

# NZXT

## 1 F120RGB CORE (Fan PC Case)



Lab ID NZ12000176

Certification ID FN25176

Test Result Report ID: 25FN176A

Certificate Issue Date: Apr 18, 2025

Scheme: PHI

Airflow Rating



Static Pressure Rating

Aristeidis Bitziopoulos, Certification Body General Manager

## SECTION A: Noise Testing Equipment

|                    |                                                |
|--------------------|------------------------------------------------|
| □□ Environment     | Hemi-Anechoic Chamber with 6 dB(A) noise floor |
| Conditions         | 25(±2) degrees Celsius, 40-50% humidity        |
| Sound Analyzer     | Bruel & Kjaer 2270-S G4 & 2250-L G4            |
| Microphone         | Bruel & Kjaer Type 4955-A                      |
| Mic Calibrator     | Bruel & Kjaer Type 4231                        |
| Data Logger        | Picoscope TC-08                                |
| □□ ing Methodology | Cybenetics Phi Fan Performance Standard        |

## SECTION B: Fan Testing Instrument Technical Specifications

|                           |                                                                          |
|---------------------------|--------------------------------------------------------------------------|
| Manufacturer              | Long Win Science & Technology Corporation                                |
| □□ I Number               | LW-9266                                                                  |
| Air Flow Rate             | 2.4 - 250 CFM                                                            |
| Accuracy of Air Flow Rate | < 3.5% INFS                                                              |
| Repeatability error       | < 2%                                                                     |
| Static pressure           | 0-20mmAq (100mmAq with the high static pressure throttle device)         |
| Overall Dimensions        | 0.7 (W) x 2.2 (L) x 1.6 (H) m                                            |
| Power Source              | 220VAC, 5A, Single Phase, 50/60Hz                                        |
| Based on Standards        | ISO 5801-2007, AMCA 210-0, ASHRAE 51-2007, IEC 61591-2005, GB/T 1236-200 |

## SECTION C: PHI Performance Levels

|                      |          |       |
|----------------------|----------|-------|
| Pressure at 25 dB(A) | P (mmAq) | 1.56  |
| Airflow at 25 dB(A)  | Q (CFM)  | 44.84 |

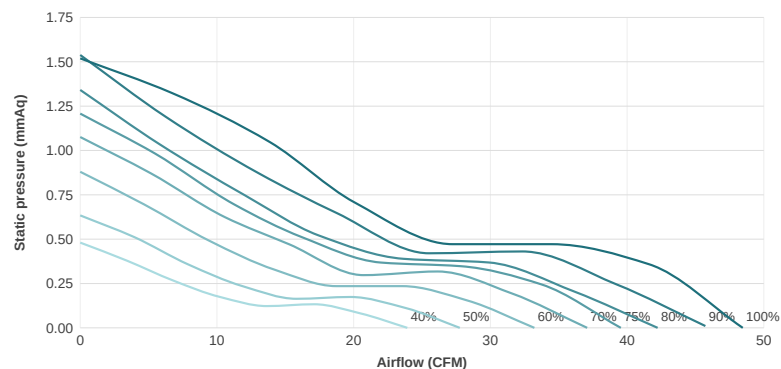
## SECTION D: Information about DUT

|                                   |                               |
|-----------------------------------|-------------------------------|
| Product Identification Details    |                               |
| Brand                             | 1                             |
| Model                             | F120RGB CORE (Fan PC Case)    |
| Serial Number                     | -                             |
| Product Specifications            |                               |
| Manufacturer-Provided Information |                               |
| Bearing                           | Fluid Dynamic                 |
| Connector                         | 3-Pin                         |
| Cable length (mm)                 | 600                           |
| Daisy-chain                       | None                          |
| RGB Connector                     | None                          |
| RGB Daisy-chain                   | None                          |
| Cybernetics Measurements          |                               |
| Max Speed (RPM)                   | 1365                          |
| Max Airflow (CFM)                 | 48.46                         |
| Max Static Pressure (mmAq)        | 1.54                          |
| Max Noise Level (dBA)             | 27.60                         |
| Fan Max Current (A)               | 0.169                         |
| Fan Weight (gr)                   | 135                           |
| Dimensions (W x H x D)            | 120mm x 120mm x 25mm          |
| Cybernetics Testing Information   |                               |
| Lab ID                            | NZ12000176                    |
| Date of receipt                   | Nov 17, 2024                  |
| Testing Date                      | Apr 18, 2025                  |
| Report Issued Date                | Apr 18, 2025                  |
| Engineer Name                     | Georgios Theodoros Sarimpalas |

