



Environment Group Research Report

The feasibility of introducing in Scotland an absolute objectively measured permitted noise level which if breached during any time of the day would cause an offence liable to conviction

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The feasibility of introducing in Scotland an absolute objectively measured permitted noise level which if breached during any time of the day would cause an offence liable to conviction

Final Report

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EXECUTIVE SUMMARY

1. Chapter 1 presents an introduction to this report and explains its structure. It sets out the research objectives and also explains some basic acoustic principles to assist in the understanding of the remainder of the report.
2. Chapter 2 provides information on the background to the consideration of objectively measured levels as an intervention threshold with the possible use of Fixed Penalty Notices. It explains why the Noise Act 1996 is not in use in Scotland. The questions raised in the Scottish Executive Consultation Document *Putting our Communities First: A Strategy for tackling Anti-Social Behaviour*, and the answers contained within the October 2003 report on the Consultation Responses in relation to neighbour noise are considered.
3. Chapter 3 details the present measures in place for controlling noise in Scotland.
4. Chapter 4 presents a review of legislation in the UK and elsewhere where the breach of absolute objectively measured levels would cause an offence. It refers to Australia, New Zealand, some states in America and Canada and other European countries. Some parallels are drawn with respect to differing approaches to controlling neighbour noise.
5. Chapter 5 reviews the technical and non technical issues to be addressed in assessing the feasibility of the proposals for dealing with noise related neighbour noise. The need for a clear and concise strategy for dealing with domestic noise complaints is identified in this chapter. It is suggested that Scottish local authorities, Police constabularies and housing authorities establish liaison groups to define such a strategy. The need for objectively measured levels to cover the full twenty four hour period is established in this chapter, as are day, evening and night objectively measured intervention levels of 41dB(A), 37dB(A) and 31dB(A) respectively.
6. Chapter 6 presents a review of the out of hours noise service started by Glasgow City Council in August of 2003. The tremendous public need for such a service is evident from the indicative statistics provided.
7. Chapter 7 presents an overview of the research with reference to the following; the need for objectively measured levels in dealing with neighbour noise, who should take the measurements, the actual permitted levels, the instrumentation used, measurement protocol and experience of Belfast and Glasgow City Councils as well as the experience of other countries. Finally issues such as health and safety and the need for a strategic framework are also addressed.
8. A summary of findings is included as Chapter 8 and recommendations for further research are contained within Chapter 9.

CHAPTER 1.0 INTRODUCTION

1.1 Hamilton & McGregor Acoustics Division was commissioned to undertake research to inform the Scottish Executive in relation to “*The feasibility of introducing in Scotland an absolute objectively measured permitted noise level which if breached during any time of the day would cause an offence liable to conviction*”. The feasibility of introducing objectively measured levels into a legislative framework is part of an overall Scottish Executive strategy to tackle Anti-Social Behaviour.

1.2 A basic overview of noise and its measurement is provided in paragraphs 1.7 - 1.18 to assist in the understanding and appreciation of this report. A glossary of acoustical terms is provided as Annex 2 and a ‘Question and Answer’ type document, to answer anticipated frequently asked questions, is included as Annex 3.

OBJECTIVES OF RESEARCH

1.3 The research objectives were as follows:

- Carry out a brief review of the technical issues associated with the implementation of the *Noise Act 1996* drawing on published DEFRA research entitled *Review of Implementation of the Noise Act 1996* (<http://www.DEFRA.gov.uk/environment/consult/reviewofnoise/document/index.htm>) and other sources.
- Carry out a brief review of the technical issues associated with the implementation of any similar legislation elsewhere.
- Identify and assess the technical and implementation issues that would need to be addressed were the principles of the *Noise Act 1996* to be extended to Scotland over the 24 hour period in the context of the *Anti-Social Behaviour Etc. (Scotland) Bill*.
- Based on the above information, make recommendations regarding the feasibility of introducing in Scotland absolute objectively measured permitted noise levels which, if breached during any time of the day would cause an offence liable to conviction.

BACKGROUND AND STRUCTURE OF REPORT

1.4 The use of objectively measured levels in issuing fixed penalties for night-time noise only was introduced in England, Wales and Northern Ireland in 1997 by means of the *Noise Act 1996*. To inform the reader of why the *Noise Act 1996* was not adopted in Scotland and to facilitate a better understanding of the possible interaction with other legislation and guidance presently in use in Scotland Chapter 2 covers the background to the consideration of objectively measured levels as an intervention threshold with the possible use of Fixed Penalty Notices. The present control of noise within Scotland is the subject of Chapter 3 whilst Chapter 4 presents the results of the literature review of legislation in the UK and elsewhere where the breach of an absolute objectively measured level may cause an offence.

1.5 Chapter 5 considers the various issues; both technical and non technical, which would require to be addressed when assessing the feasibility of introducing the proposed measures into Scotland. The issues considered are as follows:

- compatibility of proposed legislation within existing legislative framework in Scotland
- noise parameters to be employed
- relevant time periods to be considered
- actual intervention threshold
- low frequency
- measurement procedure and protocol
- availability of instrumentation
- performance of instrumentation
- typical cost of instrumentation
- liaison with other professional bodies involved in noise control
- practicalities of local authority response times and expectations
- sound insulation and Civil Rights issues
- health and safety issues
- training

1.6 Chapter 6 presents a brief review of the night-time noise service recently set up by Glasgow City Council. Chapter 7 considers an overview of the research work with a summary of findings contained in Chapter 8. Recommendations for further research are included in Chapter 9.

THE BASICS OF NOISE

1.7 Noise is defined by the World Health Organisation (WHO) as unwanted sound. Sound is a sensory perception and the complex pattern of sound waves is labelled noise, music, speech etc (WHO, 1999). The level of annoyance associated with any noise depends not only on the quality of the sound, but also our attitude towards it. The sound of a wailing siren may be a welcome sound to someone in dire need of medical attention but an intrusion to someone else trying to sleep nearby.

1.8 Sound may be defined as any pressure variation (in air, water or other medium) that the human ear can detect. The most familiar instrument for measuring pressure variations in air is the barometer. However, the pressure variations that occur with changing weather conditions are much too slow for the human ear to detect and hence cannot be considered as sound. But, if variations in atmospheric pressure occur more rapidly, at least 20 times a second, they can be heard and hence are called sound. The number of pressure variations per second is called the frequency of the sound, and is measured in Hertz (Hz). The frequency of a sound produces its distinctive tone. Thus, the rumble of distant thunder has a low frequency, while a whistle has a high frequency. The normal range of hearing for a healthy young person extends from approximately 20 Hz up to 20 000 Hz (or 20 kHz). The pressure variations can travel through any elastic medium (such as air) from the source of the sound to the listener's ears.

1.9 Why then is noise not measured in terms of pressure fluctuations, i.e. in Pascal's? Basically, it is because the ear can detect a huge range of pressure variations and the numerical range required to describe the entire range of hearing would be messy to work with in terms of the manageability of the numbers. The range of acoustic energy involved in human hearing is extremely large, more than 1 to 10,000,000,000,000. Thus, if we measured sound in Pascals, we would end up with an unmanageable number. By taking the logarithm to the base 10 (log) of this energy range the numbers become more manageable. For example, the log of 1 is 0, while the log of 10,000,000,000,000 is 13, resulting in a range of only 13 units. However, the range of 13 is a bit too compressed and so it is expanded by a factor of 10, thus the term decibel. Remember that a bel is a unit that gives the number of tenfold changes between two quantities.

1.10 The decibel is not an absolute unit of measurement, but rather a ratio between a measured quantity and an agreed reference level. The dB scale is logarithmic and uses the hearing threshold of 20 μ Pa as the reference level. This is defined as 0 dB. When we multiply the sound pressure in Pascals by 10, we add 20 dB to the dB level. So 200 μ Pa corresponds to 20 dB (re 20 μ Pa), 2000 μ Pa to 40 dB and so on. Thus, the dB scale compresses a range of a million into a range of only 120 dB. The level of noise is therefore described in terms of sound pressure levels (SPL) in dB. The dB level of various familiar sounds are shown in the Figure 1.1 (<http://www.noise-solutions.com/NSIaboutnoise/>), the (A) in the dB(A) is called an A-weighting and it simulates the response of the ear, this is explained further in paragraph 1.12. One useful aspect of the decibel scale is that it gives a much better approximation to the human perception of relative loudness than the Pascal scale. This is because the ear reacts to a logarithmic change in level, which corresponds to the decibel scale where 1 dB is the same relative change everywhere on the scale. (Bruel & Kjaer 1984).

Figure 1.1 The dB(A) Scale

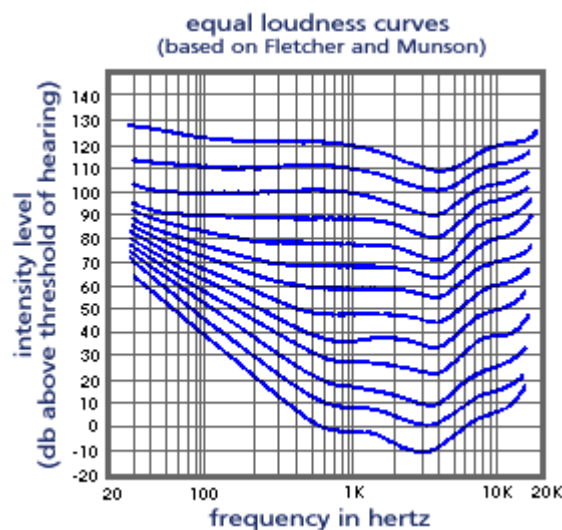
The dBA Noise Scale	
140	
130	
120	Jet taking off
110	Amplified Rock music
100	
90	Tractor at 15m
80	
70	
60	Normal Conversation at 1m
50	
40	Quiet living room
30	Bedroom of a country home
20	
10	

1.11 How does this logarithmic change relate to the subjective evaluation of noise? Very simplistically, for two similar types of sounds an increase of less than 3dB will not be perceptible, an increase of 5 dB will be perceptible, and an increase of 10dB equates to a subjective doubling of the sound.

However the subjective or perceived loudness of a sound is determined by several complex factors and not just the level of noise. One such factor is that the human ear is not equally sensitive at all frequencies. It is most sensitive to sounds between 2 kHz and 5 kHz, and less sensitive at higher and lower frequencies. To complicate things even more, this difference in sensitivity to different frequencies is more pronounced at low levels of noise than at high levels of noise. This can be seen in the Figure 1.2,

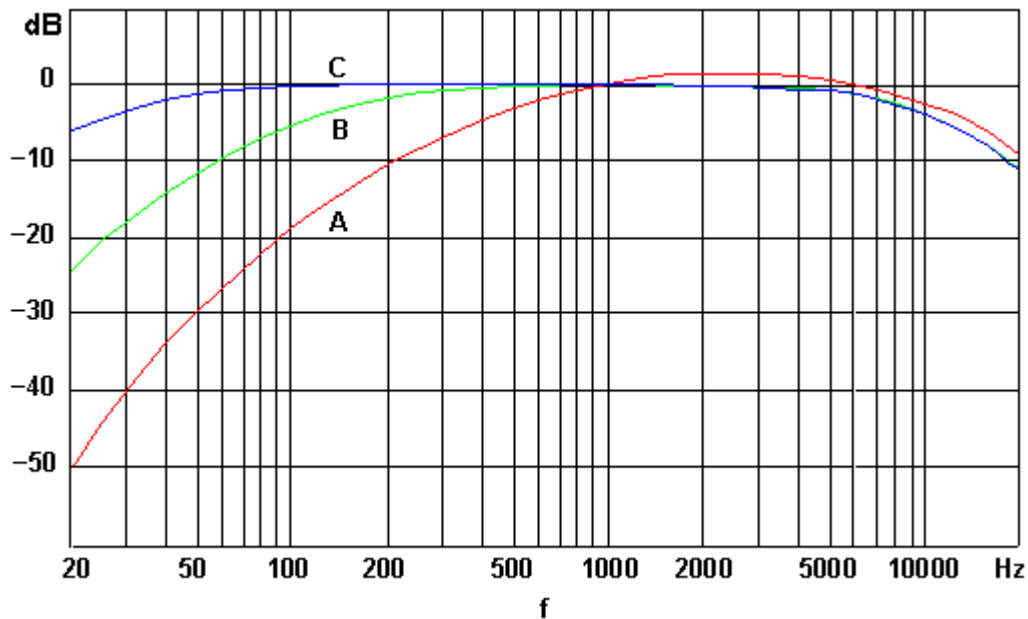
(http://www.sfu.ca/sca/Manuals/ZAAPf/e/equal_loud_cont.html) which shows a family of equal loudness contours. These indicate the sound pressure level required at any frequency in order to give the same apparent loudness as a 1 kHz tone. For example, a 50 Hz tone must be 15 dB higher than a 1 kHz tone at a level of 70 dB in order to give the same subjective loudness.

Figure 1.2 Equal Loudness Contours



1.12 Environmental noise levels are generally described in terms of an A-weighting. The “A” weighting network weights a signal in a manner which approximates to an inverted equal loudness contour at low sound pressure levels, the “B” network corresponds to a contour at medium sound pressure levels and the “C” network to an equal loudness contour at high sound pressure levels. The “A” weighting network is the most widely used since the “B” and “C” weightings do not correlate well with subjective tests. One reason for this lack of correlation between subjective tests and “B” and “C” weighted measurements is because the equal loudness contours were based on experiments which used pure tones, and most common sounds are not pure tones, but very complex signals made up of many different tones. It is generally accepted that the “A” weighting simulates the response of the ear. (Bruel & Kjaer 1984). The “A”, “B” and “C” weighting networks are shown in Figure 1.3 (www.eie.fceia.unr.edu.ar/~acustica/biblio/soundlev.htm).

Figure 1.3 Weighting Networks

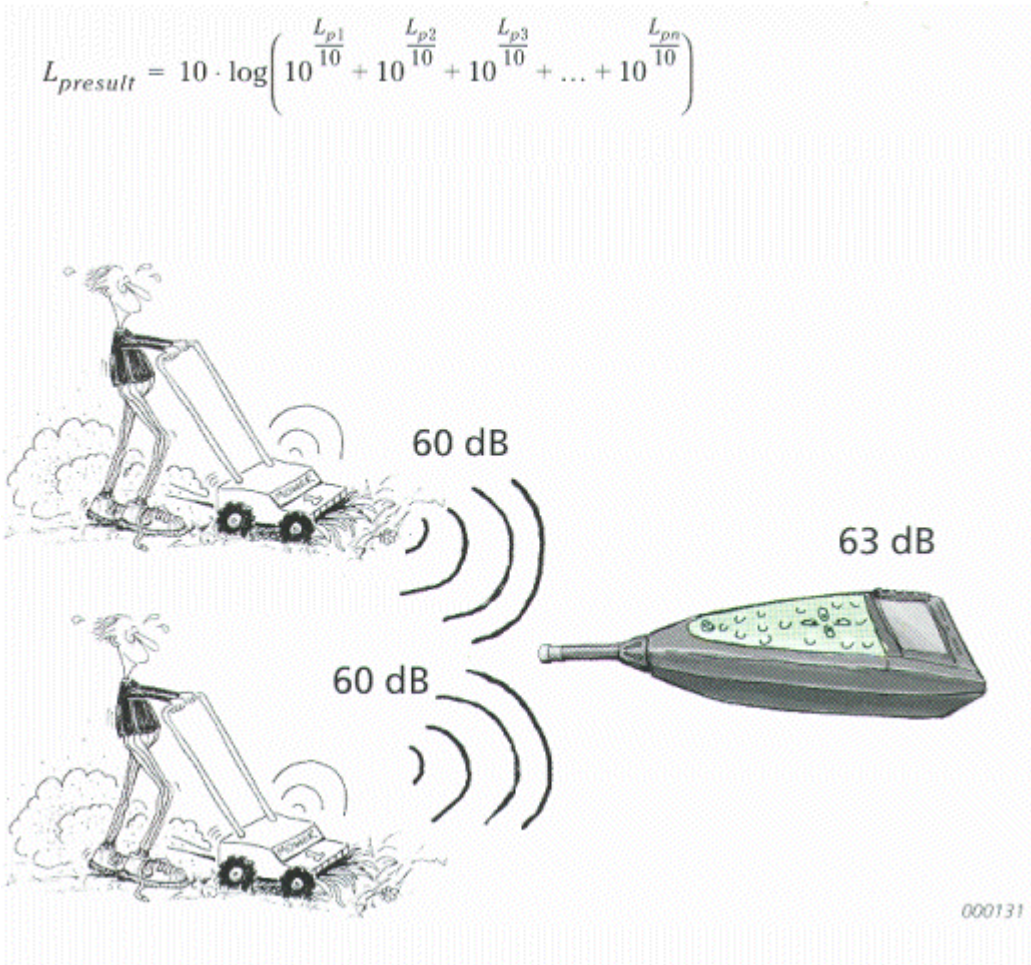


1.13 The instrument used to measure sound is called a Sound Level Meter. A sound level meter that measures the sound pressure level with a “flat” response will indicate the strength of low frequency sound with the same emphasis as higher frequency sounds. Yet our ear perceives low frequency sound to be less loudness than higher frequency sound. To ensure that a sound level meter responds to sound in approximately the same way as the human ear and to give objective, reproducible measurements of sound pressure level the incoming signal passes through a weighting network and the three most commonly applied weighting networks are those described in paragraph 1.12 above.

1.14 When more detailed information about a complex sound is required, the frequency range from 20 Hz to 20 kHz can be divided up into sections or bands. This is done with electronic filters that reject all sound with frequencies outside the selected band. These bands usually have a bandwidth of either one octave or one third octave. An octave is a frequency band where the highest frequency is twice the lowest frequency. For example, an octave filter with a centre frequency of 1 kHz admits frequencies between 707 and 1414 Hz, but rejects all others. A third octave covers a range where the highest frequency is 1.26 times the lowest frequency. The process of thus dividing a complex sound is termed frequency analysis. (Bruel & Kjaer 1984).

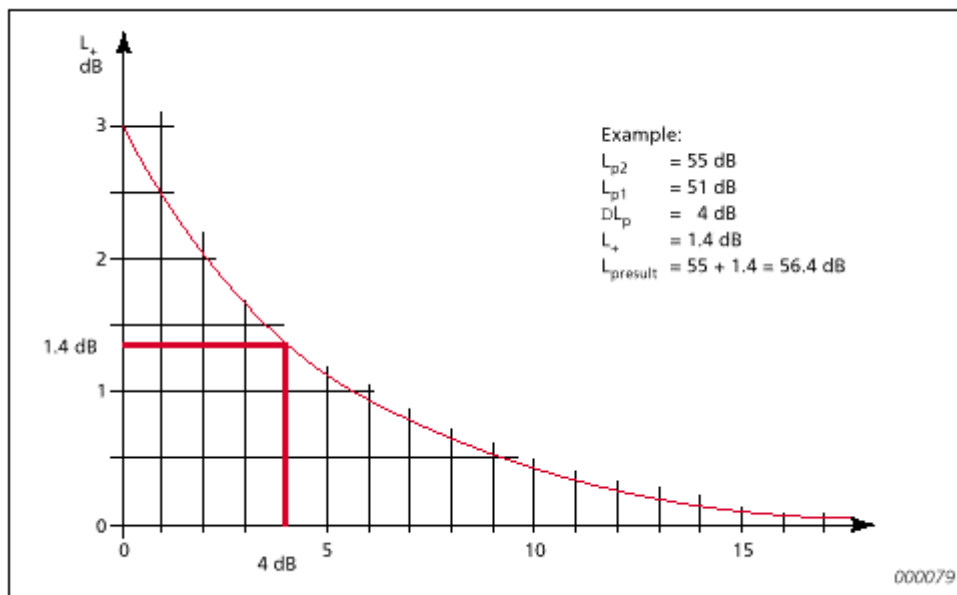
1.15 If the sound levels from two or more sources have been measured separately, and you want to know the combined sound pressure level of the sources, the sound levels must be added together. However, due to the fact that dBs are logarithmic values they cannot simply be added together. One way to add dBs is to convert the individual dB values to linear values, add these together, and convert back to dB using the equation shown in Figure 1.4 (Bruel & Kjaer, 2000). A graphical aid to the addition of dBs is provided in Figure 1.5.

Figure 1.4 Addition of dBs



1.16 An easier method is to use the curve in Figure 5 below and the following procedure:

Figure 1.5 Graphical Addition of dB's



- Measure the Sound Pressure Level (SPL) of each noise source separately (L_{p1} , L_{p2}).
- Find the difference (change in L) between these levels ($L_{p2} - L_{p1}$).
- Find this difference on the horizontal axis of the chart. Move up until you intersect the curve, and then look at the value on the vertical axis to the left.
- Add the value indicated (L_+) on the vertical axis to the level of the noisier noise source (L_{p2}). This gives the sum of the SPLs of the two noise sources.
- If three or more noise sources are present, steps 1 to 4 should be repeated using the sum obtained for the first two sources and the SPL for each additional source.
- Note that a zero difference corresponds to the situation shown in the previous illustration where 3 dB was added to the level caused by one source alone. If the difference between the two sound pressure levels is more than 10 dB the contribution from the quietest source can be discarded (Bruel & Kjaer, 2000).

1.17 Noise is generally not steady and continuous in that it fluctuates over time. Time-varying sound is usually described statistically, either in terms of $L_{eq,T}$ the equivalent continuous sound pressure level for a given period, or in terms of L_x the sound pressure level which is exceeded for N% of the time. Both L_{eq} and L_N , are generally expressed in dB(A) units. L_{Aeq} measurements are used for many types of noise measurements, for example community noise-annoyance assessments.

CHAPTER 2.0 BACKGROUND TO THE CONSIDERATION OF OBJECTIVELY MEASURED LEVELS AS AN INTERVENTION THRESHOLD WITH POSSIBLE USE OF FIXED PENALTY NOTICES

2.1 This chapter deals with the following:-

- background to the consideration of objectively measured levels as an intervention threshold with possible use of Fixed Penalty Notices,
- the questions raised in the Scottish Executive Consultation Document *Putting our Communities First: A Strategy for tackling Anti-Social Behaviour (Putting Our Communities First, 2003)*, and
- the answers contained within the October 2003 report on the Consultation Responses prepared by Glasgow University (John Flint, Rowland Atkinson and Suzie Scott, 2003).

2.2 The Scottish Executive's proposal for tackling anti-social behaviour was outlined in the consultation document *Putting our Communities First: A Strategy for Tackling Anti-Social Behaviour* (hereafter referred to as the Consultation Document). This document introduced the concept of issuing Fixed Penalty Notices as a means of dealing with some anti-social behaviour in Scotland. The Consultation Document recognised that existing procedures, explained in some detail in Chapter 3 of this report, do work in particular for a recurring noise problem but pointed out that in reality there is a lengthy process to obtain an abatement notice. In view of this and the added complication of noise problems occurring at night, it was suggested that a more immediate and effective resolution was required and that local authorities may require additional powers to facilitate such resolutions.

2.3 The Consultation Document suggested extending powers to local authorities to deal with night time noise in domestic dwellings in line with the provisions of the *Noise Act 1996* which covers England, Wales and Northern Ireland (the provisions of the *Noise Act 1996* are explained in Chapter 4). Prior to further consideration of the Consultation Document the reasons why the provisions of the *Noise Act 1996* were not extended to Scotland will be briefly explained.

Background to the Noise Act 1996 and Scotland

2.4 The *Noise Act 1996*, which covers England, Wales and Northern Ireland, grew out of the recommendations of the Neighbour Noise Working Party (Department of the Environment 1995). The findings of the working party were issued in March 1995 and included recommendations that consideration be given to the introduction of a specific night noise offence and clarification of the seizure power. The Government's response to the consultation on the working party's report was positive and recognised the recommendations as a package of proposals which, taken together, could bring substantial improvements to the way in which noise problems were tackled. The *Noise Act 1996* (the 1996 Act), introduced as a Private Member's Bill, took forward the legislative elements of the recommendations.

2.5 The reasons why the provisions of this Act did not apply to Scotland were outlined in the research report entitled *The Use of Civil Legal Remedies for Neighbour Nuisance in Scotland* (Atkinson, Mullen & Scott 2000). The aforementioned report explained that one of the reasons why no Scottish legislation was introduced at that time was that in May 1995 the Scottish Affairs Committee of the House of Commons had announced its own inquiry into housing and anti-social behaviour. The report of the inquiry into *Housing and Anti-Social Behaviour* was published in December 1996 (Scottish Affairs Committee, 1996). It made a number of recommendations as to how social landlords and other agencies might respond to the phenomenon of anti-social behaviour. Much of the evidence to the committee suggested dissatisfaction with the operation of the legal process, but there was countervailing evidence, and the committee considered that the criticisms of the legal process were not proven. In relation to noise this was because under Section 54 of the *Civic Government (Scotland) Act 1982* there was provision to allow a uniformed Police constable to require a person making a noise giving "any other person reasonable cause for annoyance" to desist. If the noise-maker does not desist after a warning the constable can charge the person with an offence. The offence may be committed anywhere, including on private property and the creation of excessive noise may also constitute a breach of the peace.

