



TEST REPORT

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Sound Level

Serial No.: 1ZPL001134582

Measurement Details														
Measurement Standard					IEC 60076-10:2016									
Measurement Method					Sound Intensity Method									
Measurement Procedure					Walk around									
Frequency Resolution					1/2 Octave Band									
Acoustic Filter Function					A-weighted									
Measurement Instruments					Manufacturer			Type			Serial No.			
Sound Level Meter					Brüel & Kjær			2270			3023666			
Sound Level Meter Calibration					Brüel & Kjær			4297			3082325			
X The equipment used has been laboratory calibrated in accordance with manufacturers recommendations and field calibrated before and after each measurement session.														
Test Program														
Test #	No-load condition	Load condition	Tap position	Number of fans	Number of pumps	Frequency	Distance	Prescribed contour	Height	Surface area	Surface measure	Top oil temperature	Guarantee	Sound Pressure Level
	[%]	[%]				[Hz]	[m]	[m]	[m]	[m²]	[dB]	[°C]	[dB(A)]	[dB(A)]
1	100		11	0		50	1.0	31.1	5.2	193	22.9			54.0
2	100		11	8		50	2.0	37.5	5.2	270	24.3			63.4
3		100	11	0		50	1.0	31.1	5.2	193	22.9			56.1
4		100	11	8		50	2.0	37.5	5.2	270	24.3			63.5
5														
6														
7														
8														
1-4	100	100		8			2.0						70.0	63.8

Standard: IEC 60076-10
Test Date 16/08/2021
Test Engineer Kamil Maliński

Issue Date
29/09/2021

Test Engineer
Kamil Maliński

Test Department
Test Field



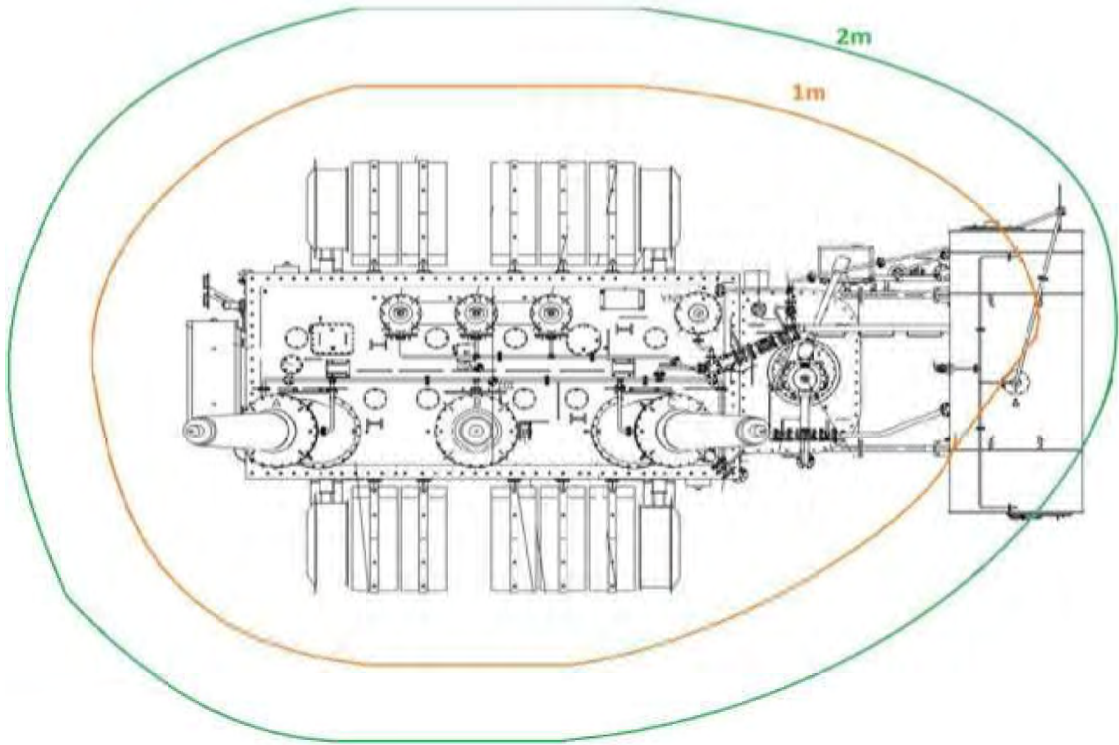
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Prescribed Contours				
x	L _p	h	S	L _s
Distance	Prescribed contour	Height	Surface area	Surface measure
[m]	[m]	[m]	[m²]	[dB]
1	31.1	5.2	192.82	22.9
2	37.5	5.2	270	24.3



