



T E C H N I C A L I N F O R M A T I O N P A P E R

GLOSSARY OF NOISE COMPATIBILITY TERMS



TECHNICAL INFORMATION PAPER

GLOSSARY OF NOISE COMPATIBILITY TERMS

A-WEIGHTED SOUND LEVEL - A sound pressure level, often noted as dBA, which has been frequency filtered or weighted to quantitatively reduce the effect of the low frequency noise. It was designed to approximate the response of the human ear to sound.

AMBIENT NOISE - The totality of noise in a given place and time — usually a composite of sounds from varying sources at varying distances.

APPROACH LIGHT SYSTEM (ALS) - An airport lighting facility which provides visual guidance to landing aircraft by radiating light beams in a directional pattern by which the pilot aligns the aircraft with the extended centerline of the runway on the final approach for landing.

ATTENUATION - Acoustical phenomenon whereby a reduction in sound energy is experienced between the noise source and receiver. This energy loss can be attributed to atmospheric conditions, terrain, vegetation, and man-made and natural features.

AZIMUTH - Horizontal direction expressed as the angular distance between true north and the direction of a fixed point (as the observer's heading).

BASE LEG - A flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline. See "traffic pattern."

CNEL - The 24-hour average sound level, in A-weighted decibels, obtained after the addition of 4.77 decibels to sound levels between 7 p.m. and 10 p.m. and 10 decibels to sound levels between 10 p.m. and 7 a.m., as averaged over a span of one year. In California, it is the

required metric for determining the cumulative exposure of individuals to aircraft noise. Also see "Leq" and "DNL".

COMMUNITY NOISE EQUIVALENT LEVEL - See CNEL.

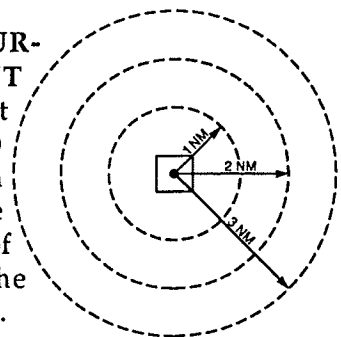
CROSSWIND LEG - A flight path at right angles to the landing runway off its upwind end. See "traffic pattern."

DAY-NIGHT AVERAGE SOUND LEVEL - See DNL.

DECIBEL (dB) - The physical unit commonly used to describe noise levels. The decibel represents a relative measure or ratio to a reference power. This reference value is a sound pressure of 20 micropascals which can be referred to as 1 decibel or the weakest sound that can be heard by a person with very good hearing in an extremely quiet room.

DISPLACED THRESHOLD - A threshold that is located at a point on the runway other than the designated beginning of the runway.

DISTANCE MEASURING EQUIPMENT (DME) - Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.



DNL - The 24-hour average sound level, in A-weighted decibels, obtained after the addition of ten decibels to sound levels for the periods between 10 p.m. and 7 a.m. as averaged over a span of one year. It is the FAA standard metric for determining the cumulative exposure of individuals to noise. Also see "Leq."



DOWNWIND LEG - A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg. Also see "traffic pattern."

DURATION - Length of time, in seconds, a noise event such as an aircraft flyover is experienced. (May refer to the length of time a noise event exceeds a specified dB threshold level.)

EASEMENT - The legal right of one party to use a portion of the total rights in real estate owned by another party. This may include the right of passage over, on, or below the property; certain air rights above the property, including view rights; and the rights to any specified form of development or activity, as well as any other legal rights in the property that may be specified in the easement document.

EQUIVALENT SOUND LEVEL - See Leq.

FINAL APPROACH - A flight path in the direction of landing along the extended runway centerline. The final approach normally extends from the base leg to the runway. See "traffic pattern."

FIXED BASE OPERATOR (FBO) - A provider of services to users of an airport. Such services include, but are not limited to, hangaring, fueling, flight training, repair and maintenance.

GLIDE SLOPE (GS) - Provides vertical guidance for aircraft during approach and landing. The glide slope consists of the following:

1. Electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as ILS, or
2. Visual ground aids, such as VASI, which provide vertical guidance for VFR approach or for the visual portion of an instrument approach and landing.

GLOBAL POSITIONING SYSTEM -
See "GPS."

GPS - GLOBAL POSITIONING SYSTEM - A system of 24 satellites used as reference points to enable navigators equipped with GPS receivers to determine their latitude, longitude, and altitude. The accuracy of the system can be further refined by using a ground receiver at a known location to calculate the error in the satellite range data. This is known as Differential GPS (DGPS).

