

Short Term Monitoring Program

Jandakot Airport, WA

connecting australian aviation

Version Control

Version 3: 21 February 2017				
Section	Summary			
Page 5, 12 and 13, Table 7	Text updated			
Figure 2	Formatting change			

Glossary of Terms

A	Arrivals
Background noise level (L90)	The sound level in dB(A) that is exceeded 90% of the time
Capture Zone	The capture zone is the region that an aircraft can be within, to the noise monitor and be able to be correlated to a noise event.
Correlated Noise Event (CNE)	A noise event matched to an aircraft movement that flew through the capture
	zone
D	Departures
Day	6:00am to 11:00pm
EMU	Environmental Monitoring Unit
General Aviation	Movements other than scheduled commercial airline operations. This includes
	private, sports, charter and training operations.
Н	Helicopters
LAmax	Maximum sound level in dB(A)
Local	Movement that departs and arrives at the same airport, including circuits and training flights.
Movement	An aircraft operation, such as a arrival or departure
Night	11:00 pm to 6:00 am
NFPMS	Noise and Flight Path Monitoring System
Noise Event	A noise that exceeds the threshold sound level for longer than the threshold time that is set
0	Overflight i.e. an aircraft movement that flew over the area but did not arrive or depart from the airport of concern
Overall Correlation Ratio	Percentage of captured aircraft movements correlated with noise events recorded by the noise monitor
Т	Local movement including Circuits (Departure and Arrival at the same airport)
Threshold	Determined level on noise monitor that triggers a noise event when exceeded

For further information on the metrics used in this report refer to Australian Standard 1055.1–1997 "Acoustics – Description and measurement of environmental noise".

Airservices Noise Monitoring Program

Information about <u>Airservices noise monitoring program</u> is available on the Airservices website, including reports of the noise and operational data collected by the Noise and Flight Path Monitoring System, as well as fact sheets about topics related to aircraft noise. The website is available at: <u>www.airservicesaustralia.com/aircraftnoise/</u>

Contact Us

To lodge a complaint or make an enquiry about aircraft operations; you can go to WebTrak (<u>www.airservicesaustralia.com/aircraftnoise/webtrak/</u>), use our online form (<u>www.airservicesaustralia.com/aircraftnoise/about-making-a-complaint/</u>), telephone 1800 802 584 (freecall) or 1300 302 240 (local call –Sydney), fax (02) 9556 6641 or write to, Noise Complaints and Information Service, PO Box 211, Mascot ACT 1460.

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This report contains a summary of data collected over the specified period and is intended to convey the best information available from the NFPMS at the time. The system databases are to some extent dependent upon external sources and errors may occur. All care is taken in preparation of the report but its complete accuracy can not be guaranteed. Airservices Australia does not accept any legal liability for any losses arising from reliance upon data in this report which may be found to be inaccurate.

Deployment Purpose

Short term noise monitoring was conducted at four locations around Jandakot Airport to measure noise events associated with Jandakot Airport and specifically those related to circuit activities. The purpose of this report is to provide a technical summary of the recorded aircraft noise and operational data collected during February 2016 to August 2016 at the following four sites:

- Bibra Lake
- Canning Vale
- Jandakot
- Piara Lakes

An explanation of terms used within this report can be found in the Glossary on page 2 of the report. Further information on noise monitoring is available from the Airservices Australia website at http://www.airservicesaustralia.com/aircraftnoise/factsheets/

Deployment Monitoring Period

01/02/2016 - 01/08/2016

Deployment Locations



FIGURE 1: JANDAKOT AIRPORT INCLUDING 4 SHORT-TERM MONITORING LOCATIONS



FIGURE 2: JANDAKOT AIRPORT MOVEMENTS FOR 2-8 MAY 16 INCLUDING SHORT-TERM MONITORING LOCATIONS, WITH TRACK DENSITY



FIGURE 3: JANDAKOT AIRPORT MOVEMENTS FOR 2-8 MAY 16 INCLUDING SHORT-TERM MONITORING LOCATIONS, BY ALTITUDE

Jandakot Airport Noise and Flight Path Monitoring System Improvement Program (NFPMS)

Aircraft movements from Jandakot Airport have been visible in the Perth component of Airservices Noise and Flight Path Monitoring System (NFPMS) for many years. For example flight tracks in and out of Jandakot Airport can be seen in WebTrak. The Perth component of the NFPMS was originally setup to monitor movements at Perth Airport and relied upon obtaining the details of the operations from a lodged flight plan.

