

## 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:

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

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.

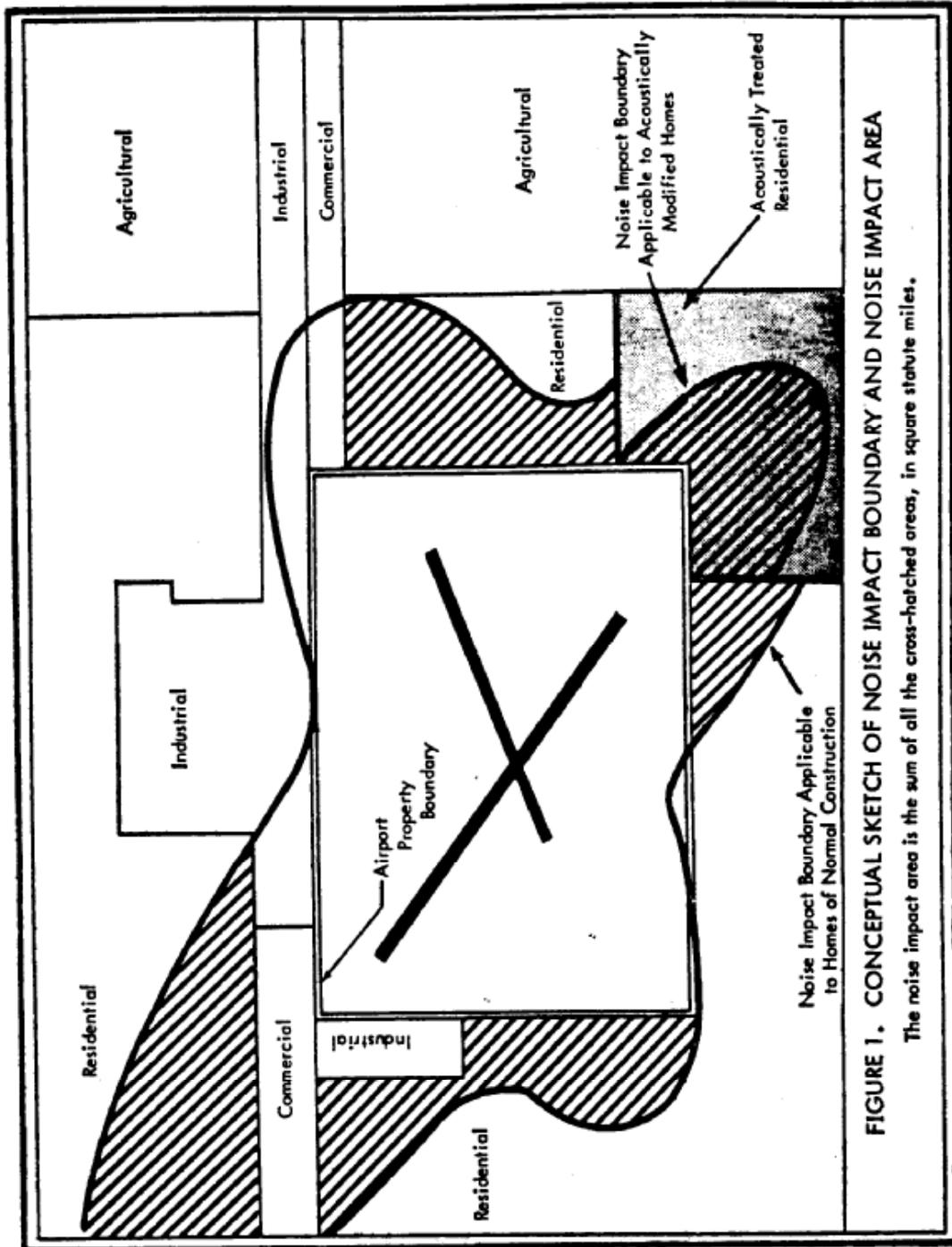


Figure 1. Conceptual Sketch of Noise Impact Boundary and Noise Impact Area

(m) Noise Level (NL): Noise level is the measure in decibels of an A-weighted sound pressure level as measured using the slow dynamic characteristic for sound level meters specified in American National Standard Specification for Sound Level Meters, (ANSI S1.4-1983 as revised by ANSI S1.4A-1985) which is hereby incorporated by reference. The A-weighting characteristic modifies the frequency response of the measuring instrument to account approximately for the frequency characteristics of the human ear. The reference pressure is 20 micronewtons/square meter ( $2 \times 10^{-4}$  microbar).

(n) Noise Problem Airport: "Noise problem airport" is an airport that the county in which the airport is located has declared to have a noise problem under section 5020.

(o) Single Event Noise Exposure Level (SENEL): The single event noise exposure level, in decibels, is the noise exposure level of a single event, such as an aircraft flyby, measured over the time interval between the initial and final times for which the noise level of a single event exceeds a predetermined threshold noise level.

(p) Sound Pressure Level (SPL): The sound pressure level, in decibels (dB), of a sound is 20 times the logarithm to the base 10 of the ratio of the pressure of that sound to the reference pressure 20 micronewtons/square meter ( $2 \times 10^{-4}$  microbar).

