

Light Speed Autolensmeter (Red light source vs. Green light source)

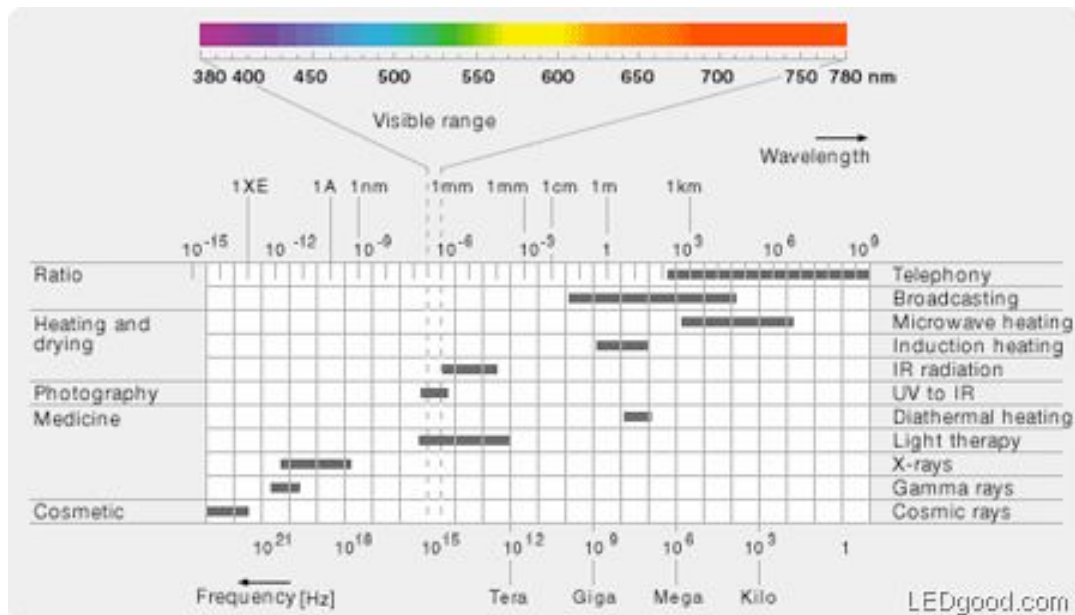
More advanced design principle of a green light source:

Human eyes are most sensitive to yellowish green light whose wavelength is 550-600nm, thus 555nm is defined as the best visible function. Meanwhile, ISO 7944-1998 stipulates standard measuring wavelength of autolensmeter should be 546.07nm.

Generally, the wavelength of red light from traditional red light autolensmeter is 660nm., which has some error from standard wavelength, causing measurement error at no more than 0.07D for lens of lower than 10D, and 0.15D for lens of 10-20D.

Such error has to be eliminated by adjusting ABBE number to the standard measuring wavelength of the traditional autolensmeter to make correct measurement according to different lens specification.

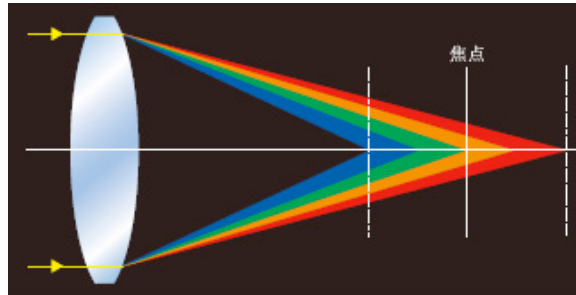
However, in common practice, many lenses are not marked with ABBE number or refractive index, thus ABBE number may be adjusted incorrectly and the measurement result mistaken.



Wavelength of light from present autolensmeters:

Topcon	NIDEK	TOMEY	SHIN-NIPPON	HUVITS	TOPCON	YEASN
CL-100	LM-1000	TL-2000	SLM-4000	CLM-3000	CL-200	CCQ-800
620nm	660nm	660nm	650nm	630nm	543nm	525nm

The wavelength of green light is 546nm, which is exactly meets ISO international standard. Under such light, no adjustment is needed and the light source directly is used to measure lens.



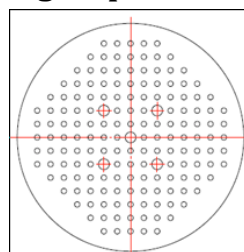
Measurement accuracy and cost difference

Traditional red light autolensmeter uses optical focusing method, with 4 parallel beams going through lens and imaging on CCD, then the power of the lens is calculated.

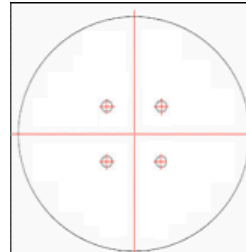
The Light Speed uses 525nm green light beam, which goes through lens-on-lens support to receive optical characteristics, and then through Hartmann sensor to make 169 sampling dots to be sent to CMOS sensor which cost is far more expensive that CCD.

Data capturing spots

Light Speed



Other Autolensmeters



With an image digital processing system, image position and characteristics are analyzed within the software, and thus optical characteristics were calculated. The 169 dots make more accurate data capturing from lens, while advanced processing software brings speed and smoothness to the measurement.

Measurement speed

Model	NIDEK LM-1800	YEASN CCQ-800
Measurement speed	60ms	52ms