

Prüfbericht-Nr.: Test report no.:	CN25LGC4 001	Auftrags-Nr.: Order no.:	178224864 60	Seite 1 von 13 Page 1 of 13
Kunden-Referenz-Nr.: Client reference no.:	2533689	Auftragsdatum: Order date:	2025-07-29	
Auftraggeber: Client:	SHANDONG RIPPA MACHINERY GROUP CO., LTD. The north of Guang'an Road and east of Gaoxin Avenue (Liaohe Road), High tech Zone, Jining City, Shandong 272000, P.R. China			
Prüfgegenstand: Test item:	Hydraulic Excavator			
Bezeichnung / Typ-Nr.: Identification / Type no.:	R32, R350			
Auftrags-Inhalt: Order content:	Noise emission test			
Prüfgrundlage: Test specification:	2000/14/EC with amendment 2005/88/EC Article 12 EU/2024/1208 Annex III item 20 EN ISO 3744:2010 ISO 6395:2008			
Wareneingangsdatum: Date of sample receipt:	2025-08-05			
Prüfmuster-Nr.: Test sample no.:	Refer to page 8&12 for details			
Prüfzeitraum: Testing period:	2025-08-05 – 2025-08-05			
Ort der Prüfung: Place of testing:	As client			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland LGA Products GmbH			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:	X <u>Bo Qi</u>	genehmigt von: authorized by:	X <u>Oscar Chi</u>	
Datum: Date:	2025-08-11	Ausstellungsdatum: Issue date:	2025-08-11	
Stellung / Position:	Bo Qi/PE	Stellung / Position:	Oscar Chi/Authorizer	
Sonstiges / Other:	A-weighted sound power level was measured according to the method laid down in the NEW Annex III item 20 of the EU/2024/1208. The NEW Annex III item 20 is same as the method laid down in the OLD Annex III of the 2000/14/EC. The correct and complete marking of equipment was checked and it is compliant to Article 11 of noise directive 2000/14/EC. The EC declaration of conformity was checked and it is compliant to Article 8 of noise directive 2000/14/EC.			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* Legend:	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(s)	N/A = not applicable	N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.				

Prüfbericht-Nr.: CN25LGC4 001
Test report no.:

Seite 2 von 13
Page 2 of 13

Anmerkungen Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
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3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i> <i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>
5	Wenn auf dem Bericht kein Akkreditierungshinweis aufgebracht ist, wurde der Bericht nicht im akkreditierten Bereich erstellt und ist folglich auch nicht vom EA MLA abgedeckt. Unabhängig davon wurde der Bericht auf Basis der allgemeinen Regeln der ISO/IEC 17000er Reihe erstellt. Mit "#" gekennzeichnete Prüfungen sind nicht Bestandteil der Akkreditierung D-PL-14169-03-00. <i>If there is no accreditation notice on the report, the report has not been produced in the accredited area and is consequently not covered by the EA MLA. Regardless of this, the report has been prepared based on the general rules of the ISO/IEC 17000 series. Tests marked with "#" are not covered by the accreditation D-PL-14169-03-00.</i>

Prüfbericht-Nr.: CN25LGC4 001
Test report no.:

Seite 3 von 13
Page 3 of 13

Produktbeschreibung
Product description

1	Produktdetails Product details	Hydraulic Excavator (crawler type)
2	Maße / Gewicht Dimensions / Weight	Refer to page 5 for details
3	Bedienelemente Operating elements	Net Installed Power (P): 18.2 kW
4	Ausstattung / Zubehör Equipment / Accessories	Bucket application
5	Verwendete Materialien Used materials	Diesel engine
6	Sonstiges Other	-
7	Prüfmusterbereitstellung Test sample obtaining	☐ Sending by customer ☐ Sampling by TÜV Rheinland Group ☒ others: provided by the client at manufacturing plant

R32 Overview



R32 Overview



R350 Overview



R350 Overview



Prüfbericht-Nr.: CN25LGC4 001
Test report no.:

Seite 4 von 13
Page 4 of 13

Produktbeschreibung
Product description

General Information:

License holder : SHANDONG RIPPA MACHINERY GROUP CO., LTD.
(Manufacturer) The north of Guang'an Road and east of Gaoxin Avenue (Liaohe Road),
High tech Zone, Jining City, Shandong 272000, P.R. China

Manufacturing plant : SHANDONG RIPPA MACHINERY GROUP CO., LTD.
(Test location) The north of Guang'an Road and east of Gaoxin Avenue (Liaohe Road),
High tech Zone, Jining City, Shandong 272000, P.R. China

R32 and R350 use the same engine, the upper constructure is different. Three samples of R32 and three samples of R350 were selected as representative testing samples.

Indication of the machine rating label:

 SHANDONG RIPPA MACHINERY GROUP CO.,LTD.			
Product Name	Hydraulic Excavator	Model	R32
Engine power(kw)	18.2	Operating Mass(kg)	3219
Serial Number	SLP25040310	Year	2025/4
The north of Guang'an Road and east of Gaoxin Avenue (Liaohe Road), High tech Zone, Jining City, Shandong, P.R. China.		TEL:+86-0537 2339712 Web:www.rippa.com	

 SHANDONG RIPPA MACHINERY GROUP CO.,LTD.			
Product Name	Hydraulic Excavator	Model	R350
Engine power(kw)	18.2	Operating Mass(kg)	2578
Serial Number	SLP25040809	Year	2025/4
The north of Guang'an Road and east of Gaoxin Avenue (Liaohe Road), High tech Zone, Jining City, Shandong, P.R. China.		TEL:+86-0537 2339712 Web:www.rippa.com	

Prüfbericht-Nr.: CN25LGC4 001
Test report no.:

Seite 5 von 13
Page 5 of 13

Produktbeschreibung
Product description

Indication of the guaranteed sound power level:



Specifications:

Model	R32	R350	-
Operation mass	3219 kg	2578 kg	-
Overall dimension (L*W*H)	2921*1550*2369 mm	3503*1350*2357 mm	-
Bucket	0.08 m ³	0.08 m ³	-
Battery operated	12VDC	12VDC	-
Engine type	V1505-EF01	V1505-EF01	-
Engine manufacturer	Kubota	Kubota	-
Engine power	18.2 kW	18.2 kW	-
Engine speed	2300 /min	2300 /min	-

Prüfbericht-Nr.: CN25LGC4 001
Test report no.:

Seite 6 von 13
Page 6 of 13

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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1.1. TECHNICAL DATA OF THE SAMPLES

Description : Hydraulic Excavator
Type : R32
Engine
Type : Kubota; V1505-EF01
Rated power : 18.2 kW; 2300 /min
Cooling fan
Type : Directly connected to engine
Operation speed : 2100 rpm

1.2. INSTALLATION AND OPERATING CONDITIONS (ISO 6395:2008 Annex B)

Basic machine cycle: The dynamic cycle, without moving material, comprises three 90° swings to the left of the operator and back. Each swing shall be from the x-axis to the y-axis, and back to x-axis. A single cycle consists of three continuous 90° swings to the left and back again, while moving the front end attachment through a complete sequence for each 90° swing and back.

Hoe attachment: At the beginning of the cycle, the boom and arm shall be adjusted so as to place the bucket at 75 % of the maximum reach with the bucket as close as possible to the ground surface, but not touching the ground. The cutting edge of the bucket in the rolled forward position shall be at an angle of 60° to the test-site measurement surface. First, raise the boom and simultaneously retract the arm so that the bucket follows the ground surface for 50 % of the remaining boom and arm travel distance. Then, roll back or curl the bucket. Lift the bucket by raising the boom and continue to retract the arm to simulate the adequate clearance (30 % of maximum bucket lift height) needed to swing across the edge of the trench. Execute a 90° swing to the left of the operator. Raise the boom during the swing and extend the arm until the bucket has reached 60 % of maximum boom lift height. Then uncurl the arm until it is 75 % extended. Roll forward or uncurl the bucket until the cutting edge is vertical. Execute a return swing to the starting position, with the boom being lowered and the bucket curled.