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

HISTORY:

1. Renumbering and amendment of former Section 5001 to Section 5002, and renumbering and amendment of former Section 5006 to Section 5001 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5002. Liberal Construction.**

This subchapter shall be liberally construed and applied to promote its underlying purposes which are to protect the public from noise and to resolve incompatibilities between airports and their surrounding neighbors.

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

HISTORY:

1. Renumbering of former Section 5002 to Section 5003, and renumbering of Section 5001 to Section 5002 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5003. Constitutionality.**

If any provision of this subchapter or the application thereof to any person or circumstance is held to be unconstitutional, the remainder of the subchapter and the application of such provision to other persons or circumstances shall not be affected thereby.

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

HISTORY:

1. Renumbering of former Section 5003 to Section 5004, and renumbering of former Section 5002 to Section 5003 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5004. Provisions Not Exclusive.**

The provisions of this subchapter are not exclusive, and the remedies provided for in this subchapter shall be in addition to any other remedies provided for in any other law or available under common law. It is not the intent of these regulations to preempt the field of aircraft noise limitation in the state. The noise limits specified herein are not intended to prevent any local government to the extent not prohibited by federal law or any airport proprietor from setting more stringent standards.

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

HISTORY:

1. Renumbering and amendment of former Section 5004 to Section 5005, and renumbering of former Section 5003 to Section 5004 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5005. Applicability.**

These regulations establish to the extent not prohibited by Federal law a mandatory procedure which is applicable to all airports in California that are required to operate under a valid permit issued by the department. These regulations are applicable (to the extent not prohibited by Federal law) to all operations of aircraft and aircraft engines which produce noise.

The regulations established by this subchapter are not intended to set noise levels applicable in litigation arising out of claims for damages occasioned by noise. Nothing herein contained in these regulations shall be construed to prescribe a duty of care in favor of, or to create any evidentiary presumption for use by, any person or entity other than the State of California, counties and airport proprietors in the enforcement of these regulations.

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

HISTORY:

1. Renumbering and amendment of former Section 5005 to Section 5006, and renumbering and amendment of former Section 5004 to Section 5005 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5006. Findings.**

Citizens residing in the vicinity of airports are exposed to the noise of aircraft operations. There have been numerous instances wherein individual citizens or organized citizen groups have complained about airport noise to various authorities. The severity of these complaints has ranged from a few telephone calls to organized legal action. Many of these cases have been studied by acoustics research workers under sponsorship of governmental and private organizations. These studies have generally shown that the severity of the complaint is principally associated with a combination of the following factors:

- (a) Magnitude and duration of the noise from aircraft operations;
- (b) Number of aircraft operations; and
- (c) Time of occurrence during the day (daytime, evening or night).

There are many reasons given by residents for their complaints; however, those most often cited are interference with speech communication, TV, and sleep. Numerous studies have been made related to speech interference and hearing damage, and some studies have been made related to sleep disturbance and other physiological effects. These studies provide substantial evidence for the relationship between noise level and its interference with speech communication and its effect relative to hearing loss. Significantly less information is available from the results of sleep and physiological studies.

In order to provide a systematic method for evaluating and eventually reducing noise incompatibilities in the vicinity of airports, it is necessary to quantify the noise problem. For this purpose, these regulations establish a procedure for defining a noise impact area surrounding an individual airport. The criteria and noise levels utilized to define the boundaries of the noise impact area have been based on existing evidence from studies of community noise reaction, noise interference with speech and sleep, and noise induced hearing loss.

One of the fundamental philosophies underlying the procedures in these regulations is that any noise quantity specified by these regulations be measurable by relatively simple means. Therefore, these regulations utilize as their basic measure the A-weighted noise level, which is the most commonly accepted simple measure. To insure consistency between criteria and measurement, the units for the criteria are also based on the A-weighted sound level rather than one of the several more complex perceived noise levels.

The level of noise acceptable to a reasonable person residing in the vicinity of an airport is established as a community noise equivalent level (CNEL) value of 65 dB for purposes of these regulations. This criterion level has been chosen for reasonable persons residing in urban residential areas where houses are of typical California construction and may have windows partially open. It has been selected with reference to speech, sleep and community reaction.

It is recognized that there is a considerable individual variability in the reaction to noise. Further, there are several factors that undoubtedly influence this variability and which are not thoroughly understood. Therefore, this criterion level does not have a degree of precision which is often associated with engineering criteria for a physical phenomenon (e.g., the strength of a bridge, building, et cetera). For this reason, the state will review the criterion periodically, taking into account any new information that might become available.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Renumbering and amendment of former Section 5006 to Section 5001, and renumbering and amendment of former Section 5005 to Section 5006 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5010. Purpose.**

The purpose of these regulations is to provide a positive basis to accomplish resolution of existing noise problems in communities surrounding airports and to prevent the development of new noise problems. To accomplish this purpose, these regulations establish a quantitative framework within which the various interested parties (i.e., airport proprietors, aircraft operators, local communities, counties and the state) can work together cooperatively to reduce and prevent airport noise problems.

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).

