

Noise from A320 operations at Luton Airport

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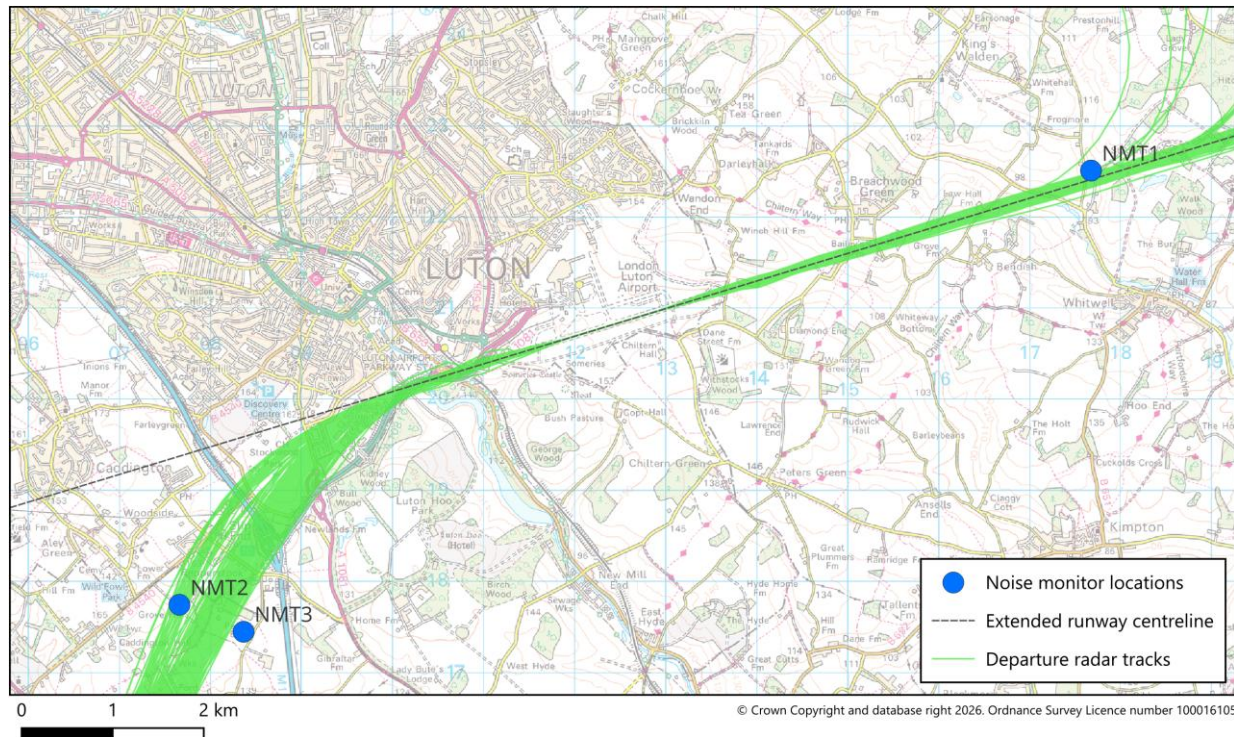


Introduction

- Analysis of arrival and departure noise measurements for A320 family operations at Luton Airport
 - data recorded over a two-year period between 1 May 2024 and 30 April 2026.
 - dataset covered operations from neo and ceo variants of the A320 and A321 aircraft.
 - focussed on measurement data for these three airlines:
 - Wizz Air, easyJet and Jet2

Noise monitor location

- Focussed on noise measurements during easterly operations at NMT1, located approximately 6.5 km from start-of-roll for easterly departures and 4.5 km from touchdown for westerly arrivals.



Results A320 - L_{ASmax}

Figure 2 Average L_{ASmax} noise levels for short-haul A320 departures (NMT1)