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Measurement 1

Rated voltage	Applied voltage	Rated current	Applied current	Tap position	Fans in operation	Pumps in operation	Frequency	Distance	Prescribed contour	Height	Surface area	Surface measure	Top oil temperature	Guarantee
[kV]	[kV]	[kA]	[A]				[Hz]	[m]	[m]	[m]	[m ²]	[dB]	[°C]	[dB(A)]
100	33			11	0		50	1	31.1	5.2	192.8	22.9		

Measurement duration: 85 s

Frequency		L_{UA0}		L_{pA0}	$L_{pA0} - L_{UA0}$	Pressure Intensity Correction	L_{pA}	L_{pA}
[Hz]		[dB(A)]		[dB(A)]	[dB(A)]		[dB(A)]	[dB(A)]
Total Sound Level		54.0	1	57.3	3.3	A	54.0	76.9
Octave Band	63	15.5	1	23.3	7.8	A	16.8	39.6
	125	36.6	1	39.9	3.2	A	36.6	59.5
	250	53.3	1	56.2	2.9	A	53.3	76.1
	500	44.5	1	47.5	3.0	A	44.5	67.3
	1000	33.4	1	40.3	6.8	A	33.4	56.3
	2000	28.8	1	40.1	11.3	A	28.8	51.6
	4000	31.3	1	40.8	9.5	A	31.3	54.1
	8000	34.6	1	43.3	8.7	A	34.6	57.4
1/3 Octave Band	50	13.3	1	13.5	0.3	A	13.3	36.1
	63	14.2	1	16.0	1.8	A	14.2	37.0
	80	10.9	-1	21.8	10.9	A	0.0	0.0
	100	35.6	1	37.5	1.9	A	35.6	58.4
	125	24.6	1	34.3	9.6	A	24.6	47.5
	160	28.4	1	31.6	3.2	A	28.4	51.3
	200	40.3	1	43.4	3.1	A	40.3	63.1
	250	38.0	1	41.2	3.1	A	38.0	60.9
	315	52.9	1	55.8	2.9	A	52.9	75.8
	400	38.4	1	41.1	2.7	A	38.4	61.2
	500	40.8	1	43.9	3.1	A	40.8	63.7
	630	39.6	1	42.7	3.1	A	39.6	62.5
	800	30.9	1	36.3	5.4	A	30.9	53.7
	1000	28.6	1	35.3	6.7	A	28.6	51.4
	1250	24.3	1	34.8	10.5	A	24.3	47.1
	1600	24.1	1	35.3	11.2	A	24.1	47.0
	2000	23.8	1	35.5	11.7	A	23.8	46.7
	2500	24.1	1	35.1	11.0	A	24.1	46.9
	3150	25.6	1	35.9	10.4	A	25.6	48.4
	4000	26.7	1	36.1	9.3	A	26.7	49.6
	5000	27.1	1	36.1	9.0	A	27.1	49.9
	6300	28.4	1	37.5	9.2	A	28.4	51.2
	8000	30.1	1	39.1	9.1	A	30.1	52.9
	10000	30.7	1	38.9	8.1	A	30.7	53.6

Case A: Applies, if the total P-I index is $\Delta L \leq 4$ dB. Then it follows $L_{pA} = L_{pA0}$ for both the total sound level and sound levels of the individual frequency bands.

Case B: Applies, if the total P-I index is $4 \text{ dB} < \Delta L \leq 8$ dB. Then it follows $L_{pA} = L_{pA0} - 4$ dB for both the total sound level and sound levels of the individual frequency bands.

