



Novalogy Inc, 340 S Lemon Ave #8535, Walnut, CA 91789, United States

Review of optical and usability properties: AYO vs Philips goLITE BLU

The Philips goLITE BLU seems to be the best researched and developed appliance amongst the Circadian Rhythm products utilizing blue light therapy. Moreover, Philips goLITE BLU is one of the best selling and highly utilized consumer light therapy products in the world. That is why, it is used here as a benchmark to verify how AYO compares on optical and usability aspects.

	Subject	Philips goLITE BLU	Ayo
1	Optical power projected on the eye	According to specs: 300 $\mu\text{Watt}/\text{cm}^2$	250 $\mu\text{Watt}/\text{cm}^2$
2	Dominant wavelength of the light	Blue: 460 nm	Blue: 470nm
3	Spatial size of the visible light source	68X115 @ 500mm from the eye. This is equivalent to 136X230mm @ 1 meter =0,031sr.	2X20mm @ 14mm distance. This is equivalent to 143X1429mm @ 1 meter =0,20 sr.
4	Regulations: ICNIRP	Operates at 70% of the limits stated in the document	Operates at 10,5% limit
5	Extra	This product is used at a distance of approx. 50 cm (e.g. arms length) from the observer. The bright emitting area will be focused on the retina, which can result in an aggravating feeling of looking into a spotlight contributing to potential eye annoyance.	The light source is close to the eye and impossible for the eye to accommodate to. This means that the light is diffusely projected on the retina, which makes it less irritating.
6	Consumer power	12 Watt	0,1 Watt
7	Freedom of movement	User is required to stay on spot and remain static during typical light therapy session, potentially hindering regular users activity.	User can freely move around and preform usual activities without hindrance.



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Notes:

On Line 1 -> Optical power projection on the eye, represents irradiance level at 100% intensity (max. intensity). Light intensity can be set up on lower values as well.

On Line 3 -> The spatial source area of AYO is 6.45 times larger than the Philips goLITE BLU which would make it at the same irradiation level of $300 \mu\text{Watt}/\text{cm}^2$, 6,45 times less bright and thus, reducing glare.

On Line 4 -> Studying the document: "ICNIRP GUIDELINES ON LIMITS OF EXPOSURE TO INCOHERENT VISIBLE INFRARED RADIATION" shows that AYO is functioning far from "Thermal Hazard" energy levels and operates at approximately 10.5% of the "Blue Light Hazard" limit, far from the considered critical or dangerous levels.

On Line 6 -> AYO is designed for very low energy consumption, which makes it possible to keep all of its components in a slim design, contributing to users comfort.

On Line 7 -> AYO is worn on the users head and dose not hinder line of sight, allowing for freedom of movement and regular user activity e.g. reading, preparing food, walking, morning routine, etc.

Conclusion

The use of AYO is safe for the eyes with respect to Blue Light Hazard as well as Thermal Hazard. Besides that, it is substantially less irritating and gives the user much more freedom to move than the Philips goLITE BLU, consequently not hindering the user's regular activities.

Disclaimer:

The information above is presented as independent opinion of optical - light experts, Novalogy Inc. manufacturing partner Hoover Dam Technologies and is based on optical-light measurements, usability tests and device specifications. Novalogy Inc. Scientific Advisory Board was consulted in the process of producing this review document.