

Aircraft Noise Monitoring Methodology

 ANOMS Advanced

October 22, 2025



Background

- All existing physical noise monitors rely on a fixed background noise threshold.
- The new technology, being explored, dynamically adjusts its threshold based on background noise variations throughout the day.
- The changes are software-related, requiring no modifications to the physical noise monitoring hardware.
- Testing and reviewing data from the past several months across all sites (*as a pilot project*).

Technology Comparison:

- ✓ The existing system captures a noise event and then searches for a corresponding flight track to correlate the noise with the flight
- ✓ The new AI driven system:
 1. Identifies flights (assuming each flight generates noise) and then locates the corresponding captured noise event.
 2. Compares the measured noise level with the modeled aircraft noise to verify that background noise contamination is not present.

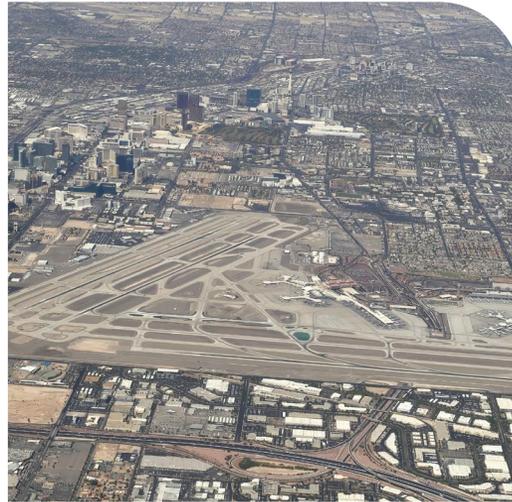




Accurately measuring community aircraft noise exposure is becoming more challenging



Aircraft are becoming quieter



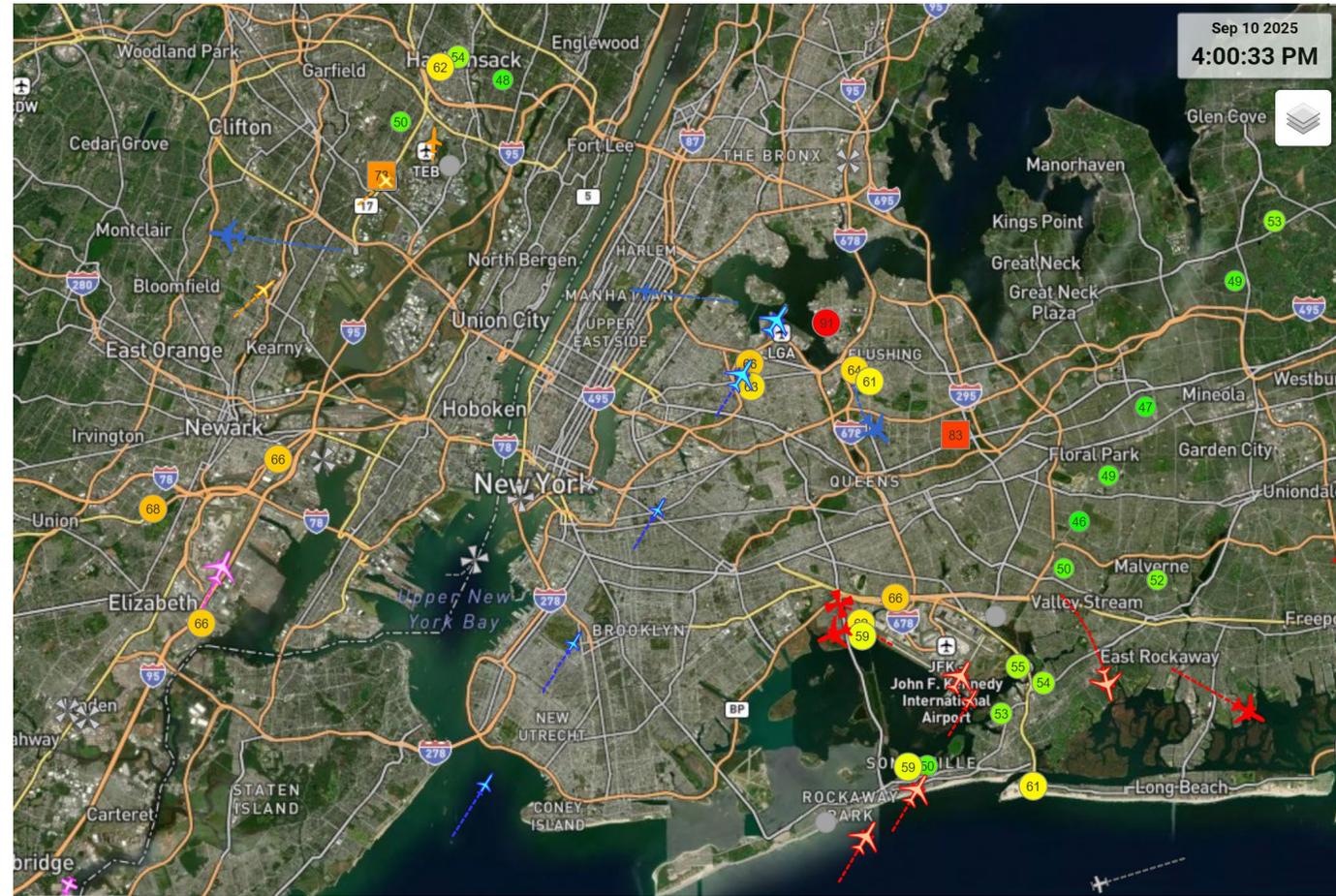
Urbanization is increasing around airports