Jandakot Airport is a General Aviation airport with a high proportion of movements relating to training schools. As a result, the majority of movements at Jandakot Airport do not have a detailed flight plan and therefore there is limited identification data captured in the NFPMS.

Environmental Monitoring Unit (EMU) Details

	EMU Name (EMU Number)	Canning Vale (347)	Piara \ (346) ai	Waters าd (353)	Jandakot (349)	Bibra Lakes (348)
		Placed to capture	Placed to capture departu	res to and arrivals from	Placed to capture	Placed to capture
		departures off Runway	the south east.		circuits, departures from	northern circuits, entry
		06R, arrivals to Runway	Relocation of the Piara Wa	aters Noise Monitor was	Runway 24R and 24L and	to and exits from the
		24L and southern	requested by the property	owner approximately 4	arrivals onto Runway 06L	circuit to the north-west,
	Details on	circuits.	months into the monitoring	ng.	and 06R.	departures from Runway
	placement		The EMU was reinstalled 8	30m from its original		30 and arrivals on
	placement		location as Piara Waters 2	– EMU 353. EMU 353 was		Runway 12.
			in place for the remainder	of the monitoring period.		
			Data from both EMU 346	and EMU 353 have		
			contributed to the finding	s of this report, however		
			the majority of the data ca	ame from EMU346.		
	Installed period,	-	01/02/2016-	16/6/2016-	-	-
	if applicable		30/05/2016	01/08/2016		
		Private Residence	Private Residence	Private Residence	Private Residence	Private Residence
	Location	Hungerford Close	Bate Close	Exeter Court	Hartwell Parade	Marchant Drive
	Location	Canning Vale WA	Piara Waters WA	Piara Waters WA	Jandakot WA	Bibra Lake WA
	Latitude	32° 5' 4.62"S	32° 7' 50.03"S	32° 7' 49.80"S	32° 6' 26.76"S	32° 5' 35.0988"S
	Longitude	115° 54' 31.40"E	115° 54' 46.90"E	115° 54' 49.93"E	115° 51' 22.30"E	115° 50' 43.6992"E
ſ		102 ft. above	111 ft. above	112 ft. above	108 ft. above	144 ft. above
	EIVIO Altitude	mean sea level	mean sea level	mean sea level	mean sea level	mean sea level
	Capture Zone		1 km radius with 8,000 f	t. (above ground level) heig	ht for noise data capture	
	Throchold Sotting	51.0 dB(A) to 57.0 dB(A)	47.0 dB(A) to 58.0 dB(A)	44.0 dB(A) to 53.0 dB(A)	51.0 dB(A) to 59.0 dB(A)	53.0 dB(A) to 58.0 dB(A)
	mreshold Setting	depending on time of day	depending on time of day	depending on time of day	depending on time of day	depending on time of day
						21/03/2016-
	Monitoring Outogos	17/04/2016 20/04/2016	- 21/05/2016 15/06/2016			23/03/2016,10/05/2016-
	womtoring Outages	17/04/2010-20/04/2010	due to EMIL relocation	-	-	11/05/2016, 28/05/2016-
L						29/05/2016

TABLE 1: DETAILS OF ENVIRONMENTAL MONITORING UNITS (EMUS)

Canning Vale (EMU 347) Findings



FIGURE 4: JANDAKOT AIRPORT MOVEMENTS THAT TRAVERSED CANNING VALE BETWEEN 02/05/2016 – 8/05/2016, INCLUDING CAPTURE ZONE (BLUE CIRCLE)

- 23,932 movements flew through the capture zone (shown in Figure 4) during the 6 month reporting period. 23,500 of these were Jandakot Airport movements.
- 27% of total movements that flew through the capture zone were Runway 24L Local movements.
- A summary of the total number of Correlated Noise Events (CNE) by time of day, and the minimum to maximum number of CNE in a day, are summarised within Table 2.