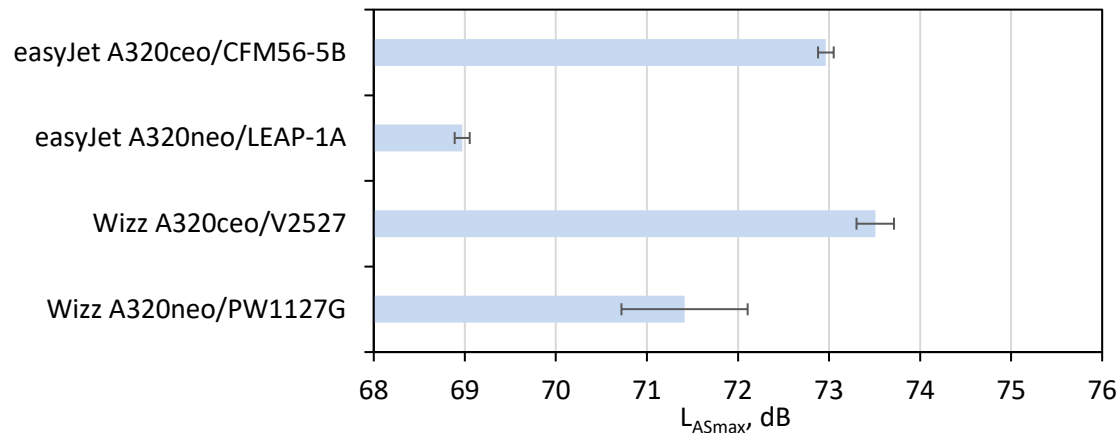
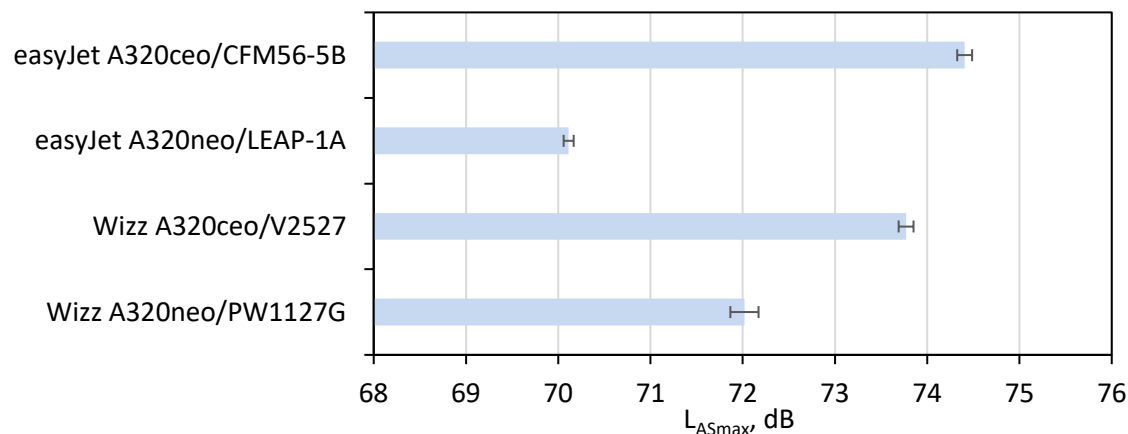


Figure 3 Average L_{ASmax} noise levels for medium-haul A320 departures (NMT1)



Results A320 - SEL

Figure A1 Average SEL noise levels for short-haul A320 departures (NMT1)

