

APPENDIX P: FUNDAMENTAL CONSTANTS

NOAA/NESDIS uses the following fundamental constants in radiation calculations for all operational satellite systems. They have been adopted from the 1998 Committee on Data for Science and Technology (CODATA) of the International Council of Scientific Unions (CODATA,1998)*.

The fundamental constants include the speed of light (c), The Boltzman constant (k), and the Planck constant (h). The 1998 CODATA values are:

$$c = 299,792,458 \text{ m/sec}$$

$$k = 1.38065030 \times 10^{-23} \text{ J/deg K}$$

$$h = 6.62606876 \times 10^{-34} \text{ J sec}$$

Thus, the Planck formula radiation constants are:

$$c_1 = 1.1910427 \times 10^{-05} \text{ mW/(m}^2 \text{ sr cm}^{-4}\text{)}$$

$$c_2 = 1.4387770 \text{ cm K}$$

* CODATA has since revised these constants, except the speed of light. These are published on the National Institute of Standards and Technology (NIST) website at <http://physics.nist.gov/cuu/Constants/index.html>