TABLE 2: SUMMARY OF CORRELATED NOISE EVENTS BY TIME OF DAY AND MINIMUM TO MAXIMUM RANGE OF OCCURRENCES, FOR THE CANNING VALE ENVIRONMENTAL MONITORING UNITS (347)

Correlated Noise Events (CNE)	Day-time	Night-time	Number of Correlated Noise Events per day
over the Reporting Period:	(6:00am to 11:00pm)	(11:00 pm to 6:00 am)	(min to max)
above 60 dB(A) (N60)	38,418	1,393	32 to 377
above 65 dB(A) (N65)	11,333	709	9 to 135
above 70 dB(A) (N70)	3,311	371	1 to 46
above 75 dB(A) (N75)	872	110	0 to 14

- Correlated noise events above 60 dB(A) were most common between 03:00 pm to 5:00 pm weekdays.
- The loudest correlated aircraft noise event with a max level of 89.7 dB(A) was a general aviation aircraft departing off Runway 06R when the noise event occurred.

Events as high as a max level of 92.3 dB(A) were recorded during the reporting period however these are not correlated to any aircraft movement, where community noise is believed to be either a contributing factor or responsible for these events. Community activities including construction, mowing and traffic can cause such events to be recorded on the monitor.

Aircraft Type (Category)	Airport	Movement Type	RWY	No. Correlated Noise Events	LAmax dB(A) Average	LAmax dB(A) ^{Maximum}
General Aviation	Jandakot	Т	24L	11032	63.5	88.5
General Aviation	Jandakot	Т	06R	6389	64.0	88.5
General Aviation	Jandakot	Т	24R	5210	62.5	82.6
General Aviation	Jandakot	Т	HJ	3267	62.4	84.2
General Aviation	Jandakot	Α	24R	2552	63.0	83
General Aviation	Jandakot	Т	06L	1652	63.0	86
Diamond Twin Star DA-42 (P)	Jandakot	D	06L	1487	62.6	79
General Aviation	Jandakot	Т	12	1292	62.3	83.5
Diamond Star DA-400 (P)	Jandakot	Α	24R	1218	67.7	81.9
General Aviation	Jandakot	D	06R	824	64.1	89.7

TABLE 3: 10 MOST FREQUENTLY CORRELATED AIRCRAFT TYPES OVER THE CANNING VALE ENVIRONMENTAL MONITORING UNIT

Note: General Aviation aircraft do not include details of aircraft type or category. More information is available on page 4.

Aircraft Category: Jet (J), Turboprop (T), Propeller (P), Helicopter (H), Unknown (U)

Movement Type: Arrival (A), Departure (D), Local Operation including Circuits (T), Overflight (O)

• The overall correlation ratio for all movements was 85%. This is a higher correlation rate to that achieved at other secondary airports. Aircraft at a General Aviation airport operate differently and in closer proximity to that at major airports. There are noise events where two aircraft can be in the one capture zone at the same time.

Due to the number of aircraft undertaking circuit activities, many movements have multiple CNE's per movement. This is similar to other secondary airports and expected.

Current technological limitations mean that the NFPMS must first have a noise event which it identified could be aircraft noise. Noise from aircraft which is within or similar to community noise cannot be separated including aircraft with a lower noise level or when there is an increase in community noise such as from sirens, traffic or loud conversations. In the future, it is anticipated that systems will be able to specifically identify community noise such as a dog barking and also look for noise events, when an aircraft is within the capture zone.

Figure 5 and Figure 6 below is intended to support understanding of the noise monitor settings, noise environment within which the noise monitor was placed and monitoring limitations.



FIGURE 5: CANNING VALE 1 SECOND NOISE DATA, BACKGROUND LEVEL (L90) AND LAMAX'S OF CORRELATED NOISE EVENTS (CNES) FOR 06/03/2016 – AN AVERAGE DAY OF MOVEMENTS AT JANDAKOT AIRPORT

Figure 5 and Figure 6 shows 24-hour of noise data from EMU 347 for an average and busy day during the monitoring period. Correlated noise events (6 to 120 seconds in length) are removed from the daily noise data, with only the point of LAmax shown in red. The background level (L90) is also shown as points representing the hourly average for this day.

This allows for comparison of noise contributions from community activities to correlated aircraft noise contributions, at the EMU location. Both Figure 5 and Figure 6 show that a proportion of noise events are above as well as within the noise made by community activity. Any movements without a correlated noise event would also be within the noise data.

On 06/03/2016, there were a total of 49 aircraft movements that passed through the capture zone and of these movements, 46 with a correlated noise event. These 46 movements had a total of 227 CNEs.