2.6 However, there was some uncertainty in relation to the powers Police had to remove noise-making equipment such as hi-fi's or music centres and The Scottish Affairs Committee highlighted this uncertainty. There were two options available. Firstly, the Police had (and have) a general power to take property for use as evidence in subsequent criminal proceedings. Secondly, common law confers a general power to take appropriate action to prevent an anticipated breach of the peace. The Committee concluded that

"the evidence does suggest that the limitations of purpose, and ill-defined nature of existing powers discourage the Police from confiscating noise-making equipment."

2.7 To remedy the perceived shortcomings of the *Civic Government (Scotland) Act 1982* in its ability to deal with noise producers, and in line with the recommendations of the Scottish Affairs Committee, the *Crime and Disorder Act 1998* included a new statutory power for the Police to seize noise-making equipment. The provisions contained in the Act enable the Police to confiscate equipment immediately for 28 days if someone fails to stop the noise when asked to do so by the Police under the *Civic Government (Scotland) Act 1982*. The owner can then ask for the equipment to be returned to him, but will have to collect it in a way which suits the Police and to pay whatever charge the Police consider reasonable to cover their costs. The extended Police powers became effective on 1 December 1998.

Consultation Document: Questions and Answers

2.8 With new clarified powers for the Police in terms of the *Civic Government (Scotland) Act 1982*, the Consultation Document sought responses to three questions in relation to noise issues. The questions were as follows:

- *“Should we require or enable local authorities to implement a night-time noise nuisance service and implement additional powers to enable local authority Environmental Health Officers and/or community wardens to issue Fixed Penalty Notices of £100 to curb domestic noise nuisance? If so, what is the best approach?”*
- *Should we extend the service from a night-time (11.00 p.m. to 07.00 a.m.) service to a 24-hour service?*
- *Should the standard of proof for a statutory noise nuisance be changed to allow a more flexible approach in this area? If so, what might such an approach involve?”*

2.9 In October 2003 a report on the Consultation Responses by Glasgow University (Flint, Rowland, Scott 2003) was published and it contained responses to the three main questions. The responses can be summarised as follows:

- Confirmed that there were concerns about noise nuisance and that noise nuisance was a considerable problem in many local communities.
- Local authorities should be enabled, rather than required, to implement a night-time noise services.
- Generally welcomed Environmental Health Officers and the Police having powers to implement Fixed Penalty Notices relating to domestic noise nuisance, although community wardens having this power was not generally supported.
- Need for health and safety issues to be addressed.
- Need for shortage of Environmental Health Officers in some areas to be addressed.
- Extending the service to 24 hours should only be required where it is proportionate to need and local authorities should have the discretion to assess this requirement in their own areas.
- Statutory proof relating to noise nuisance should remain as it is, although there were some suggestions for increasing flexibility and effectiveness.

2.10 The Scottish Ministers proposals to deal with the needs identified within the Consultation Response are contained within the *Anti-Social Behaviour Etc. (Scotland) Bill* introduced to the Scottish Parliament on 29th October 2003. The provisions relating to control of noise are contained within Section 5. The policy objectives are:

- To give local authorities additional powers to deal with noise nuisance.
- To tackle the problems of noise in domestic dwellings.

2.11 This research is aimed at examining the feasibility of introducing objectively measured levels into a legislative framework as part of a strategy to deal with Anti-Social Behaviour. The first step in considering the introduction of objectively measured levels is to determine whether or not there are presently any objectively measured levels in use in controlling noise within the legislative and guidance framework in Scotland. It is essential that any levels introduced by the *Anti-Social Behaviour Etc. (Scotland) Bill* complement any noise control measures already in place.

CHAPTER 3.0 CONTROL OF NOISE IN SCOTLAND

3.1 The findings of the Consultation Response identified that there is a perceived need for additional powers to deal with the problem of noise of a domestic origin. To fully appreciate the levels of noise that are found to be acceptable and maintain some consistency in the development of objective levels it is necessary to review the current situation in relation to the control of noise in Scotland.

NOISE NUISANCE

3.2 Noise nuisance can be controlled either by action at common law or under statute. Common law nuisances can be divided into private and public nuisance. An in depth consideration of nuisance is outwith the scope of this research but an overview can be found in published texts, (The Law Society of Scotland, 1988), (Adams and McManus, 1994). Statutory control of noise is nuisance based and is enforced mainly by local government Environmental Health Officers using the powers available under the *Environmental Protection Act 1990 (EPA)* and the *Control of Pollution Act 1974 (COPA)*. Under certain circumstances control of excessive noise can also be dealt with under statute by the Police as a criminal offence using the provisions of the *Civic Government (Scotland) Act 1982* referred to in paragraph 2.5 of this report.

Statutory Control of Noise and Summary Proceedings

3.3 In 1996 the statutory nuisance provisions of the *EPA* were extended to Scotland through the implementation of Section 107 and Schedule 17 of the *Environment Act 1995* (National Society for Clean Air and Environmental Protection, 2000). Prior to that date the statutory nuisance provisions were contained within the *COPA*.

3.4 The most common means of dealing with a nuisance is by summary action. Section 79 (1)(g) of the *EPA* states that noise emitted from premises so as to be prejudicial to health or a nuisance constitutes a statutory nuisance. Section 80(1) of the *EPA* requires that where a local authority is satisfied that a statutory nuisance exists, or is likely to occur or recur the local authority shall serve a notice imposing all or any of the following requirements:

- the abatement of the nuisance or prohibiting or restricting its occurrence or recurrence;
- requiring the execution of such works, and the taking of such other steps, as may be necessary for any of those purposes.

3.5 The notice is required to specify the time or times within which the requirements of the notice are to be complied with and must be served on the person responsible for the nuisance that is the person to whose act, default or sufferance the noise is attributable (*EPA* sec 79(7)). However where that person cannot be found, or if the nuisance has not yet occurred, then the notice must be served on the owner or the occupier of the premises (*EPA* sec 80(2)). Where the nuisance arises from a defect of a structural character then the notice must be served on the owner of the premises.

3.6 Where more than one person is responsible for the noise then these provisions apply to each person whether or not what each one contributed is sufficient by itself to constitute a nuisance (*EPA* sec 81(1)). In effect this means that if, for example, several individuals or groups share the same premises, or use adjoining or nearby premises, all of which have an impact on nearby residential property, then each of those individuals or groups is responsible for any nuisance which may be caused by their combined activities.

3.7 A person served with a notice may appeal to the sheriff within 21 days of the service of the notice (*EPA* sec 80(3)). An offence is committed if the person on whom it is served fails to comply with it without reasonable excuse (*EPA* sec 80(4)). The grounds for appeal are detailed within *The Statutory Nuisance (Appeals) (Scotland) Regulations 1996*.

3.8 In addition to the provisions of Section 80, Section 82(1) of the *EPA* states that the sheriff may act under this section on a summary application made by any person on the ground that he/she is aggrieved by the existence of a statutory nuisance.

3.9 Summary action can also be taken with respect to construction noise using the provisions of Section 60 of the *Control of Pollution Act 1974*. Section 60 provides local authorities with the power to serve a notice with requirements as to the way in which the works are to be carried out.

3.10 *The Noise and Statutory Nuisance Act 1993* amended the *EPA* to make noise in the street a statutory nuisance and also provided for greater control over noise from loudspeakers in the street and from audible intruder alarms.

Statutory Control of Noise and Criminal Proceedings

3.11 As was explained earlier (paragraph 2.5) the provision of Section 54 of the *Civic Government (Scotland) Act 1982* allows a uniformed Police constable to require a person making a noise giving "*any other person reasonable cause for annoyance*" to desist. There is no use of a fixed noise level as an intervention threshold and the Police can take immediate action. The noises sources to which Section 54 applies are sounding or playing musical instruments, singing or performing and operating any sound producing device. If the noise-maker does not desist after a warning the Police constable can charge the person with an offence. The offence may be committed anywhere, including on private property, and excessive noise may also constitute a breach of the peace. The provisions contained within the Act enable the Police to confiscate equipment immediately for 28 days if someone fails to stop the noise when asked to do so by the Police under the *Civic Government Act* provisions described above. The owner can then ask for the equipment to be returned to him/her, but will have to collect it in a way which suits the Police and to pay whatever charge the Police consider reasonable to cover their costs. The powers of confiscation were clarified by the *Crime and Disorder Act 1998*.

Interdict

3.12 In cases of incidents of severe or widespread nuisance Section 81 subsection (5) of the *EPA* states that if a local authority is of the opinion that summary proceedings would afford an inadequate remedy in the case of any statutory nuisance, they may take proceedings in any court of competent jurisdiction, for the purpose of securing the abatement, prohibition or

restriction of the nuisance. In other words the local authority may seek interdict in the Court of Session or the Sheriff Court. Whilst the term ‘inadequate’ is open to interpretation, in practice it means a case which could take an inordinately long time, perhaps a year or more, to come to court, or it could mean a situation where the effects are sufficiently severe and sufficiently widespread to justify instant action. An individual taking civil action for noise nuisance at common law could also seek an interdict to prevent the nuisance continuing or by seeking damages for loss or discomfort.

NOISE LEVELS AND NUISANCE

3.13 Whilst the statutory control of nuisance is well defined there is no objectively measured level at which nuisance does, or does not exist. As with any noise complaint the Environmental Health Officer must assess the noise and judge whether or not, in his/her opinion, it constitutes a statutory nuisance. He/she therefore needs not only to carry out a subjective assessment but is also likely to require objective standards (or criteria) against which to assess the noise as the judgement of the Court of Session in the appeal of *Greenline Carriers (Tayside) Ltd v City of Dundee District Council 1991* appeared to some to require that an objective standard should be applied when considering the issue of a noise abatement notice. Documents used for guidance on the assessment of acceptability of noise levels are briefly described in the following sections.

The Wilson Report

3.14 The remit of the Wilson Committee, which reported in 1963, was to examine the nature, sources and effects of the problem of noise and to advise what further measures could be taken to mitigate noise. The report addressed noise from many sources including vehicles, railways, aircraft, industry, construction and demolition sites, entertainment, mineral workings and agriculture, forestry and gardening. One area of guidance still relevant today is that which endeavours to indicate maximum noise levels in buildings in order to reduce disturbance to the occupants. The report sets out three categories of area, namely; rural, suburban and urban, together with recommended criteria for inside habitable rooms for both the day and night time periods (though the hours relating to each of the periods are not specified) as shown in Table 3.1. It recommends L_{A10} noise levels inside living rooms (daytime) and bedrooms (night-time). This guidance has been widely accepted by enforcement authorities as a standard when assessing nuisance, however it should be borne in mind that L_{A10} 35 dB inside bedrooms at night can still result in significant disturbance, particularly where low frequencies are present (Craig and Stirling 1985). More recently, satisfactory internal levels have, with the exception of road traffic noise, been expressed in terms of the continuous equivalent sound pressure level over defined time periods, $L_{Aeq,T}$.

Table 3.1 Wilson Report Noise Categories

Situation	Recommended Criteria for Inside Habitable Rooms $L_{A10(T)}$ dB	
	Day	Night
Country Area	40	30
Suburban areas away from main traffic routes	45	35
Busy urban areas	50	35

Guidelines for Community Noise

3.15 In 1999 the World Health Organisation produced a report entitled *Guidelines for Community Noise* (1999) which was the outcome of a WHO expert task force meeting held in 1999. It is based on the document entitled *Community Noise* which had been prepared for WHO and published in 1995 by Stockholm University and the Karolinska Institute (1995). The *Guidelines for Community Noise* have been prepared as a practical response to the need for action on community noise at the local level, as well as the need for improved legislation, management and guidance at national and regional levels. The *Guidelines for Community Noise* include sections on noise sources and their measurement; adverse health effects of noise; guideline values; noise management, as well as offering conclusions and recommendations. The document suggests a range of guideline values for community noise in specific environments and these guideline levels are reproduced in Table 3.2. Interestingly the previous World Health Organisation document entitled *Environmental Health Criteria 12* (WHO 1980) explained that in trying to relate noise exposure levels to annoyance:

“...at any level of noise annoyance, reactions will vary greatly because of psychosocial differences. A useful technique for accommodating the possible extent of individual variation is the use of a criterion curve showing the percentage of persons who will be annoyed as a function of noise level”.

3.16 It was explained in the 1980 WHO document that such curves had been derived for a variety of conditions but mainly for those concerned with aircraft or road traffic noise. On the basis of those sources it was concluded that, in residential areas where the general daytime noise exposure is below L_{Aeq} 55dB there will be few people seriously annoyed by noise. This level was recommended as the desirable noise exposure limit of the general community whilst at the same time recognising that it would be difficult to achieve in many urban areas. The same document advised that in a domestic environment, acceptable noise levels can be established on the basis of speech communication criteria. For good speech intelligibility indoors it advised that background levels of less than L_{Aeq} 45 dB are required. However, in relation to night time sleep disturbance the data available at that time suggested a bedroom noise limit of L_{Aeq} 35dB. Reference to Table 3.2 shows the 1999 WHO document apparently recommends lower guideline levels, a more detailed examination of these apparent differences in the night-time guideline levels is offered in Chapter 5.

Table 3.2 WHO 1999 Guideline Noise Levels

Specific Environment	Critical Health Effects	L _{Aeq} dB	Time Base [hours]	L _{Amax} fast dB
Outdoor living area	Serious annoyance, daytime & evening Moderate annoyance, daytime & evening	55 50	16 16	- -
Dwelling, indoors	Speech intelligibility & moderate annoyance, daytime & evening	35	16	
Inside bedrooms	Sleep disturbance, night-time	30	8	45
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60
School classrooms & pre-schools, indoors	Speech intelligibility, disturbance of information extraction, message communication	35	during class	-
Pre-school bedrooms, indoor	Sleep disturbance	30	sleeping-time	45
School, playground outdoor	Annoyance (external source)	55	during play	-
Hospital, ward rooms, indoors	Sleep disturbance, night-time Sleep disturbance, daytime & evenings	30 30	8 16	40 -
Hospital, treatment rooms, indoors	Interference with rest & recovery	#1		
Industrial, commercial shopping & traffic areas, indoors & outdoors	Hearing impairment	70	24	110
Ceremonies, festivals & entertainment events	Hearing impairment (patrons:<5 times/year)	100	4	110
Public addresses, indoors & outdoors	Hearing impairment	85	1	110
Music & other sounds through headphones / earphones	Hearing impairment (free-field value)	85 #4	1	110
Impulse sounds from toys, fireworks & firearms	Hearing impairment (adults) Hearing impairment (children)	- -	- -	140 #2 120 #2
Outdoors in parkland & conservation areas	Disruption of tranquillity	#3		

#1 As low as possible

#2 Peak sound pressure (not L_{AF,max}) measured 100 mm from the ear.

#3 Existing quiet outdoor areas should be preserved and the ratio of intruding noise to natural background sound should be kept low.

#4 Under headphones, adapted to free-field values.

BS 8233: 1999 Sound insulation and Noise Reduction for Buildings – Code of Practice

3.17 Following the publication of the 1999 WHO document the British Standard Institute issued a revised BS 8233 in 1999. This code of practice provides information on the design of buildings that have internal acoustic environments appropriate to their function. The guideline values are similar to those detailed earlier in the World Health Organisation guidance document. The document makes clear that the guideline values/design targets only apply where ‘anonymous noise’ is the source. This is generally taken to be distant traffic and generally the non specific ‘noise of the world’.

Scottish Office Development Department Circular 10/99 and PAN 56: Planning and Noise

3.18 Scottish Office Development Department Circular 10/1999 and Planning Advice Note 56 (PAN 56) provides the current government policy and guidance respectively in respect of planning and noise. PAN 56 offers general comments and advice to planners on noise from a variety of traffic, commercial, industrial and leisure developments and in doing so it refers to a number of other documents. It also gives advice on controlling noise by the use of planning conditions and makes it clear that a level of noise suitable for one area may not be suitable for another area. This advice note suggests the use of Noise Exposure Categories (NECs) to help planning authorities determine applications for residential development on sites subjected to noise from road, rail, air and “mixed” transportation noise. The “mixed” noise category method does not take industrial noise into account unlike its English counterpart Planning Policy Guidance Note 24 (PPG 24). It is important to note that the Noise Exposure Categories apply only where consideration is being given to introducing new housing development into an area with an existing transport noise source and not in the reverse situation.

3.19 Noise Exposure Categories should not be used for assessing the impact of industrial or commercial noise upon proposed residential development. In addition, the NEC principle cannot sensibly be applied to developments such as offices, hospitals and educational establishments and it will generally be more appropriate to refer to specific guidance on internal noise standards for each activity. The NEC classification system and level corresponding to those classifications are outlined in Tables 3.3(a) and 3.3(b).

Table 3.3(a) Noise Exposure Categories (NEC)

NEC	
A	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as desirable.
B	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise. For proposed development subject to the high end of the category a Noise Impact Assessment will assist authorities in identifying appropriate noise mitigation measures.
C	Planning permission should not normally be granted. Based upon the evidence contained within a Noise Impact Assessment, however, it may be possible to grant permission subject to measures that ensure an adequate level of protection against noise.
D	Planning permission should generally be refused.

Table 3.3(b) Recommended Noise Exposure Categories For New Dwellings near Existing Noise Sources

Noise Source		Noise Levels Corresponding to the Noise Exposure Categories for New Dwellings $L_{Aeq,T}$ dB			
		Noise Exposure Category			
		A	B	C	D
Road traffic	07.00 - 23.00	<55	55 - 63	63 - 72	>72
	23.00 - 07.00	<45	45 - 57	57 - 66	>66
Rail traffic	07.00 - 23.00	<55	55 - 66	66 - 74	>74
	23.00 - 07.00	<45	45 - 59	59 - 66	>66
Air traffic	07.00 - 23.00	<57	57 - 66	66 - 72	>72
	23.00 - 07.00	<48	48 - 57	57 - 66	>66
Mixed sources	07.00 - 23.00	<55	55 - 63	63 - 72	>72
	23.00 - 07.00	<45	45 - 57	57 - 66	>66

3.20 Although not specifically referred to in the table there is a foot note to the above table which states that for “night-time noise levels (23:00 –7:00): sites where individual noise events regularly exceed 82dB L_{Amax} (S time weighting) more than twice in any hour during this period should be treated as being in NEC C, regardless of the $L_{Aeq,8hr}$ (except where the $L_{Aeq,8hr}$ already puts the site in NEC D)”. In addition to this PAN 56 advises that where external levels cannot meet the NEC A levels then mitigation should ensure that levels within individual living apartments should be less than $L_{Aeq(T)}$ 45dB for daytime and $L_{Aeq(T)}$ 35dB for night-time.

SODD PAN 50: Controlling the Environmental Effects of Surface Mineral Working, Annex A: The Control of Noise at Surface Mineral Working

3.21 The aim of PAN 50, Annex A is to provide advice on how the planning system can be used to keep noise emissions from surface mineral workings within environmentally acceptable limits without imposing unreasonable burdens on minerals operators. It is open to local authorities and individuals to use the provisions of Part III of the *Environmental Protection Act 1990* to control noise when it amounts to a nuisance. However it is clearly preferable to plan mineral operations which are environmentally acceptable from the outset rather than to rely on retrospective action in the courts. Waste disposal operations may share many common features with surface mineral workings, and much of the advice contained in these Guidelines will be appropriate to noise control of such operations.

3.22 The *PAN 50 Annex A* assessment method is based on carrying out a survey of existing background noise levels in the area as $L_{A90,T}$ at neighbouring noise sensitive properties and to predict the noise levels from the development, in terms of $L_{Aeq,T}$, likely to affect these properties. The prediction methodology contained within Part 1 of *BS 5228 Noise Control on Construction and Open Sites* is recommended as the basis for this prediction with modifications for absorbent ground cover, barriers and angle of view. All of the modifications to the prediction method were taken on board in the 1997 version of BS 5228. BS 5228 is briefly described in Section 3.29.

3.23 Noise limits may be set either by stipulating a maximum $L_{Aeq,T}$ level above background which may not be exceeded, based on an assessment carried out in terms of BS 4142, or by using the absolute values given in the Guidance. Time periods for use within the PAN are defined as daytime 07.00-19.00, possible evening period covering 19.00-22.00 and night-time 19.00-07.00 hours. The recommended nominal levels are detailed in Table 3.4 and it should be noted that there is no guidance on the evening period recommended levels.

Table 3.4 PAN 50 Nominal Levels

	Recommended Criteria External Free Field	
	$L_{Aeq,1hr}$ dB	
	Day	Night
Nominal	55	42
Lower limit in exceptionally quiet rural area	45	42

Code of Practice on Environmental Noise Control at Concerts

3.24 This document was produced by The Noise Council in 1995. It proposes guidelines in terms of the Music Noise Level (MNL) ($L_{Aeq,15min}$) measured 1 metre from the facade of any noise-sensitive premises between 09.00 and 23.00 as detailed below. In addition the code recommends that music noise should not be audible within noise sensitive-premises between 23.00 and 09.00 and acknowledges that low frequency noise can be a particular problem and may require to be addressed by setting additional criteria. The guidelines are summarised in Table 3.5.

Table 3.5 Guideline Values for Concerts

Concert Days Per Calendar Year Per Venue	Venue Category	Guideline
1 to 3	Urban Stadia or Arena	The MNL should not exceed 75dB(A) over a 15 minute period
1 to 3	Other Urban & Rural Venues	The MNL should not exceed 65dB(A) over a 15 minute period
4 to 12	All Venues	The MNL should not exceed the background noise level (L_{A90}) by more than 15dB(A) over a 15 minute period.

BS 4142:1997 Method for Rating Industrial Noise in Mixed Residential and Industrial Areas

3.25 This standard is intended to be used for assessing the likelihood of complaints from both existing premises and new or modified premises using measured or calculated noise levels. The standard is a relative standard in that the noise in question is measured or calculated, corrections applied, and then the background level subtracted from it. Although, in general, there will be a relationship between the incidence of complaints and the level of general community annoyance, quantitative assessment of nuisance is beyond the scope of BS 4142 as is the assessment of nuisance. Furthermore, the method is not suitable for assessing the noise measured inside buildings or when the background and rating noise levels are both very low, (i.e. background noise levels below $L_{A,90}$ 30dB and rating level below $L_{A,T}$ 35dB). The standard offers definitions of background, residual, ambient and specific noise.

3.26 The measurement period must be representative of the specific noise, e.g. if it is cyclical then measurement should be carried out over at least one complete cycle and account taken of the on time. The measured noise level ($L_{Aeq,T}$) is corrected to take account of residual noise from any other source which is within 9 dB of the specific noise source and then this level is further corrected if the noise is tonal, impulsive or irregular in order to arrive at a rating level. The background level, measured as an L_{A90} , is then subtracted from the rating level.

3.27 The greater the difference the greater the likelihood of complaints. A difference of around +10 dB indicates that complaints are likely. A difference of around +5 dB is of marginal significance. If the rating level is more than 10 dB below the measured background noise level then this is a positive indication that complaints are unlikely.

Control of Pollution Act 1974: Approved Codes of Practice

3.28 There is provision under Section 71 of the *Control of Pollution Act* for the Scottish Ministers to issue and approve Codes of Practice for minimising noise. The approved codes of practice are as follows:

- *BS 5228 Noise and Vibration Control on Construction and Open Sites*
- *Code of Practice on Noise from Ice-Cream Van Chimes Etc. 1982*
- *Code of Practice on Noise from Audible Intruder Alarms 1982*
- *Code of Practice on Noise from Model Aircraft 1982*

BS 5228 Noise Control on Construction and Open Sites

3.29 Probably the most widely used approved code is the *BS 5228:1997 Noise and Vibration Control on Construction and Open Sites*. The Scottish Ministers approved parts 1, 3, 4 and 5 as Codes of Practice in March 2002. There are no specific guidance limits for noise levels within BS 5228, although there is a reference to the possible need for façade level during the night-time period to be as low as L_{Aeq} 40dB to avoid sleep disturbance. This level is assuming an open window.

