

# THE HORIZON AUDIOgram

Horizon Audio Services Ltd., is a Professional Systems Contracting company specializing in the design and installation of sound and video systems for Houses of Worship. Over 95% of our business each year is with churches.



## Fall 2004

### New General Manager for Horizon Audio

Horizon Audio wishes to announce the appointment of Mr. Ron Mills as general manager for Horizon Audio. Company owner Dave Wettlaufer explains: "For several months I had been feeling the need to gradually step back from day to day management of the company. The appointment of Ron to take over these responsibilities allows me to concentrate on various 'big picture' issues and initiatives in the company, and other personal endeavours. I have known Ron for many years as a dedicated Christian, one who lives out these values day by day." Ron comes to Horizon Audio after several years working in technical management in tier one automotive parts manufacturing. Ron will be happy to discuss your audio/video needs and desires with you.



The Horizon Audiogram is the official newsletter of Horizon Audio Services. For more information on the products and services that we provide...

» Visit us «

1069 Clarke Road  
London ON N5V 3B3

» Call us «

519.453.3368  
Toll Free: 1.800.698.8796  
Fax: 519.453.0407

» E-mail «

horizon@horizonaudio.on.ca

» Website «

Coming this fall!  
www.horizonaudio.on.ca

### Special points of interest:

- New Products
- Recent Installations
- CHJX Grace FM
- Additions to Horizon Audio Families
- Comic Corner

### BIG Change for Dave - Exciting Times!




Horizon Audio is pleased to announce the marriage of company owner Dave Wettlaufer to Joan Kemp on August 14<sup>th</sup>. The couple will continue attending Crossroads Alliance Church near Ingersoll, where they first met almost two years ago. Says Dave, "to borrow a line from an old Box Tops hit, I met her in church: is there any better place to find a mate?" The couple will reside in their recently purchased home northeast of Thamesford after renovations are completed. Dave explains; "Joan

and I felt it was best to sell our current homes and start a new one together, both for us and our four kids, although my mother secretly believes it's an excuse for me to continue with my favourite pastime; renovating!"

# Interesting New Products


The introduction of new products or the updating of old ones is a never ending process in our industry. The following are examples useful to our clients.

## BIAMP™ AudiaSOLO Digital Audio Platform



For Systems where no digital audio networking is required, AudiaSOLO is the new, streamlined solution. Its got all of Audia's processing power and original flexible I/O options (8x8, 4x12, & 12x4). Now engineered into a streamlined, single rack space unit with a new, low profile power supply. The intuitive software provides audio system design capabilities via PC computer, and allows easy selection, viewing, and calibration of numerous audio components: mixers, matrixes, equalizers, cross-overs, delays, remote controls, etc.


## Allen & Heath MixWizard3 16:2




MixWizard compact mixers have carved out a unique place in the pro audio pantheon of professional multipurpose consoles. Allen & Heath has supplied thousands of MixWizards for hundreds of different applications, all of which have four requirements in common - great sound, high quality, ease of use and lots of really useful features. Introducing the third generation of MixWizard, with even better sound quality, new preamp design, tailored EQ frequencies, an extra mono output on fader which can be switched to provide a sub-bass mix from channel aux 6, and several routing changes to make the engineer's life easier.

**Just a few of the new features include:** channel phantom power switches and signal indicators added; XLR lamp socket. New Syslink options; new side trims for style and portability; separate internal power supply module; balanced channel XLR normals through TRS for mic or line level XLR.

## AVIOM™ Personal Monitoring System



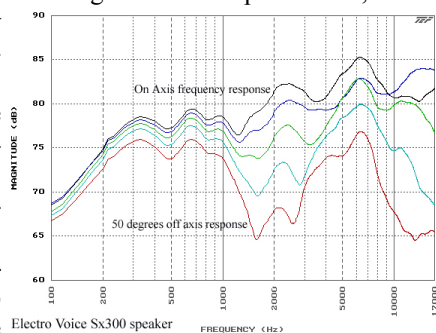
The AN-16/i Input Module can be used as the analog input module for a personal monitoring system. It converts sixteen line level analog audio channels into uncompressed, full bandwidth digital data transmitted via Aviom's proprietary A-Net protocol. **Features include:** sixteen balanced 1/4" TRS audio inputs; sixteen balanced thru connectors; A-Net Out and A-Net Expansion network connections (Cat-5); stereo Link switches for each channel pair; four-position gain switches (+22, +4, 0, -10dB); 1U rack enclosure; can be used as an input module for the A-16II Personal Monitor Mixing System.