More communities are becoming noise sensitive

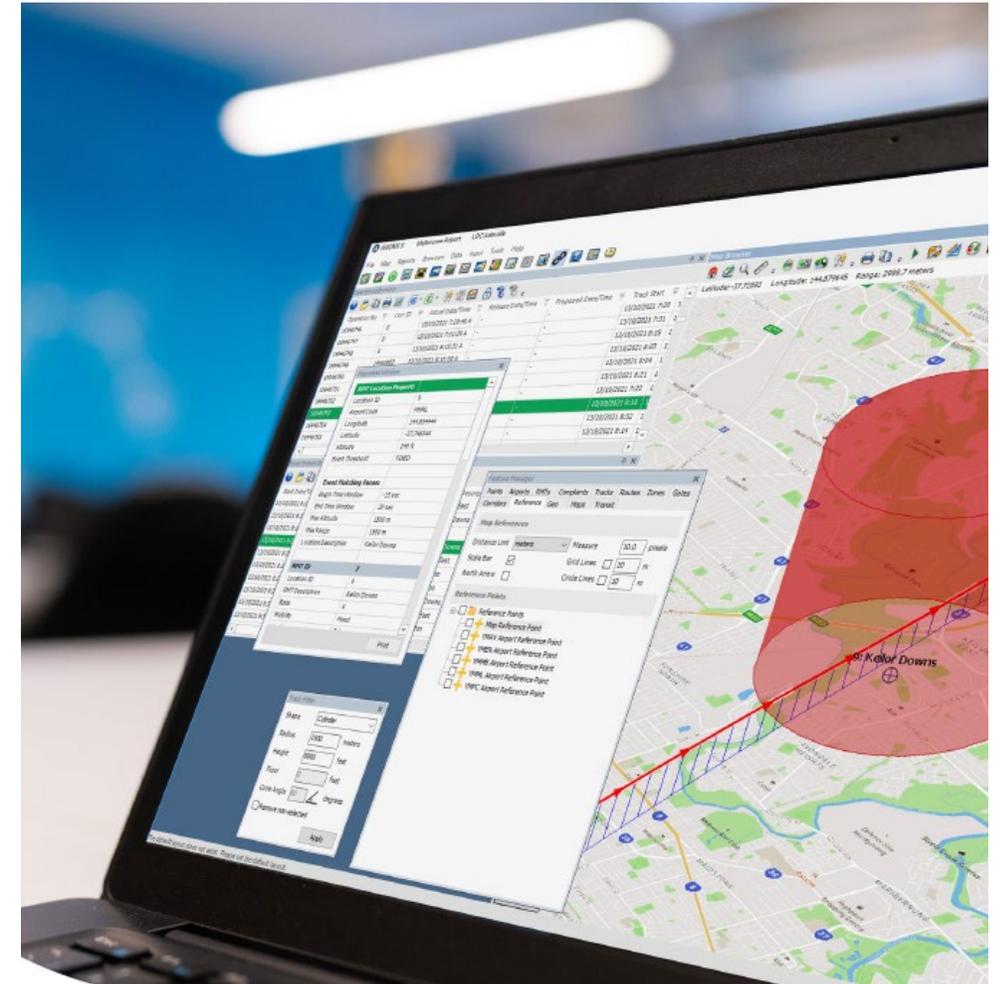
Traditional aircraft noise event detection methods poses following challenges for airports:

-  Underestimate noise exposure
-  Overestimate noise exposure
-  Lack of community trust
-  Strain relationships with aircraft operators
-  Overall system credibility questioned



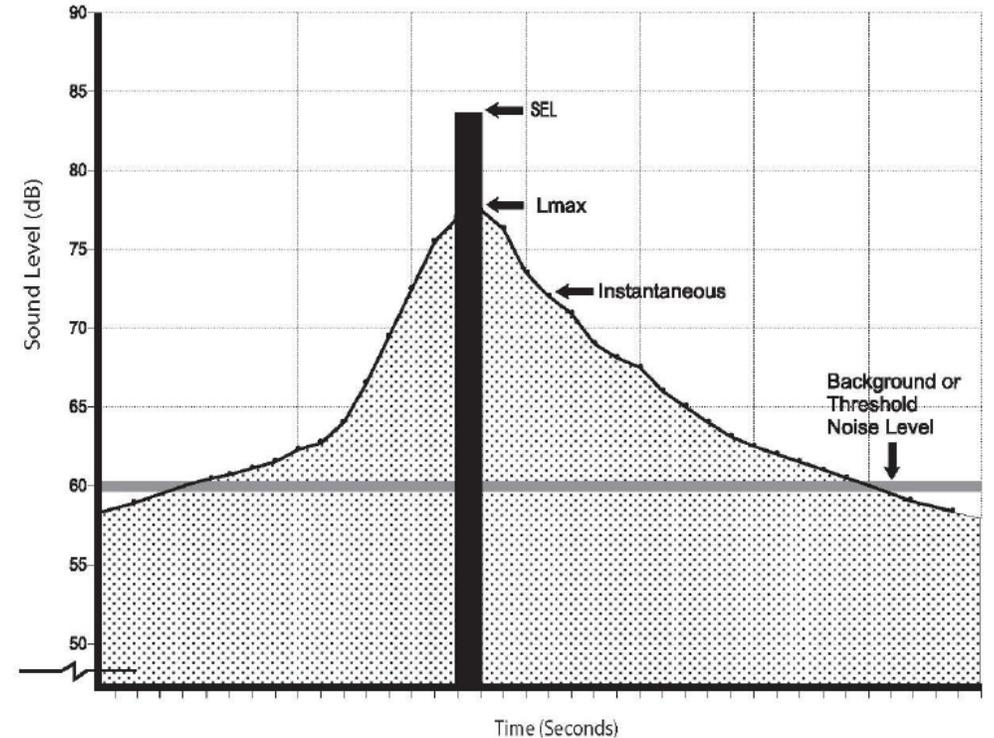
What is ANEEM?

- ANOMS Aircraft Noise Event Extraction Method (ANEEM) provides higher quality data for environmental noise reporting compared to traditional noise threshold-based methods.
- ANEEM detects more aircraft noise events by eliminating events from other sources.
- Standard approaches to noise detection are not effective when the aircraft noise levels are close to the background noise level.
- The fixed threshold method either misses the events completely or greatly overstates aircraft noise being set too high or low.
- ANOMS ANEEM solves this challenge by providing an accurate measure of the contribution of aircraft to the noise communities experience.



ANEEM Benefits

- Eliminates manual threshold setting and extraction of aircraft events from other noise events.
- Provides high-quality, defensible assessment of community exposure to aircraft noise.
- Proven to be more precise than traditional approach.
- In use at several airports in US including SFO, IAD, DCA, DEN, and LHR

