

Uncertainty codes

The uncertainty codes used by the HITRAN database are described in Table 5 of the HITRAN2004 paper [1], which is reproduced here. There are two types of uncertainty code corresponding to absolute uncertainty in cm⁻¹ (used for the line position and air pressure-induced line shift parameters) and relative uncertainty in % (used for the line intensity and broadening parameters).

ν , S , $\gamma(\text{air})$ or

ν , S , $\gamma(\text{air})$, $\gamma(\text{self})$, $n(\text{air})(T\text{-dep. exponent})$, $\delta(\text{air})(\text{pressure shift})$

Code	Absolute Uncertainty range	Code	Relative Uncertainty range
0	≥ 1 or Unreported	0	Unreported or unavailable
1	≥ 0.1 and < 1	1	Default or constant
2	≥ 0.01 and < 0.1	2	Average or estimate
3	≥ 0.001 and < 0.01	3	$\geq 20\%$
4	≥ 0.0001 and < 0.001	4	$\geq 10\%$ and $< 20\%$
5	≥ 0.00001 and < 0.0001	5	$\geq 5\%$ and $< 10\%$
6	≥ 0.000001 and < 0.00001	6	$\geq 2\%$ and $< 5\%$
7	≥ 0.0000001 and < 0.000001	7	$\geq 1\%$ and $< 2\%$
8	≥ 0.00000001 and < 0.0000001	8	$< 1\%$
9	≥ 0.000000001 and < 0.00000001		

References

[1] L. S. Rothman, et al., "The HITRAN 2004 molecular spectroscopic database", J. Quant. Spectrosc. Radiat. Transfer 96, 139-204 (2005). [[link to article](#)] [[ADS](#)]