**5011. Methodology for Controlling and Reducing Noise Problems.**

HISTORY:

1. Renumbering and amendment of former Section 5011 to Section 5037 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5012. Airport Noise Standard.**

The standard for the acceptable level of aircraft noise for persons living in the vicinity of airports is hereby established to be a community noise equivalent level of 65 decibels. This standard forms the basis for the following limitation.

No airport proprietor of a noise problem airport shall operate an airport with a noise impact area based on the standard of 65 dB CNEL unless the operator has applied for or received a variance as prescribed in Article 5 of this subchapter.

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

HISTORY:

1. Repealer of former Section 5012, and renumbering and amendment of former Section 5062 to Section 5012 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5013. Noise Impact Boundary.**

HISTORY:

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

**5014. Incompatible Land Uses Within the Noise Impact Boundary.**

For the purpose of determining the size of the noise impact area, the following land uses are incompatible:

(a) Residences, including but not limited to, detached single-family dwellings, multi-family dwellings, high-rise apartments or condominiums, and mobile homes, unless:

(1) an avigation easement for aircraft noise has been acquired by the airport proprietor, or

(2) the dwelling unit was in existence at the same location prior to January 1, 1989, and has adequate acoustic insulation to ensure an interior CNEL due to aircraft noise of 45 dB or less in all habitable rooms. However, acoustic treatment alone does not convert residences having an exterior CNEL of 75 dB or greater due to aircraft noise to a compatible land use if the residence has an exterior normally occupiable private habitable area such as a backyard, patio, or balcony. Or,

(3) the residence is a high rise apartment or condominium having an interior CNEL of 45 dB or less in all habitable rooms due to aircraft noise, and an air circulation or air conditioning system as appropriate, or

(4) the airport proprietor has made a genuine effort as determined by the department in accordance with adopted land use compatibility plans and appropriate laws and regulations to acoustically treat residences exposed to an exterior CNEL less than 80 dB (75 dB if the residence has an exterior normally occupiable private habitable area such as a backyard, patio, or balcony) or acquire avigation easements, or both, for the residences involved, but the property owners have refused to take part in the program, or

(5) the residence is owned by the airport proprietor.

(b) Public and private schools of standard construction for which an avigation easement for noise has not been acquired by the airport proprietor, or that do not have adequate acoustic performance to ensure an interior CNEL of 45 dB or less in all classrooms due to aircraft noise;

(c) hospitals and convalescent homes for which an avigation easement for noise has not been acquired by the airport proprietor, or that do not have adequate acoustic performance to provide an interior CNEL of 45 dB or less due to aircraft noise in all rooms used for patient care;

(d) churches, synagogues, temples, and other places of worship for which an avigation easement for noise has not been acquired by the airport proprietor, or that do not have adequate acoustic performance to ensure an interior CNEL of 45 dB or less due to aircraft noise.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal 1975) 389 F.Supp. 58.

HISTORY:

1. Amendment filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Registers 79, No. 21 and 78, No. 38.

### **5015. Changes in Airport Ownership or Control.**

NOTE: Authority cited: Section 21243, Public Utilities Code. Reference: Sections 21669-21669.5, Public Utilities Code.

HISTORY:

1. New section filed 5-30-78 as an emergency, effective upon filing (Register 78, No. 22).
2. Certificate of Compliance filed 9-22-78 (Register 78, No. 38).
3. Renumbering and amendment of former Section 5015 to Section 5090 filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

## Article 2. Implementation by Counties

### **5020. Designating Noise Problem Airport.**

Any county may, at any time, in accordance with the procedure herein, declare any airport within its boundaries to have a noise problem, by adopting a resolution to this effect and forwarding it to this department. In making the determination, the county shall:

(a) Review relevant information, including but not limited to, the record of complaints made, and litigation filed, by residents of the area regarding airport related aircraft noise.

(b) Investigate the possible existence of a noise impact area.

(c) Coordinate with and give due consideration to the recommendations of the applicable airport land use commission established under section 21670 of the Public Utilities Code.

(d) For an airport with joint use by both military and civilian aircraft operations, base its finding only on civilian operations.

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

HISTORY:

1. Renumbering and amendment of former Section 5020 to Section 5032, and new Section 5020 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 78, No. 22.

### **5021. Review of Finding**

Any person or government agency shown, by the results of an investigation conducted under section 5020(b) or by independent competent evidence, to own, reside in, or have jurisdiction over any area within the 65 dB CNEL boundary of any airport may seek review of the finding of the county under section 5020 solely on the issue of substantial evidence by filing a petition to this effect with the department within 10 days of adoption of the finding.

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

HISTORY:

1. Repealer and new section filed 2-2-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 78, No. 22.

**5022. County Enforcement.**

The county wherein a noise problem airport is situated shall enforce this subchapter.

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

HISTORY:

1. Renumbering and amendment of former Section 5022 to Section 5034, and new Section 5022 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 78, No. 22.

**5023. Noise Monitoring.**

The county shall require the airport proprietor for each airport within its jurisdiction determined to have a noise problem, for which the estimated location of the noise impact boundary extends into incompatible land uses, to establish a program of noise monitoring to validate the location of the noise impact boundary in accordance with a monitoring plan approved by the department.

