be quiet!

be quiet! Light Loop 360mm

023E4250000006

Lab ID BQCLR00077

Type Liquid

Testing Dates: Aug 24, 2024 to Sep 8, 2024

Scheme: THETA

AMD AM5



No THETA level Intel LGA1851



Aristeidis Bitziopoulos, Certification Body General Manager

THETA Cooler Performance

THETA is a Cybenetics performance rating. It is not part of our ISO/IEC 17065 certification schemes and is outside our accreditation.

Overall Performance (OP) = W × F / T, where W is the average CPU power at the EPS connectors (W), F the average CPU frequency (MHz) and T the average CPU temperature (°C). A cooler is rated on its measured OP at 30 dB(A) normalized noise output; a cooler that cannot reach 30 dB(A) is rated on its own measured 25 dB(A) point. Air and AIO coolers have separate ladders on each test platform.

Evaluated before Revision 2.0 of the Cooling Solutions Test Protocol: the THETA level was assigned from the published results measured under Revision 1.8 (20 minutes per noise level, 10-minute cool-down). The cooler was not measured again, and the earlier procedure is not identical to the procedure of Revision 2.0.

Platform	THETA level	Test CPU	Mount	Rated at	Overall Performance (OP)
AMD AM5	**THETA Platinum · AIO · AMD AM5**	AMD Ryzen 9 7900X (AM5)	Default	30 dB(A)	11,807
Intel LGA1851	**No THETA level**	Intel Core Ultra 9 285K (LGA1851)	Default	-	-

General Information

Test Equipment

Noise Test Environment	Hemi Anechoic Chamber with 6dB(A) noise floor
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Temperature Logger	Picoscope TC-08
Climate Chamber	Giant Force GTH-800-20-CP-AR
Testing Methodology	Cybenetics Cooling Solutions Test Protocol

DUT Information

Brand	be quiet!
Model	Light Loop 360mm
Serial Number	023E4250000006
Lab ID	BQCLR00077
Testing Dates	Aug 24, 2024 to Sep 8, 2024
Engineer	Aris Bitziopoulos

Climate Chamber

Noise Test Environment	Hemi Anechoic Chamber with 6dB(A) noise floor
Manufacturer	Giant Force
Model Number	GTH-800-20-CP-AR
Temperature Range	-20℃ ~ +100℃
Humidity Range	20% ~ 98% RH
Temperature/Humidity Constancy	±0.2℃; ±2.5%RH
Temperature/Humidity Uniformity at center	±0.5℃; ±4%RH

Internal Dimensions (WHD)	100 x 100 x 80 cm
External Dimensions (WHD)	145 x 190 x 135 cm
Net Weight (approximately)	450 Kg
Heat-up Time (No load, no linear)	(from 20°C to +100°C) 30min
Pull-down Time (No load, no linear)	(from 20°C to -20°C) 50min
Cooling System	Airtight compressor + evaporator fins + air-cooling condenser
Power Source	3Φ AC 380V ±5%, 50Hz±1% 10KW
Based on Standards	ISO 5801-2007, AMCA 210-0, ASHRAE 51-2007, IEC 61591-2005, GB/T 1236-200

AMD Test System

Mainboard	Asus TUF GAMING X670E-PLUS
CPU	AMD Ryzen 9 7900x
GPU	Embedded
NVMe	XPG GAMMIX S50 Lite 1TB
RAM	XPG Lancer DDR5 (2 x 16GB) 6000MHz
Power Supply	Seasonic Vertex 1200W (Cybenetics Platinum)
CPU Cooler	Device Under Test
Case	Cooler Master Test Bench

Technical Specifications

Manufacturer (OEM)	be quiet!
Model	Light Loop 360mm
Number of Fans	3
Fan #1	be quiet! Light Wings LX 120 High-Speed
Type	Liquid
Radiator Size	360mm
Radiator Thickness	27mm
Radiator Material	Aluminium
Pump Speed	2900RPM
Tube Length	500mm
Cold Plate Dimensions	94 x 82mm

Weight	1480g
RGB Lighting	Yes
AMD Processors Support	AM5, AM4
Intel Processors Support	LGA1851/1700/1200/1156/1155/1151/1150

