

**PHYSICAL PARAMETERS, CORRECTION FACTORS AND COMPARISON RESULTS  
FOR THE ENEA AIR KERMA STANDARD FOR CO-60 GAMMA RAYS**

	Value		
	1983	1998	2001
<b>Physical parameter</b>			
dry air density (273.15 K 101 325 Pa) / kg m <sup>-3</sup>	1.293 0	1.293 0	1.293 0
Z/Z <sub>0</sub> . ratio of air compressibility factors from 293.15 K to 273.15 K	1.000 2	1.000 2	1.000 2
(μ <sub>en</sub> /ρ) <sub>a</sub> /(μ <sub>en</sub> /ρ) <sub>c</sub>	0.998 5	0.998 5	0.998 5
s <sub>c,a</sub> restricted mass stopping power ratio W/e (J C <sup>-1</sup> )	1.0070	1.0007	1.0007
g (fraction of energy lost by bremsstrahlung)	3.2·10 <sup>-3</sup>	3.2·10 <sup>-3</sup>	3.2·10 <sup>-3</sup>
<b>Correction factor</b>			
k <sub>s</sub> recombination losses <sup>(1)</sup>	1.001 9	1.0028	1.0028
k <sub>h</sub> humidity	0.997 0	0.997 0	0.997 0
k <sub>st</sub> stem scattering	1.000	1.000	1.000
k <sub>c</sub> wall attenuation and scatter	1.015 6	1.0160	
k <sub>CEP</sub> mean origin of electrons	0.997 2	0.9972	
k <sub>wall</sub> chamber wall effects			1.0217 <sup>(2)</sup>
k <sub>rn</sub> beam radial non-uniformity	1.000		
k <sub>an</sub> Beam axial non-uniformity	0.997		
k <sub>pn</sub> point source non-uniformity		1.0001	1.0001
k <sub>npn</sub> non-point source effects		1.000	1.000
<b>Measurement of I/(vp)</b>			
v volume chamber n.C1	1.022 2(12)		
v volume chamber n.C3		1.024 3(12)	1.024 3(12)
<b>K<sub>ENEA</sub>/K<sub>BIPM</sub></b>	<b>0.9982</b>	<b>1.0017</b>	<b>1.0103</b>

(1) referring to the air-kerma rate at ENEA-INMRI

(2) determined by Monte Carlo calculation

**COMPARISON RESULTS FOR THE ENEA AIR KERMA STANDARD FOR CS137 GAMMA RAYS**

	1998	2001
F <sub>ENEA</sub> (Gy/C)	1.021 10 <sup>6</sup>	1.024 10 <sup>6</sup>
<b>K<sub>ENEA</sub>/K<sub>BIPM</sub></b>	<b>0.993</b>	<b>0.997 <sup>(1)</sup></b>

(1) The change from 0.993 to 0.997 is consequent to the revision of the K<sub>wall</sub> factor of the ENEA standard for C<sub>60</sub> gamma rays.