Code of Practice on Noise from Ice-Cream Van Chimes Etc. 1982

3.30 This Code of Practice outlines the provisions of section 62 of the *Control of Pollution Act 1974* in relation to the use of loudspeakers in streets and gives operating guidelines :

- a maximum noise level of 80 dB(A) 7.5 metres from the loudspeaker;
- music playing time should not exceed 4 seconds;
- chimes should only be played once on the approach to each stopping place;
- chimes should never be played when the van is stationary;
- chimes should never be played at intervals of less than 3 minutes;
- chimes should not be played more than once every 2 hours in a particular length of street
- chimes should not be played when in sight of another vehicle which is trading;
- chimes should not be played within 50 metres of schools (during school hours), hospitals, churches (on Sundays).

Code of Practice on Noise from Audible Intruder Alarms 1982

3.31 This Code of Practice recommends:

- That alarm-holders should notify the Police of at least 2 key holders within 48 hours of installing a new alarm or taking over an existing one.
- Alarms should be fitted with an automatic cut-out device designed to operate 20 minutes after activation of the alarm.
- Where an alarm has not been fitted with an automatic cut-out device the alarm-holder should undertake to respond and silence the alarm within 20 minutes (or 45 minutes if agreed), failure to respond will be relevant in considering whether a statutory nuisance has occurred.
- Where the key-holders are repeatedly unavailable or fail to meet the response time, then the local authority may require the alarm-holder to fit an automatic cut-out device (under Section 80 of *EPA*) - this requirement might be invoked after 4 episodes of prolonged ringing within a 12 month period, 1 extremely prolonged episode or where the number of false alarms was significantly above average.

Code of Practice on Noise from Model Aircraft 1982

3.32 This Code of Practice recommends that:-

- Model aircraft should be fitted with a muffler wherever practicable
- A maximum noise level of 82 dB(A) at 7 metres, except for competitive flying
- A point of launch separation distance of 500 metres from noise sensitive premises

- A flight separation distance of 200 metres from noise sensitive premises
- Flying times restricted to 09.00-19.00 on weekdays, 10.00-19.00 on Sundays and Bank holidays
- Temporary suspension of flying during sensitive periods for wildlife
- Relaxation of conditions during major events.

Noise Insulation (Scotland) Regulations 1975

3.33 These regulations, made under the *Land Compensation (Scotland) Act 1973*, make provision for the insulation of buildings from noise caused or expected to be caused by traffic using new roads and certain altered roads. The regulations state that if the external $L_{10,18hr}$ figure exceeds 68 dB(A) and other qualifying criteria are also met then insulation or a grant in respect of insulation, is available provided that the level after completion of the road works is at least 1 dB(A) higher than that prevailing prior to commencement of the works.

Building Regulations

3.34 Part H of the Building Standards (Scotland) Regulations 1990, as amended require minimum standards for airborne sound insulation of separating walls and floors and resistance to impact sound transmission for party floors in residential units. The standards are as detailed in Table 3.6.

Table 3.6 Building Regulation Standards for Separating Walls and Floors

Building Element	Airborne $D_{nT,w}$	Impact $L'_{nT,w}$
Wall	Minimum 49dB	
	Mean (up to 4 pairs) 53dB	
Floor	Minimum 48dB	Maximum 65dB
	Mean (up to 4 pairs) 52dB	Mean (up to 4 pairs) 61dB

NOISY DOGS

3.35 Noise created by barking dogs is dealt with under Section 49 of *the Civic Government (Scotland) Act, 1982*. This legislation allows the complainant to apply to the District Court for an order to be made requiring the owner of the dog to take action to prevent the annoyance from continuing (short of destruction of the creature).

SUMMARY ON NOISE LEVELS AND EXISTING GUIDANCE AND LEGISLATION

3.36 While there is a plethora of guidance in relation to acceptable levels of noise in different situations over different periods of the day, there is no reference to absolute noise levels within primary legislation. Absolute noise levels are used in the planning system for the preservation of noise related residential amenity or for the general control of environmental noise but, if they are exceeded there is very rarely any subsequent enforcement action. Furthermore, compliance with a planning condition does not offer any immunity from prosecution under nuisance legislation.

3.37 The only other reference to absolute noise levels is in regulations relating to entitlement to grant for excessive environment noise, the L_{A10} 68dB threshold level within the *Noise Insulation (Scotland) Regulations 1975* in respect of protection against excessive road traffic noise from new or altered roads.

CHAPTER 4.0 REVIEW OF LEGISLATION IN THE UK AND ELSEWHERE WHERE THE BREACH OF ABSOLUTE OBJECTIVELY MEASURED LEVELS WOULD CAUSE AN OFFENCE

4.1 The review presented in Chapter 3 reveals that within Scotland the use of absolute objectively measured levels in actual legislation is a rarity. There are examples of objectively measured levels in planning advice notes such as *PAN 50: Controlling the Environmental Effects of Surface Mineral Workings, Annex A: The Control of Noise at Surface Mineral Working*, and approved codes of practice such as those for ice cream vans chimes and model aircraft as described in paragraphs 3.30 and 3.32. However, exceedance of any absolute levels does not constitute an offence.

4.2 The only legislation within the UK, where exceedance of an objectively measured level may constitute an offence, is the *Noise Act 1996*. The Noise Act is enabling legislation in that it enables any local authority within England, Wales and Northern Ireland to choose to adopt the provisions of the Act, and where the 'permitted level' is exceeded a fixed penalty can be imposed.

UK NOISE ACT 1996

4.3 The 1996 Act introduced for the first time a night noise offence relating to night-time noise (23.00-07.00 hours) from and affecting domestic premises and a new procedure for the seizure and forfeiture of noise making equipment. The basis for the introduction of the Act was that the night noise offence would complement the statutory nuisance controls on noise. It was intended to allow a fast response and remedy to the problems of neighbour noise at night. If a local authority elects to adopt the provisions of the Noise Act then it is required to ensure that an officer of the authority must take reasonable steps to investigate any complaints. In effect any local authority adopting the Act must offer some level of service between 23.00 and 07.00 hours seven days a week, and it must do so for the whole of its geographical area.

4.4 The *Noise Act* also clarified procedures for the seizure and forfeiture of noise making equipment. This step was necessary because previous to the *Noise Act* local authorities in England, Wales and Northern Ireland relied on section 81(3) of the Environmental Protection Act, which allows the local authorities to do whatever is necessary to ensure an abatement notice is complied with, together with paragraph 2 of Schedule 3 which allows them to enter premises to abate the nuisance. However this did not provide for specific arrangements for dealing with the seized goods or their return or disposal and there was a legal debate as to whether or not local authorities should in fact be using such powers to confiscate noise making equipment (Stephen Benton 1997). The *Noise Act* was in fact implemented in two stages; the clarified powers for the seizure of noise making equipment came into force on the 19th September 1996. The actual Night Noise Offence came into force on 23rd July 1997.

4.5 The night noise offence is based on exceedance of an objective value ('the permitted level') and the objective value can be related to the level of noise to be expected without the

intrusive noise (the underlying level). The offence requires that the noise emitted from the offending dwelling be measured from within the complainant's dwelling using an approved measuring device in a specified manner. The definition of the permitted level and the procedure to be followed is detailed in the Department of the Environment, Transport and Regions Environment *Circular 8/97* and the *Defra Circular NN/31/03/04*. The permitted level can be defined as follows:

- Where the underlying level of noise does not exceed 25dB, the permitted level shall be 35dB.
- Where the underlying level of noise exceeds 25dB, the permitted level shall be 10dB in excess of that underlying level.

4.6 Where the permitted level is represented by the L_{Aeq} , which is the equivalent continuous A-weighted sound level (Leq according to BS EN 60804) and the underlying level is represented by the $L_{A99.8,5min}$, which is the RMS (fast time weighting), A-weighted level exceeded for 99.8% of the measurement time (5 minutes) i.e. the level not exceeded for 0.6 seconds in that 5 minute period.

4.7 In investigating the complaint an officer may listen to the noise complained of from either within or outside the complainant's dwelling. The officer may then decide by measurement or by judgement that the permitted level would be exceeded and where it is considered that the provisions of the 1996 Act are appropriate a warning notice may be issued. The warning notice must be served by delivering it to any person present, at or near the offending dwelling and who appears to the officer to be responsible for the noise. However as it is not always possible to identify the person responsible section 3(3) (b) of the 1996 Act allows the notice to be served by leaving it at the offending dwelling. The information that must be contained in the warning notice is fully described in Environment *Circular 8/97* and *Defra Circular NN/31/03/04*. The warning notice must state:

- That the officer considers that noise is being emitted from the offending dwelling during night hours.
- That the noise exceeds, or may exceed, the permitted level, as measured from within the complainant's dwelling.
- That any person who is responsible for noise emitted from the offending dwelling, in the period specified in the notice, which exceeds the permitted level when measured from within the complainant's dwelling, may be guilty of an offence.
- The time at which the notice was served, and the period of the warning notice.

4.8 The warning notice is valid until 07.00 hours following the time it was served. If after the warning period has expired and the officer has measured in the complainant's house and the permitted level is exceeded a Fixed Penalty Notice may be issued. The approved procedure is detailed within the Department of the Environment, Transport and Regions Environment *Circular 8/97* and *Defra Circular NN/31/03/04*, and must be followed. If it is not followed, the measurement made will not be admissible as evidence in any court proceedings for the night noise offence. A person guilty of a night noise offence is liable on summary conviction to a fine not exceeding level 3 on the standard scale (currently £1000).

4.9 At the time of the introduction of *the Noise Act* there was, in England, and still is in Scotland, concern over the ability to measure the underlying noise level. However, the measurement technique makes it possible to determine the underlying level of noise even if the dominant noise, such as amplified music, appears to be continuous. This can be done, using currently available instrumentation, by the use of a statistical parameter (such as $L_{A99,8,5min}$, $L_{A99,5,2min}$ or $L_{A99,1min}$) as a proxy for the underlying level of noise. This issue is explored in Chapter 5 which addresses the technical issues surrounding the measurements.

4.10 When a complaint is received by the local authority it is dealt with by an Environmental Health Officer or Technical Officer. An initial investigation is then undertaken to decide whether or not the noise complained of exceeds, or might exceed, the permitted level. In coming to this decision, it is for the officer concerned to decide whether to assess the noise from within or outside the complainant's dwelling. It is not necessary to measure the noise at this stage in the procedure.

Effectiveness of Noise Act 1996

4.11 During the Parliamentary passage of the bill a commitment was made to review the take up and workings of the new Night Noise Offence two years after those sections of the 1996 Act, relating to the offence came into force (University of Birmingham 2000). The review was undertaken for DEFRA by the University of Birmingham and the main objectives of the review were to:

- establish the effectiveness of the 1996 Noise Act;
- establish how far a common approach was being developed by local authorities across England, Wales and Northern Ireland to handle noise complaints, specifically those occurring in the period covered by the Noise Act; and,
- identify good practice in dealing with night noise whether or not an authority chooses to adopt the 1996 Act.

4.12 Only 13 of the local authorities in England, Wales and Northern Ireland had, at the time of the report, adopted the provisions of the Noise Act. The reasons given by those authorities that chose not to adopt the act were as follows:

- No local demand.
- Insufficient resources to fund all the requirements of the Act.
- Current service was adequate.

4.13 While only 13 authorities were reported to have adopted the provision of the Act the introduction of the Act raised awareness of the need for an “out of hours” service at a local level. In 1994 only 52% of the authorities which responded had in place a form of “out of hours” service to deal with noise complaints, but by 1997 this had increased to 90%. Of the 90%, 45% provided the services 7 days a week (University of Birmingham 2002).

4.14 The DEFRA review also examined the use of the Act in resolving night-time noise problems. Of the 13 authorities that had adopted the Act only 6 were able to provide complaints resolution details and the results shown in Table 4.1 reveal that the use of powers

other than the Noise Act remained the preferred option. However, Table 4.1 does not identify night-time noise complaints separately and it was therefore necessary to estimate the number of complaints that would have occurred at night by referring to other data. It was estimated that 9% of neighbour noise complaints would have been expected to have occurred during the night time period. On that basis the report stated that it was possible to assume that approximately 500 of the complaints (i.e. 9% of 5180) would have been expected to have occurred during the period 23.00 to 07.00 hours. Therefore the provisions of the Act were only used in 2% of applicable cases (University of Birmingham 2002).

Table 4.1 Complaint Resolution Details

Legislative Provision Used	Actions	Total for 6 Adoptees
The Noise Act 1996	Number of complaints dealt with	8
	Number of warning notices served	7
	Number of Fixed Penalty Notices served	0
Other provisions	Number of complaints dealt with	5180
	Number of prosecutions taken	45
	Number of convictions secured	32

Safety Considerations

4.15 The University of Birmingham review reported that authorities which had agreed formal relationships with the Police, found that their officers were more confident and effective when dealing with night noise. It was also found that having a Police presence when statutory action was taken was beneficial. For example, some authorities insist on a Police presence for the issuing of any noise notice out of hours. The majority however, only required a Police presence for the seizure of equipment, or if the officer has assessed that there was a risk to personal safety. It was indicated that the seizure of noise making equipment was best carried out the next day with the assistance of the Police.

DEFRA General Consultation

4.16 In addition, to the research undertaken by the University of Birmingham on behalf of DEFRA, DEFRA had, in 2001, carried out a general consultation exercise on options for increasing a greater uptake of the provision of the *Noise Act 1996*. On-line feedback was possible through a DEFRA web page <http://www.DEFRA.gov.uk/environment/consult/reviewofnoise/feedback.htm> (DEFRA 2001, feedback). The suggestions offered for consideration were as follows:

- The existing provisions should be mandatory for all local authorities.
- No legislative change. But use Best Value and other existing channels to present the case to all local authorities for offering night time noise services.
- The provisions should be made less prescriptive and non - adoptive. This would make the Night Noise Offence another tool available to local authorities.

4.17 DEFRA published the responses received on their website (<http://www.DEFRA.gov.uk/environment/consult/reviewofnoise/response/index.htm>) (DEFRA 2002, response) and the report identified and summarised the main themes arising from additional comments made by the consultees. The conclusion of the consultation, as reported by DEFRA, was as follows (DEFRA 2002, response).

“There was a clear majority of respondents for the second option of no legislative change. As well as by that choice, having indicated their preference for employing the Best Value process to present the case to all local authorities for offering night time noise services, many of the local authority respondents made additional comments to the effect that they believed Best Value was the appropriate means of balancing demand and resource. A number have already examined the issue in the light of Best Value and most if not all of these seem to have concluded that adoption of the Act is not called for”.

“A significant minority of respondents selected the third option of making the provisions less prescriptive and non-adoptive, leaving the Night Noise Offence as another tool available to local authorities to use in appropriate circumstances. There seems to have been some confusion amongst respondents over the intent behind the suggestion that the Act be “non-adoptive”. Nevertheless there was a clear consensus that flexibility to use the Act, where it was considered appropriate and without the enduring commitment to provide a night time noise service in situations where it might not be justified, would make it a useful tool”.

4.18 In addition, a number of organisations and local authorities that responded felt that the specification of the permitted level as an A-weighted sound level was inappropriate to a problem that often involves low frequency noise. Several respondents suggested that C-weighting or dB(Lin) were required. Also, several respondents expressed concern for the personal safety of officers, particularly in situations where Police support was not readily available. Others either currently rely on the Police to be the first line of response to night-time noise complaints that they judge to be a potential disturbance of the peace. It was also suggested that maybe the Police should be the first contact, with Environmental Health Officers providing a support role.

4.19 There was a response from the Police and it commented that implementation of the Act was variable and *“in many instances it is far from satisfactory.”* Their experience of co-operative working with local authorities in existing frameworks suggests that the best solution is for the matter to be progressed within the context of the local Crime and Disorder partnerships.

4.20 The DEFRA sponsored research into neighbour and neighbourhood noise (ERM October 2003) available on line at (<http://www.DEFRA.gov.uk/environment/noise/erm/index.htm>) also supported the abolition of the requirement for the adoption of the Noise Act and the necessity to provide an out of hours service.

Amendments to the Noise Act 1996

4.21 The *Noise Act 1996* has been amended by the Anti-Social Behaviour Act 2003. The amendments are such that the Noise Act can now be used as another tool for local authorities

to use without the need for formal adoption of the Act. The details of the arrangements for the provision of services to enable the issuing of Night Noise Fixed Penalty Notices are left to local authorities to determine in accordance with any assessment of local needs and circumstances. The amendment makes clear that the measurement of noise is a skilled operation which should only be undertaken by people who are competent in the procedures. It further advises that the issuing of such notices is unlikely to be suitable for contracting out, as the Act specifies that this function should be performed by an officer of the authority, (*Defra Circular NN/31/03/2004*). The issue of who can measure the noise in Scotland is considered in Chapter 5.

Experience of Belfast City Council and the Noise Act 1996

4.22 The officers of Belfast City Council welcomed the provisions of Noise Act. They have established robust procedures for the enforcement of the Night Noise Offence and for recording of the usefulness of the Act. Belfast City Council began using the Act in August 2000 and during the first year (which did not represent a full 12 month period) 165 warning notices were issued with only 7 Fixed Penalty Notices issued. In the year 2001-2002 there were 328 warning notices issued with 15 Fixed Penalty Notices issued. In 2002-2003 there were only 162 Warning Notices issued and 11 Fixed Penalty Notices. The officers are of the opinion that the initial high number of Warning Notices occurred because, in the initial enforcement of the Act, they did not warn complainants that if a warning notice was issued and not complied with measurements would have to be undertaken in their home before the Fixed Penalty Notice could be issued. The public satisfaction with the Night Noise service provided in Belfast is very high and the officers of Belfast City Council have reported that the Police are delighted with the service as it enables them to target resources more effectively. Belfast City Council runs a continual awareness campaign both for the benefit of the public and the Police. Each Police Station is visited annually to ensure that contact details for the night noise service are prominently displayed within the station for the benefit of the public and the duty desk sergeant. The dedicated Night Team are all technically trained in noise and comprise of Technical Officers and Environmental Health Officers. The officer responsible for the organisation of the team stressed that personal communication skills were of paramount importance in carrying out the duties required of the Officers, (Private communication with Belfast City Council, 2003).

OTHER EUROPEAN COUNTRIES

4.23 In a review undertaken by ERM in relation to neighbour noise (Environment Resources Management (ERM) – *Final Report Neighbour and Neighbourhood Noise - A Review of European Legislation and Practises*, March 2003 available on line at (<http://www.DEFRA.gov.uk/environment/noise/euroreview/index.htm>) it was reported that there is a variety of legislation used to address neighbour noise in different countries. It reported that few countries have a law specifically for neighbour noise. Most countries devolve powers to local government which, to differing extents, draw up local laws on neighbour noise. The research also highlighted that there are differences in regions within countries in how the issues are tackled. A table contained within the aforementioned research report is reproduced here for information as Table 4.2. Although there would appear to be no system with the provisions of the Noise Act there are broad similarities. For example, in Germany when a noise complaint is found to be significant (no definition of

significant), and the assessment can be subjective or objective, the person responsible for making the noise may be asked to change their behaviour. If they do not the authorities have the right to confiscate equipment or to give financial penalties. However, the information was unclear as to whether or not there were instant fixed penalties and it is not specially aimed at noise of a domestic origin.

Table 4.2 Summary of Legislation in Other European Countries

Country	Does specific Neighbour & Neighbourhood (N&N) noise legislation exist?	Is noise covered under other national, regional or local legislation	Is the system nuisance based?	Major differences from UK legislative system?
Austria	No	Competences for N&N noise lie with regional authorities	Yes, although noise levels are measured during investigation	The Police deal with most neighbour noise complaints
Belgium, Wallonie	No	Regional legislation is developed within a framework of national regulations	Yes, for neighbour noise complaints. Noise levels are measured when dealing with neighbourhood/commercial complaints.	Greater Police involvement
Belgium, Flanders	No	Regional legislation is developed within a framework of national regulations	Yes, for neighbour noise complaints. Target noise values are applied to all non-permanent establishments	Noise limits are applied to all permanent establishments. Greater Police involvement.
Denmark	No	A number of national laws are relevant to N&N noise. Neighbour noise in owner/occupied dwellings is not legislated for.	Yes, for neighbour noise complaints in social housing only. Noise levels are also applied to different zones of activities.	Neighbour noise in owner/occupied dwellings is not legislated for.
Finland	No	A number of national laws are relevant to N&N noise, plus Municipal Ordinances	Noise limits are attached to operating permits. Where these do not apply a 'hazard to health' must be demonstrated.	There is a clearer link made between noise and health. Greater Police involvement in responding to complaints.
France	Yes – Decree on Fight Against Neighbouring Noise	Other national legislation also covers N &N noise	Yes, in the case of neighbourhood noise. For commercial noise, levels must be measured.	Police can investigate and prosecute against noise problems.
Germany	No	Regional Noise Ordinances and other national (Federal) laws are applicable to N&N noise.	Yes, in some cases. Noise levels are also applied and some activities prohibited at certain times.	Use of House Regulations in rented accommodation and 'nights rest hours'. Also greater Police involvement. Use of Police regulations.

Country	Does specific Neighbour &	Is noise covered under other national, regional or local legislation	Is the system nuisance based?	Major differences from UK legislative system?
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	Neighbourhood (N&N) noise legislation exist?			
Greece	No	National and regional laws apply	Yes, in some cases. Noise levels are activities also applied and some prohibited at certain times.	Permits are required for cafes, bars etc, which include noise permits.
Ireland	No	EP Act is the national law for N&N noise	Yes. This may be judged by the Court for s 108 notices or by an officer for action under s 107.	Section 108 allows authorities to opt out by allowing individuals to apply for a Court Order.
Italy	No	National laws are enforced by regional & municipal authorities.	Yes, for action taken under the Civil & Penal codes. Noise limits are also applied to different land-use planning zones.	Police and health authorities are responsible for the measurement and remediation of noise.
Luxembourg	No	National laws on N&N noise are complemented by legislation of the City Police	Yes – disturbance to public tranquillity is prohibited. Noise levels also apply in some cases.	The Police are the enforcing authority
Netherlands	No	National legislation is defined in local regulations	Neighbour noise complaints are nuisance based. Noise norms are established for commercial operations.	Use of noise norms for commercial activities. Police deal with all neighbour noise complaints.
Portugal	No	Noise Pollution Act is main legislation	Yes, although noise levels are also measured, particularly for commercial operations.	Permits are required for certain activities (i.e DIY). N & N noise are enforced by the Police.
Spain	No	Regional Municipal Orders have been established which cover N&N noise.	Noise levels are measured in all cases.	Greater reliance on noise limits which apply to different areas.
Sweden	No	A national Environmental Code covers all sources of noise in addition to other environmental issues.	Yes, although noise levels may be measured if considered necessary.	Burden of proof can be reversed. Landlords have greater responsibilities.

AUSTRALIA

4.24 In Australia, generally local councils are the Appropriate Regulatory Authority (ARA) for noise of domestic origin. In brief, investigating officers often have the power to issue warning notices, on the spot fines or abatement notices. Abatement notices are issued to the person causing the nuisance and can require the person to stop their activities, or to reduce the nuisance to an acceptable level. The current practice in relation to neighbour noise in New South Wales and Queensland will be reviewed.

New South Wales

4.25 The present law in New South Wales has grown out of a process similar to that experienced in Scotland at present. The *Protection of the Environment Operations Act 1999* and *Protection of the Environment Operations (Noise Control) Regulation 2000* is the principal legislation applied throughout New South Wales to address environmental noise. Neighbour and Neighbourhood was the subject of intense scrutiny in New South Wales. In 1987 the New South Wales Law Reform Commission (hereafter referred to as the Commission) was required to inquire into and report on the laws which define and regulate relationships between people who live on neighbouring land with particular reference to noise control as it affects neighbours.

4.26 The resulting report, entitled *Report 88 (1998) - Neighbour and Neighbour Relations* ([HTTP://WWW.LAWLINK.NSW.GOV.AU/4A2565BF001E6FC0/F176C9A49A517A9F4A2565F50005FCF9/EFC21507FB109A2BCA256D820021A658?OPENDOCUMENT](http://www.lawlink.nsw.gov.au/4A2565BF001E6FC0/F176C9A49A517A9F4A2565F50005FCF9/EFC21507FB109A2BCA256D820021A658?OPENDOCUMENT)) acknowledged that

“the common law of nuisance provides very little help to a person affected by a neighbour's noise. The case must be heard in the Supreme Court. This is very expensive and tends to involve long delays during which the noise may continue and tensions between neighbours may escalate”.

4.27 From the statement above it is clear that the reasons for using means other than nuisance legislation to control neighbour noise are very similar to those presently stated within the Scottish Executive publication entitled *Putting Our Communities First: A Strategy for Tackling Anti-Social Behaviour*. However, whilst the Scottish Executive are considering following in the footsteps of England, Wales and Northern Ireland by introducing the use of an objectively measured level or levels, the state of New South Wales has, after some consideration, decided that the use of objectively measured levels is not the preferred option and instead consider the use of the term “offensive noise” more appropriate. However, as is made clear in paragraph 4.29, there is the possibility of using objectively measured levels in some circumstances. Before consideration of these circumstances the history of the present control of neighbour noise in New South Wales will be briefly outlined.