## SECTION E: Long Win LW-9266 - Pressure and Airflow

**PQ Chart - All Speeds**

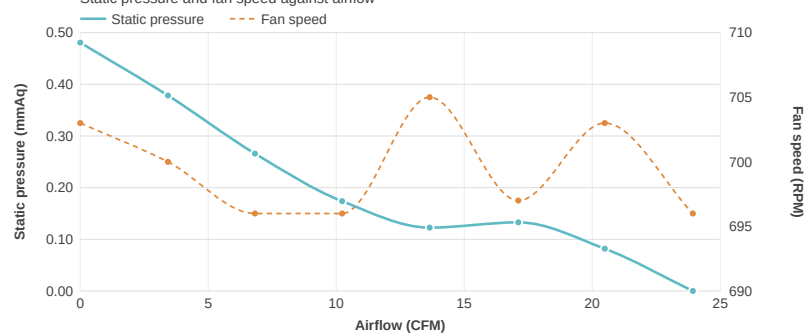
Static pressure against airflow, one curve per speed step



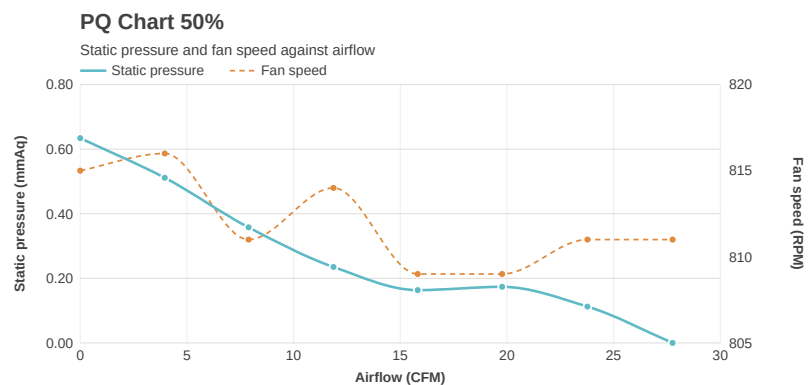
| Speed Setting | Max Airflow (CFM) | Max Static Pressure (mmAq) | Fan Speed (RPM) | Max Power (W) |
|---------------|-------------------|----------------------------|-----------------|---------------|
| 40%           | 23.93             | 0.48                       | 696 - 705       | 0.49          |
| 50%           | 27.76             | 0.63                       | 809 - 816       | 0.69          |
| 60%           | 33.22             | 0.88                       | 944 - 968       | 1.03          |
| 70%           | 37.08             | 1.08                       | 1072 - 1079     | 1.34          |
| 75%           | 39.54             | 1.21                       | 1128 - 1139     | 1.55          |
| 80%           | 42.23             | 1.34                       | 1182 - 1196     | 1.83          |
| 90%           | 45.73             | 1.54                       | 1270 - 1283     | 2.27          |
| 100%          | 48.46             | 1.52                       | 1277 - 1380     | 2.27          |

**PQ Chart 40%**

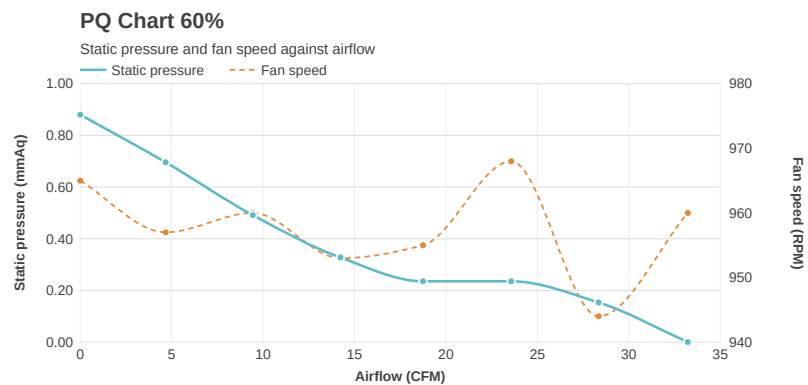
Static pressure and fan speed against airflow



