

Bring back the numbers

For many years the trend in noise criteria has been to simplification – the broad-brush, based on A-weighted average levels. The deficiencies of this dose-centered approach have gradually led to criteria for environmental noise to be time-divided, first into day and night intervals and then into day, evening and night.

Aircraft noise continues to be assessed in the UK on a 16-hour day, on the assumption that planes do not fly at night, but tell that to those living round major airports. Aircraft use is due to expand. Predictions in the USA are pointing to a three times increase on present passengers by 2025, which could be achieved with a rather modest year on year increase of around 6%, which merely mirrors past changes.

The supporters of day long Leq measurements will say that the Leq implicitly includes both the average levels and number of movements, but over forty years ago the Noise and Number Index (NNI) for aircraft noise

$$NNI = (\text{Average Peak PNdB}) + 15(\log_{10} N) - 80$$

Specifically included the number, N, of aircraft movements as $15(\log_{10} N)$, giving quite a heavy weighting to the number of flyovers. However, the use of Perceived Noise Level (PNdB) in the NNI calculation added complexity, which was difficult for some people to handle, whilst the growing acceptance of Leq, and availability on sound level meters, led to abandonment of NNI in favour of L_{Aeq} . The complexity problem no longer holds, as microprocessor sound level meters are now capable of carrying out impressive in-box calculations, producing results, plots and downloadable data as soon as the measurement period ends.

What airport neighbours want to know when a development is proposed, is both the levels of the noise and the number of times they will be disturbed. They are interested in effects, such as disturbed sleep, speech interference, annoyance etc. We do not hear an Leq. We hear what happens instant by instant and are affected by what is happening at the instant, conditioned by what has gone before. It is not helpful for airport developers to speak in terms of noise contours, which are themselves an average and do not represent what the noise will be like next Monday evening. Just as a stopped clock is correct twice a day, predicted contours may occasionally be correct, but they are not presented along with their uncertainties.

A first step to showing airport neighbours what to expect is to tell them how frequency they will be disturbed.

So, bring back those numbers.

noise
notes

SHANGHAI

The city should ban early morning traffic on elevated roads near densely populated residential areas to prevent noise pollution and allow residents to get a good night's sleep, a representative to the Shanghai People's Congress has proposed, Shanghai Daily reported. "Noise pollution has become the biggest nuisance for local people," said Zhou Qingjiang, an SPC delegate and a Minhang District Environmental official.

RUSSIAN REGULATION

In December 2006, a bill to toughen existing laws on nocturnal noisemaking sailed through the Moscow City Duma in its first reading. The bill is expected to be passed into law early this year. The source of torment, the bill says, may be your neighbour drilling late at night, his dog barking at the wrong hours or teenagers partying to music at the highest decibel. And it can be those ubiquitous car alarms going off at nighttime with little or no provocation. The endless beeping and blaring of car alarms, which tops the list of night nuisances, is what spurred the city legislature into action. As car ownership continues its rapid growth, so does the number of car alarms - and coupled with the unrelenting clanking sounds associated with Moscow's ongoing construction boom it looks like there's no end in sight for the city-dweller's nightmare. Figures from the City Prosecutor's Office say more than 3,000 complaints were received about nighttime noise disturbances over the past four years. Oleg Bocharov, the Moscow Duma deputy speaker who initiated the amendment to the noise ordinance, said citizens had the right to a quiet night's sleep. Night is defined in the existing code as the time between 10 p.m. and 6 a.m. The sponsors of the bill had wanted nighttime to begin earlier, from 8 p.m. but, as Marina Khaimova, press secretary to the Moscow City Duma, said, "regulating the nighttime period is in the jurisdiction of the federal government and cannot be modified by local authorities." Bocharov said the reason for amending the old noise code was that Muscovites are not wealthier - and this, he noted, has encouraged disrespect for the old law, which stipulated only a flat fine of 50 rubles (about \$2). The new bill stipulates fines ranging from 100 to 50,000 rubles. For an individual offender, the fine may be from 100 to 1,000 rubles. An official who breaches nocturnal tranquillity is liable to pay from 1,000 to 2,500 rubles. For legal entities such as construction firms, the fines can range from 1,000 to 50,000 rubles. There is one caveat, however. Construction companies - a source of great irritation for Muscovites - are protected by federal laws, specifically Town Planning Rule No.58. This means they can ruin your night with impunity; you cannot legally bring them to justice relying on local legislation. "We have to live with noise from construction workers, said Khaimova. "We have no way of asking them to halt their work because they're regulated by federal laws."