4.28 Prior to the 1998 report the Commission issued a *Discussion Paper (DP 22)* which considered issues relevant to the drafting of *Protection of the Environment Operations Act 1997* (NSW). One of the comments within the report was that, even if a noise abatement order had been breached, it was difficult to get a conviction because the definition of

"offensive noise" is ambiguous. The *Discussion Paper* said the use of the concept of unreasonableness has cast courts back onto the common law and suggested that "offensive noise" could be defined more clearly to make explicit the considerations available to a court; and asked for submissions on the issue.

4.29 The submissions included the recommendations that objectively measured levels which were scientifically provable be used. These submissions came from the Council of the City of Sydney and others on the basis of its experience in trying to get a conviction for breach of a noise control notice. These submissions stated that evidence from council and noise experts is not enough and that obtaining evidence from neighbours was difficult because people are often reluctant to give evidence against neighbours. However, the Community Mediation Division of the Australian Dispute Resolution Association submitted that what is reasonable in relation to noise from children, domestic animals and small domestic appliances cannot be defined and must be negotiated. The net result was that The Community Justice Centres Council rejected the proposal for the use of objectively measured levels on the grounds that clarifying the terms focuses on the problem rather than the underlying issues and that a system based on rights, rather than needs, fosters confrontation. However, *the Protection of the Environment Operations Act 1997 (NSW)* addressed the concerns to some extent and the definition of "offensive noise" was redrafted: noise is offensive if it is harmful to someone or interferes unreasonably with their comfort or repose. The definition also includes the possibility of setting, by regulation, an objective standard for "offensive noise". It does this by including in the definition;

“noise: that is of a level, nature, character or quality prescribed by the regulations or that is made at a time, or in other circumstances, prescribed by the regulations”.

4.30 The Commission endorsed this on the basis that it provided an appropriate balance between the scientific and subjective approaches. It was also claimed that it kept the flexibility needed for proving that a noise is offensive in cases where scientific measurement is not possible, while leaving open the possibility for objective and scientific measures to be provided for where practical and appropriate. The Commission suggested that the Environmental Protection Agency (EPA) should give priority to investigating the circumstances in which it may be practical and appropriate to prescribe objective measures for offensive noise in regulations under the new Act.

4.31 The *Protection of the Environment Operations Act 1997 (NSW)* was passed in December 1997 and became effective in July 1999. It repealed the *Noise Control Act 1975 (NSW)* and associated regulations. The full definition of offensive noise, in terms of the *Protection of the Environment Operations Act 1997 (NSW)* offensive noise, is defined as:

- (a) noise that, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances,
 - (i) is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted;
 - (ii) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted; or
- (b) that is of a level, nature, character or quality prescribed by the regulations or that is made at a time, or in other circumstances, prescribed by the regulations.

4.32 What is an "unreasonable" interference with comfort and repose depends on all the circumstances, for example, the time and location of the noise.

The 1997 Act provides three ways to deal with noise:

- noise abatement directions
- noise control notices and
- noise abatement orders for ongoing noise problems that are difficult to resolve.

4.33 Noise abatement directions are a remedy for a person affected by isolated incidents of offensive noise, such as a late night party. It is a quick response control for temporary 'offensive noise'. Offensive noise is noise which, because of its level or character or the time that it is made, is likely to interfere with the comfort of, or harm, a person who is outside the premises from which the noise is emitted. The Act empowers authorised persons, including Police officers and employees of local councils, to issue a noise abatement direction where it appears to the authorised person that offensive noise is being, or has at any time during the preceding seven days been, emitted from premises. The noise abatement direction may direct the person whom the authorised person believes to be the occupier of the premises to cause the emission of the noise to cease and/or direct any person whom the authorised officer believes to be making, or contributing to the making of, the noise to cease doing so. It is an offence if the person, to whom a noise abatement direction has been given, without reasonable excuse, fails promptly to cease making or contributing to making the offensive noise or makes or contributes to making the offensive noise within 28 days (or other specified time) after the direction has been given. The penalty for non compliance is 30 penalty units (\$3,300). The penalty is expressed in the statute in penalty units but has been converted to a monetary value for the sake of comparison with penalties that are expressed only in terms of monetary value. One penalty unit is currently equivalent to \$110.

4.34 If necessary to enforce, or to investigate whether there has been a breach of a noise abatement direction, the Police may apply for a warrant to enter the premises from which the noise is coming. The *Protection of the Environment Operations Act 1997 (NSW)* (POEP) gives Police a new power, which is similar to that already in existence in Scotland under the *Civic Government (Scotland) Act 1982*, that if a person is contravening a noise abatement direction the Police may seize or secure any equipment that is being used to contravene the direction. However, before they do so the Police must warn the person in charge of the equipment that the continued use of the equipment may lead to its seizure. The Police must release or return the equipment within 28 days. It was unclear in the literature review if the release or return incurred any charges or if the equipment could be permanently confiscated.

4.35 A Noise Control Notice (NCN) can be issued to prohibit the carrying out of an activity, or the use of an article, emitting noise above the level specified in the notice. Notices are issued to the occupier of the premises concerned, or to the person carrying out the activity. A noise control notice can only prohibit noise, that, when measured at any specific point, is in excess of a specified level. It is an offence to contravene a noise control notice if the noise can be detected outside the premises without the aid of a sound level meter. The appropriate regulatory authority (ARA), but not the Police, have the power to issue a noise control notice. The Police do not have the power to issue a penalty notice for the contravention of a noise

control notice, although they do have the power to prosecute a person in court for this offence.

4.36 A noise abatement order is intended to deal with ongoing noise problems that are difficult to resolve. A householder affected by noise has recourse to a justice of the peace. The justice of the peace may then summon to court the person responsible and can make an order directing the person to abate the noise. Contravention of the order may result in a penalty of 30 penalty points (\$3300).

4.37 The *Protection of the Environment Operations (Penalty Notices) Regulation 1999* lists the offences that can be dealt with by penalty notice. The specific noise offences are detailed in *Protection of the Environment Operations (Noise Control) Regulation 2000*. The regulation sets out restricted times during which articles and vehicles entering or leaving premises may not be used if they can be heard in a neighbour's home. These articles, vehicles and hours of restriction are listed in Table 4.3. Even outside these hours, restrictions can be placed on the use of these articles if they cause offensive noise. It is also an offence for the sound system of a motor vehicle to emit offensive noise or for a telephone to be connected to a car horn or alarm. The on-the-spot fine for breaching these regulations varies from \$150 to \$1200.

Table 4.3 Fixed Penalty Offences (New South Wales)

NOISE SOURCE	TIMES DURING WHICH SPECIAL RESTRICTIONS APPLY
Power tools and equipment (powered garden tools, e.g. lawn mowers, leaf blowers; electric or pneumatic tools; chainsaws or circular saws; gas or air compressors; swimming pool or spa pumps).	8pm to 7am on weekdays and Saturdays 8pm to 8am on Sundays and public holidays
Musical instruments and sound equipment (radios, TVs, tape records, record or compact disc players, public address systems or computer games)	12 midnight to 8am every day
Domestic air-conditioners	10pm to 7am on weekdays 10pm to 8am on weekends and public holidays
Motor vehicles (<i>except when entering or leaving residential premises</i>)	8pm to 7am on weekdays 8pm to 8am on weekends and public holidays
Refrigeration units fitted to motor vehicles.	8pm to 7am on weekdays 8pm to 8am on weekends and public holidays

4.38 The *Noise Control (Miscellaneous Articles) Regulation 1995* was introduced to cover community noise issues not covered by previous legislation. It includes limitations on burglar alarms for both residential and commercial premises. Changes have been made to the night-time control of common domestic noise sources such as power tools, air conditioners, amplified music and lawn mowers. Using the provisions of the POEP Act a noise abatement direction can be issued with only one warning and the warning is valid for 28 days. If an offence is committed within this period a fine can be issued without further warnings.

Queensland, Australia

4.39 Noise in the environment is controlled through the *Environmental Protection Act 1994*, the *Environmental Protection (Noise) Policy 1997* and local government laws. Noise from normal domestic appliances or machinery is dealt with by the local council's Environmental Health Officer. The law aims to protect people from unreasonable noise which substantially interferes with the ordinary comfort of the occupier, e.g. where it causes serious physical discomfort, actual damage to property or injury to health. The factors to be considered are the duration of the noise, its intensity, how regularly it occurs, and the area in which it is occurring. However, noise from amplifiers, burglar alarms, musical instruments, motor vehicles or parties is not covered by the aforementioned legislation and is dealt with by the Police. Maximum permissible noise levels (as specified in the Environmental Protection (Noise) Policy 1997) are used in the determination of whether the general environmental duty has been met. The penalties for failing to comply with noise policies/regulations are up to 40 penalty units, or up to \$2,600, for the initial breach and issue of a noise abatement notice. Failure to comply with the notice may result in a fine of up to \$2,600. If any of the nuisance laws are breached, an investigating officer will usually issue one warning notice; should the nuisance occur again penalties apply. The penalties are either infringement notices (on-the-spot-fine) from \$150 up to \$600 per infringement or, in some cases, abatement notices (minimum penalty \$300).

4.40 Specific noise levels are used in relation to swimming pool and spa pumps, air conditioning equipment, power boats and jet skis. The specific level used varies depending on the time of day, for example 50dB(A) is used for swimming pool pumps and applies between 07.00-19.00 hours, whereas between 19.00 - 22.00 hours it should be no more than 5dB above the background noise level, and inaudibility applies from 22.00 to 07.00 hours.

UNITED STATES AND CANADA

4.41 In the United States and Canada there are many local by-laws which control noise. Contravention of these can result in the issue of fixed penalties or fines. Examples of such are presented below.

Charlotte, North Carolina

4.42 In Charlotte, North Carolina there are specific noise levels which cannot be exceeded. There is provision for a Police officer, noise control officer, or animal control officer to issue a citation subjecting a noise maker to a one hundred-dollar civil penalty. This penalty can be served in respect of exceedances of the following levels:

- Operate or allow the operation of any sound amplification equipment so as to create sounds registering fifty-five (55) dB(A) between 9:00 a.m. and 9:00 p.m. or fifty (50) dB(A) between 9:00 p.m. and 9:00 a.m., as measured anywhere within the boundary line of the nearest residentially occupied property, except in accordance with a permit obtained from the noise control officer.
- In multifamily structures including apartments, condominiums, or other residential arrangements, where boundary lines can not readily be determined, it shall be unlawful to operate or allow the operation of any sound amplification equipment so as to create sounds registering fifty-five (55) dB(A) between 9:00 a.m. and 9:00 p.m. or fifty (50) dB(A) between 9:00 p.m. and 9:00 a.m., as measured from any point within the interior of another residential unit in the same complex or within the boundary line of the nearest residentially occupied property, except in accordance with a permit obtained from the noise control officer.

Larimer County

4.43 Larimer County Ordinance No. 97-03 Ordinance Concerning Noise Levels, adopted on 22 September 1997, states that:

“The Board of County Commissioners of Larimer County, Colorado, finds and declares that noise in excess of the limits provided in this Ordinance is a major source of environmental pollution which represents a threat to the serenity and quality of life in Larimer County, and excess noise often has an adverse physiological and psychological effect on human beings, thus contributing to an economic loss to the community”

4.44 Any law enforcement officer, the Planning Director or the Environmental Health Official, for Larimer County are authorised to issue citations, summonses and complaints for violation of the Ordinance. The maximum permissible noise levels as measured in a specific manner are as follows.

4.45 In the hours between 7:00 a.m. and the next 7:00 p.m., the noise levels permitted in this section may be increased by 10dB(A) for a period not to exceed fifteen minutes in any one hour period.

	Maximum Noise [dB(A)] 7:00 a.m. to <u>next 7:00 p.m.</u>	Maximum Noise [dB(A)] 7:00 p.m. to <u>next 7:00 a.m.</u>
Residential property	55 dB(A)	50 dB(A)

4.46 The noise is required to be measured at least 25 feet from a noise source located within the public right-of-way, and if the noise source is located on private property, or public property, other than the public right-of-way, the noise shall be measured at or within the property boundary of the residential property where the measurement is taken. The wind velocity at the time and place of such measurement is not more than five (5) miles per hour or twenty-five (25) miles per hour with a windscreen appropriately attached to the microphone.

4.47 The ordinance also includes a subjective assessment of the noise in that it states;

“For the purposes of this Ordinance, a noise not in violation of the parameters specified in Section 5 constitutes a noise disturbance in violation of Section 4 when, in the reasonable discretion of Larimer County Sheriff’s officers, public health officials or zoning administrators, the noise constitutes an unreasonable interference with enjoyment of life, quiet, comfort or outdoor recreation of an individual or individuals of ordinary sensitivity or habits [who are] present at the time the noise is made.”

4.48 The Ordinance also includes limit values for construction noise and motor vehicles on public rights of way and specifically excludes the following:-

- Any noise resulting from any authorized emergency vehicle responding to an emergency call or acting in time of emergency.
- The operation of aircraft or other activities which are pre-empted by federal law with respect to noise control.
- Operation of agricultural equipment.
- Sponsored athletic events.
- General traffic and railroad noise.

4.49 The graduated fine schedule for the penalty assessment procedure is:

- \$30.00 for the first violation.
- \$60.00 for the second violation within thirty (30) days of the first violation.

- \$300.00 for each successive violation within thirty (30) days of the prior violation.

4.50 In addition to any other penalty, persons convicted of a violation of this Ordinance shall be subject to a surcharge of \$10.00 paid to the Clerk of the Court.

City of Waterloo, Ontario, Canada

4.51 There is a by-law effective within the limits of the City of Waterloo, stipulating that it is forbidden to sound any bell, blow or sound any horn, shout or make any unusual noise or noise likely to disturb the inhabitants of the City of Waterloo or cause or permit the same to be made. Every person who contravenes any of the provisions of this by-law shall, upon conviction thereof, forfeit and pay a penalty not exceeding (exclusive of costs) the sum of Two Thousand (\$2,000.00) Dollars for each such offence and every such penalty shall be recoverable under *The Provincial Offences Act, R.S.O. 1980, Chapter 400*, as amended.

Calgary, Canada

4.52 The Noise Control Bylaw No.45M95 regulates noise in the city of Calgary. The City of Calgary appoints regulators called ‘Testers’ to establish whether noise levels have been exceeded. Testers measure the noise levels at least 1.0 metres above the ground, from any point in a residential area where a complainant hears the offending noise. The by-law states that noise levels are measured ‘*at any Point of Reception within a Residential Development*’ and defines it as:

‘*any outdoor location at the place of work or residence where Noise or Sound Levels are heard by a complainant as determined by the Tester to be appropriate in each circumstance.*’

4.53 Hence, reception points are subjective and not quantifiable. The permitted levels in residential areas are calculated as presented in Table 4.4.

Table 4.4 Calgary Permitted Levels

Continuous Sound		Non-Continuous Sound	
Daytime hours	Night time Hours	Daytime hours	Night time Hours
65 dB(A) over 1 hour	55 dB(A) over 1 hour	85 dB(A) over 15 minutes	75 dB(A) over 15 minutes

4.54 Where it has been established that an offence has been committed, a By-law Enforcement Officer may issue a Violation Ticket to the offender. Fines for breaking the bylaw start at \$200 upon conviction for a first offence. If a person violates the same provision of the by-law twice within a six-month period the minimum penalty is then \$400.00 with a minimum penalty of \$800.00 for three or more violations in the same time period.

Menlo Park, United States of America

4.55 The City of Menlo Park has a Noise Ordinance, enforced by the City’s Police Department, which identifies the maximum noise levels permitted within the city’s boundaries. A violation can be cited under section 8.06.030. The City’s Noise Ordinance goes further and distinguishes between detached housing and semi-detached/tenant blocks/multi-occupied buildings with common walls. The permitted levels in residential areas are as detailed in Table 4.5.

Table 4.5 Menlo Park Permitted Levels

All residential properties		Common wall properties	
Daytime hours 7am – 10pm	Night time Hours 10pm – 7am	Daytime hours 7am – 10pm	Night time Hours 10pm – 7am
60 dB(A)	50 dB(A)	45 dB(A)	35 dB(A)

4.56 Initially, noise violators are given a warning. Subsequent noise violations, within one year of the first offence, may be cited as an infraction. A citation will be issued and a fine assessed and processed through the San Mateo County Court.

4.57 Any person convicted of an infraction for a violation of the code is punished upon a first conviction by a fine not exceeding \$50. For a second conviction, for violating the same section of the code, within a period of one year following the date of the first violation will incur a fine not exceeding \$200, and for a third conviction, for violating the same section of the code, within a period of one year following the date of the first violation will incur a fine not exceeding \$500. Three violations of the same section within a period of one year from the date of the first violation, is classified as a misdemeanour. Any person convicted of a misdemeanour is punishable by a fine of not more than \$1000 or by imprisonment in the county jail for a period not exceeding six months, or by both fine and imprisonment.

Seattle, United States of America

4.58 The City of Seattle has a Noise Ordinance, which is enforced by the City’s Noise Inspectors, who are part of the Department of Planning and Development. The maximum permissible noise levels within the City of Seattle, for all types of sounds, are listed, in decibels, in Table 4.6.

Table 4.6 Seattle Permitted Levels

Daytime hours (7am – 10pm)			
District of Sound Source	District of Receiving Property		
	Residential	Commercial	Industrial
Residential	55	57	60
Commercial	57	60	65
Industrial	60	65	70
Week Nights (10pm – 7am) Weekends & Holidays (10pm – 9am)			
District of Sound Source	District of Receiving Property		
	Residential	Commercial	Industrial
Residential	45	57	60
Commercial	47	60	65
Industrial	50	65	70

4.59 Noise levels are measured at the property boundary. The property boundary is defined, in the Seattle Municipal Code, as:

‘..an imaginary line exterior to any enclosed structure, at ground surface, which separates the property of one or more persons from that owned by others, and its vertical extension.

4.60 The city’s Noise Inspectors, who are part of the Department of Planning and Development, control noise nuisances. A failure to comply with a final order is punishable by a fine. Fines can be issued up to \$500, or by imprisonment in the City Jail for up to 6 months.

Overland Park, Kansas

4.61 The city’s noise ordinance was implemented in 2001 after community consultations. Permitted levels at property lines in residential areas are detailed in Table 4.7.

Table 4.7 Kansas Permitted Levels

Daytime hours 7am – 10pm	Night time hours 10pm – 7am
60 dB(A)	55 dB(A)

4.62 The ordinance tackles a variety of noise disturbances including the following:

- Stereos - a stereo is in violation of the ordinance if it can be heard across a property line between midnight and 6am.
- Vehicles - no testing of any type of motor vehicle, including the revving of an engine, is permitted where it can be heard by neighbours between 10pm and 7am.
- Car stereos – excessively loud music played on a car stereo is considered a violation where it can be heard or felt 50ft from the origin of the sound.

4.63 Fines are issued as follows: first violation \$50, second violation £150 and third violation \$250.

Miami City

4.64 The Miami City Commission is currently considering introducing an ordinance that will restrict noise levels throughout the city. The allowable levels would be higher in industrial areas than in residential. Air conditioners, lawn mowers, homeowner's mechanical tools and church bells would be exempt from the ordinance. Violators of the proposed law would be fined from \$100 to \$500 per offence, or could be criminally charged with a third-degree misdemeanour. There was no information available on the actual allowable noise levels.

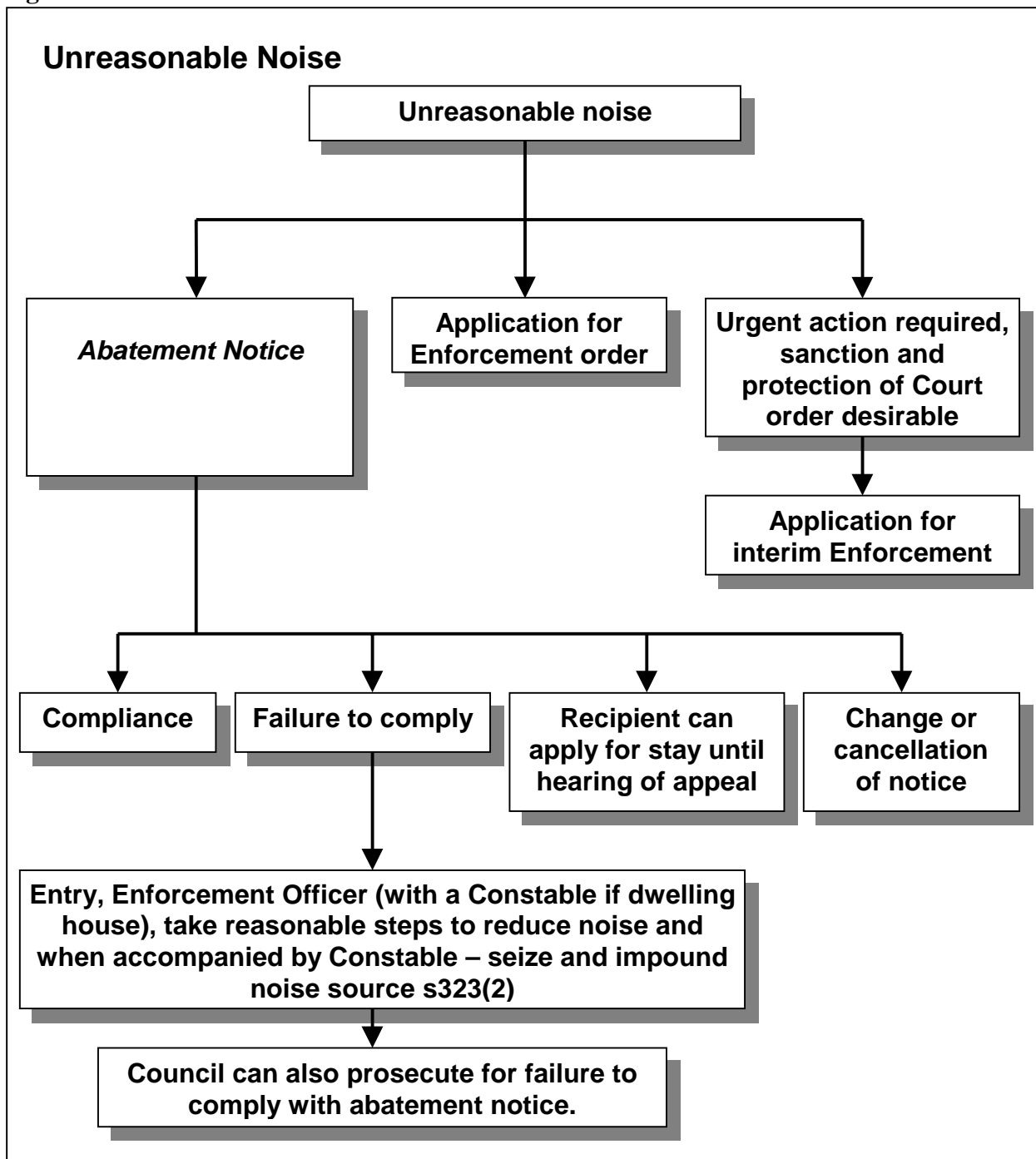
NEW ZEALAND

4.65 In New Zealand the *Resource Management Act 1991* (RMA) allows abatement notices and excessive noise directions to be issued (<http://www.ns.org.nz/17.html>). Sections 326 to 328 of the RMA concern excessive noise directions and section 16 refers to unreasonable noise. The excessive and unreasonable noise mechanisms for dealing with noise are summarised in Figures 4.1 and 4.2.

4.66 With respect to unreasonable noise the Act allows an enforcement officer appointed by the local authority (a licensed security guard may be appointed) to issue an abatement notice containing the prescribed particulars to an occupier of land from where "unreasonable noise" is allowed to emanate from that land/property. The occupier must comply within the time allowed by the enforcement officer (which must not be less than 7 days).

4.67 If the abatement notice relating to the emission of unreasonable noise is not complied with the enforcement officer may, without notice, enter the place and reduce the noise to a reasonable level or (if accompanied by a constable) seize and impound the noise source (other nuisances require an order from the Environment Court). Abatement notices for noise are normally issued where there is ongoing industrial noise, or perhaps for continually barking dogs etc. disturbing a neighbourhood. There is a right of appeal against the notice to the Environment Court within 7 days.

Figure 4.1 New Zealand: Unreasonable Noise



Excessive Noise

4.68 Excessive noise directions are issued in more urgent cases by an enforcement officer or by a constable at his request. They require the occupier or any other person who appears to be responsible for causing the excessive noise to reduce it to a reasonable level "within 72

hours or such shorter period as the enforcement officer or constable specifies" and may be given in writing or orally.

