ACSS /AW

Aluminum Conductor Steel Supported / Aluminum Cad Steel Support

Complete Conductor:

ACSS/AW is a composite concentric-lay-stranded cable. Aluminum-clad steel strands for the central core of the cable, around which is stranded one or more layers of aluminum 1350-O wires.

ACSS/AW conductors are manufactured in accordance with the latest applicable issue of ASTM B856. The “O” temper of the aluminum, a fully annealed or soft temper, causes most or all of the mechanical load of ACSS/AW to be carried by the steel. The aluminum-clad steel core may consist of 7,19,37 or more wires. Numerous combinations of aluminum and steel strand and layers are possible. The sizes and standings listed on the following pages are those most frequently used for overhead lines.

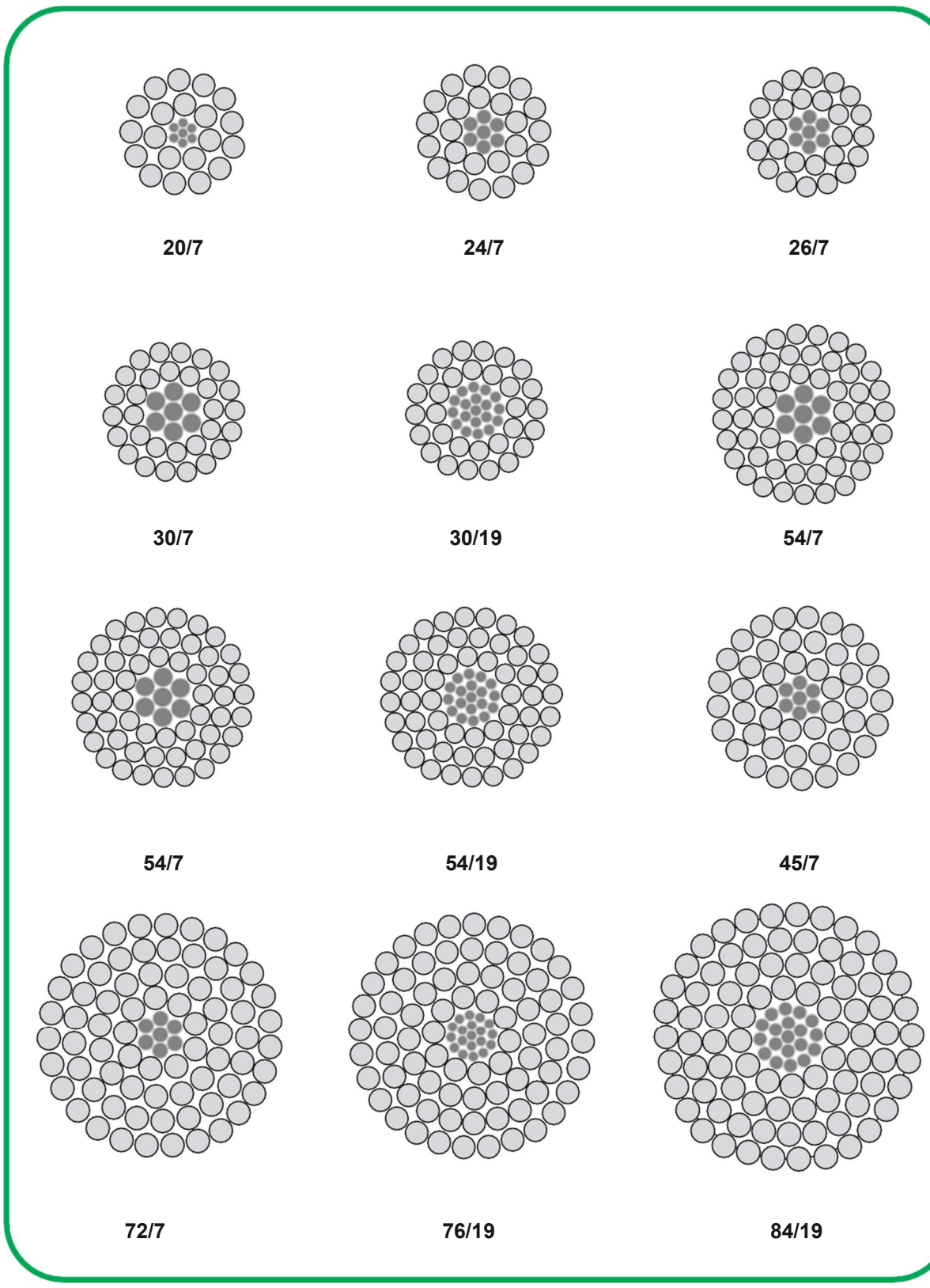
Features and Benefits:

The AW core, which consists of a thick layer of aluminum (approx. 10% of the nominal wire\ radius) over steel, gives ACSS/AW conductors the advantages of standard ACSS along with the light weight and good conductivity of aluminum and the high tensile strength and ruggedness of steel. ACSS/AW can operate continuously at high temperatures (250°C) without damage. The cross- sections illustrate some common stranding. Aluminum conductor steel-supported with aluminum-clad steel wire (ACSS/AW) are used for overhead distribution and transmission lines where a high degree of corrosion resistance is required.

Options:

1. High-strength aluminum-clad steel core (/HSAW)
2. Extra-High-strength aluminum-clad steel core (/EHSAW)
3. Ultra-High-strength aluminum-clad steel core (/UHSAW)
4. Trapezoidal-shaped aluminum strands (/TW)

ACSS/AW cross section according to the number of layers:



ASTM B856

Code Word	Size AWG or kcmil	Stranding No.		Cross Section		Overall Diameter
		Aluminum	Steel	Total	Aluminum	
		mm		mm²		mm
Spoonbill	266.8	22x2.7965	7x1 5544	148.39	135.16	15.85
Scaup	266.8	24x2.6771	7x17856	152.64	135.16	16.08
Partridge	266.8	26x2.5730	7x2.0015	157.23	135.23	16.31
Junco	266.8	30x2.3952	7x2.3952	166.71	135.16	16.76
Ostrich	300	26x2.7279	7x2.1209	176.71	151.94	17.27
Trogon	336.4	20x3.2943	7x1.4630	182.26	170.45	17.58
Woodcock	336.4	22x3.1 41 9	7x1.7449	187.29	170.58	17.81
Widgeon	336.4	24x3.0073	7x2.0040	192.58	170.45	18.03
Linnet	336.4	26x2.8879	7x2.2453	198.06	170.32	18.29
Oriole	336.4	30x2.6898	7x2.6898	210.26	170.45	18.82
Ptarmigan	397.5	20x3.581 4	7x1.5925	215.42	201.48	19.1
Stork	397.5	22x3.41 37	7x1.8973	221.16	201.35	19.35
Brant	397.5	24x3.2689	7x2.1793	227.55	201.42	19.61
Ibis	397.5	26x3.1394	7x2.4409	234	201.29	19.89
Lark	397.5	30x2.9235	7x2.9235	248.39	201.35	20.47
Tailorbird	477	20x3.921 7	7x1.7424	258.26	241.68	20.93
Toucan	477	22x3.7388	7x2.0777	265.29	241.55	21.18
Flicker	477	24x3.5814	7x2.3876	273.1	241.74	21.49
Hawk	477	26x3.4391	7x2.6746	280.84	241.55	21.79
Hen	477	30x3.2029	7x3.2029	298.13	241.74	22.43
Heron	500	30x3.2791	7x3.2791	312.45	253.35	22.96
Tody	556.5	20x4.2367	7x1.8821	301.42	281.93	22.61
Sapsucker	556.5	22x4.0386	7x2.2428	309.48	281.81	22.89
Parakeet	556.5	24x3.8684	7x2.5781	318.64	282.06	23.22
Dove	556.5	26x3.71 60	7x2.8905	327.93	282	23.55
Eagle	556.5	30x3.4594	7x3.4594	347.81	282	24.21
Peacock	605	24x4.0335	7x2.6898	346.45	306.64	24.21
Squab	605	26x3.8735	7x3.01 24	356.26	306.39	24.54
Wood Duck	605	30x3.6068	7x3.6068	378.06	306.52	25.25
Teal	605	30x3.6068	19x2.1640	376.39	306.52	25.25
Turacos	636	20x4.5288	7x2.0 l 1 6	344.45	322.19	24.1 6
Goldfinch	636	22x4.318	7x2.3977	353.74	322.19	24.46
Rook	636	24x4.1351	7x2.7559	364.06	322.32	24.82
Grosbeak	636	26x3.97256	7x3.0886	374.71	322.26	25.146
Seater	636	30x3.69824	7x3.6982	397.42	322.26	25.8826
Egret	636	30x3.69824	19x2.2199	395.81	322.26	25.8826
Flamingo	666.6	24x4.23418	7x2.8219	381.74	337.93	25.4
Gannet	666.6	26x4.06654	7x3.1623	392.64	337.68	25.7556
Stilt	715.5	24x4.38658	7x2.9235	409.68	362.71	26.3144
Starling	715.5	26x4.21386	7x3.2766	421.61	362.58	26.6954
Redwing	715.5	30x3.92176	19x2.3520	444.97	362.39	27.4574
Macaw	795	42x3.49504	7x1.9405	423.68	402.97	26.797
Turbit	795	20x5.06476	7x2.2504	430.77	402.97	27.0002
Tern	795	45x3.37566	7x2.2504	430.58	402.71	27.0002
Puffin	795	22x4.82854	7x2.6822	442.39	402.84	27.3558
Cuckoo	795	24x4.6228	7x3.0810	455.03	402.84	27.7368
Condor	795	54x3.08102	7x3.08102	454.77	402.58	27.7368
Drake	795	26x4.44246	7x3.4544	468.58	402.97	28.1178

