



# Farnborough Airport Environment Report

January – March 2005

TAG Farnborough Airport Ltd  
Farnborough  
Hampshire  
GU14 6XA

## **INTRODUCTION**

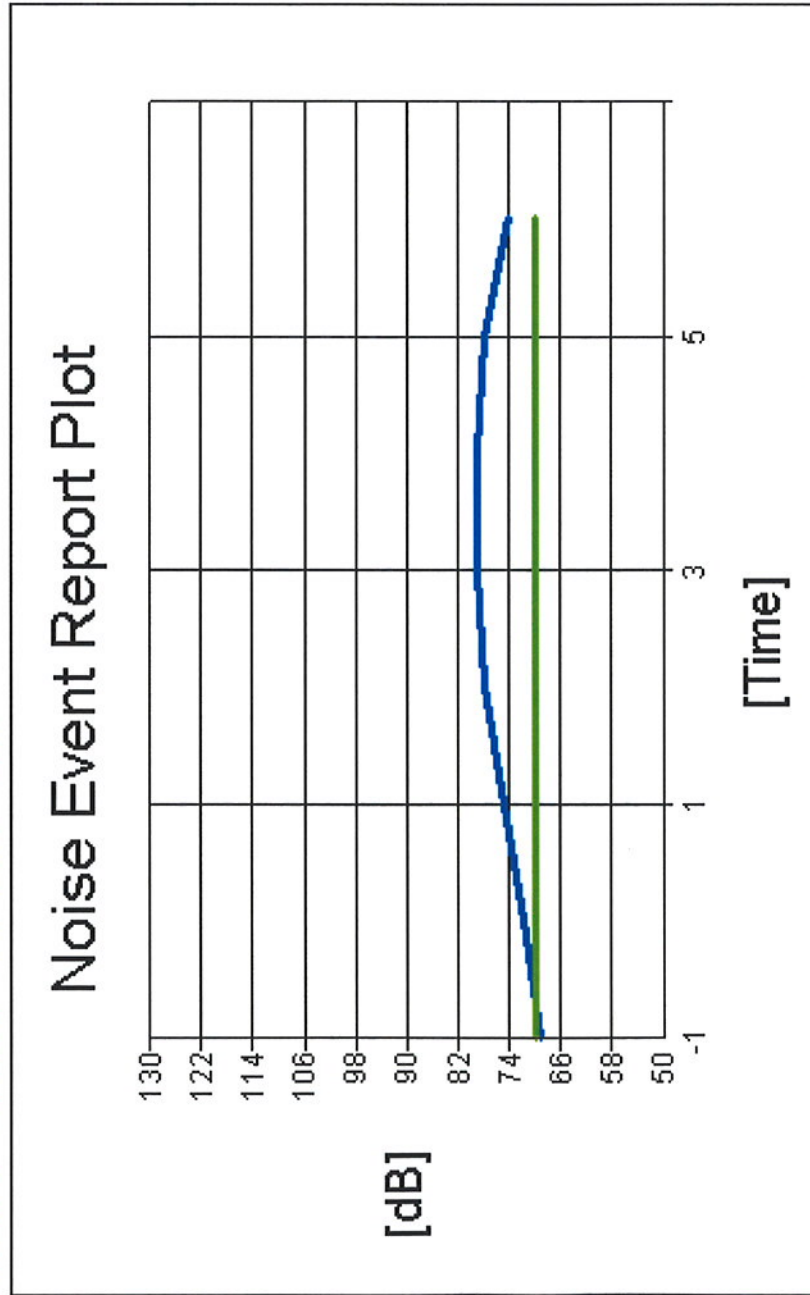
- 1.1 In order to comply with the requirements of the agreement in place under Sections 106 and 299A of the Town and Country Planning Act 1990, TAG Farnborough Airport hereby submits a report for the first quarter of 2005 (January – March 2005), detailing environmental monitoring results as required by that agreement. In line with the paragraph 2 (t) of the agreement, the content of this report has been revised, in consultation with Rushmoor Borough Council Planning department, to focus more on the monitoring data. For background information relating to the means of data collection please refer to previous Quarterly Environment Reports.

