

Acentech Completes U.S. Air Force Contract

*Firm Develops High Output Subminiature Earphone Speaker
for Aircraft Carrier Flight Deck Crews*

CAMBRIDGE, Mass. – June 17, 2009 – Acentech Inc., a nationally recognized multi-disciplinary acoustics, audiovisual systems design, and vibration consulting firm, announced today that it has completed a two-year, \$750,000 contract with the United States Air Force to develop a high output loudspeaker for use in an active noise reduction (ANR) earplug intended for very noisy environments, such as aircraft carrier flight decks. Acentech's RH Lyon Division, one of the most experienced groups of product noise and sound quality specialists in the United States, was awarded the project through the Government's Small Business Innovation Research (SBIR) program under the Joint Strike Fighter (JSF) program. The JSF program is developing the next-generation F-35 fighter aircraft for the Navy, Air Force, Marines and allied forces.

The noise levels on Air Force flightlines and Navy aircraft carrier decks can approach 150 dBA, environments where personnel must work, communicate, and avoid danger. The sound attenuation required to avoid hearing loss in such environments cannot be achieved using conventional hearing protection devices. While commercially sold ANR earmuffs offer an additional technology for reducing the noise, they are not adequate to lessen the severity of these very high sound levels. Achieving high levels of noise attenuation requires the use of a deep insert active noise reduction earplug together with an external earmuff. The driver (loudspeaker) for the active system therefore has to fit within the ear canal, and be able to produce sound pressure levels at the eardrum high enough to effectively cancel the noise at that location.

Since commercially available hearing aid transducers could not meet these requirements, Acentech's RH Lyon Division was selected to develop system models for the ANR earplug. Mathematical models for five different novel designs were first developed and analyzed. Two of the most promising designs were then chosen for prototyping and testing before a final version was selected for delivery to the Air Force, who funded the work and jointly sponsored the SBIR with the Navy. The prototype "push-pull" balanced armature design obtained typical sound pressure levels of between 125 and 130 dB for single frequency drive levels of approximately 1½ volts. Acentech has applied for a patent on the push-pull balanced armature design concept.

"The development of a high output subminiature earphone driver for ANR applications has far-reaching benefits for military personnel and others working in high sound level environments," said David Bowen, senior consultant at Acentech. "We are pleased that our extensive research has produced a viable ANR earplug application that will help preserve the hearing of U.S. military personnel."

About Acentech

Acentech Inc. is a multi-disciplinary acoustics, audiovisual systems design, and vibration consulting firm providing a wide range of services to a diverse group of clients. With offices in Cambridge, Massachusetts; Trevose, Pennsylvania; and Westlake Village, California, the company's professional staff of more than 50 consultants has broad and deep expertise in all areas of acoustics and audiovisual systems design consulting. Having celebrated its 60th anniversary in 2008, Acentech is the oldest and largest organization of its type: an unequalled resource to engineers, architects, and designers worldwide. For more information, please visit www.acentech.com.

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