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DISCO NOISE NUISANCE - TOWARDS NEW GUIDELINES

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INTRODUCTION

Noise from discotheques, clubs, pubs and other places of entertainment very commonly results in complaints from neighbouring premises. These complaints may relate to the music or other noises from within the premises or to noise from patrons and vehicles arriving and leaving. It is not always easy to determine whether the complaints are directed at noise in particular or whether noise is just one aspect of a more general complaint of loss of amenity.

There is a lack of authoritative guidelines which could either predict whether complaints are likely or help in deciding whether complaints are reasonably justified. Such guidelines would be of great help to those involved in the setting up and running of places of entertainment and those concerned with the welfare of the local community. The existing guides to the acceptability of environmental noise, such as "Planning and Noise"⁽¹⁾ and BS 4142⁽²⁾ do not address themselves to discotheque noise and are therefore of little use for this purpose.

In order to progress a little further towards usable guidelines the results of noise measurements carried out in the vicinity of places of entertainment have been examined and an attempt made to correlate the incidence of complaints with the intrusiveness of the noise as assessed by BS 4142.

All the measurements were made in the role of consultant to an interested party and therefore will not represent a truly random sample, since cases where complaints have not arisen and are not expected will be generally excluded.

NOISE MEASUREMENTS

The type and position of measurement could not usually be freely chosen due either to physical limitations of time and place or to non-co-operation of one of the parties. Measurements were made to be as nearly as possible representative of the noise reaching the complainant (or potential complainant) and in every case included measurements of the noise level with the premises operating and a background noise level when the premises were not operating (either in a break or when closed), each measured in dB(A). Where noise from the premises could not be reliably measured near the complainant, attempts were usually made to calculate the noise level reaching the complainant (e.g. from measurements nearer the source). All the measurements included in the analysis were considered to be reliable guides to the noise levels reaching the complainants.

56 measurements at 28 different places of entertainment were included in the analysis. 44 measurements of music and 12 were measurements of the noise

from patrons and their vehicles. Where more than one measurement of noise from the same premises has been included, they represent either re-visits after significant changes or measurements near other complainants who experienced significantly different conditions. About 40% of the measurements were made indoors, the rest being made outside the buildings where complaints arise or may arise (or calculated for these positions).

Noise levels due to music were measured as the frequently occurring peaks in the music (usually every 2-3 seconds) measured on the "Slow" response of a sound level meter. Traffic noise was usually measured as a noise level exceeded for 10% of the time (L₁₀) with counts of vehicle movements attributable to the patrons used to assess their contribution by comparing periods when there were few vehicle movements due to patrons to periods when there were many.

DATA USED FOR ANALYSIS

Although BS 4142 is not considered appropriate for assessing discotheque noise (and indeed restricts itself to industrial noise), it is likely that the principle of comparing the noise from the discotheque to the background level will form the basis for workable guidelines on discotheque noise. Therefore, the rating procedure of BS 4142 has been used to arrive at the excess of the Corrected Noise Level (CNL) over the background level. To arrive at the CNL, a correction of +5 dB(A) has been applied to all measurements of music for its tonal and impulsive quality; no correction for duration has been used since the music is, in every case, effectively continuous over the assessment period. For traffic noise, no corrections have been applied except one measurement, where a -10 dB correction for duration was applied because the vehicles all passed in a very short time interval when the club closed, this time being too short for statistical analysis.

RESULTS

The data is presented in Tables 1 and 2, where it is reduced to the number of cases falling within specified bands of excess of CNL over background noise level compared to the total number of complaints and the number of strong complaints (i.e. the complaints which were vigorous and actively pursued by the complainant).

TABLE 1

Noise from Music

CNL - Background Noise Level (dB(A))	No. of Cases	No. Resulting in Complaints	No. Resulting in Strong Complaints
≥20	3	3	3
+15 to + 19	6	6	5
+10 to + 14	11	11	6
+5 to + 9	9	9	1
0 to + 4	7	6	1
-5 to - 1	4	4	1
-10 to - 6	3	1	0
-15 to -11	1	1	1
Totals	44	41	18
% of all cases	100	93	41

TABLE 2**Noise from Patrons' Vehicles**

CNL - Background Noise Level (dB(A))	No. of Cases	No. Resulting in Complaints	No. Resulting in Strong Complaints
+10 to +14	2	2	0
+5 to +9	2	2	0
0 to +4	8	8	2
Totals	12	12	2

Complaints arose in all but three of the cases but this is to be expected since measurements were usually initiated by the occurrence of complaints. The results show that the proportion of cases resulting in complaints about music does not fall until the CNL is 0-5 dB(A) below the background noise level but the number of cases involved is too small for any firm conclusion to be drawn.

It is, however, instructive to examine the proportion of cases where the complaints were strong (i.e. vigorously pursued). Table 1 shows that the proportion of strong complaints rises rapidly when the excess of CNL over background noise level equals or exceeds 10 dB(A). Some strong complaints continue even when the noise is scarcely audible or even inaudible; these probably represent complainants whose objection is to the presence of the discotheque or club, rather than the noise it may generate.

Noise from traffic and from people entering and leaving the premises is more difficult to assess and the data obtained gives little information. This may be due to complainants objecting more to the character of the noise than its level; thus occasional examples of inconsiderate behaviour (shouting, singing, slamming car doors, revving engines, etc) may arouse more complaints than a simple increase in traffic volume. Noise measurements aimed at quantifying an increase in noise levels due to patrons' vehicle are therefore probably of small value in assessing complaints.

Tentative Guidelines

The method of comparing the level of music (possibly with corrections) to a background level is attractive since it is relatively simple to operate and it should be possible to measure the intrusiveness of the noise quite reliably in this way. The use of measurements in dB(A) is also attractive for its simplicity and wide acceptance for other noises. The most distinctive feature of music (particularly when heard after transmission through walls or floors or windows) is the rhythmic beat; it is proposed that this can best be measured by recording the typical recurring peak readings of a sound level meter set to the "Slow" response. The background noise level would be measured as a typical minimum or a noise level exceeded for 90% of the time (L₉₀). These measurements would be made at a point representative of the noise reaching the complainant (actual or potential).

It is convenient to follow the same form of assessment as BS 4142 and to alter the correction to the measured noise levels so that the level of complaints predicted would fall into similar bands as for industrial noise. The tentative proposal would be that a correction of +10 dB(A) should be applied to the measured level; some complaints would then be expected when the CNL (measured level + 10 dB(A)) exceeds the background level by 0-5 dB(A) and strong complaints would be anticipated if the CNL exceeds the background level by 10 dB(A).

CONCLUSIONS

The measurements made of noise from clubs and discotheques indicate that music reaching neighbours becomes likely to arouse some complaints when the typical repeated peaks in the music reach 10 dB(A) below the background noise level. It is proposed that this criterion should be used to formulate guidelines which would be based on a method of assessment very similar to BS 4142.

REFERENCES

1. Department of the Environment Circular 10/73 "Planning and Noise (HMSO 1973)
2. British Standard BS 4142:1967 (as amended January 1975) "method of rating industrial noise affecting mixed residential and industrial areas".