1.3. TEST ENVIRONMENT (ISO 6395:2008 Annex B)

Hard reflecting plane: The test area bordered by the vertical projection of the microphones to the ground shall consist of concrete or non-porous asphalt.

For test-site measurement ground surfaces consisting of a hard reflecting plane such as concrete or nonporous asphalt, and having negligible sound-reflecting obstacles within a distance from the source equal to three times the measurement hemisphere radius, it may be assumed that the absolute value of environmental correction, K_{2A} , is less than or equal to 0,5 dB, and can therefore be disregarded. In this case, K_{2A} shall be equal to 0 dB.

Environmental correction K_{2A} = 0 dB

1.4. TECHNICAL DATA OF THE SAMPLES

Atmospheric pressure : 99.9 kPa
Ambient air temperature : 36 (-10 ~ 35) °C
Humidity : 61 %
Wind speed : 4 ≤ 8 m/s
Background noise : 45.5 dB(A)

Prüfbericht-Nr.: CN25LGC4 001
Test report no.:

Seite 7 von 13
Page 7 of 13

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
------------------	---	--	--------------------

1.5. BACKGROUND NOISE

If $\Delta L_p > 15$ dB, K_{1A} is assumed to be zero, and no correction for background noise shall be applied.

If $6 \text{ dB} \leq \Delta L_p \leq 15$ dB, corrections shall be calculated and corrections shall be applied.

Background noise correction $K_{1A} = 0$

1.6. MEASUREMENT METHOD – DETERMINATION OF SOUND POWER LEVEL

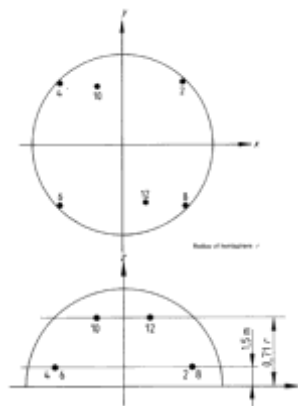


Figure 1 — Microphone array on the hemisphere

Microphone position	x/r	y/r	z
1	0,7	0,7	1,5 m
2	-0,7	0,7	1,5 m
3	-0,7	-0,7	1,5 m
4	0,7	-0,7	1,5 m
5	-0,27	0,65	0,71 r
6	0,27	-0,65	0,71 r

Table 1 — Co-ordinates of microphone positions

The measurement surface to be used for the test shall be a hemisphere.

The radius of the hemisphere shall be determined by the basic length, l , of the machine: $l = 1528$ mm, $r = 10$ m.

The radius shall be

- 4 m when the basic length, l , of the machine to be tested is less than 1,5 m,
- 10 m when the basic length, l , of the machine to be tested is greater than or equal to 1,5 m but less than 4 m,
- 16 m when the basic length, l , of the machine to be tested is greater than or equal to 4 m but less than 8 m.

Six measuring positions shall be used. Microphone positions and their coordinates shall be as shown in Figure 1 and as given in Table 1.

Calculate the three values of the sound power level from the three sets of data obtained at six microphone positions. If two of the three values so obtained do not differ by more than 1 dB, further measurements are not necessary. If this is not case, continue taking measurements until two values within 1 dB of each other are obtained. Report, as the value of the A-weighted sound power level, the arithmetic mean of the two highest values that are within 1 dB of each other.

Prüfbericht-Nr.: CN25LGC4 001
Test report no.:

Seite 8 von 13
Page 8 of 13

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
------------------	---	--	--------------------

1.7. RESULTS

Sample 1# Serial number: SLP25040310; Engine speed: 2100 rpm; Fan speed: 2100 rpm			
Measurement Position	Equivalent continuous A-weighted Sound pressure LpAeq,T [dB(A)]		
	Measurement Cycle 1	Measurement Cycle 2	Measurement Cycle 3
1	61.5	61.5	61.6
2	65.7	65.7	65.9
3	66.4	66.3	66.5
4	61.1	61.1	61.2
5	62.3	62.4	62.5
6	61.9	62.0	62.3
L'p _(ST)	63.69	63.68	63.86
LpAeq,T	63.78		
LwA	91.78		

