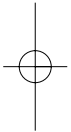
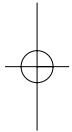
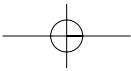




volume 7 number 2

in this issue...

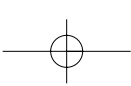
Power for the people	3
Long-term cognitive effects of music as loud noise	5
Bushwhacking the whales	13
Review of field studies of aircraft noise-induced sleep disturbance	15
2 + 2 = 5	31
Field Measurements in the Development of Methods for the Assessment of Low Frequency Noise	33



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Power for the people

How do we reconcile that the mighty wind turbine and the humble leaf blower have similar sound power levels – typically in the 100 to 110dB range of A-weighted sound power?

Their spectra are also similar. A wind turbine (for example the GE1.5 – sound power 104dBA) has a broad, third octave spectrum, peaking in the region of 250Hz to 5000Hz. A leaf blower (for example the Echo 4600 – sound power 106dBA) peaks in the 400Hz to 4000Hz range and, additionally, has secondary peaks from fan tones in the 100Hz, 200Hz and 315Hz bands.

At typical wind speeds, the wind turbine, intercepts over 3MW of wind power and produces more than 1MW of electrical power. Considering sound power produced per kilowatt, the turbine is a very quiet, acoustically inefficient, machine. On the other hand, the leaf blower, driven by a small two-stroke engine, produces about 2.5kW of power, and makes a lot of noise for its size.

Why might the wind turbine produce noise complaints over a wide area, sometimes extending up to a kilometre or more, whilst the leaf blower is a local problem? The wind turbine noise source is high in the air and can radiate freely, whilst the leaf blower often radiates through an urban environment, with all its reflecting and absorbing surfaces. Let's speculate on how a leaf blower would compare if it was 80m above ground! At 500m, when air attenuation is included, the wind turbine gives 34dBA and the leaf blower is 38dBA. At 1000m the levels are 26dBA and 30dBA.

Generally, except in very quiet location, one would expect these levels to disappear in background noise, but the averaged A-weighted level loses all information on fluctuations, which are a major contributor to perception and sound quality. Propagation effects over long distances are another confounding factor, but noise from distant wind turbines is a problem only if amplitude modulation causes fluctuations in level, and then the steady sound of a leaf blower, even at a higher average level, may be less disturbing than the wind turbine.

It is not only size that matters, but also quality.

KOREAN SMART HIGHWAY

Korea is to start its 'Smart Highway' research project at the beginning of 2008, following a decision by the ministerial conference on science and technology. The aim is to enable traffic to move freely on highways at speeds of up to 160 kph while maintaining a low noise environment.

EDINBURGH NIGHT FLIGHTS

Residents living near Edinburgh Airport are suffering less noise disturbance from planes at night, new figures have revealed. People living in Cramond and Lennymuir have been complaining about noise levels from flights, and have said more needs to be done to help those living under flight paths. But statistics show that the number of flights to the airport between midnight and 5am has fallen over the past decade. There was an average of 5.37 per night in 1998, compared with only 3.25 in 2007.

noise
notes

NZ COMPLAINTS RISE

The number of noise complaints made in Tauranga this year has rocketed compared to 2006 – with warm, dry weather before June being blamed as the main reason. 2111 complaints were made in the first five months of 2007, an increase of 801 on the corresponding period in 2006. The biggest rise came in March when an extra 292 complaints were registered compared to March 2006, though February was not far behind. Nearly 400 excessive noise notices have been issued in Tauranga this year while 31 stereos have been seized, a fall of three on the same period as last year. A total of 69 stereos were taken off noisy residents in 2006. Chris Horan, monitoring team leader at Tauranga City Council, said there had been a high number of complaints this year and the weather was a contributing factor. “It has definitely been much busier than last year and is weather-dependent. If it rains people have the windows closed. If it is warm people are outside and they often play music,” Mr Horan said.

DES MOINES TENANTS

City officials want to crack down on Des Moines landlords whose tenants ruin their neighbours’ peace and quiet. City Council members will discuss whether troublesome rental properties should be subject to fines under an ordinance that deals with public nuisances. “Certain landlords don’t get it that as a result of their inability or unwillingness to manage their properties themselves, the city and neighbours have to deal with this,” said Larry James Jr., a landlord who lives in the Drake neighbourhood. The ordinance allows police to designate properties where drug arrests, prostitution, illegal gambling or other crimes have occurred. Officers notify the landlord or property owner and set a deadline to take care of the problem. Police want to target weapons, fighting, noise, public urination, litter and domestic disputes. Fines would be increased from \$500 to \$750; \$1,000 for repeat offenses. James Jr. said he has called police to report suspected prostitution, drug activity or “someone that is just cranking their stereo at all hours of the night. We are sick of dealing with these properties,” he said. “We don’t want an irresponsible property owner to bring down a block, and we’re not standing for it anymore.”

UNINTENDED CONSEQUENCES, AGAIN

The smoking ban in Wales is being observed – but it is causing a noise nuisance outside pubs where smokers congregate. Now Gwynedd Council and North Wales Police have joined forces to remind licensees that they have a responsibility under the Licensing Act to ensure that incidents of public nuisance and disorder do not occur outside their premises. Since the introduction of the smoking ban in enclosed public areas, there has been an increase in the number of public nuisance and disorder incidents outside licensed premises.

VIBRATION - DRIVEN GENERATOR

A UK-developed device which turns machine vibrations into energy to power devices such as sensors, processors and transmitters without needing batteries or wired power supplies, has entered production following field trials. One of the main uses for the vibration-harnessing microgenerator is expected to be transmitting condition monitoring measurements from motor-driven equipment. The technology has been developed by Southampton-based Perpetuum which was set up as a spin-off from the University of Southampton in 2004. Following the recent injection of £2.2m of funding, the microgenerators are being put into production.