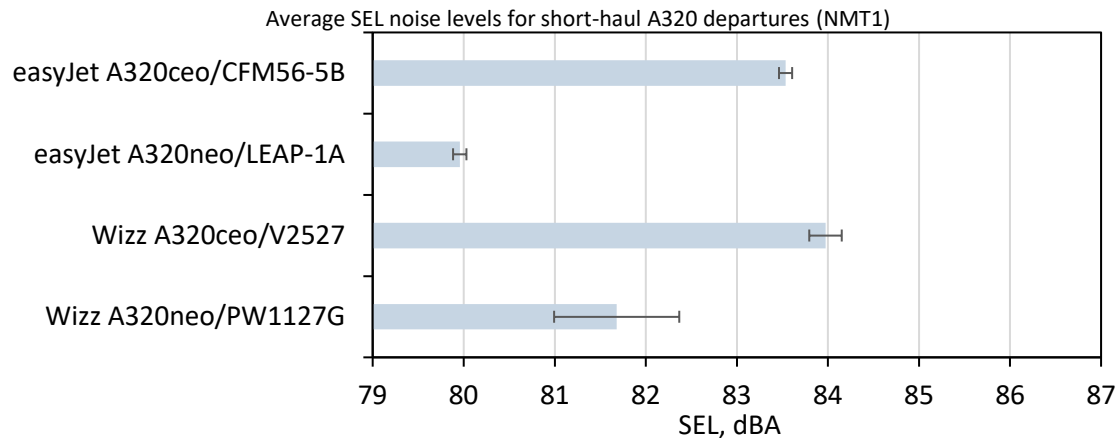
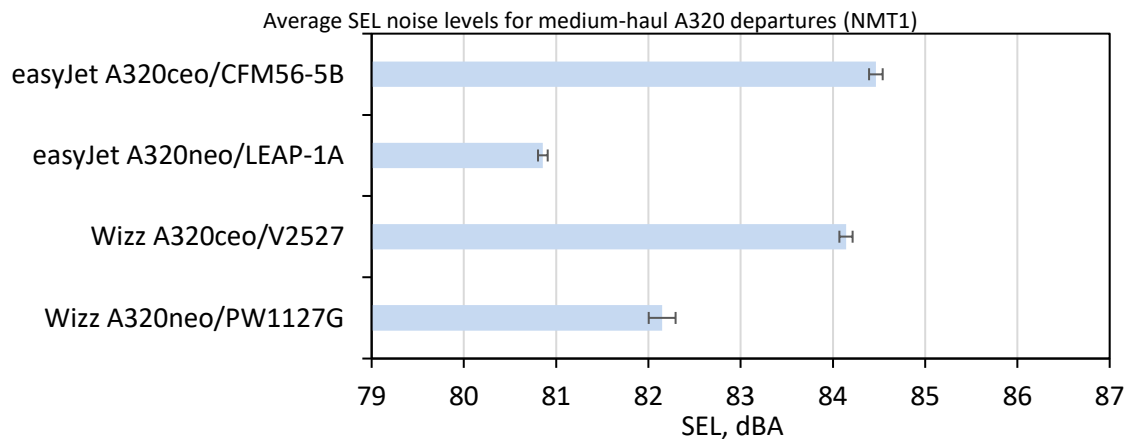


Figure A2 Average SEL noise levels for medium-haul A320 departures (NMT1)



Results A321 - L_{ASmax}

Figure 4 Average L_{ASmax} noise levels for short-haul A321 departures (NMT1)

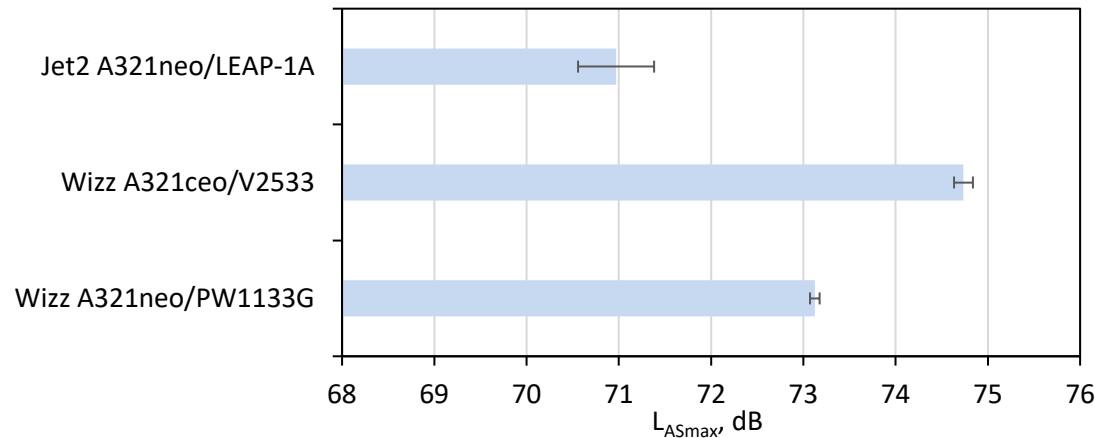
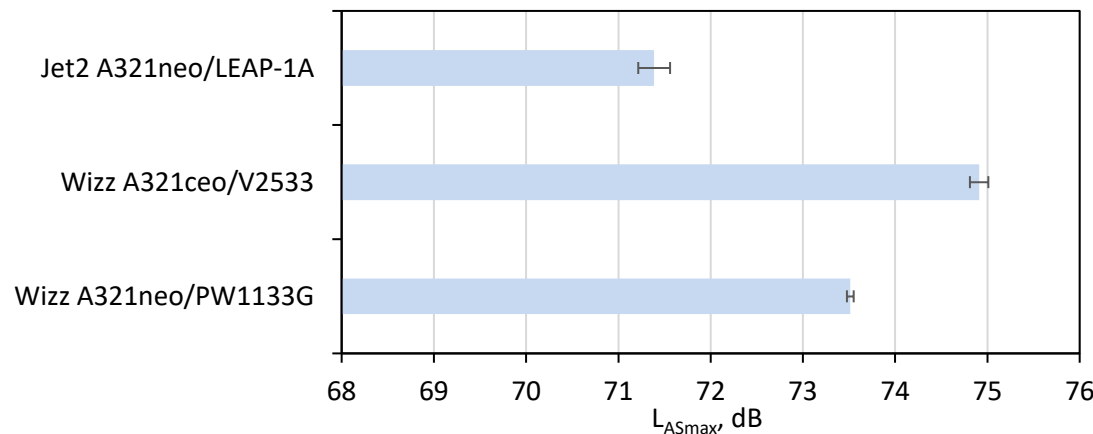


