

which takes into account the loss of calls due to blocking (Stee 1999). Equation (4.35) can be solved for various values of C and blocking probabilities to get the carried traffic. These are given in Table 4.3.

The efficiency of the channel usage, η , is given by

$$\eta = \frac{A_c}{C} = \frac{A[1 - p(B)]}{C} \quad (4.38)$$

TABLE 4.3 Erlang B Values

Number of channels	Offered traffic			Number of channels	Offered traffic		
	$\rho=0.005$	$\rho=0.02$	$\rho=0.1$		$\rho=0.005$	$\rho=0.020$	$\rho=0.100$
1	0.005	0.020	0.111	37	24.846	28.254	35.572
2	0.105	0.224	0.595	38	25.689	29.166	36.643
3	0.349	0.602	1.271	39	26.534	30.081	37.715
4	0.701	1.092	2.045	40	27.382	30.997	38.787
5	1.132	1.657	2.881	41	28.232	31.916	39.861
6	1.622	2.276	3.758	42	29.085	32.836	40.936
7	2.158	2.935	4.666	43	29.940	33.758	42.011
8	2.730	3.627	5.597	44	30.797	34.682	43.088
9	3.333	4.345	6.546	45	31.656	35.607	44.165
10	3.961	5.084	7.511	46	32.518	36.534	45.243
11	4.610	5.842	8.487	47	33.381	37.462	46.322
12	5.279	6.615	9.474	48	34.246	38.392	47.401
13	5.964	7.402	10.470	49	35.113	39.323	48.481
14	6.663	8.200	11.474	50	35.982	40.255	49.562
15	7.376	9.010	12.484	51	36.852	41.189	50.644
16	8.100	9.828	13.500	52	37.725	42.124	51.726
17	8.834	10.656	14.522	53	38.598	43.060	52.808
18	9.578	11.491	15.548	54	39.474	43.997	53.891
19	10.331	12.333	16.579	55	40.351	44.936	54.975
20	11.092	13.182	17.613	56	41.229	45.875	56.059
21	11.860	14.036	18.651	57	42.109	46.816	57.144
22	12.635	14.896	19.693	58	42.990	47.758	58.229
23	13.416	15.761	20.737	59	43.873	48.700	59.315
24	14.204	16.631	21.784	60	44.757	49.644	60.401
25	14.997	17.505	22.833	61	45.642	50.589	61.488
26	15.795	18.383	23.885	62	46.528	51.534	62.575
27	16.598	19.265	24.939	63	47.416	52.481	63.663
28	17.406	20.150	25.995	64	48.305	53.428	64.750
29	18.218	21.039	27.053	65	49.195	54.376	65.839
30	19.034	21.932	28.113	66	50.086	55.325	66.927
31	19.854	22.827	29.174	67	50.978	56.275	68.016
32	20.678	23.725	30.237	68	51.872	57.226	69.106
33	21.505	24.626	31.301	69	52.766	58.177	70.196
34	22.336	25.529	32.367	70	53.662	59.129	71.286
35	23.169	26.435	33.434	71	54.558	60.082	72.376
36	24.006	27.343	34.503	72	55.455	61.036	73.467

(Continued)

TABLE 4.3 Erlan

Number of channels	$\rho=$
73	5
74	5
75	5
76	5
77	5
78	6
79	6
80	6
81	6
82	6
83	6
84	6
85	6
86	6
87	6
88	6
89	7
90	7
91	7
92	7
93	7
94	7
95	7
96	7
97	7
98	7
99	7
100	8
101	8
102	8
103	8
104	8
105	8
106	8
107	8
108	8
109	8
110	9
111	9
112	9
113	9
114	9
115	9
116	9

TABLE 4.3 Erlang B Values (Continued)

Number of channels	Offered traffic			Number of channels	Offered traffic		
	$p=0.005$	$p=0.02$	$p=0.1$		$p=0.005$	$p=0.020$	$p=0.100$
73	56.354	61.990	74.558	117	96.599	104.493	122.783
74	57.253	62.945	75.649	118	97.526	105.468	123.883
75	58.153	63.900	76.741	119	98.454	106.444	124.983
76	59.054	64.857	77.833	120	99.382	107.419	126.082
77	59.956	65.814	78.925	121	100.310	108.395	127.182
78	60.859	66.771	80.018	122	101.239	109.371	128.282
79	61.763	67.729	81.110	123	102.168	110.348	129.383
80	62.668	68.688	82.203	124	103.099	111.324	130.483
81	63.573	69.647	83.297	125	104.027	112.302	131.585
82	64.479	70.607	84.390	126	104.962	113.280	132.684
83	65.386	71.568	85.484	127	105.891	114.255	133.784
84	66.294	72.529	86.578	128	106.822	115.234	134.886
85	67.202	73.490	87.672	129	107.753	116.213	135.987
86	68.111	74.453	88.767	130	108.684	117.191	137.087
87	69.021	75.415	89.861	131	109.617	118.167	138.189
88	69.932	76.378	90.956	132	110.550	119.147	139.289
89	70.843	77.342	92.051	133	111.482	120.126	140.390
90	71.755	78.306	93.147	134	112.416	121.106	141.492
91	72.668	79.271	94.242	135	113.348	122.084	142.593
92	73.581	80.236	95.338	136	114.284	123.068	143.696
93	74.495	81.201	96.434	137	115.236	124.052	144.796
94	75.410	82.167	97.530	138	116.160	125.026	145.900
95	76.325	83.134	98.626	139	117.091	126.017	147.003
96	77.241	84.100	99.722	140	118.044	127.005	148.105
97	78.157	85.068	100.819	141	118.984	127.968	149.215
98	79.074	86.035	101.916	142	119.963	128.994	150.306
99	79.992	87.004	103.013	143	120.914	129.994	151.444
100	80.910	87.972	104.110	144	121.837	130.920	152.524
101	81.829	88.941	105.207	145	122.746	131.990	153.614
102	82.748	89.910	106.305	146	123.660	132.899	154.720
103	83.668	90.880	107.402	147	124.588	133.865	155.857
104	84.588	91.850	108.500	148	125.557	134.837	156.911
105	85.509	92.821	109.598	149	126.471	135.871	158.025
106	86.431	93.791	110.696	150	127.397	136.836	159.126
107	87.353	94.763	111.794	151	128.316	137.801	160.216
108	88.275	95.734	112.892	152	129.367	138.835	161.341
109	89.198	96.706	113.991	153	130.274	139.811	162.434
110	90.122	97.678	115.089	154	131.207	140.794	163.587
111	91.046	98.651	116.188	155	132.231	141.785	164.675
112	91.970	99.624	117.287	156	133.161	142.856	165.795
113	92.895	100.597	118.386	157	134.058	143.781	166.851
114	93.820	101.571	119.485	158	134.989	144.832	168.216
115	94.746	102.545	120.584	159	136.030	146.544	169.446
116	95.672	103.519	121.684	160	136.563	147.469	170.895