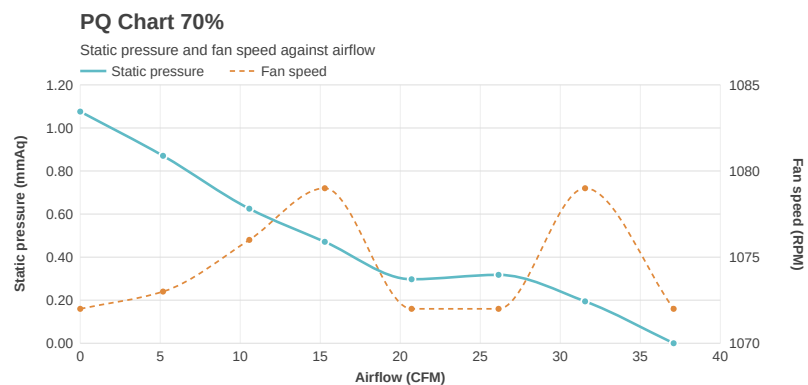
| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---------------|------------------------|-----------------|-------------|-----------|
| 0.00          | 0.48                   | 703             | 0.083       | 0.49      |
| 3.43          | 0.38                   | 700             | 0.078       | 0.44      |
| 6.83          | 0.27                   | 696             | 0.075       | 0.41      |
| 10.23         | 0.17                   | 696             | 0.072       | 0.38      |
| 13.65         | 0.12                   | 705             | 0.069       | 0.35      |
| 17.11         | 0.13                   | 697             | 0.071       | 0.37      |
| 20.49         | 0.08                   | 703             | 0.071       | 0.37      |
| 23.93         | 0.00                   | 696             | 0.069       | 0.35      |



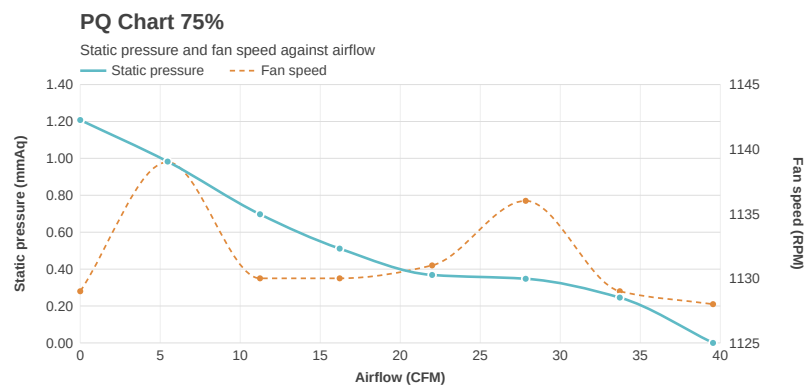
| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---------------|------------------------|-----------------|-------------|-----------|
| 0.00          | 0.63                   | 815             | 0.097       | 0.69      |
| 3.96          | 0.51                   | 816             | 0.092       | 0.62      |
| 7.89          | 0.36                   | 811             | 0.088       | 0.57      |
| 11.87         | 0.24                   | 814             | 0.084       | 0.53      |
| 15.82         | 0.16                   | 809             | 0.079       | 0.47      |
| 19.77         | 0.17                   | 809             | 0.083       | 0.51      |
| 23.77         | 0.11                   | 811             | 0.083       | 0.51      |
| 27.76         | 0.00                   | 811             | 0.080       | 0.48      |