The A-16II Personal Mixer gives each performer control over channel volume, grouping, pan, stereo spread, and master volume. The stereo output from the Personal Monitor Mixing System can be used to drive floor wedge monitors, earbud monitors, or headphones. **Features include:** sixteen channel select buttons with dual LEDs; dedicated recall, group, solo, and mute buttons; sixteen user preset memory locations; pan/spread control with LED readout; channel volume control with LED level readout; master volume, treble and bass controls; tabletop or mic stand mountable (using optional stand mounting bracket).

# Do You Hear What I Hear?

I have always maintained that the most critical aspect of a speaker designed for live sound is how evenly it disperses its sound. This is even more important than having a ruler smooth frequency response. A moderately un-even frequency response can be compensated for with a good quality equalizer, however, nothing can compensate for the un-evenness of a speaker's sound dispersion. Dispersion refers to the speaker's ability to spread its entire range of frequencies evenly over its rated dispersion angle. In other words, when you are sitting 25 degrees off axis of the speaker, I want you to be hearing the same frequency response that I am hearing on axis. This graph shows several un-equalized response measurements for one of our Electro Voice Sx300 rental units. The Sx300 is a well engineered,



mid priced, light weight speaker designed for portable applications. These results are quite reasonable for a speaker in its price class, which is about \$875.00 retail per speaker. The first graph is the on axis response, followed by curves for 20, 30, 40 and 50 degrees off axis. If this were a perfect world, all curves would overlay each other. However, you can see how much the response changes as you go further off axis. This is a function of the speaker design and construction, and no amount of equalization will change this. While the Sx300 works well for temporary portable situations, for permanent installations we highly recommend investing more money in your speakers. You will need to be in at least the \$2,000.00 range per speaker before you will see good consistent dispersion characteristics.

# The Salvation Army "Mosaic"

Horizon Audio provided audio services for a unique event in the Salvation Army world recently. The *Music Mosaic* saw approximately 75 delegates from about 30 countries around the world gather at their Jackson's Point conference centre for five days of fellowship, worship, and discussion on the use of music and performance arts in worship services. The highlight of the event was the arrival of General John Larsson to address the gathering. General Larsson is the international leader of the Salvation Army, based in London England. Horizon Audio's Dave Wettlauffer attended the event to operate the audio systems and produce CD recordings of the proceedings.



**International Music and other Creative Ministries Forum**

## Recent Installations Include

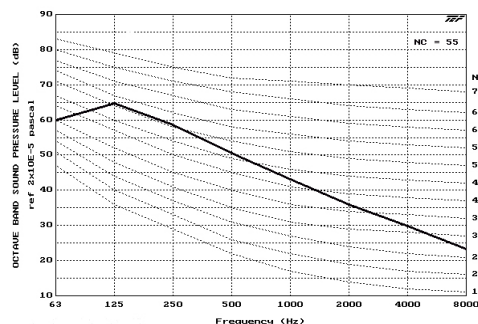
- *Living Water Reformed Church, Brantford*
- *Heritage Park Alliance Church, Windsor (Audio & Video)*
- *Richard's Memorial United Church, London*
- *Covenant Christian Church, Penetanguishene*
- *People's Church, Wyoming (Audio & Video)*
- *New Hope Community Church, Lambeth*
- *Theatre Tillsonburg*
- *Banwell Community Church, Windsor (Audio & Video)*

*We are currently working on the audio and video systems for The Salvation Army Hillcrest Community Church in London.*

## Noise Criteria

In our last newsletter I discussed the issue of ambient noise in church sanctuaries and meeting rooms. Such noise can come from a variety of sources, however, most often it comes from heating/air conditioning systems and air handling fans. We use our TEF 20 analyzer to measure background noise and produce Noise Criteria (NC) curves to objectively characterize noisy rooms. Experts have determined that a worship space should have a rating of NC30 to 35. To achieve good speech intelligibility, the volume of your pastor should be at least 25 dB above the average noise floor.

While browsing recently through the hard disc of our analyzer computer I found an NC graph recorded at one of our client churches that has a noise problem.