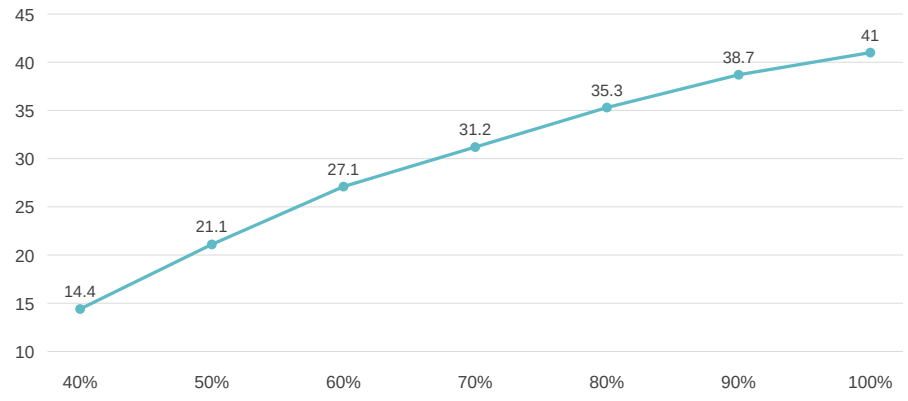
Noise Output and Fan Speed

Table

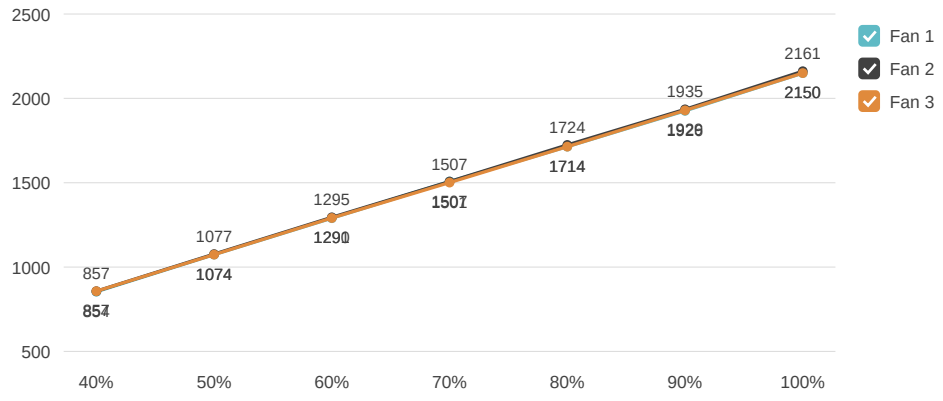
Fan Setting	Noise (dB(A))	Fan 1 (RPM)	Fan 2 (RPM)	Fan 3 (RPM)
40%	14.4	854	857	857
50%	21.1	1074	1077	1074
60%	27.1	1290	1295	1291
70%	31.2	1507	1507	1501
80%	35.3	1714	1724	1714
90%	38.7	1926	1935	1929
100%	41.0	2150	2161	2150

Graphs

Noise



Fan Speed



Fan Speed at Fixed Noise Levels

Noise Level	PWM (%)	Fan 1 (RPM)	Fan 2 (RPM)	Fan 3 (RPM)
15 dB(A)	41	878	880	877
20 dB(A)	48	1035	1037	1035
25 dB(A)	56	1224	1232	1222
30 dB(A)	67	1435	1436	1431
35 dB(A)	78	1691	1691	1685
40 dB(A)	95	2040	2040	2040