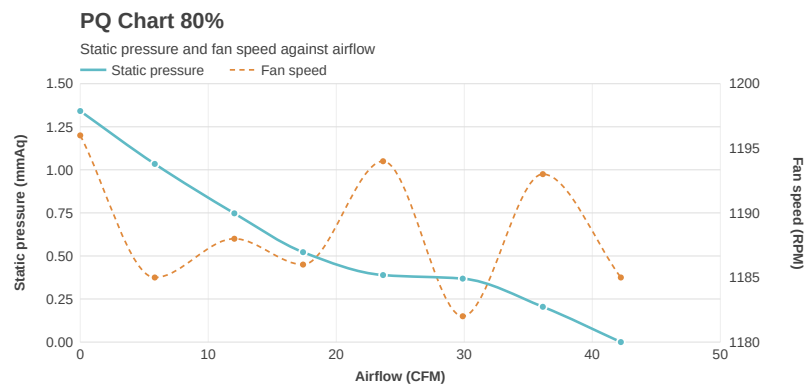
| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---------------|------------------------|-----------------|-------------|-----------|
| 0.00          | 0.88                   | 965             | 0.118       | 1.03      |
| 4.67          | 0.70                   | 957             | 0.110       | 0.90      |
| 9.44          | 0.49                   | 960             | 0.105       | 0.83      |
| 14.23         | 0.33                   | 953             | 0.099       | 0.74      |
| 18.74         | 0.24                   | 955             | 0.093       | 0.67      |
| 23.56         | 0.24                   | 968             | 0.099       | 0.75      |
| 28.34         | 0.15                   | 944             | 0.099       | 0.74      |
| 33.22         | 0.00                   | 960             | 0.095       | 0.70      |



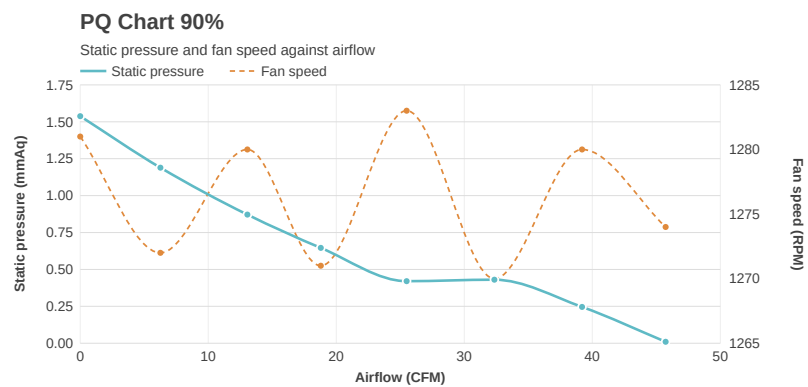
| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---------------|------------------------|-----------------|-------------|-----------|
| 0.00          | 1.08                   | 1072            | 0.133       | 1.34      |
| 5.18          | 0.87                   | 1073            | 0.125       | 1.20      |
| 10.56         | 0.62                   | 1076            | 0.120       | 1.10      |
| 15.28         | 0.47                   | 1079            | 0.115       | 1.02      |
| 20.71         | 0.30                   | 1072            | 0.105       | 0.87      |
| 26.14         | 0.32                   | 1072            | 0.112       | 0.97      |
| 31.55         | 0.19                   | 1079            | 0.112       | 0.97      |
| 37.08         | 0.00                   | 1072            | 0.105       | 0.86      |



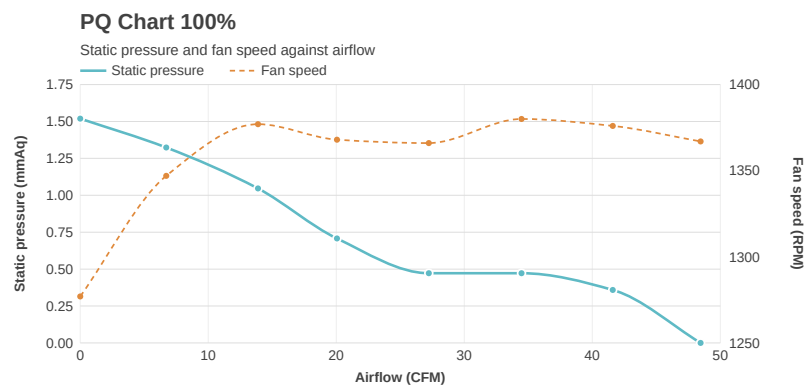
| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---------------|------------------------|-----------------|-------------|-----------|
| 0.00          | 1.21                   | 1129            | 0.142       | 1.55      |
| 5.46          | 0.98                   | 1139            | 0.135       | 1.40      |
| 11.24         | 0.70                   | 1130            | 0.127       | 1.25      |
| 16.21         | 0.51                   | 1130            | 0.120       | 1.12      |
| 21.99         | 0.37                   | 1131            | 0.113       | 1.01      |
| 27.84         | 0.35                   | 1136            | 0.118       | 1.09      |
| 33.72         | 0.25                   | 1129            | 0.120       | 1.13      |
| 39.54         | 0.00                   | 1128            | 0.112       | 0.99      |



| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---------------|------------------------|-----------------|-------------|-----------|
| 0.00          | 1.34                   | 1196            | 0.154       | 1.83      |
| 5.82          | 1.03                   | 1185            | 0.141       | 1.54      |
| 12.04         | 0.75                   | 1188            | 0.135       | 1.42      |
| 17.41         | 0.52                   | 1186            | 0.127       | 1.27      |
| 23.66         | 0.39                   | 1194            | 0.119       | 1.13      |
| 29.88         | 0.37                   | 1182            | 0.126       | 1.25      |
| 36.13         | 0.20                   | 1193            | 0.126       | 1.25      |
| 42.23         | 0.00                   | 1185            | 0.121       | 1.16      |



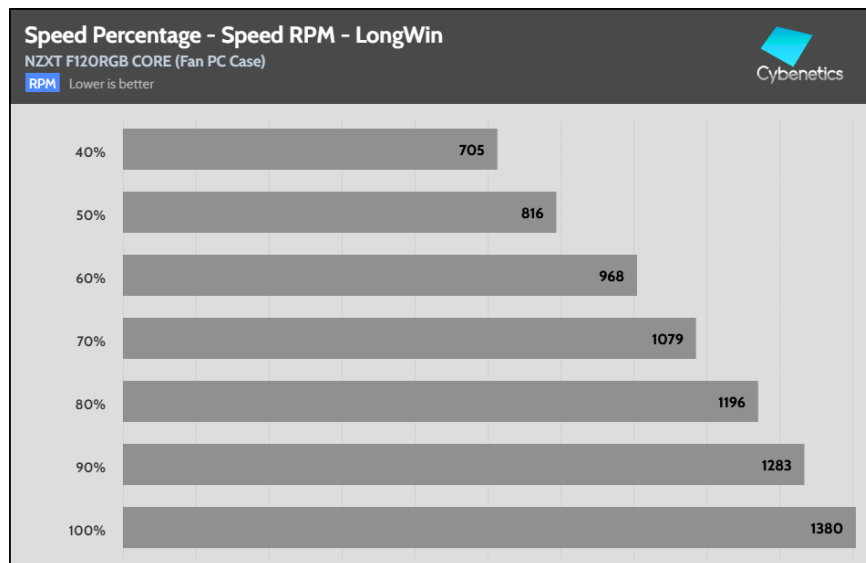
| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---------------|------------------------|-----------------|-------------|-----------|
| 0.00          | 1.54                   | 1281            | 0.170       | 2.27      |
| 6.26          | 1.19                   | 1272            | 0.155       | 1.89      |
| 13.05         | 0.87                   | 1280            | 0.149       | 1.75      |
| 18.79         | 0.65                   | 1271            | 0.142       | 1.60      |
| 25.50         | 0.42                   | 1283            | 0.131       | 1.38      |
| 32.35         | 0.43                   | 1270            | 0.139       | 1.53      |
| 39.20         | 0.25                   | 1280            | 0.139       | 1.54      |
| 45.73         | 0.01                   | 1274            | 0.135       | 1.45      |



