# FQP METHODOLOGY

## LAX Fly Quieter Program

The LAX Fly Quieter Program (FQP) is an education and recognition program designed to encourage commercial air carriers operating at LAX to fly as quietly as possible by following LAX noise abatement procedures, using quieter aircraft, and taking voluntary measures to reduce noise where feasible. The FQP is intended to grade an individual air carrier's performance relating to these and other noise management practices and provide public acknowledgment for airlines demonstrating the greatest efforts and accomplishments in minimizing aircraft noise.

## Operator Award Categories

Operators having, on average, a minimum of one (1) daily jet operation at LAX per calendar year are included in the FQP. Operators will be placed into one (1) of three (3) scoring categories for reporting, awards and public recognition. The categories listed below are based on the number of average daily arrival and departure operations by calendar year. Categorizing air carriers by number of operations is designed to give carriers an opportunity to demonstrate their noise reduction efforts in comparison to other carriers with similar levels of operations.

- Scoring Category 1 = 50 or More Average Daily Operations
- Scoring Category 2 = 5 to 49 Average Daily Operations
- Scoring Category 3 = 1 to 4 Average Daily Operations

Due to a significant reduction in operations in 2020, Category 1 was adjusted from 100+ operations per day down to 50+ operations per day. Category 2 was adjusted from 5-99 to 5-49. Category 3 was not changed. LAX may periodically adjust the number of operations for each category to account for any notable change in the number of operations at LAX in the future.

At the end of each calendar year, the Gold, Silver and Bronze winners will be determined for each of the three (3) categories for a total of nine (9) award winners.

Regional airlines operating a fleet of smaller, quieter jets currently receive separate recognition in the FQP and are not grouped in the award categories above. This is done to distinguish between mainline air carriers and regional air carriers. Most operations at LAX are conducted by mainline air carriers using larger jets that generate more noise. The FQP takes into account the aircraft size and type, the number of operations, and the type of aircraft operators at LAX to ensure equitable comparison of the program elements.

## Specific Elements and Criteria Evaluated in the LAX FQP

The process of measuring air carriers' performance for the LAX FQP involves monitoring aircraft operations, noise levels and other activities to rate or score these operators based on specific criteria and factors for five (5) primary elements and two (2) bonus elements. Each primary element has a weighting factor in determining an operator's overall score. The following are the associated weighting factors for each primary element:

- Quietest Arrivals = 35%
- Quietest Fleet = 35%
- Pilot-Initiated Early Turns = 10%
- Nighttime Non-Conforming East Departures = 10%
- Nighttime Engine Run-up Restrictions = 10%

The final scores for each operator are determined by summing the weighted primary element scores and then adding any additional "bonus" element points earned.

## Primary Elements

### 1. QUIETEST ARRIVALS

This element is based on measured aircraft noise and will award points to operators that have the lowest noise readings at two noise monitors located under LAX final approach paths (one under the north runway complex arrivals and the other under the south runway complex arrivals). The quietest ten (10) percent of arriving aircraft noise events at both monitors are determined using LAWA's Noise and Operations Monitoring System (NOMS). A normalization is then done by comparing the quietest ten (10) percent of arriving aircraft noise events to the total number of arriving aircraft events at both selected monitors for that operator. That percentage is then multiplied by a scaling factor to get an element score that is between zero (0) and one hundred (100). This figure is then multiplied by a weighting factor of 35% in determining an operator's final score for this element.

## 2. QUIETEST FLEET

This element awards points based on each operator's fleet noise quality as determined through data from a noise certification database. Operators receive a higher score by using quieter, new generation aircraft, while operators using older, louder technology aircraft would rate lower. Using NOMS, the total number of arrival and departure aircraft operations are determined for each operator and each aircraft type. Using HMMH's[1] fleet noise certification database, an average noise certification level difference is determined by aircraft type. A normalization is then done by comparing the average noise certification level difference by aircraft type to the total number of arrival and departure aircraft operations for that aircraft type and operator. The normalization factors for all aircraft types per operator are summed and multiplied by a scaling factor in order to get an element score that is between zero (0) and one hundred (100). This figure is then multiplied by a weighting factor of 35% in determining an operator's final score for this element.

## 3. PILOT-INITIATED EARLY TURNS

This element evaluates operators' compliance with the LAX Early Turn Policy. All LAX westerly departures are monitored using NOMS to identify those that turn before reaching the shoreline and fly over communities north and south of the airport. Early turns are then investigated, through review of pilot/air traffic control communications, to determine whether they are initiated by the pilot or instructed by the Federal Aviation Administration (FAA), or due to wind conditions. Higher points are awarded to those operators with fewer pilot-initiated early turns. Early turns directed by the FAA or caused by wind are excused and not counted in this program.