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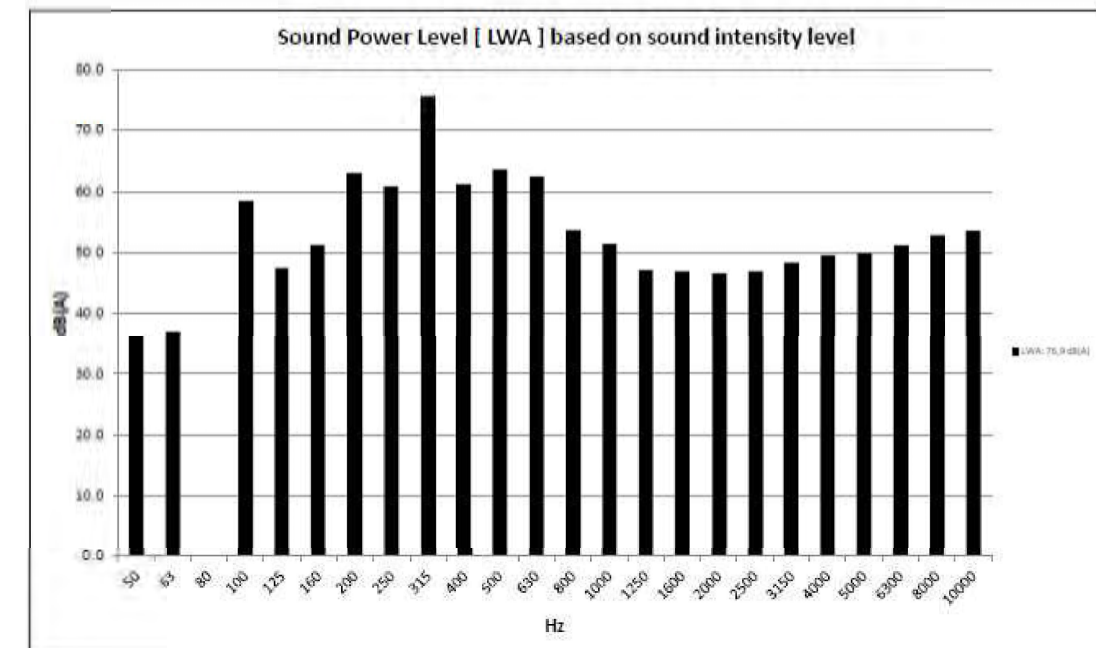
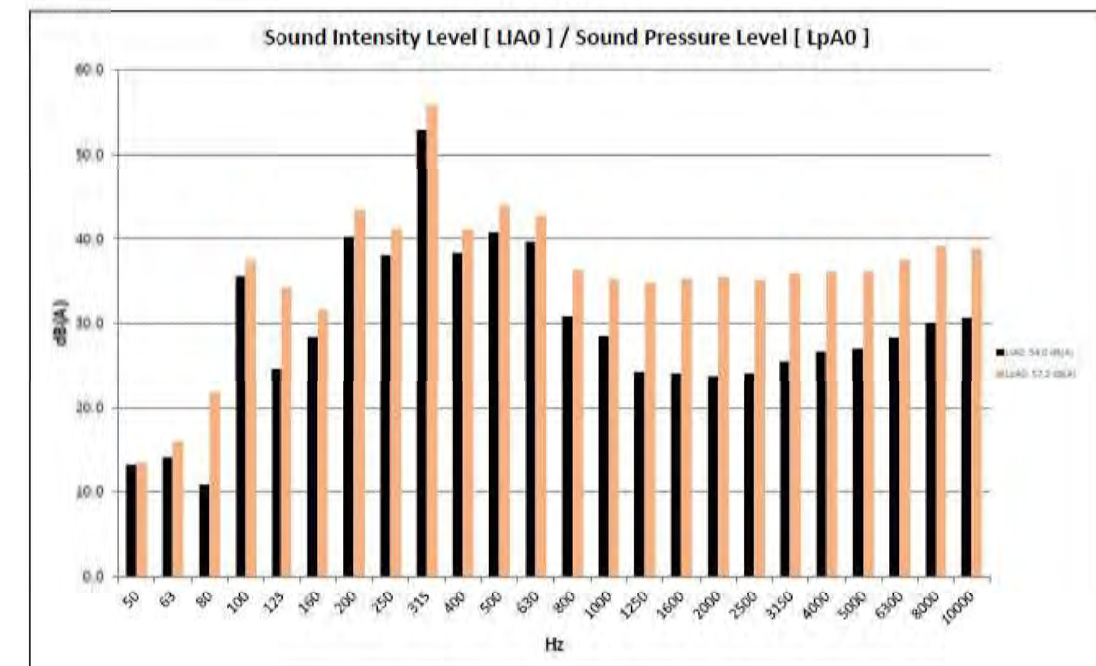
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Measurement 1



