakers located around the 4 walls of the room which actually make the "Field" integrated with specially designed sensors. Amplifying the teacher's voice raises the signal to noise ratio which improves speech intelligibility and reduces vocal strain. An extra hand held microphone can be provided for students to pass around, so they can be amplified too.



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