GROUND EFFECT - The attenuation attributed to absorption or reflection of noise by man-made or natural features on the ground surface.

HOURLY NOISE LEVEL (HNL) - A noise summation metric which considers primarily those single events which exceed a specified threshold or duration during one hour.

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.

INSTRUMENT FLIGHT RULES (IFR) - Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.

INSTRUMENT LANDING SYSTEM (ILS) - A precision instrument approach system which normally consists of the following electronic components and visual aids:

1. Localizer.
2. Glide Slope.
3. Outer Marker.
4. Middle Marker.
5. Approach Lights.

Ldn - (See DNL). Ldn used in place of DNL in mathematical equations only.

Leq - Equivalent Sound Level. The steady A-weighted sound level over any specified period (not necessarily 24 hours) that has the same acoustic energy as the fluctuating noise during that period (with no consideration of a nighttime weighting.) It is a measure of cumulative acoustical energy. Because the time



interval may vary, it should be specified by a subscript (such as Leq 8) for an 8-hour exposure to workplace noise) or be clearly understood.

LOCALIZER - The component of an ILS which provides course guidance to the runway.

MERGE - Combining or merging of noise events which exceed a given threshold level and occur within a variable selected period of time.

MISSED APPROACH COURSE (MAC) - The flight route to be followed if, after an instrument approach, a landing is not effected, and occurring normally:

1. When the aircraft has descended to the decision height and has not established visual contact, or
2. When directed by air traffic control to pull up or to go around again.

NOISE CONTOUR - A continuous line on a map of the airport vicinity connecting all points of the same noise exposure level.

NONDIRECTIONAL BEACON (NDB) - A beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his bearing to and from the radio beacon and home on or track to or from the station. When the radio beacon is installed in conjunction with the Instrument Landing System marker, it is normally called a Compass Locator.

NONPRECISION APPROACH - A standard instrument approach procedure providing runway alignment but no glide slope or descent information.

PRECISION APPROACH - A standard instrument approach procedure providing runway alignment and glide slope or descent information.

PRECISION APPROACH PATH INDICATOR (PAPI) - A lighting system providing

visual approach slope guidance to aircraft during a landing approach. It is similar to a VASI but provides a sharper transition between the colored indicator lights.

PROFILE - The physical position of the aircraft during landings or takeoffs in terms of altitude in feet above the runway and distance from the runway end.

PROPAGATION - Sound propagation refers to the spreading or radiating of sound energy from the noise source. Propagation characteristics of sound normally involve a reduction in sound energy with an increased distance from source. Sound propagation is affected by atmospheric conditions, terrain, and man-made and natural objects.

RUNWAY END IDENTIFIER LIGHTS (REIL) - Two synchronized flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway.

RUNWAY USE PROGRAM - A noise abatement runway selection plan designed to enhance noise abatement efforts with regard to airport communities for arriving and departing aircraft. These plans are developed into runway use programs and apply to all turbojet aircraft 12,500 pounds or heavier. Turbojet aircraft less than 12,500 pounds are included only if the airport proprietor determines that the aircraft creates a noise problem. Runway use programs are coordinated with FAA offices as outlined in Order 1050.11. Safety criteria used in these programs are developed by the Office of Flight Operations. Runway use programs are administered by the Air Traffic Service as "Formal" or "Informal" programs.

RUNWAY USE PROGRAM (FORMAL) - An approved noise abatement program which is defined and acknowledged in a Letter of Understanding between FAA - Flight Standards, FAA - Air Traffic Service, the airport proprietor, and the users. Once established, participation in the program is mandatory for aircraft operators and pilots as provided for in F.A.R. Section 91.87.



RUNWAY USE PROGRAM (INFORMAL) -

An approved noise abatement program which does not require a Letter of Understanding and participation in the program is voluntary for aircraft operators/pilots.

SEL - Sound Exposure Level. SEL expressed in dB, is a measure of the effect of duration and magnitude for a single-event measured in A-weighted sound level above a specified threshold which is at least 10 dB below the maximum value. In typical aircraft noise model calculations, SEL is used in computing aircraft acoustical contribution to the Equivalent Sound Level (Leq), the Day-Night Sound Level (DNL), and the Community Noise Equivalent Level (CNEL).

SINGLE EVENT - An occurrence of audible noise usually above a specified minimum noise level caused by an intrusive source such as an aircraft overflight, passing train, or ship's horn.

