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## NZXT AER RGB120 and AER RGB140 – Test and Review

24.01.2017 Dobrin Krastev



NZXT is a company well known for offering various high quality products designed to deliver great cooling performance and always something more. In this review I am going to describe the two fans, part of the AER RGB series, made to provide reliable cooling performance but most of all, amazing visual appearance.

To perform this test and review I received the NZXT AER RGB120 and AER RGB140 fans, which arrived to me inside a very attractive in matter of colours carton packages in the white/purple colour scheme. On the front panel of every box there is a pattern, which features a big and very colorful picture of the fan inside, accompanied by the product name and its purpose.

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As every other product on the market, the full technical specification, additional picture of the fans installed inside a case, additional information regarding the HUE+ and the CAM software are located on the back and the two sides of the white/purple carton boxes.

**AER RGB120 white box**



**AER RGB140 white box**



After I took both of the fans out of the lovely carton packages I reached two additional white boxes with two compartments and two lift-up covers each. Beneath them inside the big compartments were the fans, while all of the additional accessories were located in the smaller ones.

**AER RGB120 package**



**AER RGB140 package**



Personally, I really enjoyed the packages but let's put them aside and proceed with checking the fan structures.

### **NZXT AER RGB120 and AER RGB140 STRUCTURE**

The first impression which I got after I took both of the fans out of their packages was a feeling of very solid structure and a promise for some serious cooling capabilities. And here I would like to mention that the two AER RGB fans are with almost identical structure and the only difference is the physical dimensions and the provided corresponding cooling performance.



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So, let's proceed with checking the fan structures and features, which according to NZXT are optimized for optimal balance between airflow, noise level and advanced lighting customization.

AER RGB120 front view



AER RGB140 front view



Both of the fans are designed with very solid square frames entirely made of black matte plastic with physical dimensions of 120 x 120 x 25 mm for the AER RGB120 model and 140 x 140 x 25mm for the AER RGB140 model. The frames themselves are equipped with non-detachable plastic corners featuring also rubber dampers for reducing the vibrations of the fans and offer 4 mounting holes on each side to be used when installing the fans using the screws provided in the package on a 120mm (105 x 105mm screw hole pattern) or 140mm (125 x 125mm screw hole pattern) case fan slot, CPU cooler heat sink or water cooling radiators.

On the front side of the frames around the propellers specifically engineered light guides are installed, which achieve even light dispersion of the light from the 8 LEDs.



For older men: Stable balance shoe for everyday walking.

In addition, on one of the frame sides there are IN and OUT ports, which the fans need to establish connection with the HUE+ or with others fan in daisy chain setup.

AER RGB120 back view



AER RGB140 back view



effects with ease by using the CAM's software interface.



For older men: Stable balance shoe for everyday walking.

Let's proceed with checking the propeller structures.

NZXT AER RGB120 and RGB140 fans are equipped with almost identical propellers entirely in black matte with 9 pretty narrow and very sharply angled blades featuring winglet tips that deliver enhanced performance and minimize the overall noise level.

And to perform their cooling duties the fans are equipped with 4pin PWM powered and regulated Fluid Dynamic Bearing (FDB), which according to NZXT will be able to deliver fan life of up to 6 years of constant operation.

With these motors installed, the fans are able to achieve:

- AER RGB120 is capable to operate at 500-1,500 revolutions per minute, delivering airflow level range of 17.48 – 52.44 CFM, static pressure level range of 0.15 – 1.35mm-H<sub>2</sub>O at noise level range of 22 – 33 dBA.

On the other hand:

- AER RGB140 is able to operate at 500-1,500 revolutions per minute, delivering airflow level range of 30.39 – 91.19 CFM, static pressure level range of 0.17 – 1.52mm-H<sub>2</sub>O at noise level range of 22 – 33 dBA.

### NZXT AER RGB120 and AER RGB140 ADDITIONAL ACCESSORIES

Since both fans are part of the same series they arrived with absolutely identical accessories packs. So let's put the fans aside and check the additional accessories added in the boxes.

