

NEWS

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Aural Exciter Proven to Enhance Speech Intelligibility

For years we've been extolling the benefits of the tried and true Aural Exciter, and now the proof is in the pudding. Or, in a technical paper presented at the AES show in Los Angeles this past September. Josef Chalupper, a leading German audiologist, has spent years studying the effect of words when processed through the Aural Exciter, and has come away with some amazing conclusions. Chalupper reports the following:



- An increase in intelligibility of 11% for single words in noise
- An increase in intelligibility of 18% for sentences in noise
- An increase in intelligibility of 12% in reverberant fields

Chalupper concluded that increases in intelligibility were the result of both the linear and the nonlinear distortions introduced by the Aural Exciter.

"These percentages were absolute on a scale of 100%," says Marvin Caesar, President of Aphex. "Measured as a percentage increase above the 'non-excited' audio the numbers would be as high as 40%. There has always been a certain amount of controversy surrounding the Aural Exciter. This paper should quell the doubts of those who still have trouble believing their own ears, or the ears of their customers. Our licensees, including Yamaha, Gentner Engineering, Bogen, Mackenzie Labs and Emu, have recognized the benefits of the Aural Exciter; this paper will further help their efforts."

Aural Excitement for the Many Uses of the Aural Exciter



In the beginning there was the word- Aphex. That word was the acronym for Aural Perception Heterodyne Exciter. That name became the product known as the Aphex Aural Exciter. It was so revolutionary that it was not even sold, but rather rented for \$30 per recorded minute. It has been twenty five years since its introduction and during that time it has been used professionally to enhance the audio for millions of recordings; radio, Internet and TV broadcasts; and live performances. It has also been licensed by other manufacturers for use in applications as diverse as musical instruments, telephone message-on-hold systems, audio mixers and amplifiers, and assistive listening systems. All these users and uses have generated a mountain of anecdotal evidence on its effectiveness, but the Aural Exciter had never been measured by independent experts—until now.

The accompanying article is just the first of studies that prove that the Aural Exciter increases intelligibility of voice in a noisy environment.

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1788's and Sir Elton John a Hit at Madison Square Garden

When it came down to Elton John's much anticipated "One Night Only: The Greatest Hits Live" concert at Madison Square Garden, Effanel Music, the concert sound recording company hired to make sure the sound quality was perfect, took no chances and insisted on Aphex 1788 remote controlled mic preamps for maximum control.

Connected directly to a high precision 24/96 kHz hard disk recording system without equalization or compression, and a digital mixer online to provide off-disk monitoring, the 1788's were an integral part of the sound requirements set by project supervisor and Grammy winning record producer Phil Ramone.

Randy Ezratty, Effanel Music President was up to the task. "Phil Ramone asked us to record the concert



to several types of recording medium," he said. "Inside the TNN truck we rolled Sony PCM-3348 DASH format recorders, plus Otari's RADAR II and Tascam DA-88 machines in time-code sync. Multiple machines were needed to provide sufficient track capacity, as well as a close to three hour record capacity. In addition, backstage at The Garden we had organized a separate recording suite that held a number of Euphonix R-1 24/96 hard disk recorders."

Close to the stage area, an array of 1788's provided duplicate, isolated outputs to the TNN truck and the recording suite. "The model 1788 was perfect for this application," Randy continues. "With the cable runs of close to 800 feet from the stage to truck and R-1 room, we didn't want to compromise the audio quality.

Instead, we sent one line level analog output to the TNT truck and hence to the onboard Neve Capricorn console manned by session engineer Frank Filipetti, and the other analog output to the R-1 recording suite.

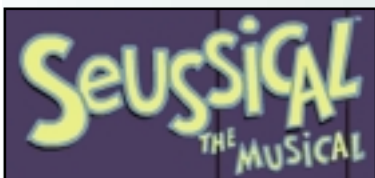
The Model 1788's were used for on-stage microphones plus audience mics; a total of 80 separate line-level outputs were routed to the recording areas. "Effanel has been using the 1788's on a number of critical events," Randy states, "and we love them. We experienced zero overload on the Elton John recordings during both nights—and we had very limited rehearsal and set-up time for the concerts. The units behaved flawlessly! The 1788 is extremely versatile, and meets our stringent requirements for audio quality, ease of set-up, and problem free performance."

The live CD recorded at Madison Square Garden was released in the US in November, with US and UK television concerts to follow.