Note the rating of NC55 with their ventilation system operating. This means the sound system would have the difficult task of amplifying the pastors' voice up to at least 80 dB, which would be rather annoying to the congregation, and in some circumstances almost impossible for the sound system to do, depending on how loud the pastor spoke and how far away the pulpit mic was from his mouth. If your church is having an intelligibility problem, it may not necessarily be the fault of the sound system. We will be happy to investigate all aspects of your sound system and your sanctuary and provide you with objective, measurable, economical solutions.

## CHJX Grace FM

London listeners can enjoy full time 24 hour Christian radio programming, now that **Grace FM** is officially on the air. Broadcasting on 105.9 in the FM band, Grace FM features a variety of programming that will be of interest to all ages. Because it is a low power station, only listeners in the immediate London area will be able to receive the transmission. Horizon Audio is pleased to be one of the original corporate sponsors of Grace FM.

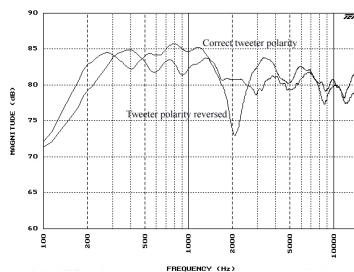
## Polarity & Phase

One of my favourite questions when discussing audio is 'what is the difference between phase and polarity?' I usually get a few bewildered looks! In everyday life

we have to occasionally concern ourselves with polarity. For example, we have to be sure we install batteries in our electronic devices with the correct polarity. When it comes to audio, however, for some reason the word **phase** is more popular, though often incorrectly used. Phase is frequency dependent, while polarity is not. I came across a situation recently that illustrates what can happen in a speaker when polarity is not correct. While investigating the performance of a speaker unit we installed several years ago in a church we discovered that there was a substantial hole in the frequency response in the 1500 Hz to 3000 Hz region. This was quite audible and a serious problem, especially considering the speaker was a well known, high quality brand. The speaker ended up back in our shop for investigation of this problem. I checked everything I could think of: the tweeter voice coil was not damaged from excess heat; there was sufficient ferrofluid to promote cooling; every component in the

crossover measured out properly. I couldn't find anything wrong. Finally, after consultation with the manufacturer I decided to reassemble the speaker and

measure it again. It looked exactly the same as before. Then I decided to measure it once more, but this time I reversed the tweeters' polarity by reversing its feed wires. You will see from the graph the difference between the two measurements. Note how the big hole disappears and the frequency response generally smoothes out when we have the tweeter wired with the correct polarity.



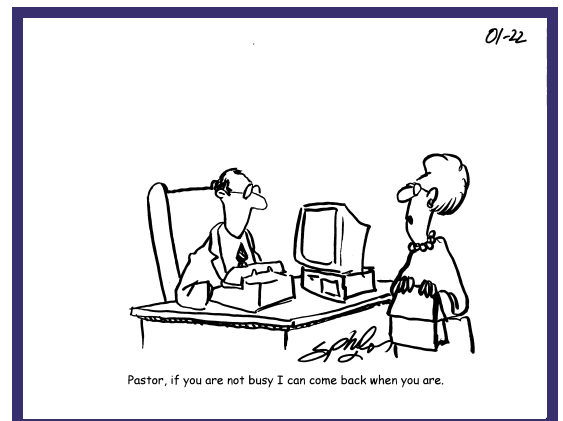
tools we use to ensure you always receive professional service. You may think this doesn't concern you, however, I point out that a similar thing will happen between separate speaker cabinets (your floor monitors) if you are using a cable that is mis-wired. If you decide to venture inside one of your speakers or try repairing your cables, be careful to keep the polarity correct. These response graphs were measured with our sophisticated Goldline TEF 20 digital measurement system, one of several

## Common Sense & Nonsense

## COMIC CORNER

"It's unwise to pay too much, but it's worse to pay too little. When you pay too much, you lose a little money - that is all. When you pay too little, you sometimes lose everything, because the thing you bought was incapable of doing the thing it was bought to do. The common law of business balance prohibits paying a little and getting a lot - it can't be done. If you deal with the lowest bidder, it is well to add something for the risk you run, and if you do that you will have enough to pay for something better."

John Ruskin  
(1819-1900)



Pastor, if you are not busy I can come back when you are.