

## A COMMENT ON HÖNL-LONDON FACTORS

ANNIE HANSSON, *Stockholm University, AlbaNova University Center, Department of Physics, SE-10691 Stockholm, Sweden*; JAMES K. G. WATSON, *Steacie Institute for Molecular Sciences, National Research Council of Canada, Ottawa, Ontario, Canada K1A 0R6*.

The Hönl-London factors<sup>a</sup> are the factors dependent on the rotational quantum numbers in formulas for intensities of rovibronic transitions. A table of Hönl-London factors for singlet-singlet transitions of a diatomic molecule was given by Herzberg<sup>b</sup>, and reproduced in other books. Standard definitions of transition moments and sum rules were proposed by Whiting and Nicholls<sup>c</sup>, but there does not seem to be a published table of the corresponding individual Hönl-London factors. Here we show that for rotational transitions between levels of definite parity the values in Herzberg's table should be multiplied by 2 for all perpendicular vibronic transitions, with an additional factor of 2 for  $\Pi - \Sigma$  and  $\Sigma - \Pi$  transitions. The results are consistent with the Whiting-Nicholls conventions.<sup>c</sup>

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<sup>a</sup>H. Hönl and F. London, *Z. Physik* **33**, 803 (1925).

<sup>b</sup>G. Herzberg, *Spectra of Diatomic Molecules*, Van Nostrand (1950), p. 208.

<sup>c</sup>E. E. Whiting and R. W. Nicholls, *Astrophys. J. Suppl. Ser.* **27**, 1 (1974); E. E. Whiting, A. Schadee, J. B. Tatum, J. T. Hougen and R. W. Nicholls, *J. Mol. Spectrosc.* **80**, 249 (1980).