Oh, the Places You'll Go with the 1788 and Seussical: The Musical

Seussical: The Musical, a current Broadway hit based on the works of Dr. Seuss, is using nine model 1788 remote controlled microphone preamplifiers. The systems, comprising eight online units plus a backup, will be used to connect on stage and orchestral microphones to an all digital mixing console.

Leading sound designer Jonathan Deans specified the units. "We have used the Aphex Model 107 two-channel preamplifier on previous productions," Jonathan explains, "but needed a more compact solution for Seussical: The Musical. Also, we have a long cable run from the stage and



orchestra pit to the mixing location—it's approximately 300 feet—and were looking for something more elegant. We positioned the 1788 rack under the stage, close to the pit and wireless receivers, and then used a simple serial cable

hookup to the remote controlled unit located next to the mixer." Line level signals connect the 1788's to the theater's mixing console.

"The ability to control all eight preamp units from a single remote control makes life a lot less crowded at the mix location," states Jonathan. "The remote controller unit is easy to use—I like its clear display and intelligent interface. You can set it and forget it. In addition, the 1788's MicLim circuits, basically a fast limiter ahead of the mic preamp, means that we run signals hotter at the mixer without having to worry about sudden transients and system overload."

"Several theater operators and producers, as well as creative staff, have commented that they can hear enhanced clarity and definition," Jonathan continues. "One producer even went as far as saying he had never heard anything like it in a theater!"



On Tour With Pearl Jam and the 1788

The North American leg of the Pearl Jam World Tour began August 3 with a major change to the band's recording and PA rig. An array of Aphex Model 1788 remote-controllable pre-amps replaced the traditional technique of connecting on-stage microphones into a transformer-isolated splitter, and routing the low-level signals down long cable runs to pre-amps contained within front-of-house and monitor consoles. "The 1788s are installed up on the stage," says Aphex president Marvin Caesar, "thereby eliminating the splitter and long mic-level cable runs. And, because the microphones are now driving a short cable and only one pre-amp, all the sonic degradations caused by the traditional mic splitters and cable snakes are eliminated."

"Pearl Jam as a band and as an organization are fanatical about audio quality," comments Brett Eliason, the band's front-of-house mixing engineer. "For example, they do not use any wireless microphones - the band is equally fanatical about capturing the energy of live performances. When the opportunity arose to experiment with a method that fulfilled both goals, they jumped on it."

"Brett already had some experience with the Model 1788," Caesar recalls, "and so he specified them with confidence. But after using them for several concerts, he is thrilled with the quality increase of both the recording and PA systems."

"Compared to recordings made in Europe using our traditional [mic-splitter] system," Eliason says, "the tracks are fuller, punchier and warmer. The differences are not subtle; everyone who has listened to the new tracks has been very impressed." Eliason also reports dramatic differences in the band's live sound following the use of the 1788. "There is more real low-end [energy] and smoother high-end," he continues. "It has tightened up the overall sound, eliminating the mid-range 'honk' associated with the long mic-level cable runs to the house PA system."

Another Model 1788 feature that has proven useful is MicLim: a limiter located on the output of the microphone before the pre-amplifier. "One of the band's guitarists plays a [Fender] Stratocaster fitted with a Fishman acoustic pickup," Eliason explains. "He usually plays the instrument very softly and the pre-amp is set up with lots of gain. Occasionally he will decide to strum much harder - if it were not for the MicLim, the guitar [sound] would be totally distorted."

Once the Model 1788 microphone pre-amps were set up, "they worked flawlessly," Eliason continues. "They 'wake up' exactly how they were left at the last concert, and I can easily load a preset if needed. There are no clocking problems on the digital outputs. The analog outputs to the house and monitor positions are much cleaner than what we had before. We are very happy with the change."



Pearl Jam front-of-house Mix Engineer Brett Eliason and Monitor Mix Engineer Karrie Keyes, pose with 1788's

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Other studies have been conducted to show that the Aural Exciter increases intelligibility in noise for hearing impaired people. We are now working on technology that will bring the Aural Exciter to hearing aids.

A company that records and stores voice messages on computers for telephone playback experimented with the Aural Exciter Model 250. I called the system on my own Nokia cell phone and was amazed at how much the audio literally jumped when the chief engineer switched the Aural Exciter into the circuit.

The Aural Exciter is still the world standard for professional sound enhancement. Bringing this marvelous, evolving technology to other audio applications is an important challenge for this company. We look forward to meeting this challenge.

