



Technical Report



INVESTOR IN PEOPLE

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Project

**The Laboratory Determination of
The Element Normalised Level Difference
of Various Ventilators**

Prepared for

**Titon Hardware Ltd
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By

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1.0 Summary

Tests have been done in SRL's Laboratory at Holbrook House, Sudbury, Suffolk, to determine the element normalised level difference of various ventilators in accordance with BS EN 20140-10:1992, ISO 140-10:1991

From these measurements the required results have been derived and are presented in both tabular and graphic form in Data Sheets 1 to 38.

The results are given in 1/3rd octave bands over the frequency range 100Hz to 10kHz, which is beyond that required by the test standard.



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Allen Smalls
Laboratory Manager
Quality Manager



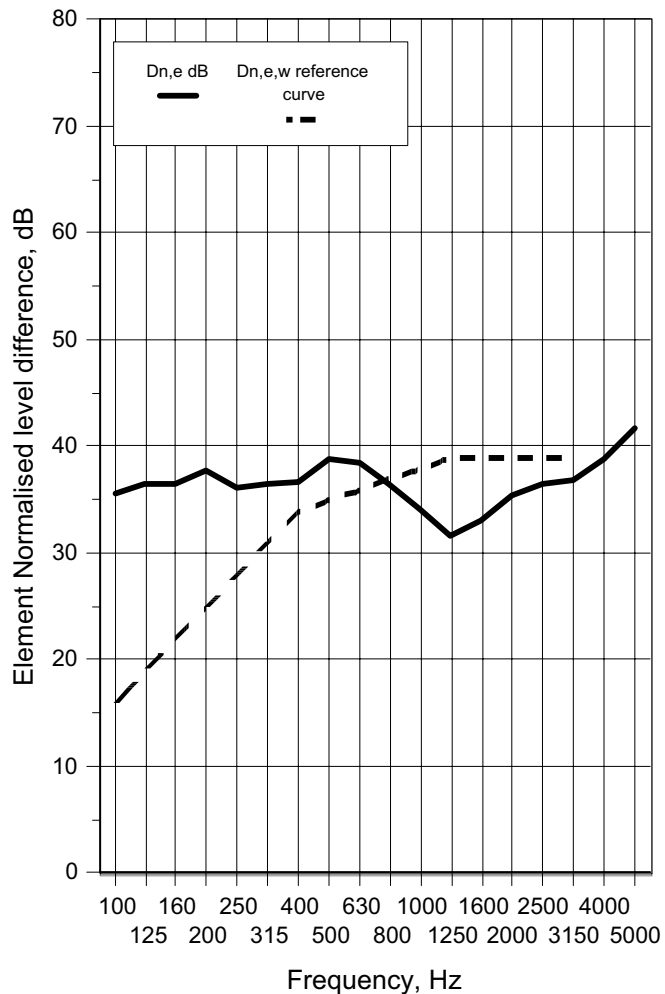
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Trevor Hickman
Executive Consultant
Deputy Technical Manager

For and on behalf of
Sound Research Laboratories Ltd

Data Sheet 5

Test Number: 7 Air temperature: 14.8 °C
 Test Date: 28/04/2008 Air humidity: 66 %
 Number of items tested at once: 1 Receiving room volume: 300 m³
 Nominal free area of single ventilator: n/a mm² Source room volume: 115 m³
 Product identification: Titon reference 3
 Vent closed

Freq f Hz	Element normalised level difference Dn,e dB	
	1/3 Oct	1/1 Oct
100	35.5 \$	36.1
125	36.5 \$	
160	36.5 \$	36.7
200	37.8 \$	
250	36.1 %	
315	36.5 %	37.8
400	36.6	
500	38.9	
630	38.4	33.7
800	36.5	
1000	34.1	
1250	31.7	34.7
1600	33.1	
2000	35.4	
2500	36.4	38.7
3150	36.9	
4000	38.8	
5000	41.7	45.8
6300+	44.6	
8000+	44.9	
10000+	49.2	
Average 100-3150	36.1	



Rating according to BS EN ISO 717-1:1997

Dn,e,w(C;Ctr)= 35 (0; 0) dB

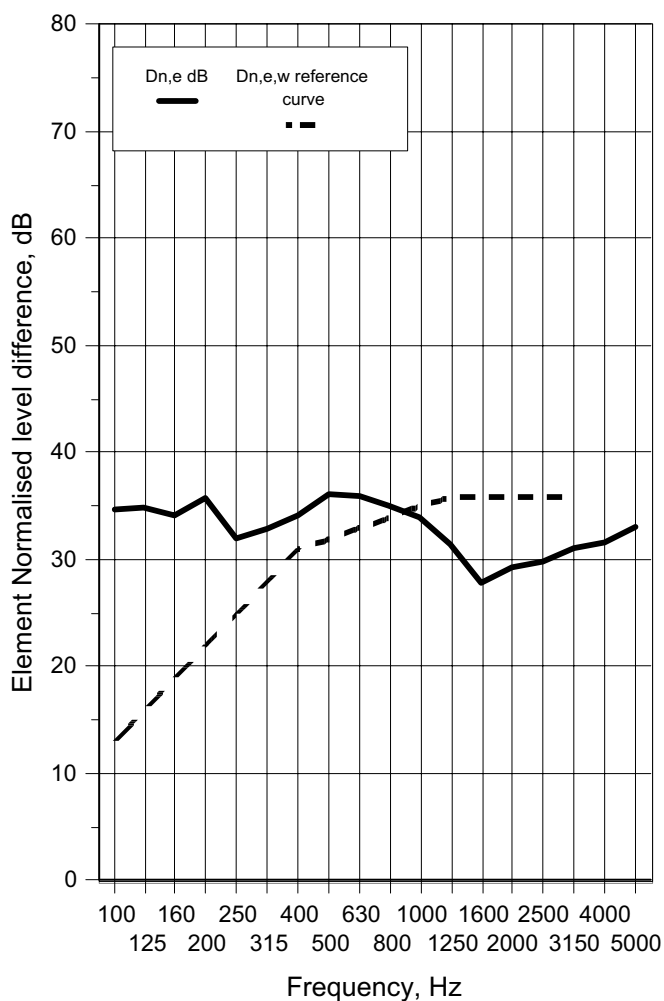
Notes : * designates measurement corrected for background
 # designates limit of measurement due to background
 % designates measurement corrected for flanking
 \$ designates limit of measurement due to flanking
 + designates frequency beyond standard