1- Due to rounding,total values may be slightly greater or less than the sum of the component values.

2- Based on the conductivity of %61.2 (minimum lot average.)

IACS for aluminum and %8 IACS at 20°c for the steel core.

AC resistance for single-layer and three-layers designs approximates the effects of core magnetization.

Weight [1]			Percent by Mass		Rated Strength	Resistance [2]				Ampacity	
Total	Aluminum	Steel	Aluminum	Steel		DC at 20°c	AC at 25°c	AC at 75°c	AC at 200°c	75°c	200°c
kg/km			%		kg	ohm/km				A	
461.33	373.53	87.8	80.97	19.03	2595	0.2011	0.2054	0.247	0.351	460	810
489.61	373.53	116.08	76.33	23.67	3180	0.1991	0.2034	0.2444	0.3474	465	815
519.37	373.53	145.84	71.96	28.04	3797	0.1969	0.201 4	0.2418	0.3435	470	825
583.36	375.02	208.34	64.24	35.76	5080	0.1932	0.1975	0.2372	0.3363	480	840
584.85	421.15	163.7	71.99	28.01	4264	0.1752	0.1791	0.2152	0.3054	505	890
549.13	471.75	77.38	85.83	14.17	2590	0.1608	0.1647	0.1982	0.2812	530	935
581.87	471.75	110.12	80.98	19.02	3275	0.1594	0.1 631	0.1962	0.2785	535	940
617.59	471.75	145.84	76.34	23.66	4005	0.1578	0.1614	0.1942	0.2756	540	950
654.79	471.75	183.04	72	28	4763	0.1562	0.1 598	0.1919	0.2726	545	960
735.15	473.24	263.41	64.23	35.77	6441	0.1532	0.1565	0.188	0.2671	555	980
648.84	556.57	92.27	85.79	14.21	3084	0.1362	0.1398	0.1677	0.2382	590	1040
687.53	556.57	130.96	80.97	19.03	3869	0.1348	0.1381	0.1660	0.2359	595	1050
730.69	556.57	172.63	76.33	23.67	4717	0.1335	0.1368	0.1644	0.2333	600	1060
773.85	556.57	217.27	71.99	28.01	5625	0.1322	0.1355	0.1627	0.2306	605	1070
869.09	558.06	311.03	64.24	35.76	7575	0.1296	0.1325	0.1594	0.226	615	1095
778.31	668.19	110.12	85.82	14.18	3674	0.1135	0.1165	0.1401	0.1985	660	1175
825.93	668.19	157.75	80.98	19.02	4627	0.1125	0.1155	0.1385	0.1965	665	1185
876.53	668.19	206.85	76.33	23.67	5670	0.1112	0.1142	0.1371	0.1946	670	1195
928.61	668.19	260.43	71.98	28.02	6759	0.1102	0.1129	0.1355	0.1923	675	1210
1043.2	669.67	373.53	64.23	35.77	9117	0.1079	0.1106	0.1329	0.1883	690	1230
1093.8	702.41	391.39	64.23	35.77	9344	0.1030	0.1056	0.127	0.1798	710	1270
