

The **California Airport Noise Standards** states that the basis for the acceptable level of aircraft noise for persons living in the vicinity of airports is a Community Noise Equivalent Level (CNEL) of 65 decibels.

What is a decibel?

The decibel, abbreviated dB, is a noise metric expressing the relative intensity of sounds.

What does CNEL mean?

CNEL stands for Community Noise Equivalent Level and is a noise metric used to measure cumulative noise. This metric takes into account the number of aircraft noise events and decibel level. CNEL is the State noise standard that defines the airport's noise contour, and is recognized by the FAA as the federal standard.

The following is an excerpt from the Department of Transportation, Division of Aeronautics, for the complete document, refer to:

<http://www.dot.ca.gov/hq/planning/aeronaut/documents/statenoisestnds.pdf>

TITLE 21 DIVISION OF AERONAUTICS § 5001
(Register 90, No. 10-3-10-90) (p. 219)

SUBCHAPTER 6. NOISE STANDARDS

Article 1. General

5000. Preamble.

The following rules and regulations are promulgated in accordance with Article 3, Chapter 4, Part 1, Division 9, Public Utilities Code (Regulation of Airports) to provide noise standards governing the operation of aircraft and aircraft engines for all airports operating under a valid permit issued by the Department of Transportation. These standards are based upon two separate legal grounds: (1) the power of airport proprietors to impose noise ceilings and other limitations on the use of the airport, and (2) the power of the state to act to an extent not prohibited by federal law. The regulations are designed to cause the airport proprietor, aircraft operator, local governments, pilots, and the department to work cooperatively to diminish noise problems. The regulations accomplish these ends by controlling and reducing the noise impact area in communities in the vicinity of airports.

NOTE: Authority cited: Section 21669, Public Utilities Code.
Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Amendment filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

5001. Definitions.

The definitions in the following subsections apply to this subchapter.

(a) Air Carrier: Air carrier is any aircraft operating pursuant to a federal certificate of public convenience and necessity, including any certificate issued pursuant to 49 U.S.C. Section 1371 and any permit issued pursuant to 49 U.S.C. Section 1371.

(b) Aircraft Operator: Aircraft operator means the legal or beneficial owner of the aircraft with authority to control the aircraft utilization except where the aircraft is leased, the lessee is the operator.

(c) Airport Proprietor: Airport proprietor means the holder of an airport permit issued by the department pursuant to Article 3, Chapter 4, Part 1, Division 9, Public Utilities Code.

(d) Annual CNEL: The annual CNEL, in decibels, is the average (on an energy basis) of the daily CNEL over a 12-month period. The annual CNEL is calculated in accordance with the following:

$$\text{Annual CNEL} = 10 \log_{10} [(1/365) \sum \text{Antilog (CNEL}(i)/10)]$$
where CNEL(i) = the daily CNEL for each day in a continuous 12-month period, and $\sum$ means summation.

When the annual CNEL is approximated by measurements on a statistical basis, as specified in Section 5034, the number 365 is replaced by the number of days for which measurements are obtained.

(e) County: County, as used herein, shall mean the county board of supervisors or its designee authorized to exercise the powers and duties herein specified.

(f) Daily Community Noise Equivalent Level (CNEL): Community noise equivalent level, in decibels, represents the average daytime noise level during a 24-hour day, adjusted to an equivalent level to account for the lower tolerance of people to noise during evening and night time periods relative to the daytime period. Community noise equivalent level is calculated from the hourly noise levels by the following:

$$\text{CNEL} = 10 \log (1/24) [\sum \text{antilog (HNLD}/10) + 3 \sum \text{antilog (HNLE}/10) + 10 \sum \text{antilog (HNLN}/10)]$$

Where

HNLD are the hourly noise levels for the period 0700-1900 hours;

HNLE are the hourly noise levels for the period 1900-2200 hours;

HNLN are the hourly noise levels for the period 2200-0700 hours; and $\sum$ means summation.

(g) Department: Department means the Department of Transportation of the State of California.

(h) General Aviation: General aviation aircraft are all aircraft other than air carrier aircraft and military aircraft.

(i) Hourly Noise Level (HNL): The hourly noise level, in decibels, is the average (on an energy basis) noise level during a particular hour. Hourly noise level is determined by subtracting 35.6 decibels (equal to $10 \log_{10} 3600$) from the noise exposure level measured during the particular hour, integrating for those periods during which the noise level exceeds a threshold noise level.

For implementation in this subchapter of these regulations, the threshold noise level shall be a noise level which is 10 decibels below the numerical value of the appropriate Community Noise Equivalent Level (CNEL) standard specified in Section 5012. At some microphone locations, sources of noise other than aircraft may contribute to the CNEL. Where the airport proprietor can demonstrate that the accuracy of the CNEL measurement will remain within the required tolerance specified in Section 5070, the department may grant a waiver to increase the threshold noise level.

(j) Noise Exposure Level (NEL): The noise exposure level is the level of noise accumulated during a given event, with reference to a duration of one second. More specifically, noise exposure level, in decibels, is the level of the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on the reference pressure of 20 micronewtons per square meter and reference duration of one second.

(k) Noise Impact Area: Noise impact area is the area within the noise impact boundary that is composed of incompatible land use.

(l) Noise Impact Boundary: Noise impact boundary is the locus of points around an airport for which the annual CNEL is equal to the airport noise standard established in Section 5012. The concepts of noise impact boundary and noise impact area are illustrated in Figure 1.

For continuation of this document:

<http://www.dot.ca.gov/hq/planning/aeronaut/documents/statenoisestnds.pdf>