v1.3

Data Sheet 6

Test Number: 8 Air temperature: 14.8 °C
 Test Date: 28/04/2008 Air humidity: 66 %
 Number of items tested at once: 1 Receiving room volume: 300 m3
 Nominal free area of single ventilator: n/a mm2 Source room volume: 115 m3
 Product identification: Titon reference 3
 Vent open

Freq f Hz	Element normalised level difference Dn,e dB	
	1/3 Oct	1/1 Oct
100	34.6 \$	34.5
125	34.8 \$	
160	34.2 \$	
200	35.8 \$	33.2
250	32.0	
315	32.8	
400	34.1	35.3
500	36.2	
630	36.0	
800	35.0	33.2
1000	34.0	
1250	31.5	
1600	27.8	28.9
2000	29.2	
2500	29.9	
3150	31.1	31.8
4000	31.6	
5000	33.0	
6300+	33.3	33.3
8000+	32.1	
10000+	35.0	
Average 100-3150	33.1	



Rating according to BS EN ISO 717-1:1997

Dn,e,w(C;Ctr)= 32 (-1; 0) dB

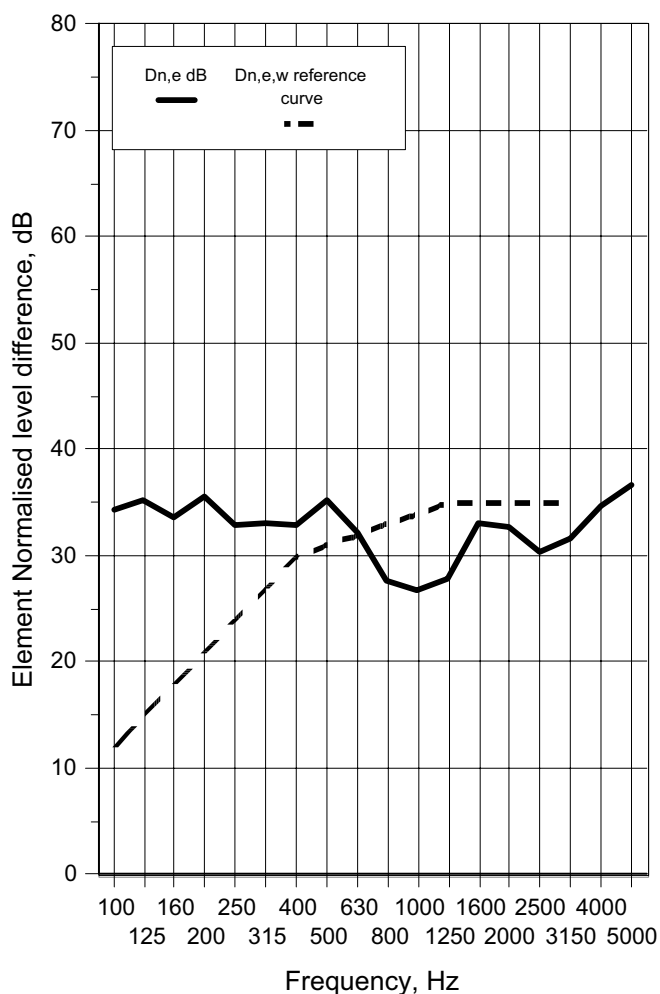
Notes : * designates measurement corrected for background
 # designates limit of measurement due to background
 % designates measurement corrected for flanking
 \$ designates limit of measurement due to flanking
 + designates frequency beyond standard

v1.3

Data Sheet 8

Test Number: 10 Air temperature: 14.8 °C
 Test Date: 28/04/2008 Air humidity: 66 %
 Number of items tested at once: 1 Receiving room volume: 300 m3
 Nominal free area of single ventilator: n/a mm2 Source room volume: 115 m3
 Product identification: Titon reference 4
 Vent open

Freq f Hz	Element normalised level difference Dn,e dB	
	1/3 Oct	1/1 Oct
100	34.3 \$	34.3
125	35.2 \$	
160	33.6 \$	
200	35.5 \$	33.6
250	32.8 %	
315	33.0	
400	32.8	33.2
500	35.3	
630	32.1	
800	27.6	27.4
1000	26.8	
1250	27.9	
1600	33.1	31.9
2000	32.7	
2500	30.3	
3150	31.7	33.8
4000	34.6	
5000	36.6	
6300+	38.6	40.1
8000+	41.9	
10000+	40.4	
Average 100-3150	32.2	



Rating according to BS EN ISO 717-1:1997

Dn,e,w(C;Ctr)= 31 (-;-) dB

Notes : * designates measurement corrected for background
 # designates limit of measurement due to background
 % designates measurement corrected for flanking
 \$ designates limit of measurement due to flanking
 + designates frequency beyond standard

v1.3