

Airfield Environment Report

Qtr 1 2015



INTRODUCTION

The purpose of this report is to advise members of statistics concerning LLA aircraft operations and related complaints during the period January to March 2015.

Following the confirmed expansion of London Luton Airport extensive planning conditions have been set by Luton Borough Council. Therefore additional measures to control noise will come into effect on 1st April 2015; however the data needed to demonstrate compliance with the planning conditions has been included in this report for consistency purposes. This allows a comparison between all the quarters in 2015 and can provide a comparison for Quarter 1 in 2016.

Therefore, this report is an adaptation of previous quarterly reports and sets to demonstrate compliance with the planning conditions; the data is presented in different formats and there is new data provided. Please be aware that future data may be added as the planning conditions come into effect.

KEY MONITORING INDICATORS – 1ST QUARTER 2015

Parameter		1 st Quarter 2015	1 st Quarter 2014
Total Aircraft Movements	↑	22,824	20,881
Total Passengers Number	↑	2,184,998	1,900,214
24hr CDA (% achievement)	↓	83%	86 %
Day CDA (% achievement)	↓	84%	86%
Night CDA (% achievement)	↓	77%	79%
Departure Noise Infringements (Day)	-	0	0
Departure Noise Infringements (Night)	-	0	0
Noise Complaints	↑	107	104
Complainants	↓	40	47
Westerly/Easterly Runway Split (%)	-	75/25	77/23

The unfamiliar figures are supplemented by definitions, to keep you informed. Included in the report is a new sub-section – Night Noise Restrictions – this has been added in advance of the quota count system, coming into effect in Q4 2015.

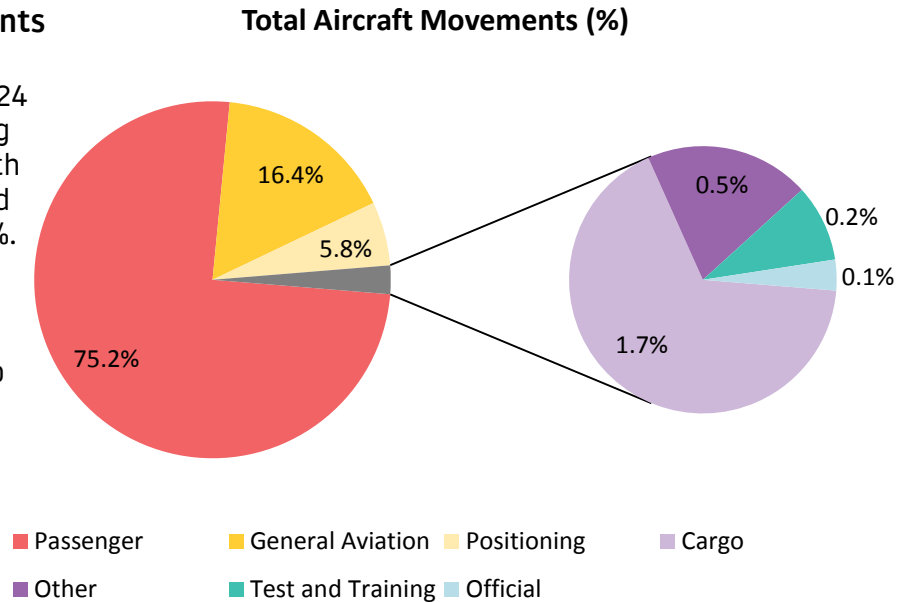
Finally, it is important to note, that there has been modification of the time periods used in this report, compared to previous. The new Day period is from 07:00hrs until 23:00hrs. The Night period is defined as between 23:00hrs and 07:00hrs.

1 AIR TRAFFIC DATA

1.1 Aircraft Movements

There were a total of 22,824 aircraft movements during the quarter (compared with 20,881 for the same period in 2014), an increase of 9%.

This resulted in an average 254 movements per 24 hours (compared to 232 last year).



A breakdown of these movements is shown below:

	Commercial				Non-Commercial*					Total
	Cargo	Passenger	Positioning		Military	Official	Other	General Aviation**	Test & Training	
			Other	STN						
Jan 2015	130	5,405	384	12	0	7	50	1,198	20	7,206
Feb 2015	129	5,397	423	11	0	6	36	1,212	9	7,223
Mar 2015	137	6,373	479	13	0	9	32	1,326	26	8,395
QTR Total	396	17,175	1,286	36	0	22	118	3,736	55	22,824

1.2 Passenger Statistics

A total of 2,184,998 passengers passed through LLA during the period January to March 2015 (compared with 1,900,214 for the same period last year), 2,151,429 on scheduled flights (98%) and 33,569 on charter flights (2%). This represents an increase in passengers of 15% year on year. This equates to an average 24,278 passengers per 24 hours (compared to 21,113 during the first quarter last year).

	Domestic	EU	Non-EU	Total
Jan 2015	53,955	409,669	193,265	656,889
Feb 2015	67,566	426,600	194,042	688,208
Mar 2015	78,394	523,837	237,670	839,901
QTR Total	199,915	1,360,106	624,977	2,184,998

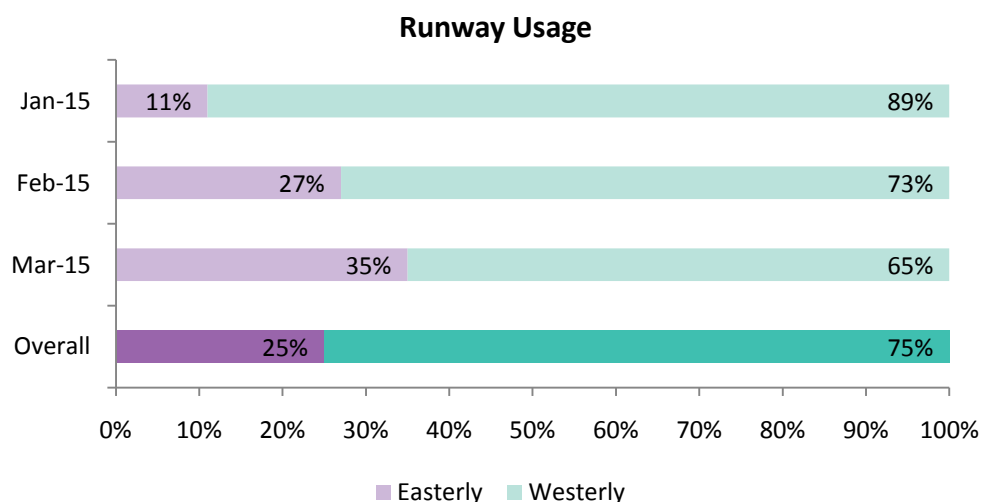
* Non-Commercial relates to aircraft not operating for hire or reward.