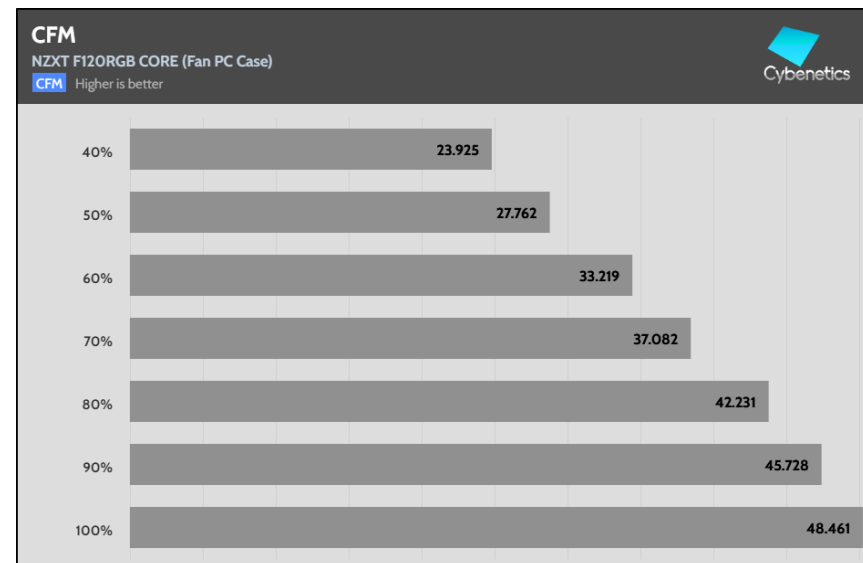
| Airflow (CFM) | Static Pressure (mmAq) | Fan Speed (RPM) | Current (A) | Power (W) |
|---------------|------------------------|-----------------|-------------|-----------|
| 0.00          | 1.52                   | 1277            | 0.169       | 2.27      |
| 6.72          | 1.32                   | 1347            | 0.167       | 2.24      |
| 13.88         | 1.05                   | 1377            | 0.165       | 2.18      |
| 20.05         | 0.71                   | 1368            | 0.154       | 1.91      |
| 27.23         | 0.47                   | 1366            | 0.142       | 1.64      |
| 34.47         | 0.47                   | 1380            | 0.152       | 1.87      |
| 41.60         | 0.36                   | 1376            | 0.157       | 1.98      |
| 48.46         | 0.00                   | 1367            | 0.146       | 1.72      |