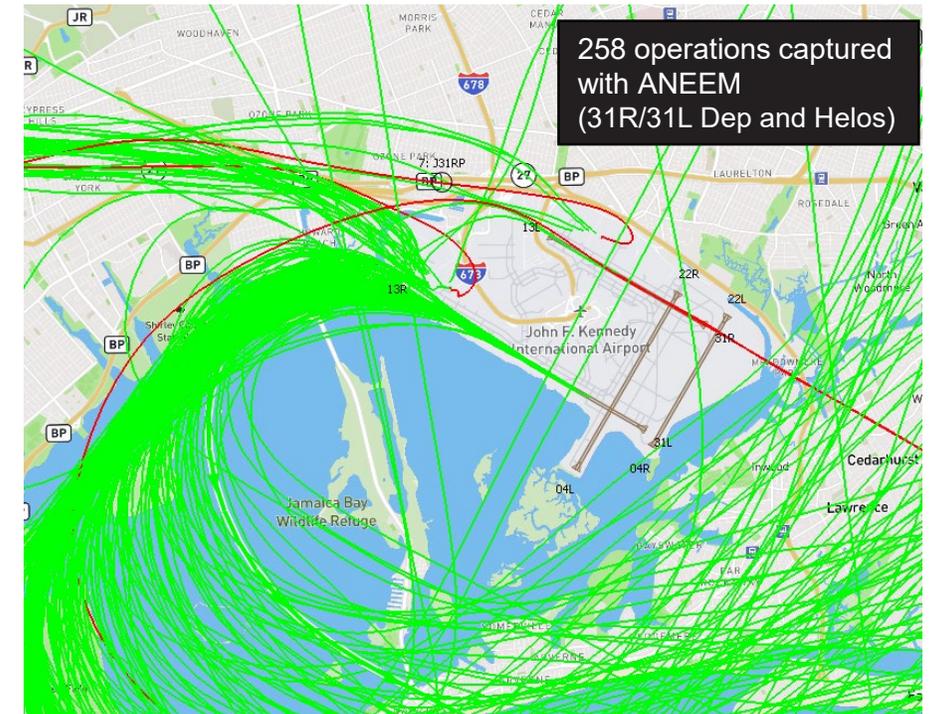
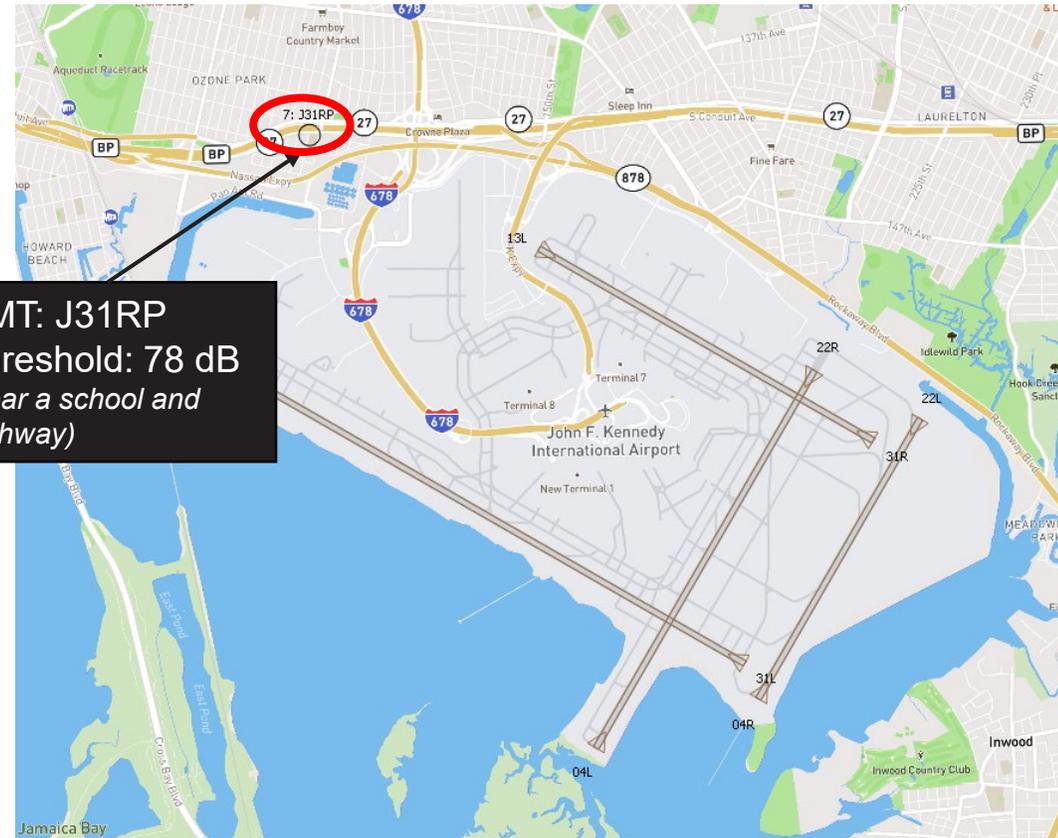


