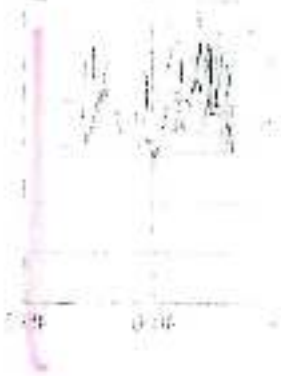




4413	75.8921	75.8921	75.8921	69.37	69.37	69.37
4414	75.8832	75.8832	75.8832	69.3631	69.3631	69.3631
4415	75.8743	75.8743	75.8743	69.3563	69.3563	69.3563
4416	75.8654	75.8654	75.8654	69.3495	69.3495	69.3495
4417	75.8564	75.8564	75.8564	69.3427	69.3427	69.3427
4418	75.8475	75.8475	75.8475	69.3358	69.3358	69.3358
4419	75.8386	75.8386	75.8386	69.329	69.329	69.329
4420	75.8297	75.8297	75.8297	69.3222	69.3222	69.3222
4421	75.8208	75.8208	75.8208	69.3154	69.3154	69.3154
4422	75.8119	75.8119	75.8119	69.3086	69.3086	69.3086
4423	75.803	75.803	75.803	69.3018	69.3018	69.3018
4424	75.7941	75.7941	75.7941	69.295	69.295	69.295
4425	75.7852	75.7852	75.7852	69.2881	69.2881	69.2881
4426	75.7763	75.7763	75.7763	69.2813	69.2813	69.2813
4427	75.7674	75.7674	75.7674	69.2745	69.2745	69.2745
4428	75.7585	75.7585	75.7585	69.2677	69.2677	69.2677
4429	75.7496	75.7496	75.7496	69.2609	69.2609	69.2609
4430	75.7407	75.7407	75.7407	69.2542	69.2542	69.2542
4431	75.7318	75.7318	75.7318	69.2474	69.2474	69.2474
4432	75.7229	75.7229	75.7229	69.2406	69.2406	69.2406
4433	75.714	75.714	75.714	69.2338	69.2338	69.2338
4434	75.7051	75.7051	75.7051	69.227	69.227	69.227
4435	75.6962	75.6962	75.6962	69.2202	69.2202	69.2202
4436	75.6874	75.6874	75.6874	69.2134	69.2134	69.2134
4437	75.6785	75.6785	75.6785	69.2067	69.2067	69.2067
4438	75.6696	75.6696	75.6696	69.1999	69.1999	69.1999
4439	75.6607	75.6607	75.6607	69.1931	69.1931	69.1931
4440	75.6519	75.6519	75.6519	69.1863	69.1863	69.1863
4441	75.643	75.643	75.643	69.1796	69.1796	69.1796
4442	75.6342	75.6342	75.6342	69.1728	69.1728	69.1728
4443	75.6253	75.6253	75.6253	69.166	69.166	69.166
4444	75.6164	75.6164	75.6164	69.1593	69.1593	69.1593
4445	75.6076	75.6076	75.6076	69.1525	69.1525	69.1525
4446	75.5987	75.5987	75.5987	69.1457	69.1457	69.1457
4447	75.5899	75.5899	75.5899	69.139	69.139	69.139
4448	75.581	75.581	75.581	69.1322	69.1322	69.1322
4449	75.5722	75.5722	75.5722	69.1255	69.1255	69.1255
4450	75.5633	75.5633	75.5633	69.1187	69.1187	69.1187
4451	75.5545	75.5545	75.5545	69.112	69.112	69.112
4452	75.5456	75.5456	75.5456	69.1052	69.1052	69.1052
4453	75.5368	75.5368	75.5368	69.0985	69.0985	69.0985
4454	75.528	75.528	75.528	69.0918	69.0918	69.0918
4455	75.5191	75.5191	75.5191	69.085	69.085	69.085

001



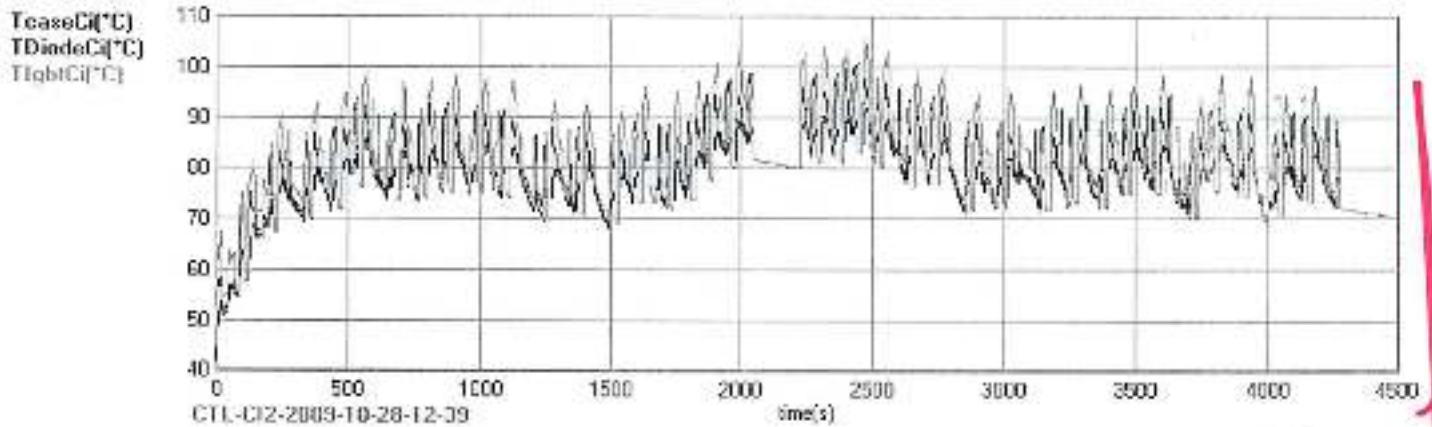
8



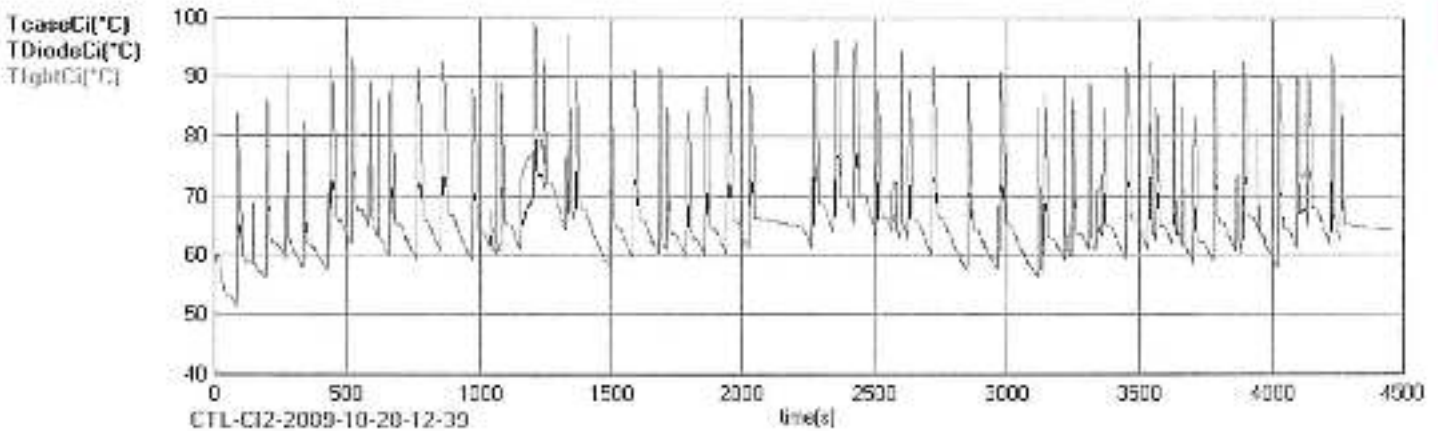
Inverter Temperature 1500V  
Air flow 2240m

7C 4M AW3 8p/m<sup>2</sup>

Degraded Mode 1Mout



Rheo temperature Temperature 1800V  
Air flow 2240m









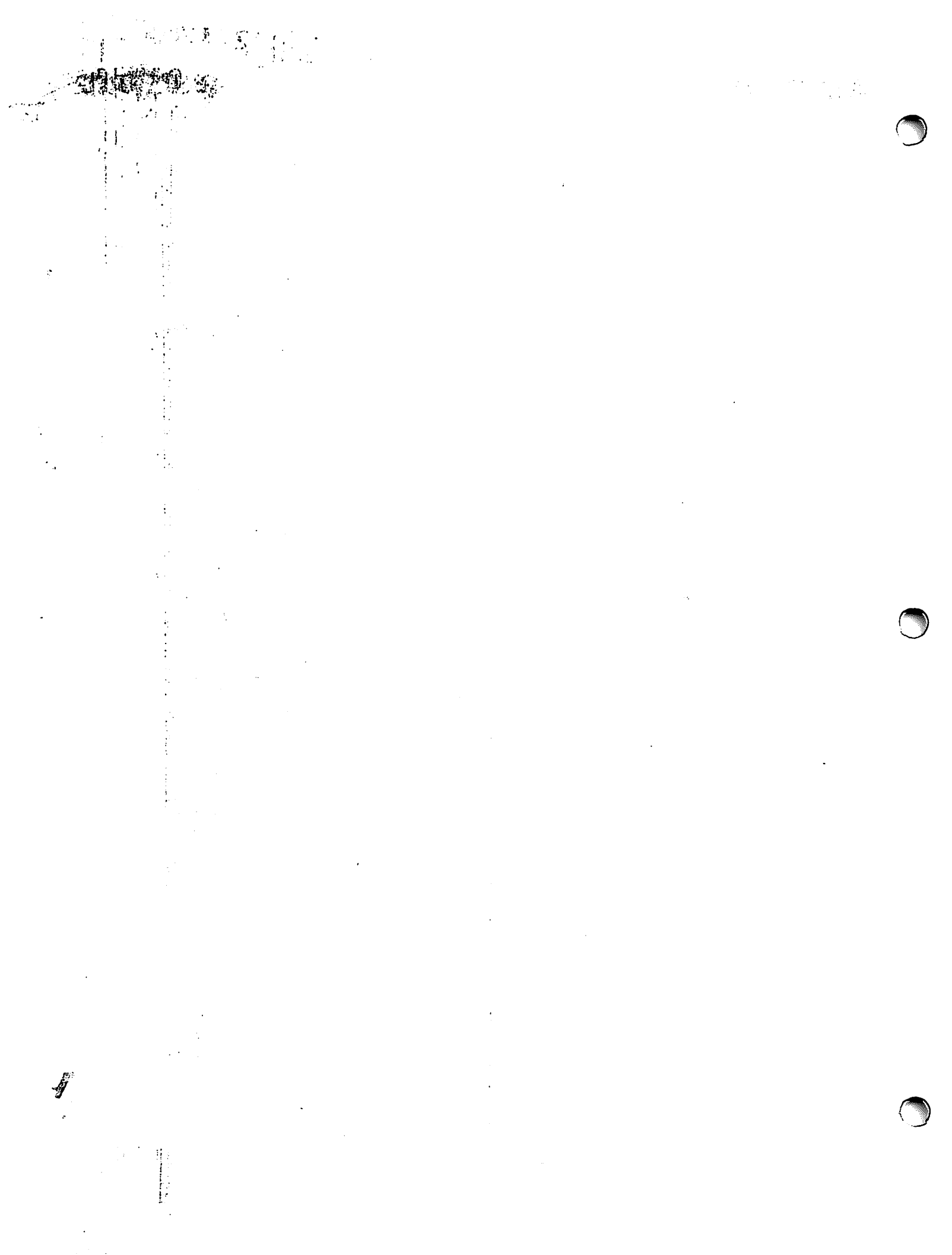
00012201

7C 4M AW3 8p/m<sup>2</sup> Degraded Mode 1Mout

INV CM1200HC-66H-203\_Mitsubishi\_1\_5.6  
RHEO CM800E6C-66H-202\_Mitsubishi\_1\_5.6

time(s)	TcaseCi(°C)	TDiodeCi(°C)	TlgbtCi(°C)	TcaseCi(°C)	TDiodeCi(°C)	TlgbtCi(°C)
Maximum	92.3	101.9	105.5	79.5	79.5	99.0