**AER RGB120 accessories**



**AER RGB140 accessories**



The accessories packs offer:

1. One set of 4 metal installation screws to attach the fans to the case fan slot
2. 60mm long Low Noise adapter

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## NZXT AER RGB120 and AER RGB140 TESTS

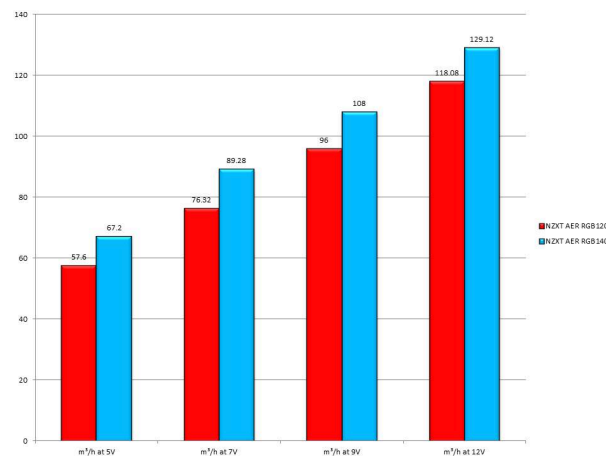
The tests will be conducted in my standard way. I will install the fans and test them at 5V/7V/9V/12V and my goal will be to check the performance of the products in real conditions. They will be tested under close-to-perfect conditions, not taking into account any external factors. The results achieved during the test can in no way be the same if the models are mounted on a cooler or on the case fan slot of any modern computer case. I will measure the amount of air going through the fans for one hour and their speed. For this I use a fan controller, a voltage meter, an anemometer and a stand made specifically for this purpose.

And this is what the fans look like installed on my test stand:

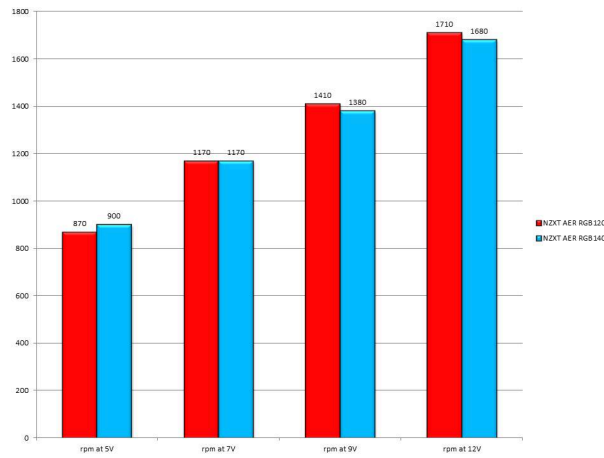


The test results are shown in the following charts:

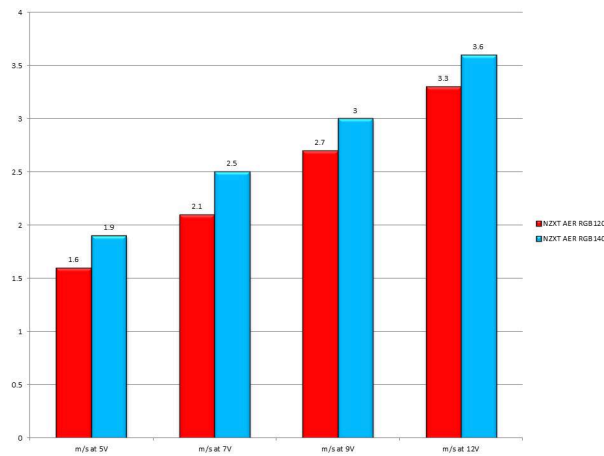
Airflow through the fans at 5V, 7V, 9V, 12V



Propellers rpm during the tests at 5V, 7V, 9V, 12V.



The anemometer showed the following air speed passing through the propellers:



After mounting the fans onto the stand, and leaving them to rotate for about 60 minutes at maximum speed, it was time for the tests to begin.

As with my other tests, again I started with a gradual increase of the voltage through the Lamptron FCT starting at 0V and both of the fans made at least one stable revolution at about 7V. To perform all of the tests I had to decrease the operational voltage to 5V.

#### Test at 5V:

At the first test, conducted at exactly 5V, AER RGB120 was rotating at stable 870 revolutions per minute, providing airflow level of 57.6 cubic metres per hour, while AER RGB140 was providing airflow level of 67.2 cubic metres per hour at only 900 revolutions per minute. At this test both of the fans were absolutely quiet.

#### Test at 7V:

At the second test, performed at 7V, AER RGB140 was rotating at 1170 revolutions per minute, providing airflow level of 89.28 cubic metres per hour, while the smaller model in the series was rotating at 1170 revolutions per minute with airflow level of 76.32 cubic metres per hour. At this test the smaller model started generating a tiny noise coming out of the air passing through the propeller, while the big brother was pretty noisy.

