



LAX/COMMUNITY NOISE ROUNDTABLE

GLOSSARY OF COMMONLY USED ACOUSTIC AND AIR TRAFFIC CONTROL TERMS

A

ADS-B - Automatic Dependent Surveillance – Broadcast– ADS-B uses ground-based antennas and in-aircraft displays to alert pilots to the position of other aircraft relative to their flight path. ADS-B is a key element of NextGen.

Air Carrier – A commercial airline with published schedules operating at least five round trips per week.

Air Taxi – An aircraft certificated for commercial service available for hire on demand.

ALP – Airport Layout Plan – The official FAA-approved map of an airport's facilities.

ALS – Approach Lighting System – Radiating light beams guiding pilots to the extended centerline of the runway on final approach and landing.

Altitude MSL – The altitude of an aircraft measured in feet above mean sea level.

Ambient Noise Level – The existing background noise level characteristic of an environment.

ANCA – Airport Noise and Capacity Act of 1990 – The federal law mandating that the U.S. air fleet convert to Stage 3 aircraft by January 1, 2000, and requiring federal approval of an airport's proposed noise and access restrictions on aircraft.

APU – Auxiliary Power Unit – A self-contained generator in aircraft producing power for ground operation and for starting engines.

Arrival – The act of landing an aircraft.

Arrival Procedure – A series of directions from air traffic control, using fixes and procedures, to guide an aircraft enroute to an airport for landing.

Arrival Stream – The flow of aircraft following similar arrival procedures.

ARTCC – Air Route Traffic Control Center – A facility providing air traffic control to aircraft on an IFR flight plan within controlled airspace and principally during the enroute phase of flight.

ATC – Air Traffic Control – The control of aircraft traffic, in the vicinity of airports from control towers, and in the airways between airports from control centers.

ATCT – Air Traffic Control Tower – A central operations tower in the terminal air traffic control system with an associated IFR room if radar equipped, using air/ground communications and/or radar, visual signaling and other devices to provide safe and expeditious movement of air traffic.

Avionics – Airborne navigation, communications, and data display equipment required for operation under specific air traffic control procedures.

B

Backblast – Low frequency noise and high velocity air generated by jet engines on takeoff.

Base Leg – A flight path located at a right angle to the landing runway, prior to the final turn when an aircraft aligns to land on the runway. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline.

C

CAEP – Committee on Aviation Environmental Protection – A committee of ICAO comprised of 19 member states, and 11 observer organizations representing aircraft manufacturers, airlines, airports and environmental groups. This committee is comprised of Working Groups that recommends policies to the ICAO Council regarding noise and emissions standards for aircraft engines, and policies on how to manage aviation and the environment.

California Airport Noise Standards – The rules and regulations codified in Subchapter 6 of Title 21 of the California Code of Regulations, adopted in accordance with the California Public Utilities Code by CALTRANS governing noise problem airports operating under a valid permit-to-operate.

Center – See ARTCC.

CNEL – Community Noise Equivalency Level – A noise metric required by the California Airport Noise Standards for use by airport proprietors to measure aircraft noise levels. CNEL includes an additional weighting for each event occurring during the evening (7:00 p.m. – 9:59 p.m.) and nighttime (10:00 p.m. – 6:59 a.m.) to account for increased sensitivity to noise during these time periods. Evening events are treated as though there were three and nighttime events are treated as though there were ten. This results in a 4.77- and 10-decibel penalty for operations occurring in the evening and nighttime periods, respectively.

CNEL Contour – The map of noise exposure around an airport using the CNEL metric. A contour is computed through an FAA computer program called the Integrated Noise Model (INM), which calculates annual noise exposure and represents the noise levels graphically as a contour. The State of California defines significant noise exposure as any area within the 65 dB CNEL contour.

D

dB - Decibel – With respect to sound, decibels measure a scale from the threshold of human hearing, 0 dB, upwards towards the threshold of pain, about 120-140 dB. Because decibels are such a small measure, they are computed logarithmically and cannot be added arithmetically. An increase of 10 dB is perceived by the human ear as a doubling of noise.

dBA – The A-weighted decibel scale of measuring sound that adjusts the sound pressure towards the frequency range of human hearing.

dBC – The C-weighted decibel scale of measuring sound that adjusts sound pressure towards the low frequency end of the spectrum. Although less consistent with human hearing than the A-weighted scale, the dBC scale can be used to consider the impacts of certain low-frequency operations.

Decision Height – During descent for landing, the height at which a decision must be made during an instrument approach either to continue the approach or to execute a missed approach.

Departure – The act of an aircraft taking off from an airport.

Departure Procedure – A published IFR departure procedure describing specific criteria for climb, routing, and communications for a specific runway at an airport.

