$$\frac{(p_{ref}/p)}{2\pi\tau_v(O_2)} = 24 + (4.41)(10^6)h\,\frac{0.05 + 100h}{0.391 + 100h} \tag{4-227}$$

$$\frac{(p_{ref}/p)}{2\pi\tau_v(N_2)} = [9 + (3.5)(10^4)h\,e^{-F}](T_{ref}/T)^{1/2} \tag{4-228}$$

$$F = 6.142[(T_{ref}/T)^{1/3} - 1] \tag{4-229}$$

The reference pressure and temperature values are $p_{ref} = 101.325\,kPa$ and $T_{ref} = 293.16\,K$, respectively. The range of validity of Eqs (4-227) and (4-228) is between 0°C and 40°C (32°F and 104°F), for an accuracy within 10%. The quantity h is the fraction of molecules in the gas that are H_2O molecules. This fraction is related to the relative humidity RH, expressed as a decimal (0.40 instead of 40%), and the saturation pressure of the water vapor at the air temperature, p_{sat}:

$$h = (RH)p_{sat}/p \tag{4-230}$$

The energy attenuation coefficient for atmospheric air at various temperatures and relative humidity values is presented in Table 4-8. The energy attenuation coefficient m is related to the attenuation coefficient α by $m = 2\alpha$. The values given in Table 4-8 are values of the energy attenuation coefficient averaged over the octave band with the indicated center frequency. The octave band values are about 10% different from the values

TABLE 4-8 Energy Attenuation Coefficient m (km^{-1}) for Atmospheric Air at 101.325 kPa (14.7 psia): Note that $m = 2\alpha$, where α is the Attenuation Coefficient.

enota verjetno dB/km!!

Relative humidity, %	Temperature, °C	Octave band center frequency, Hz 500	1,000	2,000	4,000	8,000
10	10	1.28	4.30	10.6	16.3	16.4
	15	0.98	3.41	10.9	22.3	24.0
	20	0.78	2.67	9.02	25.7	34.1
	25	0.71	2.14	7.18	24.2	36.3
	30	0.69	1.80	5.84	20.4	38.9
20	10	0.63	2.04	6.98	21.1	29.9
	15	0.56	1.61	5.50	18.7	33.2
	20	0.53	1.40	4.31	14.7	29.4
	25	0.52	1.33	3.58	11.7	24.3
	30	0.52	1.30	3.23	9.80	20.7

TABLE 4-8 (Cont'd)

Relative humidity, %	Temperature, °C	Octave band center frequency, Hz 500	1,000	2,000	4,000	8,000
30	10	0.50	1.35	4.60	15.1	28.4
	15	0.48	1.23	3.59	12.0	25.1
	20	0.46	1.17	3.02	9.62	20.3
	25	0.46	1.14	2.80	7.90	16.4
	30	0.46	1.13	2.76	7.14	13.4
40	10	0.45	1.13	3.37	11.3	22.8
	15	0.44	1.07	2.80	8.91	18.7
	20	0.43	1.05	2.62	7.22	15.0
	25	0.42	1.03	2.57	6.33	12.5
	30	0.42	1.02	2.56	6.20	11.1
50	10	0.41	1.01	2.77	8.93	17.8
	15	0.40	0.99	2.50	7.16	14.5
	20	0.39	0.96	2.34	6.17	11.9
	25	0.39	0.95	2.30	5.88	10.4
	30	0.38	0.94	2.26	5.76	9.88
60	10	0.38	0.94	2.51	7.92	15.0
	15	0.38	0.92	2.31	6.12	12.2
	20	0.37	0.90	2.20	5.66	10.3
	25	0.37	0.89	2.16	5.50	9.27
	30	0.37	0.88	2.14	5.43	9.01
70	10	0.36	0.89	2.30	6.45	13.4
	15	0.36	0.86	2.16	5.58	11.0
	20	0.35	0.85	2.08	5.33	9.57
	25	0.35	0.84	2.06	5.18	8.85
	30	0.35	0.84	2.05	5.14	8.71
80	10	0.35	0.84	2.14	5.80	11.6
	15	0.34	0.82	2.02	5.32	9.86
	20	0.34	0.81	1.97	5.04	9.05
	25	0.33	0.80	1.95	4.93	8.52
	30	0.33	0.80	1.95	4.88	8.47
90	10	0.33	0.80	1.97	5.37	10.1
	15	0.33	0.79	1.92	5.09	8.93
	20	0.32	0.78	1.87	4.87	8.56
	25	0.32	0.77	1.87	4.72	8.36
	30	0.32	0.77	1.86	4.68	8.34