FIGURE 6: CANNING VALE 1 SECOND NOISE DATA, BACKGROUND LEVEL (L90) AND LAMAX'S OF CORRELATED NOISE EVENTS (CNES) FOR 30/06/2016 - A BUSY DAY OF MOVEMENTS AT JANDAKOT AIRPORT

On 30/06/2016, there were a total of 282 aircraft movements that passed through the capture zone and of these movements, 227 with a correlated noise event. These 227 movements had a total of 497 CNEs.

Piara Waters (EMU 346 and 353) Findings



FIGURE 7: JANDAKOT AIRPORT THAT TRAVERSED PIARA WATERS (346) BETWEEN 02/05/2016 – 08/05/2016, INCLUDING CAPTURE ZONE (BLUE CIRCLE)

- 12,631 movements flew through the capture zone during the 6 month reporting period. 7,692 of these were Jandakot Airport movements.
- 35% of total movements that flew through the capture zone (as shown in Figure 7) were Runway 03 arrivals to Perth Airport movements.
- A summary of the total number of Correlated Noise Events (CNE) by time of day, and the minimum to maximum number of CNE in a day, are summarised within Table 4.

TABLE 4: SUMMARY OF CORRELATED NOISE EVENTS BY TIME OF DAY AND MINIMUM TO MAXIMUM RANGE OF OCCURRENCES, FOR THE PIARA WATERS ENVIRONMENTAL MONITORING UNITS (346 AND 353)

Correlated Noise Events (CNE)	Day-time Night-time		Number of Correlated Noise Events per day
over the Reporting Period:	(6:00am to 11:00pm)	(11:00 pm to 6:00 am)	(min to max)
above 60 dB(A) (N60)	7,986	981	2 to 160
above 65 dB(A) (N65)	3,506	597	0 to 88
above 70 dB(A) (N70)	799	82	0 to 25
above 75 dB(A) (N75)	179	7	0 to 8

- Correlated noise events above 60 dB(A) were most common on weekdays between 2:00 pm and 3:00 pm.
- The loudest correlated aircraft noise event with a max level of 88.0 dB(A) was a general aviation aircraft arriving onto Runway 06R at Jandakot Airport. Events as high as a max level of 90.6 dB(A) were recorded during the reporting period however these are not correlated to any aircraft movement, where community noise is believed to be either a contributing factor or responsible for these events. Community activities including construction, mowing and traffic can cause such events to be recorded on the monitor.

Aircraft Type	Airport	Movement Type	RWY	No. Correlated Noise Events	LAmax dB(A) ^{Average}	LAmax dB(A) Maximum
General Aviation	Jandakot	А	24R	912	64.0	85.7
General Aviation	Jandakot	А	06L	788	63.3	83.7
Fokker 100 (J)	Perth	А	03	651	60.6	76
Airbus A330-200 (J)	Perth	А	03	528	66.7	81.9
Airbus A320 (J)	Perth	А	03	492	66.6	72.1
Boeing 737-800 (J)	Perth	А	03	466	63.7	79.3
Airbus A330-300 (J)	Perth	А	03	436	67.7	80.3
General Aviation	Jandakot	т	24R	302	60.0	80.6
General Aviation		0		257	65.0	81.5
General Aviation	Jandakot	Т	24L	250	64.1	83.3

TABLE 5: 10 MOST FREQUENTLY CORRELATED AIRCRAFT TYPES OVER THE PIARA WATERS ENVIRONMENTAL MONITORING UNITS (346 AND 353)

Note: General Aviation aircraft do not include details of aircraft type or category. More information is available on page 4.

Aircraft Category: Jet (J), Turboprop (T), Propeller (P), Helicopter (H), Unknown (U)

Movement Type: Arrival (A), Departure (D), Local Operation including Circuits (T), Overflight (O)

• The overall correlation ratio for all movements was 70%. This is considered an improvement on similar studies conducted at secondary airports. Aircraft at a General Aviation airport operate differently and in closer proximity to that at major airports. There are noise events where two aircraft can be in the one capture zone at the same time.

Due to the number of movements undertaking circuit activities, a number of movements have multiple CNE's. This is similar to other secondary airports and expected.

Current technological limitations mean that the NFPMS must first have a noise event which it identified could be aircraft noise. Noise from aircraft which is within or similar to community noise cannot be separated including aircraft with a lower noise level or when there is an increase in community noise such as from sirens, traffic or loud conversations. In the future, it is anticipated that systems will be able to specifically identify community noise such as a dog barking and also look for noise events, when an aircraft is within the capture zone.