909.27	779.8	129.47	85.82	14.18	4286	0.0971	0.1001	0.1201	0.1703	725	1300
962.84	779.8	183.04	81	19	5398	0.0965	0.0991	0.1191	0.1686	730	1310
1022.37	779.8	241.08	76.34	23.66	6622	0.0955	0.0981	0.1178	0.1670	740	1325
1083.38	779.8	303.59	71.96	28.04	7938	0.0945	0.0971	0.1165	0.1650	745	1335
1217.32	781.29	436.03	64.23	35.77	10387	0.0925	0.0951	0.1142	0.1614	760	1365
1111.66	848.25	263.41	76.31	23.69	7212	0.0876	0.0902	0.1083	0.1535	780	1395
1178.63	848.25	330.37	71.98	28.02	8618	0.0869	0.0892	0.1073	0.1519	785	1410
1322.98	849.74	473.24	64.24	35.76	11068	0.0853	0.0876	0.105	0.1486	800	1440
1314.05	849.74	462.82	64.72	35.28	11340	0.0853	0.0876	0.105	0.149	800	1440
1038.74	891.41	147.33	85.83	14.17	4899	0.085	0.0879	0.1053	0.1493	790	1415
1101.24	891.41	209.83	81	19	6169	0.0843	0.0869	0.1043	0.1476	795	1430
1168.21	891.41	276.8	76.34	23.66	7575	0.0833	0.086	0.103	0.146	800	1445
1238.15	891.41	346.74	71.98	28.02	9026	0.0827	0.085	0.102	0.1444	810	1460
1391.43	894.39	497.05	64.24	35.76	11385	0.081	0.0833	0.0997	0.1414	825	1490
1381.02	894.39	488.12	64.7	35.3	11929	0.081	0.0833	0.1001	0.1417	825	1485
1224.76	934.57	290.19	76.33	23.67	7938	0.0797	0.082	0.0984	0.1394	825	1490
1297.68	934.57	363.11	71.98	28.02	9480	0.0787	0.0814	0.0974	0.1378	835	1505
1314.05	1003.02	311.03	76.33	23.67	8528	0.0741	0.0768	0.0919	0.1299	865	1560
1392.92	1003.02	389.9	71.97	28.03	9979	0.0735	0.0758	0.0909	0.1286	870	1575
1552.15	1006	547.64	64.75	35.25	13381	0.0722	0.0745	0.0892	0.126	885	1605
1251.55	1114.63	136.91	89.05	10.95	5171	0.0686	0.0715	0.0889	0.1286	885	1575
1299.17	1114.63	184.53	85.81	14.19	6123	0.0682	0.0709	0.0846	0.1198	905	1640
1299.17	1114.63	184.53	85.81	14.19	6123	0.0682	0.0712	0.0883	0.128	885	1585
1376.55	1114.63	261.92	80.98	19.02	7756	0.0676	0.0699	0.0837	0.1184	915	1655
1459.89	1114.63	345.25	76.34	23.66	9480	0.0669	0.0692	0.0827	0.1171	920	1670
1459.89	1114.63	345.25	76.34	23.66	9480	0.0669	0.0696	0.0863	0.1253	905	1615
1549.18	1114.63	434.54	71.97	28.03	11068	0.0659	0.0682	0.082	0.1158	930	1690