** General Aviation incorporates Private Aircraft, Helicopters and Business Jets

1.3 Runway Usage

The direction of operation is determined by wind direction. Aircraft operating in a westerly direction take off towards the west and land from the east. Aircraft operating in an easterly direction take off towards the east and land from the west.

The runway usage split during this period was 25% easterly and 75% westerly (compared to 23% / 77% for the same quarter last year). The breakdown of these statistics, on a monthly basis, is as follows:



1.4 Night Flying Restrictions

As from 1st April 2015 London Luton Airport will introduce new Night Restrictions utilised by other UK Airports including Heathrow Airport.

These restrictions will be in place to limit and mitigate noise disturbance from aircraft operating at night and to prohibit aircraft of specified descriptions from operating, also to limit the number of occasions on which other aircraft may take off or land.

The night flying restrictions consist of a movement limit and a quota count system. The quota count (QC) means that points are allocated to different aircraft types according to how noisy they are. The noisier the aircraft type, the higher the points allocated. This provides an incentive for airlines to use quieter aircraft types.

1.4.1 Definitions

The 'Night Quota Period'

The 'Night Quota Period' is from 23:30 to 06:00 hours local, during which period aircraft movements (take-off or landing) are restricted by a limit on the number of movements with noise quotas as an additional measure. At Luton Airport these number of movements and quota counts allowed are set to 9,650 and 3,500 respectively in any twelve month period.

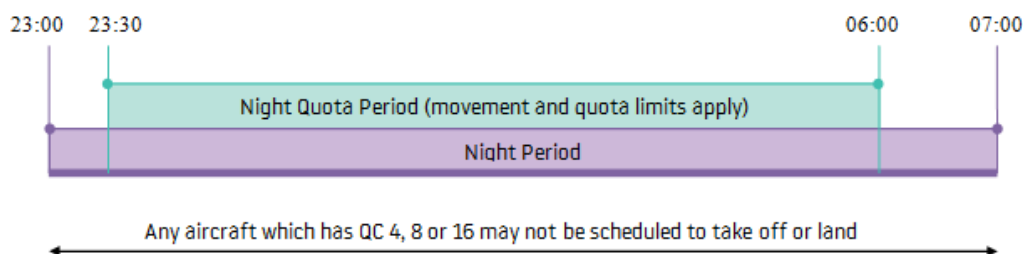
Aircraft are certified by the International Civil Aviation Organisation (ICAO) according to the noise they produce. They are classified separately for both take off and landing. The points are then allocated to different aircraft types according to how noisy they are. The table overleaf represents aircraft given points, or in other words quota count (QC) classifications:

Certificated noise level (EPNdB)	dB(A)	Quota count	Typical aircraft
Greater than 101.9	>90	QC 16	Some Boeing 747-100/200 Antonov 124/225
99 to 101.9	86 to 88.9	QC 8	Some Boeing 747-400 McDonnell Douglas DC-8
96 to 98.9	83 – 85.9	QC 4	Boeing 737-200ADV McDonnell Douglas DC-10
93 to 95.9	80 to 82.9	QC 2	Boeing 767-200 Airbus A300-600 Airbus A380
90 to 92.9	77 to 79.9	QC 1	Airbus A321 Some Boeing 737-800 Airbus A380
87 to 89.9	74 to 76.9	QC 0.5	Airbus A319/A320 Boeing 737-800 Boeing 757-200
84 to 86.9	<74	QC 0.25	Airbus A319/A320 Global Express Dassault Falcon 7X/900/2000
Less than 84	*Exempt from the night flying restrictions	QC 0	Challenger series (eg CL600) BAe ATP Cessna 525/550

The 'Early Morning Shoulder Period'

The 'Early Morning Shoulder Period' is 06:00 to 07:00 hours local during which period aircraft movements (take-off or landing) are restricted by a limit on the number of movements (as for the Night Quota Period). Total annual movements by aircraft in any 12 month period shall be limited to 7000.

1.4.2 Restrictions at London Luton Airport



	Night Quota Period (2330-0600)		Early Morning Shoulder (0600-0700)
	Movements	QC	Movements
Jan 2015	348	128	232
Feb 2015	305	110.5	226
Mar 2015	357	130.25	293
QTR Total	1,010	368.75	751

1.5 Day/Night Ratio of Movements - Actual

There were 1,991 night operations during the quarter (compared to 1,177 for the first quarter 2014), an average 22 movements per night (compared to 13 last year). Arriving aircraft accounted for 57% of total night movements and the average ratio of total aircraft

operations during the quarter was 91.3% day / 8.7% night (compared to 94% / 6% for the same period last year).

N.B. Large increase in night activity, from 13 to 22 movements per night is due to the movement totals for different time periods being compared. The figure of 1,991 for the first quarter 2015 relates to the 8 hour (23:00 – 07:00) period, the corresponding figure for the same period last year is 1,819, 20 movements per night. (The figure of 1,177 for 2014 relates to a shorter night period that was previously used.) With the comparable figure for 2014 revised the percentage at night increases from 6% to 8.7%, in line with for the same period this year.

	Day Movements (0700-2300)			Night Movements (2300-0700)				Total	
	Day movements			Night Quota Period (2330-0600)		Early Morning Shoulder (0600-0700)			Total Night Movements (2300 – 0700)
	A	D	Total	A	D	A	D		
Apr 2014	3,654	3,756	7,410	424	174	108	319	1,148	8,558
May 2014	4,122	4,388	8,510	580	162	113	355	1,331	9,841
Jun 2014	4,232	4,508	8,740	593	161	110	380	1,404	10,144
Jul 2014	4,166	4,561	8,727	679	181	159	391	1,574	10,301
Aug 2014	4,070	4,365	8,435	615	144	121	401	1,460	9,895
Sep 2014	4,019	4,280	8,299	567	176	131	353	1,366	9,665
Oct 2014	4,086	4,244	8,330	451	173	117	321	1,184	9,514
Nov 2014	3,338	3,433	6,771	203	113	114	131	648	7,419
Dec 2014	3,457	3,605	7,062	210	139	115	117	664	7,726
Jan 2015	3,228	3,319	6,547	218	130	112	120	659	7,206
Feb 2015	3,268	3,358	6,626	186	119	104	122	597	7,223
Mar 2015	3,783	3,877	7,660	214	143	121	172	735	8,395
QTR Total	10,279	10,554	20,833	618	392	337	414	1,991	22,824
Total for preceding 12 months	45,423	47,694	93,117	4,940	1,815	1,425	3,182	12,770	105,887

1.6 Day/Night Ratio of Movements – Forecast

	2015/2016 Forecast of Aircraft Movements		
	Day Movements (0700 – 2300hrs)	Night Movements (2300 to 0700hrs)	Total
Apr 2015	8,062	1,157	9,219
May 2015	9,209	1,437	10,646
Jun 2015	9,425	1,517	10,942
Jul 2015	9,414	1,695	11,109
Aug 2015	9,125	1,589	10,714
Sep 2015	8,946	1,464	10,410
Oct 2015	8,956	1,258	10,214
Nov 2015	7,355	687	8,042
Dec 2015	7,804	715	8,519
Jan 2016	6,870	700	7,570
Feb 2016	6,952	634	7,586
Mar 2016	8,037	787	8,824
<i>Total for following 12 months</i>	<i>100,155</i>	<i>13,640</i>	<i>113,795</i>

2 DEPARTING AIRCRAFT

2.1 Departure Route Analysis

The following table reports the average and total number of departures on each flight route, differentiating between easterly (08) and westerly (26) operations. Night movements quoted below departed between 23:00 hrs and 07:00 hrs every day.