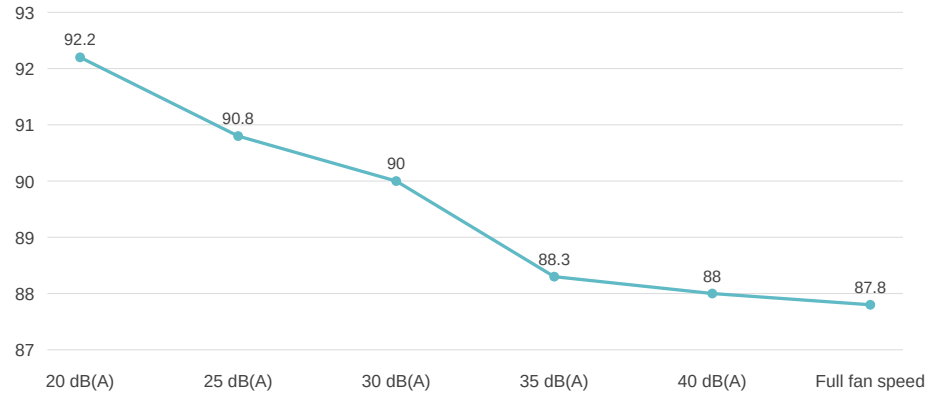
AMD System Test Results

Table

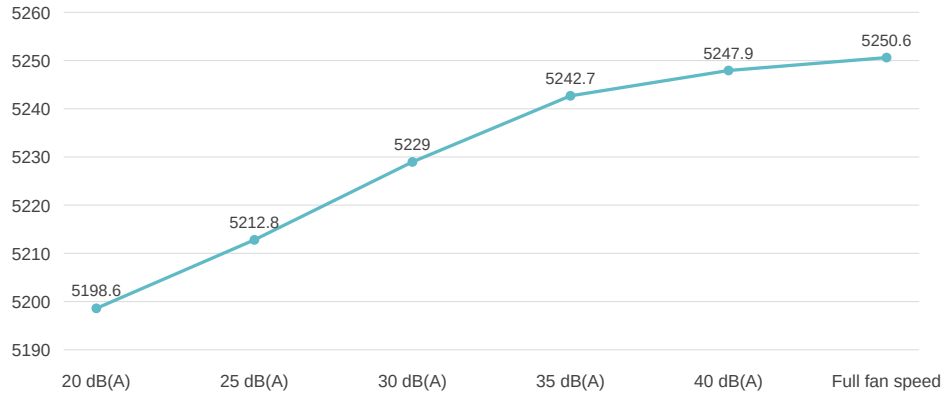
Condition	CPU Temperature (°C)	CPU Frequency (MHz)	CPU Power (W)	Overall Performance
20 dB(A)	92.2	5199	199.3	11238
25 dB(A)	90.8	5213	200.8	11529
30 dB(A)	90.0	5229	203.2	11807
35 dB(A)	88.3	5243	203.7	12095
40 dB(A)	88.0	5248	204.7	12206
Full fan speed	87.8	5251	204.7	12239