NMT Test Case (JFK)

- Site: J31RP (permanent site located in South Ozone Park, NY)

Data Comparison for January 2025

Correlated Noise Events		Monthly DNL Value	
Existing	New (ANEEM)	Existing	New (ANEEM)
1	258	37.8	50.6

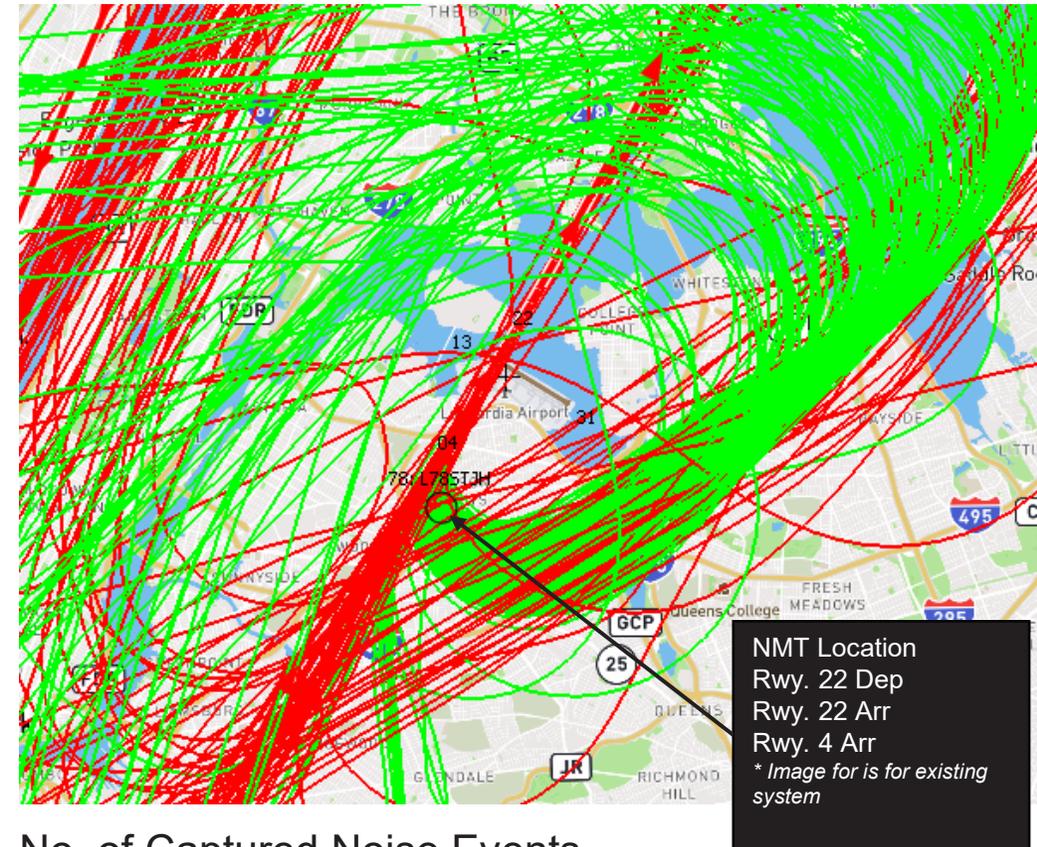
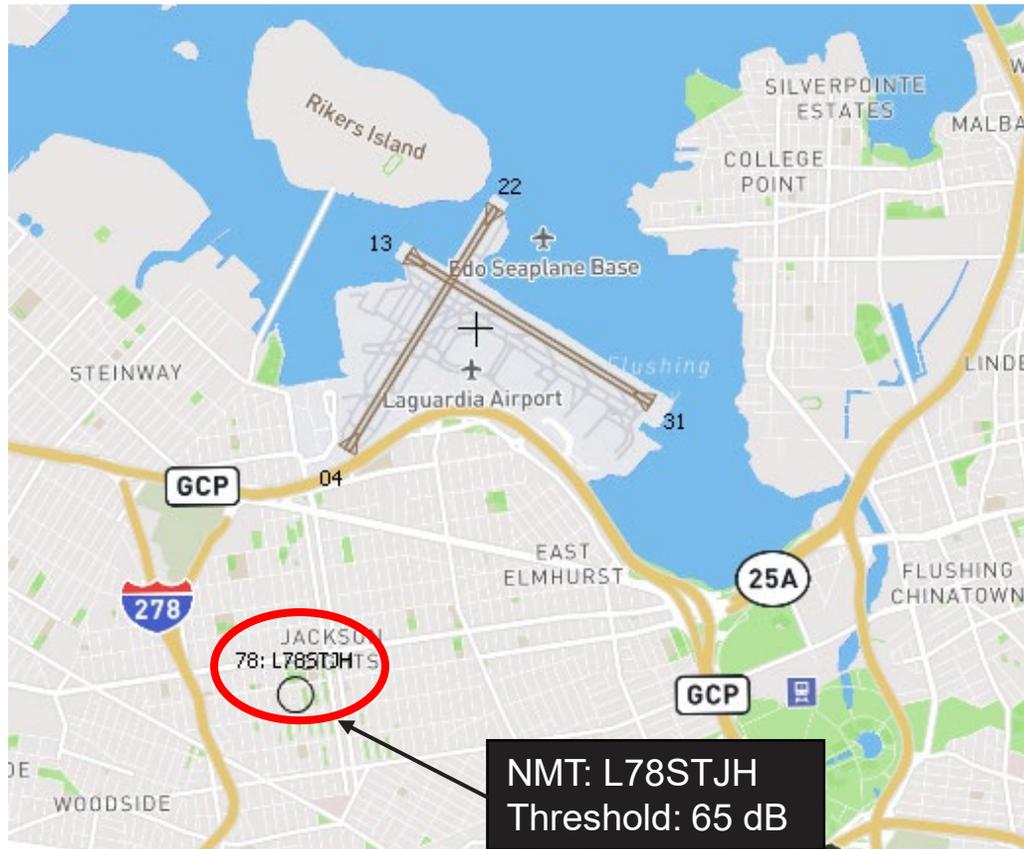