time(s)	TcaseCi(°C)	TDiodeCi(°C)	TlgbtCi(°C)	TcaseCi(°C)	TDiodeCi(°C)	TlgbtCi(°C)
0	42	44.5544	44.7043	42	42	42
1	44.2323	53.7877	54.8328	54.5324	54.5324	54.5324
2	46.5984	58.1135	60.409	57.4947	57.4947	57.4947
3	48.0048	57.9174	61.0643	58.4596	58.4596	58.4596
4	48.8831	57.7999	61.7992	58.9337	58.9337	58.9337
5	49.5015	57.5943	62.3893	59.2106	59.2106	59.2106
6	50.0095	57.3199	62.8841	59.3943	59.3943	59.3943
7	50.4735	57.1293	63.3593	59.5385	59.5385	59.5385
8	50.8946	56.8485	63.785	59.6449	59.6449	59.6449
9	51.2581	56.4632	64.1619	59.7118	59.7118	59.7118
10	51.6375	56.3796	64.3214	59.7647	59.7647	59.7647
11	52.0167	56.4734	64.3738	59.8142	59.8142	59.8142
12	52.6284	57.1952	65.7019	59.9674	59.9674	59.9674
13	53.3672	58.0433	67.1627	60.1958	60.1958	60.1958
14	53.5761	57.5299	66.0123	60.2392	60.2392	60.2392
15	53.5348	56.8723	64.8142	60.1565	60.1565	60.1565
16	53.6263	56.8301	64.6855	60.0723	60.0723	60.0723
17	53.7893	56.8668	64.6406	59.9873	59.9873	59.9873
18	54.017	57.0366	64.7737	59.9106	59.9106	59.9106
19	54.2873	57.2716	64.9865	59.8437	59.8437	59.8437
20	54.5603	57.4497	65.1019	59.7765	59.7765	59.7765
21	52.622	53.6929	55.2277	59.1264	59.1264	59.1264
22	51.5939	52.6648	54.1997	58.5354	58.5354	58.5354
23	51.1386	52.1464	54.1026	58.0164	58.0164	58.0164
24	50.9243	51.9305	53.9287	57.5431	57.5431	57.5431
25	50.9211	51.9413	54.254	57.128	57.128	57.128
26	50.9744	52.0013	54.4069	56.7508	56.7508	56.7508
27	51.0604	52.0941	54.5947	56.4075	56.4075	56.4075
28	51.0948	52.1185	54.4788	56.0802	56.0802	56.0802
29	51.1586	52.184	54.5967	55.7786	55.7786	55.7786
30	51.225	52.2541	54.6899	55.4984	55.4984	55.4984
31	51.2903	52.3194	54.7552	55.2362	55.2362	55.2362
32	51.3538	52.3828	54.8186	54.9905	54.9905	54.9905
33	51.416	52.445	54.8808	54.7596	54.7596	54.7596
34	51.4773	52.5064	54.9422	54.5423	54.5423	54.5423
35	51.538	52.567	55.0025	54.3374	54.3374	54.3374
36	51.5981	52.6271	55.063	54.1439	54.1439	54.1439
37	51.6577	52.6867	55.1226	53.9609	53.9609	53.9609
38	51.7168	52.7459	55.1817	53.7875	53.7875	53.7875
39	51.7755	52.8046	55.2404	53.623	53.623	53.623
40	51.7715	52.7856	55.0138	53.458	53.458	53.458
41	51.7801	52.7912	54.9787	53.2994	53.2994	53.2994
42	51.7946	52.8028	54.9498	53.1467	53.1467	53.1467
43	51.8211	52.8286	54.9658	53.0008	53.0008	53.0008
44	51.8435	52.8479	54.9431	52.8599	52.8599	52.8599





ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012202

45	52.5015	53.9651	57.8122	52.8031	52.8031	52.8031
46	54.0415	56.3157	63.4659	52.8863	52.8863	52.8863
47	54.7519	56.5775	63.3677	52.9375	52.9375	52.9375
48	55.0348	56.4835	62.9643	52.9628	52.9628	52.9628
49	55.2247	56.6005	62.9806	52.981	52.981	52.981
50	55.3625	56.6679	62.9506	52.9929	52.9929	52.9929
51	55.4705	56.7081	62.8969	52.9989	52.9989	52.9989
52	55.5538	56.7138	62.7898	52.9988	52.9988	52.9988
53	55.6027	56.8537	62.5591	52.9911	52.9911	52.9911
54	55.6296	56.5738	62.3119	52.9764	52.9764	52.9764
55	55.6421	56.4818	62.0565	52.9552	52.9552	52.9552
56	55.644	56.3817	61.7967	52.928	52.928	52.928
57	55.7057	56.4331	61.8671	52.902	52.902	52.902
58	55.8023	56.5231	61.9631	52.8774	52.8774	52.8774
59	55.9178	56.632	62.058	52.8541	52.8541	52.8541
60	56.0435	56.7509	62.2231	52.832	52.832	52.832
61	56.173	56.8746	62.3663	52.811	52.811	52.811
62	56.3029	56.9997	62.4843	52.7909	52.7909	52.7909
63	56.4327	57.1246	62.6122	52.7717	52.7717	52.7717
64	56.5623	57.2492	62.7397	52.7532	52.7532	52.7532
65	56.6901	57.3729	62.8611	52.7354	52.7354	52.7354
66	56.8138	57.4941	62.9887	52.7179	52.7179	52.7179
67	56.9349	57.6126	63.0739	52.7009	52.7009	52.7009
68	57.0542	57.7294	63.1777	52.6842	52.6842	52.6842
69	56.8178	57.3452	61.6532	52.6391	52.6391	52.6391
70	55.8544	56.4609	67.4321	52.5256	52.5256	52.5256
71	55.3195	55.926	56.8973	52.4154	52.4154	52.4154
72	55.0172	55.6237	56.595	52.3081	52.3081	52.3081
73	54.8411	55.4476	56.4189	52.2039	52.2039	52.2039
74	54.7335	55.34	56.3113	52.1024	52.1024	52.1024
75	54.8632	55.2897	56.2409	52.0037	52.0037	52.0037
76	54.6131	55.2196	56.1909	51.9075	51.9075	51.9075
77	54.5986	55.1293	56.3004	51.8157	51.8157	51.8157
78	54.5848	55.1064	56.3075	51.7265	51.7265	51.7265
79	54.5717	55.0843	56.3155	51.6398	51.6398	51.6398
80	54.5579	55.0643	56.3156	51.5556	51.5556	51.5556
81	54.5282	55.0602	56.2271	51.4726	51.4726	51.4726
82	54.502	55.034	56.2008	51.3916	51.3916	51.3916
83	54.4777	55.0097	56.1765	51.3125	51.3125	51.3125
84	56.147	68.3215	58.7124	56.9331	56.9331	77.4602
85	57.1193	69.3985	59.6374	60.1329	60.1329	80.7259
86	57.6984	69.9856	60.1685	62.0813	62.0813	82.6426
87	58.0119	69.9462	60.4247	63.2812	63.2812	83.4646
88	58.4054	69.9682	61.8406	63.9915	63.9915	83.434
89	58.8327	70.1121	63.1869	64.4053	64.4053	82.986
90	59.3797	70.7328	64.854	64.6541	64.6541	82.3434
91	60.2952	72.2965	67.8036	64.8259	64.8259	81.6181
92	60.6643	71.8964	67.5451	64.9078	64.9078	80.7904
93	60.8331	71.3333	67.6747	64.9164	64.9164	79.848
94	61.1124	71.6335	68.3077	64.8801	64.8801	78.6525
95	61.5224	72.4472	69.091	64.8085	64.8085	77.8085
96	61.704	72.2495	69.1205	64.6763	64.6763	76.6605
97	61.9763	72.3102	70.2571	64.5189	64.5189	75.5076
98	62.3514	72.87	71.4508	64.343	64.343	74.3745
99	62.7589	73.5577	72.5573	64.1387	64.1387	73.1683
100	63.1346	74.1545	73.5338	63.893	63.893	71.8724

*Handwritten signature*

*Red handwritten mark*

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ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012203

101	63.4893	74.6708	74.5518	63.6242	63.6242	70.5849
102	62.7629	69.7798	70.8085	62.2878	62.2878	63.9904
103	62.1084	68.8943	70.1615	61.1983	61.1983	61.1983
104	61.8218	69.9665	71.0796	60.6342	60.6342	60.6342
105	59.9245	59.9245	59.9245	60.2449	60.2449	60.2449
106	58.8684	58.8684	58.8684	59.9972	59.9972	59.9972
107	58.2798	58.2798	58.2798	59.8235	59.8235	59.8235
108	57.9509	57.9509	57.9509	59.8887	59.8887	59.8887
109	57.7663	57.7663	57.7663	59.5749	59.5749	59.5749
110	57.662	57.662	57.662	59.4727	59.4727	59.4727
111	57.6021	57.6021	57.6021	59.3772	59.3772	59.3772
112	57.5671	57.5671	57.5671	59.286	59.286	59.286
113	57.5458	57.5458	57.5458	59.1976	59.1976	59.1976
114	57.5321	57.5321	57.5321	59.1115	59.1115	59.1115
115	57.5227	57.5227	57.5227	59.0271	59.0271	59.0271
116	57.5157	57.5157	57.5157	58.9444	58.9444	58.9444
117	57.51	57.51	57.51	58.8631	58.8631	58.8631
118	57.505	57.505	57.505	58.7833	58.7833	58.7833
119	57.5004	57.5004	57.5004	58.7047	58.7047	58.7047
120	57.496	57.496	57.496	58.6275	58.6275	58.6275
121	57.4918	57.4918	57.4918	58.5515	58.5515	58.5515
122	60.8041	75.5805	77.0528	58.6293	58.6293	58.6293
123	62.7231	75.0165	77.0995	58.7047	58.7047	58.7047
124	63.8757	74.0506	76.9717	58.7782	58.7782	58.7782
125	64.6106	73.7886	77.5595	58.8501	58.8501	58.8501
126	65.1239	73.4373	78.0227	58.9012	58.9012	58.9012
127	65.5182	73.0125	78.3922	58.9256	58.9256	58.9256
128	65.8686	72.6989	78.7529	58.9372	58.9372	58.9372
129	66.1881	72.3427	79.0777	58.9423	58.9423	58.9423
130	66.4576	71.8558	79.3522	58.9426	58.9426	58.9426
131	66.7113	71.5318	79.4828	58.9404	58.9404	58.9404
132	66.978	71.5101	79.4214	58.9376	58.9376	58.9376
133	67.4096	71.9308	80.2496	58.9411	58.9411	58.9411
134	68.0406	72.731	81.7471	58.9554	58.9554	58.9554
135	68.2841	72.4505	81.1206	58.9591	58.9591	58.9591
136	68.2007	71.7209	79.821	58.9483	58.9483	58.9483
137	68.1485	71.4079	79.2993	58.9327	58.9327	58.9327
138	68.1893	71.3318	79.1474	58.9158	58.9158	58.9158
139	68.2845	71.328	79.08	58.8978	58.8978	58.8978
140	68.4357	71.4485	79.1813	58.8799	58.8799	58.8799
141	68.6163	71.601	79.3162	58.8622	58.8622	58.8622
142	68.8121	71.7712	79.4704	58.8446	58.8446	58.8446
143	68.8583	71.5231	78.987	58.8209	58.8209	58.8209
144	68.7877	71.115	78.3079	58.7902	58.7902	58.7902
145	67.4326	70.8388	70.9415	60.6376	60.6376	68.7171
146	66.7264	67.9826	71.3236	59.7114	59.7114	59.7114
147	66.3433	67.5995	70.9405	59.205	59.205	59.205
148	66.1593	67.4406	70.8418	58.9109	58.9109	58.9109
149	66.0707	67.3622	70.7881	58.7238	58.7238	58.7238
150	66.0349	67.3373	70.7895	58.5907	58.5907	58.5907
151	66.1024	67.4923	71.1548	58.4884	58.4884	58.4884
152	66.1582	67.5608	71.2535	58.4008	58.4008	58.4008
153	66.209	67.6254	71.3508	58.3211	58.3211	58.3211
154	66.26	67.6924	71.4553	58.2461	58.2461	58.2461
155	66.3119	67.7602	71.5609	58.1741	58.1741	58.1741
156	66.2808	67.6574	71.2881	58.1012	58.1012	58.1012