4.69 If the excessive noise direction is not complied with, an enforcement officer (accompanied by a constable), or a constable, may enter the place without further notice and

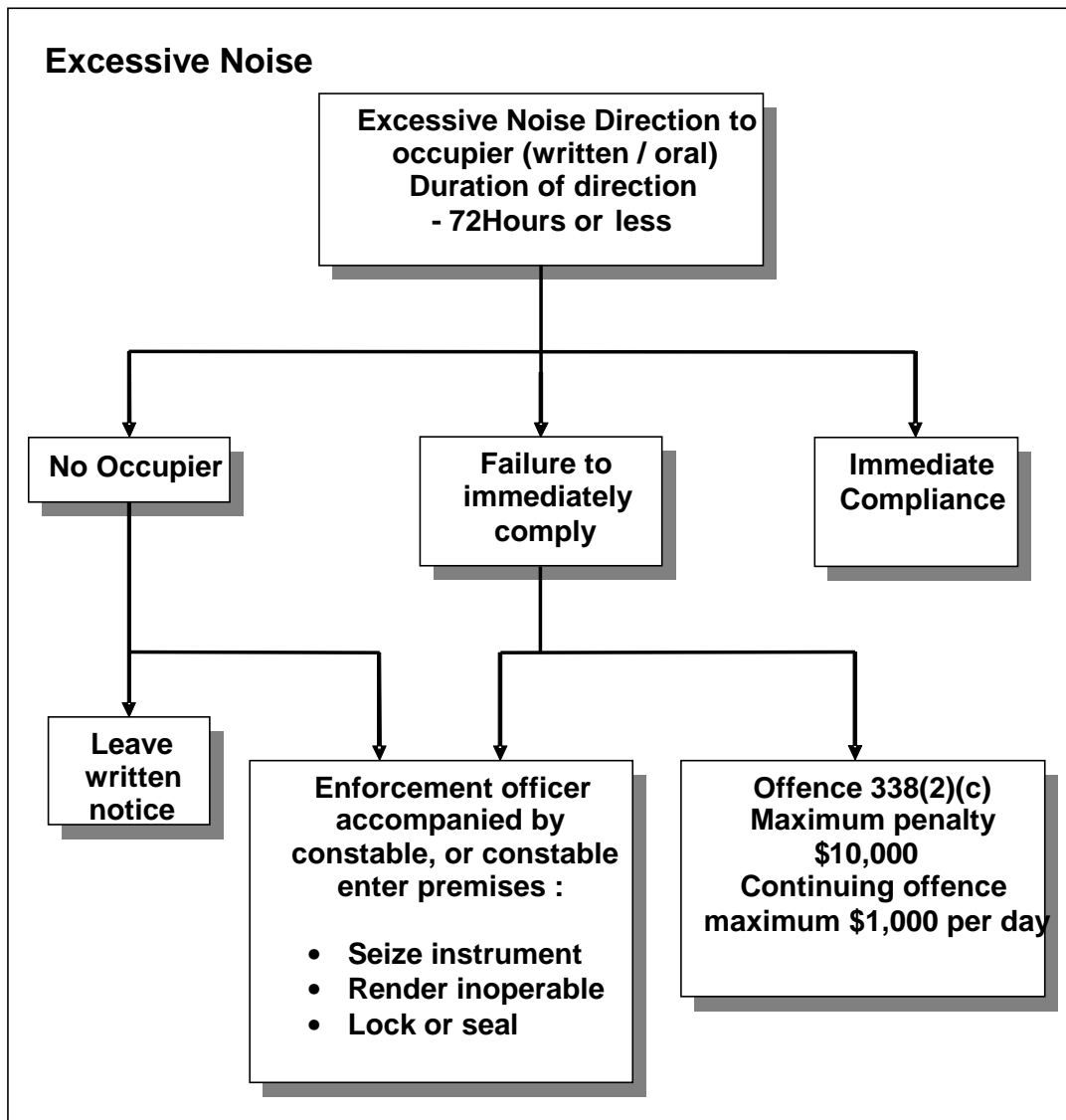
- seize and remove from the place
- render inoperable by the removal of any part from
- lock or seal so as to make unusable any instrument, appliance, or machine that is producing or contributing to the excessive noise.

4.70 Where an excessive noise direction cannot be given because there is no "occupier" or the occupier cannot reasonably be identified, and there is no other person who appears to be responsible for causing the excessive noise, an enforcement officer (accompanied by a constable) or a constable, may enter the place without notice and take the actions listed above, and must leave a written notice stating what has been done and the address of the office where enquiries can be made. Directions from a noise control officer are usually given as a result of a complaint from a neighbour or member of the public, and could cover situations where, for example, a burglar alarm is sounding continuously, or a noisy party continues to an unreasonable hour, or may be given where there are unreasonably noisy persons.

4.71 An offender can apply to have the seized property returned and this will occur, provided the local authority is satisfied that the return is not likely to lead to a resumption of the noise and the applicant pays all the costs of seizing and impounding the property. Where an authority refuses to return the property, the applicant can apply to the Environment Tribunal, provided the application is made within 6 months of the seizure.

4.72 While there is no reference to objectively measured levels "excessive noise" means any noise that is under human control and of such a nature as to unreasonably interfere with the peace, comfort, and convenience of any person (other than a person in or at the place from which the noise is being emitted). There are specific exclusions in relation to transportation sources.

Figure 4.2 New Zealand: Excessive Noise



Excessive versus Unreasonable

4.73 An excessive noise direction notice is an effective means of providing for “on the spot” noise control and can be used where noise levels assessed at residential sites cause serious disruption such as sleep disturbance. This type of action is not so effective for dealing with noise from nightclubs as it only requires the cessation of the noise for up to 72 hours.

GENERAL COMMENT ON PROVISIONS FOR DOMESTIC NOISE

4.74 The review presented in this Chapter would indicate that the assessment of noise of a domestic origin when complained of by neighbours is very much dealt with in terms of subjective assessment, albeit often against a clear and concise definition of what is unreasonable or excessive. Where objectively measured levels are used, such as in Larimer County the measurement location specified is outside the property, but within the property

boundary. It is interesting to note that all of the external levels referred to in the review are generally within ± 5 dB of the WHO guideline level of 55dB(A) for daytime and 45dB(A) for night-time for general community noise in residential areas. The noticeable exception is in Calgary where the limit values are the WHO guideline levels +10dB(A). There is a general trend of an increased use of fixed penalties to deal with noise issues, and the general consensus is that dealing with noise by means of nuisance legislation is, in general, not the most effective means of doing so. It is interesting that the experience of actual enforcement officers, in the City of Sydney and elsewhere, was such that there was support for the introduction of objectively measured levels. However, this was not supported by the Law Reform Commission. There is very often an overlap in terms of the appropriate authority dealing with domestic noise; sometimes it is local council officers, sometimes the Police and, as in the case of Queensland and New South Wales, joint responsibility. In Larimer County citations, summonses and complaints can be issued by any Larimer County law enforcement officer, Planning Director or Environmental Health Official.

5.0 REVIEW OF TECHNICAL AND NON TECHNICAL ISSUES TO BE ADDRESSED IN ASSESSING FEASIBILITY OF PROPOSALS

5.1 Chapters 3 and 4 have considered the present control of noise in Scotland and have reviewed the use of objectively measured levels in other countries. It is clear from this work that the *Noise Act 1996* does not appear to have direct parallels in other countries. The closest, through the use of noise control notices and excessive noise direction notice (see Chapter 4), is Australia and New Zealand. The *Noise Act 1996* introduced the use of objectively measured levels as a means of controlling night time domestic noise in July 1997. The 1996 Act is specially designed to cope with noise originating in domestic premises, and is crafted such that it facilitates almost immediate control, or the imposition of a fine. If the fine is not paid then court action may be taken. To ensure that the incorporation of similar legislation into the Scottish statute book does not result in problems with existing legislation or guidance (where that legislation or guidance is competent) or result in technical difficulties, through ill thought out procedures, various, technical and non technical, issues need to be addressed. These issues are as follows:

- *absolute versus increase over existing noise;*
- relevant time periods to be considered;
- compatibility of proposed legislation within existing legislative framework in Scotland;
- actual intervention threshold levels and noise parameters to be employed;
- ~~employment~~ of noise (low frequency);
- measurement procedure and protocol for effective implementation of ASB noise control;
- instrumentation issues; performance, cost and availability;
- development of strategy involving co-ordination of response to ASB noise;
- practicalities of local authority response times and expectations;
- sound insulation and Civil Rights issues;
- health and safety issues;
- training in measurement and enforcement;

ABSOLUTE NOISE VERSUS INCREASE OVER EXISTING NOISE

5.2 There are essentially two aspects of noise that need to be considered; the actual intrusive noise itself, and the level of noise that would be present without the allegedly intrusive noise. Again there are two approaches to assessing an allegedly intrusive noise; the first is an assessment of the absolute level; where the acceptability of the absolute level is measured against a set criterion. The second is the assessment of the intrusive noise in terms of an absolute level, but where it is assessed against the level of noise that would be present without the allegedly intrusive noise. The latter is the approach adopted in the *Noise Act*. This has the advantage of being self adjusting for the type of area being considered, in other words the underlying level for a flat in the city centre of Glasgow or Edinburgh is likely to be higher than the underlying level in a suburban area attached to either of the two cities. The

first approach would require that different areas be assigned absolute levels, which could then not be exceeded in defined circumstances. This is similar to the approach adopted in the *Wilson Report* of 1963 where areas were considered in terms of rural, suburban or urban. Table 3.1 in Chapter 3 detailed the levels that the *Wilson Report* recommended were not to be exceeded inside dwellings. However, there is insufficient clarity currently available in terms of the actual definition of each of these areas. It is impracticable to suggest that prior to assessing whether or not the provision of the anti social behaviour legislation would be appropriate, the enforcement officer would require to seek clarification on the population density, or some other such measure of area classification. It is therefore recommended that the most efficient means of ensuring that the principle of dealing with each area on its own merits, as suggested in PAN 56, is by maintaining the approach adopted in the Noise Act and relating the level of acceptable noise to the level of noise that would exist if the allegedly intrusive noise was not present. The issue then becomes at what level is the lowest so called intervention level set. Clearly there needs to be a national strategic approach to the setting of the lowest intervention level, permissible under any legislation. The pragmatic view adopted in this research is detailed later in this Chapter (paragraphs 5.9- 5.22).

RELEVANT TIME PERIODS

5.3 Section 61 of the *Antisocial Behaviour Etc (Scotland) Bill* states that Scottish Ministers wish to give local authorities the power to implement a noise nuisance service in their area up to 24 hours a day, 7 days a week, together with the power to issue Fixed Penalty Notices. However, the Scottish Ministers recognise that local authorities will require the power to set the times and days during which such a service would operate. This flexibility is essential in encouraging local authorities to adopt the legislation. As was revealed, earlier in this report, the poor take up of the 1996 Noise Act amongst local authorities in England, Wales and Northern Ireland was very closely linked to the need to provide a night-time service seven days a week throughout the entire geographical area. Quite simply, most local authorities could not justify this in terms of best use of resources. However, the Scottish Ministers wish to further extend the provisions to cover 24 hours as opposed to the present night-time only provisions of the present *Noise Act 1996*. The need for such provisions must therefore be determined.

NEED FOR FIXED PENALTY NOTICES TO COVER 24 HOURS

5.4 In 1999/2000 the Building Research Establishment undertook a survey of national attitudes to environmental noise (BRE NAS 2000/2001). This study is available on-line at (<http://www.DEFRA.gov.uk/environment/noise/nas9900/>). The survey did include Scotland, and it reported that noise from neighbours and /or other people nearby did interfere with various elements of home life. The most common forms of interference were with sleeping (18%) and resting (16%) for the UK as a whole.

5.5 A detailed Neighbour Noise section of the survey analysed the times of the day when particular sources bothered, annoyed or disturbed survey respondents. The respondents were informed that the day time period extended from 0700-1900, the evening period from 1900 to 2300 and the night time period from 2300-0700. The results reported by BRE are presented in Table 5.1 and show that for the majority of specific sources the evening is the period when the greatest proportion of people report being particularly bothered, annoyed or disturbed.

(BRE NAS 2002). This is not surprising given that more people are at home in the evening, and therefore more likely to hear noise generated by their neighbours. Noise from radio, TV, music and DIY (the types of noise to which the *Noise Act 1996* is applied) is more of a problem during the evening period. Whereas an examination of the data shows that more people are bothered, annoyed or disturbed by parties held indoors during the night-time period rather than the evening period.

Table 5.1 Times When People are Disturbed by Particular Noisy Activities

Specific sources of noise from neighbours and/or other people nearby	n	Weekdays (%)			Weekends (%)		
		Day	Evening	Night	Day	Evening	Night
Other animals	28	32	25	61	32	25	64
Footstep	55	27	51	55	36	45	53
Parties (when held indoors)	81	1	35	54	6	57	79
Doors banging	141	33	55	46	41	49	45
Burglar alarms	150	19	27	35	19	23	36
Cars, motorcycles starting up, leaving, repairs etc	137	41	42	34	45	41	33
Radio, TV, music	201	28	54	34	41	54	40
Teenagers or adults voices	295	24	64	33	34	62	43
Dogs	201	43	35	32	44	32	29
Parties (when held outdoors)	74	9	34	30	20	65	59
Electric switches	6	0	33	17	33	50	17
DIY (hammering, drilling etc)	110	32	50	15	65	47	17
Children	189	45	63	12	62	59	14
Domestic equipment (vacuum cleaners etc)	27	22	37	7	48	41	4
Lawnmowers and other garden equipment	84	44	20	2	73	23	2
Other noises	75	35	53	44	37	55	47

5.6 It is clear that when noise is from parties held indoors, people are most bothered, annoyed or disturbed during the night time period (2300-0700), but for all other noise likely to be covered by Noise Act type legislation (amplified music, and persistent DIY) the most sensitive time is the evening period (1900-2300). Clearly party noise is not a significant issue during the daytime (except for parties held outdoors during the weekend period). However, in relation to radio, TV and music only 6% less reported being bothered, annoyed or disturbed by this type of noise during the day than at night during the week. Interestingly, for the weekend period 1% more respondents reported being bothered, annoyed or disturbed during the day time period than the night-time period. DIY noise is certainly more of an issue during the day at the weekend period with 65% of respondents reporting that type of noise to be bothersome, annoying or disturbing. In light of these findings consideration must also be given to the introduction of a daytime intervention level which will enable people to enjoy their own home without disturbance by noise generated by neighbours.

5.7 In addition to the BRE NAS findings the *NSCA 2002 Survey in Scotland* (NSCA 2002) reported that amplified music is the main source of complaint for 60% of local authorities and since 54% of the BRE respondents were bothered, annoyed or disturbed by amplified music during the evening period, it would therefore appear negligent to ignore the

evening period in the consideration of new legislative powers to help reduce disturbance from amplified music.

The Intervention Level for Different Time Periods

5.8 The need for intervention levels for the different day, evening and night periods has been established and it is therefore necessary to consider the national strategic approach referred to in paragraph 5.2.

Night-time Intervention Level and Character of the Noise

5.9 In the determination of an appropriate intervention level, consideration will first of all be given to the intervention level specified for the *Noise Act 1996* and its associated Night Noise Offence. This legislation uses an intervention level of $L_{Aeq, 5min}$ 35dB(A) as described earlier in Chapter 4. The basis for the use of 35dB(A) was explained to the House of Commons by Mr Harry Greenway (MP for Ealing North) on 16th February 1996. Mr Greenway explained that the 35dB(A) was in fact based on the World Health Organisation guidelines and was to preserve the restorative process of sleep (HANSARD, 16th February 1996, column 1245). However, the more recent WHO (*Guidelines for Community Noise*, 1999) advises that $L_{Aeq(T)}$ 30dB(A) is the target level to prevent sleep disturbance. Does this mean that there has been a change in the level of sleep disturbance that can be attributed to the general population? A comparison of the advice given by the WHO in the 1980 document (*Environmental Health Criteria:12*, 1980) and the later 1999 document (*Guidelines for Community Noise*, 1999/2000) reveals that there has not been a decrease in the levels at which sleep disturbance has been found to occur. The 1980 document advised that “*studies have indicated that the disturbance of sleep becomes increasingly apparent as ambient levels exceed about 35dB(A) L_{eq}* ”. The 1999 document advises that “*measurable effects on sleep start at background levels of about 30dB L_{Aeq}* ”. It can therefore be concluded that while measurable effects start at 30dB(A) sleep disturbance becomes increasingly apparent as the noise level exceeds about 35dB(A). In effect, the sensitivity to sleep has not changed but the emphasis and presentational styles of WHO have.

5.10 Is the type of noise critical in the exposure-response relationship for sleep disturbance? To answer this it is necessary to consider the type of noise to which the WHO level of 30dB L_{Aeq} referred. It is clearly stated in the 1999 WHO that the research on sleep disturbance was undertaken using aircraft noise as the source (Section 3.4 WHO 1999). Given that the aim of the Noise Act is to reduce annoyance to householders from noise sources such as amplified music and persistent DIY type noise generated by neighbouring households, can it then be assumed that the exposure-response for amplified music and DIY type noise will be the same as that for aircraft noise? The WHO 2000 document would appear to suggest that it does, in that it offers general guideline values while also advising that “*community noise (also called environmental noise, residential or domestic noise) is defined as noise emitted from all sources except noise at the industrial workplace. Main sources of community noise include road, rail and air traffic, industries, construction and public work, and the neighbourhood.*” However, the exposure-response relationship is not the same for all sources. In fact, Chapter 4 of the WHO 2000 document makes reference to the fact that aircraft noise is more annoying than road traffic noise, which, in turn, is more annoying than railway noise. Reference to the exposure-response relationship is also provided in the explanation of the Noise Exposure Categories in PAN 56, (SODD 1999) where it can be seen

that for rail noise the level at the boundary of NEC C and NEC D has been set 2 dB higher than the free-field level for road traffic noise because of the differing exposure-response relationships (Railway Noise and the Insulation of Dwelling” Mitchell Committee Report, published February 1991). It is not unreasonable to suggest that neighbour noise is more annoying than transportation noise given that transportation noise is the backdrop to the noise climate across most of the country. There is no readily available research on the exposure-response relationship from amplified music other than research undertaken in Edinburgh 1985 (Craik and Stirling 1985), where it was reported that music can be heard and cause a nuisance, when the music level (L_{Aeq}) is very close to or even equal to the general background noise level (L_{Aeq}). The same research reported that most complainants were dissatisfied even when the noise level was reduced to L_{A10} 35dB. It is important to appreciate that the corresponding L_{Aeq} will, in all probability, have been lower than 35dB. Whilst it is acknowledged that this research was primarily aimed at amplified music from licensed premises it could be argued that amplified music from a neighbour is little different from amplified music from licensed premises and this research clearly demonstrates that a level of L_{A10} 35dB(A) was not acceptable to most residents. The L_{A10} parameter was used in the study as a consequence of the recommendations contained within the *Wilson Report* (Wilson, 1963).

5.11 The 1999 WHO document advises that special attention should be given to sources with low frequency components. It is stated in BS 8233 that noise from neighbours may trigger complex emotional reactions that are disproportionate to the noise level, thus recognising the differing exposure-response relationships for different noise sources. In the specification of the Noise Act intervention threshold level there would appear to be no recognition of the fact that amplified music does generally contain a high proportion of low frequency sound and the exposure-response will be different with the low frequency element evoking annoyance at a lower overall level. In the UK the only commonly used method of correcting a measured level for its character is that found in BS 4142:1997 “*Method for rating industrial noise in mixed residential and industrial areas*” (BS 5228 does make reference to the possibility of a BS 4142 type correction). While this standard does not address amplified music it does allow for the character of the industrial noise “*where the noise is unusual enough in character to attract attention*”. Given the earlier clarification of the WHO guidance on sleep disturbance in relation to the level of 35dB(A) being the level above which sleep disturbance becomes increasingly apparent, it is suggested that while an intervention threshold for a Night Noise offence can be based on a level of 35dB(A), the level must be corrected for character, e.g. low frequency content. Some consideration must therefore be given to the most appropriate form of correction for the low frequency component or character of the noise. Reference should be made to Chapter 1 for a review of the ‘A’ and ‘C’ weightings.

5.12 Paragraph 41 of *Environment Circular 8/97* and paragraph 42 of *Defra Circular NN/31/03/04* refers to the possible use of a dB(C) measurement to better evaluate the low frequency element of the noise in question. The Noise Act is very often used to deal with amplified music played in a neighbouring property, and amplified music often contains a relatively high proportion of low frequency noise. As was stated in Chapter 1, our hearing is less sensitive at very low and very high frequencies, and to account for this, weighting filters can be applied when measuring sound. The criticism of using an “A” weighted level as a measurement of amplified music, in the context of anti-social behaviour is valid because of the fact that low frequency noise is more annoying than would be expected from the A-

weighted sound pressure level. Reference to Figure 1.3 in Chapter 1 shows quite clearly that the use of the “C-weighting” does not deemphasize the contribution from the lower frequencies to the same extent as the use of the “A-weighting”. For example the correction of a linear level, L_p , to an “A-weighted” level at 31.5 Hz is more than -39dB whereas with the “C-weighting” network it is approximately -3B.

5.13 The difference between the overall A-weighted and C-weighted level can provide crude information about the relative contribution of the low frequency sounds, however, there is no definitive guidance on the “C” – “A” weighting level and the relative proportion of low frequency in the noise being considered. In considering the application of a correction for low frequency there is a compromise to be achieved. It is important that the correlation between an objectively measured level to be used within the context of control of anti social behaviour and the subjective satisfaction of the complainants is good, but at the same time the ease of legally defensible measurement in difficult circumstances is also of paramount importance. It would be possible to undertake a crude assessment of the low frequency component of the noise by comparing the measured L_{Ceq} with the $L_{A99,8}$, however there are no data available on the subjective satisfaction with amplified music assessed by means of a difference between the “A” and “C”- weighted levels. The possible application of such a measurement in dealing with anti social behaviour could be that if the permitted level was not exceeded but there was a difference between the “A” and “C”- weighted levels of, for example, 15-20dB, the permitted level would be deemed to have been exceeded. There is however, insufficient evidence to justify the incorporation of such measures into the measurement strategy. In view of the review of methods of assessment of low frequency noise considered it can therefore be concluded that until such research is undertaken the application of a simple character correction of -5dB(A) is a reasonable approach in recognition of the difference in dose-response relationship for transportation and neighbour noise. However, it is strongly recommended that in enforcing the provisions of the proposed *Anti-Social Behaviour Etc. (Scotland) Bill* officers do collect data on the “C” weighted level to enable a detailed evaluation of the use of the corrected “A”-weighted level and the “C” - “A” weighted level. This would, of course, require that complainants be asked, either at the time or shortly afterwards, to complete a satisfaction questionnaire similar to that used in the Belfast study. The questionnaire used is attached as Annex 7.

5.14 It would be unreasonable to suggest the use of an intervention threshold at a level whereby measurable effects on sleep disturbance only start, i.e. 30dB(A), or indeed where the intrusive noise is required to be inaudible, i.e. at least 10dB below the noise level typically generated within the complainant’s property. Without consideration of the external noise climate, a night-time intervention level (NIL) of a character corrected level of 35dB(A), i.e. 30dB(A) without character correction, would, in the absence of consideration of the typical noise climate in the country, be considered as a justifiable basis for use as a night time intervention threshold. This is supported by the Belfast study, referred to earlier in this report, (Morrissey, 2003) where it was found that people complaining were generally happy with L_{Aeq} 30dB. The Belfast research concluded that

“Even though the level exceeded 35dB(A) in 38% of complaints, the permitted level was exceeded in only 32% (19) of the complaints. This meant that the Council was only able to serve warning notices in 32% of the cases included in this study. The other 68% of complainants had to be told that although they were being disturbed by the noise there was

no formal action that the Council could take on their behalf under the Nose Act 1996”.