## **2 NOISE MONITORING**

- 2.1 Graphical plots of recorded aircraft noise events are distinctive in their appearance. Figure 1 shows a typical aircraft noise event plot as taken from the noise and track monitoring system this quarter.
- 2.2 The permanent noise monitoring terminals remain in operation. The portable noise monitor that experienced technical difficulties last quarter has remained unserviceable for the duration of this quarter, however a replacement has been sourced; data will be available from this monitor for the next quarterly report.
- 2.3 Figures 2, 3 and 4 below show Leq data for correlated aircraft Event noise, (E), Total Leq levels recorded (Total) and Background (Background) noise calculated as comparable Leq<sub>(A)</sub> values, by day of month and NMT for January, February and March respectively.

# NOISE EVENT

Noise Event at NMT no. 3



--- Flight Information ---  
Type.....: GLF5  
Operation.....: ARR  
Number.....: 5132

--- Flight Data ---

Trigger.....: LEQ  
End. Dur...: 2 s  
Min. Dur...: 6 s  
SENL.....: 90 dB  
SETL.....: 70 dB

--- NMT Setup ---

Dur. SENL: 0 s  
Dur. SETL: 7 s  
SEL.....: 85.2 dB  
Leq.....: 76.7 dB  
Max Level: 79.2 dB  
Start Time 11:41:54  
Start Date 01/03/2005

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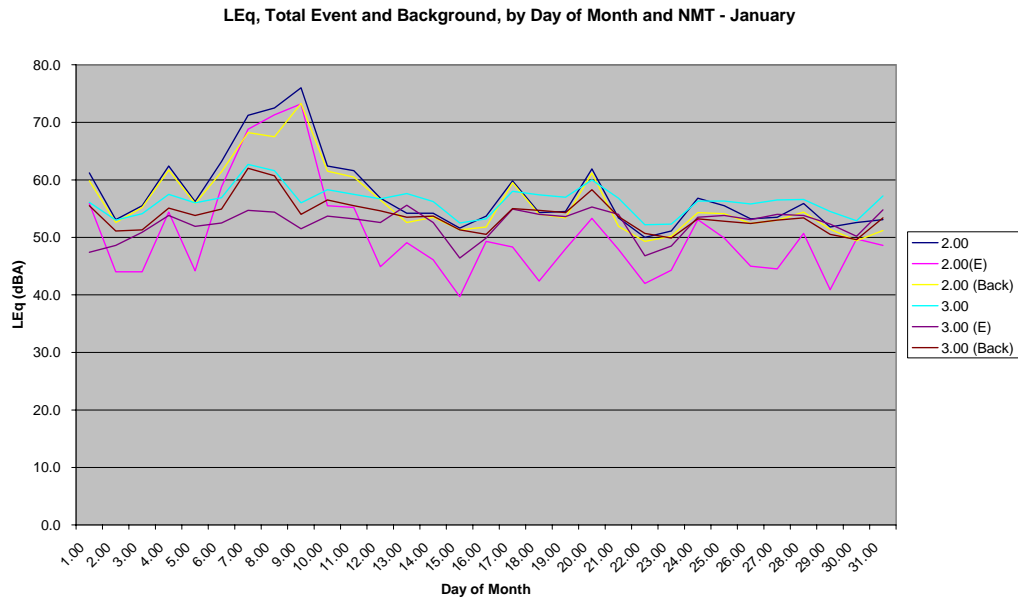


Figure 2: Noise as Leq Total, Event (E) and Background (Back) by Day of month and NMT for January 2005