Sample 2# Serial number: SLP25040311; Engine speed: 2100 rpm; Fan speed: 2100 rpm			
Measurement Position	Equivalent continuous A-weighted Sound pressure LpAeq,T [dB(A)]		
	Measurement Cycle 1	Measurement Cycle 2	Measurement Cycle 3
1	62.4	62.7	62.9
2	66.0	65.5	65.5
3	66.1	66.8	66.4
4	62.4	62.4	62.4
5	61.0	61.8	61.7
6	61.5	62.0	62.0
L'p _(ST)	63.74	63.99	63.88
LpAeq,T	63.94		
LwA	91.94		

Sample 3# Serial number: SLP25040312; Engine speed: 2100 rpm; Fan speed: 2100 rpm			
Measurement Position	Equivalent continuous A-weighted Sound pressure LpAeq,T [dB(A)]		
	Measurement Cycle 1	Measurement Cycle 2	Measurement Cycle 3
1	63.8	63.7	63.8
2	65.5	65.5	65.5
3	67.3	67.2	67.1
4	62.5	61.8	61.9
5	62.7	62.3	62.4
6	62.1	62.0	62.0
L'p _(ST)	64.41	64.24	64.25
LpAeq,T	64.33		
LwA	92.33		

Remark: The calculated A-weighted sound power level $LwA = LpAeq,T - K_{1A} - K_{2A} + 10\lg(S/S_0)$.

S is the area of the hemispherical measurement surface, in square metres; $S_0 = 1 \text{ m}^2$.

$10\lg(S/S_0) = 20$ for 4m radius, 28 for 10m radius and 32.1 for 16m radius.

Prüfbericht-Nr.: CN25LGC4 001
Test report no.:

Seite 9 von 13
Page 9 of 13

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
------------------	---	--	--------------------

1.8. CONCLUSIONS

The average value of the measurements $L_{wAm} = 92.02$ dB

Uncertainty K is calibrated according to the guideline:

The standard deviation of production $S_p = 0.28$ dB

The standard deviation of repeatability $S_r = 0.50$ dB

The total standard deviation $S_t = \sqrt{S_p^2 + S_r^2} = 0.57$ dB

The value of the coverage factor taken from the Student's statistical table assuming a confidence level of 95% is 2.92. This will result in a value of uncertainty $K = 2.92 \times S_t = 1.66$ dB

Uncertainty K is calibrated according to the RfU No. 07-003 R2:

The standard deviation of production $\sigma_P = 1.3 \times S_p = 0.36$ dB

The standard deviation of reproducibility $\sigma_R = 0.50$ dB

The total standard deviation $\sigma_t = \sqrt{\sigma_R^2 + \sigma_P^2} = 0.62$ dB

The uncertainty $K = 1.5 \times \sigma_t = 0.93$ dB

Model	Net Power (kW)	Measured Value (dB)	Guarantee Value (dB)	Limit Value (dB)	Verdict
R32	18.2	92.0	94	94	PASS

Prüfbericht-Nr.: CN25LGC4 001
Test report no.:

Seite 10 von 13
Page 10 of 13

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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2.1. TECHNICAL DATA OF THE SAMPLES

Description	:	Hydraulic Excavator
Type	:	R350
Engine	:	
Type	:	Kubota; V1505-EF01
Rated power	:	18.2 kW; 2300 /min
Cooling fan	:	
Type	:	Directly connected to engine
Operation speed	:	2100 rpm

2.2. INSTALLATION AND OPERATING CONDITIONS (ISO 6395:2008 Annex B)

Basic machine cycle: The dynamic cycle, without moving material, comprises three 90° swings to the left of the operator and back. Each swing shall be from the x-axis to the y-axis, and back to x-axis. A single cycle consists of three continuous 90° swings to the left and back again, while moving the front end attachment through a complete sequence for each 90° swing and back.