ACSS/AW

ASTM B856

Code Word	Size AWG or kcmil	Stranding No.		Cross Section		Overall Diameter
		Aluminum	Steel	Total	Aluminum	
		mm	mm	mm2	mm2	mm
Canary	900	54x3.27914	7x3.2791	515.16	456.06	29.5148
Phoenix	954	42x3.82778	7x2.1259	508.19	483.29	29.337
Corncrake	954	20x5.5473	7x2.46634	516.84	483.35	29.59
Rail	954	45x3.6982	7x2.46634	516.84	483.35	29.59
Towhee	954	48x3.5814	7x2.78638	526.26	483.55	29.85
Redbird	954	24x5.0647	7x3.37566	546.19	483.55	30.38
Cardinal	954	54x3.3756	7x3.37566	545.93	483.29	30.38
Canvasback	954	30x4.5288	19x2.7178	593.61	483.42	31.7
Snowbird	1033.5	42x3.9852	7x2.21488	550.9	523.93	30.56
Ortolan	1033.5	45x3.8481	7x2.21488	560.06	523.93	30.78
Whooper	1033.5	48x3.7261	7x2.89814	569.61	523.42	31.06
Curlew	1033.5	54x3.5128	7x3.51282	591.22	523.35	31.62
Avocet	1113	42x4.1351	7x2.29616	593.03	564.06	31.7
Bh1ejay	1113	45x3.9954	7x2.66446	603.22	564.19	31.98
Bullfinch	1113	48x3.8684	7x3.00736	613.93	564.13	32.23
Finch	1113	54x3.6474	19x2.18694	635.74	564.26	32.84
Oxbird	1192.5	42x4.2799	7x2.37744	635.29	604.19	32.82
Bunting	1192.5	45x4.1351	7x2.7559	646.06	604.32	33.07
Cormorant	1192.5	48x4.0030	7x3.11404	657.42	604.13	33.35
Grackle	1192.5	54x3.7744	19x2.26568	680.84	604.19	33.99
Scissortail	1272	42x4.4196	7x2.45618	677.48	644.32	33.88
Bittern	1272	45x4.2697	7x2.84734	688.9	644.32	34.16
Diver	1272	48x4.1351	7x3.2156	701.48	644.64	34.4678
Pheasant	1272	54x3.8989	19x2.3393	726.39	644.71	35.0774
Ringdove	1351.5	42x4.5567	7x2.5323	720.19	684.97	34.9504
Dipper	1351.5	45x4.5567	7x2.9337	732.13	684.77	35.2044
-none-	1351.5	48x4.2621	7x3.3147	745.22	684.77	35.5092
Martin	1351.5	54x4.0182	19x2.41 04	771.48	684.77	36.1696
Popinjay	1431	42x4.6888	7x2.6060	762.58	725.22	35.941
Bobolink	1431	45x4.5288	7x3.0200	775.03	724.9	36.2204
Wagtail	1431	48x4.3865	7x3.4112	789.35	725.42	36.5506
Plover	1431	54x4.1351	19x2.4815	817.1	725.22	37.211
Nuthatch	1510.5	45x4.6532	7x3.1013	818.19	765.29	37.2364
Parrot	1510.5	54x4.2468	19x2.5476	861.8	764.9	38.227
Ratite	1590	42x4.9428	7x2.7457	847.35	805.93	37.8968
Lapwing	1590	45x4.7752	7x3.1826	861.61	805.93	38.2016
Hornbill	1590	48x4.6228	7x3.5966	876.77	805.61	38.5318
Falcon	1590	54x4.3586	19x2.6162	907.87	805.74	39.243
Chukar	1780	84x3.6982	19x2.2199	975.87	902.32	40.6908
Sea hawk	1869	68x4.2113	7x2.3393	977.29	947.16	40.7162
Mockingbird	2034.5	72x4.2697	7x2.8473	1075.48	1030.9	42.6974
Roadrunner	2057.5	76x4.1783	19x1.9507	1098.9	1042.06	43.18
Bluebird	2156	84x4.0690	19x2.4409	1181.29	1092.32	44.7548
Kiwi	2167	72x4.4069	7x2.9387	1145.68	1098.19	44.069
Thrasher	2312	76x4.4297	19x2.0675	1235.09	1171.29	45.7708
joree	2515	76x4.6202	19x2.1564	1343.61	1274.19	47.752