Displaced Threshold – A threshold that is located at a point on the runway other than the physical beginning. Aircraft can begin a departure roll before the threshold, but cannot land before it.

DME – Distance Measuring Equipment – Equipment, on the ground and in an aircraft, used to measure, in nautical miles, the distance of the aircraft from the DME navigational aid.

DNL – Day/Night Noise Level – The daily average noise metric used by the FAA, in which noise occurring between 10:00 p.m. and 7:00 a.m. is penalized by 10 dB. DNL is often expressed as annual average noise levels.

DNL Contour – The map of noise exposure around an airport. A contour is computed through the FAA's INM, which calculates the annual noise exposure and represents the noise levels graphically as a contour. The FAA defines significant noise exposure as any area within the 65 dB DNL contour.

Downwind Leg – A flight path parallel to the landing runway in the direction opposite the landing direction. An aircraft proceeding on the downwind leg will turn onto the base leg and subsequently turn again to align with the runway centerline for landing.

Duration – The length of time, in seconds, that a noise event lasts. Duration is usually measured in time above a specific noise threshold.

E

Easterly Operations or East Ops – The LAX flight pattern that has aircraft approaching and departing toward the east using Runways 6L, 6R, 7L, and 7R. This pattern has aircraft arriving from over the Pacific Ocean and departing over land. East Ops are instituted when winds are from an easterly direction at a speed of 10 knots or greater. East Ops is employed only when absolutely necessary for aviation safety considerations and typically occurs less than 5% of the time annually.

Enroute – The portion of a flight between departure and arrival terminal areas.

E

FAA – Federal Aviation Administration – The US Government agency responsible for aircraft safety, movement and control.

FAR – Federal Aviation Regulations – The rules and regulations codified in the Code of Federal Regulations that govern the operation of aircraft, airways, airports and airmen.

FAR Part 36 – A Federal Aviation Regulation defining maximum noise emissions for aircraft.

FAR Part 91 – A Federal Aviation Regulation governing the phase-out of Stage 1 and 2 aircraft as defined under FAR Part 36.

FAR Part 150 – A Federal Aviation Regulation governing noise and land use compatibility studies and programs for airports.

FAR Part 161 – A Federal Aviation Regulation governing an airport's imposition of noise and access restrictions on aircraft that requires FAA approval of any such restrictions.

Fix – A geographical position determined by visual references to surface features, by reference to one or more NAVAIDs, or by other navigational methods.

Fleet Mix – The mix of differing aircraft types operated at a particular airport or by an airline.

Flight Plan – Specific information related to the intended flight of an aircraft. A flight plan is filed with an FAA Flight Service Station or an Air Traffic Control facility.

FMS – Flight Management System - a specialized computer system in an aircraft that automates a number of in-flight tasks, which reduces flight crew workload and improves the precision of the procedures being flown.

G

GA – General Aviation – Civil aviation excluding air carriers, commercial operators and military aircraft.

Glide Slope – Generally a 3-degree angle of approach to a runway established by means of airborne instruments used during instrument approaches, or visual ground aids for the visual portion of an instrument approach and landing.

GPS – Global Positioning System – A satellite based radio positioning, navigation, and time-transfer system.

GPU – Ground Power Unit – A source of power, generally from the terminals, for aircraft to use while their engines are off. **Ground Track** – The apparent path an aircraft would follow on the ground if its airborne flight path were plotted on the terrain.

H

High Speed Exit Taxiway – A taxiway designed and provided with lighting or marking to define the path of aircraft taxiing at high speed from the runway center to a point on the center of the taxiway.

I

ICAO – International Civil Aviation Organization – An official body of the United Nations established in 1944 comprised of 187 member countries. ICAO is the technical setting body for aviation and airports that sets standards for safety, security and environmental issues.

IFP – Instrument Flight Procedure – An FAA-designed and published procedure used by aircraft flying in accordance with instrument flight rules (IFR) which is designed to achieve and maintain an acceptable level of safety in operations.

IFR – Instrument Flight Rules – Rules and regulations established by the FAA to govern flight under conditions in which flight by visual reference is not safe.

ILS – Instrument Landing System – A precision instrument approach system that normally consists of a localizer, glide slope, outer marker, middle marker, and approach lights.

IMC – Instrument Meteorological Conditions – Weather conditions expressed in terms of visibility, distance from clouds, and cloud ceilings during which all aircraft are required to operate using instrument flight rules.

Instrument Approach – A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually.

K

Knots – A measure of speed used in aviation. One knot is equal to one nautical mile per hour (1.15 knots = 1 mile).

L

LDA – Localizer Type Directional Aid – A facility of comparable utility and accuracy to a localizer, but not part of a complete ILS and not aligned with the runway.

Load Factor – The percentage of seats occupied in an aircraft.