SLANT-RANGE DISTANCE - The straight line distance between an aircraft and a point on the ground.

SOUND EXPOSURE LEVEL - See SEL.

TACTICAL AIR NAVIGATION (TACAN) - An ultra-high frequency electronic air navigation system which provides suitably-equipped aircraft a continuous indication of bearing and distance to the TACAN station.

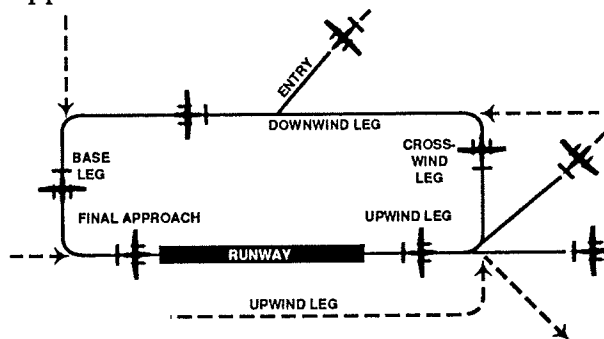
TERMINAL RADAR SERVICE AREA (TRSA) - Airspace surrounding designated airports wherein ATC provides radar vectoring, sequencing, and separation on a full-time basis for all IFR and participating VFR aircraft. Service provided in a TRSA is called Stage III Service.

THRESHOLD - Decibel level below which single event information is not printed out on the noise monitoring equipment tapes. The noise levels below the threshold are, however, considered in the accumulation of hourly and daily noise levels.

TIME ABOVE (TA) - The 24-hour TA noise metric provides the duration in minutes for which aircraft-related noise exceeds specified A-weighted sound levels. It is expressed in minutes per 24-hour period.

TOUCHDOWN ZONE LIGHTING (TDZ) - Two rows of transverse light bars located symmetrically about the runway centerline normally at 100 foot intervals. The basic system extends 3,000 feet along the runway.

TRAFFIC PATTERN - The traffic flow that is prescribed for aircraft landing at or taking off from an airport. The components of a typical traffic pattern are the upwind leg, crosswind leg, downwind leg, base leg, and final approach.



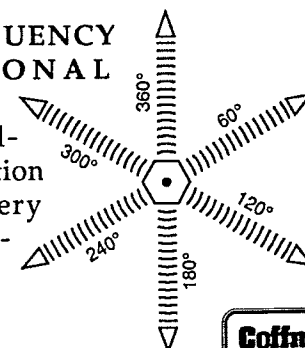
UNICOM - A nongovernment communication facility which may provide airport information at certain airports. Locations and frequencies of UNICOM's are shown on aeronautical charts and publications.

UPWIND LEG - A flight path parallel to the landing runway in the direction of landing. See "traffic pattern."

VECTOR - A heading issued to an aircraft to provide navigational guidance by radar.

VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION (VOR) -

A ground-based electric navigation aid transmitting very high frequency navigation signals, 360



degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the national airspace system. The VOR periodically identifies itself by Morse Code and may have an additional voice identification feature.

VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION/TACTICAL AIR NAVIGATION (VORTAC) - A navigation aid providing VOR azimuth, TACAN azimuth, and TACAN distance-measuring equipment (DME) at one site.

VICTOR AIRWAY - A control area or portion thereof established in the form of a corridor, the centerline of which is defined by radio navigational aids.

VISUAL APPROACH - An approach wherein an aircraft on an IFR flight plan, operating in VFR conditions under the control of an air traffic control facility and having an air traffic control authorization, may proceed to the airport of destination in VFR conditions.

VISUAL APPROACH SLOPE INDICATOR (VASI) - An airport lighting facility providing vertical visual approach slope guidance to air-

craft during approach to landing by radiating an directional pattern of high intensity red and white focused light beams which indicate to the pilot that he is on path if he sees red/white, above path if white/white, and below path if red/red. Some airports serving large aircraft have three-bar VASI's which provide two visual guide paths to the same runway.

VISUAL FLIGHT RULES (VFR) - Rules that govern the procedures for conducting flight under visual conditions. The term VFR is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate type of flight plan.

VOR - See "Very High Frequency Omnidirectional Range Station."

VORTAC - See "Very High Frequency Omnidirectional Range Station/Tactical Air Navigation."

YEARLY DAY-NIGHT AVERAGE SOUND LEVEL - See DNL.