Figure 8 and Figure 9 below are intended to support understanding of the noise monitor settings, noise environment within which the noise monitor was placed and monitoring limitations.



FIGURE 8: PIARA WATERS 1 SECOND NOISE DATA, BACKGROUND LEVEL (L90) AND LAMAX'S OF CORRELATED NOISE EVE NTS (CNES) FOR 06/03/2016 – AN AVERAGE DAY OF MOVEMENTS AT JANDAKOT AIRPORT

Figure 8 and Figure 9 shows 24-hour of noise data from the Piara Waters EMUs for an average and busy day during the monitoring period. Correlated noise events (6 to 120 seconds in length) are removed from the daily noise data, with only the point of LAmax shown in red. The background level (L90) is also shown as points representing the hourly average for this day.

This allows for comparison of noise contributions from community activities to correlated aircraft noise contributions, at the EMU location. Both Figure 8 and Figure 9 show that a proportion of noise events are above as well as within the noise made by community activity. Any movements without a correlated noise event would also be within the noise data.

On 06/03/2016, there were a total of 95 aircraft movements that passed through the capture zone and of these movements, 66 with a correlated noise event. These 66 movements had a total of 69 CNEs.



FIGURE 9: PIARA WATERS 1 SECOND NOISE DATA, BACKGROUND LEVEL (L90) AND LAMAX'S OF CORRELATED NOISE EVENTS (CNES) FOR 30/06/2016 – A BUSY DAY OF MOVEMENTS AT JANDAKOT AIRPORT

On 30/06/2016, there were a total of 79 aircraft movements that passed through the capture zone and of these movements, 69 with a correlated noise event. These 69 movements had a total of 98 CNEs.

Jandakot (EMU 349) Findings



FIGURE 10: JANDAKOT AIRPORT MOVEMENTS THAT TRAVERSED JANDAKOT (349) BETWEEN 02/05/2016 – 08/05/2016, INCLUDING CAPTURE ZONE (BLUE CIRCLE)

- 25,884 movements flew through the capture zone during the 6 month reporting period. 25,512 of these were Jandakot airport movements.
- 18% of total movements that flew through the capture zone (as shown in Figure 10) were Runway 06R Local movements.
- A summary of the total number of Correlated Noise Events (CNE) by time of day, and the minimum to maximum number of CNE in a day, are summarised within Table 6.

TABLE 6: SUMMARY OF CORRELATED NOISE EVENTS BY TIME OF DAY AND MINIMUM TO MAXIMUM RANGE OF OCCURRENCES, FOR THE JANDAKOT ENVIRONMENTAL MONITORING UNITS (349)

Correlated Noise Events (CNE)	Day-time	Night-time	Number of Correlated Noise Events per da		
over the Reporting Period:	(6:00am to 11:00pm)	(11:00 pm to 6:00 am)	(min to max)		
above 60 dB(A) (N60)	16,433	739	10 to 179		
above 65 dB(A) (N65)	9,200	638	6 to 103		
above 70 dB(A) (N70)	4,617	421	3 to 59		
above 75 dB(A) (N75)	1,266	35	0 to 20		

• Correlated noise events above 60 dB(A) were most common on weekdays, between 02:00 pm and 04:00 pm.

 The loudest correlated aircraft noise event with a max level of 91.8 dB(A) was a general aviation aircraft departing off Runway 24R from Jandakot Airport. Events as high as a max level of 96.9 dB(A) were recorded during the reporting period however these are not correlated to any aircraft movements, where community noise is believed to be either a contributing factor or responsible for these events. Community activities including construction, mowing and traffic can cause such events to be recorded on the monitor.

Aircraft Type	Airport	Movement Type	RWY	No. Correlated Noise Events	LAmax dB(A) _{Average}	LAmax dB(A) Maximum
General Aviation	Jandakot	т	24L	3882	62.1	87.2
General Aviation	Jandakot	Т	24R	2527	65.0	88.6
General Aviation	Jandakot	D	24R	1854	69.2	91.8
General Aviation	Jandakot	Т	06R	1761	60.9	82
General Aviation	Jandakot	Т	н	1275	61.9	86.8
General Aviation	Jandakot	Α	06L	1254	62.9	85.6
General Aviation	Jandakot	Т	06L	1169	62.8	81.5
Pilatus PC12 (T)	Jandakot	D	24R	1149	69.2	76.7
Pilatus PC12 (T)	Jandakot	Α	06L	761	71.3	82.9
General Aviation	Jandakot	Т	30	710	63.7	77

TABLE 7: 10 MOST FREQUENTLY CORRELATED AIRCRAFT TYPES OVER THE JANDAKOT ENVIRONMENTAL MONITORING UNITS (349)

Note: General Aviation aircraft do not include details of aircraft type or category. More information is available on page 4.