*Handwritten signature*

*Handwritten mark*





ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012204



157	66.2698	67.6464	71.2771	58.0294	58.0294	58.0294
158	66.2696	67.6462	71.2769	57.9586	57.9586	57.9586
159	66.2752	67.6519	71.2826	57.8885	57.8885	57.8885
160	66.284	67.6607	71.2914	57.8193	57.8193	57.8193
161	66.2945	67.6711	71.3018	57.7507	57.7507	57.7507
162	66.3058	67.6824	71.3131	57.6829	57.6829	57.6829
163	66.3175	67.6941	71.3249	57.6158	57.6158	57.6158
164	66.3294	67.7061	71.3368	57.5493	57.5493	57.5493
165	66.3414	67.718	71.3488	57.4835	57.4835	57.4835
166	66.3534	67.73	71.3607	57.4184	57.4184	57.4184
167	66.3653	67.742	71.3727	57.3539	57.3539	57.3539
168	66.3772	67.7538	71.3846	57.29	57.29	57.29
169	66.389	67.7658	71.3964	57.2268	57.2268	57.2268
170	66.4007	67.7774	71.4081	57.1642	57.1642	57.1642
171	66.4124	67.789	71.4197	57.1022	57.1022	57.1022
172	66.4239	67.8006	71.4313	57.0409	57.0409	57.0409
173	66.3591	67.857	71.0983	56.9777	56.9777	56.9777
174	66.3136	67.5999	71.0129	56.9147	56.9147	56.9147
175	66.2974	67.5918	71.0246	56.8526	56.8526	56.8526
176	66.2668	67.5378	70.9143	56.7904	56.7904	56.7904
177	66.4311	67.89	71.7156	56.7346	56.7346	56.7346
178	67.7412	70.1558	77.4187	56.7175	56.7175	56.7175
179	68.346	70.422	77.4131	56.6948	56.6948	56.6948
180	68.5537	70.2829	76.9957	56.6665	56.6665	56.6665
181	68.566	70.011	76.4867	56.6337	56.6337	56.6337
182	68.5708	69.9502	76.3353	56.5997	56.5997	56.5997
183	68.5675	69.8799	76.1722	56.5645	56.5645	56.5645
184	68.5557	69.7995	75.9969	56.5282	56.5282	56.5282
185	68.5289	69.6912	75.7709	56.4904	56.4904	56.4904
186	68.4673	69.5079	75.3971	56.4506	56.4506	56.4506
187	68.3803	69.2961	74.99	56.4087	56.4087	56.4087
188	68.276	69.069	74.5708	56.3648	56.3648	56.3648
189	68.2028	68.9325	74.3509	56.3202	56.3202	56.3202
190	68.1863	68.9085	74.3452	56.2762	56.2762	56.2762
191	68.2007	68.9154	74.3701	56.2328	56.2328	56.2328
192	68.2318	68.9392	74.4116	56.19	56.19	56.19
193	68.2704	68.9718	74.4536	56.1477	56.1477	56.1477
194	68.3114	69.008	74.4928	56.1058	56.1058	56.1058
195	68.81	81.1162	71.2948	61.6832	61.6832	82.2745
196	69.0562	81.0959	71.4861	64.7144	64.7144	85.0107
197	69.2942	80.9709	72.3471	66.3619	66.3619	86.0533
198	69.6341	80.9791	73.7854	67.2317	67.2317	86.0891
199	69.9491	81.0839	74.75	67.6782	67.6782	85.6496
200	70.7291	82.5729	77.686	67.9082	67.9082	84.9837
201	71.2012	82.6786	78.2816	68.0024	68.0024	84.1743
202	71.3512	82.0821	78.1545	67.9999	67.9999	83.2394
203	71.4675	81.768	78.4816	67.928	67.928	82.208
204	71.8611	82.6494	79.439	67.8159	67.8159	81.1398
205	72.0246	82.6918	79.4885	67.6452	67.6452	79.9561
206	72.1843	82.5883	80.1865	67.437	67.437	78.7484
207	72.4418	82.8578	81.2825	67.2058	67.2058	77.5428
208	72.782	83.5044	82.3927	66.9534	66.9534	76.3235
209	73.0891	84.0489	83.2835	66.6539	66.6539	74.9653
210	73.374	84.5035	84.2232	66.3304	66.3304	73.6188
211	72.9386	81.3655	82.0145	65.3125	65.3125	68.7753
212	72.0849	78.4338	79.7506	63.9851	63.9851	63.9851

2000



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012205



213	71.6863	79.3939	80.5566	63.298	63.298	63.298
214	69.7327	69.7327	69.7327	62.8944	62.8944	62.8944
215	68.6443	68.6443	68.6443	62.6617	62.6617	62.6617
216	68.0365	68.0365	68.0365	62.5176	62.5176	62.5176
217	67.6958	67.6958	67.6958	62.4194	62.4194	62.4194
218	67.5036	67.5036	67.5036	62.3451	62.3451	62.3451
219	67.3938	67.3938	67.3938	62.2834	62.2834	62.2834
220	67.3299	67.3299	67.3299	62.2283	62.2283	62.2283
221	67.2914	67.2914	67.2914	62.1769	62.1769	62.1769
222	67.267	67.267	67.267	62.1275	62.1275	62.1275
223	67.2505	67.2505	67.2505	62.0794	62.0794	62.0794
224	67.2384	67.2384	67.2384	62.0322	62.0322	62.0322
225	67.2287	67.2287	67.2287	61.9856	61.9856	61.9856
226	67.2204	67.2204	67.2204	61.9395	61.9395	61.9395
227	67.2128	67.2128	67.2128	61.8938	61.8938	61.8938
228	67.2057	67.2057	67.2057	61.8485	61.8485	61.8485
229	67.1987	67.1987	67.1987	61.8036	61.8036	61.8036
230	67.1919	67.1919	67.1919	61.7591	61.7591	61.7591
231	70.5087	86.0836	87.3543	61.7958	61.7958	61.7958
232	72.4282	85.52	87.3937	61.8315	61.8315	61.8315
233	73.5764	84.0727	86.7197	61.8664	61.8664	61.8664
234	74.3089	83.8092	87.3091	61.9008	61.9008	61.9008
235	74.7994	83.3692	87.6981	61.9088	61.9088	61.9088
236	75.1514	82.9073	88.0314	61.8829	61.8829	61.8829
237	75.4398	82.4783	88.3182	61.8406	61.8406	61.8406
238	75.7015	82.0836	88.5891	61.7905	61.7905	61.7905
239	75.9147	81.5544	88.8065	61.7363	61.7363	61.7363
240	76.0962	81.0093	88.9741	61.6799	61.6799	61.6799
241	76.2925	80.9165	88.8411	61.6233	61.6233	61.6233
242	76.5706	81.0365	89.1273	61.5688	61.5688	61.5688
243	77.0874	81.7251	90.524	61.5208	61.5208	61.5208
244	77.4259	81.7947	90.6432	61.4722	61.4722	61.4722
245	77.3443	81.0182	89.2539	61.4156	61.4156	61.4156
246	77.1923	80.4736	88.3791	61.3553	61.3553	61.3553
247	77.1464	80.2963	88.117	61.2948	61.2948	61.2948
248	77.1641	80.2045	87.9545	61.2343	61.2343	61.2343
249	77.2452	80.2484	87.9752	61.1746	61.1746	61.1746
250	77.3605	80.3277	88.0318	61.1156	61.1156	61.1156
251	77.3067	79.9161	87.3354	61.0532	61.0532	61.0532
252	77.0427	79.1086	86.0916	60.9849	60.9849	60.9849
253	76.6555	78.1909	84.7481	60.911	60.911	60.911
254	76.3709	77.7509	84.1366	60.8356	60.8356	60.8356
255	76.1678	77.4553	83.7131	60.7596	60.7596	60.7596
256	76.0081	77.2026	83.3346	60.6828	60.6828	60.6828
257	75.8326	76.8836	82.7899	60.6046	60.6046	60.6046
258	75.6471	76.5514	82.2274	60.5251	60.5251	60.5251
259	75.4519	76.2131	81.6649	60.4443	60.4443	60.4443
260	75.3285	76.0549	81.4813	60.364	60.364	60.364
261	75.2626	75.9801	81.428	60.2846	60.2846	60.2846
262	75.2282	75.937	81.4059	60.206	60.206	60.206
263	75.2094	75.911	81.3927	60.1283	60.1283	60.1283
264	75.197	75.8931	81.3781	60.0514	60.0514	60.0514
265	75.1883	75.879	81.3672	59.9753	59.9753	59.9753
266	75.1816	75.8671	81.3585	59.8999	59.8999	59.8999
267	75.1734	75.8553	81.3387	59.8253	59.8253	59.8253
268	73.9586	74.557	75.8482	59.7261	59.7261	59.7261





269	73.2632	73.7889	75.1078	59.6285	59.6285	59.6285
270	73.7801	81.5926	75.817	63.8383	63.8383	80.2338
271	74.7238	87.0106	77.2326	67.5092	67.5092	88.1017
272	75.2143	87.4132	77.6701	69.6194	69.6194	90.0862
273	75.4532	87.2739	78.0224	70.8321	70.8321	90.8385
274	75.8112	87.2359	79.7098	71.4585	71.4585	90.5992
275	76.1285	87.3174	80.7541	71.7531	71.7531	89.9609
276	76.4354	86.4162	82.2622	71.4405	71.4405	87.326
277	75.0326	78.0444	78.2423	67.3269	67.3269	67.3269
278	74.217	75.2274	77.4055	65.1994	65.1994	65.1994
279	73.7258	74.7362	76.9143	64.0702	64.0702	64.0702
280	73.4109	74.4213	76.5995	63.4431	63.4431	63.4431
281	73.1921	74.2025	76.3806	63.0688	63.0688	63.0688
282	73.1514	74.192	76.7899	62.8244	62.8244	62.8244
283	73.1015	74.1452	76.7858	62.6449	62.6449	62.6449
284	73.048	74.0966	76.7784	62.4986	62.4986	62.4986
285	72.9936	74.0474	76.7702	62.3696	62.3696	62.3696
286	72.9398	73.9987	76.7624	62.25	62.25	62.25
287	72.8194	73.8596	76.4509	62.1344	62.1344	62.1344
288	72.7149	73.755	76.3464	62.0218	62.0218	62.0218
289	72.6191	73.6593	76.2506	61.9112	61.9112	61.9112
290	72.5284	73.5686	76.1599	61.8022	61.8022	61.8022
291	72.4407	73.4809	76.0722	61.6944	61.6944	61.6944
292	72.3549	73.3951	75.9864	61.5877	61.5877	61.5877
293	72.2705	73.3107	75.902	61.482	61.482	61.482
294	72.187	73.2272	75.8185	61.3774	61.3774	61.3774
295	72.1044	73.1446	75.7359	61.2737	61.2737	61.2737
296	72.0224	73.0626	75.6539	61.1709	61.1709	61.1709
297	71.9411	72.9813	75.5726	61.0691	61.0691	61.0691
298	71.8604	72.9006	75.4919	60.9683	60.9683	60.9683
299	71.7804	72.8205	75.4119	60.8683	60.8683	60.8683
300	71.7009	72.741	75.3324	60.7692	60.7692	60.7692
301	71.6219	72.6621	75.2534	60.6711	60.6711	60.6711
302	71.5436	72.5838	75.1751	60.5738	60.5738	60.5738
303	71.4621	72.489	75.0344	60.4772	60.4772	60.4772
304	71.4262	72.4818	75.2188	60.3825	60.3825	60.3825
305	71.3799	72.4355	75.1724	60.2887	60.2887	60.2887
306	71.3227	72.3783	75.1153	60.1957	60.1957	60.1957
307	71.2599	72.3154	75.0524	60.1036	60.1036	60.1036
308	71.2028	72.2617	75.0253	60.0125	60.0125	60.0125
309	71.0865	72.1267	74.718	59.9212	59.9212	59.9212
310	70.9898	72.03	74.6213	59.8307	59.8307	59.8307
311	70.9039	71.9441	74.5354	59.7411	59.7411	59.7411
312	70.8242	71.8644	74.4557	59.6522	59.6522	59.6522
313	70.7481	71.7883	74.3796	59.5642	59.5642	59.5642
314	70.6741	71.7143	74.3058	59.4769	59.4769	59.4769
315	70.6015	71.6417	74.233	59.3905	59.3905	59.3905
316	70.53	71.5701	74.1615	59.3048	59.3048	59.3048
317	70.4592	71.4994	74.0907	59.2199	59.2199	59.2199
318	70.389	71.4292	74.0205	59.1357	59.1357	59.1357
319	70.3195	71.3597	73.951	59.0523	59.0523	59.0523
320	70.2504	71.2906	73.8819	58.9697	58.9697	58.9697
321	70.1819	71.2221	73.8134	58.8878	58.8878	58.8878
322	70.1139	71.1541	73.7455	58.8066	58.8066	58.8066
323	70.0464	71.0866	73.678	58.7262	58.7262	58.7262
324	69.9794	71.0196	73.6109	58.6464	58.6464	58.6464