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

HISTORY:

1. Repealer and new section filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 78, No. 22.

**5024. Audit.**

For each noise problem airport, the county shall review and audit noise monitoring data supplied by the airport proprietor for the purpose of ensuring that the data were produced in accordance with the monitoring system plan approved by the department and that the information presented by the airport proprietor is certified as being true and correct by the person in charge of operating the noise monitoring system. Duplicative monitoring by the county is not required.

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

HISTORY:

1. Renumbering of former Section 5024 to Section 5047, and new Section 5024 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 78, No. 22.

**5025. County Report.**

The county shall submit quarterly to the department for each noise problem airport within 75 days after the end of each calendar quarter, a report containing at least the following information:

(a) A map illustrating the location of the noise impact boundary, as validated by measurement, and the location of measurement points, in the four preceding calendar quarters;

(b) The annual noise impact area as obtained from the preceding four calendar quarterly reports, an estimate of the number of dwelling units, and the number of people residing therein;

(c) The daily CNEL measurement, together with identification of the date on which each measurement was made, number of total aircraft operations during the calendar quarter, estimated number of operations of the highest noise level aircraft type (as defined in the 14th Code of Federal Regulations, Part 1, for the certification of airmen) in the calendar quarter, and any other data pertinent to the activity. The Hourly Noise Level (HNL) data shall be retained for at least 3 years, and made available to the department upon request.

(d) The quarterly report shall include use of a standard information format provided by the department (form DOA 617, dated 10/89). The standard form provides a listing for certain summary information including size of noise impact area and the aircraft operational data specified in paragraph (c) above.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5025 to Section 5049, and new Section 5025 filed 2-20-90; operative 2-20-90 (Register 90, No. 10). For prior history, see Register 78, No. 22.

### Article 3. Implementation by Airport Proprietors

#### **5030. Cooperation with County.**

(a) Each airport proprietors shall cooperate with the county in the county's investigations to determine the existence of a noise problem and shall furnish data it may have concerning the location of the 65 and 70 dB CNEL contours upon request by the county.

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

HISTORY:

1. Renumbering and amendment of former Section 5060(a) to Section 5030 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For history of former Section 5030, see Register 79, No. 21.

#### **5031. Establishment of the Noise Impact Boundary**

Each noise problem airport shall measure, establish and validate noise impact boundaries by noise monitoring as required by this subchapter and shall furnish such information to the county.

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

HISTORY:

1. Renumbering and amendment of former Section 5060(b) to Section 5031 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For history of former Section 5031, see Register 79, No. 21.

#### **5032. Validation of the Noise Impact Boundary.**

The noise impact boundary shall be validated by measurements made at locations approved for this purpose by the department. The noise problem airport proprietor shall ascertain the noise impact boundary within a tolerance of plus or minus 1.5 decibels annual CNEL by measurements made in accordance with, and at locations designated in, a noise monitoring plan approved by the department. The noise impact boundary may be ascertained directly from information gathered from monitors or from the combined use of an approved computer model and the data reported by the noise monitoring system. Monitoring shall be accomplished at locations in the approved monitoring system layout plan. The locations shall be selected to facilitate locating the maximum extent (closure points) of the noise impact boundary when the contour extremities encompass incompatible land uses.

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

HISTORY:

1. Renumbering and amendment of former Section 5020 to Section 5032 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For history of former Section 5032, see Register 79, No. 21.

**5033. Submittal of Monitoring Plan.**

Each proprietor of a noise problem airport shall submit a description of the proposed monitoring plan to the department for approval containing at least the following information:

- (a) the general monitoring system plan, including at least locations and the type of instrumentation to be employed;
- (b) Justification for any proposed deviations from the measurement system locations specified in these regulations;
- (c) Statistical sampling plan proposed for intermittent monitoring at community locations;
- (d) Additional information as pertinent or as requested by the department.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Renumbering and amendment of former Section 5063 to Section 5033 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5034. Frequency of Measurement.**

(a) For airports with 1,000 or more homes within the noise impact boundary based on CNEL of 70 dB, continuous monitoring is required at those monitoring positions which fall within residential areas. Measurement for at least 48 weeks in a year shall be considered as continuous monitoring.

(b) For all other noise problem airports, an intermittent monitoring schedule is allowed. The intermittent monitoring schedule shall be designed so as to obtain the resulting annual CNEL as computed from measurements at each location which will correspond to the value that would be measured by a monitor operated continuously throughout the year at that location, within an accuracy of plus or minus 1.5 dB.

Thus, it is required that the intermittent monitoring schedule be designed to obtain a realistic statistical sample of the noise at each location. As a minimum, this requires that measurements be taken continuously for 24-hour periods during four 7-day samples throughout the year, chosen so that for each sample, each day of the week is represented, the four seasons of the year are represented, and the results account for the effect of annual proportion of runway utilization. At most airports, these intermittent measurements can be accomplished by a single portable monitoring instrument.