Aircraft Category: Jet (J), Turboprop (T), Propeller (P), Helicopter (H), Unknown (U)

Movement Type: Arrival (A), Departure (D), Local Operation including Circuits (T), Overflight (O)

• The overall correlation ratio for all movements was 67%. This is considered an improvement on similar studies conducted at secondary airports. Aircraft at a General Aviation airport operate differently and in closer proximity to that at major airports. There are noise events where two aircraft can be in the one capture zone at the same time.

Due to the number of movements undertaking circuit activities, a number of movements have multiple CNE's. This is similar to other secondary airports and expected.

Current technological limitations mean that the NFPMS must first have a noise event which it identified could be aircraft noise. Noise from aircraft which is within or similar to community noise cannot be separated including aircraft with a lower noise level or when there is an increase in community noise such as from sirens, traffic or loud conversations. In the future, it is anticipated that systems will be able to specifically identify community noise such as a dog barking and also look for noise events, when an aircraft is within the capture zone.

Figure 11 and Figure 12 below are intended to support understanding of the noise monitor settings, noise environment within which the noise monitor was placed and monitoring limitations.



FIGURE 11: JANDAKOT 1 SECOND NOISE DATA, BACKGROUND LEVEL (L90) AND LAMAX'S OF CORRELATED NOISE EVE NTS (CNES) FOR 06/03/2016 – AN AVERAGE DAY OF MOVEMENTS AT JANDAKOT AIRPORT

Figure 11 and Figure 12 shows 24-hour of noise data from EMU 349 for an average and busy day during the monitoring period. Correlated noise events (6 to 120 seconds in length) are removed from the daily noise data, with only the point of LAmax shown in red. The background level (L90) is also shown as points representing the hourly average for this day.

This allows for comparison of noise contributions from community activities to correlated aircraft noise contributions, at the EMU location. Both Figure 11 and Figure 12 shows that a proportion of noise events are above as well as within the noise made by community activity. Any movements without a correlated noise event would also be within the noise data.

On 06/03/2016, there were a total of 142 aircraft movements that passed through the capture zone and of these movements, 72 with a correlated noise event. These 72 movements had a total of 93 CNEs.



FIGURE 12: JANDAKOT 1 SECOND NOISE DATA, BACKGROUND LEVEL (L90) AND LAMAX'S OF CORRELATED NOISE EVENTS (CNES) FOR 30/06/2016 – A BUSY DAY OF MOVEMENTS AT JANDAKOT AIRPORT

On 30/06/2016, there were a total of 253 aircraft movements that passed through the capture zone and of these movements, 175 with a correlated noise event. These 175 movements had a total of 238 CNEs.

Bibra Lake (EMU 348) Findings



FIGURE 13: JANDAKOT AIRPORT MOVEMENTS THAT TRAVERSED BIBRA LAKE (348) BETWEEN 02/05/2016 – 08/05/2016, INCLUDING CAPTURE ZONE (BLUE CIRCLE)

- 14,456 movements flew through the capture zone during the 6 month reporting period. 13,761 of these were Jandakot airport movements.
- 14% of total movements that flew through the capture zone (as shown in Figure 13) were Runway 06L arrival movements.
- A summary of the total number of Correlated Noise Events (CNE) by time of day, and the minimum to maximum number of CNE in a day, are summarised within Table 8.

TABLE 8: SUMMARY OF CORRELATED NOISE EVENTS BY TIME OF DAY AND MINIMUM TO MAXIMUM RANGE OF OCCURRENCES, FOR THE BIBRA LAKE ENVIRONMENTAL MONITORING UNITS (348)

Correlated Noise Events (CNE)	Day-time	Night-time	Number of Correlated Noise Events per day
over the Reporting Period:	(6:00am to 11:00pm)	(11:00 pm to 6:00 am)	(min to max)
above 60 dB(A) (N60)	9,393	122	4 to 129
above 65 dB(A) (N65)	5,227	66	3 to 61
above 70 dB(A) (N70)	1,786	19	1 to 25
above 75 dB(A) (N75)	391	5	0 to 8

• Correlated noise events above 60 dB(A) were most common on weekdays, between 03:00 pm to 04:00 pm.