Figure 5 Average L_{ASmax} noise levels for medium-haul A321 departures (NMT1)



Differences: LASmax & SEL

Table 1 Average measured departure noise level differences at Luton (NMT1):
neo noise level *minus* ceo noise level

Aircraft type and stage length	Noise difference: neo <i>minus</i> ceo, dB	
	L _{ASmax}	SEL
easyJet A320 short-haul	-4.0	-3.5
easyJet A320 medium-haul	-4.3	-3.6
Wizz Air A320 short-haul	-2.1	-2.3
Wizz Air A320 medium-haul	-1.8	-2.0
Wizz Air A321 short-haul	-1.6	-2.5
Wizz Air A321 medium-haul	-1.4	-2.4

Departure Differences within neo engines:

L_{ASmax} & SEL

Table 2 Average measured departure noise level differences for neo aircraft (NMT1): PW1100G noise level *minus* CFM LEAP noise level

Aircraft type and stage length	Noise difference: PW1100G <i>minus</i> CFM LEAP, dB	
	L_{ASmax}	SEL
A320neo short-haul	+2.4	+1.7
A320neo medium-haul	+1.9	+1.2
A321neo short-haul	+2.1	+1.0
A321neo medium-haul	+2.1	+1.1

Comparison of certificated departure noise levels across the different neo engine models: PW1100G vs. CFM LEAP

Table 3 Certificated departure noise levels for A320neo and A321neo variants

Aircraft	Engine	MTOW, kg	Lateral, EPNdB	Flyover, EPNdB	Average Departure, EPNdB
A320-251N	CFM LEAP-1A26	73,500	86.4	79.3	82.9
A320-271N	PW1127G1-JM	73,500	86.6	79.7	83.2
Difference, PW1100G <i>minus</i> CFM LEAP:			+0.2	+0.4	+0.3
A321-251NX	CFM LEAP-1A32	89,000	88.9	82.1	85.5
A321-271NX	PW1133GA-JM	89,000	87.8	83.1	85.5
Difference, PW1100G <i>minus</i> CFM LEAP:			-1.1	+1.0	0.0

Arrivals - L_{ASmax}

Figure 6 Average L_{ASmax} noise levels for A320 arrivals (NMT1)