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

HISTORY:

1. Renumbering and amendment of former Section 5022 to Section 5034 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5035. Schedule of Implementation.**

Within 90 days following the declaration by a county that an airport has a noise problem, and current estimates indicate that a noise impact area exists, the airport proprietor shall forward a schedule of major actions and events involved in the initiation of noise monitoring to the county and to the department. The schedule shall include an estimate of the number of dwelling units inside the 70 dB CNEL contour based upon current airport operations, and the forecast dates for budget amendments, contract award,

system design, system construction, system installation, and the system becoming operational in cases where continuous monitoring is required.

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

HISTORY:

1. New section filed 2-20-90; operative 3-22-90 (Register 90, No. 9). For history of former Section 5035, see Register 79, No. 21.

**5037. Suggested Methodology for Controlling and Reducing Noise Problems.**

The methods whereby the impact of airport noise may be controlled and reduced include, but are not limited to, the following:

(a) Encouraging use of the airport by aircraft classes with lower noise level characteristics and discouraging use by higher noise level aircraft classes;

(b) Encouraging approach and departure flight paths and procedures to minimize the noise in residential areas;

(c) Planning runway utilization schedules to take into account adjacent residential areas, noise characteristics of aircraft and noise sensitive time periods;

(d) Reduction of the flight frequency, particularly in the most noise sensitive time periods and by the noisier aircraft;

(e) Employing shielding for advantage, using natural terrain, buildings, and other obstructions to noise; and

(f) Development of compatible land uses within the noise impact boundary through rezoning, acquisition of avigation easements for noise (voluntarily in exchange for acoustical insulation, an agreed fee, or by eminent domain), application of acoustical insulation, or acquisition of property as examples.

Preference shall be given to actions which reduce the impact of airport noise on existing communities. Land use conversion involving existing residential communities shall normally be considered the least desirable action for achieving compliance with these regulations.

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

HISTORY:

1. Renumbering and amendment of former Section 5011 to Section 5037 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21).

**5039. Grounds for Approval.**

Failure of the airport proprietor to comply with the provisions of this subchapter constitutes a ground for revocation of its airport permit.

NOTE: Authority cited: Section 21668, Public Utilities Code. Reference: Section 21668, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5064 to Section 5039 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**Article 4. Implementation by the Department**

**5040. Departmental Review.**

Upon receipt of a petition for review under section 5021, the department shall conduct an investigation on, and make a determination as to, whether the county's finding is based on substantial evidence. If the department determines the county's finding to be not based on substantial evidence, it may either remand the matter to the county for reconsideration or decide the issue on the merits, either classifying the airport as having a noise problem or not. Notice of the determination and of classification as to whether a noise problem

exists, together with the record of the investigation, shall be served by mail on the county, the airport proprietor, and the petitioner. The determination shall, unless a request for hearing is filed, become final on the day after the time for demanding a hearing has lapsed. NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5040 to Section 5048, and new Section 5040 filed 2-20-90; operative 3-22-90 (Register 90, No. 10.) For prior history, see Register 79, No. 21.

**5041. Hearing on Determination.**

Upon services of a determination, the county, airport proprietor, or petitioner under section 5021, may demand a hearing by notice to the department, county, airport proprietor, petitioner, and any additional parties of interest in writing within 10 days. The department shall then arrange for the hearing in accordance with the Administrative Procedure Act (Government Code, Section 11,500 et seq.) and will give appropriate consideration to the findings and recommendations of the administrative law judge before issuing its final determination.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4 and 21669.6, Public Utilities Code.

HISTORY:

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

**5042. Effective Date of Determination.**

Upon a final determination that the county's finding is not based on substantial evidence, the department shall issue a decision regarding whether the airport shall be deemed a noise problem airport.

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

HISTORY:

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

**5043. Approval of Noise Monitoring Plans.**

The department will consider monitoring system plans filed by airport proprietors for approval in accordance with the requirements of these regulations.

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

HISTORY:

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

**5044. Review of Quarterly Reports.**

The department will review the data submitted quarterly by the counties for the purpose of assessing progress toward reducing the noise impact area. The department's review will include, but not be limited to, observation of any changes in noise monitor positions, and numerical values of CNEL.

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

HISTORY:

1. Renumbering and amendment of former Section 5065 to Section 5044, and new Section 5044 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5045. Retention of Monitoring Data.**

The department will maintain the quarterly reports of noise monitoring forwarded by the counties pursuant to these regulations for three years in accordance with the provisions of the California Public Records Act (Government Code, Chapter 3.5, Division 7, Title 1, Section 6250 et seq.).

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

HISTORY:

1. Renumbering and amendment of former Section 5045 to Section 5070, and new Section 5045 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5046. Detailed Specifications.**

HISTORY:

1. Renumbering and amendment of former Section 5046 to Section 5071 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5047. Deviations from Specified Measurement Locations.**

Recognizing the unique geographic and land use features surrounding specific airports, the department will consider measurement plans tailored to fit any airport for which the specified CNEL monitoring locations are impractical. For example, monitors should not be located on bodies of water or at points where other noise sources might interfere with aircraft CNEL measurements, nor are measurements required in regions where land use will clearly remain compatible.

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

HISTORY:

1. Renumbering and amendment of former Section 5047 to Section 5072, and renumbering of former Section 5024 to Section 5047 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5048. Additional Monitoring Locations.**

Nothing in this subchapter precludes any airport proprietor from establishing monitors in addition to those required herein.

