

**Appendix II**  
**The Error Function**

$$\operatorname{erf}(x) = \frac{2}{\sqrt{\pi}} \int_0^x e^{-t^2} dt$$

$$\operatorname{erfc}(x) = 1 - \operatorname{erf}(x) = \frac{2}{\sqrt{\pi}} \int_x^{\infty} e^{-t^2} dt$$

$$\operatorname{erf}(x) = 1$$

x	erf(x)	erfc(x)	x	erf(x)	erfc(x)
0	0	1	0.05	0.056	0.944
0.10	0.112	0.888	0.15	0.168	0.832
0.20	0.223	0.777	0.25	0.276	0.724
0.30	0.329	0.671	0.35	0.379	0.621
0.40	0.428	0.572	0.45	0.475	0.525
0.50	0.521	0.479	0.55	0.563	0.437
0.60	0.604	0.396	0.65	0.642	0.358
0.70	0.678	0.322	0.75	0.711	0.289
0.80	0.742	0.258	0.85	0.771	0.229
0.90	0.797	0.203	0.95	0.821	0.179
1.00	0.843	0.157	1.05	0.862	0.138
1.10	0.880	0.120	1.15	0.896	0.104
1.20	0.910	0.0901	1.25	0.923	0.0768
1.30	0.934	0.0659	1.35	0.944	0.0564
1.40	0.952	0.0481	1.45	0.960	0.0400
1.50	0.966	0.0338	1.55	0.972	0.0284
1.60	0.976	0.0238	1.65	0.980	0.0199
1.70	0.984	0.0156	1.75	0.987	0.0128
1.80	0.989	0.0105	1.85	0.991	8.53 × 10 <sup>-3</sup>
1.90	0.993	6.91 × 10 <sup>-3</sup>	1.95	0.994	5.57 × 10 <sup>-3</sup>
2.00	0.995	4.59 × 10 <sup>-3</sup>	2.05	0.996	3.68 × 10 <sup>-3</sup>
2.10	0.997	2.93 × 10 <sup>-3</sup>	2.15	0.998	2.33 × 10 <sup>-3</sup>
2.20	0.998	1.84 × 10 <sup>-3</sup>	2.25	0.999	1.44 × 10 <sup>-3</sup>
2.30	0.999	1.13 × 10 <sup>-3</sup>	2.35	0.999	8.80 × 10 <sup>-4</sup>
2.40	0.999	6.82 × 10 <sup>-4</sup>	2.45	0.999	5.26 × 10 <sup>-4</sup>
2.50	1.000	4.03 × 10 <sup>-4</sup>	2.55	1.000	3.08 × 10 <sup>-4</sup>
2.60	1.000	2.34 × 10 <sup>-4</sup>	2.65	1.000	1.77 × 10 <sup>-4</sup>
2.70	1.000	1.33 × 10 <sup>-4</sup>	2.80	1.000	7.46 × 10 <sup>-5</sup>
2.90	1.000	4.09 × 10 <sup>-5</sup>	3.00	1.000	2.20 × 10 <sup>-5</sup>
3.10	1.000	1.16 × 10 <sup>-5</sup>	3.20	1.000	6.00 × 10 <sup>-6</sup>
3.30	1.000	3.06 × 10 <sup>-6</sup>	3.40	1.000	1.52 × 10 <sup>-6</sup>
3.50	1.000	7.43 × 10 <sup>-7</sup>	3.60	1.000	3.56 × 10 <sup>-7</sup>
3.70	1.000	1.67 × 10 <sup>-7</sup>	3.80	1.000	7.70 × 10 <sup>-8</sup>
3.90	1.000	3.48 × 10 <sup>-8</sup>	4.00	1.000	1.54 × 10 <sup>-8</sup>
4.10	1.000	6.70 × 10 <sup>-9</sup>	4.20	1.000	2.86 × 10 <sup>-9</sup>
4.30	1.000	1.19 × 10 <sup>-9</sup>	4.40	1.000	4.89 × 10 <sup>-10</sup>
4.50	1.000	1.97 × 10 <sup>-10</sup>	4.60	1.000	7.75 × 10 <sup>-11</sup>
4.70	1.000	3.00 × 10 <sup>-11</sup>	4.80	1.000	1.14 × 10 <sup>-11</sup>
4.90	1.000	4.22 × 10 <sup>-12</sup>	5.00	1.000	1.54 × 10 <sup>-12</sup>

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Communication Systems, An Introduction to  
Signal and Noise in Electrical Communication

Mc Graw Hill

