

METHOD FOR CALCULATING NOISE CHARGES AND REBATES

(TAKEN FROM ECAC/24 - WP/3 dated 16/6/2000)

Calculation of noise charge

The noise charge for one arrival and one departure is:

$$C = C_a \cdot 10^{[(L_a - T_a)/10]} + C_d \cdot 10^{[(L_d - T_d)/10]}$$

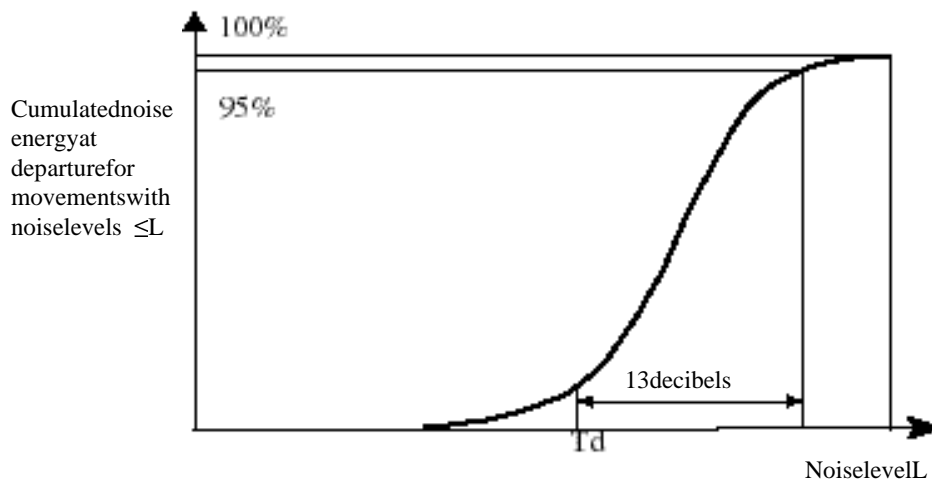
where:

C_a and C_d are the unit noise charges at departures and arrivals for the considered airport¹. They reflect the relative importance of noise emissions at departures and arrivals for the impacted population;

L_a is the certification noise level at approach;

$L_d = (L_f + L_l)/2$, L_f and L_l are the certification noise levels at the flyover and lateral measurement points; and

T_a and T_d are noise thresholds at departures and arrivals corresponding to categories of relatively quiet aircraft for the considered airport. These thresholds are fixed around 13 decibels below upper thresholds corresponding to 95% of the noise energy emitted at the airport as indicated on the graph.



¹ C_a or C_d can be zero.

Calculation of a noise rebate

According to the principle that charges should be based as closely as possible on underlying costs, there should be specific noise charges for financing noise mitigation programmes and other noise charges should be compensated by noise rebates in order to be revenue neutral.

This revenue neutrality can be achieved separately at departure and at arrival. For instance, at departure the noise charge or rebate could be for the aircraft i :

$$C_i = C_d \cdot [E_d \quad i - 1/N \cdot \sum E_d \quad j]$$

where

C_d is the unit charge (or rebate) for departure at the considered airport;

$E_d \quad i$ is the relative noise energy at departure for the aircraft which is considered; and

N and $\sum E_d \quad j$ are the forecast number of departures and the forecast cumulated noise energy at departure during the year which is considered.

C_i can be positive or negative. In this latter case it is a **noise rebate**. Such incentive schemes with charges and rebates are already operational in several European countries.