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UNDERWATER NOISE FROM PILE DRIVING IN MORETON BAY, QLD

Christine Erbe, JASCO Applied Sciences, Brisbane Technology Park,
PO Box 4037, Eight Mile Plains, Qld 4113, Australia. Email: Christine.Erbe@jasco.com

Vol. 37, No. 3 pp 87 - 92? (2009)
ABSTRACT: This article presents measurements of underwater pile driving noise recorded during the construction of the duplicate Houghton Highway bridge in western Moreton Bay, Queensland. Moreton Bay is a protected marine park, a World Heritage Site and a Ramsar Wetland, providing habitat for turtles, dugong, sharks, dolphins and whales, some species of which are listed as vulnerable to endangered. Pile driving noise was measured for small and large piles at various locations and ranges. Using an acoustic propagation model, a sound map was computed for Bramble Bay. Sound levels were compared to currently available information on impact thresholds. Ranges greater than those corresponding to impact thresholds were scanned for the absence of dolphins before and during pile driving in line with a monitoring and response plan.

DUCT DIRECTIVITY INDEX APPLICATIONS

Athol Day (1), Colin Hansen (2), Brian Bennett (1)
(1) Day Design Pty Ltd, Peakhurst, NSW
(2) School of Mechanical Engineering, University of Adelaide, SA

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ABSTRACT: This paper concerns the application of a recently developed chart for determining the directional properties of sound emitted from the open end of a ventilation duct. When designing a duct silencer to reduce noise from a large vertical discharge duct, it is useful to note that the first 5 to 10 dBA noise reduction may result from directivity losses at 90 degrees and can be accurately predicted. In 1971 the first author conducted sound directivity tests with 300 and 600 mm diameter ducts and the results were made into a rough chart of Duct Directivity Losses that ultimately found its way into the NSW EPA Environmental Noise Control Manual (5 June 1985, page 207.1). It is wrong in principle and rather inaccurate, but some users are unaware of its failings.

Over the last 13 years further duct directivity testing has been conducted and a new duct directivity chart drawn. It is based on sound directivity testing on ducts of 305, 400, 610, 915 and 1220 mm diameter. The directivity data has been related to the sound power level of noise emitted from the duct and the spherical dispersion of sound energy. The new Duct Directivity Chart allows the directivity gain or loss to be obtained for any diameter from 100 mm to 10 metres, at angles from zero to135 degrees without the need for complex calculations.

BINAURAL MEASUREMENT AND SIMULATION OF THE ROOM ACOUSTICAL RESPONSE FROM A PERSON?S MOUTH TO THEIR EARS

Densil Cabrera (1), Hayato Sato (2), William L. Martens (1), Doheon Lee (1)
1. Faculty of Architecture, Design and Planning, The University of Sydney, NSW 2006, Australia
2. Environmental Acoustics Laboratory, Faculty of Engineering, Kobe University, Japan

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ABSTRACT:This paper outlines methods to simulate the sound of one's own voice as it is affected by room acoustics, using binaural technology. An oral-binaural room impulse response (OBRIR) measurement can be made of a real room environment from the mouth to the ears of the same head. For simulation, a talker?s voice is convolved in real-time with the OBRIR, so that they can hear the sound of their own voice in the simulated room environment. We show by example how OBRIR measurements can be made using human subjects (by measuring the transfer function of speech) or by a head and torso simulator (HATS), and we illustrate the differences between individualised measurements and HATS measurements. We extend the HATS measurement method through binaural room scanning, which allows the simulation system to produce natural changes in the OBRIR as subjects rotate their heads while listening to their own voice.

CONTROL METHODS FOR QUIET OPERATION OF PERMANENT MAGNET SYNCHRONOUS MOTORS

Greg Heins and Friso De Boer
School of Engineering and Information Technology, Charles Darwin University, NT, 0909
greg.heins@cdu.edu.au

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