Using NOMS, the total number of pilot-initiated early turns passing through the Playa Del Rey and El Segundo gates is determined and then summed according to operator. The following is the point structure based on the annual number of early turns that each operator initiated. The awarded points are then multiplied by a weighting factor of 10% in determining an operator's final score for this element.

- 0 = 100 Points
- Between 1 and 2 = 90 Points
- Between 2 and 5 = 80 Points
- Between 6 and 10 = 70 Points
- Between 11 and 15 = 60 Points
- Between 16 and 20 = 50 Points
- Between 21 and 25 = 40 Points
- Between 26 and 30 = 30 Points
- Between 31 and 35 = 20 Points
- Between 36 and 40 = 10 Points
- 41 or Above = 0 Points

[1] HMMH (Harris Miller Miller & Hanson, Inc.), an industry expert in noise modeling and flight track analysis, maintains a proprietary fleet noise certification database of international aircraft noise certification data (Certification data from NoisedB DGAC) and provides this data to LAWA for use in the LAX Fly Quieter Program.

## 4. NIGHTTIME NON-CONFORMING EAST DEPARTURES

This element evaluates operators' use of non-conforming east departures during over-ocean or westerly operations between midnight and 6:30 a.m. and awards points based on the number of these operations. Highest points are assigned to those operators that have no non-conforming east departures.

Using NOMS, the total number of annual nighttime non-conforming east departures is determined and then summed according to operator. The element score between zero (0) and one hundred (100) is determined by the total number of nighttime non-conforming east departures by operator as noted below. This figure is then multiplied by a weighting factor of 10% in determining an operator's final score for this element.

- 0 = 100 Points
- 1 = 90 Points
- 2 = 80 Points
- 3 = 70 Points
- 4 = 60 Points
- 5 = 50 Points
- 6 = 40 Points
- 7 = 30 Points
- 8 = 20 Points
- 9 = 10 Points
- 10 or Above = 0 Points

## 5. NIGHTTIME ENGINE RUN-UP RESTRICTIONS

This element will evaluate operators' compliance with the existing Maintenance Engine Run-up Restriction at LAX from 11:00 p.m. to 6:00 a.m. and award points based on the level of compliance. Using NOMS, the total annual number of any nighttime engine run-ups is determined and then summed according to operator. The element score between zero (0) and one hundred (100) is determined by the total number of nighttime engine run-ups by operator as noted below. This figure is then multiplied by a weighting factor of 10% in determining an operator's final score for this element.

- 0 = 100 Points
- 1 = 75 Points
- 2 = 50 Points
- 3 = 25 Points
- 4 or Above = 0 Points

## Bonus Elements

Additional points are awarded to operators who implement elective strategies to further reduce aircraft noise and for directly engaging with the community as described below. Bonus points are added to the weighted primary element scores to determine the final scores. The maximum amount of bonus points that an operator can obtain per calendar year is ten (10) by accomplishing efforts under one or both of the bonus elements described below.

### 1. Operator Noise Reduction Efforts

This bonus element provides an opportunity for operators to improve their rankings by taking proactive efforts to reduce aircraft noise. Possible efforts from operators include, but are not limited to, implementing any equipment (e.g., installing vortex generators for older Airbus A320 family of aircraft), technology, or procedural type of effort (e.g., reduced engine taxiing, reverse thrust reduction) that will directly reduce aircraft noise.

Bonus points that can be earned in this bonus element are as follows:

- A320 Vortex Generator Installation = Up to 5 points
- Other Noise Reduction Efforts = Up to 5 Points

To be considered for FQP noise reduction bonus points, operators should notify LAWA and the number of points awarded depends on the level of effort determined on a case-by-case basis.

### 2. Stakeholder Engagement Efforts

This bonus element provides an opportunity for operators to improve their rankings by taking proactive efforts to implement outreach and educational efforts with various stakeholders. Possible efforts from operators include, but are not limited to, establishing and/or participating in an LAX Noise Management education program for pilots, periodically attending and/or more actively participating in LAX/Community Noise Roundtable meetings, and engaging with the FAA to explore options for reducing aircraft noise or flights over residential communities.

Bonus points that can be earned per calendar year in this bonus element are as follows:

- Roundtable attendance/participation (max of 4 points)
  - Attending a meeting = 1 point
  - Providing a presentation = 2-3 points
  - Actively participating in Roundtable Ad Hoc Committees = 4 points
- Establish and/or participate in an LAX Noise Education Program = Up to 4 points
- Engage with FAA to explore options to reduce noise over communities = Up to 3 points