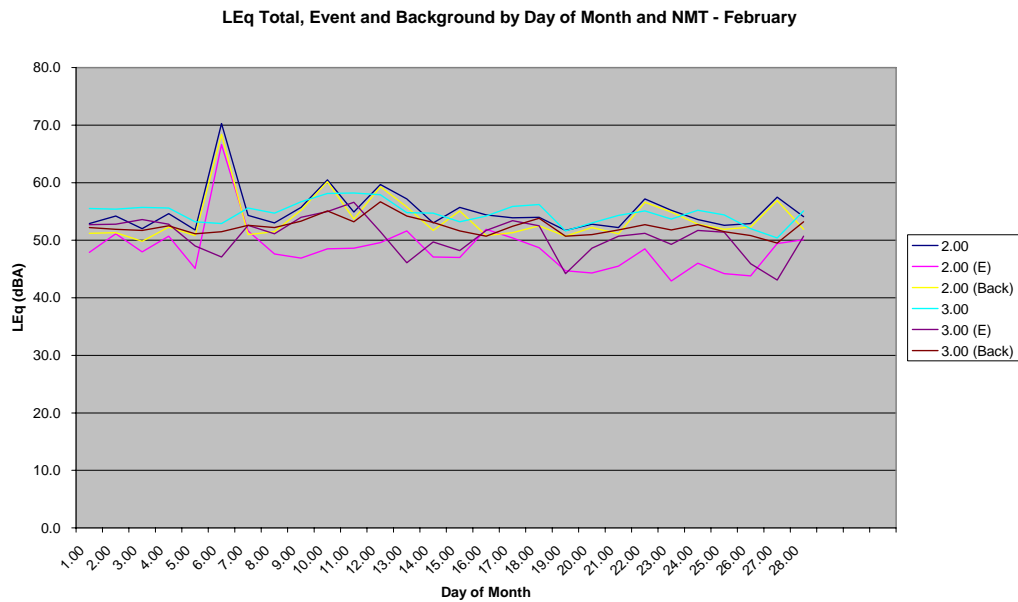


Figure 3: Noise as Leq Total, Event (E) and Background (Back) by day of month and NMT for February 2005

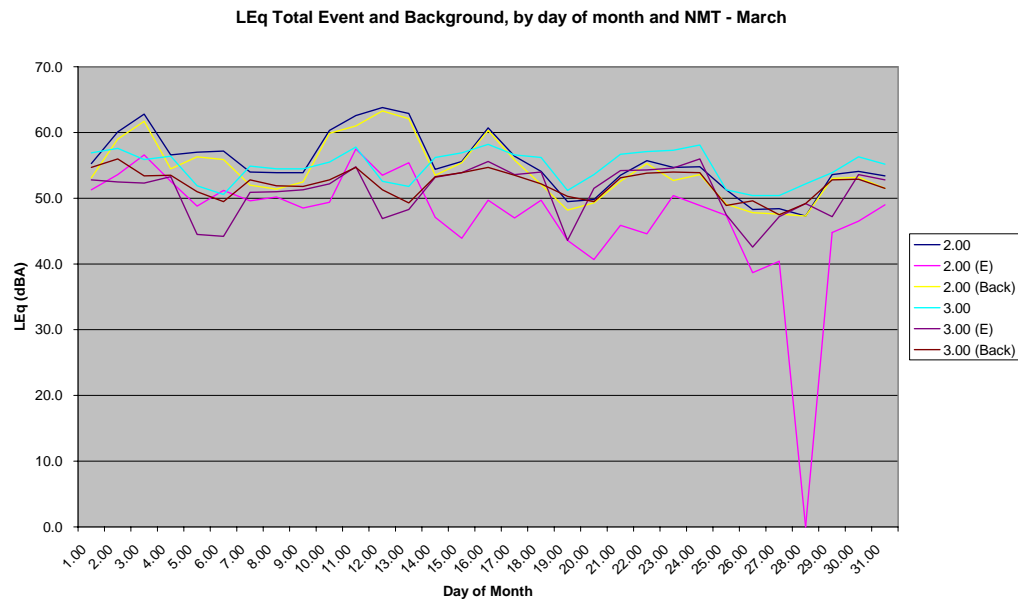


Figure 4: Noise as Leq Total, Event (E) and Background (Back) by day of month and NMT for March 2005

- 2.4 The government considers noise to have the potential for community annoyance above a level of 57dB (A) expressed as a 16 hour Leq. For Farnborough the total land area affected by noise at and above 55dB (A) was confirmed as 3.62 km<sup>2</sup> through use of the FAA’s Integrated Noise Model (INM) when modelling actual movements for 2004.
- 2.5 All daily Leq Figures are given in full in Appendix 1. All movement numbers are given in Table 1 below.
- 2.6 INM is stated in the European Environmental Noise Directive (Directive 2002/49/EC) as the preferred European Standard tool for assessing noise impacts from aircraft.

### 3 AIRCRAFT MOVEMENTS

- 3.1 Table 1 shows all aircraft movements over the three-month period by movement category. Figure 5 gives a summary of movements by category, for weekends.