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

HISTORY:

1. Renumbering and amendment of former Section 5048 to Section 5073, and renumbering and amendment of former Section 5040 to Section 5048 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5049. Alternative Measurement Systems.**

The use of noise measurement systems that are more extensive or technically improved over those specified herein is encouraged, particularly at airports where a major noise problem requires more comprehensive noise monitoring, for example, to monitor noise abatement flight procedures. Airports contemplating the acquisition of such monitoring systems may apply to the department for exemptions from specific monitoring requirements set forth in this subchapter.

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

HISTORY:

1. Renumbering and amendment of former Section 5025 to Section 5049 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

## Article 5. Variances

### **5050. Variances.**

In granting variances, the department shall be guided by the underlying policy that the proprietor of each existing airport having a noise impact area be required to develop and implement programs to reduce the noise impact area of the airport to an acceptable degree in an orderly manner over a reasonable period of time.

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

HISTORY:

1. Repealer of former Section 5050, and renumbering and amendment of former Section 5075(a) to Section 5050 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Registers 85, No. 51 and 79, No. 21.

### **5051. Variance Request.**

A proprietor of a noise problem airport may request variances from the requirement of Section 5012 for periods of not exceeding three years as set forth hereinafter.

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

HISTORY:

1. Renumbering and amendment of former Section 5075(b) to Section 5051 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 85, No. 51.

### **5052. Procedure.**

- (a) The airport proprietor shall apply to the department for a variance.
- (b) An application for a variance shall be made upon a form which the department shall make available (DOA Form 618, dated 11-21-89).
- (c) Such application shall set forth the reasons why the airport proprietor believes a variance is necessary. The application shall state the date by which the airport proprietor expects to achieve compliance with the requirement that there not be a noise impact area based upon the airport noise standard identified in Section 5012. The application shall set forth an incremental schedule of noise impact area reductions for the intervening time.

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

HISTORY:

1. Renumbering and amendment of former Section 5075(b) (1)-(b) (3) to Section 5052 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 85, No. 51.

### **5053. Conditions of Variance.**

The department may grant a variance if to do so would be in the public interest. In weighing the public interest, the department's considerations include but are not limited to the following:

- (a) The economic and technological feasibility of complying with the noise standards set by these regulations;
  - (b) The noise impact should the variance be granted;
  - (c) The value to the public of the services for which the variance is sought;
- and

(d) Whether the airport proprietor is taking good faith measures to the best of its ability to achieve the airport noise standards.

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

HISTORY:

1. Renumbering and amendment of former Section 5075 (b) (4)-(b) (5) to Section 5053 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 85, No. 51.

#### **5054. Reasonable Conditions.**

The department in granting a variance may impose reasonable conditions to achieve the purposes of this subchapter of these regulations.

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

HISTORY:

1. Renumbering and amendment of former Section 5075(b) (7) to Section 5054 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 85, No. 51.

#### **5055. Hearing.**

On its own motion, or upon the request of any person or governmental agency residing, owning property within, or having jurisdiction over, the noise impact area, the department shall hold a public hearing under the provisions of the Administrative Procedure Act on the application for variance. Any person may obtain from the department information on pending requests for variances at any time.

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

History:

1. Renumbering and amendment of former Section 5075(b) (6) to Section 5055 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Registers 85, No. 51 and 79, No. 21.

#### **5056. Burden of Proof.**

The burden of proof shall be upon the applicant for the variance.

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

HISTORY:

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

#### **5057. Additional Variances.**

In the event a variance has been granted and it reasonably appears that the airport proprietor cannot within the term of the variance achieve compliance with the requirement that there be no noise impact area based upon the airport noise standard identified in Section 5012, an application for a further variance from such requirement must be made not less than thirty days before the termination date of the prior variance. In the event timely application is made under the provisions of this section, the prior variance shall continue in effect until the department acts on the application.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: Section 21669, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5075(b) (8) to Section 5057 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 85, No. 51.

## Article 6. (Reserved)

### **5060. Monitoring Requirements.**

HISTORY:

1. Renumbering and amendment of former Section 5060(a) to Section 5030 and renumbering and amendment of Section 5060(b) to Section 5031 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

### **5061. Single Event Noise Limit Violations.**

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Repealer filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21). For history of former section, see Register 77, No. 10.

### **5062. Noise Impact Area Violations.**

HISTORY:

1. Renumbering and amendment of former Section 5062 to Section 5012 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

### **5063. Submittal of Monitoring Plan.**

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Amendment filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21).  
2. Renumbering and amendment of former Section 5063 to Section 5033 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

### **5064. Grounds for Approval.**

HISTORY:

1. Renumbering and amendment of former Section 5064 to Section 5039 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

### **5065. Implementation by the Department.**

HISTORY:

1. Renumbering and amendment of former Section 5065 to Section 5044 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

## Article 7. Noise Monitoring System Requirements

### **5070. General Specifications.**

(a) The noise monitoring system shall measure with an accuracy within plus or minus 1.5 dB on the CNEL scale and record the hourly noise level for each hour of the day, together with identification of the hour, and the CNEL for each day.