Hoe attachment: At the beginning of the cycle, the boom and arm shall be adjusted so as to place the bucket at 75 % of the maximum reach with the bucket as close as possible to the ground surface, but not touching the ground. The cutting edge of the bucket in the rolled forward position shall be at an angle of 60° to the test-site measurement surface. First, raise the boom and simultaneously retract the arm so that the bucket follows the ground surface for 50 % of the remaining boom and arm travel distance. Then, roll back or curl the bucket. Lift the bucket by raising the boom and continue to retract the arm to simulate the adequate clearance (30 % of maximum bucket lift height) needed to swing across the edge of the trench. Execute a 90° swing to the left of the operator. Raise the boom during the swing and extend the arm until the bucket has reached 60 % of maximum boom lift height. Then uncurl the arm until it is 75 % extended. Roll forward or uncurl the bucket until the cutting edge is vertical. Execute a return swing to the starting position, with the boom being lowered and the bucket curled.

2.3. TEST ENVIRONMENT (ISO 6395:2008 Annex B)

Hard reflecting plane: The test area bordered by the vertical projection of the microphones to the ground shall consist of concrete or non-porous asphalt.

For test-site measurement ground surfaces consisting of a hard reflecting plane such as concrete or nonporous asphalt, and having negligible sound-reflecting obstacles within a distance from the source equal to three times the measurement hemisphere radius, it may be assumed that the absolute value of environmental correction, K_{2A} , is less than or equal to 0,5 dB, and can therefore be disregarded. In this case, K_{2A} shall be equal to 0 dB.

Environmental correction K_{2A} = 0 dB

2.4. TECHNICAL DATA OF THE SAMPLES

Atmospheric pressure	:	99.9	kPa
Ambient air temperature	:	36	(-10 ~ 35) °C
Humidity	:	61	%
Wind speed	:	4	≤ 8 m/s
Background noise	:	45.5	dB(A)

Prüfbericht-Nr.: CN25LGC4 001
Test report no.:

Seite 11 von 13
Page 11 of 13

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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2.5. BACKGROUND NOISE

If $\Delta L_p > 15$ dB, K_{1A} is assumed to be zero, and no correction for background noise shall be applied.

If $6 \text{ dB} \leq \Delta L_p \leq 15$ dB, corrections shall be calculated and corrections shall be applied.

Background noise correction $K_{1A} = 0$

2.6. MEASUREMENT METHOD – DETERMINATION OF SOUND POWER LEVEL

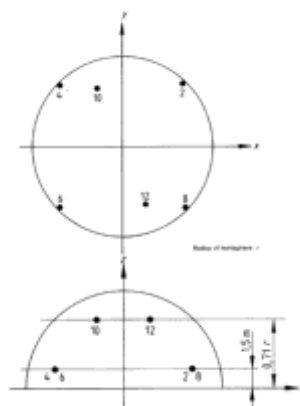


Figure 1 — Microphone array on the hemisphere

Microphone position	x/r	y/r	z
1	0,7	0,7	1,5 m
2	-0,7	0,7	1,5 m
3	-0,7	-0,7	1,5 m
4	0,7	-0,7	1,5 m
5	-0,27	0,65	0,71 r
6	0,27	-0,65	0,71 r

Table 1 — Co-ordinates of microphone positions

The measurement surface to be used for the test shall be a hemisphere.

The radius of the hemisphere shall be determined by the basic length, l , of the machine: $l = 2149$ mm, $r = 10$ m.

The radius shall be

- 4 m when the basic length, l , of the machine to be tested is less than 1,5 m,
- 10 m when the basic length, l , of the machine to be tested is greater than or equal to 1,5 m but less than 4 m,
- 16 m when the basic length, l , of the machine to be tested is greater than or equal to 4 m but less than 8 m.

Six measuring positions shall be used. Microphone positions and their coordinates shall be as shown in Figure 1 and as given in Table 1.