Graphs

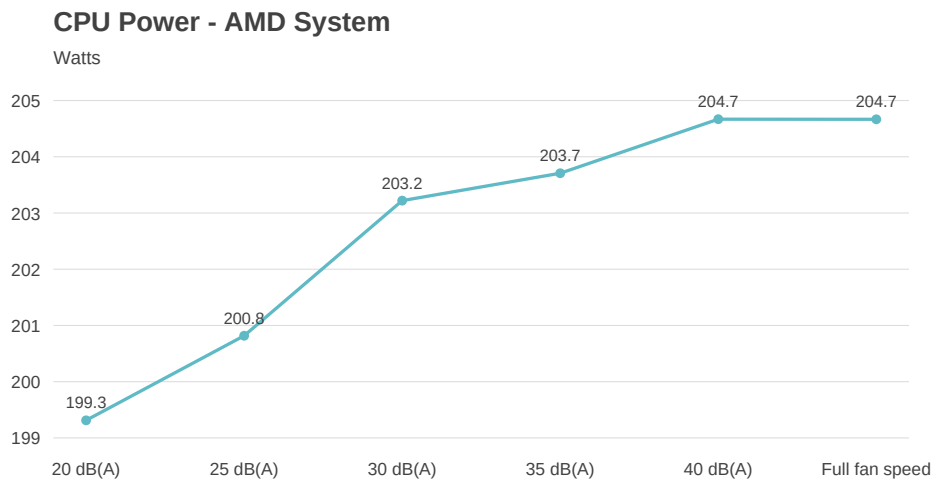
CPU Temperature



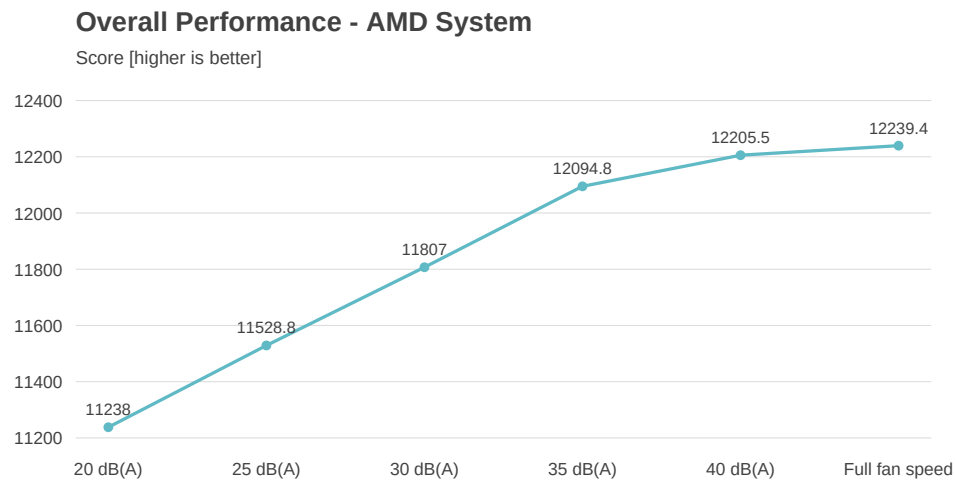
CPU Frequency



CPU Power

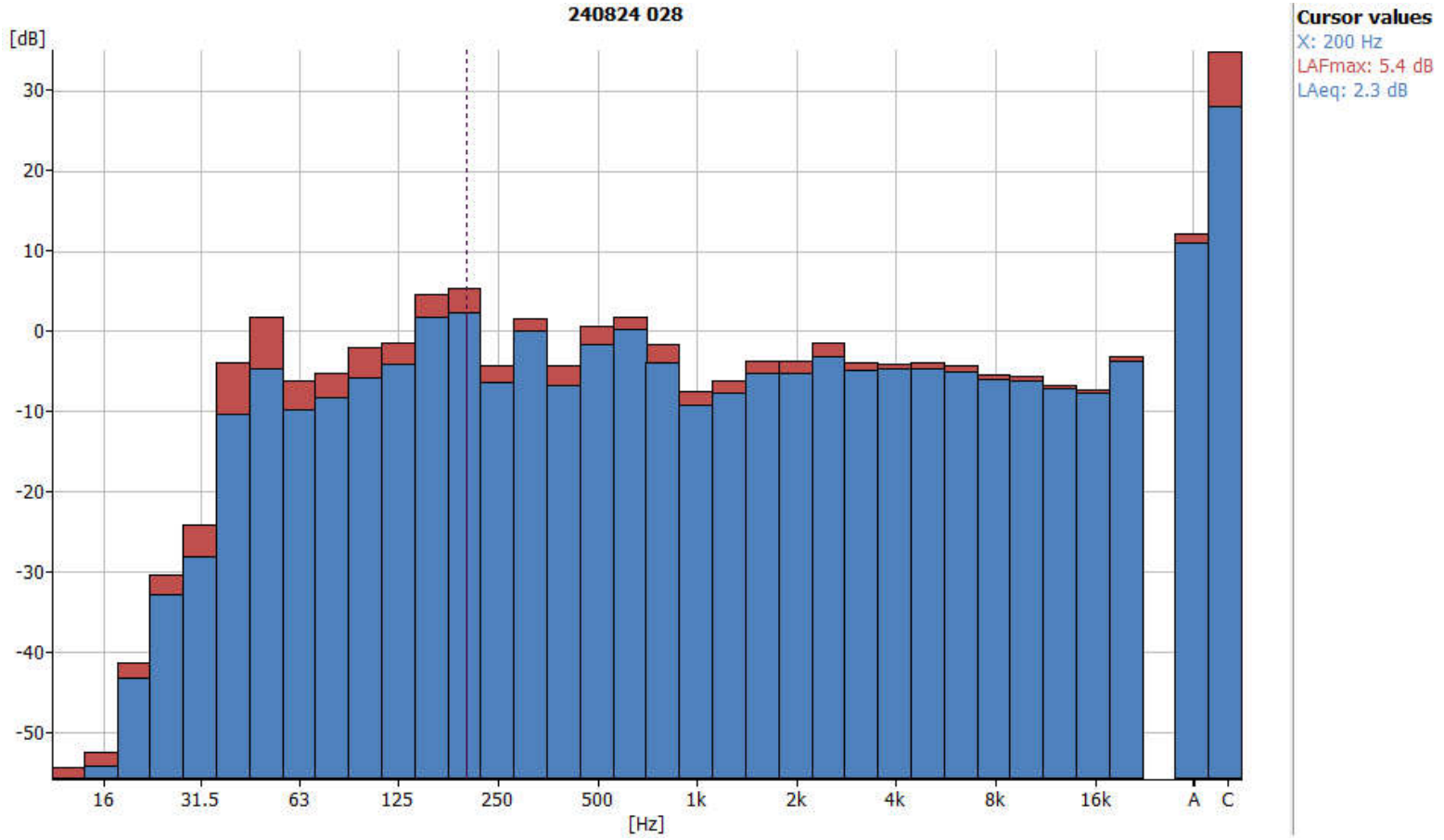


Overall Performance

