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Radiation Quantities and Units

STANDARD

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1 Purpose and Scope

1.1 This Engineering Practice provides the SI units of measurement associated with quantities useful in describing all types of radiation for agricultural engineering applications. As an aid in establishing uniformity in the agricultural engineering literature, it also provides the generally accepted symbols which represent those quantities and the approved symbols for the units of the SI system applicable to those radiation quantities. The principal customary units that have been used for radiation quantities are also listed and factors are provided for conversion of those customary units to SI units.

1.2 Table 1 provides the preferred names for radiation quantities, quantity symbols, names of customary units and SI units, symbols for the SI units, and identification of authoritative sources of the information relating to conversion factors and the quantities and units. These references may be consulted for more detailed information in many cases.

Table 1 – Radiation quantities and units

Quantity	Quantity Symbol	Customary†	SI	SI Unit Symbol	Conversion Factor‡	Authoritative Reference
Electromagnetic Radiation (General)						
Frequency	*f,v*	cycles/second	hertz	Hz	1.000000 E+00*	(1)
Wavelength	λ	angstrom micron	meter	m	1.000000 E-10* 1.000000 E-06*	(1)
Energy	E, W, U	watt-hour erg electronvolt	joule	J	3.600000 E+03* 1.000000 E-07* 1.60219 E-19	(1) (1) (1)
Electromagnetic Fields and Circuits						
Electric field strength	E, K	volt/inch	volt/meter	V/m	3.937008 E+01	(1,2)
Magnetic field strength	H	oersted	ampere/meter	A/m	7.957747 E+01	(1,2)
Electric charge	Q		coulomb	C		(2)
Electric current	I		ampere	A		(2)