Category	January	February	March	Quarter 1 2005	Total 2005
<b>Business</b>	1141	1301	1497	3819	<b>3819</b>
<b>Helicopter</b>	68	63	56	284	<b>284</b>
<b>Subtotal (Planning Agreement Movements)</b>	<b>1209</b>	<b>1364</b>	<b>1553</b>	<b>4103</b>	<b>4103</b>
<b>Flying club</b>	50	33	81	164	<b>164</b>
<b>Military</b>	10	10	8	28	<b>28</b>
<b>Diversion</b>	13	28	22	63	<b>63</b>
<b>Other</b>	57	47	66	170	<b>170</b>
<b>SBAC</b>	0	0	0	0	<b>0</b>
<b>Total</b>	<b>130</b>	<b>118</b>	<b>177</b>	<b>425</b>	<b>425</b>

Table 1: *Movements by Category for Quarter 1, 2005*

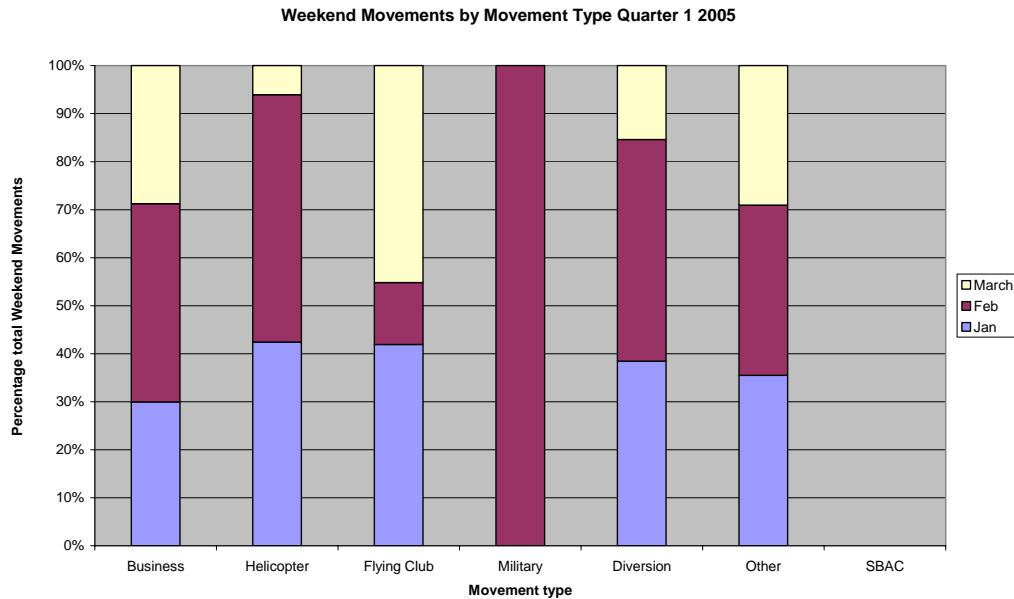


Figure 5: *Weekend Movements\* by Type for Quarter 1, 2005*

\* Excludes Bank Holidays

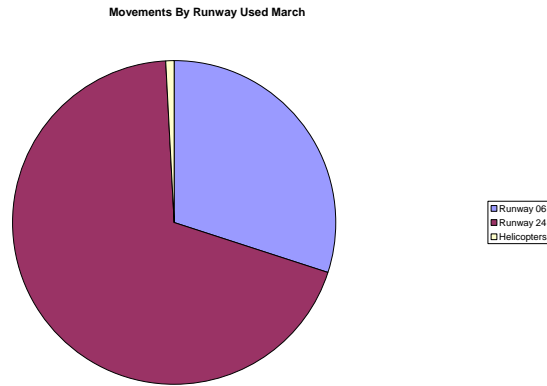
3.3 Figure 6 below gives information on the runway split and shows all movements by runway used. The overall runway usage split for arrivals and departures was 32% on Runway 06, 66% on Runway 24 and 2% for helicopter movements for the quarter.