		Departures										Total
		MATCH/ DETLING		COMPTON		OLNEY		Other*		Helicopter		
		08	26	08	26	08	26	08	26	08	26	
Jan 2015	Daytime	200	1,637	103	863	48	409	6	43	0	10	3,319
	Night-time	18	99	12	116	1	24	0	2	0	0	272
Feb 2015	Daytime	517	1,272	298	762	112	345	10	28	0	14	3,358
	Night-time	36	66	34	95	6	14	1	1	0	0	253
Mar 2015	Daytime	704	1,318	440	790	199	359	17	41	1	8	3,877
	Night-time	47	83	59	115	7	14	0	2	0	2	329
QTR	Total	1,522	4,475	946	2,741	373	1,165	34	117	1	34	11,408
	Daily Average	17	50	11	30	4	13	0	1	0	0	127
	Daily Range	0-77	0-87	0-60	0-61	0-24	0-30	0-5	0-5	0-1	0-2	

2.2 Departure – Track Keeping

All propeller-driven aircraft with MTOM over 5,700kg and all jet aircraft leaving London Luton Airport, whether via Airways System or outside it, are required to follow specific departure routes known as Noise Preferential Routes (NPRs) up to height of 3,000ft (or 4,000ft at night).

An NPR is a corridor 3 kilometres wide, within which aircraft concentrate and are deemed to be flying on track.

Once aircraft have cleared the designated NPR zone Air Traffic Control (ATC) can instruct the pilots to fly a more direct heading towards their destination. This is known as vectoring. However ATC may direct aircraft off the NPR at any time if this is required for safe separation from other aircraft or for other safety issues (such as avoiding adverse weather).

Flights leaving the route below the required height are automatically tagged and investigated within the team with required input from ATC and airlines.

Maps overleaf, extrapolated from the Topsonic Aircraft Noise & Track Monitoring System, identify samples of actual flown tracks of Luton aircraft operations (arrivals and departures during both easterly and westerly operations) for a typical 24 hour period within the first quarter of 2015.

* This category relates to those aircraft that are not required to follow Noise Preferential Routes on Non-Airways Departures, such as Test/Training flights or short positioning flights.