Lmax – The peak noise level reached by an aircraft event.

Localizer – A navigational aid that consists of a directional pattern of radio waves modulated by two signals which, when receding with equal intensity, are displayed by compatible airborne equipment as an “on-course” indication, and received in unequal intensity are displayed as an “off-course” indication.

Loop Departure – An LAX departure procedure available for jets between the hours of 7:00 a.m. and 9:00 p.m. that has aircraft departing to the west over the Pacific Ocean and looping back toward the coastline to cross over the LAX VOR at a minimum altitude of 10,000 ft.

M

MIA – Minimum IFR Altitude – The lowest instrument flight rules (IFR) altitude established for use in a specific airspace.

Middle Marker – A beacon that defined a point along the glide slope of an ILS, normally located at or near the point of decision height.

Missed Approach Procedure – A procedure used to redirect a landing aircraft back around to attempt another landing. This may be due to visual contact not established at authorized minimums or instructions from air traffic control, or for other reasons.

MVA – Minimum Vectoring Altitude – The lowest altitude that an air traffic controller may issue during vectoring; except if otherwise authorized for radar approaches, departures and missed approaches.

N

NAS – National Airspace System – The common network of US airspace including: air navigation facilities; equipment and services; airports or landing areas; aeronautical charts; information and services; rules, regulations and procedures; technical information; manpower and materials.

Nautical Mile – A measure of distance used in air and sea navigation. One nautical mile is equal to the length of one minute of latitude along the earth’s equator. The nautical mile was officially set as 6076.115 ft.

NAVAID – Navigational Aid - Any visual or electronic device airborne or on the surface that provides point-to-point guidance information or position data to aircraft in flight.

NDB – Non-directional Beacon – A signal that can be read by pilots of aircraft with direction finding equipment. Used to determine bearing and can home in or track to or from the desired point.

NEM – Noise Exposure Map – NEM is prepared by airports and approved by the FAA in accordance with FAR Part 150 requirements to depict noise contours and to take into account potential land use changes around airports.

NMS – Noise Monitoring System – At LAX, a network of 39 noise monitors placed in the communities surrounding the airport to measure aircraft noise levels and to determine the noise exposure levels. Noise measurement data generated from the system are used to validate the quarterly Noise Contours developed in accordance with California Title 21 requirements. Each monitor consists of a waterproof microphone and electronic components and requires electrical and internet connections to be functional.

Noise Contour – The map of noise exposure around an airport. A contour is computed through an FAA computer model called the Integrated Noise Model (INM), which calculates annual noise exposure. The FAA and Caltrans define significant noise exposure as any area within the 65 dB DNL or CNEL contour, respectively.

Non-Precision Approach Procedure – A standard instrument approach procedure in which no electronic glide slope is provided.

Q

Offset ILS – Offset Parallel Runways – Staggered runways having centerlines which are parallel.

Operation – An arrival, departure or overflight of an aircraft. Every flight requires at least two operations, a take-off and a landing.

Outer Marker – An ILS navigation facility located four to seven miles from the runway on the extended centerline indicating the beginning of the final approach to landing.

Overflight – Aircraft originating or terminating outside the metropolitan area that transit the airspace without landing. This can also be an aircraft operating in the local airspace that did not originate from or is not destined to LAX.

Over-Ocean Operations or Over-Ocean Ops – The LAX flight pattern that is used between the hours of 12:00 a.m. (Midnight) and 6:30 a.m. that has aircraft departing and arriving over the Pacific Ocean. The inner runways are the preferred for this procedure. Aircraft generally depart from the south complex on Runway 25R and arrive to the north complex on Runway 6R. The FAA can suspend Over-Ocean Ops for various reasons including wind, weather, runway construction or maintenance, FAA equipment problems, and other operational or air traffic considerations. When the FAA suspends Over-Ocean Operations, LAX remains in West Ops.

P

PAPI – Precision Approach Path Indicator – An airport lighting facility in the terminal area used under VFR conditions. It is a single row of two to four lights, radiating high intensity red or white beams to indicate whether the pilot is above or below the required runway approach path.

PASSUR System – Passive Surveillance Receiver – A system that intercepts FAA radar signals and is capable of plotting radar tracks of individual aircraft in flight.

PBN – Performance-based Navigation – Specifies that aircraft Required Navigation Performance (RNP) and Area Navigation (RNAV) systems performance requirements be defined in terms of accuracy, integrity, availability, continuity and functionality required for the proposed operations in the context of a particular airspace, when supported by the appropriate navigation infrastructure.

Precision Approach Procedure – A standard instrument approach procedure in which an electronic glide slope is provided, such as an ILS. A GPS precision approach may be provided in the future.