Consideration of Present Typical Noise Climate

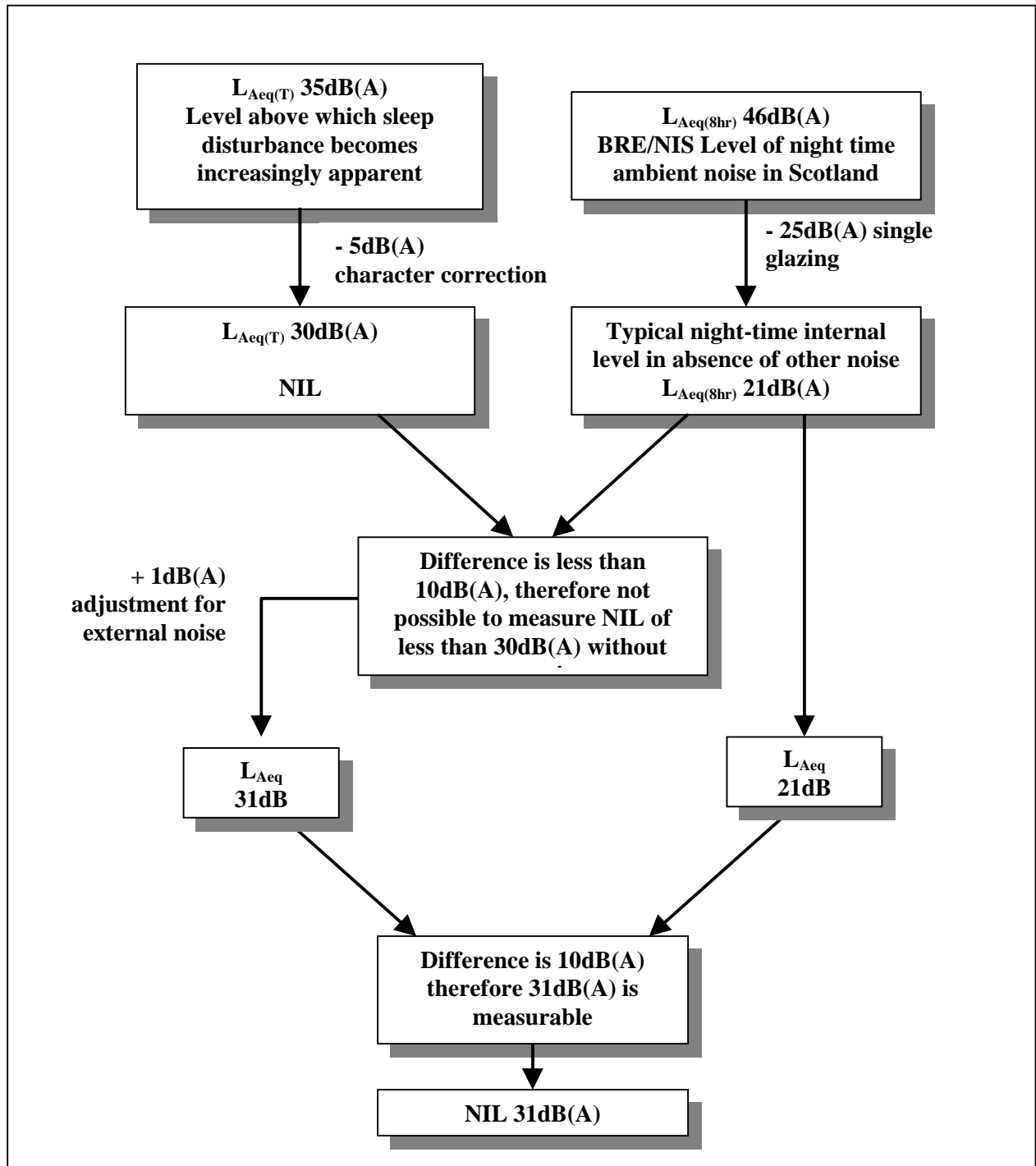
5.15 It is necessary to ensure that the typical night-time noise climate within Scotland is such that the application of an intervention level of 30dB(A) is viable. In other words, is the level of external noise within Scotland at a level that would result in the external noise contributing significantly to any internally measured night-time level? In examining this issue it is necessary to assume a minimum glazing specification of single glazing and that the intervention level will be measured with the windows closed. PAN 56 advises that single glazing will result in approximately 25dB(A) attenuation in outside to inside noise levels. Whilst it is acknowledged that PAN 56 also aspires to internal noise levels being assessed with windows open it is submitted that the external noise climate in Scotland is generally such that levels for sleep disturbance could not be assessed with windows open. The external noise climate is considered later in this section of the work. To ensure that a measurement of an intrusive level inside a property is not corrupted by external noise it is necessary to have the internal noise from external sources at a level 10dB(A) below the intrusive noise level of interest. It therefore follows, that to justify a workable intervention level of 30dB(A) (which equates to a level of 35dB(A) uncorrected for character), in terms of the external noise environment, the level of noise externally, assuming basic closed single glazing, should not exceed 45dB(A) at the facade.

National Noise Incidence Survey

5.16 In 2000/2001 BRE undertook a second Noise *Incidence Study (NIS)*. The first NIS was undertaken in 1990, but Scotland was not included. However, the 2000 study was extended in 2001 to Scotland and Northern Ireland to enable UK estimates of the noise climate to be made. The NIS claims to set new benchmark figures for the current noise exposure within the UK population based on 24 hour measurements outside a sample of 1160 dwellings. It found that 54±3% of the population of the UK live in dwellings exposed to external night-time noise levels above the WHO guideline of 45 dBL_{Aeq}. The NIS reported that although there were only small differences in the mean level of the various noise indicators between individual regions of the UK, Scotland and Northern Ireland experienced the lowest levels. It is worthwhile noting that the NIS questionnaire is aimed at responses to road traffic noise, this source is considered to be the backdrop of noise across the country.

5.17 An analysis of the external night time levels measured across Scotland during the NIS reveal that the mean L_{Aeq,8hour} level over the night-time period is approximately 46dB (façade level). The corresponding internal level with single glazing would be of the order of 21dB(A). This, strictly speaking, means that an intervention level of 30dB(A) would not be feasible, with the minimum level being 31dB(A). The night-time level reported by BRE for Northern Ireland was also 46dB(A), however, there was a larger variation than with the night-time level determined for Scotland. Although the mean value for both was approximately 46dB(A) the mean for Scotland was ±1.1, whilst it was ±5.2 for Ireland. This, in effect, means that in the areas where the 30dB(A) was found to be acceptable it would suggest that the existing ambient noise was significantly less than the mean 46.3dB(A) value reported. The derivation of the night-time level is summarised in Figure 5.1.

Figure 5.1 Derivation of Night-Time Intervention Level (NIL)



Brief Consideration of Daytime and Evening Periods in Current Guidance and Legislation

5.18 The WHO makes no real differentiation between day and evening periods in terms of the guideline values. However, there is an acknowledgment of the possible need for different levels in the current Scottish Office guidance on mineral extraction sites. PAN 50 Annex A (SODD PAN 50, 1996) advises that

“ in some local circumstances, it may be appropriate for an evening period, typically 1900-2200 hours”.

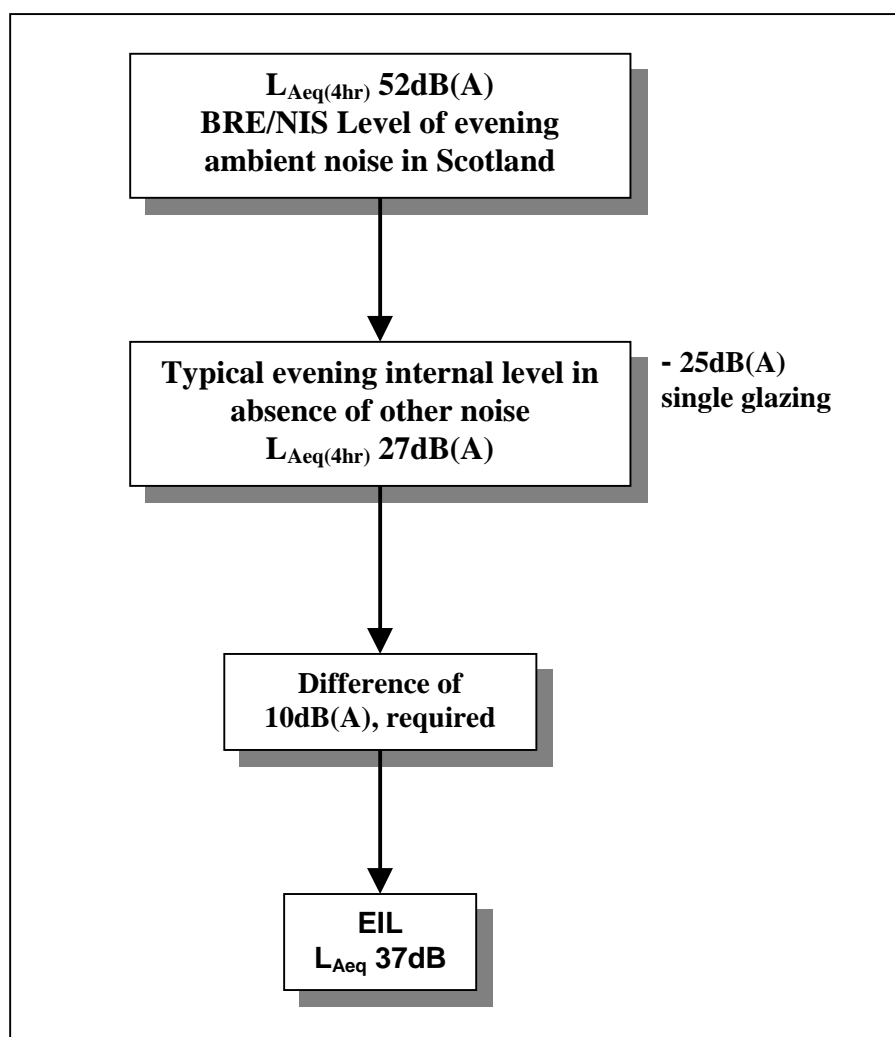
However, the BRE NIS defined the evening period as extending from 19.00 – 23.00 hours.

Evening Intervention Level (EIL)

5.19 It has already been determined that the evening period (1900-2300) is a time when the greatest proportion of people reported being bothered, annoyed or disturbed from both general external noise sources and noise from neighbours (BRE NAS 2000/2001). This is probably because more people are at home in the evening and it is not surprising as people are generally relaxing during the evening period, children may be sleeping and adults preparing to sleep. The BRE NAS survey showed that while approximately 17-18% of people reported that 2300 hours is the most common bed time on days before a working day, 14% reported that 2200 hours was their bedtime. For non-working days approximately 40% reported 23.00 hours as bedtime with 24% citing 2200 hours as their bedtime. Such findings endorse the earlier findings of this report that it would be negligent to ignore the evening period in terms of a Noise Act type provision.

5.20 There is, at present, no Noise Act equivalent for an evening intervention level. However, with the adoption of a similar approach to that adopted for the derivation of the NIL, an EIL can be derived on the basis of a typical ambient noise level. Any upward variation in the ambient noise level will be catered for by the fact that the permitted level is 10dB(A) above the underlying level. With regard to the external evening levels measured across Scotland it can be determined from the BRE NIS (BRE NIS 2000/2001) report that the mean façade $L_{Aeq,4hr}$ level within Scotland is of the order of L_{Aeq} 52dB. An external level of 52dB(A) approximates to an internal level of 27dB(A) with a closed single glazed window. A level of 27dB(A) may be recorded within a typical home in the absence of most other noise, but once a television or radio is being used at a low level it will be exceeded. The intervention level must therefore be at least 10dB greater than the internal level of 27dB(A) and must be related to the noise environment typically experienced within a dwelling during relatively quiet relaxation. To ensure that the typical external noise climate can be taken into account the minimum intervention level possible for the evening period is L_{Aeq} 37dB. The derivation of the EIL is summarised in Figure 5.2.

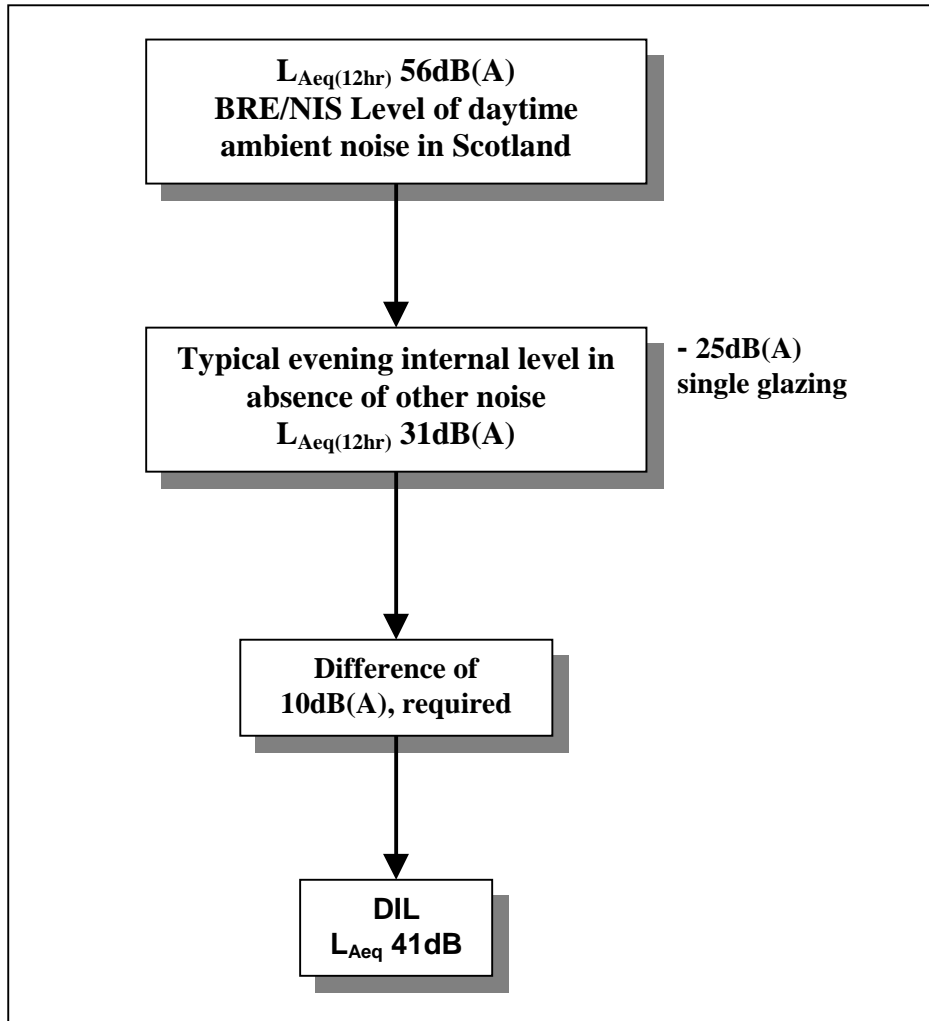
Figure 5.2 Derivation of Evening Intervention Level (EIL)



Daytime Intervention Level

5.21 There is, at present, no Noise Act equivalent for a day time intervention level (DIL), but once again an approach similar to that used for the derivation of the EIL can be adopted. An analysis of the BRE/NIS data shows that the average external daytime $L_{Aeq,12hr}$ across Scotland is of the order of 56dB. As was explained on page 34 there is no justification for ignoring the possible need for a daytime intervention level. This can be examined by considering the number of complaints made in relation to the types of noise to which Noise Act type provisions relate. During weekdays 26% of respondents reported being annoyed by radio, TV and music and 32% by DIY type noise while 24% were bothered by teenager's or adult voices. This increased to 41%, 65% and 34% respectively for the weekend day time periods (BRE/NAS 2000/2001). Continuing with the previous logic a typical external daytime $L_{Aeq,12hr}$ level of 56dB would permit a minimum intervention threshold level of 41dB(A). The derivation of the DIL is summarised in Figure 5.3.

Figure 5.3 Derivation of Daytime Intervention Level (DIL)



Intervention Level/Lden's

5.22 The day, evening and night intervention levels of 31dB(A), 37dB(A) and 41dB(A) respectively as detailed above result in a 6dB evening and 10dB night time penalty. While this is not strictly in line with the evening and night penalties used in the L_{den} parameter defined in the European Directive on Environmental Noise the proximity of the relationship is evident. Of course it must be recognised that the Directive covers transportation and industrial noise and requires that noise maps and action plans (noise policy) be made for transportation and industrial noise in certain circumstances and does not relate to ASB type noise. The maps use the L_{den} parameter, which requires that the evening and night-time L_{Aeq} levels are given a penalty of 5 and 10 dB, respectively. The reference to the European Directive parameters is simply to illustrate that the European day, evening and night differential is essentially similar to that found in this country. The intervention level time penalties used in this research have been derived on the basis of nationally reported average day, evening and night time levels.

MEASUREMENT PROCEDURE AND PROTOCOL

5.23 There are various questions to be answered in respect of measurement procedure and protocol. These are:

- Where to take the measurement?
- Time over which it is to be taken?
- Should there be other people in the room?
- Distance away from reflecting surfaces?
- Should window be open or closed?
- Who can undertake the measurement?

5.24 The answers have to a large extent been provided in the *Environment Circular 8/97* and *Defra Circular NN/31/03/04*. It is acknowledged that the aforementioned circular is, to a large extent, the outcome of work carried out by the Building Research Establishment (BRE) working with the then Department of the Environment. The BRE involvement in this work is described in an Institute of Acoustics publication, (Grimwood 1997).

Where to take the measurement

5.25 The first issue is where to take the measurement. The *Anti-Social Behaviour Etc. (Scotland) Bill* is designed to offer protection to those suffering within their own homes as a consequence of others behaviour within their own dwelling. The definition of dwelling includes garages, outbuildings, caravans and gardens associated with the dwelling. The permitted levels for varying times of the day and night have been derived on the basis of acceptable internal levels; therefore measurements must be taken within the complainant's dwelling. Within that dwelling the measurement must take place within a habitable room. Common sense dictates that a habitable room will usually be a living room, sitting room, study or bedroom. In the case of a dining kitchen it may include the kitchen. It does not, in these circumstances, include a hallway, stairway, bathroom, lavatory or other areas such as utility rooms. Conservatories and holiday caravans are, at present, excluded because of the possibility of plastic roofs and the uncertainty over typical levels of sound reduction offered by such roofs. The BRE work determined that the measurement should be made at least 0.5m away from any room surface and from any items of furniture (Grimwood, 1997). The microphone should be located at a height of 1.2 - 1.5m from the floor.

5.26 At present the measurements procedure is restricted to within dwellings with the specific exclusions as detailed in paragraph 5.25. There are two reasons why measurements in private and communal gardens, as an extension of a dwelling are, at present, not feasible. The first is that there is simply insufficient evidence to support it in terms of need. Secondly, the parameter to be used for determination of the underlying level, when in an external environment, would require verification through site work. The latter was not possible within the remit of the current research contract. In relation to the former paragraphs 5.4 – 5.7 detail the BRE/NAS and NSCA research used to identify the times of the day when there was the greatest reaction to neighbour noise. The research work, and the statistics quoted, was all in relation to noise heard inside the home. The BRE/NAS study was specifically designed to assess attitudes to environmental noise in the home. Whilst the BRE/NAS reported that in

Scotland 23% of respondents were, to some extent, bothered, annoyed or disturbed by neighbour noise whilst inside their own homes, 25% had the same reaction to neighbour noise generated outside (whilst respondents inside). Given that all of the assessment of reaction was based on experience within the home of the respondents there is simply no reliable basis for extending the protection to noise as it is heard in the garden etc.

5.27 It is recommended that, during the review period following the introduction of the Act (assuming there is one, see paragraph 5.13 in final draft report), data be collected in relation to complaints received about noise being a problem for complainants who are in external areas that can be regarded as an extension to their home. Once data are collated the basis for extension of the provisions could then be re-examined.

Number of people in the room

5.28 *Circular NN/31/03/2004* makes no reference to the number of people in the room at the time of the measurement. It is recommended that this is based on the number of people who would normally be in the room. For instance, if the circumstances of the complaints relate to one person in a bedroom, the measurement result should be obtained with only the investigating officer in the room. The presence of additional bodies may have an adverse effect on the measured level as a consequence of additional absorption in the room. In addition anyone in the room other than the officer actually carrying out the measurement must be at least 1m away from the microphone as it can be demonstrated that at frequencies of around 400Hz reflections from a person may cause errors of up to 6dB when measuring at less than 1m away from a person. (Bruel & Kjaer, 1984).

Measurement time period

5.29 The time over which the measurement should be taken during the night-time period has been extensively researched by the BRE (Grimwood, 1997) and is contained within *Circular 8/97* and *Defra Circular NN/31/03/04*. In determining the time period for use in the proposed Scottish legislation there is no basis for advising the use of a time period other than five minutes for the night time. However, the present *Anti-Social Behaviour (Scotland) Bill* extends the use of the Fixed Penalty Noise Offence throughout the day and evening period. Should the time base for the day and evening periods be different from that used during the night-time period? While acknowledging that in guidance such as BS 4142, which is used to assess the likelihood of complaints occurring using an externally measured level (see paragraph 3.25), the day and night-time reference period are different, there is also other guidance such as PAN 50 (see paragraphs 3.21-3.22) which does not differentiate between the reference period for external day and night-time levels. In the case of the anti-social behaviour fixed penalty noise issues, the investigating officer will have listened to the offending noise for long enough to form an opinion as to whether or not the provisions of the proposed legislation are suitable, and whether or not the permitted level is exceeded. It is therefore unnecessary to extend the period of measurement, as the actual objective measurement simply provides corroborative evidence for the investigating officer, and by the time the measurement was taken, the officer would need to have satisfied him/herself that the permitted level was being breached, and that the noise generated, as a consequence of anti-social behaviour, and if continued, would most likely cause alarm, distress, nuisance or annoyance.

Who takes the measurement?

5.30 The investigating officer must be sufficiently trained to appreciate the difference between a possible offence in terms of anti-social behaviour and statutory noise nuisance, and the best means of dealing with the noise in question. This could be of vital importance when investigating complaints that result, not from unreasonable behaviour but, from an inadequate level of sound insulation between properties. In relation to the nature of the investigating officer, opinions have been sought from Environmental Health Officers at both senior and “coal face” level (the list of EHO’s consulted is provided in Annex 1). During these discussions many points were raised in relation to the level of competency required to undertake the measurements. There was total agreement that with the simplification of the instrumentation used, and approved under the terms of the *Noise Act 1996*, and the strict measurement protocol, the level of competency required was reduced. However, there is a lot more to consider than the ability of the investigating officer to physically operate a simple sound level meter. The most important issue is that of possible non compliance and the possibility of presentation of evidence in court. The investigating officer must therefore have a thorough understanding of possible technical issues such as:

- what does the underlying level actually represent;
- why is calibration necessary and potential problems with calibration;
- what is the L_{Aeq} ;
- were there are any other factors which could have otherwise affected the measurement result?

5.31 There are other potential non technical issues involved in the measurement such as :

- what made the officer form the opinion that a warning notice could be issued without measurement;
- why was action taken in the form of a Fixed Penalty Notice rather than the investigation of nuisance proceedings;
- is there a history of noise complaints at the address in question?

5.32 *The Anti-Social Behaviour (Scotland) Bill* envisages that local authority officials (i.e. environmental health officers and community wardens) together with the Police, will have the power to issue warning and Fixed Penalty Notices. However, it is recommended that only those officers who can demonstrate an agreed level of competency in acoustics actually undertake the duties. The Defra *Circular NN/31/03/2004* in relation to the *Noise Act 1996* (as amended by the *Anti-Social Behaviour Act 2003*) states “*it should be noted that measurement of noise is a skilled operation which should be undertaken only by people who are competent in the procedures*”. It is likely that within the local authorities only Environmental Health Officers and trained Technical Officers will have the level of skill required to undertake and understand the measurement and possible need for an alternative course of action. It is recommended that there is a recognised minimum level of formal training for all officers involved in the procedures. The argument for using only Environmental Health Officers and trained Technical Officers is strengthened when considering that it will be vitally important to be aware of any background to the noise complaints received. At present most local authority departments with Environmental Health Officers have a system of recording complaints, and therefore, when a call is received and logged any relevant information can be passed to the

officer who is to deal with the complaint. The argument for only using suitably qualified officers to undertake the measurement and issuing of notices was put forward by the Society of Chief Environmental Health Officers in Scotland (SCEHOS) when presenting evidence to the Local Government and Transport Committee (Scottish Parliament, Meeting No 9, 2003). It was pointed out to the committee that whilst community wardens are very good at what they do at street level, they are not enforcers and are not competent in acoustics. It was also added that Police officers are unlikely to be competent in acoustics and have other more pressing matters to attend to. In addition to this, and in relation to the use of Police officers to enforce the provisions of the proposed legislation, Police knowledge and use of the provisions of section 54 of the CGSA was also questioned in the SCEHOS evidence.

5.33 A request for information on contraventions of section 54 of the *Civic Government (Scotland) Act 1982* was sent to all eight of the Police authorities within Scotland. A copy of the letter is attached as Annex 4 and the returns are detailed in Table 5.2.