3 ARRIVING AIRCRAFT

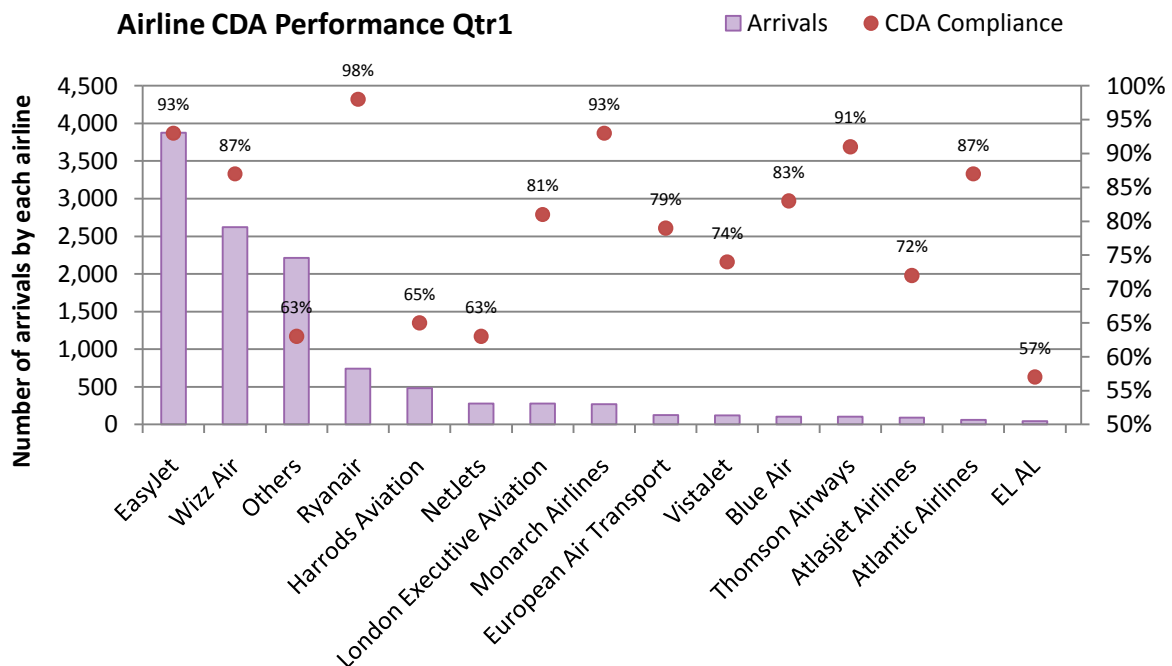
3.1 Arrivals Route Analysis

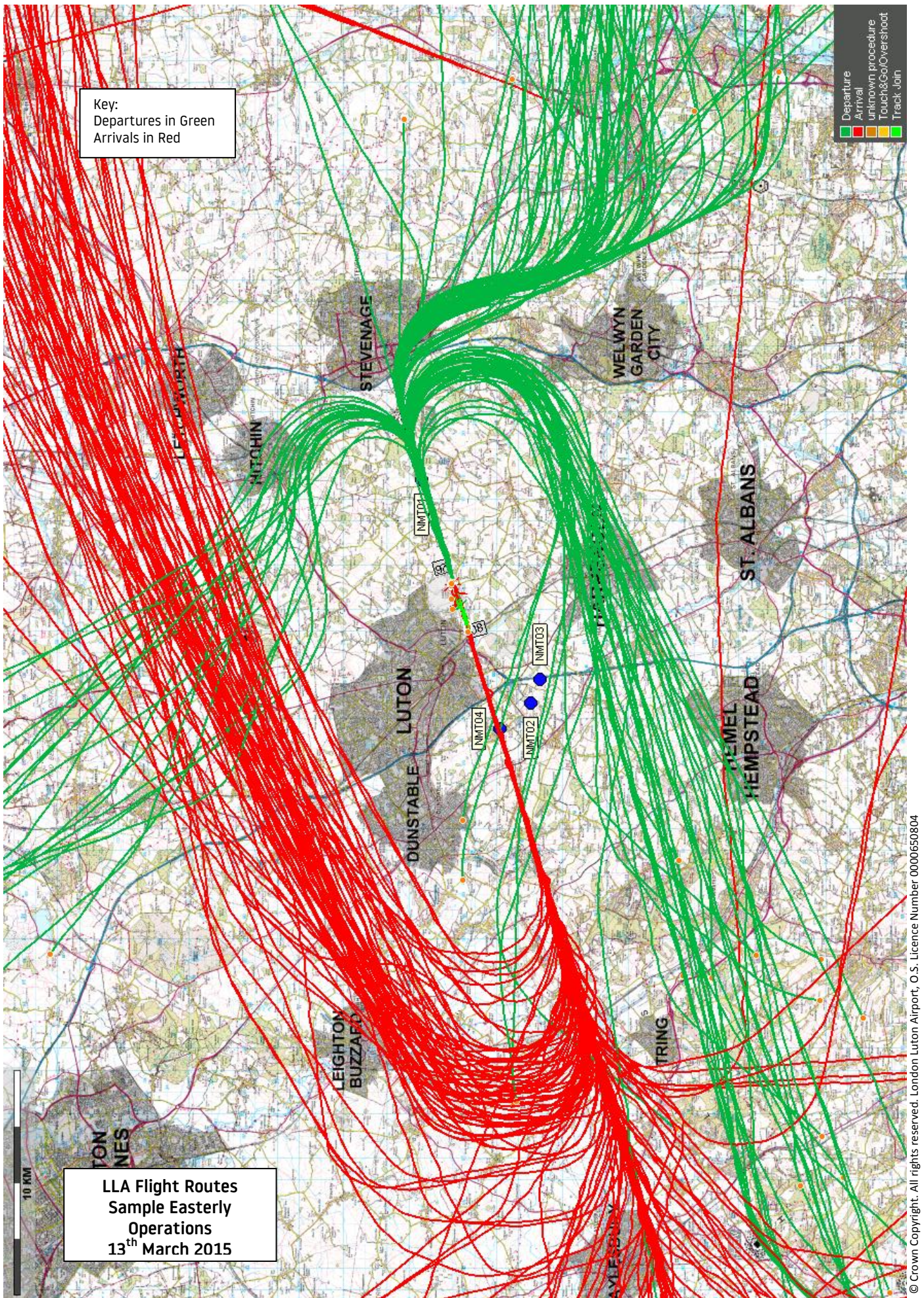
The following table reports the total number of arrivals differentiating between easterly (08), westerly (26) operations and helicopters. Night movements quoted below landed between 23:00 hrs and 07:00 hrs every day.

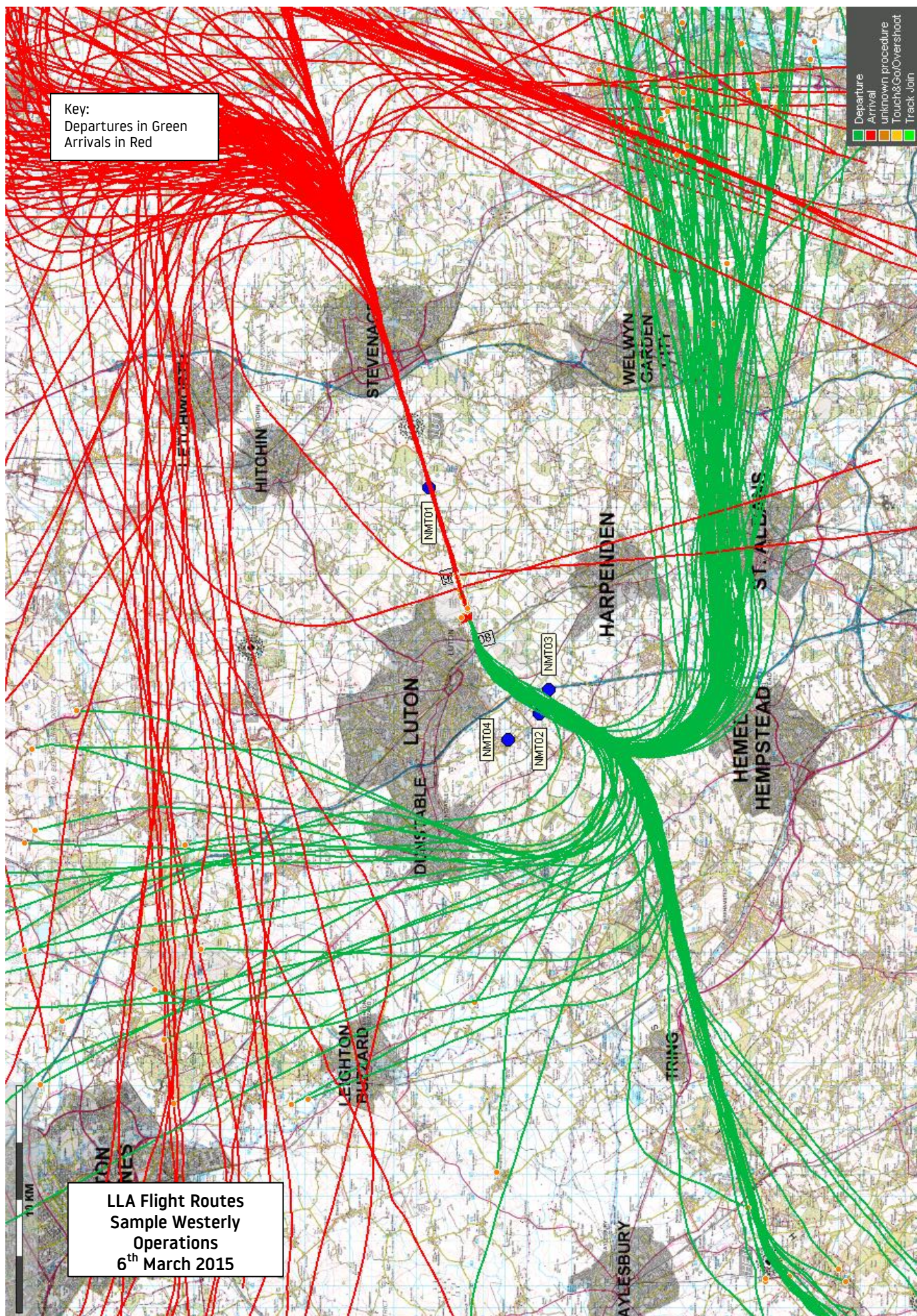
		Arrivals			Total
		08	26	Heli	
Jan 2015	Daytime	340	2,878	10	3,228
	Night-time	34	353	0	387
Feb 2015	Daytime	804	2,451	13	3,268
	Night-time	93	250	1	344
Mar 2015	Daytime	1,351	2,422	10	3,783
	Night-time	127	278	1	406
QTR	Total	2,749	8,632	35	11,416
	Daily Average	31	96	0	127

This report also includes percentage figures for flights that have achieved a Continuous Descent Approach (CDA), which involves continuous descent with no more than one section of level flight greater than 2.5Nm in length following descent from an altitude of 5000ft.