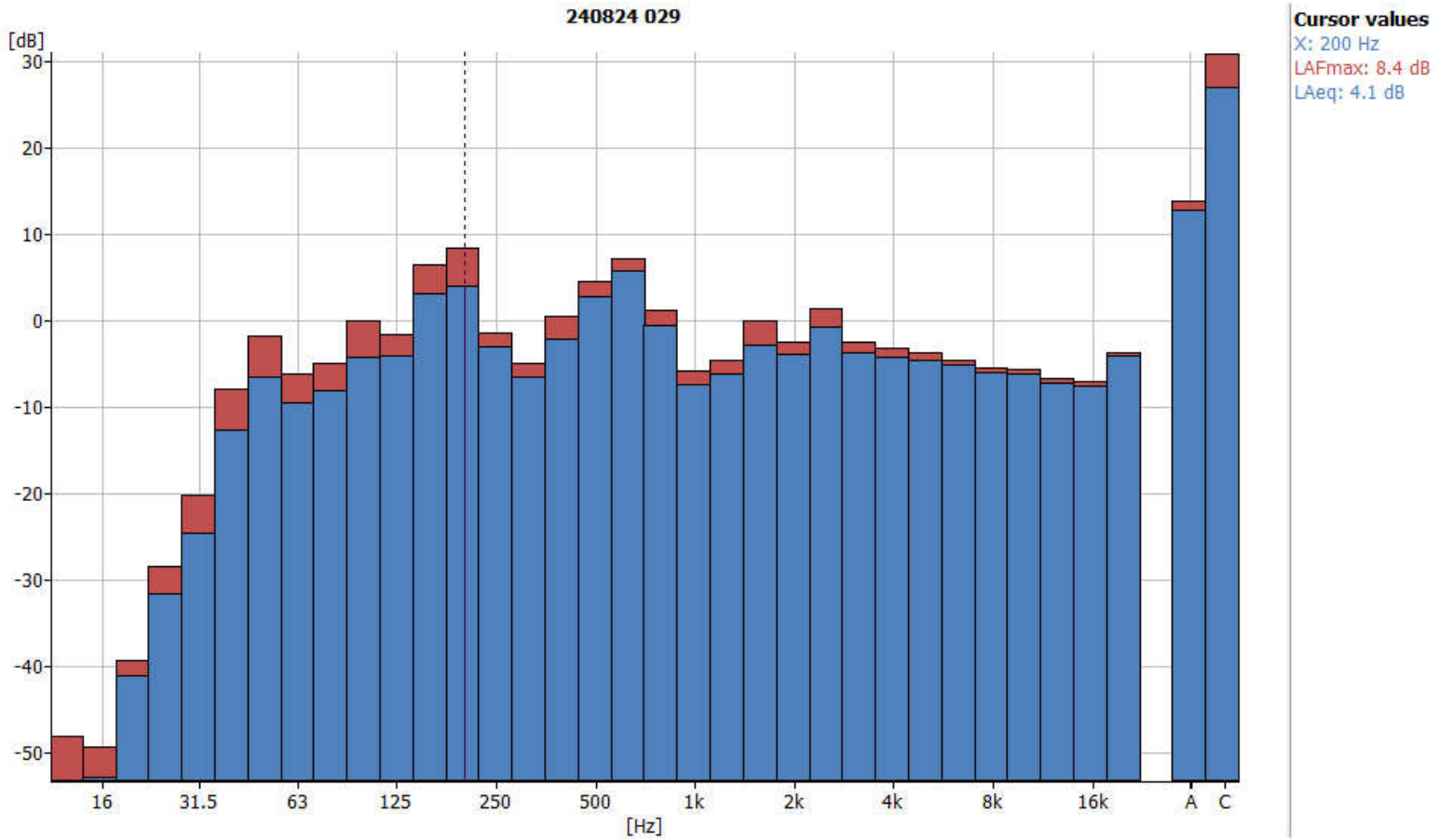


Frequency Plots

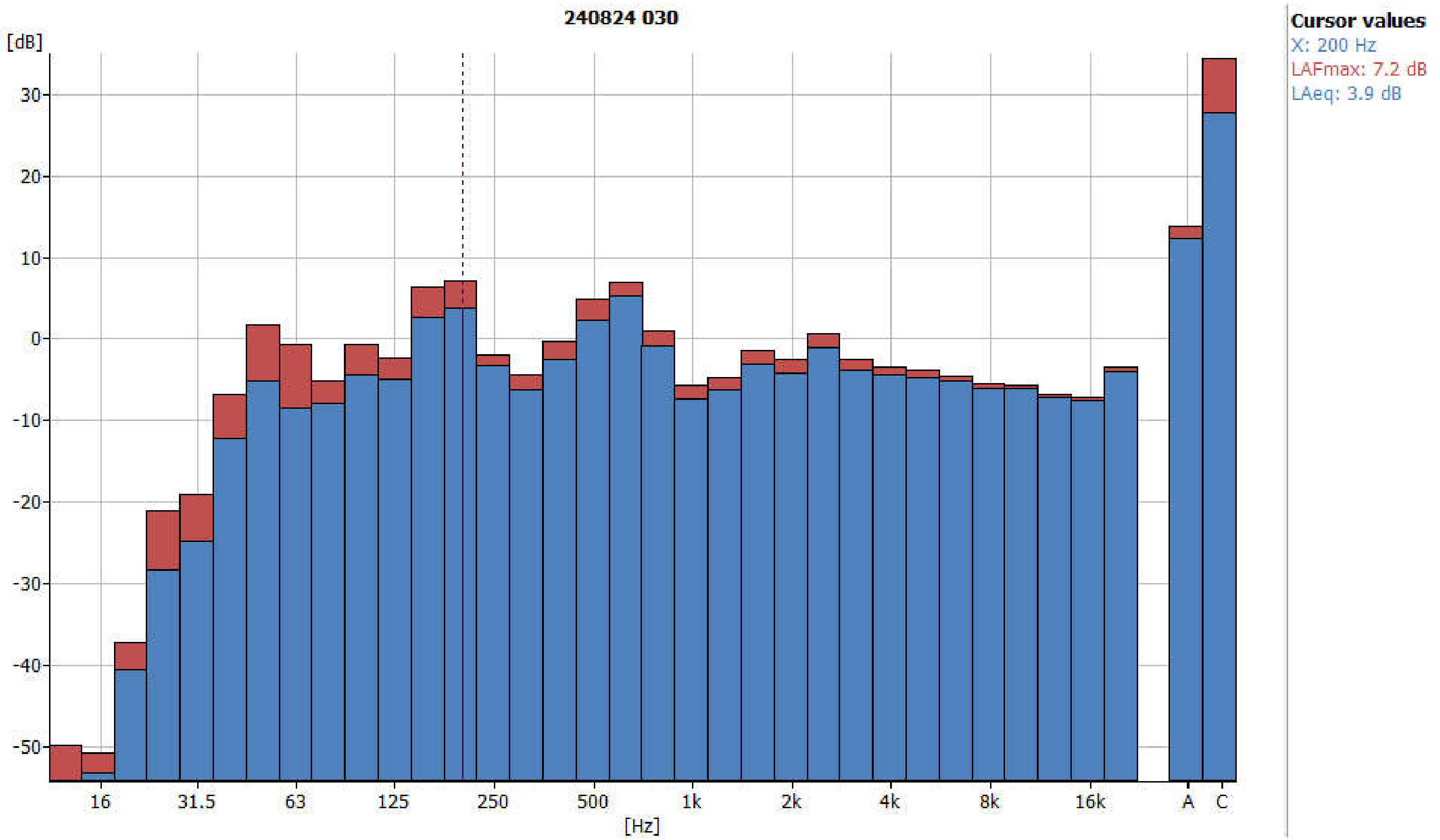
Pump 50%



Pump 75%


240824 029
[dB]
30
20
10
0
-10
-20
-30
-40
-50
16
31.5
63
125
250
500
1k
2k
4k
8k
16k
A
C
[Hz]
Cursor values
X: 200 Hz
LAFmax: 8.4 dB
LAeq: 4.1 dB

Pump 100%



本测试报告中包含的所有数据和图表均可在以下条件下由任何人使用：使用过程需提及测试结果由

Cybenetics提供。

在任何情况下都应提供原始测试结果文档的网站链接

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