Figure 6: *Monthly Movements by Runway Used Quarter 1, 2005*



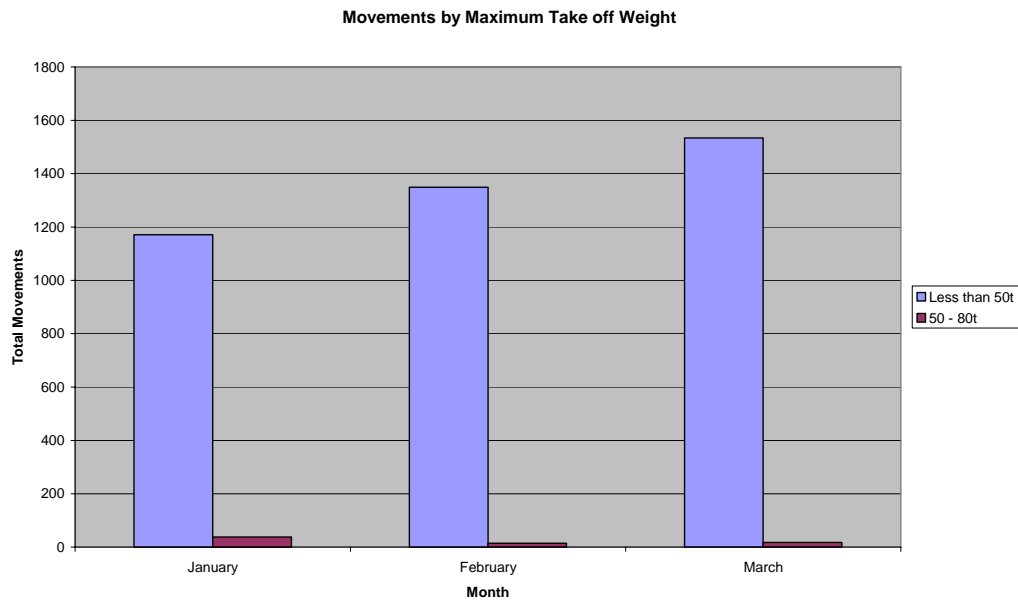
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3.4 The Maximum Take Off Weight (MTOW) for all fixed wing aircraft using the airport is recorded within the NTMS. The chart gives a summary of aircraft over 50,000kg MTOW for Quarter1, 2005.

Figure 7: *Movements by Maximum Take Off Weight (MTOW)*



3.5 All civil aircraft using Farnborough this quarter were compliant with the International Civil Aviation Organisation (ICAO) Chapter 3 classification. From January 2006 aircraft being manufactured are required to be compliant with the new more stringent ICAO Chapter 4 classification. Such is the nature of the customers at Farnborough that it is understood that many of the aircraft operating already comply with the new more stringent standard.



3.6 Helicopters, light aircraft and military aircraft are not subject to the requirements of the ICAO noise certification scheme. The figures quoted above relate to fixed wing business aircraft movements only.

**4. AIR QUALITY MONITORING**

4.1 Under Section 3 of Schedule 1 of the Section 106 Agreement, TAG was required to devise a scheme for monitoring Nitrogen Dioxide (NO<sub>x</sub>) as an overall pollution indicator, which has subsequently been approved by Rushmoor Borough Council. The locations of all of the diffusion tubes and Streetbox monitors have remained as previously for the duration of the quarter, to see the locations of the monitors please refer to previous reports. The National Air Quality objectives for oxides of nitrogen are quoted below:

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Nitrogen Dioxide*	200µg/m <sup>3</sup> when expressed as an hourly mean not to be exceeded more than 18 times a year.	Hourly mean	31/12/2005
* It should be noted that the Nitrogen Dioxide objectives are provisional.			

Table 2: *The Air Quality (England) (Amendment) Regulations 2002*

4.4 The results of the air quality survey consist of both raw and manipulated data taken from the diffusion tube laboratory analysis and downloaded computer data from the Learian automatic samplers in use.

4.5 Nitrogen oxide results taken from the diffusion tubes and Learian Streetbox samplers indicate that NO<sub>x</sub> levels around the airfield have achieved the objective as set out by the Air Quality Regulations Amendment Regulations 2002. Levels recorded by the monitoring network remain at levels at or below urban background levels. The trend for nitrogen oxide levels recorded to reflect distance from road sources remains clearly in evidence, for example monitoring location 13 which is immediately adjacent to the M3 motorway. Readings of “0” indicate instances where diffusion tubes have been removed without authorisation from TAG.