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012207

325	69.8456	70.8696	73.2359	58.5663	58.5663	58.5663
326	69.7075	70.7239	72.9845	58.4863	58.4863	58.4863
327	69.5861	70.5749	72.7304	58.4064	58.4064	58.4064
328	69.4224	70.4264	72.4759	58.3268	58.3268	58.3268
329	69.279	70.2874	72.2278	58.2474	58.2474	58.2474
330	70.2362	72.025	77.0275	58.1869	58.1869	58.1869
331	71.4531	73.8477	80.7341	58.1385	58.1385	58.1385
332	71.9168	73.6387	80.3457	58.0864	58.0864	58.0864
333	72.0443	73.4685	79.9152	58.032	58.032	58.032
334	72.4062	83.5454	77.1835	62.7609	62.7609	80.7509
335	73.1938	85.0233	80.1074	65.1339	65.1339	82.2272
336	73.6774	85.1701	80.7703	66.3005	66.3005	82.4905
337	73.8228	84.5682	80.6238	66.8346	66.8346	82.0933
338	73.9212	84.2081	80.9241	67.0291	67.0291	81.3282
339	74.2966	85.2693	81.8629	67.0448	67.0448	80.3873
340	74.4505	85.1252	81.9175	66.9358	66.9358	79.267
341	74.5927	85.0009	82.5776	66.7547	66.7547	78.0859
342	74.8314	85.241	83.6561	66.5323	66.5323	76.8883
343	75.1554	85.8731	84.7545	66.2795	66.2795	75.6707
344	75.4459	86.401	85.8287	65.9749	65.9749	74.3074
345	75.7142	86.8405	86.5502	65.6436	65.6436	72.9523
346	75.2847	83.7991	84.4246	64.645	64.645	68.2172
347	74.4092	80.7309	82.0508	63.3077	63.3077	63.3077
348	73.9981	81.6786	82.8444	62.6165	62.6165	62.6165
349	72.0379	72.0379	72.0379	62.2299	62.2299	62.2299
350	70.9455	70.9455	70.9455	62.0156	62.0156	62.0156
351	70.3352	70.3352	70.3352	61.8903	61.8903	61.8903
352	69.9929	69.9929	69.9929	61.8111	61.8111	61.8111
353	69.7994	69.7994	69.7994	61.7557	61.7557	61.7557
354	69.6887	69.6887	69.6887	61.7127	61.7127	61.7127
355	69.624	69.624	69.624	61.6762	61.6762	61.6762
356	69.5848	69.5848	69.5848	61.6431	61.6431	61.6431
357	69.5598	69.5598	69.5598	61.6118	61.6118	61.6118
358	69.5427	69.5427	69.5427	61.5816	61.5816	61.5816
359	69.5299	69.5299	69.5299	61.5519	61.5519	61.5519
360	69.5196	69.5196	69.5196	61.5226	61.5226	61.5226
361	69.5107	69.5107	69.5107	61.4936	61.4936	61.4936
362	69.5025	69.5025	69.5025	61.4648	61.4648	61.4648
363	69.4948	69.4948	69.4948	61.4362	61.4362	61.4362
364	69.4872	69.4872	69.4872	61.4077	61.4077	61.4077
365	69.4798	69.4798	69.4798	61.3794	61.3794	61.3794
366	72.7897	88.4135	89.6234	61.4021	61.4021	61.4021
367	74.7149	87.8567	89.7416	61.4245	61.4245	61.4245
368	75.8626	88.3789	89.0088	61.4464	61.4464	61.4464
369	76.5934	88.1106	89.5925	61.468	61.468	61.468
370	77.0798	88.6658	89.9788	61.4638	61.4638	61.4638
371	77.4219	88.1942	90.3023	61.4264	61.4264	61.4264
372	77.6972	84.7489	90.5754	61.3729	61.3729	61.3729
373	77.9445	84.3396	90.8318	61.3119	61.3119	61.3119
374	78.1432	83.798	91.035	61.2471	61.2471	61.2471
375	78.3089	83.2278	91.1934	61.1805	61.1805	61.1805
376	78.4894	83.119	91.0445	61.1138	61.1138	61.1138
377	78.7464	83.2088	91.2855	61.0484	61.0484	61.0484
378	79.2444	83.8787	92.6636	60.9876	60.9876	60.9876
379	79.5785	83.9619	92.8232	60.9269	60.9269	60.9269
380	79.4872	83.1744	91.4218	60.8613	60.8613	60.8613





381	79.3171	82.6011	90.5084	60.7936	60.7936	60.7936
382	79.2546	82.4075	90.2302	60.7261	60.7261	60.7261
383	79.2564	82.297	90.0479	60.8589	60.6589	60.6589
384	79.3205	82.3256	90.0533	60.5925	60.5925	60.5925
385	79.4201	82.3899	90.0966	60.5269	60.5269	60.5269
386	79.3809	82.0453	89.5087	60.4598	60.4598	60.4598
387	79.1296	81.2689	88.3109	60.3893	60.3893	60.3893
388	78.7564	80.3871	87.0208	60.3156	60.3156	60.3156
389	78.4414	79.8445	86.2623	60.2407	60.2407	60.2407
390	78.2214	79.5395	85.8396	60.1657	60.1657	60.1657
391	78.0512	79.2865	85.472	60.0906	60.0906	60.0906
392	77.8928	79.0235	85.0537	60.0152	60.0152	60.0152
393	77.7211	78.7194	84.5423	59.9392	59.9392	59.9392
394	77.5388	78.4087	84.0268	59.8628	59.8628	59.8628
395	77.3482	78.0887	83.5082	59.7858	59.7858	59.7858
396	77.234	77.9601	83.3873	59.7097	59.7097	59.7097
397	77.1661	77.8842	83.3306	59.6343	59.6343	59.6343
398	77.1238	77.834	83.299	59.5597	59.5597	59.5597
399	77.0845	77.7978	83.2785	59.4859	59.4859	59.4859
400	77.0703	77.7683	83.2522	59.4128	59.4128	59.4128
401	77.0487	77.7417	83.2286	59.3405	59.3405	59.3405
402	77.0288	77.7169	83.2067	59.2689	59.2689	59.2689
403	77.0096	77.693	83.1844	59.1979	59.1979	59.1979
404	76.9873	77.6681	83.1459	59.1276	59.1276	59.1276
405	76.9633	77.6416	83.106	59.058	59.058	59.058
406	76.9386	77.6142	83.0653	58.9889	58.9889	58.9889
407	76.9131	77.5864	83.0245	58.9206	58.9206	58.9206
408	76.7451	76.1921	77.6976	58.8371	58.8371	58.8371
409	76.1309	75.5289	77.4802	58.7556	58.7556	58.7556
410	74.8442	75.2368	77.5957	58.6764	58.6764	58.6764
411	74.7586	75.1683	77.9272	58.5996	58.5996	58.5996
412	74.8022	75.2382	78.4941	58.5254	58.5254	58.5254
413	74.9006	75.3712	79.029	58.4535	58.4535	58.4535
414	74.9162	75.3868	79.0447	58.3822	58.3822	58.3822
415	74.8873	75.3579	79.0158	58.3116	58.3116	58.3116
416	74.8346	75.3061	78.963	58.2416	58.2416	58.2416
417	74.769	75.2396	78.8975	58.1723	58.1723	58.1723
418	74.6969	75.1675	78.8254	58.1035	58.1035	58.1035
419	74.6215	75.0921	78.7499	58.0354	58.0354	58.0354
420	74.5446	75.0151	78.6729	57.9679	57.9679	57.9679
421	74.4669	74.9375	78.5953	57.901	57.901	57.901
422	74.251	74.8802	77.8719	57.8328	57.8328	57.8328
423	73.8583	74.2528	76.6623	57.7622	57.7622	57.7622
424	73.4044	73.8204	75.521	57.6897	57.6897	57.6897
425	72.9689	73.5925	74.5221	57.6162	57.6162	57.6162
426	72.7855	74.0456	74.6218	58.7763	58.7763	64.0896
427	72.6689	74.5131	74.3793	59.8409	59.8409	66.9122
428	72.6008	74.9671	74.2769	60.763	60.763	69.0737
429	72.5093	74.8883	74.1849	61.3194	61.3194	69.6584
430	72.4044	74.7961	74.0796	61.6917	61.6917	70.0589
431	72.2928	74.6972	73.9675	61.971	61.971	70.3665
432	72.1764	74.5811	73.8512	62.196	62.196	70.592
433	72.0579	74.4626	73.7327	62.3928	62.3928	70.7887
434	71.9386	74.3433	73.6134	62.5745	62.5745	70.9705
435	71.8114	74.1519	73.4884	62.7104	62.7104	70.9839
436	71.6463	73.6279	73.3466	62.6378	62.6378	70.0444



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls



00012209

437	71.4679	73.1209	73.2093	62.4455	62.4455	68.9876
438	72.8852	85.0346	75.4591	66.46	66.46	86.9689
439	73.6713	85.9406	76.2015	68.809	68.809	89.4026
440	74.1014	86.4074	76.5865	70.2917	70.2917	90.883
441	74.2955	86.3451	76.727	71.2448	71.2448	91.5518
442	74.4798	86.1681	77.4934	71.8271	71.8271	91.5442
443	74.777	86.1286	78.908	72.1351	72.1351	91.0203
444	75.0519	86.1933	79.8325	72.2725	72.2725	90.2716
445	75.7785	87.6	82.6677	72.3124	72.3124	89.4159
446	76.2295	87.731	83.3295	72.2819	72.2819	88.4822
447	76.3476	87.1012	83.1472	72.1907	72.1907	87.4602
448	76.4187	86.6971	83.4148	72.0467	72.0467	86.3563
449	76.771	87.736	84.3309	71.8674	71.8674	85.2207
450	76.909	87.5869	84.3783	71.6367	71.6367	83.9786
451	77.0321	87.4426	85.0072	71.3707	71.3707	82.7131
452	77.2515	87.6576	86.0672	71.0815	71.0815	81.4482
453	77.5583	88.2733	87.1507	70.7714	70.7714	80.1746
454	77.8316	88.784	88.0077	70.4144	70.4144	78.7589
455	78.0828	89.2072	88.8112	70.033	70.033	77.3532
456	77.6489	86.213	86.8252	69.0005	69.0005	72.6346
457	76.7553	83.0816	84.3533	67.8238	67.8238	67.8238
458	76.334	83.9991	85.1666	66.9116	66.9116	66.9116
459	74.368	74.368	74.368	66.5206	66.5206	66.5206
460	73.272	73.272	73.272	66.3067	66.3067	66.3067
461	72.6596	72.6596	72.6596	66.1843	66.1843	66.1843
462	72.3158	72.3158	72.3158	66.1092	66.1092	66.1092
463	72.1212	72.1212	72.1212	66.0586	66.0586	66.0586
464	72.0096	72.0096	72.0096	66.0207	66.0207	66.0207
465	71.9441	71.9441	71.9441	65.9893	65.9893	65.9893
466	71.9042	71.9042	71.9042	65.9614	65.9614	65.9614
467	71.8786	71.8786	71.8786	65.9353	65.9353	65.9353
468	71.8608	71.8608	71.8608	65.9102	65.9102	65.9102
469	71.8475	71.8475	71.8475	65.8857	65.8857	65.8857
470	71.8366	71.8366	71.8366	65.8614	65.8614	65.8614
471	71.827	71.827	71.827	65.8374	65.8374	65.8374
472	71.8182	71.8182	71.8182	65.8136	65.8136	65.8136
473	71.8098	71.8098	71.8098	65.7898	65.7898	65.7898
474	71.8017	71.8017	71.8017	65.7662	65.7662	65.7662
475	71.7937	71.7937	71.7937	65.7426	65.7426	65.7426
476	75.1032	90.7551	91.9575	65.7583	65.7583	65.7583
477	77.0245	90.194	92.0474	65.7737	65.7737	65.7737
478	78.1729	88.7005	91.3208	65.7887	65.7887	65.7887
479	78.9038	88.4323	91.9046	65.8036	65.8036	65.8036
480	79.386	87.9812	92.2852	65.7817	65.7817	65.7817
481	79.7182	87.4997	92.5988	65.7124	65.7124	65.7124
482	79.9804	87.0395	92.8585	65.6201	65.6201	65.6201
483	80.213	86.6156	93.1003	65.517	65.517	65.517
484	80.3969	86.0603	93.2887	65.4087	65.4087	65.4087
485	80.5468	85.469	93.435	65.2982	65.2982	65.2982
486	80.7114	85.3442	93.2702	65.1875	65.1875	65.1875
487	80.9495	85.4099	93.4785	65.078	65.078	65.078
488	81.4299	86.0622	94.839	64.9725	64.9725	64.9725
489	81.7555	86.1491	95.0195	64.8676	64.8676	64.8676
490	81.6548	85.3555	93.6149	64.7595	64.7595	64.7595
491	81.4667	84.755	92.865	64.6502	64.6502	64.6502
492	81.3681	84.5474	92.3741	64.5416	64.5416	64.5416