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

HISTORY:

1. Repealer of former Section 5070, and renumbering and amendment of former Section 5045 to Section 5070 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5071. Detailed Specifications.**

Noise monitoring systems shall comply with the specifications given in Sections 5080 through 5080.5 of these regulations.

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

HISTORY:

1. Renumbering and amendment of former Section 5046 to Section 5071 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5072. Field Measurement Requirements.**

Specific locations of the monitoring system shall be chosen whenever possible, such that the CNEL from sources other than aircraft in flight is equal to or less than 55dB. This objective may be satisfied by selecting locations in a residential area not immediately adjacent to a noisy industry, freeway, railroad track, et cetera. The measurement microphone shall be placed 20 feet above the ground level, or at least 10 feet above neighboring roof tops, whichever is higher and has a clear line of sight to the path of aircraft in flight.

No obstructions which significantly influence the sound field from the aircraft shall exist within a conical space above the measurement position, the cone being defined by a vertical axis and by a half angle of 75 degrees from that axis.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Renumbering and amendment of former Section 5047 to Section 5072 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5073. Number of Measurement Systems.**

The frequency of measurement specified in Section 5034 has been designed to limit the number of monitoring systems required. The minimum number of systems required per airport is one for intermittent measurements of the noise impact boundary.

For continuous monitoring systems the number of monitoring locations will increase where necessary to provide ample information to ensure the accuracy tolerance of plus or minus 1.5 dB CNEL for location of the noise impact boundary in areas where land use is incompatible. The minimum number of continuous monitoring system stations will be determined by the monitoring system layout plan for each individual airport.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Renumbering and amendment of former Section 5048 to Section 5073 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5075. Variances.**

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: Section 21669, Public Utilities Code.

HISTORY:

1. New subsection (b) (8) filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21).
2. Amendment of subsection (b) filed 12-16-85; effective thirtieth day thereafter (Register 85, No. 51).
3. Renumbering and amendment of former Section 5075 (a) to Section 5050 and renumbering and amendment of former Section 5075 (b) to Sections 5051-5055 and 5057 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Registers 85, No. 51 and 79, No. 21.

## Article 8. Specification: Noise Monitoring System

### **5080. Purpose and Scope.**

(a) Purpose. This specification establishes the minimum requirements for instrumentation to be utilized by airport proprietors required to monitor aircraft noise in accordance with this subchapter.

(b) Scope. The measurement systems defined herein shall be used to monitor noise levels at specifically designated locations in a community surrounding an airport.

(c) Design Goals. The design goals for the noise monitoring system are accuracy, reliability, and ease of maintenance. The measurement techniques set forth herein are sufficiently uncomplicated so that current state-of-the-art instrumentation equipment may be used. The monitor system specifications are not intended to be unduly restrictive in specifying individual system components. The specifications allow the utilization of equipment ranging from analog systems to automated computer systems. The exact configuration will depend upon the specific monitoring requirement and the nature of existing user instrumentation.

This is a total systems specification. It is the prerogative of the user to configure the system with components that will be most compatible with his existing equipment and personnel.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

#### HISTORY:

1. Amendment of subsection (b) filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21).
2. Amendment filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

### **5080.1. Additional Definitions Applicable to Article 8.**

(a) Field Instrumentation. Field instrumentation are those elements or components of a noise monitoring system that are exposed to the outdoor environment in the vicinity of the measurement microphone. This equipment functions within specification during exposure to a year-around environment adjacent to any public use airport in the state of California.

(b) Centralized Instrumentation. Centralized Instrumentation are those elements of a noise monitoring system that are contained in an environmentally-controlled room.

(c) HNL Monitoring System. The HNL monitoring system is one which measures the hourly noise level and provides identification of the hour. This system is deployed as a community monitoring system. An HNL system consists of two subsystems: a noise level subsystem and an integrator/logger subsystem.

(d) Noise Level Subsystem. Noise level subsystem is a subsystem composed of a microphone, an A-weighted filter, a squaring circuit and a lag network. This subsystem is used to derive a signal representing the mean square, A-weighted value of acoustic pressure.

(e) Integrator/Logger Subsystem. Integrator/logger subsystem is a subsystem composed of a threshold comparator, an integrator, a clock, an accumulator, a logger or printer and a logarithmic converter. This subsystem is used to transform the output from a noise level subsystem in excess of a pre-set threshold into HNL.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Amendment filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21).
2. Amendment filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

**5080.2. Examples of Possible System Configurations.**

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Amendment filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21).
2. Repealer filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

**5080.3. Performance Specifications.**

(a) Overall Accuracy. The overall accuracy of the HNL Monitoring System shall be plus or minus 1.5 dB when measuring noise from aircraft in flight. It is the intent of the following specifications to verify this accuracy with laboratory simulation.

(b) Noise Level Subsystem.

(1) Frequency Response and Microphone Characteristics. The frequency response, and associated tolerance of the subsystem, shall be in accordance with American National Standard Specification For Sound Level Meters (ANSI SI.4-1983, as amended by ANSI S1.4A-1985) for Type 1 precision sound level meters for the A-weighting network, which is hereby incorporated by reference.