Table 5.2 Section 54 CGSA Contraventions

Police Authority	Number of Contraventions		Percentage of Contraventions Where Items Were Seized
	Year	Number	
Grampian	2003	61	Not available
	2002	40	
	2001	72	
Strathclyde	2002-2003	185	83%
Dumfries and Galloway	2002-2003	17	Not available
Lothian and Borders	2003	46 (to 12/12/03)	
	2002	48	
	2001	48	
	2000	66	
Tayside	2003	47	Not available
Fife Constabulary	No return		
Northern Constabulary	No return		

5.34 It would appear that the Police authorities are active in certain areas in enforcing the provisions of section 54. It is interesting to note that between April 2002 and February 2003 there were 120 offences detected by Strathclyde Police within the Glasgow City area in respect of the *Control of Pollution Act 1974* (refuse and loudspeakers etc) (personal communication with Glasgow City Council), so there is clearly activity in controlling noise in the streets. However, it is not possible to differentiate between the noises in the street and refuse issues (information provided by EPS, Glasgow City Council). With respect to the data presented in Table 5.2 it is not possible to know how many calls about noise complaints the Police actually receive and therefore it is not possible to determine the overall efficiency of the Police in dealing with noise complaints of a domestic origin. The provisions of the *Anti-Social Behaviour Etc (Scotland) Bill (ASB)* will not replace or repeal the provisions of the *Civic Government (Scotland) Act 1982*. The fruitful co-existence of these two pieces of legislation will require the adoption of a clear and concise management strategy to ensure maximum benefit to the general public. Given the fact that Police officers are not trained in

acoustics and have far more pressing needs than attending all domestic noise issues, coupled with the fact that some local authorities will be unable to service their entire geographical area from dedicated noise team bases, there is a case for restricting the enforcing of the provisions of the ASB to enforcement officers of the local authority, i.e. EHO's and technical officers, while allowing the Police to continue to enforce the provisions of section 54 of the CGSA within agreed geographical boundaries. Even if a local authority decides to implement a noise nuisance service within parts of their area, as may be justified by needs, there will be areas where it is simply not feasible to offer the service. An example of this would be with the more geographically diverse authorities such as Argyle and Bute, where a noise nuisance team could be based in one of the more populated centres and would be unable to respond to calls from more remote areas such as Rothesay. In this instance there is scope for a formal agreement between the Police authority and the local authority that the provisions of section 54 of the CGSA are used to combat anti social noise related behaviour in such areas and an agreed method of record keeping and logging of calls is agreed to facilitate possible future changes in local needs.

5.35 In summary, the provisions of the legislation offered to deal with noise within the ASB should be restricted to EHO's and trained technical officers. The provisions of section 54 of the CGSA should be enforced in areas where the local authority is unable to offer a noise nuisance service.

GOOD PRACTICE IN DEVELOPING A STRATEGY TO DEAL WITH NOISE COMPLAINTS

5.36 Dundee City Council is an example of an authority where there is a formalised relationship with the Police authority in dealing with noise complaints. When Dundee City Council receives a complaint in relation to domestic noise it is passed directly to Tayside Police who deal with it using the provisions of section 54 of the CGSA. While this is contrary to the practice in most other local authorities in Scotland it is an example of the Police and the local authority enforcing officers devising a strategy to deal with noise complaints of domestic origin. Dundee City Council and Tayside Police also have in place a memorandum of agreement for dealing with complaints of a domestic origin. The memorandum is included as Annex 5.

5.37 The number of complaints not reaching the Police is also illustrated by reference to the North Lanarkshire report in the first year annual report of the Anti-Social Task Force (<http://www.northlan.gov.uk/your+council/policies+strategies+and+plans/housing/anti+social+task+force.html>). The report shows that since being set up 12 months ago to crack down on nuisance neighbours, the task force has handled 1,122 referrals, secured 7 Anti-Social Behaviour Orders and one Eviction Order. Over half of complaints received last year related to noise nuisance.

5.38 Belfast City Council ensure, insofar as is practicable, streamlining of noise complaints and run an annual awareness campaign to ensure that the local Police stations are aware of how complaints of noise are to be dealt with. The letter in relation to the awareness questionnaire sent to all Police stations in their area by Belfast City Council in 2001 and the Noise Liaison Policy is included as Annex 6. Representatives of Belfast City Council actually visit every Police station on an annual basis to ensure that there is a poster in a location that the desk sergeant can see to facilitate ease of reference should complaints about noisy

neighbours be received by the Police. In fact prior to the adoption of the Noise Act and the introduction of the night-time service Belfast City Council undertook a pilot study with one Police station. It was found that on average they received three complaints about noise per night. Given that there are twenty other Police stations in Belfast there was, in all probability, a significant volume of complaints not reaching the Environmental Health Department (private communication with Belfast City Council 2003). Following the introduction of the night-time noise service Belfast City Council undertook a customer satisfaction survey and the results were very encouraging with 85% of people contacted reporting that they were either satisfied, or very satisfied with the service. A copy of the customer satisfaction survey referred to is included as Annex 7.

5.39 The BRE/NAS reported that more people complain to the Police than to the local authority and yet as the data in Table 5.2 shows there is a surprising lack of action in terms of the existing legislative controls for neighbour noise. Furthermore paragraph 5.37 would indicate that there is a large body of complaints in relation to neighbour noise being dealt with by ASB units within local authorities. Clearly there is a need for a structured means of recording noise complaints of domestic origin. The benefits to the general public of a clear and concise strategy for dealing with domestic noise complaints are apparent and it is essential that Scottish local authorities, Police constabularies and housing authorities establish liaison groups to define a strategy for dealing with noise complaints. A system of effectively recording such complaints will be essential in measuring the success of any measures introduced to deal with noise related Anti-Social Behaviour. Such a system should be required whether local authorities chose to adopt the provisions of the proposed legislation or not. People should not be excluded from protection from neighbour noise because they live in isolated communities; therefore Police understanding of available provisions and resources is of paramount importance.

ISSUES WITH INSTRUMENTATION

5.40 Paragraph 5.14 reported that an analysis of the external night time levels measured across Scotland during the BRE NIS revealed that the mean $L_{Aeq,8hour}$ level over the night-time period is approximately 46dB(A) (façade level). The corresponding internal level with single glazing would be of the order of 21dB(A). However, there is an issue to address with the self noise of the sound level meter. In other words if 21dB(A) was measured, is this the existing noise at the measurement location in question or is it electronic noise made by the circuitry of the sound level meter itself? The self noise of the sound level meter comprises of "Electrical Noise" and "Thermal Noise". The "Electrical Noise" is created by the input stage (preamplifier) and the sound level meter's first amplifier. This can be measured by placing a "dummy" microphone on the system and measuring the level. The "Thermal Noise" is a characteristic of the microphone which can be calculated or measured in a controlled low noise environment. Reference to product data (Bruel & Kjaer Mediator Technical Specification) indicates a combined level (self noise) of 17dB(A). Therefore, an underlying level of 21dB(A) could be the result of self noise of 17dB(A) plus underlying acoustic noise of the order of 19dB(A). It then follows that any level below 27dB(A) will have an error overestimating the level of the underlying level, $L_{AF99,8}$. This issue is not unique to the use of the night-time intervention threshold of 31dB(A) recommended in this research. The Noise Act night-time intervention threshold of 35dB(A) is applied where the underlying level ($L_{AF99,8}$) is at or below 25dB(A) and with a sound level meter self noise level of 17dB(A) the actual true underlying level could be of the order of 24dB(A) and not 25dB(A). The

Environment Circular 8/97 and *Defra Circular NN/31/03/2004* advise that the instrumentation used in the measurement of the underlying level should have self noise of less than 20dB, in effect the actual underlying level could then be of the order of 23dB(A). Therefore, the issue of concern is that the intervention threshold is not so low that the underlying noise would be completely dominated by the self noise of the measurement instrumentation. It is recommended that self noise of the instrumentation used is not more than 17dB(A), but at the same time it is recognised that in situations where there is a low level of real underlying noise e.g. 20dB(A), an intervention level of 32dB(A) would be used, as the actual underlying level measured may be of the order of 21.8dB(A) (17dB + 20dB). Therefore, there is no potential for the issuing of a Fixed Penalty Notice where the underlying level has resulted in an underestimation of the intervention threshold. Consequently, the procedure errs on the side of the perpetrator of the noise which is in line with the spirit of *Environment Circular 8/97* and *Defra Circular NN/31/03/04*, where the measured underlying level is required to be rounded up to the next integer.

5.41 There is a need for the instrumentation used within the anti-social behaviour remit to be extremely portable and simple to use. At the time of writing this report it is known that there is one such sound level meter on the market which is pre-programmed in such a way that it takes the user through the calibration and measurement procedure. It allows simultaneous measurement of the noise emitted from the offending dwelling (L_{Aeq}) and the underlying noise level ($L_{AF99.8}$) over a five minute period. Prompts are given to guide and remind the user of the procedure e.g. calibration. The noise descriptors used in the Noise Act, as described earlier are as follows:

- L_{Aeq} : equivalent continuous A-weighted sound level
- $L_{AF99.8}$: RMS (Fast time weighting), A-weighted level exceeded for 99.8% of the measurement time (5 minutes) i.e. the level not exceeded for 0.6 seconds in that 5 minutes.

5.42 An example of the output is shown in Annex 8. At the time of writing this report it is understood that the cost of the sound level meter system is of the order of £1800.

Civil Rights

5.43 While protecting the right of individuals to enjoy the peace and quiet of their own home it is also necessary to consider the rights of the noise producer. Article 8 of *The Convention for the Protection of Human Rights and Fundamental Freedoms* as amended by Protocol No. 11 (European Charter of Human Rights) covers the right to respect for private and family life. In terms of Article 8:

- Everyone has the right to respect for his private and family life, his home and his correspondence.
- There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public

safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.

5.44 The prevention of crime and disorder is where the use of the provisions of the *Anti-Social Behaviour Etc. (Scotland) Bill* would be used in interfering with an individual's right to create as much noise as he/she pleases within their home. However, in using the provisions of the *Anti-Social Behaviour Etc. (Scotland) Bill* to protect others from the anti-social behaviour of an individual, the rights of that individual (the perpetrator of the noise) must not be prejudiced and any action taken to stop the noise maker from making noise must be proportionate given the circumstances. An example of circumstances where the right of the noise maker could become an issue is in a Housing Association or Council rented tenemental type property where the properties are maintained in a good state of repair, however, on one side of the tenemental property sound insulation improvement works have been undertaken as the consequence of court action by the occupants of the lower flat. The end result is that the occupier of the flat above that where the sound insulation improvement works have been undertaken can play and listen to music late into the night, while the occupiers of the flat on the other side of tenemental property cannot without complaints being received from the neighbour on the lower floor. In a Council investigation of such a complaint, the occupier of the lower flat, where no sound insulation improvement works have been undertaken, could justifiably expect a warning notice to be issued, and if the terms of the notice were not complied with, a Fixed Penalty Notice to be subsequently issued. But, the occupier of the upper flat could claim that his/her right to enjoy family life is being prejudiced by the failure of the landlord to provide an adequate level of sound insulation.

5.45 The standard of sound insulation in flatted properties will be a major factor to be considered in the assessment of whether or not the provisions of the *Anti-Social Behaviour Etc. (Scotland) Bill* can be used to tackle noise issues of domestic origin. Interestingly, in the *National Noise Survey* undertaken by the NSCA in 2002 (NSCA 2002) it was reported that 90% of the 21 local authorities who responded (out of 33) were of the opinion that works needed to be done to improve the sound insulation performance of the existing housing stock. The need for a level of familiarisation in dealing with issues such as; a lack of sound insulation and an appreciation of where nuisance procedures would be more suitable to deal with noise issues are illustrative of the need for the provisions of Section 5 of the *Anti-Social Behaviour Etc. (Scotland) Bill* to be enforced by Environmental Health Officers or other suitably trained technical officers who have a knowledge of the housing stock and nuisance legislation.

COMPATIBILITY OF PROPOSED LEGISLATION WITHIN EXISTING LEGISLATIVE FRAMEWORK

5.46 It is imperative that the use of any objectively measured level is compatible with noise levels presently used in guidance within Scotland. The review in Chapter 3 concluded that there is no reference to objectively measured levels in primary legislation. There is however reference to levels in secondary legislation, such as the *Noise Insulation (Scotland) Regulations 1975 (NISR)* and in *PAN's*. Generally the levels used within guidance are based on the WHO guideline levels referred to in table 3.2. The absolute level of $L_{A10(18hr)}$ referred to in the NISR is an external level and predates the WHO publications. The NIL is based on the who level above which there are measurable effects on sleep and is therefore compatible with pan's such as PAN 56 and PAN 50 Annex A. The EIL and DIL are related to the

existing level of external ambient noise typically experienced throughout Scotland.

PRACTICALITIES OF LOCAL AUTHORITY RESPONSE TIMES AND EXPECTATIONS

5.47 There was a reference in the minutes of the Scottish Parliament Local Government and Transport Committee held on 25th November 2003 (<http://www.scottish.parliament.uk/lg/or/lg03-0902.htm>) to the response time of the Lothian and Borders Police for a noise nuisance complaint being 4 hours. It was suggested that this response time is not sufficient. However, in reality even with similar provisions to the Noise Act in force in Scotland and a noise team based in central Edinburgh to respond to night-time calls, the response time will be very dependent upon work load. If all officers are engaged on calls when a complaint comes in it may well be 1-2 hours before an officer reaches the site and makes an assessment as to whether Noise Act type provisions are in fact suitable in the circumstances. It is also possible that an investigating officer may have 2-3 calls waiting to be attended to and in this case the response time could increase. In launching the service in Scotland careful consideration will need to be given to managing the expectations of the public and to ensure realistic response times are set by local authorities, taking into account the geographical restrictions. While the spirit of any such legislation is certainly to have an instant response it may not, especially in the wake of an awareness and publicity campaign, be possible to meet that intent.

HEALTH AND SAFETY AND TRAINING

5.48 All EHO's who offered opinions on various aspects of the proposal voiced concern in relation to health and safety issues. Almost all stated that they would not wish to issue a Warning Notice without a Police presence, which in effect defeats the intention of the proposed legislation. However, the EHO's in Belfast City Council responsible for the running of Night Noise team do not consider this to be a deterrent in working with the *Noise Act 1996*. They are of the opinion that with adequate safety training and safety awareness this is not an issue. The Belfast officers reported that they would never enter premises to issue a Warning or Fixed Penalty Notice and the *Noise Act 1996* does not require this. The DERFA review of the Noise Act by Birmingham University reported (see paragraph 4.15) that some authorities insist on a Police presence for the issuing of any noise notice out of hours. The majority however, only require a Police presence for the seizure of equipment, or if the officer has assessed that there was a risk to personal safety. It was indicated that the seizure of noise making equipment was best carried out the next day with the assistance of the Police. It will therefore be necessary for each local authority to ensure that the officers working with the proposed legislation have sufficient training in health and safety issues and that safety awareness is a top priority. It is also worth noting that most enforcing officers deal with personal safety issues in the routine undertaking of their responsibilities. The possibility of mental health awareness training should be considered as this has been found to be effective in Belfast City Council (personal communication with City of Belfast Council, 2003).

CHAPTER 6 BRIEF REVIEW OF GLASGOW CITY COUNCIL NIGHT NOISE SERVICE

6.1 Glasgow City Council is the first local authority in Scotland to provide a dedicated night time team to tackle noise pollution. The service began on Monday 25th August 2003 and has, at the time of this report, been in operation for just over six months. The officers with the Department of Environmental Protection Services had long been aware that a significant number of the calls received during normal office hours were in fact in relation to night-time noise. At the time the service was launched the council was receiving 1500 complaints a year. It was reported that in terms of unreasonable noise the two biggest complaints in this category are loud music and barking dogs.

6.2 There were no additional powers to deal with noise complaints and the only tool available to officers is that of nuisance action under the *Environmental Protection Act*. However it was recognised that officers often act as mediators in solving disputes. The service was not intended as an emergency response system. The operation is such that the team have a diary of noise complaints to monitor such that the complaint will be monitored at the time at which it is normally a problem. In effect it operates on the basis of prearranged visits and there is no expectation of a visit when the noise is occurring for the first time. Normally when the call is received it will be passed on to one of the officers on duty who will then telephone the person making the complaint and arrange a time to visit. The night-time EHO's are not dealing with many late night party issues. At present such complaints are likely to be passed on to the local Police as the EHO's have no effective means of dealing with them.

6.3 There are three EHO's in the Night Noise Service and there will always be at least two on duty. It is the policy of the Council that officers must visit all complaints out of hours in pairs. For security, and to enable calls to be passed on, all officers have a mobile phone and access to transport. It has been found that in certain circumstances the use of an unmarked council van is preferable to the use of private cars. For out of hours calls the public can use the Building Services 0800 number which has been in operation for many years. This line is staffed outwith normal office hours and on all public and bank holidays.

6.4 Glasgow City Council has estimated that since the service started in August of last year 75% of the daytime calls received are in relation to night-time noise with 50% of noise complaints being in relation to neighbour noise. Indicative figures provided by the Council are as shown in Table 7.1 (personal communication with Glasgow City Council, 2004). The indicative figures show that with 84% of all noise complaints being in relation to out of hours issues there is a tremendous need for a dedicated night team. This is not surprising given the result of the BRE/NAS which clearly demonstrated that evening was the time when the greatest proportion of people reported being bothered, disturbed or annoyed by noise from neighbours, see paragraph 5.5.

Table 6.1 Indicative Noise Complaints: Glasgow City Council

Month	Total Number or Complaints	Total Number of Daytime Complaints
August 2003	55	25
September 2003	200	44
October 2003	165	15
November 2003	162	19
December 2003	95	10
January 2004	137	20
February 2004	168	26
Total	982	159

6.5 There was no indication of the complaint breakdown in terms of type, but it has been reported elsewhere (<http://news.bbc.co.uk/1/hi/scotland/3181653.stm>) that loud music and barking dogs do account for most of the complaints in respect to what the Council terms unreasonable noise.

6.6 One of the main resources required to fund an effective out of hours service is a robust IT infrastructure. Officers must have reasonable access to the complaints database to deal effectively with any complaints received outwith normal office hours. Glasgow City Council deal with this issue, at present, by allowing officers to access records from a city cleansing unit which is opened 24 hours. However, should the provisions of the *Anti-Social Behaviour Etc. (Scotland) Bill* become legislation and the staffing levels are increased this approach may not be adequate. The Night Noise Team presently has access to two sound level meters and this is, for the time being adequate. However, should an additional tool such as the Noise Act provisions become available, and the size of the out of hour team increases, there will be a need for additional sound level meters. As was previously stated, the only legal tool the officers currently have at their disposal is nuisance action and there is no need to measure objectively to instigate nuisance procedures. If objectively measured levels were used in controlling neighbour noise there would potentially be a need for a sound level meter for every night time officer.

CHAPTER 7 DISCUSSION, CONCLUSIONS AND SUMMARY OF FINDINGS

NEED FOR OBJECTIVELY MEASURED LEVEL IN DEALING WITH NEIGHBOUR NOISE

7.1 In undertaking research into the feasibility of introducing objectively measured permitted noise levels which if breached would cause an offence liable to conviction, it has been established that there is in existence in Scotland, legislation, the Civic Government (Scotland) Act 1982, that would, if the Police had the resources, allow neighbour noise to be tackled without the need for objective measurements. This legislation, described in paragraph 3.11 is used to some extent across the country, as can be seen by reference to Table 2 in paragraph 5.31. The approach adopted in Dundee does, in the opinion of the EHO's dealing with noise in Dundee work well, however, the 47 actions taken in respect of the *Civic Government (Scotland) Act 1982* does not appear to be very high given the concerns raised by the Dundee Federation of Tenants' Associations at a meeting on 13/1/04 with the ASBB team within the Scottish Executive. At this meeting the representative of the Dundee Federation of Tenants' Associations commented that complaints relating to noise did make up the greatest number of complaints received by the anti-social behaviour team. While the number of complaints was not quantified the comment raises the issue of a missing link in the Dundee strategy in dealing with noise. While the Police will deal with complaints passed on by the Environmental Health Officers there does not appear to be the same link between the Police and the anti-social behaviour team. Therefore, the provisions of the Local Government (Scotland) Act 1982 are not being used to their full extent in respect of neighbour noise. There is one further issue with the use of the *Civic Government (Scotland) Act 1982* and it is that the Police sometime have difficulty in enforcing its provisions because once the noise makers see a Police car or a Police constable in uniform the noise very often stops, only to start again once the Police move away. The Police do therefore encounter difficulties in determining whether or nor the noise does in fact give reasonable cause for annoyance.

7.2 Most EHO's (see Annex 1) that expressed initial views of the provisions of the *Anti-Social Behaviour Etc. (Scotland) Bill* were of the opinion that the *Civic Government (Scotland) Act*, could adequately deal with neighbour noise. However, most did recognise that the Police simply do not have the resources to implement the Act in terms of neighbour noise and once the operation of the *Noise Act 1996* was fully explained there was a greater awareness of possible complementary co-existence of the standard nuisance provisions and the use of objectively measured levels in dealing with neighbour noise. It was suggested that another approach to dealing with neighbour noise would be to amend section 54 of the *Civic Government (Scotland) Act 1982* such that its powers were not simply restricted to a Police constable in uniform but were extended to authorised officers of the local authority. Such an amendment would bring Scotland into line with areas such as New South Wales in Australia (Noise Abatement Direction as detailed in paragraphs 4.32 and 4.33) and New Zealand (Excessive Noise Direction as detailed in paragraphs 4.68 - 4.70). Although the control of neighbour noise in New South Wales is generally by means of Noise Abatement Direction and a subjective assessment of 'offensive noise', there was a body of opinion within New South Wales that objectively measured levels were the preferred means of dealing with such issues (see paragraphs 4.28 and 4.29), however the pressure from the Community Mediation

Division of the Australian Dispute Resolution Association resulted in the proposal for the use of objectively measured levels being rejected on the grounds that clarifying the terms focuses on the problem rather than the underlying issues, and that a system based on rights rather than needs fosters confrontation (see paragraph 4.29).

7.3 Insofar as the literature review has been able to identify there is at present no other country outside the United Kingdom using objectively measured levels for the control of neighbour noise. The literature review did reveal that there has been a relatively poor take up of the *Noise Act 1996* and the reasons were fully reported in paragraphs 4.11 – 4.20. However, the amendments introduced by the *Anti-Social Behaviour Act 2003* have provided another tool, available to local authorities, to use without the need for formal adoption of the Act. The details of the arrangements for the provision of services to enable the issuing of Night Noise Fixed Penalty Notices are left to local authorities to determine in accordance with any assessment of local needs and circumstances.

7.4 On balance while the views of some EHO's, in respect of the *Civic Government (Scotland) Act 1982*, are acknowledged and accepted it would appear clear from both the statistics returned by the Police, as reported in Table 5.2, and anecdotal evidence from EHO's that the public are not being effectively served by these provisions. One of the main reasons identified anecdotally was that of Police resources. Also, nuisance action is inappropriate for one off events such as late night parties or short term unruly noisy behaviour (e.g. football being played indoors) and therefore statutory nuisance provisions are unsuitable. If the Police are unable to respond there is clearly a gap to be filled. While there is some merit in considering an amendment to the *Civic Government (Scotland) Act 1982*, as discussed in paragraphs 7.1 - 7.2, there will, as was reported in the review of the New South Wales experience (see paragraphs 4.29 and 4.30), always be the difficulty of proving the issue in court as a result of the subjective element of the assessment. Therefore a strategy for tackling neighbour noise which clearly sets out the possible use of section 54 of the *Civic Government (Scotland) Act 1982*, the use of objectively measured levels as described within the *Anti-Social Behaviour Etc. (Scotland) Bill*, nuisance provisions and the role of mediation is clearly desirable.

WHO TAKES THE MEASUREMENT?

7.5 One of the most significant issues in the implementation of any legislation is the question of who will undertake the measurement. This was considered in paragraphs 5.28 - 5.30 and it was concluded that the measurement of noise should only be undertaken by technically trained competent professionals. This is contrary to the provisions of the *Anti-Social Behaviour Etc. (Scotland) Bill* which envisages that community wardens and Police will be able to undertake the measurement as well as EHO's and Technical Officers. However, as was explained in paragraph 5.28 – 5.30, it is not just the technical competency that is at issue, it is the need for an understanding of when nuisance provisions may be the more appropriate course of action and also the need for an awareness of where the permitted level may be exceeded, but where it would be unreasonable to issue a warning or Fixed Penalty Notice, because of the level of sound insulation between dwellings.