## SECTION F: General Performance

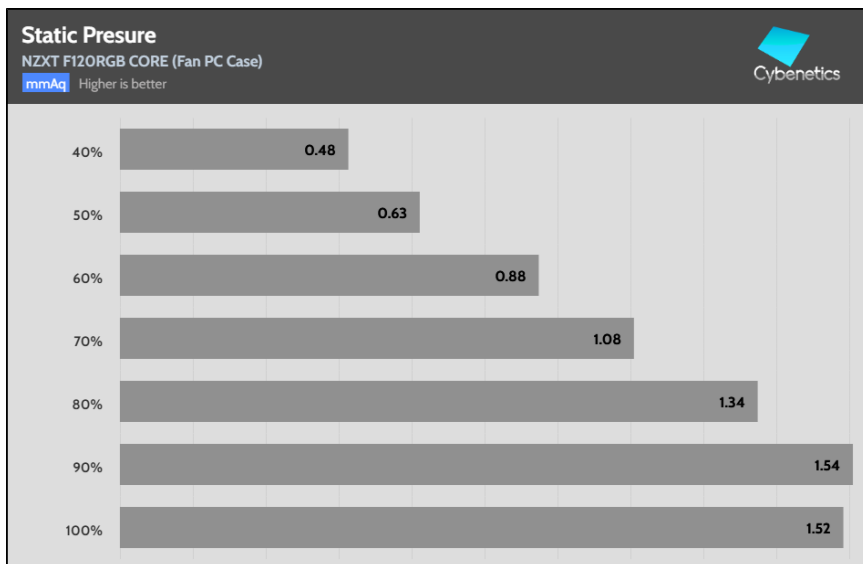
**Fan Percentage RPM LongWin**



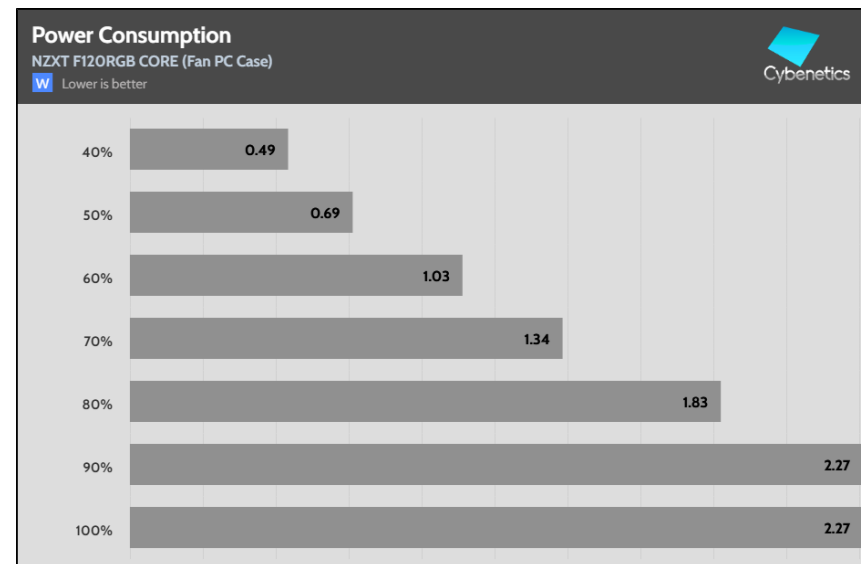
**Fan Percentage CFM**



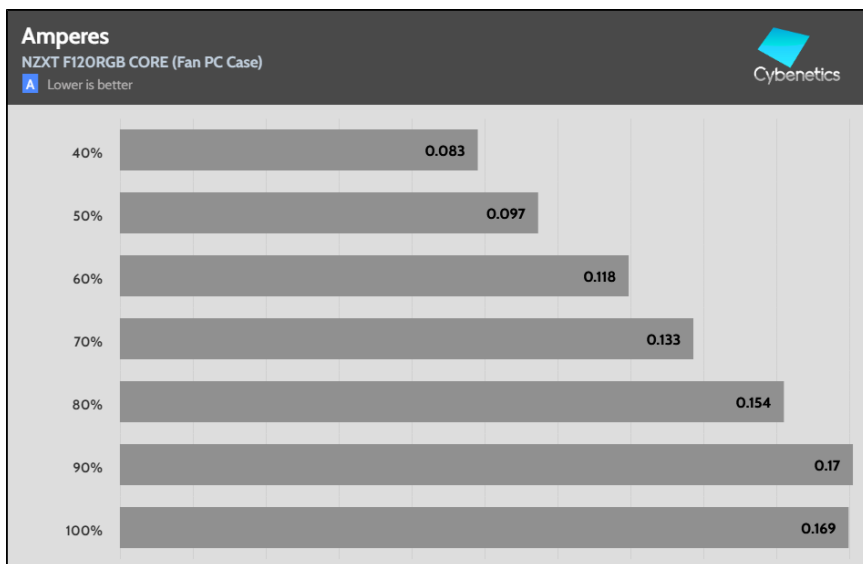
### Fan Percentage Pressure



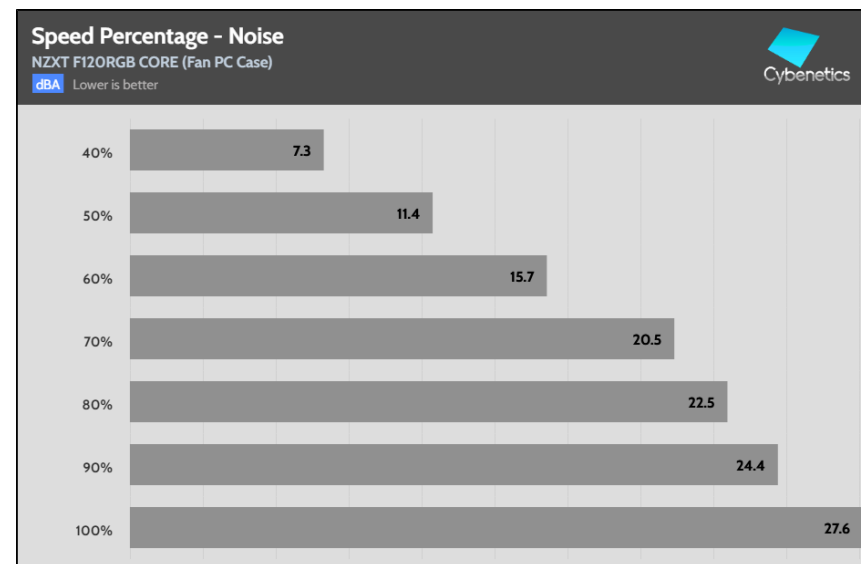
### Fan Percentage Power



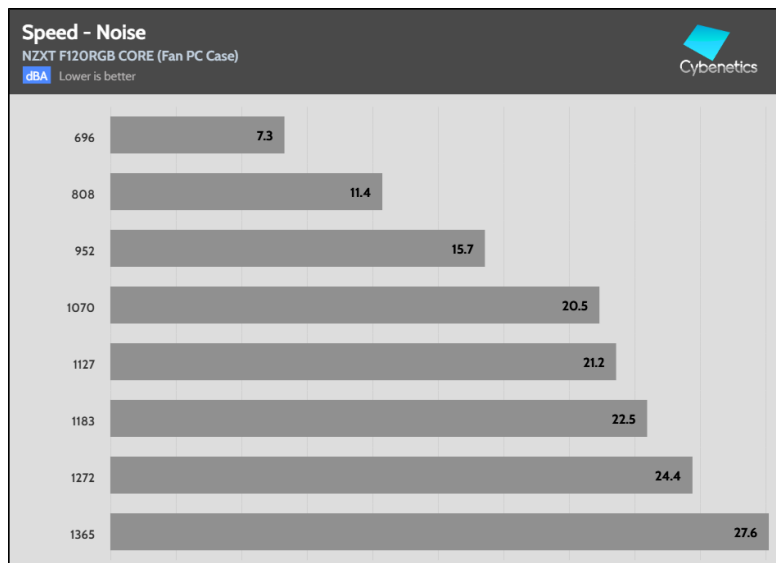
### Fan Percentage Amps



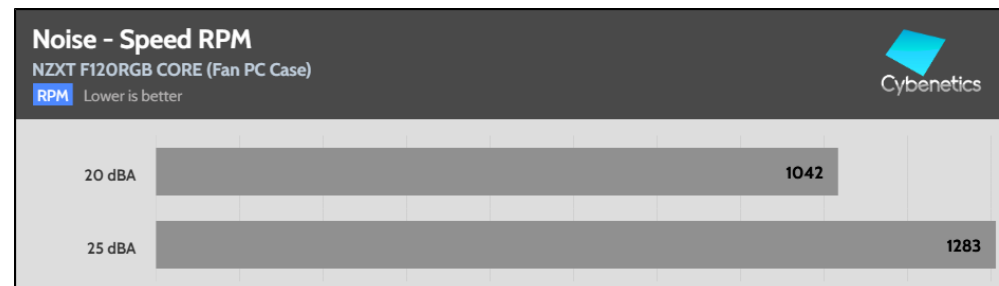
### Fan Percentage Noise



## Fan Speed Noise



## Fan Noise Speed



## SECTION G: Uncertainty

### Fan Performance Uncertainty Estimation

#### General Statement

Measurement uncertainty associated with the reported results was evaluated and estimated in accordance with JCGM 100:2008 (Guide to the Expression of Uncertainty in Measurement — GUM) and ISO/IEC 17025:2017, Clauses 7.6 and 7.2.

The uncertainty budget accounts for all significant identified contributors arising from the measurement process, instrumentation, test conditions, and operator interaction.

The reported expanded uncertainty  $U$  is obtained by multiplying the combined standard uncertainty  $u_c$  by a coverage factor  $k = 2$ , corresponding to a confidence level of approximately 95 %, assuming a normal probability distribution.

Unless otherwise stated, the reported uncertainty applies only to the specific measurements performed and does not include long-term drift, aging effects, or future environmental changes.

#### Expanded Measurement Uncertainty by Measurement Type

| Measurement  | Expanded Uncertainty $U$ ( $k=2$ , norm)                                                                          |
|--------------|-------------------------------------------------------------------------------------------------------------------|
| Fan Air Flow | $\pm 1.23176$ % of reading ( $k=2$ ) — e.g. $\pm 3.69$ CFM at 25 CFM, $\pm 4.29$ at 92 CFM, $\pm 7.15$ at 250 CFM |