Preferential Runways – The most desirable runways from a noise abatement perspective to be assigned whenever possible. At LAX, the preferential runway use system has aircraft taking off from the inboard runways (25R/7L and 24L/6R); and landing on the outboard runways (25L/7R and 24R/6L).

PRM – Precision Runway Monitoring – A system of high-resolution monitors for air traffic controllers to use in landing aircraft on parallel runways separated by less than 4300ft.

R

Radar Vectoring – Navigational guidance where air traffic controllers issue a compass heading to a pilot.

Reliever Airport – An airport for general aviation and other aircraft which might otherwise use a larger and busier carrier airport.

RNAV – Area Navigation – A method of air navigation that permits aircraft to operate on any desired course within a network of station-referenced navigation aids (NAVAIDs), rather than navigating directly to and from the NAVAIDs. Creates a smoother, more direct course rather than zig-zagging point to point.

RNP – Required Navigation Performance – A type of performance-based navigation (PBN) that allows an aircraft to fly a specific path between two 3-dimensionally defined points in space. RNP differs from RNAV systems in that there is a requirement for on-board performance monitoring and alerting specification.

Run-up – A procedure used to test aircraft engines after maintenance to ensure safe operation prior to returning the aircraft to service. The power settings tested range from idle to full power and may vary in duration.

Run-up Locations or Areas – Specified areas on the airfield where scheduled engine run-ups may occur. These locations are sited so as to produce minimum noise impact in surrounding neighborhoods.

Runway – A long strip of land, usually paved and lighted, used by aircraft to land or to take off.

S

SENEL – Single Event Noise Exposure Level – The noise exposure level of a single aircraft event measured over the time between the initial and final points when the noise level exceeds a predetermined threshold. It is important to distinguish single event noise levels from CNEL. Single event noise levels are generally higher than CNEL's, because the CNEL represents an average noise level over a time period of one year.

Sequencing Process – Procedure in which air traffic is merged into a single flow, and/or in which adequate separation is maintained between aircraft.

SID – Standard Instrument Departure – An aeronautical chart designed to expedite clearance delivery and to facilitate transition between takeoff and enroute operations.

Single Event – Noise generated by a single aircraft overflight.

SOIA – Simultaneous Offset Instrument Approach – An approach system permitting simultaneous ILS approaches to airports having staggered but parallel runways. SOIA combines Offset ILS and regular ILS definitions.

STAR – Standard Terminal Arrival Route – A published IFR arrival procedure describing specific criteria for descent, routing, and communications for a specific runway at an airport.

T

Taxiway – A paved strip that connects runways and terminals, providing the ability to move aircraft so they will not interfere with takeoffs or landings.

Terminal Airspace – The airspace that is controlled by a TRACON.

Terminal Area – A general term used to describe airspace in which approach control service or airport traffic control service is provided.

Threshold – A term in aviation and noise management that has two meanings:

1. The specified boundary of a runway; and
2. The baseline noise level above which microphones record a noise event.

TRACON – Terminal Radar Approach Control – An FAA air traffic control facility that controls aircraft arriving and departing or transiting airspace controlled by the facility. The TRACON for LAX and all Southern California airports is located in San Diego.

TSAS – Terminal Spacing and Sequencing tool – A NASA-developed computer software tool designed to aid air traffic controllers in better managing the spacing between aircraft as they fly into airports.

V

VASI – Visual Approach Slope Indicator – An airport lighting facility in the terminal area navigation system used primarily under VFR conditions. It provides vertical visual guidance to aircraft during approach and landing, by radiating a pattern of high intensity red and white focused beams, indicating that the aircraft is above, on, or below the glide path to the runway.

Vector – A heading issued to a pilot to provide navigational guidance by radar. Vectors are assigned verbally by FAA Air Traffic Controllers.

VFR – Visual Flight Rules – Rules governing procedures for conducting flight operations under visual meteorological conditions, or weather conditions with a ceiling of 1,000 feet above ground level and visibility of three miles or greater. Under VFR, it is the pilot's responsibility to maintain visual separation, not the Air Traffic Controller's.

Visual Approach – An arrival procedure in which an aircraft on an IFR flight plan, operating in VFR conditions under the control of an air traffic facility and having air traffic control authorization, may proceed to the destination airport under VFR.

VMC – Visual Meteorological Conditions – Weather conditions equal to or better than specifications for VFR.

VOR – Very High Frequency Omni-directional Range – A ground based electronic navigation aid transmitting navigational signals for 360 degrees oriented from magnetic north. The VOR is the historic basis for navigation in the national airspace system.

W

Westerly Operations or West Ops – The LAX flight pattern that has aircraft approaching from and departing to the west, using Runways 24L, 24R, 25L, and 25R. This has aircraft arriving over land and departing over the Pacific Ocean. Due to the prevailing winds, LAX operates in West Ops a large portion of the time.