OBJECTIVELY MEASURED PERMITTED LEVEL

7.6 In proposing the use of objectively measured levels the Scottish Executive had in mind the provisions of the *Noise Act 1996*. The technical and non technical issues associated with the legislation have been reviewed, see paragraphs 4.3 to 4.22, and apart from the issues surrounding the take up of the Noise Act in England, Wales and Northern Ireland the actual permitted level was identified as an issue for two reasons; firstly there was the question of whether a permitted level of 35dB(A) is suitable and justifiable and secondly, the identification of possible permitted levels for the evening and daytime period, should there be deemed to be a need for such.

7.7 The relevance of the use of 35dB(A) as the intervention level for night-time noise in the *Noise Act 1996* was considered in paragraphs 5.9 -5.17. It was concluded that whilst 35dB(A) is in fact the level above which there are measurable effects on sleep (WHO 1999), it was not recommended for use as a night-time intervention threshold because it does not in any way take account of the nature of the intrusive noise. It was suggested that the use of a correction factor of -5dB(A) for the 35dB(A) intervention level would be a suitable means of ensuring that the night-time intervention level did take account of the nature of the noise. The practicality of this level then had to be examined, i.e. would a level of 30dB(A) be measurable when taking into account the typical external noise climate in Scotland with the assumption of single glazed windows. When the results of the BRE/NIS were examined it was found that an intervention level of 30dB(A) was not workable. The intervention level adjusted for the external noise climate is 31dB(A). This means that the permitted level cannot be lower than 31dB(A) but it can be greater, as the permitted level is deemed to be the underlying level +10dB. Definitions of the permitted level and the underlying level are given in paragraph 4.5.

7.8 The derivation of evening and day time intervention levels has been detailed in paragraphs 5.19 and 5.21 and is simply related to the level of internal noise likely to be experienced indoors as a consequence of the typical external ambient level allowing for closed single glazing. The identification of the need an evening intervention level was explained in paragraphs 5.4 – 5.7. Basically, the BRE/NAS findings demonstrate that evening was the time when the greatest proportion of people were bothered, annoyed or disturbed by noise from neighbours with 54% of the BRE respondents reporting that they were bothered, annoyed or disturbed by amplified music during the evening period. The NSCA 2002 Survey in Scotland (NSCA 2002) reported that amplified music is the main source of complaint for 60% of local authorities. Together these indicate that the evening period is one that can not be ignored. The possibility of a daytime intervention level was supported by the BRE/NIS findings where it was identified that in relation to TV and music only 6% less reported being bothered, annoyed or disturbed by this type of noise during the day than at night during the week. Also, for the weekend period 1% more respondents reported being bothered, annoyed or disturbed during the day time period than the night-time period. DIY noise was identified as being more of an issue during the day at the weekend period with 65% of respondents reporting that type of noise to be bothersome, annoying or disturbing.

INSTRUMENTATION

7.9 Another issue in the implementation of any legislation involving objectively measured levels is the instrumentation to be used. The matter was considered in paragraphs 5.36 -5.37 and it was identified that there is readily available instrumentation on the market which facilitates the process of the measurement with relative ease for the trained professional. The potential problem of the sound level meter self noise has been explained and advice on the specification for development of future sound level meters provided.

MEASUREMENT PROTOCOL

7.10 Issues in relation to a measurement protocol, which would have an effect on the implementation of any legislation, such as the number of people in the room when the measurement is made, where to take the measurement and the measurement time period have all been considered in paragraphs 5.22 – 5.26. The recommendations, in relation to where to take the measurement, differ from those detailed in the *Noise Act 1996* in that the specific exclusions include conservatoires; this is because of the uncertainty surrounding the sound reduction offered by plastic roofs, and also utility rooms.

EXPERIENCE OF OTHER COUNTRIES

7.11 The methods of dealing with neighbour noise in New South Wales and Queensland, Australia, New Zealand, some states within the USA and Canada and some European countries have been examined. This information is contained within paragraphs 4.23 – 4.74. No other country outside the UK has been identified as using objectively measured levels within a complainant's home for the control of neighbour noise, although some support for this was found in Australia.

EXPERIENCE OF BELFAST AND GLASGOW CITY COUNCILS

7.12 Belfast City Council has a very positive approach to the Noise Act 1996. The EHO's are very enthusiastic in its enforcement and have had good feedback from the public as was discussed in paragraph 4.22. The research work based on the experience with the noise Act 1996 in Belfast City (Morrissey 2003) reported that the provisions of the Noise Act 1996 would better serve the public if the Intervention Level was 30dB(A). Since Glasgow City Council began the Night Noise Service in August of 2003 the three night-time EHO's have been fully occupied. The data reported in Table 6.1 demonstrates a clear need for adequate cover in dealing with out of hours noise complaints.

HEALTH AND SAFETY

7.13 The need for adequate health and safety training and awareness has been considered in paragraph 5.42. each local authority will be required to ensure that all staff involved in the issuing of warning and fixed penalty notices receive adequate training. Reference was also made to the possible need of training in mental health awareness.

NEED FOR STRATEGIC FRAMEWORK

7.14 Paragraphs 5.34 – 5.37 illustrate the benefits to the general public of a clear and concise strategy for dealing with domestic noise complaints. It is also essential that Scottish local authorities, Police constabularies and housing authorities establish liaison groups to define a strategy for dealing with noise complaints.

CHAPTER 8 SUMMARY OF FINDINGS

8.1 The brief review of the technical issues associated with the implementation of the *Noise Act 1996* as reported in this research has identified that the Noise Act night -time intervention threshold level, which was set on the basis of the *WHO* guideline level for sleep disturbance, should, following the advice contained within the 1999 *WHO* document, be adjusted to take into account for the character of the noise.

8.2 It has been established that it is feasible to introduce objectively measured levels which, if breached during any time of the day, would cause an offence liable to conviction. The day, evening and night objectively measured intervention levels have been identified in Chapter 5 as 41dB(A), 37dB(A) and 31dB(A) respectively. Whilst apparently inconsistent in the application of the character correction (not included in DIL and EIL) the reason for this is that the *WHO 1999* document makes specific reference (page 61) to the effect that the character of the noise may have on sleep. The effects on sleep are not part of the day and evening level requirements; therefore the DIL and EIL's are based on the typical external climate as reported in the *BRE/NIS*.

8.3 The need for the principles of the *Noise Act 1996* to be extended to cover the twenty four period have been identified in Chapter 5.

8.4 The reasons why Scotland did not benefit from the provisions of the *Noise Act 1996* have been made clear in Chapter 2.

8.5 The review presented in Chapter 3 demonstrates that there is no effective means of dealing with one off noisy parties or other ASB type activities. The present legislative controls are simply inadequate in terms of the time taken to bring any action to fruition or in the case of the Civic Government (Scotland) Act 1982, the available resources.

8.6 The experience of dealing with neighbour noise in other countries, as detailed in Chapter 4, especially Australia and New Zealand, shows that although fixed penalties are issued in respect of noise offences there is generally no objective measurement of noise. The fairly recent revision of legislation in New South Wales was an opportunity for the introduction of objectively measured levels, but despite support for this from 'coalface' officers the criterion for neighbour noise remains a subjective assessment in term of offensive noise in New South Wales.

8.7 The Chapter 4 review also identified that most other countries that do refer to objectively measured levels do so in respect to neighbourhood rather than neighbour noise. Also the levels are measured at the property boundary.

8.8 The need for a clear and concise strategy for dealing with domestic noise complaints are apparent. It is essential that Scottish local authorities, Police constabularies and housing authorities establish liaison groups to define a strategy for dealing with noise complaints.

8.9 Mediation has a significant role to play in the control of ASB/neighbour noise.

8.10 It has been recommended that only Environmental Health Officers or other suitably trained technical professional undertake the measurement and make the decisions as to whether or not Warning and Fixed Penalty Notices should be issued. The reasons for this are detailed in paragraphs 5.28-5.30.

8.11 The recommended DIL, EIL and NIL levels have been identified in paragraph 5.44 as being compatible with the existing framework of noise control in Scotland.

8.12 Detailed guidance covering the issues referred to in paragraphs 5.25-5.30 together with details of the technical specification of instrumentation, where to take the measurement, and sources of relevant information both technical and non technical.

CHAPTER 9 RECOMMENDATIONS FOR FURTHER RESEARCH

9.1 Further research should be undertaken to determine if the use of a C-weighted level would result in a better correlation of objectively measured levels with subjective evaluation of night-time noise complainants rather than the use of the 5dB adjustment as recommended in this research.

9.2 The need for a day and evening character correction should be assessed by a regular review of data collected by officers issuing Warning and Fixed Penalty Notices.

9.3 A standardised method of recording complaints, complaint investigation details and public satisfaction forms should be established to facilitate further research on the effectiveness of the measures.

9.4 Guidance on the measurement method, procedures, protocol and also use, and maintenance of instrumentation should be produced for use by enforcing officers.

9.5 A national strategy for coordination of all the professional bodies involved in the control of neighbour noise, i.e. local authority officer, Police, Housing Association and mediation groups should be developed, and effectively executed, to ensure effective in controlling and evaluating the measures put in place to deal with neighbour noise.

ANNEX 1 ENVIRONMENTAL HEALTH OFFICERS WHO CONTRIBUTED TO DISCUSSION ON THE SCOTTISH EXECUTIVE'S PROPOSALS

Brian	Carmichael		West Lothian Council		
Norrie	Collins		City of Glasgow Council		
David	Duncan		Police Officer seocnded to City of Glasgow Council		
Gordon	Greenhill		City of Edinburgh Council		
Stephen	Harold		City of Glasgow Council		
Alex	Henderson		City of Dundee Council		
Pat	Hoey		Wes Dunbartonshire Council		
Colin	Sibbald		City of Edinburgh Council		
John	Hunter		City of Glasgow Council		
Ian	Kelly		Stirling Council		
Nigel	Kerr		East Dunbartonshire Council		
Peter	Lavelle		City of Glasgow Council		
Anne	Mc Donald		Stirling Council		
Vincent	McInally		City of Glasgow Council		
Helen	Morrissey		City of Belfast Council		
David	Paris		Renfrewshire Council		
Alistair	Somerville		City of Edinburgh Council		
Lorraine	Vogwell		City of Glasgow Council		
The view of the EHO's were not necessarily those of the local authority.					
Organisations who expressed views or opinions					

Moir Nelson of SEPA also provided valuable input in relation to the nuisance provisions covered in Chapter 3.

Organisations who expressed views or opinions

Casella Stanger who provide a technical advice service to DEFRA.*

CIEH

Society of Chief Environmental Health Officers

*No conclusions regarding DEFRA policy should be drawn from these comments on behalf of DEFRA

ANNEX 2 GLOSSARY OF ACOUSTICAL TERMINOLOGY

Decibel (dB)	<p>The range of audible sound pressure is approximately 0.00002 Pa (Pascals) to 200 Pa. Decibel notation presents this range in a more manageable form, 0dB to 140dB.</p> <p>Sound Pressure Level (dB) = $20 \log \{p(t) / P_0\}$ Where $P_0 = 2 \times 10^{-5}$ Pa</p>
Residual Noise	<p>The ambient noise remaining at a given position in a given situation when the specific noise source is suppressed to a degree such that it does not contribute to the ambient noise (in this case specific noise is construction related).</p>
Ambient Noise	<p>Totally encompassing sound in a given situation at a given time usually composed of sound from many sources near and far.</p>
A-Weighting (dB(A))	<p>The human ear does not respond uniformly to different frequencies. The A-weighting scale is commonly used to simulate the frequency response of the ear.</p>
$L_{Aeq, T}$	<p>The A-weighted equivalent continuous sound level. It is that steady sound level which would produce the same energy over a given time period (T) as a specific time varying sound.</p>
$L_{A10, T}$	<p>The A-weighted sound pressure level exceeded for 10% of the time period (T). Generally accepted parameter for the assessment of road traffic noise.</p>
$L_{A90, T}$	<p>The A-weighted sound pressure level exceeded for 90% of the time period (T). It is the parameter used generally as being representative of the background noise level.</p>
$L_{AN, T}$	<p>The A-weighted sound pressure level exceeded for N% of the time period (T).</p>
$L_{Ar, T}$	<p>BS 4142 rating level. (L_{Aeq} corrected, in this case for character)</p>
Free-field	<p>Far from the presence of any sound reflecting objects other than the ground, usually taken to mean at least 3.5m away.</p>
Facade	<p>At 1.0m away from a reflecting surface such as the facade of a building. Facade noise levels are 2.5-3dB(A) higher than the free-field noise level would be if the reflecting surface or building were not there.</p>

ANNEX 3 ANTICIPATED FREQUENTLY ASKED QUESTIONS

Question 1

Why does the Noise Act (1996) not apply in Scotland?

Answer 1

The Noise Act does not apply in Scotland because at the time the Scottish Affairs Select Committee were asked to consider the issue the general opinion was that the provisions of the Civic Government (Scotland) 1982, with clarification of powers of confiscation, could adequately deal with noise of a domestic origin. A fuller explanation is provided in Chapter 2.4 -2.7. However, it should be noted that in the Select Committee response there was no consideration of the police resources required to adequately respond to domestic noise complaints nor reference to a the need for multi agency working to ensure that issue was tackled in a consent manner cross the country.

Question 2

What are the most common sources of noise and which of these does the ASBB try to tackle?

Answer 2

The most common type of noise reported in the DETR sponsored research entitled “Domestic Noise Complaints” was amplified music during evening and night. Although this work was undertaken drawing on data from England and Wales it does agree with the 2002 NSCA research in Scotland which reported that in terms of neighbour noise amplified music was the main source of noise in 60% of the local authorities that responded compared with 43% for 2001. Dogs were the main source of complaint for 35% compared with 27% in 2001. The NSCA 2003 survey included only 14 respondents, however, of these, 14 were of the opinion that there had been an increase in the number complaints about neighbour noise over the past year (April 2002/March 2003) and 6 considered that there had been no change. The BRE/NAS reported that 37% of respondents reported being bothered, annoyed or disturbed to some extent by noise from neighbours and/or other people nearby. The specific neighbour noise sources causing the most disturbances to respondents were teenagers’ or adults’ voices, radio, music dogs and children.

ASB has been interpreted by some as when a person acts in a manner that causes or is likely to cause alarm or distress, or pursues a course of conduct that causes or is likely to cause alarm or distress. The ASBB is designed to tackle noise such as amplified music and persistent DIY but will be able to tackle any problem where the noise is not very intermittent in nature .e.g. footsteps. A constantly barking dog could be dealt with in terms of anti-social behaviour in the first instance, but if the behaviour persisted it would become a nuisance.

Question 3

What current provisions and procedures are in place to deal with noise problems?

Answer 3

Noise nuisance can be controlled either by action at common law or under statute. Statutory nuisance is dealt with under nuisance legislation, i.e. the Environmental Protection Act 1990,

the statutory nuisance provisions of which were extended to Scotland in 1995. Further information on this is provided in Chapter 3.2 – 3.14.

Question 4

Are there currently any objectively measured levels of noise which can be enforced as statutory nuisance?

Answer 4

No, there is no standard above or below which noise does or does not exist. The proof of nuisance is referred to in Chapter 3, paragraphs 3.2 – 3.13.

Question 5

What is the difference between noise in terms of statutory nuisance and a noise offence in terms of anti-social behaviour?

Answer 5

A statutory nuisance is where the noise is found to be prejudicial to health or a nuisance. To establish nuisance it is necessary to go to the principals established in common law, i.e. does the noise interfere with reasonable enjoyment of land or property. There is no objectively measured level required in establishing nuisance. An offence in terms of anti-social behaviour is for noise emanating from neighbours land or property as heard within the complaints property with doors and windows closed which exceed a permitted level. The permitted level is related to the level of noise which would be present if the intrusive noise was not present. There is an objectively measured intervention level which the permitted level cannot be less than. There are intervention levels for day, evening and night-time periods.

Question 6

What does the European Commission's Environmental Noise Directive address?

Answer 6

The European Commission's Environmental Noise Directive does not address noise of a domestic origin. It is designed to consider noise on a strategic basis. It requires the following specific actions to be taken:

- First strategic noise maps for major agglomerations, major roads, major railways and airports using the new harmonised indicators (see the following section) should be completed by June 30 2007 and show the situation for the preceding calendar year; only agglomerations with greater than 250,000 inhabitants are to be mapped. Within Scotland, the cities of Edinburgh and Glasgow have been identified as the only agglomerations satisfying this criteria (King and Bush, 2001).
- Action plans should be drawn up by July 18 2008 to manage noise issues and effects, including noise reduction if necessary, for places in the vicinity of major roads carrying greater than six million vehicle passages per year, major railways with more than 60,000 train passages per year, and major airports, and also for agglomerations with more than 250,000 inhabitants.

The procedures for the making and approval of maps in Scotland are, as yet, undetermined. Article 4 requires that by 18th July 2005 member States shall designate at the appropriate level the competent authorities responsible for implementing the Directive, including the authorities responsible for the making and, where relevant, approving noise maps and action plans for agglomerations, major roads, major railways and major airports. It will also be necessary to designate the authority responsible for the collecting of the maps and action plans.

The obvious questions are then:

- Who will make the maps?
- Who will approve the maps?
- Who will make the Action Plans?
- Who will approve the Action Plans?

Question 7

Does the World Health Organisation address the issue of noise and public health?

Answer 7

Yes, the 1999 WHO document entitled Community Noise, devotes a chapter (Chapter 3) on the adverse effects of noise and the conclusions of Chapter 3 are summarised in the WHO guideline values reported in Chapter 3 of this report.

Question 8

How does Planning Advice Notes (PANs) address noise?

Answer 8

Planning Advice Notes (PANs) basically represent the government's current good practice on the subject. PAN 56 provided advice in dealing with planning and noise while PAN 50 offers advice on guideline values in relation to noise from mineral extraction sites. Further information on both PANs can be found in Chapter 3.

Question 9

Why have there have been so few FPNs issued in relationship to volume of Warning Notices issued in Belfast City Council's experience.

Answer 9

The reason is that Warning Notices have been found to be very effective in stopping the noise. Belfast City Council EHOs have found that even with ordinary noise complaints most people respond positively when they are made aware that they are causing a disturbance to their neighbour. However, the threat of an immediate £100 fine being issued on the night seems to make the warning notices particularly effective. A Belfast Council Officer commented "*The people who don't respond to the warning notices are the people who are unlikely to listen to nobody.*"

Question 10
What is noise?

Answer 10
Noise is basically sound that is unwanted by the recipient. Sound is any variation in atmospheric pressure (pressure is measured in terms of Pascals) that the ear can detect. Further information on the nature of sound can be found in Chapter 1

Question 11
How is noise measured?

Answer 11
Noise is a variation in atmospheric pressure that can be detected by the ear. The ear can detect a massive range of pressure variations. The weakest sound a healthy human ear can detect has an amplitude of 20 millionths of a Pascal (20 μ Pa) some 5 000 000 000 times less than normal atmospheric pressure. A pressure change of 20 μ Pa is so small that it causes the eardrum to deflect a distance of less than the diameter of a single hydrogen molecule. Amazingly, the ear can tolerate sound pressures more than a million times higher. The range of acoustic energy involved in human hearing is extremely large; more than 1 to 10,000,000,000,000. Thus, if we measured sound in Pascals, we would end up with some unmanageable number. By taking the logarithm to the base 10 (log) of this energy range, the numbers become more manageable. For example, the log of 1 is 0, while the log of 10,000,000,000,000 is 13, resulting in a range of only 13 units. Noise is therefore measured by using a sound level meter which translates the variation in atmospheric pressure as detected by the diaphragm in a microphone into an electrical signal which is processed by the software in a sound level.

Question 12
Which units are used?

Answer 12
Noise is measured in terms of decibels (dB). The dB is not an absolute unit of measurement; it is a logarithmic ratio of a variation in atmospheric pressure to an agreed reference pressure. The reference pressure is set so that 0dB is the threshold of hearing.

Question 13
What is low frequency noise?

Answer 13
Low frequency noise is normally taken to be between 10 Hz to 200Hz. The range of human hearing is from 20Hz – 20,000Hz.

Question 14
What is A-rating and opposed to C-rating?

Answer 14

The 'A' and 'C' weightings are explained in Chapter 1. The "A" weighting is generally taken to be equivalent to the response of the human ear in that it gradually reduces the significance of frequencies below 100Hz, until at 10Hz the attenuation is 70dB. The "C" weighting is flat to within 1dB down to about 50Hz and then it drops by 3dB at 31.5Hz and 14dB at 10Hz (Dr Geoff Leventhall, 2003).

(<http://www.defra.gov.uk/environment/noise/lowfrequency/index.htm>). The weighting curves are shown in Chapter 1.

Question 15

What are weighted levels?

Answer 15

Weighted level are linear levels which have been corrected by the application of a particular weighting, usually an "A" or "C" weighting as described above. The "A" weighting is generally used for environmental noise measurement. The difference between the "C" and the "A" weighting can be a useful indicator of the presence of low frequency noise.

Question 16

Can noise measurements be made quite easily with off-the shelf instrument?

Answer 16

Yes and no. There are many basic sound level meters on the market, however, there are 4 different grades of sound level meters and each grade has a different level of accuracy The Noise Act 1996 requires all 'measuring devices' used to be approved, and it is anticipated that the legislation incorporating the provisions of the ASBB will also require approval by the Scottish Ministers.

Question 17:

Will there be guidance on measurement procedure and protocol?

Answer 17

Yes, the Scottish Executive has undertaken to produce guidance on measurement procedure and protocol.

Question 18.

What is the Intervention Level?

Answer 18

The Intervention Level is the level below which no action can be taken, i.e. the lowest permitted level.

Question 19

Why is 10dB(A) added?

Answer 19

When two sounds of similar nature are 10dB apart the higher level is said to be twice as loud as the lower level and can therefore be ranked as a significant increase. If the 10dB is added to the level of noise which would exist without the intrusive noise then the intrusive noise will be very noticeable and is likely to be annoying. Empirically, intrusive noise has been found to be a problem when it is 10dB above the pre-existing level. In some circumstances even a small increase in level, or in fact noise at the same level, can be annoying to a listener because it is audible. The provisions of the ASBB do not include inaudibility.

Question 20

BRE/NAS Research demonstrates parties and human noise as the most annoying. Does the distinction between evening and night justify different noise levels being set?

Answer 20

Yes, it does and further information on this is given in Chapter 5.

Question 21

What is the relevance of the NAS survey, if any?

Answer 21

The NAS, a survey of community response to environmental noise, was undertaken by BRE in 1991 and repeated in 1999/2000. During the 2000 work the survey was extended to Scotland. It is therefore a useful guide in targeting noise found to cause most community disturbance. The relevance of the results of the NAS is that 37% of respondents reported being bothered, annoyed or disturbed to some extent by noise from neighbours and other nearby. The BRE/NAS included a detailed neighbour noise survey which looked at the specific source of neighbour noise and times of day when the greatest proportions of people reported being particularly bothered, annoyed or disturbed. As stated in the answer to Question 2 the NAS detailed study revealed that the specific neighbour noise sources causing the most disturbances to respondents were teenagers' or adults' voices, radio, music, dogs and children. The findings therefore support the need for specific legislation to facilitate speedy resolution of these problems.

Question 22

What is the relevance of the NIS survey, if any?

Answer 22

The Building Research Establishment (BRE) carried out a National Noise Incidence Survey (NIS) during 2000 and 2001 to collect data on noise levels outside homes in the United Kingdom. The survey included Scotland and the day, evening and night levels determined have been used as a guide in setting the day, evening and night intervention levels (DIL, EIL and NIL)

ANNEX 4 REQUEST FOR DATA TO SCOTTISH POLICE CONSTABULARIES

[LINK TO SE WEBSITE](#)

**ANNEX 5 MEMORANDUM OF AGREEMENT BETWEEN DUNDEE
CITY COUNCIL AND TAYSIDE POLICE**

[LINK TO SE WEBSITE](#)

**ANNEX 6 BELFAST CITY COUNCIL QUESTIONNAIRE ON
AWARENESS TO POLICE**

[LINK TO SE WEBSITE \(6A\)](#) [LINK TO SE WEBSITE \(6B\)](#)

ANNEX 7 BELFAST CITY COUNCIL CUSTOMER SATISFACTION QUESTIONNAIRE

[LINK TO SE WEBSITE](#)

**ANNEX 8 SAMPLE OUTPUT FORM 'NOISE ACT' TYPE SOUND
LEVEL METER**

[LINK TO SE WEBSITE](#)

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Small changes in the way we perform everyday tasks can have huge impacts on Scotland's environment.

Walking short distances rather than using the car, or being careful not to overfill the kettle are just two positive steps we can all take.

This butterfly represents the beauty and fragility of Scotland's environment. The motif will be utilised extensively by the Scottish Executive and its partners in their efforts to persuade people they can do a little to change a lot.

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