(2) Dynamic Range. The system output shall be proportional to the antilog of the noise level over a noise level range of at least 60 dB to 120 dB. For the noise level subsystem, the internal electrical noise shall not exceed an equivalent input noise level of 50 dB, and the full scale range of 120 dB shall apply to signals with a crest factor as great as 3:1.

(3) Linearity. The electrical amplitude response to sine waves in the frequency range of 22.4 Hz to 11,200 Hz shall be linear within one decibel from 30 dB below each full scale range up to 7dB above the full scale range on any given range of the instrument.

(c) Integrator/Logger Subsystem.

(1) Threshold Comparator. For HNL, the threshold level shall be adjustable over a noise level range of at least 55 to 70 dB. Threshold triggering shall be repeatable within plus or minus 0.5 dB.

(2) Clock. The clock shall be capable of being set to the time of day within an accuracy of 10 seconds and shall not drift more than 20 seconds in a 24-hour period.

(3) End-to-End Accuracy. The end-to-end accuracy of the integrator/logger subsystem is defined in terms of a unipolar, positive-going square wave input. The logged, integrated output of the system shall fall within plus or minus 1 dB of the true value predicted for the wave of a given duration at an amplitude exceeding the measurement threshold by at least 10 dB, and at all higher amplitudes within the range. The square wave shall be applied at the input to the integrator and level comparator.

(A) HNL Integrator/Logger Subsystem.

1. For each hour during which no noise event exceeds the HNL system noise level threshold, the subsystem shall output the time on the hour, and indicate that the antilog of the HNL for the preceding hour is zero.

2. The overall accuracy of a noise monitoring system pursuant to these regulations shall be determined over a range of HNL from 45 dB to 95 dB for each combination of the following conditions which gives a value in this range:

a. Square waves, as defined above, shall have repetitions of 1, 3, 10, 30 and 100 cycles.

b. Square waves shall have durations of 40, 20, 10, and 5 seconds.

c. Square waves shall have amplitudes equivalent to sound pressure levels of 70, 80, 90, 100 and 110 dB.

d. Overall System Accuracy Demonstration. The overall system accuracy shall be demonstrated for several conditions within each of the above specified ranges, utilizing a 1000 Hz sinusoidal acoustic plane wave oriented along the preferred plane wave axis of the microphone, or an equivalent signal generated in an acoustic coupler:

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Repealer of subsection (d) (1) filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21).
2. Amendment filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

**5080.4. Field Calibration.**

The monitoring system shall include an internal electrical means to electrically check and maintain calibration without resort to additional equipment. Provision shall also be made to enable calibration with an external acoustic coupler.

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

HISTORY:

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

**5080.5. Environmental Precautions and Requirements.**

(a) The field instrumentation shall be provided with suitable protection such that the system performance specified will not be degraded while the system is operating within the range of weather conditions encountered at airports within the State of California.

(b) Humidity. The effect of changes in relative humidity on sensitivity of field instrumentation shall be less than 0.5 decibel at any frequency between 22.4 and 11,200 Hz in the range of 5 to 100 percent relative humidity.

(c) Vibration. The field instrumentation shall be designed and constructed to minimize the effects of vibration resulting from mechanical excitation. Shock mounting of the field instrumentation shall be provided as required to preclude degradation of system performance.

(d) Acoustic Noise. The field instrumentation shall be designed and constructed so as to minimize effects of vibration resulting from airborne noise, and shall operate in an environment of 125 dB SPL-broadband noise over a frequency range of 22.4 to 11,200 Hz-without degradation of system performance.

(e) Magnetic, Electrostatic and Radio Frequency Interference. The effects of magnetic, electrostatic and radio frequency interference shall be reduced to a minimum. The magnitude of such fields which would degrade the performance of the system in accordance with the specifications in Section 5080.3 shall be determined and stated.

(f) Windscreen. A windscreen suitable for use with the microphone shall be used at all times. The windscreen shall be designed so that for windspeeds of 20 miles per hour or less, the overall accuracy of the measurement system specified in Section 5080.3(a) is not compromised.

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

HISTORY:

1. Amendment of subsections (c) and (e) filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

## Article 9. Changes in Airport Ownership

### **5090. Changes in Airport Ownership or Control.**

In the case of a change in airport ownership or control, the new airport proprietor shall be deemed to be in full compliance with these regulations until such time as the department takes final action on the new proprietor's application for a variance in accordance with Article 5, provided, however, that the new proprietor complies with the following:

(a) The new proprietor shall make application to the department for a variance within twenty (20) days after assuming ownership or control, and

(b) The new proprietor, in operating the airport, shall not permit or authorize any activity in conjunction with the airport that results in an increase of the size of the noise impact area.

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

HISTORY:

1. Renumbering and amendment of former Section 5015 to Section 5090 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

### FIGURE 4. TYPICAL HOURLY NOISE LEVEL (HNL) SYSTEM

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Repealer of Figure 4, and renumbering of Figure 5 to Figure 4 filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21).
2. Repealer filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

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