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Measurement 2

Rated voltage	Applied voltage	Rated current	Applied current	Tap position	Fans in operation	Pumps in operation	Frequency	Distance	Prescribed contour	Height	Surface area	Surface measure	Top oil temperature	Guarantee
[kV]	[kV]	[A]	[A]				[Hz]	[m]	[m]	[m]	[m²]	[dB]	[°C]	[dB(A)]
100	33			11	8		50	2	37.5	5.2	270.0	24.3		

Measurement duration: 95 s

Frequency		L_{pA0}		$L_{pA0} - L_{A0}$		Pressure Intensity Correction	L_{A0}	L_{WA}
[Hz]		[dB(A)]		[dB(A)]			[dB(A)]	[dB(A)]
Total Sound Level		63.4	1	65.6	2.2	A	63.4	87.7
Octave Band	63	33.4	1	34.1	0.7	A	33.4	57.8
	125	47.7	1	49.2	1.5	A	47.7	72.0
	250	58.5	1	60.3	1.9	A	58.5	82.8
	500	58.5	1	60.7	2.2	A	58.5	82.8
	1000	57.2	1	59.6	2.4	A	57.2	81.5
	2000	50.6	1	53.3	2.6	A	50.6	74.9
	4000	46.7	1	49.8	3.0	A	46.7	71.0
	8000	41.6	1	46.1	4.6	A	41.6	65.9
1/3 Octave Band	50	26.8	1	27.3	0.5	A	26.8	51.1
	63	24.0	1	23.6	-0.4	A	24.0	48.3
	80	31.7	1	32.6	0.9	A	31.7	56.0
	100	39.9	1	41.4	1.5	A	39.9	64.2
	125	43.6	1	45.0	1.4	A	43.6	67.9
	160	44.2	1	45.7	1.5	A	44.2	68.5
	200	49.2	1	50.9	1.7	A	49.2	73.5
	250	52.1	1	53.7	1.6	A	52.1	76.4
	315	56.6	1	58.6	2.0	A	56.6	80.9
	400	52.8	1	55.1	2.2	A	52.8	77.2
	500	52.8	1	55.1	2.3	A	52.8	77.1
	630	55.1	1	57.2	2.2	A	55.1	79.4
	800	54.1	1	56.5	2.4	A	54.1	78.4
	1000	52.1	1	54.5	2.3	A	52.1	76.5
	1250	50.0	1	52.5	2.6	A	50.0	74.3
	1600	47.7	1	50.3	2.6	A	47.7	72.0
	2000	45.3	1	48.0	2.7	A	45.3	69.6
	2500	43.6	1	46.3	2.7	A	43.6	67.9
	3150	42.7	1	45.6	2.9	A	42.7	67.0
	4000	42.3	1	45.4	3.1	A	42.3	66.6
	5000	40.6	1	43.7	3.1	A	40.6	64.9
	6300	37.9	1	41.9	4.0	A	37.9	62.2
	8000	36.3	1	41.1	4.8	A	36.3	60.6
	10000	35.9	1	41.0	5.1	A	35.9	60.3

Case A: Applies, if the total P-I index is $\Delta L \leq 4$ dB. Then it follows $L_{WA} = L_{A0}$ for both the total sound level and sound levels of the individual frequency bands.

Case B: Applies, if the total P-I index is $4 \text{ dB} < \Delta L \leq 8$ dB. Then it follows $L_{WA} = L_{A0} - 4$ dB for both the total sound level and sound levels of the individual frequency bands.