493	81.3712	84.4158	92.1685	64.4338	64.4338	84.4338
494	81.4196	84.4288	92.1594	64.3271	64.3271	84.3271
495	81.503	84.4786	92.1881	64.2216	64.2216	84.2216
496	81.5167	84.308	91.8733	64.1162	64.1162	84.1162
497	81.3114	83.6157	90.7902	64.009	64.009	84.009
498	80.9845	82.8239	89.8252	63.9	63.9	83.9
499	80.8155	82.0842	88.545	63.7898	63.7898	83.7898
500	80.3668	81.7381	88.1119	63.68	63.68	83.68
501	80.1821	81.4784	87.7485	63.5706	63.5706	83.5706
502	80.0308	81.2545	87.424	63.4617	63.4617	83.4617
503	79.882	81.01	87.0359	63.3532	63.3532	83.3532
504	79.7198	80.7318	86.5782	63.2448	63.2448	83.2448
505	79.5479	80.4466	86.1137	63.1366	63.1366	83.1366
506	79.3685	80.1565	85.6503	63.0287	63.0287	83.0287
507	79.221	79.9512	85.3684	62.9214	62.9214	82.9214
508	79.1276	79.851	85.2848	62.8151	62.8151	82.8151
509	79.0839	79.7806	85.2306	62.71	62.71	82.71
510	79.0166	79.7267	85.1926	62.6058	62.6058	82.6058
511	78.9783	79.682	85.1624	62.5027	62.5027	82.5027
512	78.9424	79.6418	85.1248	62.4007	62.4007	82.4007
513	78.908	79.6031	85.0885	62.2998	62.2998	82.2998
514	78.8747	79.5656	85.0538	62.1994	62.1994	82.1994
515	78.8421	79.5289	85.0196	62.1003	62.1003	82.1003
516	78.8094	79.4926	84.9825	62.0021	62.0021	82.0021
517	78.2554	81.4982	81.7976	67.5109	67.5109	88.0878
518	79.4849	81.7842	81.9784	70.578	70.578	91.1697
519	79.5595	81.6549	81.9984	72.3344	72.3344	92.6905
520	79.631	81.3595	82.5101	73.3249	73.3249	93.1296
521	79.8833	81.2342	83.9349	73.8288	73.8288	92.795
522	80.0871	81.2453	84.8159	74.0542	74.0542	92.124
523	80.736	82.5075	87.4708	74.1277	74.1277	91.2954
524	81.1828	82.7354	88.3244	74.1055	74.1055	90.3662
525	81.2738	82.0739	88.0657	74.0114	74.0114	89.343
526	81.2904	81.525	88.2504	73.858	73.858	88.2299
527	81.5982	82.5168	89.1196	73.6662	73.6662	87.0814
528	81.7191	82.4227	89.1978	73.4232	73.4232	85.8316
529	81.8044	82.2284	89.7237	73.1428	73.1428	84.5494
530	81.9833	82.3664	90.7478	72.8374	72.8374	83.2642
531	82.2583	82.9579	91.813	72.5136	72.5136	81.9853
532	82.4989	83.4359	92.8372	72.1424	72.1424	80.5554
533	82.7173	83.8313	93.5028	71.7454	71.7454	79.1316
534	82.3232	81.171	91.7088	70.7665	70.7665	74.7548
535	81.3752	87.5935	88.9252	69.3344	69.3344	69.3344
536	80.8229	88.5001	89.8776	68.5932	68.5932	68.5932
537	78.5407	78.9407	78.9407	68.1899	68.1899	68.1899
538	77.8353	77.8353	77.8353	67.9708	67.9708	67.9708
539	77.217	77.217	77.217	67.8468	67.8468	67.8468
540	76.8694	76.8694	76.8694	67.7719	67.7719	67.7719
541	76.6722	76.6722	76.6722	67.7224	67.7224	67.7224
542	76.5586	76.5586	76.5586	67.6861	67.6861	67.6861
543	76.4915	76.4915	76.4915	67.6566	67.6566	67.6566
544	76.4501	76.4501	76.4501	67.6307	67.6307	67.6307
545	76.4231	76.4231	76.4231	67.6067	67.6067	67.6067
546	76.4041	76.4041	76.4041	67.5836	67.5836	67.5836
547	76.3895	76.3895	76.3895	67.5611	67.5611	67.5611
548	76.3774	76.3774	76.3774	67.5389	67.5389	67.5389

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*Handwritten initials in red ink*





549	76.3686	76.3666	76.3686	67.5189	67.5189	67.5189
550	76.3566	76.3568	76.3566	67.495	67.495	67.495
551	76.347	76.347	76.347	67.4732	67.4732	67.4732
552	76.3377	76.3377	76.3377	67.4515	67.4515	67.4515
553	76.3285	76.3285	76.3285	67.4299	67.4299	67.4299
554	79.645	95.4582	96.6698	67.4421	67.4421	67.4421
555	81.5666	94.8971	96.7343	67.4539	67.4539	67.4539
556	82.7103	93.3026	95.8678	67.4655	67.4655	67.4655
557	83.4382	93.0313	96.4485	67.4769	67.4769	67.4769
558	83.9118	92.5648	96.8184	67.448	67.448	67.448
559	84.223	92.057	97.1048	67.3671	67.3671	67.3671
560	84.4576	91.5592	97.3351	67.2608	67.2608	67.2608
561	84.6806	91.1057	97.5473	67.1427	67.1427	67.1427
562	84.8165	90.529	97.708	67.0189	67.0189	67.0189
563	84.9349	89.889	97.8299	66.8929	66.8929	66.8929
564	85.0676	89.7189	97.6475	66.7665	66.7665	66.7665
565	85.2589	89.7062	97.7286	66.6412	66.6412	66.6412
566	85.696	90.3173	99.0486	66.5195	66.5195	66.5195
567	86.026	90.465	99.3754	66.399	66.399	66.399
568	85.9161	89.6645	97.9658	66.2761	66.2761	66.2761
569	85.6893	88.9923	96.9119	66.1522	66.1522	66.1522
570	85.5771	88.7554	96.5943	66.0291	66.0291	66.0291
571	85.527	88.5881	96.3514	65.907	65.907	65.907
572	85.5397	88.5571	96.2927	65.7862	65.7862	65.7862
573	85.59	88.5749	96.2902	65.6666	65.6666	65.6666
574	85.6561	88.6016	96.2907	65.5482	65.5482	65.5482
575	85.4687	87.9242	95.22	65.4284	65.4284	65.4284
576	85.139	87.1226	94.0396	65.3074	65.3074	65.3074
577	84.7254	86.2502	92.7989	65.1852	65.1852	65.1852
578	84.4113	85.7997	92.197	65.0633	65.0633	65.0633
579	82.2735	82.5092	82.8643	64.9236	64.9236	64.9236
580	81.1541	81.7538	82.249	65.1891	65.1891	66.9299
581	81.0706	82.8827	84.3016	66.1026	66.1026	71.3683
582	80.986	82.9558	84.1753	66.7039	66.7039	72.4995
583	80.8539	83.0269	84.0426	67.154	67.154	73.4673
584	80.7445	83.1153	83.9145	67.5355	67.5355	74.3576
585	80.6415	83.2219	83.8041	67.8899	67.8899	75.2178
586	81.3658	82.531	88.2052	66.379	66.379	66.379
587	82.2529	93.4949	86.7226	70.4789	70.4789	88.9018
588	82.2232	89.676	86.5014	71.4718	71.4718	85.6023
589	81.4167	84.0996	84.7555	70.2419	70.2419	77.5522
590	80.9143	83.5683	84.2492	69.6475	69.6475	76.902
591	80.5502	82.9928	83.8579	69.2708	69.2708	76.0754
592	80.262	82.5024	83.5897	68.9954	68.9954	75.3488
593	80.0213	82.0746	83.3316	68.7838	68.7838	74.658
594	79.3407	80.2695	81.0827	67.9048	67.9048	70.6007
595	78.4036	78.442	78.503	66.8118	66.8118	66.8118
596	78.4775	79.4641	81.0722	66.1957	66.1957	66.1957
597	78.4789	79.3896	81.2507	65.817	65.817	65.817
598	78.4226	79.3192	81.2629	65.5581	65.5581	65.5581
599	78.3661	79.2344	81.3849	65.3604	65.3604	65.3604
600	78.2769	79.1407	81.3334	65.1939	65.1939	65.1939
601	78.1608	79.0244	81.2171	65.0436	65.0436	65.0436
602	78.03	78.8938	81.0866	64.9021	64.9021	64.9021
603	77.8923	78.7561	80.9488	64.7656	64.7656	64.7656
604	77.7511	78.615	80.8077	64.6323	64.6323	64.6323





605	77.6086	78.4724	80.6651	64.501	64.501	64.501
606	77.4658	78.3296	80.5223	64.3714	64.3714	64.3714
607	77.3233	78.1871	80.3798	64.2433	64.2433	64.2433
608	77.1814	78.0452	80.2379	64.1164	64.1164	64.1164
609	77.0019	77.883	79.9174	63.9904	63.9904	63.9904
610	76.8322	77.719	79.7201	63.8655	63.8655	63.8655
611	76.668	77.5605	79.5283	63.7416	63.7416	63.7416
612	76.5069	77.405	79.3395	63.6189	63.6189	63.6189
613	76.3476	77.2513	79.1525	63.4972	63.4972	63.4972
614	77.6721	79.2607	85.8606	63.39	63.39	63.39
615	78.2961	79.6995	86.1177	63.2829	63.2829	63.2829
616	78.5875	79.9132	86.2239	63.1764	63.1764	63.1764
617	79.0769	90.2317	83.8161	67.8729	67.8729	85.9284
618	79.2088	87.7786	84.6737	69.3719	69.3719	83.7986
619	77.8345	78.8475	80.6722	68.5842	66.5842	66.5842
620	77.0249	78.0379	79.8626	65.1226	65.1226	65.1226
621	76.533	77.5443	79.4127	64.3279	64.3279	64.3279
622	76.2203	77.2289	79.1644	63.8688	63.8688	63.8688
623	76.0061	77.012	79.0146	63.5789	63.5789	63.5789
624	75.9723	77.0052	79.4947	63.3758	63.3758	63.3758
625	75.8363	76.9761	79.5764	63.2165	63.2165	63.2165
626	75.8993	76.9513	79.8597	63.0798	63.0798	63.0798
627	75.8667	76.932	79.7468	62.9551	62.9551	62.9551
628	75.838	76.9167	79.8378	62.8372	62.8372	62.8372
629	75.7436	76.8084	79.619	62.7227	62.7227	62.7227
630	75.6887	76.7417	79.6177	62.6108	62.6108	62.6108
631	75.59	76.665	79.5571	62.5006	62.5006	62.5006
632	75.5045	76.5796	79.4716	62.3918	62.3918	62.3918
633	75.4158	76.4909	79.3829	62.2841	62.2841	62.2841
634	75.3256	76.4006	79.2926	62.1775	62.1775	62.1775
635	75.2348	76.3099	79.2019	62.0719	62.0719	62.0719
636	75.1441	76.2191	79.1112	61.9673	61.9673	61.9673
637	75.0536	76.1287	79.0207	61.8636	61.8636	61.8636
638	74.939	76.0044	78.8201	61.7607	61.7607	61.7607
639	74.8039	75.8574	78.5775	61.6585	61.6585	61.6585
640	74.5886	75.6148	78.0111	61.5563	61.5563	61.5563
641	74.3823	75.3986	77.6578	61.4547	61.4547	61.4547
642	74.1797	75.1862	77.3106	61.3537	61.3537	61.3537
643	73.9807	74.9873	76.9734	61.2533	61.2533	61.2533
644	73.7837	74.7959	76.6421	61.1534	61.1534	61.1534
645	75.343	77.696	84.3828	61.0694	61.0694	61.0694
646	76.2353	78.3423	85.3583	60.9863	60.9863	60.9863
647	76.499	78.1211	84.7479	60.9018	60.9018	60.9018
648	76.5394	77.9435	84.3625	60.8171	60.8171	60.8171
649	76.5186	77.8397	84.144	60.7326	60.7326	60.7326
650	76.4632	77.7039	83.897	60.6485	60.6485	60.6485
651	76.3769	77.5211	83.5723	60.5646	60.5646	60.5646
652	76.2525	77.2685	83.1193	60.4807	60.4807	60.4807
653	76.1047	76.9956	82.6504	60.397	60.397	60.397
654	75.9416	76.7102	82.1736	60.3134	60.3134	60.3134
655	75.8279	76.558	81.9781	60.2304	60.2304	60.2304
656	75.7645	76.4851	81.9255	60.1483	60.1483	60.1483
657	75.7286	76.4418	81.9001	60.0669	60.0669	60.0669
658	75.708	76.4139	81.8888	59.9864	59.9864	59.9864
659	75.6934	76.3939	81.8763	59.9067	59.9067	59.9067
660	75.6815	76.3771	81.8624	59.8278	59.8278	59.8278

