The c-axis conductivity of flux-grown, partially Pr-substituted Pr$_x$Y$_{1-x}$Ba$_2$Cu$_3$O$_7$ single crystals has been measured using the technique of spectral ellipsometry [1]. We find that the c-axis response exhibits similar spectral features like in oxygen deficient and thus underdoped YBa$_2$Cu$_3$O$_{7-δ}$ [2]. A spectral gap in the electronic conductivity develops already in the normal state for $T\gg T_c$ (the value of $σ_{lc}$ is reduced with decreasing temperature for $ω\ll 2Δ$). The size of the gap increases as a function of underdoping. The oxygen bond-bending phonon mode at 320 cm$^{-1}$ exhibits a strongly anomalous T-dependence and a broad absorption peak forms at low temperature. These similarities between fully oxygenated Pr-substituted Pr$_x$Y$_{1-x}$Ba$_2$Cu$_3$O$_7$ and deoxygenated YBa$_2$Cu$_3$O$_{7-δ}$ suggests that the $T_c$ suppression in the former is caused by a decrease of the hole concentration or a localization of the mobile hole carriers rather than by pair breaking. It also supports the previous suggestion that the unusual spectral features of the c-axis conductivity of Y-123 single crystals are determined by the CuO$_2$ planes, which confine the charge carriers [3]. The fully oxygenated and thus metallic CuO chains merely seem to affect the absolute value of the electronic conductivity, i.e. $σ_{lc}$ is somewhat larger for Pr$_x$Y$_{1-x}$Ba$_2$Cu$_3$O$_7$ with fully oxygenated CuO chains (as is evident from the absence of the apical defect mode at 630 cm$^{-1}$) than for YBa$_2$Cu$_3$O$_{7-δ}$ crystals with a similar $T_c$ value.

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