1100 WINS PRESTIGIOUS SSAIR AWARD

The Aphex Model 1100 Precision Microphone Pre-Amplifier was honored with a prestigious Studio Sound Audio Industry Recognition Award in the category of Outboard Pre-Amps. Studio Sound is a leading international trade magazine for the professional audio industry.

"We are highly honored that the readers of Studio Sound have bestowed this Audio Industry Recognition Award on the Model 1100," said Aphex President Marvin Caesar.

In their third year, the Awards are selected from votes cast by Studio Sound readers via fax or through the Studio Sound website. The objective was to "identify equipment that genuinely warrants recognition for being special in some way," said a Studio Sound spokesperson.



Wayne's World

Dear Wayne,

My mixer is a DAW, my mics are some of the finest. I record to a digital 8 track 20 bit 48kHz system and plan to move up to a 96/24 system. A professional engineer friend said "the 1100 would have my vocals jump out in the mix and have far greater detail." First, where do I put the 1100, into my console or my recorder? Should I use the converters in the 1100 or in my console or recorder? On an upcoming live show I would like to use my 1100 analog outputs for my sound system and the digital outputs simultaneously to my 8-track. I read about Pearl Jam doing that on tour recently with a bunch of your 1788 remote mic-pres for their live CD. I would like to do that same sort of thing, is it possible?

Mike P.
Walla Walla, Wa.

Hello Mike,

You are always best served by recording directly with minimal equipment in between. Use your mixer and effects afterward. Except if you feel like you need compression to keep your dynamics under control. Of course, the Mic Lim™ circuit in the 1100 extends your headroom 16 dB. I doubt you will need much more help in dynamic control. With Mic Lim engaged you are also fully optimizing your signal for the converters in the 1100 without worrying about digital overshoots. The converters in the 1100 are among some of the best, with special things like drift stabilized conversion to keep your signal rock solid. You can run both the digital and analog outputs simultaneously. I'll be looking for you to be on the charts soon.

Cheers,

Wayne La Farr

The Reviews Are In... And the Winner is the 1100 Mic Pre

The Aphex Model 1100 Precision Microphone Pre-Amplifier has been one of the most critically acclaimed products in the history of Aphex. All over the world reviews have been pouring in, each one better than the last. We were so impressed we found ourselves compelled to put the best of the best in a new brochure. For copies of the brochure call Aphex. In the meantime, here's a sampling:



"The 1100 is the sweetest, cleanest, warmest, most flattering preamp I have ever used." *Jon Barry - Radio World*

"Sounds awesome...open and airy...killer combination of Class A cleanliness and tube punch." *Rich Tozzoli - EQ*

Awesome sound that was natural, dynamic and absolutely free of noise..." *George Petersen - Mix*

"...tasteful...COOL" - *Hiroki Mijahara - Sound and Recording (Japan)*

"The absolute weapon...highly musical with a very good price point." *Phillippe David - Keyboards (France)*

"The limiter was put through an unusual test in dynamics. This limiter worked like a charm and Aphex should be commended on this feature in particular." *Mark Cross - AudioMedia (U.K.)*

Aphex on the Road Upcoming Show Dates

NAMM	Anaheim	January 18 - 21
NSCA	Orlando	March 8 - 10
NAB	Las Vegas	April 23 - 26
AES	New York	September 21 - 24

PBS Using Aphex 2020 Series Processors

PBS, Public Broadcasting Service, a private, non-profit media enterprise owned and operated by 348 public television stations, recently ordered an array of Model 2020 processors for use on four satellite uplinks. The eight 2020s are being used by PBS to condition TV broadcast audio signals for national satellite-delivery distribution uplinks that offer 24-hour/7-day service to member stations, plus cable-based outlets such as DirecTV and Prime Star, PBS National Satellite Service, PBS Kids Channel, PBS-You and PBS National Satellite Service, time-delayed for West Coast stations.

According to PBS technical staff, the Model 2020s were selected because of their versatility and ability to provide just the appropriate amount of signal processing. Competitive units, they report, only offer a limited number of control options. Since PBS' philosophy – unlike major commercial TV networks – is to utilize a very light amount of overall gain leveling, plus limiting. Prior to uplinking its high-caliber television programming via satellite, the engineering department prefers to customize the amount of dynamics control according to nature of the signals being broadcast.