	All Arrivals			08 Easterly Arrivals			26 Westerly Arrivals		
	% CDA			% CDA			% CDA		
	Total	Day	Night	Total	Day	Night	Total	Day	Night
Jan 2015	82%	83%	77%	86%	95%	79%	82%	92%	77%
Feb 2015	84%	85%	77%	85%	87%	74%	84%	84%	79%
Mar 2015	84%	85%	75%	88%	88%	78%	82%	82%	74%
QTR Total	83%	84%	77%	87%	88%	77%	82%	83%	76%







4 AIRCRAFT NOISE

During 1st Quarter 2015 the day and night Noise Violation Limits (NVLs) were still 94 dB(A) and 82 dB(A) respectively. However, as from 1st April 2015 a progressive reduction in the daytime (0700-2259) NVL will be implemented, as well as a slight reduction in the night-time (2300-0659) NVL and will be set to 82 dB(A) and 80 dB(A) respectively. These violations limits will encourage airlines to operate modern and quieter aircraft types.

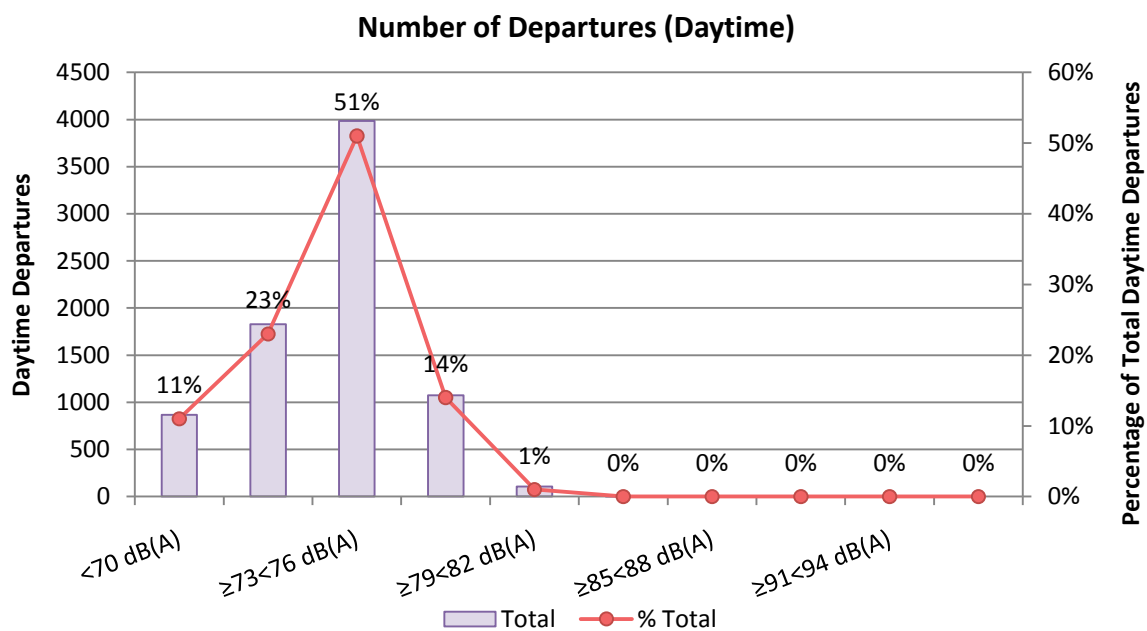
4.1 Daytime Noise Levels – January to March 2015

The following table identifies daytime noise levels correlated to departing aircraft at the fixed noise monitoring terminals.

(Any aircraft exceeding the Daytime Noise Violation Limit of 94dB(A), between 07:00 hrs and 22:59 hrs, is fined accordingly)

	Number of Departures (Daytime)										Total
	<70 dB(A)	>=70<73 dB(A)	>=73<76 dB(A)	>=76<79 dB(A)	>=79<82 dB(A)	>=82<85 dB(A)	>=85<88 dB(A)	>=88<91 dB(A)	>=91<94 dB(A)	>=94 dB(A)	
Jan	260	403	1,339	374	48	0	2	0	0	0	2,426
Feb	371	481	1,473	445	38	0	0	1	0	0	2,809
Mar	237	945	1,174	256	21	2	0	0	0	0	2,635
QTR	868	1,829	3,986	1,075	107	2	2	1	0	0	7,870

There were no daytime noise violations during the quarter, with 99% of correlated departing aircraft recorded maximum noise levels less than 79 dB(A).



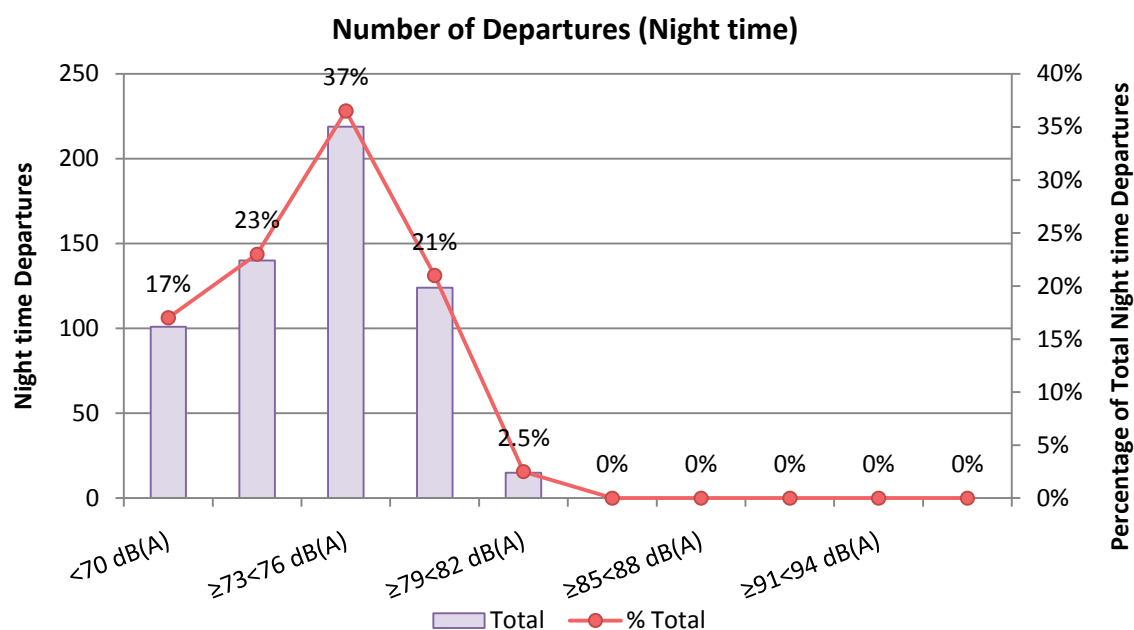
4.2 Night Noise Levels – January to March 2015

The following table identifies the night noise levels correlated to departing aircraft at the fixed noise monitor terminals.