Calculate the three values of the sound power level from the three sets of data obtained at six microphone positions. If two of the three values so obtained do not differ by more than 1 dB, further measurements are not necessary. If this is not case, continue taking measurements until two values within 1 dB of each other are obtained. Report, as the value of the A-weighted sound power level, the arithmetic mean of the two highest values that are within 1 dB of each other.

Prüfbericht-Nr.: CN25LGC4 001
Test report no.:

Seite 12 von 13
Page 12 of 13

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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2.7. RESULTS

Sample 1# Serial number: SLP25040807; Engine speed: 2100 rpm; Fan speed: 2100 rpm			
Measurement Position	Equivalent continuous A-weighted Sound pressure LpAeq,T [dB(A)]		
	Measurement Cycle 1	Measurement Cycle 2	Measurement Cycle 3
1	62.9	63.1	63.3
2	67.2	66.8	66.9
3	67.1	67.0	67.0
4	62.3	62.3	62.3
5	62.4	61.9	62.3
6	62.2	62.1	62.2
L'p _(ST)	64.63	64.45	64.55
LpAeq,T	64.59		
LwA	92.59		

Sample 2# Serial number: SLP25040808; Engine speed: 2100 rpm; Fan speed: 2100 rpm			
Measurement Position	Equivalent continuous A-weighted Sound pressure LpAeq,T [dB(A)]		
	Measurement Cycle 1	Measurement Cycle 2	Measurement Cycle 3
1	61.9	62.3	62.5
2	66.4	66.4	66.4
3	66.9	66.5	66.6
4	61.7	61.7	61.8
5	62.0	61.9	62.4
6	62.0	62.0	62.4
L'p _(ST)	64.11	64.02	64.18
LpAeq,T	64.15		
LwA	92.15		

Sample 3# Serial number: SLP25040809; Engine speed: 2100 rpm; Fan speed: 2100 rpm			
Measurement Position	Equivalent continuous A-weighted Sound pressure LpAeq,T [dB(A)]		
	Measurement Cycle 1	Measurement Cycle 2	Measurement Cycle 3
1	63.0	62.6	63.1
2	66.3	65.9	66.0
3	66.7	66.5	66.4
4	62.1	62.6	62.1
5	62.2	62.2	62.2
6	61.5	61.6	62.0
L'p _(ST)	64.16	64.01	64.05
LpAeq,T	64.11		
LwA	92.11		

Remark: The calculated A-weighted sound power level $LwA = LpAeq,T - K_{1A} - K_{2A} + 10\lg(S/S_0)$.

S is the area of the hemispherical measurement surface, in square metres; $S_0 = 1 \text{ m}^2$.

$10\lg(S/S_0) = 20$ for 4m radius, 28 for 10m radius and 32.1 for 16m radius.

Prüfbericht-Nr.: CN25LGC4 001
Test report no.:

Seite 13 von 13
Page 13 of 13

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse – Bemerkungen/ Measuring results - Remarks	Ergebnis Result
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2.8. CONCLUSIONS

The average value of the measurements $L_{wAm} = 92.28$ dB

Uncertainty K is calibrated according to the guideline:

The standard deviation of production $S_p = 0.27$ dB

The standard deviation of repeatability $S_r = 0.50$ dB

The total standard deviation $S_t = \sqrt{S_p^2 + S_r^2} = 0.57$ dB

The value of the coverage factor taken from the Student's statistical table assuming a confidence level of 95% is 2.92. This will result in a value of uncertainty $K = 2.92 \times S_t = 1.66$ dB

Uncertainty K is calibrated according to the RfU No. 07-003 R2:

The standard deviation of production $\sigma_P = 1.3 \times S_p = 0.35$ dB

The standard deviation of reproducibility $\sigma_R = 0.50$ dB

The total standard deviation $\sigma_t = \sqrt{\sigma_R^2 + \sigma_P^2} = 0.61$ dB

The uncertainty $K = 1.5 \times \sigma_t = 0.92$ dB

Model	Net Power (kW)	Measured Value (dB)	Guarantee Value (dB)	Limit Value (dB)	Verdict
R330	18.2	92.3	94	94	PASS

END OF TEST REPORT