1- Due to rounding,total values may be slightly greater or less than the sum of the component values.

2- Based on the conductivity of %61.2 (minimum lot average.)

IACS for aluminum and %8 IACS at 20°c for the steel core.

AC resistance for single-layer and three-layers designs approximates the effects of core magnetization.

Sim Noor Yazdan Co.

ACSS/TW

ACSS/AW

Weight [1]			Percent by Mass		Rated Strength	Resistance[2]				Ampacity	
Total	Aluminum	Steel	Aluminum	Steel		DC at 20°c	AC at 25°c	AC at 75°c	AC at 200°c	75°c	200°c
kg/km			%		kg	ohm/km				A	
1653.35	1261.96	391.39	76.33	23.67	10523	0.0591	0.0617	0.0764	0.1106	975	1755
1501.56	1337.86	163.7	89.05	10.95	6169	0.0571	0.06	0.0741	0.1073	990	1780
1558.11	1337.86	221.74	85.8	14.2	7348	0.0568	0.0594	0.0709	0.1001	1015	1845
1558.11	1337.86	221.74	85.8	14.2	7348	0.0568	0.0597	0.0738	0.1066	995	1790
1619.12	1337.86	282.75	82.56	17.44	8618	0.0564	0.0594	0.0732	0.106	1000	1800
1751.57	1337.86	415.2	76.34	23.66	11158	0.0558	0.0581	0.0692	0.0978	1030	1885
1751.57	1337.86	415.2	76.34	23.66	11158	0.0558	0.0584	0.0722	0.1043	1010	1825
2071.52	1340.84	730.69	64.72	35.28	17872	0.0541	0.0561	0.0673	0.0948	1060	1940
1626.56	1447.98	178.58	89.03	10.97	6713	0.0528	0.0558	0.0686	0.0991	1040	1875
1687.58	1447.98	239.59	85.82	14.18	7983	0.0525	0.0554	0.0682	0.0984	1045	1885
1754.55	1447.98	305.07	82.58	17.42	9344	0.0522	0.0551	0.0676	0.0978	1050	1900
1897.41	1447.98	449.43	76.34	23.66	11839	0.0515	0.0541	0.0666	0.0965	1065	1925
1751.57	1559.6	191.97	89.05	10.95	7212	0.0489	0.0522	0.064	0.0919	1085	1970
1818.54	1559.6	258.94	85.8	14.2	8573	0.0486	0.0515	0.0633	0.0912	1095	1980
1889.97	1559.6	328.88	82.56	17.44	10070	0.0482	0.0512	0.063	0.0909	1100	1995
2041.76	1567.04	474.72	76.77	23.23	13063	0.0479	0.0505	0.0623	0.0899	1110	2015
1876.57	1671.21	205.37	89.05	10.95	7711	0.0456	0.0489	0.0597	0.086	1135	2060
1948.01	1671.21	276.8	85.82	14.18	9208	0.0453	0.0486	0.0594	0.0853	1140	2075
2023 .90	1671.21	352.69	82.57	17.43	10795	0.0453	0.0479	0.0591	0.0846	1150	2085