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661	75.8711	76.362	81.8501	59.7496	59.7496	59.7496
662	76.1179	88.42	78.6079	85.2818	65.2818	85.8733
663	76.3183	88.3963	78.7544	68.2827	68.2827	88.62
664	76.4779	88.1952	79.3943	89.9082	69.9082	89.6886
665	76.7636	88.1318	80.8442	70.7457	70.7457	89.6996
666	77.0254	88.1831	81.7556	71.1532	71.1532	89.221
667	77.7011	89.467	84.4225	71.3303	71.3303	88.5032
668	78.1785	89.7397	85.3271	71.3721	71.3721	87.6429
669	78.2948	89.1042	85.0851	71.3219	71.3219	86.6659
670	78.33	88.5558	85.2827	71.2014	71.2014	85.5855
671	78.6554	88.5671	86.1715	71.0361	71.0361	84.4636
672	78.8036	89.5122	86.2844	70.8173	70.8173	83.2388
673	78.9095	89.3362	86.8177	70.5591	70.5591	81.9785
674	79.1078	89.4891	87.861	70.2751	70.2751	80.7156
675	79.4041	90.1007	88.9513	69.9718	69.9718	79.4572
676	79.6655	90.5995	89.7983	69.6206	69.6206	78.0473
677	79.9046	91.0165	90.6816	69.243	69.243	76.6423
678	79.5453	88.4496	86.9702	68.298	68.298	72.3589
679	78.6069	84.8078	86.1414	66.8733	66.8733	66.8733
680	78.1604	85.7201	86.8995	66.1363	66.1363	66.1363
681	76.1819	76.1819	76.1819	65.7395	65.7395	65.7395
682	75.0789	75.0789	75.0789	65.5261	65.5261	65.5261
683	74.4623	74.4623	74.4623	65.4073	65.4073	65.4073
684	74.1159	74.1159	74.1159	65.3374	65.3374	65.3374
685	73.9198	73.9198	73.9198	65.2928	65.2928	65.2928
686	73.8071	73.8071	73.8071	65.2613	65.2613	65.2613
687	73.7407	73.7407	73.7407	65.2365	65.2365	65.2365
688	73.7002	73.7002	73.7002	65.2152	65.2152	65.2152
689	73.6739	73.6739	73.6739	65.1958	65.1958	65.1958
690	73.6557	73.6557	73.6557	65.1773	65.1773	65.1773
691	73.6418	73.6418	73.6418	65.1594	65.1594	65.1594
692	73.6304	73.6304	73.6304	65.1417	65.1417	65.1417
693	73.6203	73.6203	73.6203	65.1243	65.1243	65.1243
694	73.6111	73.6111	73.6111	65.1069	65.1069	65.1069
695	73.6022	73.6022	73.6022	65.0896	65.0896	65.0896
696	73.5936	73.5936	73.5936	65.0723	65.0723	65.0723
697	73.5851	73.5851	73.5851	65.0551	65.0551	65.0551
698	76.9026	92.7479	93.9503	65.0647	65.0647	65.0647
699	78.8251	92.1876	94.0168	65.0741	65.0741	65.0741
700	79.9695	90.5747	93.1288	65.0833	65.0833	65.0833
701	80.698	90.304	93.7102	65.0923	65.0923	65.0923
702	81.177	89.8405	94.0839	65.0667	65.0667	65.0667
703	81.5002	89.3448	94.3822	64.9964	64.9964	64.9964
704	81.75	88.86	94.6274	64.9043	64.9043	64.9043
705	81.9701	88.4236	94.8566	64.802	64.802	64.802
706	82.1445	87.8668	95.036	64.6949	64.6949	64.6949
707	82.2817	87.2458	95.1766	64.5858	64.5858	64.5858
708	82.4328	87.0878	95.0169	64.4765	64.4765	64.4765
709	82.6373	87.0843	95.0976	64.368	64.368	64.368
710	83.093	87.7121	96.4343	64.2625	64.2625	64.2625
711	83.4488	87.8974	96.8161	64.1581	64.1581	64.1581
712	83.3568	87.1021	95.4017	64.0517	64.0517	64.0517
713	83.1454	86.4414	94.3584	63.9447	63.9447	63.9447
714	83.0502	86.2204	94.0542	63.8384	63.8384	63.8384
715	83.0178	86.0723	93.8313	63.733	63.733	63.733
716	83.05	86.0658	93.8005	63.6287	63.6287	63.6287



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

ALSTOM

00012214

717	83.1191	86.1028	93.8174	63.5255	63.5255	63.5255
718	83.2028	86.1476	93.8361	63.4233	63.4233	63.4233
719	81.1402	82.1489	84.0835	63.3053	63.3053	63.3053
720	79.9507	80.9694	82.894	63.1854	63.1854	63.1854
721	79.2353	80.2439	82.1786	63.0726	63.0726	63.0726
722	78.7774	79.7861	81.7208	62.9578	62.9578	62.9578
723	78.4598	79.4685	81.4032	62.844	62.844	62.844
724	78.2188	79.2274	81.1621	62.7313	62.7313	62.7313
725	78.0197	79.0284	80.9631	62.6196	62.6196	62.6196
726	77.7956	78.8253	80.5449	62.5086	62.5086	62.5086
727	77.5965	78.6363	80.3108	62.3985	62.3985	62.3985
728	77.3701	78.4121	79.8835	62.289	62.289	62.289
729	76.7272	77.1123	77.6561	62.177	62.177	62.177
730	76.1454	76.384	76.565	62.2166	62.2166	62.8722
731	77.4236	79.135	83.9704	62.0523	62.0523	62.0523
732	78.8001	80.8925	87.8968	61.9271	61.9271	61.9271
733	79.2758	80.8086	87.3637	61.8171	61.8171	61.8171
734	79.4437	80.817	87.1934	61.7155	61.7155	61.7155
735	79.4686	80.7422	86.9807	61.6184	61.6184	61.6184
736	79.4062	80.5699	86.8516	61.5238	61.5238	61.5238
737	79.2613	80.2601	86.084	61.4302	61.4302	61.4302
738	79.0704	79.9116	85.4887	61.3373	61.3373	61.3373
739	78.8843	79.6152	85.0307	61.245	61.245	61.245
740	78.773	79.4947	84.9326	61.1537	61.1537	61.1537
741	78.7026	79.4154	84.8746	61.0634	61.0634	61.0634
742	78.6544	79.3588	84.8383	60.9741	60.9741	60.9741
743	78.6149	79.3137	84.7971	60.8856	60.8856	60.8856
744	78.5802	79.2737	84.7603	60.798	60.798	60.798
745	78.5481	79.2366	84.7262	60.7113	60.7113	60.7113
746	78.5177	79.2012	84.6933	60.6254	60.6254	60.6254
747	78.4843	79.1652	84.6432	60.5402	60.5402	60.5402
748	78.4494	79.1276	84.5919	60.4559	60.4559	60.4559
749	78.4137	79.0894	84.5402	60.3724	60.3724	60.3724
750	78.3776	79.0508	84.4884	60.2896	60.2896	60.2896
751	76.9932	77.4703	78.149	60.1976	60.1976	60.1976
752	76.1544	76.6314	77.3101	60.1064	60.1064	60.1064
753	75.612	76.0891	76.7678	60.0159	60.0159	60.0159
754	75.2312	75.7082	76.3869	59.9263	59.9263	59.9263
755	74.9385	75.4155	76.0942	59.8374	59.8374	59.8374
756	74.6942	75.1713	75.85	59.7493	59.7493	59.7493
757	74.4769	74.9539	75.6326	59.6619	59.6619	59.6619
758	74.2997	74.8103	75.5366	59.5756	59.5756	59.5756
759	74.1213	74.6317	75.3579	59.4899	59.4899	59.4899
760	73.9178	74.3949	75.0736	59.4048	59.4048	59.4048
761	73.7298	74.2132	74.901	59.3205	59.3205	59.3205
762	73.5433	74.0228	74.705	59.2369	59.2369	59.2369
763	73.4319	74.0066	74.8242	59.1546	59.1546	59.1546
764	75.0668	87.1932	77.6485	64.6595	64.6595	85.1517
765	75.9643	88.2163	78.5033	67.7592	67.7592	88.3428
766	76.4477	88.7479	78.9401	69.6225	69.6225	90.2142
767	76.6703	88.7692	79.1098	70.7842	70.7842	91.1439
768	76.8232	88.5651	79.6573	71.4926	71.4926	91.3285
769	77.1109	88.4934	81.1469	71.8689	71.8689	90.8837
770	77.3723	88.5448	82.0575	72.0423	72.0423	90.1716
771	78.0133	89.7296	84.5849	72.0966	72.0966	89.3336
772	78.5248	90.1393	85.7168	72.0773	72.0773	88.411





773	78.6496	89.5088	85.4316	71.9937	71.9937	87.4042
774	78.6627	88.841	85.5784	71.8534	71.8534	86.3038
775	78.974	89.8382	86.4511	71.6754	71.6754	85.1692
776	79.1416	89.8758	86.6336	71.4487	71.4487	83.94
777	79.2418	89.6829	87.0901	71.1832	71.1832	82.6713
778	79.4308	89.79	88.1283	70.8918	70.8918	81.3982
779	79.7251	90.4034	89.2268	70.5832	70.5832	80.1394
780	79.9864	90.9039	90.0767	70.2273	70.2273	78.7273
781	80.2246	91.3253	90.9556	69.8435	69.8435	77.3133
782	79.9416	89.1497	89.5884	68.9653	68.9653	73.4034
783	78.9701	85.051	86.3983	67.4884	67.4884	67.4884
784	78.5054	85.971	87.1611	66.7242	66.7242	66.7242
785	76.5185	76.5185	76.5185	66.3154	66.3154	66.3154
786	75.4106	75.4106	75.4106	66.0965	66.0965	66.0965
787	74.7913	74.7913	74.7913	65.9758	65.9758	65.9758
788	74.4434	74.4434	74.4434	65.9058	65.9058	65.9058
789	74.2484	74.2464	74.2464	65.862	65.862	65.862
790	74.1332	74.1332	74.1332	65.8317	65.8317	65.8317
791	74.0685	74.0665	74.0665	65.8084	65.8084	65.8084
792	74.0257	74.0257	74.0257	65.7887	65.7887	65.7887
793	73.9993	73.9993	73.9993	65.771	65.771	65.771
794	73.9809	73.9809	73.9809	65.7542	65.7542	65.7542
795	73.9669	73.9669	73.9669	65.7379	65.7379	65.7379
796	73.9554	73.9554	73.9554	65.722	65.722	65.722
797	73.9453	73.9453	73.9453	65.7082	65.7082	65.7082
798	73.9359	73.9359	73.9359	65.6904	65.6904	65.6904
799	73.927	73.927	73.927	65.6748	65.6748	65.6748
800	73.9182	73.9182	73.9182	65.6592	65.6592	65.6592
801	73.9097	73.9097	73.9097	65.6437	65.6437	65.6437
802	77.2286	93.2459	94.4049	65.6514	65.6514	85.8514
803	79.1519	92.6864	94.4722	65.659	65.659	65.659
804	80.2962	91.0201	93.5153	65.6684	65.6684	85.6684
805	81.0242	90.6994	94.0486	65.6738	65.6738	85.6738
806	81.5022	90.222	94.4104	65.6448	65.6448	85.6448
807	81.8237	89.7247	94.7071	65.5691	65.5691	85.5691
808	82.0702	89.2258	94.947	65.4707	65.4707	85.4707
809	82.2878	88.788	95.1749	65.3615	65.3615	85.3615
810	82.4622	88.2371	95.3534	65.2475	65.2475	85.2475
811	82.5994	87.6192	95.4984	65.1314	65.1314	85.1314
812	82.746	87.4208	95.3528	65.015	65.015	85.015
813	82.9287	87.3637	95.3276	64.8993	64.8993	84.8993
814	83.3707	87.978	96.6513	64.7863	64.7863	84.7863
815	83.763	88.2626	97.2264	64.6748	64.6748	84.6748
816	83.6876	87.4805	95.821	64.5818	64.5818	84.5818
817	83.4852	86.7702	94.691	64.4482	64.4482	84.4482
818	83.3607	86.5327	94.3676	64.3354	64.3354	84.3354
819	83.3201	86.367	94.1212	64.2236	64.2236	84.2236
820	83.3495	86.3593	94.0902	64.1129	64.1129	84.1129
821	83.4166	86.3907	94.0992	64.0034	64.0034	84.0034
822	83.3815	86.11	93.6248	63.8941	63.8941	83.8941
823	83.1181	85.3155	92.4041	63.784	63.784	83.784
824	82.7241	84.407	91.0827	63.6731	63.6731	83.6731
825	82.3639	83.7743	90.202	63.5623	63.5623	83.5623
826	82.1048	83.4271	89.733	63.4521	63.4521	83.4521
827	81.8989	83.1356	89.323	63.3425	63.3425	83.3425
828	81.7062	82.8349	88.8619	63.2335	63.2335	83.2335