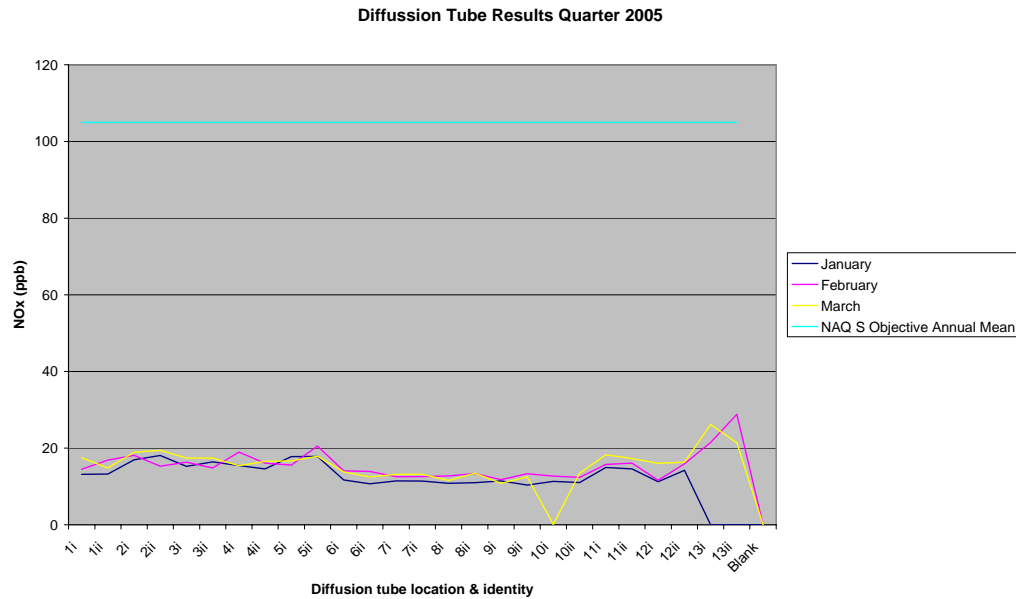


Figure 8: Nitrogen Oxides Diffusion Tube Results Quarter 1, 2005, and Air Quality Regulations\*, Hourly Mean

Key: **ppb** - parts per billion.

\*Air Quality Regulations 1997 (as amended 2000)

4.6 Table 3 below gives the air quality monitoring results obtained from the two Learian Street Box automatic samplers. The Streetboxes are collocated with diffusion tubes, references as given.

Location	January (ppb)	February (ppb)	March (ppb)
Kempton Close (co-located with diffusion tubes 1i and 1ii)	18.4	15.6	13.6
Farnborough College of Technology (collocated with diffusion tubes 2i and 2ii)	16.5	15.4	13.4

Key: **ppb** - parts per billion

Table 3: Learian Streetbox results for Quarter 1 2005, January – March 2005.

## **5 CONCLUSION**

- 5.1 The monitoring of aircraft tracks, noise events and NO<sub>x</sub> levels will continue to be undertaken in the manner it is currently being carried out. The information received from all monitoring sources this quarter illustrates the airports compliance with both regulatory regimes and also the requirements placed on TAG by the Town and Country Planning Act 1990 Sections 106 and 299A Agreement.
- 5.2 Movement numbers, including the allowed weekend movements remained within those permitted by the permission and section 106 agreements. Detailed records of all movements are maintained. All required movements are made subject to, and are carefully scrutinised for, compliance with noise abatement procedures. All violations of the noise abatement procedures are investigated and any appropriate action taken. During quarter 4 of 2004, 4 operators were alerted to minor infringements of the noise abatement procedures. Work continues by both TAG and the operators, to address these incompliant operations. No aircraft of types disallowed by the agreement used the airport over the period covered by this report.
- 5.4 NO<sub>x</sub> levels recorded by the local air quality monitoring scheme remained within levels expected for urban background levels. No trends in nitrogen oxide levels detected indicate an adverse impact caused by airport activities.
- 5.5 The activities at the airport are within the requirements stated in the Section 106 agreement.