NMT Test Case (LGA)

- Site: L78STJH (portable site located in Jackson Heights, NY)

Data Comparison for July 2025

Noise Events		Monthly DNL Value	
Existing	New (ANEEM)	Existing	New (ANEEM)
405	3,084	52.77	53.96



No. of Captured Noise Events

	22 Dep	22 Arr	04 Arr	13 Dep	31 Arr/Dep
Existing	195	42	172	-	-
ANEEM	196	141	2528	129	54

- No difference in 22 Dep events (i.e. all loud events)
- Significant increase in 04 Arr events with ANEEM
- Additional noise events associated with 13 Dep and 31 Arr/Dep with ANEEM (not shown)

NMT Test Case

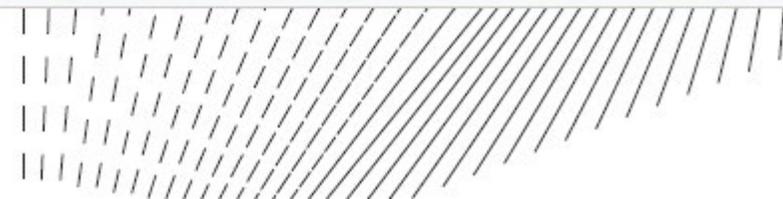


Data Comparison for few sites as Example (July 2025)

Site ID	Correlated Noise Events		Monthly DNL Value	
	Existing	New (ANEEM)	Existing	New (ANEEM)
J04BP (JFK)	1,415	6,094	58.06	58.62
J31LP (JFK)	1,709	5,187	65.23	65.11
ARV64 (JFK)	12,061	14,161	66.29	66.25
L13P (LGA)	10,326	10,321	67.38	66.26
L78STJH (LGA)	405	3,084	52.75	53.96
LFRNKLN (LGA)	6,347	7,907	63.38	63.94

- Summary:
 - For most sites, monthly DNL value would be very close i.e. within +/- 2 dB
 - Sites located in areas with either high background noise or very quiet conditions (or fluctuations in background noise throughout the day) may experience more significant differences
- Next Steps:
 - Continue testing for few more months; start reporting ANEEM data from January 2026 in the monthly DNL reports (*data will be replaced with ANEEM generated data*)

Questions?





How does ANEEM Work?

ANEEM starts with the aircraft, looks for significant noise and then validates its consistency with the aircraft

1. When an aircraft is near an NMT, ANEEM predicts the noise level at the monitoring position.
2. If significant, it then searches for noise on the ground and measures it.
3. The ground measurement is validated against the prediction to determine if it is contaminated.
4. The extra validation step prevents blind allocation of noise from other sources.