829	81.5007	82.4928	85.3031	83.1249	63.1249	63.1249
830	81.2856	82.1442	87.7486	63.0168	63.0168	63.0168
831	81.0684	81.7997	87.2094	62.9091	62.9091	62.9091
832	80.9293	81.6544	87.084	62.8025	62.8025	62.8025
833	80.8371	81.5541	87.0032	62.6989	62.6989	62.6989
834	80.7696	81.4786	86.9469	62.5924	62.5924	62.5924
835	80.7146	81.4167	86.8981	62.4889	62.4889	62.4889
836	80.6645	81.3614	86.8459	62.3864	62.3864	62.3864
837	80.6173	81.309	86.7986	62.2849	62.2849	62.2849
838	80.5719	81.2586	86.7492	62.1843	62.1843	62.1843
839	80.5261	81.2087	86.6957	62.0848	62.0848	62.0848
840	80.4778	81.1578	86.6308	61.9861	61.9861	61.9861
841	80.4283	81.1057	86.565	61.8884	61.8884	61.8884
842	80.3782	81.053	86.499	61.7915	61.7915	61.7915
843	79.2535	79.6585	81.4919	61.6885	61.6885	61.6885
844	78.289	78.7861	79.4448	61.5845	61.5845	61.5845
845	77.672	78.1491	78.8278	61.4815	61.4815	61.4815
846	77.2442	77.7212	78.3999	61.3793	61.3793	61.3793
847	76.9195	77.3966	78.0753	61.2781	61.2781	61.2781
848	76.8516	77.1288	77.8073	61.1778	61.1778	61.1778
849	76.415	76.8921	77.5708	61.0783	61.0783	61.0783
850	76.1962	76.6732	77.3519	60.9798	60.9798	60.9798
851	75.9875	76.4848	77.1433	60.8821	60.8821	60.8821
852	75.7851	76.2821	76.9408	60.7852	60.7852	60.7852
853	75.5867	76.0637	76.7424	60.6893	60.6893	60.6893
854	75.391	75.8681	76.5488	60.5941	60.5941	60.5941
855	75.1976	75.6746	76.3533	60.4998	60.4998	60.4998
856	75.073	75.6398	76.4462	60.4068	60.4068	60.4068
857	76.6	88.1005	79.0971	65.7347	65.7347	85.7159
858	77.53	89.7674	80.074	68.891	68.891	89.464
859	78.0274	90.3234	80.5248	70.7804	70.7804	91.3723
860	78.2588	90.3985	80.7044	71.9331	71.9631	92.3647
861	78.3799	90.1645	81.0704	72.6934	72.6934	92.6209
862	78.6527	90.0684	82.588	73.0793	73.0793	92.1961
863	78.9046	90.1025	83.5108	73.2558	73.2558	91.4928
864	79.4762	91.1046	85.7824	73.3092	73.3092	90.654
865	80.0408	91.7498	87.3097	73.2831	73.2831	89.7283
866	80.1739	91.1215	88.9413	73.1947	73.1947	88.7232
867	80.1769	90.4047	87.0637	73.0484	73.0484	87.6167
868	80.4423	91.2223	87.8503	72.8629	72.8629	86.4742
869	80.6295	91.411	88.1399	72.6308	72.6308	85.2474
870	80.7092	91.176	88.4515	72.3573	72.3573	83.9672
871	80.8733	91.1933	89.4721	72.0563	72.0563	82.6793
872	81.1484	91.7875	90.5513	71.739	71.739	81.4119
873	81.4058	92.2942	91.4245	71.378	71.378	80.008
874	81.6377	92.7186	92.2873	70.9857	70.9857	78.5807
875	81.4846	91.2311	91.5249	70.2276	70.2276	75.3379
876	80.449	86.2523	87.631	68.6584	68.6584	68.6584
877	79.9504	87.2491	88.4581	67.8465	67.8465	67.8465
878	77.9471	77.9471	77.9471	67.4141	67.4141	67.4141
879	76.83	76.83	76.83	67.1836	67.1836	67.1836
880	76.2054	76.2054	76.2054	67.0574	67.0574	67.0574
881	75.8545	75.8545	75.8545	66.9849	66.9849	66.9849
882	75.8555	75.8555	75.8555	66.9403	66.9403	66.9403
883	75.5411	75.5411	75.5411	66.9101	66.9101	66.9101
884	75.4738	75.4736	75.4736	66.8873	66.8873	66.8873



**ANEXO 1E**      **INVERTER TEMPERAT-EBRCL13.xls**  
**SIMULACIONES, CÁLCULOS Y GRÁFICAS**



**00012217**

885	75.4321	75.4321	75.4321	66.8684	66.8684	66.8684
886	75.4052	75.4052	75.4052	66.8514	66.8514	66.8514
887	75.3864	75.3864	75.3864	66.8355	66.8355	66.8355
888	75.372	75.372	75.372	66.8202	66.8202	66.8202
889	75.3601	75.3601	75.3601	66.8051	66.8051	66.8051
890	75.3496	75.3496	75.3496	66.7902	66.7902	66.7902
891	75.3398	75.3398	75.3398	66.7755	66.7755	66.7755
892	75.3305	75.3305	75.3305	66.7607	66.7607	66.7607
893	75.3214	75.3214	75.3214	66.746	66.746	66.746
894	75.3125	75.3125	75.3125	66.7314	66.7314	66.7314
895	78.6337	94.9559	96.038	66.7377	66.7377	66.7377
896	80.5583	84.3976	96.1064	66.7438	66.7438	66.7438
897	81.704	92.84	95.2312	66.7497	66.7497	66.7497
898	82.4301	92.2279	95.4705	66.7556	66.7556	66.7556
899	82.9041	91.7239	95.6148	66.7225	66.7225	66.7225
900	83.219	91.2199	96.1047	66.6393	66.6393	66.6393
901	83.4564	90.6979	96.3372	66.5317	66.5317	66.5317
902	83.6825	90.2421	96.5473	66.4125	66.4125	66.4125
903	83.8315	89.6996	96.7223	66.2881	66.2881	66.2881
904	83.9806	89.0701	96.8548	66.1616	66.1616	66.1616
905	84.0948	88.8046	96.7417	66.0347	66.0347	66.0347
906	84.2399	88.6636	96.5578	65.9084	65.9084	65.9084
907	84.6473	89.2319	97.8121	65.7846	65.7846	65.7846
908	85.1122	89.7284	98.795	65.6629	65.6629	65.6629
909	85.0856	89.0148	97.4755	65.5401	65.5401	65.5401
910	84.827	88.1692	96.114	65.4165	65.4165	65.4165
911	84.7026	87.9258	95.7938	65.294	65.294	65.294
912	84.6531	87.7731	95.5744	65.1726	65.1726	65.1726
913	84.6511	87.6921	95.4425	65.0522	65.0522	65.0522
914	84.6954	87.7101	95.4441	64.9331	64.9331	64.9331
915	84.7642	87.7552	95.4743	64.8151	64.8151	64.8151
916	84.8459	87.8156	95.5213	64.6983	64.6983	64.6983
917	84.8964	87.7807	95.4206	64.5825	64.5825	64.5825
918	83.4955	84.9491	88.7624	64.4589	64.4589	64.4589
919	82.6947	84.1484	87.9616	64.3365	64.3365	64.3365
920	82.2198	83.6734	87.4868	64.2152	64.2152	64.2152
921	81.9218	83.3754	87.1886	64.095	64.095	64.095
922	81.7201	83.1737	86.9869	63.976	63.976	63.976
923	81.5709	83.0245	86.8377	63.858	63.858	63.858
924	81.4504	82.9041	86.7173	63.7412	63.7412	63.7412
925	81.3459	82.7995	86.6127	63.6255	63.6255	63.6255
926	81.2502	82.7039	86.5171	63.5108	63.5108	63.5108
927	81.1597	82.6133	86.4268	63.3973	63.3973	63.3973
928	81.0722	82.5258	86.3391	63.2848	63.2848	63.2848
929	80.9866	82.4403	86.2535	63.1733	63.1733	63.1733
930	80.9024	82.356	86.1692	63.0629	63.0629	63.0629
931	80.8191	82.2728	86.086	62.9536	62.9536	62.9536
932	80.6845	82.0838	85.7688	62.8449	62.8449	62.8449
933	80.5533	81.9334	85.5727	62.7371	62.7371	62.7371
934	80.3482	81.6321	85.0396	62.6298	62.6298	62.6298
935	80.1038	81.2959	84.483	62.523	62.523	62.523
936	79.8393	80.9439	83.9285	62.4167	62.4167	62.4167
937	79.6356	80.7335	83.7027	62.3113	62.3113	62.3113
938	79.4091	80.471	83.2587	62.2065	62.2065	62.2065
939	79.1684	80.2089	82.8043	62.1023	62.1023	62.1023
940	78.9188	79.9451	82.3424	61.9987	61.9987	61.9987





941	78.664	79.6765	81.8835	61.8957	61.8957	61.8957
942	78.3528	79.3685	81.1696	61.793	61.793	61.793
943	78.0843	79.1322	80.7703	61.6911	61.6911	61.6911
944	77.8673	78.9151	80.5533	61.5901	61.5901	61.5901
945	77.6785	78.7284	80.3645	61.49	61.49	61.49
946	77.5056	78.5535	80.1916	61.3908	61.3908	61.3908
947	77.3418	78.3896	80.0278	61.2925	61.2925	61.2925
948	77.1834	78.2313	79.8694	61.1951	61.1951	61.1951
949	77.0285	78.0763	79.7145	61.0988	61.0988	61.0988
950	76.8759	77.9238	79.5619	61.0029	61.0029	61.0029
951	76.7252	77.773	79.4112	60.9081	60.9081	60.9081
952	76.5758	77.6237	79.2618	60.8142	60.8142	60.8142
953	76.4278	77.4757	79.1138	60.7211	60.7211	60.7211
954	75.9975	76.8864	77.6692	60.6272	60.6272	60.6272
955	75.5757	76.1075	76.8591	60.5335	60.5335	60.5335
956	75.1533	75.5285	76.0583	60.4401	60.4401	60.4401
957	74.7253	74.9437	75.252	60.3468	60.3468	60.3468
958	74.2892	74.3507	74.4376	60.2536	60.2536	60.2536
959	76.6325	79.1168	86.4357	60.177	60.177	60.177
960	77.6631	79.6144	86.5056	60.0995	60.0995	60.0995
961	77.9854	79.4419	85.9336	60.0212	60.0212	60.0212
962	78.1095	79.4767	85.8449	59.9433	59.9433	59.9433
963	78.1249	79.4063	85.8557	59.8658	59.8658	59.8658
964	78.0803	79.2791	85.4142	59.7887	59.7887	59.7887
965	77.9744	79.045	84.951	59.7118	59.7118	59.7118
966	77.8298	78.7703	84.5027	59.6352	59.6352	59.6352
967	77.6624	78.4768	84.012	59.5588	59.5588	59.5588
968	77.51	78.241	83.6562	59.4829	59.4829	59.4829
969	77.4201	78.1435	83.5771	59.4077	59.4077	59.4077
970	77.3644	78.0805	83.5319	59.3332	59.3332	59.3332
971	77.3276	78.0364	83.5054	59.2595	59.2595	59.2595
972	77.3001	78.0025	83.4837	59.1865	59.1865	59.1865
973	77.8782	89.7534	80.1122	64.64	64.64	84.9764
974	77.9266	89.643	80.8463	67.5019	67.5019	87.2801
975	78.2561	89.6235	82.3385	68.9647	68.9647	87.9162
976	78.5366	89.6938	83.2685	69.6905	69.6905	87.7581
977	79.2187	90.9864	85.9457	70.0305	70.0305	87.2011
978	79.6925	91.2517	86.8395	70.1576	70.1576	86.426
979	79.8022	90.6097	86.5928	70.1542	70.1542	85.4957
980	79.8298	90.0574	86.784	70.0611	70.0611	84.4428
981	80.1462	91.0597	87.6638	69.9127	69.9127	83.3378
982	80.2837	90.9913	87.764	69.7059	69.7059	82.1248
983	80.3794	90.8056	88.2899	69.4574	69.4574	80.8742
984	80.5676	90.9497	89.323	69.1815	69.1815	79.6195
985	80.8536	91.5507	90.4021	68.8851	68.8851	78.3677
986	81.1045	92.0391	91.2368	68.5404	68.5404	76.9643
987	81.3332	92.4455	92.1119	68.169	68.169	75.5657
988	80.9607	89.8536	90.3772	67.2288	67.2288	71.2734
989	80.0157	86.2201	87.5533	65.813	65.813	65.813
990	79.5653	87.1285	88.3075	65.0806	65.0806	65.0806
991	77.5844	77.5844	77.5844	64.6909	64.6909	64.6909
992	76.4799	76.4799	76.4799	64.4834	64.4834	64.4834
993	75.8623	75.8623	75.8623	64.37	64.37	64.37
994	75.5152	75.5152	75.5152	64.3051	64.3051	64.3051
995	75.3185	75.3185	75.3185	64.2654	64.2654	64.2654
996	75.2054	75.2054	75.2054	64.2386	64.2386	64.2386