(Any aircraft exceeding the Night Noise Violation Limit of 82dB(A), between 23:00 hrs and 06:59 hrs, is fined accordingly)

	Number of Departures (Night time)										Total
	<70 dB(A)	>=70<73 dB(A)	>=73<76 dB(A)	>=76<79 dB(A)	>=79<82 dB(A)	>=82<85 dB(A)	>=85<88 dB(A)	>=88<91 dB(A)	>=91<94 dB(A)	>=94 dB(A)	
Jan	40	32	68	51	6	0	0	0	0	0	197
Feb	29	46	75	40	5	0	0	0	0	0	195
Mar	32	62	76	33	4	0	0	0	0	0	207
QTR	101	140	219	124	15	0	0	0	0	0	599

There were no night noise violations during the quarter, with 97% of correlated departing aircraft recorded maximum noise levels less than 79 dB(A).



N.B. The detection thresholds for the noise monitoring terminals are set at the lowest level to record the maximum number of aircraft noise events. However, a number of smaller aircraft types, such as business jets and propeller aircraft, get very close to but do not reach the detection threshold. Ambient background noise is also an important factor as strong winds and specific incidents such as loud road traffic, emergency vehicle sirens, lawn mowers, drills etc. can register noise levels louder than an aircraft overhead, which results in not all aircraft movements being correlated to noise events. Generally the louder noise events have more certainty of being correlated with aircraft movements.

5 NOISE CONTOURS

5.1 Night Noise Contours – January to March 2015

5.1.1 Contour Production

Aircraft movement data for use in the contour production has been supplied by LLAOL. The same contour production methodology has been used as for the contours for 2014. That is with the inclusion of terrain, and the latest INM software (Version 7.0d) which has been used with a validation based on measured results in 2013 at the fixed noise monitors.

5.1.2 Noise Contour Results

The resulting noise contours are shown in the attached Figure A9457-NN15-Q1 and presented at values from 48 to 72 dB $L_{Aeq,8h}$. The area of each noise contour is given in Table 1 below and compared with the values for the previous quarter (October – December 2014) and the equivalent quarter during the previous year (January – March 2014).

Contour Value (dB $L_{Aeq,8h}$)	Contour Area (km ²)		
	<i>Jan – Mar 2014</i>	<i>Oct – Dec 2014</i>	<i>Jan – Mar 2015</i>
48	16.1	20.4	16.9
51	9.1	11.6	9.4
54	5.3	6.6	5.4
57	2.7	3.6	2.8
60	1.4	1.7	1.4
63	0.9	1.0	0.9
66	0.5	0.6	0.6
69	0.4	0.4	0.4
72	0.2	0.3	0.2
W/E Split (%)	80/20	75/25	76/24

Table 1: Area of Night Noise Contours

N.B. The runway split percentage in Table 1 is based only on night time (2300 – 0700) movements, and as a result there might be discrepancies between the figures quoted in a Runway Usage diagram and this Table.

5.1.3 Aircraft Movements

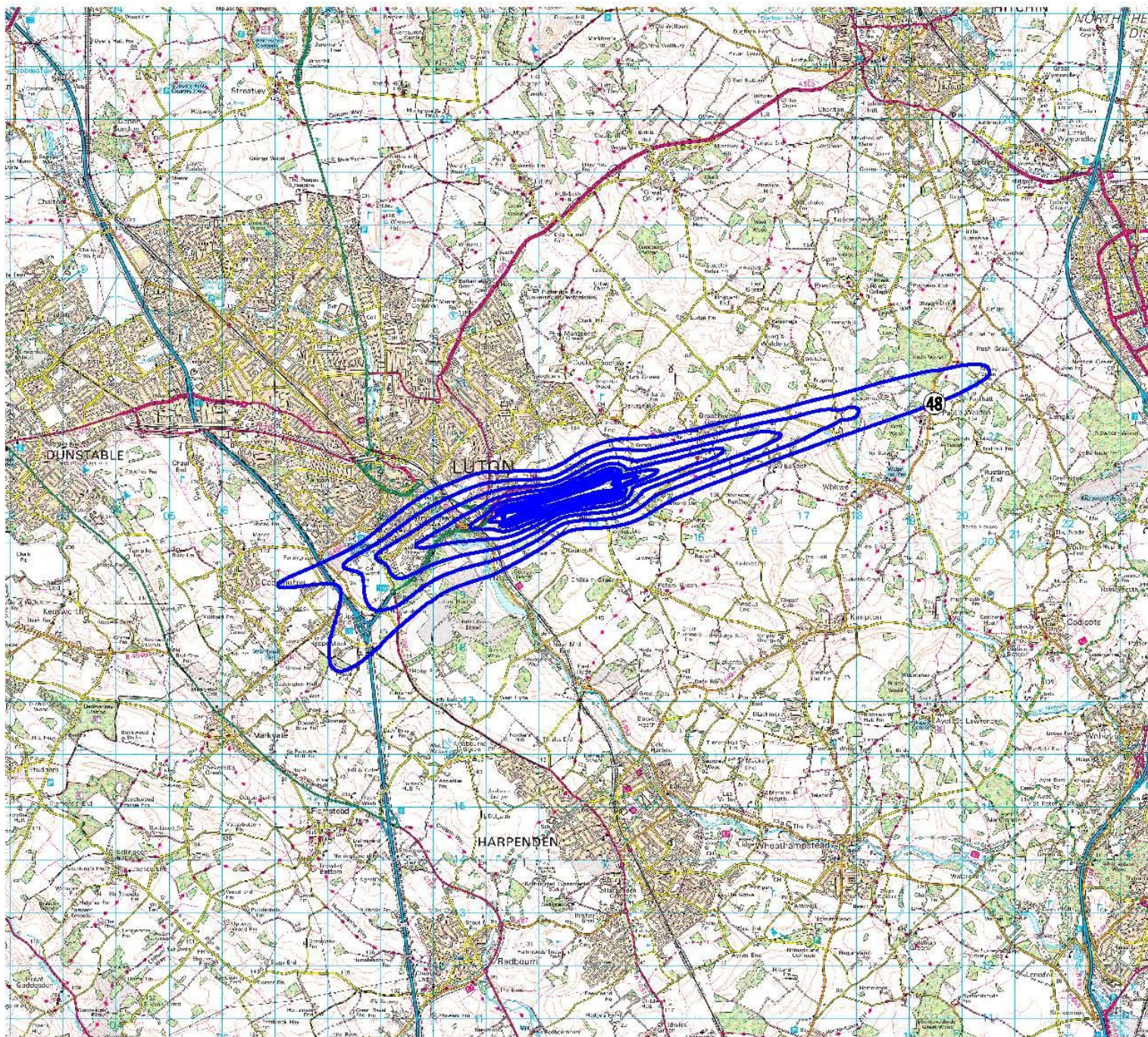
The aircraft movements for the night noise contours as supplied by LLAOL are summarised in Table 2 below, and compared with the movements from the previous quarter and the equivalent quarter in the previous year. Only aircraft types with at least 10 movements have been presented. For aircraft types with less than 10 movements in a period or types that were not explicitly presented in previous periods, 'n/a' is shown.