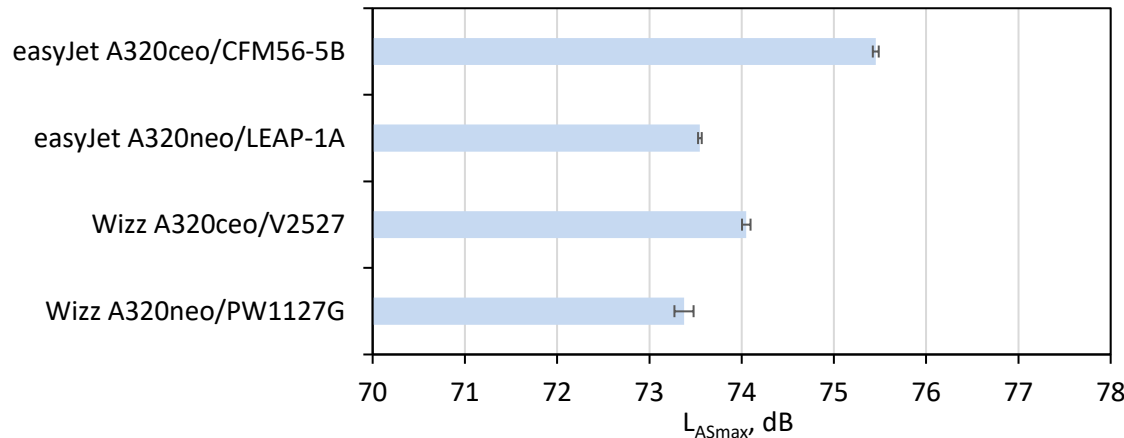
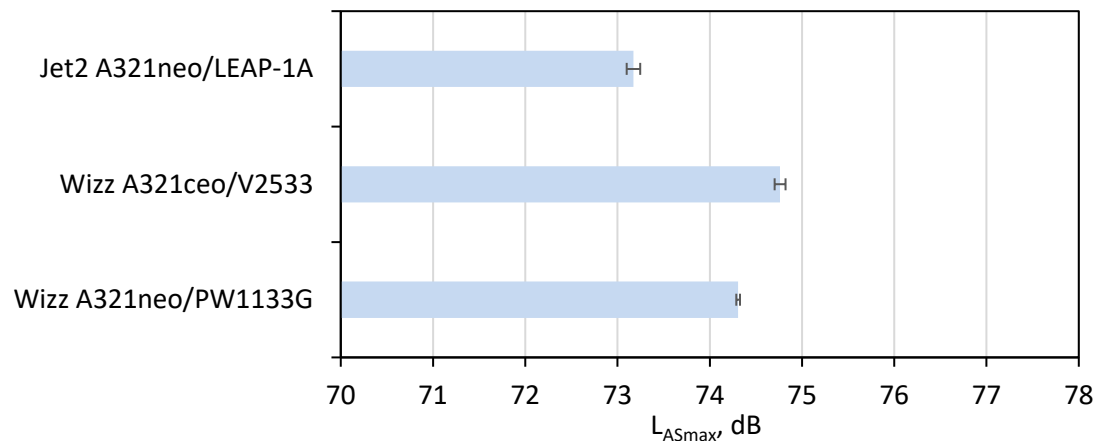


Figure 7 Average L_{ASmax} noise levels for A321 arrivals (NMT1)



Arrival Differences: L_{ASmax} & SEL

Table 4 Average measured arrival noise level differences at Luton (NMT1):
neo noise level *minus* ceo noise level

Aircraft type	Noise difference: neo <i>minus</i> ceo, dB	
	L_{ASmax}	SEL
easyJet A320	-2.0	-1.3
Wizz Air A320	-0.6	-0.6
Wizz Air A321	-0.5	-0.2

Comparison of measured arrival noise levels across the different neo engine models: PW1100G vs. CFM LEAP

Table 5 Average measured arrival noise level differences (NMT1): PW1100G-powered neo *minus* CFM LEAP-powered neo

Aircraft type	Noise difference: PW1100G <i>minus</i> CFM LEAP, dB	
	L _{ASmax}	SEL
A320neo	-0.1	-0.4
A321neo	+1.1	+0.9

Comparison of certificated arrival noise levels across the different neo engine models: PW1100G vs. CFM LEAP

Table 6 Certificated approach noise levels for A320neo and A321neo variants

Aircraft	Engine	MLW, kg	Approach Level, EPNdB
A320-251N	CFM LEAP-1A26	67,400	92.3
A320-271N	PW1127G1-JM	67,400	92.4
Difference, PW1100G <i>minus</i> CFM LEAP:			+0.1
A321-251NX	CFM LEAP-1A32	77,300	94.0
A321-271NX	PW1133GA-JM	77,300	94.5
Difference, PW1100G <i>minus</i> CFM LEAP:			+0.5

Summary

- The measured departure results confirmed that the neo variants were quieter on departure than the ceo variants over the study period at Luton, a finding consistent with previous analysis presented to ANEG.
- The average measured noise differences between the neos and the ceos were somewhat larger for easyJet aircraft (CFM LEAP vs. CFM56 engines) compared to Wizz Air (PW1100G vs. V2500 engines), although less so in terms of the SEL noise metric.
- SEL is directly correlated with long-term noise exposure metrics such as L_{Aeq} or L_{den} .
- Based on certificated noise data, the departure noise performance of the PW1100G and CFM LEAP-powered neo variants at equivalent take-off-weights would be expected to be quite similar.
- The measured departure results indicated however that the PW1100G-powered neos at Luton were, on average, about 1 to 2 dB noisier compared to the CFM LEAP-powered neos. The extent to which different airline operating weights and procedures on take-off might account for these differences has not been investigated.