 The loudest correlated aircraft noise event with a max level of 90.5 dB(A) dB(A) was a Bell 214B helicopter arriving at Jandakot Airport. Events as high as a max level of 97.6 dB(A) were recorded during the reporting period however these are not correlated to any aircraft movements, where community noise is believed to be either a contributing factor or responsible for these events. Community activities including construction, mowing and traffic can cause such events to be recorded on the monitor.

Aircraft Type	Airport	Movement Type	RWY	No. Correlated Noise Events	LAmax dB(A) ^{Average}	LAmax dB(A) Maximum
General Aviation	Jandakot	D	06L	900	65.4	82.7
General Aviation	Jandakot	Α	24R	757	66.1	86.5
General Aviation	Jandakot	Т	06L	663	64.7	85.1
General Aviation	Jandakot	Α	06L	636	64.6	88.9
Pilatus PC12 (T)	Jandakot	D	24R	570	66.8	74.2
General Aviation	Jandakot	Т	HJ	401	65.9	83.4
General Aviation	Jandakot	Т	24R	397	65.5	89
General Aviation	Jandakot	0		390	66.6	84.9
General Aviation		Т	12	366	62.9	76.6
Pilatus PC12 (T)	Jandakot	Α	06L	319	70.3	80.9

TABLE 9: 10 MOST FREQUENTLY CORRELATED AIRCRAFT TYPES OVER THE BIBRA LAKES ENVIRONMENTAL MONITORING UNIT

Note: General Aviation aircraft do not include details of aircraft type or category. More information is available on page 4.

Aircraft Category: Jet (J), Turboprop (T), Propeller (P), Helicopter (H), Unknown (U)

Movement Type: Arrival (A), Departure (D), Local Operation including Circuits (T), Overflight (O)

• The overall correlation ratio for all movements was 58%. This is a similar correlation rate to that achieved at other secondary airports but lower overall than that achieved within the Jandakot program.

Aircraft at a General Aviation airport operate differently and in closer proximity to that at major airports. There are noise events where two aircraft can be in the one capture zone at the same time.

Due to the number of movements undertaking circuit activities, a number of movements have multiple CNE's. This is similar to other secondary airports and expected.

Current technological limitations mean that the NFPMS must first have a noise event which it identified could be aircraft noise. Noise from aircraft which is within or similar to community noise cannot be separated including aircraft with a lower noise level or when there is an increase in community noise such as from sirens, traffic or loud conversations. In the future, it is anticipated that systems will be able to specifically identify community noise such as a dog barking and also look for noise events, when an aircraft is within the capture zone.

Figure 14 and Figure 15 below are intended to support understanding of the noise monitor settings, noise environment within which the noise monitor was placed and monitoring limitations.



FIGURE 14: BIBRA LAKE 1 SECOND NOISE DATA, BACKGROUND LEVEL (L90) AND LAMAX'S OF CORRELATED NOISE EVE NTS (CNES) FOR 06/03/2016 – AN AVERAGE DAY OF MOVEMENTS AT JANDAKOT AIRPORT

Figure 14 and Figure 15 shows 24-hour of noise data from EMU 348 for an average and busy day during the monitoring period. Correlated noise events (6 to 120 seconds in length) are removed from the daily noise data, with only the point of LAmax shown in red. The background level (L90) is also shown as points representing the hourly average for this day.

This allows for comparison of noise contributions from community activities to correlated aircraft noise contributions, at the EMU location. Both Figure 14 and Figure 15 shows that a proportion of noise events are above as well as within the noise made by community activity. Any movements without a correlated noise event would also be within the noise data.

On 06/03/2016, there were a total of 121 aircraft movements that passed through the capture zone and of these movements, 68 with a correlated noise event. These 68 movements had a total of 73 CNEs.



FIGURE 15: BIBRA LAKE 1 SECOND NOISE DATA, BACKGROUND LEVEL (L90) AND LAMAX'S OF CORRELATED NOISE EVENTS (CNES) FOR 30/06/2016 – A BUSY DAY OF MOVEMENTS AT JANDAKOT AIRPORT

On 30/06/2016, there were a total of 103 aircraft movements that passed through the capture zone and of these movements, 68 with a correlated noise event. These 68 movements had a total of 79 CNEs.