#### Test at 9V:

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## Test at 12V:

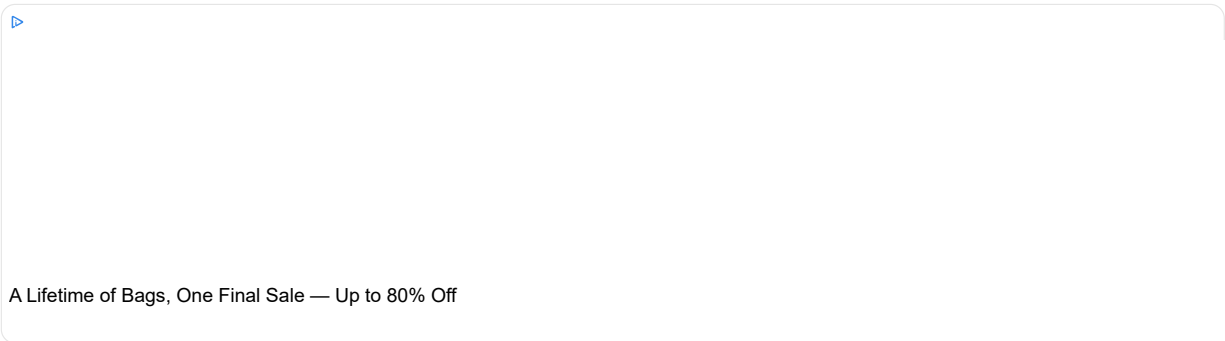
At the last test conducted at 12V, both fans delivered their maximum performance, which for the smaller model was airflow level of 118 cubic metres per hour at 1710 revolutions per minute, while for AER RGB140 it was 129 cubic metres per hour, while rotating at 1680 revolutions per minute. At this test both of the products were really loud.

## NZXT AER RGB120 and AER RGB140 CONCLUSIONS

### 1. NZXT AER RGB120 and RGB140 Performance:

After I spent several hours examining the packages, the structure of the products and their performance I am really happy with what I've experienced. Overall, both of the fans are very interesting and most of all very effective products, which makes them an amazing choice for all possible cooling setups inside every modern rig.

Both of the fans are made as a set of advanced technologies to provide quality and stable airflow and wide operational range, which is good news either for users seeking quiet operation at low voltage operation and also extreme performance for the gamers, overclockers and enthusiasts.



Throughout the tests both of them performed really well and achieved amazing results, which led me to think that they will be a good choice to be installed on a case fan slot to boost the overall airflow inside every modern case and also be a main cooling unit for CPU heatsinks or watercooling radiators compatible with either 120mm or 140mm fans cooling low, middle or high grade processors working at default or seriously overclocked frequencies.

Regarding the noise I was able to observe a really quiet operation when the fans were running at 5-6V range but still keep in mind that the starting voltage for both of the models is 7V. So for truly quiet operation they have to be set manually to operate at 5V.

On the other hand, the tests performed at 9 and 12V made the fans roar like real beasts and to be honest I was expecting such a behavior since obviously these products are made to be amazing performers. And for great cooling performance, the noise level should be sacrificed. But that is normal and intended.

### 2. NZXT AER RGB120 and RGB140 Appearance:

So far so good. The fans are performing really great and that is not all... Even though I didn't receive the HUE+ module so I can really enjoy all of the colours provided by the 8 LEDs evenly dispersed by the light guides, I watched the official videos and what I saw was just amazing.

When the fans are connected in a daisy chain to the HUE+ and controlled by the CAM software they can achieve just outstanding visual effects with several different lightning patterns and a lot more colours. A feature which will definitely make

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AER RGB120 has been added to the [120mm fans catalogue](#).

AER RGB140 has been added to the [140mm fans catalogue](#).

Official price (MSRP): AER RGB120: **29.90 euro**

Official price (MSRP): AER RGB140: **34.90 euro**

Warranty: **24 months**

Special thanks to NZXT for providing us with test samples.



#### FANS AND FAN CONTROLLERS TESTS AND REVIEWS

Tagged 120mm, 140mm, AER, NZXT, NZXT AER RGB120, NZXT AER RGB120 and AER RGB140 - Test and Review, NZXT AER RGB140, review, RF-AR120-B1, RF-AR140-B1, RGB120, RGB140, Test

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models from various brands and now I have the chance to test again 2 of those competitors – NoiseBlocker BlackSilentFan XK-1 and XK-2. Yes, I will test them again just to check if the performance is the same and add some of the missing data to the 140mm catalogue.

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