INM Aircraft Type	Jan – Mar 2014	Oct – Dec 2014	Jan – Mar 2015
737300	31	40	33
737400	12	63	53
737700	n/a	14	13
737800	190	382	239
757RR	n/a	47	28
A300-622R	134	131	142
A319-131	159	277	170
A320-211	390	553	455
A321-232	67	76	37
CL600	72	111	42
CL601	21	22	43
CNA441	n/a	14	12
CNA500	n/a	18	17
CNA510	13	16	20
CNA525C	30	25	24
CNA55B	10	n/a	n/a
CNA560XL	43	35	37
CNA680	n/a	12	n/a
D0328	132	120	127
EMB145	31	37	38
F10062	60	96	67
F2TH	n/a	n/a	27
GIV	95	68	57
GV	204	250	252
LEAR35	42	26	24
<i>Other</i>	75	46	30
Total	1811	2479	1987

Table 2: Night-time Aircraft Movement Numbers by Aircraft Type

5.1.4 Noise Contour Comparison

There has been an increase of 10% in the total night time movements, although arrivals have increased by 19% and departures remained similar, compared with the same quarter in 2014. The fleet mix and modal split are both similar to that in the same quarter in 2014. The area within the 48 dB(A) noise contour has increased by 5% compared to the same quarter last year. This is due to the changes in overall movements, although it is a smaller increase than might be expected as the increase is all arrivals, which do not contribute as much to the noise contour area as departures. As in previous years, the number of movements, and therefore the contour area, has significantly decreased compared to the previous quarter (October – December 2014).



This drawing contains Ordnance Survey data © Crown Copyright and database right 2014.

LEGEND:

Noise Contours,

48 to 72 dB $L_{Aeq,Bh}$ in 3 dB steps

REVISIONS

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**London Luton Airport
Regular Contouring**

**Airborne Aircraft Noise Contours
Jan-Mar 2015 Average Night time**

DRAWN: NW

CHECKED: DC

DATE: 10/06/2015

SCALE: 1:100000@A4

FIGURE No:

A9457/NN15/Q1

6 COMPLAINTS

6.1 Total Complaints relating to LLA aircraft operations

	1 st QTR 2014	1 st QTR 2015
Total No. of Complaints relating to LLA aircraft operations	104	107
No. of Complainants	47	40
No. of Events (eliciting a complaint)	252 [#] (114 [*])	222 (95 ^{**})
<i>Average No. of Complaints per Complainant</i>	2.2	2.7
<i>Average No. of Events per Complainant</i>	5.4 [#] (2.4 [*])	5.6 (2.4 ^{**})
<i>Average No. of Events per Complaint</i>	2.4 [#] (1.1 [*])	2.1 (1 ^{**})
<i>No. of Aircraft Movements per Complaint</i>	201	213
<i>No. of Aircraft Movements per Event</i>	83 [#] (183 [*])	103 (240 ^{**})

During the last quarter a total of 107 complaints relating to LLA aircraft operations (on average just over 1 complaint per 24 hours) were received by the Airport Environment Office, compared with 104 for the same period last year, a small increase of 3%.

The monthly breakdown of total complaints and events eliciting a complaint relating to LLA aircraft operations is as follows:

Jan 2015	19 complaints	(16 events)
Feb 2015	29 complaints	(36 events)
Mar 2015	59 complaints	(170 events)

(Where a high proportion of events originate from one or more sources, these are identified in the above table)

** Figures excluding 198 events reported by two residents of Harpenden.*

*** Figures excluding 127 events (57%) reported by one resident of St Albans. These events all involved westerly departures following the 26 Match/Detling heading, for which we are proposing to introduce a revised RNAV1 flight route to help improve track-keeping away from highly populated areas.*

It should be noted that one other individual in Harpenden continued to report a large number of events during this quarter. In order not to cause distortion in the reported statistics and in agreement with LLACC, these events are no longer included in statistics. However, complaints received from this individual (reporting general disturbance and frequency) have still been included in the complaints total and this individual has been included in the number of complainants.

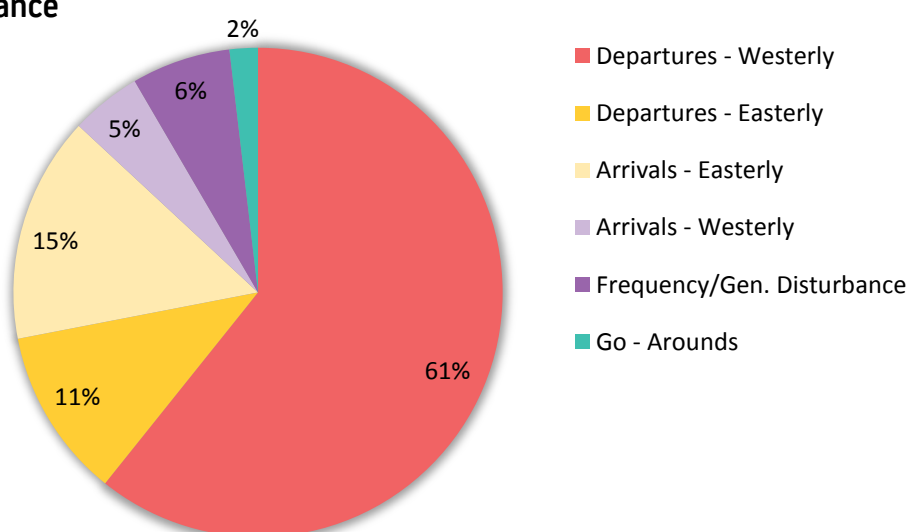
A further 13 complaints (reporting 26 specific events) not attributable to LLA traffic were received throughout the quarter, compared to 10 (7 events) for the period January to March last year.



Within the 107 complaints received during the quarter, a total of 222 events (eliciting a complaint) were listed, compared to 252 events for the same period last year. It should be noted, however, that 57% of events this quarter were reported by just one individual in St Albans.