2187.6	1680.14	507.46	76.78	23.22	13971	0.0446	0.0476	0.0584	0.084	1160	2110
2003.07	1782.82	218.76	89.04	10.96	8255	0.0427	0.0459	0.0561	0.0807	1180	2150
2077.48	1782.82	294.66	85.81	14.19	9798	0.0427	0.0456	0.0558	0.0801	1185	2165
2159.33	1782.82	376.51	82.58	17.42	11476	0.0423	0.0453	0.0554	0.0794	1195	2175
2333.44	1791.75	541.69	76.79	23.21	14878	0.042	0.0446	0.0548	0.0787	1205	2200
2128.07	1894.43	233.64	89.04	10.96	8754	0.0404	0.0436	0.0531	0.0787	1225	2235
2206.95	1894.43	312.51	85.82	14.18	10433	0.04	0.0433	0.0528	0.0787	1230	2250
2294.75	1894.43	400.32	82.58	17.42	12020	0.0397	0.043	0.0522	0.0787	1240	2265
2477.79	1903.36	574.43	76.81	23.19	15830	0.0394	0.0423	0.0518	0.0787	1250	2290
2253.08	2006.04	247.04	89.03	10.97	9299	0.0381	0.0413	0.0502	0.0787	1265	2325
2337.91	2006.04	331.86	85.81	14.19	11022	0.0377	0.041	0.0499	0.0787	1275	2335
2428.68	2006.04	422.64	82.57	17.43	12701	0.0377	0.0407	0.0495	0.0787	1285	2350
2625.12	2014.97	608.66	76.79	23.21	16738	0.0374	0.04	0.0489	0.0787	1295	2375
2467.38	2117.66	349.72	85.82	14.18	11657	0.0358	0.039	0.0476	0.0787	1315	2420
2769.47	2128.07	642.89	76.82	23.18	17690	0.0354	0.0381	0.0466	0.0787	1340	2465
2503.09	2229.27	273.82	89.04	10.96	10297	0.0341	0.0377	0.0456	0.0787	1350	2485
2596.85	2229.27	369.06	85.81	14.19	12247	0.0341	0.0374	0.0453	0.0787	1355	2505
2699.53	2229.27	470.26	82.57	17.43	13880	0.0338	0.0371	0.0449	0.0787	1365	2520
2916.8	2239.69	677.11	76.78	23.22	18643	0.0335	0.0364	0.0443	0.0787	1380	2550
2994.19	2507.56	488.12	83.72	16.28	15241	0.0305	0.0335	0.0394	0.0787	1480	2770
2818.58	2619.17	199.41	92.94	7.06	9571	0.0292	0.0331	0.0387	0.0787	1495	2810
3160.86	2866.2	294.66	90.67	9.33	12020	0.0269	O.Q308	0.0358	0.0787	1570	2975
3273.96	2897.46	376.51	88.5	11.5	13744	0.0266	0.0302	0.0351	0.0787	1590	3010
3626.66	3037.34	589.31	83.74	16.26	18461	0.0253	0.0285	0.0335	0.0787	1650	3130
3366.23	3052.22	314	90.67	9.33	12791	0.0253	0.0292	0.0341	0.0787	1630	3095
3678.74	3256.1	422.64	88.51	11.49	15467	0.0236	0.0276	0.0318	0.0787	1695	3235
4003.16	3541.83	459.84	88.5	11.5	16828	0.0217	0.0259	0.0299	0.0787	1775	3410