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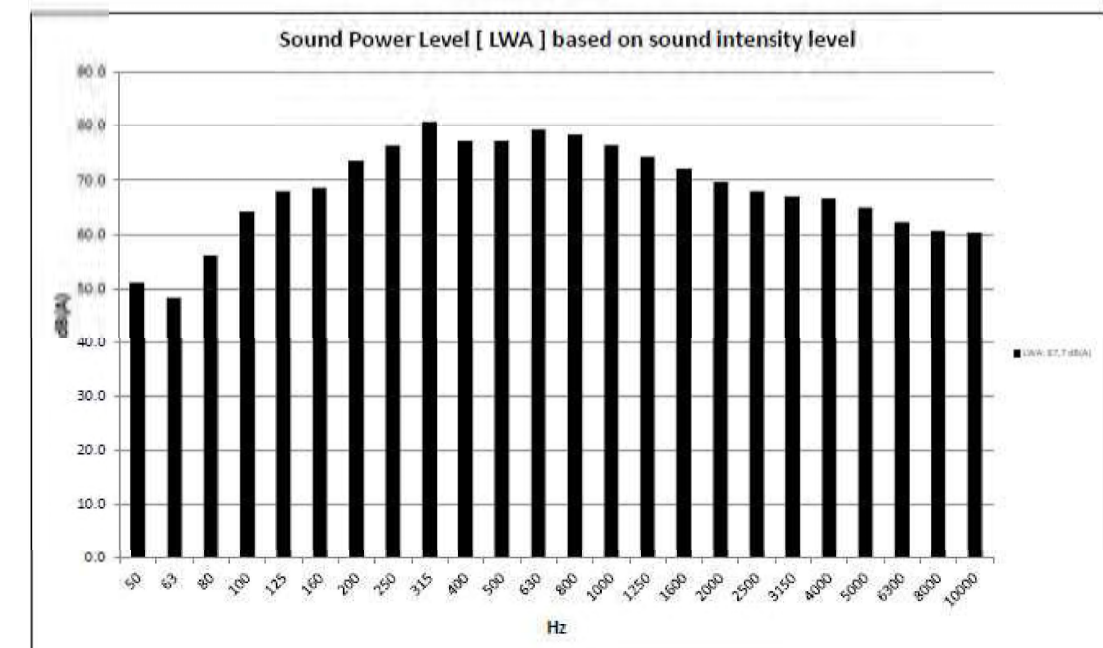
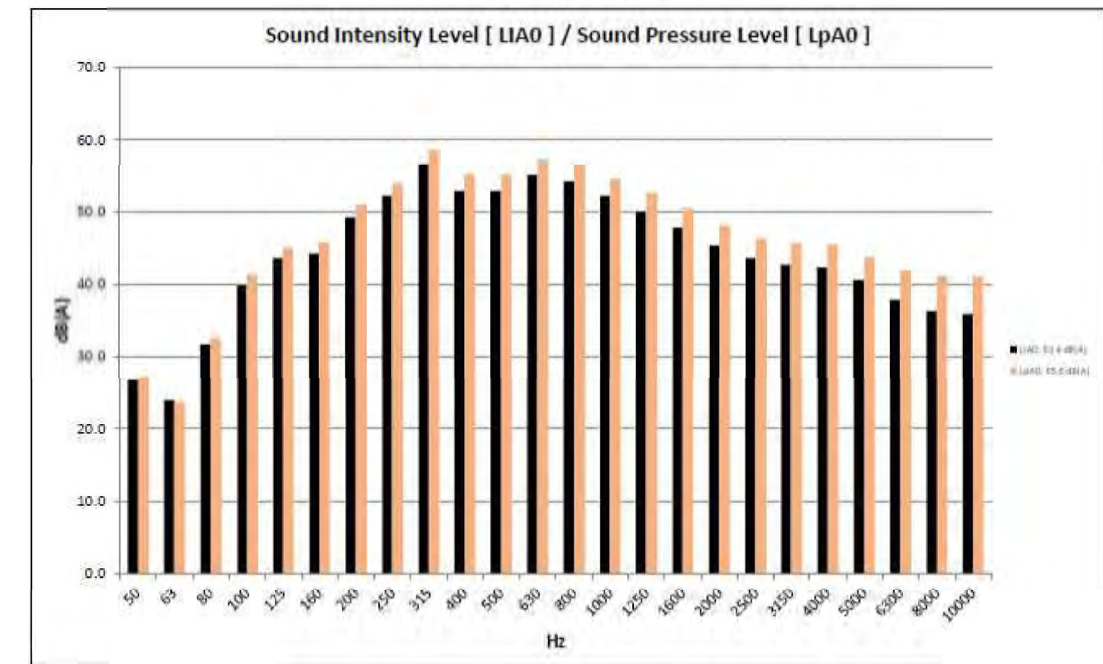
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Measurement 2



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