6.2 Nature of Disturbance

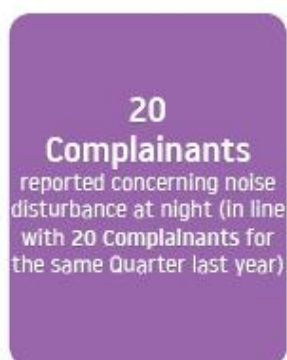
The chart represents the areas of concern reported with regard to aircraft activity during the period January to March 2015.



Within the 65 complaints concerning westerly departures, 46 complaints involved aircraft on the Match/Detling flight route, 17 were of a general nature and 2 related to aircraft on the Compton heading.

With regard to the 12 complaints attributed to easterly departures, 9 related to aircraft following the Compton flight route and 3 were of a general nature.

Whilst 13 of the 16 complaints concerning easterly arrivals reported general disturbance, 3 related specifically to aircraft following the arrivals routing from the Lorel Reporting Point.

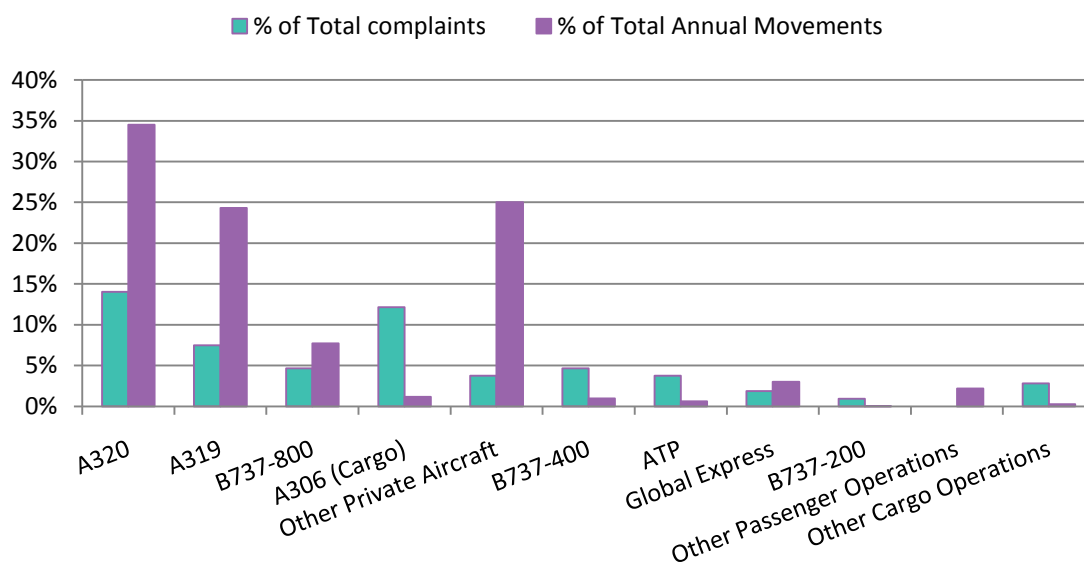


Departing aircraft accounted for 50% of the 38 night complaints and 39% involved arrivals. A further 11% of night complaints reported general disturbance. Cargo flights, involving A306 aircraft and ATP postal flights were reported in 39% of night complaints.



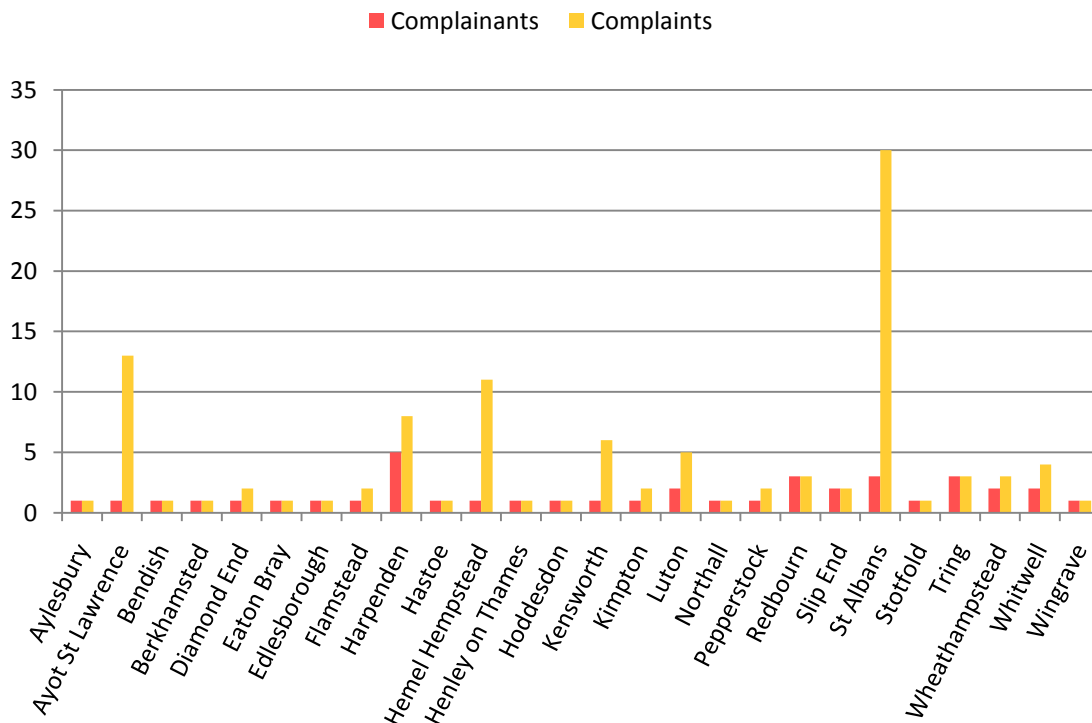
6.3 Complaints by aircraft type

Within the 107 complaints registered during the quarter a total of 60 complaints (56%) were clearly correlated to a specific aircraft type, although many complaints were of a general nature. The diagram below shows aircraft types generating complaints.



6.4 Origin of Complaints

The chart below identifies the areas around the Airport from which complaints relating to LLA aircraft operations were received during the period January to March 2015.



6.5 Communication Method

The following table shows the mode of communication used to contact London Luton Airport regarding noise.

Communication Method	% of Total Complaints
E-mail*	79%
Telephone	21%

* During the period January to March 2015 a total of 85 complaints were reported to the Airport Environment Office by e-mail. Within this total 74% (63) were sent directly to noise@ltn.aero, with the remaining 26% of e-mail complaints (22) being submitted via the noise complaint template on the website www.london-luton.co.uk

Any concerns relating to aircraft operations associated with London Luton Airport can also be reported to the Airport Environment Office by the following means:

Postal Address	Airport Environment Office London Luton Airport Navigation House Airport Way Luton, Bedfordshire LU2 9LY
Direct Telephone	(01582) 395382 (24 hours)