



Can the thermospheric green line at 557nm be considered as a non-polarised standard ?

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The thermospheric green line corresponds to the O1S-O1D transition at 557 nm. It is a forbidden quadrupolar electric transition. The lifetime of the upper state is close to 1s. This line is the most intense line of the auroral spectra but it is also emitted in equatorial region with fainter intensities. It can reach tens of kR in the auroral sky. Typically, the intensity in the equatorial region is 1000 times fainter.

Due to the fact that the transition is quadrupolar with an upper level $J=0$, it is non polarisable.

Following this idea, we will examine if the line can be used as a non-polarized standard and what can be the instruments concerned by this possible standard. We will especially focused on the needed exposure time to achieve this and on the possible remaining polarisation due to scattering of the green line in the lower part of the atmosphere. We also will distinguish the cases of auroral and non auroal regions where some strong asymmetry can occur in the green emissions.