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## Appendix 1



Periodic noise reports: Monthly

January 2005

Leq (Total) by Day of Month (by NMT)

	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00	28.00	29.00	30.00	31.00
2.00	61.2	53.1	55.5	62.4	56.2	63.2	71.2	72.5	76.0	62.4	61.6	56.8	54.2	54.2	51.6	53.7	59.8	54.3	54.5	61.9	53.4	50.0	51.1	56.8	55.5	53.2	53.5	55.9	51.8	52.6	53.1
3.00	56.1	53.0	54.1	57.5	56.0	56.9	62.7	61.6	56.0	58.3	57.5	56.7	57.6	56.2	52.5	53.2	58.0	57.4	57.0	60.0	56.8	52.2	52.3	56.3	56.3	55.8	56.5	56.6	54.5	52.9	57.2

February 2005

Leq (Total) by Day of Month (by NMT)

	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00	28.00
2.00	52.9	54.2	52.0	54.6	51.8	70.3	54.3	53.0	55.7	60.5	54.9	59.7	57.2	53.0	55.7	54.4	53.9	54.0	51.7	52.8	52.2	57.2	55.2	53.6	52.6	52.9	57.5	54.1
3.00	55.5	55.4	55.7	55.6	53.2	52.9	55.6	54.7	56.7	58.1	58.2	57.9	54.8	54.7	53.2	54.2	55.9	56.2	51.6	53.0	54.3	55.1	53.7	55.2	54.4	52.0	50.4	55.1

March 2005

Leq (Total) by Day of Month (by NMT)

	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00	28.00	29.00	30.00	31.00
2.00	55.3	60.1	62.8	56.6	57.0	57.2	54.0	53.9	53.9	60.3	62.6	63.8	62.9	54.4	55.6	60.7	56.4	54.1	49.5	49.8	53.5	55.7	54.7	54.8	51.3	48.3	48.4	47.3	53.6	54.1	53.4
3.00	56.9	57.6	55.9	56.4	51.9	50.6	54.9	54.5	54.5	55.5	57.8	52.6	51.8	56.2	56.9	58.2	56.6	56.2	51.2	53.6	56.7	57.1	57.3	58.1	51.3	50.4	50.4	52.2	53.9	56.3	55.2

From 01 January 2005 to 31 March 2005

Company:

Selection criteria: NMT\_NUMBER in ( 2 , 3 )

User: sgreener

Actual Time 20/04/2005



Periodic noise reports: Monthly

January 2005

Leq (Event) by Day of Month (by NMT)

	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00	28.00	29.00	30.00	31.00
2.00	55.9	44.0	44.0	54.4	44.2	58.8	68.8	71.3	73.2	55.5	55.2	44.9	49.1	46.1	39.7	49.3	48.3	42.4	48.0	53.3	47.9	42.0	44.3	53.1	49.9	45.0	44.5	50.7	40.9	49.7	48.6
3.00	47.4	48.6	50.9	53.8	51.9	52.5	54.7	54.4	51.5	53.7	53.2	52.6	55.6	52.6	46.4	49.9	54.9	54.0	53.6	55.3	54.0	46.8	48.5	53.5	53.8	53.1	54.0	53.8	52.3	50.2	54.8

February 2005

Leq (Event) by Day of Month (by NMT)

	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00	28.00
2.00	47.9	51.1	48.0	50.7	45.1	66.6	51.6	47.6	46.9	48.5	48.6	49.6	51.6	47.1	47.0	51.9	50.4	48.7	44.7	44.3	45.5	48.5	42.9	46.0	44.2	43.8	49.4	50.1
3.00	52.7	52.8	53.6	52.8	49.0	47.1	52.6	51.1	54.0	55.0	56.6	51.5	46.1	49.7	48.2	51.7	53.4	52.5	44.2	48.6	50.7	51.2	49.3	51.7	51.4	45.9	43.1	50.7

March 2005

Leq (Event) by Day of Month (by NMT)

	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00	28.00	29.00	30.00	31.00
2.00	51.3	53.6	56.6	52.6	48.8	51.2	49.6	50.2	48.5	49.4	57.5	53.5	55.4	47.1	43.9	49.7	47.0	49.7	43.6	40.7	45.9	44.6	50.4	48.9	47.4	38.7	40.4	0.0	44.8	46.5	49.0
3.00	52.8	52.5	52.3	53.3	44.5	44.2	50.9	51.0	51.3	52.2	54.8	46.9	48.3	53.2	53.9	55.6	53.6	54.0	43.6	51.5	54.2	54.3	54.6	56.0	47.5	42.6	47.2	49.2	47.2	53.6	52.8

From 01 January 2005 to 31 March 2005

Company:

Selection criteria: NMT\_NUMBER in (2 , 3 )

User: sgreener

Actual Time 20/04/2005