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012219



997	75.1386	75.1386	75.1386	64.2185	64.2185	64.2185
998	75.0976	75.0976	75.0976	64.2019	64.2019	64.2019
999	75.071	75.071	75.071	64.1871	64.1871	64.1871
1000	75.0523	75.0523	75.0523	64.1732	64.1732	64.1732
1001	75.0381	75.0381	75.0381	64.1599	64.1599	64.1599
1002	75.0263	75.0263	75.0263	64.1468	64.1468	64.1468
1003	75.0159	75.0159	75.0159	64.1338	64.1338	64.1338
1004	75.0063	75.0063	75.0063	64.1209	64.1209	64.1209
1005	74.997	74.997	74.997	64.1081	64.1081	64.1081
1006	74.9881	74.9881	74.9881	64.0953	64.0953	64.0953
1007	74.9792	74.9792	74.9792	64.0826	64.0826	64.0826
1008	78.2963	94.1351	95.3392	64.0884	64.0884	64.0884
1009	80.2184	93.6744	95.4052	64.094	64.094	64.094
1010	81.3624	91.965	94.5214	64.0995	64.0995	64.0995
1011	82.0906	91.694	95.1024	64.105	64.105	64.105
1012	82.5668	91.2282	95.4737	64.0782	64.0782	64.0782
1013	82.8839	90.7263	95.7659	64.0101	64.0101	64.0101
1014	83.1259	90.2342	96.0033	63.9218	63.9218	63.9218
1015	83.3373	89.7891	96.2238	63.8239	63.8239	63.8239
1016	83.5024	89.2227	96.3939	63.7217	63.7217	63.7217
1017	83.8301	88.592	96.5251	63.6177	63.6177	63.6177
1018	83.7717	88.426	96.355	63.5135	63.5135	63.5135
1019	83.9674	88.4149	96.4301	63.41	63.41	63.41
1020	84.4141	89.0336	97.7576	63.3087	63.3087	63.3087
1021	84.759	89.2056	98.1226	63.2084	63.2084	63.2084
1022	84.6566	88.4003	96.6984	63.107	63.107	63.107
1023	84.4364	87.732	95.8488	63.0054	63.0054	63.0054
1024	84.3306	87.4947	95.3245	62.9046	62.9046	62.9046
1025	84.2883	87.3333	95.0863	62.8046	62.8046	62.8046
1026	84.3135	87.3221	95.0522	62.7057	62.7057	62.7057
1027	84.375	87.349	95.0574	62.6078	62.6078	62.6078
1028	84.3495	87.1076	94.8462	62.5103	62.5103	62.5103
1029	84.1228	86.413	93.576	62.4124	62.4124	62.4124
1030	83.7978	85.6862	92.4907	62.3142	62.3142	62.3142
1031	83.425	84.9052	91.4182	62.2159	62.2159	62.2159
1032	83.1675	84.567	90.9798	62.1182	62.1182	62.1182
1033	82.9816	84.322	90.6531	62.0212	62.0212	62.0212
1034	82.8323	84.1138	90.3633	61.925	61.925	61.925
1035	82.7004	83.9226	90.0902	61.8294	61.8294	61.8294
1036	82.5844	83.7079	89.7581	61.7345	61.7345	61.7345
1037	82.407	83.4439	89.3273	61.6401	61.6401	61.6401
1038	81.0887	81.8635	83.3539	61.5399	61.5399	61.5399
1039	80.2303	81.1688	82.3414	61.4404	61.4404	61.4404
1040	79.0908	79.1259	79.1448	61.3631	61.3631	61.469
1041	78.9142	80.1312	80.7845	62.1013	62.1013	65.7652
1042	78.8455	80.301	81.0823	62.6422	62.6422	67.0241
1043	78.7293	80.1848	80.9661	62.9278	62.9278	67.3097
1044	78.588	80.0435	80.8248	63.085	63.085	67.4669
1045	78.4336	79.889	80.6704	63.1776	63.1776	67.5594
1046	78.1688	79.4044	80.0677	63.0839	63.0839	68.804
1047	77.7866	78.6913	79.177	62.8095	62.8095	85.5333
1048	77.3329	77.9067	78.2147	62.4299	62.4299	84.1575
1049	77.0403	77.7231	78.0896	62.2902	62.2902	84.3459
1050	76.7056	77.2156	77.4895	62.0794	62.0794	83.6151
1051	76.2599	76.4188	76.5041	61.7007	61.7007	82.1791
1052	75.8916	75.9794	76.0782	61.3574	61.3574	81.3574



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012220

1053	77.331	78.2461	83.9389	61.1453	61.1453	61.1453
1054	78.0157	78.8029	84.2953	60.9945	60.9945	60.9945
1055	78.3395	79.0886	84.4886	60.8749	60.8749	60.8749
1056	78.5037	79.2247	84.6642	60.7715	60.7715	60.7715
1057	78.5818	79.2949	84.7535	60.6767	60.6767	60.6767
1058	78.8135	79.3188	84.7963	60.5866	60.5866	60.5866
1059	78.6175	79.3171	84.8	60.4994	60.4994	60.4994
1060	78.8061	79.3005	84.7865	60.4139	60.4139	60.4139
1061	78.5865	79.2758	84.7649	60.3297	60.3297	60.3297
1062	78.5628	79.2471	84.7392	60.2466	60.2466	60.2466
1063	79.0075	91.282	81.5314	65.7731	65.7731	66.3664
1064	79.2355	91.5475	81.7133	68.85	68.85	69.4409
1065	78.2016	82.7764	80.0203	68.0365	68.0365	79.8507
1066	76.76	77.036	77.3043	64.8011	64.8011	64.8011
1067	75.8797	76.1556	76.4239	63.1247	63.1247	63.1247
1068	75.3044	75.5804	75.8486	62.2321	62.2321	62.2321
1069	74.8952	75.1712	75.4395	61.7335	61.7335	61.7335
1070	74.9346	75.7203	76.6648	61.4352	61.4352	61.4352
1071	74.8827	75.6535	76.6313	61.2371	61.2371	61.2371
1072	74.7821	75.5378	76.549	61.0897	61.0897	61.0897
1073	74.6436	75.4426	76.3576	60.9682	60.9682	60.9682
1074	74.4937	75.2926	76.2077	60.8601	60.8601	60.8601
1075	74.3381	75.1368	76.0527	60.7592	60.7592	60.7592
1076	74.184	74.9832	75.9222	60.6624	60.6624	60.6624
1077	75.3002	85.3914	77.5253	65.5223	65.5223	84.0522
1078	76.2681	87.9412	79.3329	68.5904	68.5904	88.2741
1079	76.9774	88.3193	81.1387	70.1444	70.1444	88.9883
1080	77.4773	88.6227	82.3241	70.9046	70.9046	88.8538
1081	78.3411	90.2101	85.3741	71.2505	71.2505	88.2944
1082	78.8049	90.2519	85.8605	71.37	71.37	87.5061
1083	78.9297	89.6296	85.7382	71.3513	71.3513	86.5491
1084	79.0247	89.358	86.0657	71.2417	71.2417	85.4759
1085	79.3835	90.4054	86.9902	71.0749	71.0749	84.3487
1086	79.4825	90.1291	86.936	70.8468	70.8468	83.1025
1087	79.5949	89.9844	87.6461	70.5801	70.5801	81.8346
1088	79.8064	90.2403	88.8923	70.2893	70.2893	80.573
1089	80.0925	90.8282	89.7359	69.973	69.973	79.2837
1090	80.3465	91.3197	90.5736	69.6095	69.6095	77.8615
1091	80.5787	91.7172	91.4651	69.2231	69.2231	76.4543
1092	80.0283	88.2093	88.9245	68.0988	68.0988	71.2547
1093	79.1603	85.5853	86.8935	66.787	66.787	66.787
1094	78.7529	86.5367	87.6908	66.1082	66.1082	66.1082
1095	76.7924	76.7924	76.7924	65.747	65.747	65.747
1096	75.6993	75.6993	75.6993	65.5546	65.5546	65.5546
1097	75.0881	75.0881	75.0881	65.4492	65.4492	65.4492
1098	74.7447	74.7447	74.7447	65.3889	65.3889	65.3889
1099	74.5501	74.5501	74.5501	65.3518	65.3518	65.3518
1100	74.4382	74.4382	74.4382	65.3267	65.3267	65.3267
1101	74.3723	74.3723	74.3723	65.3078	65.3078	65.3078
1102	74.3318	74.3318	74.3318	65.2921	65.2921	65.2921
1103	74.3056	74.3056	74.3056	65.2781	65.2781	65.2781
1104	74.2872	74.2872	74.2872	65.2649	65.2649	65.2649
1105	74.2732	74.2732	74.2732	65.2522	65.2522	65.2522
1106	74.2617	74.2617	74.2617	65.2398	65.2398	65.2398
1107	74.2515	74.2515	74.2515	65.2275	65.2275	65.2275
1108	74.2421	74.2421	74.2421	65.2152	65.2152	65.2152

2914



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012221



1109	74.2331	74.2331	74.2331	65.2031	65.2031	65.2031
1110	74.2243	74.2243	74.2243	65.1909	65.1909	65.1909
1111	74.2156	74.2156	74.2156	65.1788	65.1788	65.1788
1112	77.5293	92.965	94.2709	65.1834	65.1834	65.1834
1113	79.4485	92.399	94.3092	65.188	65.188	65.188
1114	80.5931	91.0334	93.7282	65.1924	65.1924	65.1924
1115	81.3228	90.764	94.3108	65.1967	65.1967	65.1967
1116	81.7999	90.324	94.8975	65.166	65.166	65.166
1117	82.1215	89.8318	95.0004	65.0902	65.0902	65.0902
1118	82.3717	89.3734	95.2506	64.9923	64.9923	64.9923
1119	82.5902	88.9354	95.4782	64.884	64.884	64.884
1120	82.755	88.3522	95.6471	64.771	64.771	64.771
1121	82.89	87.787	95.7493	64.6561	64.6561	64.6561
1122	83.039	87.6469	95.5692	64.541	64.541	64.541
1123	83.2838	87.7591	95.8889	64.4267	64.4267	64.4267
1124	83.7604	88.4068	97.2417	64.3146	64.3146	64.3146
1125	84.0248	88.361	97.1806	64.2031	64.2031	64.2031
1126	83.8855	87.5359	95.7508	64.0908	64.0908	64.0908
1127	83.8917	86.9701	94.8737	63.9787	63.9787	63.9787
1128	83.8027	86.7527	94.5735	63.8676	63.8676	63.8676
1129	83.5755	86.6178	94.369	63.7574	63.7574	63.7574
1130	83.611	86.6185	94.348	63.6483	63.6483	63.6483
1131	83.6802	86.6546	94.3633	63.5403	63.5403	63.5403
1132	83.673	86.4533	94.0097	63.4329	63.4329	63.4329
1133	83.4537	86.7559	92.9287	63.3253	63.3253	63.3253
1134	83.1149	84.9571	91.7607	63.2176	63.2176	63.2176
1135	82.7311	84.1801	90.8613	63.1099	63.1099	63.1099
1136	82.4673	83.8384	90.2119	63.0029	63.0029	63.0029
1137	82.2671	83.5826	89.8317	62.8967	62.8967	62.8967
1138	82.0995	83.321	89.4875	62.7913	62.7913	62.7913
1139	81.9318	83.0522	89.0684	62.6865	62.6865	62.6865
1140	81.7482	82.7467	88.5701	62.5823	62.5823	62.5823
1141	81.551	82.4262	88.0586	62.4788	62.4788	62.4788
1142	81.3425	82.095	87.5334	62.3758	62.3758	62.3758
1143	81.1973	81.9243	87.3492	62.2737	62.2737	62.2737
1144	81.0995	81.8187	87.2623	62.1726	62.1726	62.1726
1145	81.0277	81.7394	87.2013	62.0726	62.0726	62.0726
1146	80.9705	81.6747	87.1546	61.9735	61.9735	61.9735
1147	80.9183	81.6174	87.1006	61.8753	61.8753	61.8753
1148	79.5799	80.217	80.9385	61.7718	61.7718	61.7718
1149	78.6963	79.2348	79.843	61.6689	61.6689	61.6689
1150	78.6634	79.1404	81.851	61.5696	61.5696	61.5696
1151	79.3933	80.0844	85.5724	61.4752	61.4752	61.4752
1152	79.7704	80.4563	85.9475	61.3816	61.3816	61.3816
1153	79.954	80.6358	86.1189	61.2889	61.2889	61.2889
1154	80.0307	80.7094	86.176	61.1971	61.1971	61.1971
1155	80.0496	80.7249	86.1745	61.1062	61.1062	61.1062
1156	78.3518	78.379	78.4176	61.008	61.008	61.008
1157	77.9952	80.2968	79.6738	62.8688	62.8688	71.0359
1158	77.7369	80.1156	79.4128	63.9213	63.9213	72.2595
1159	77.5235	79.9021	79.1992	64.5247	64.5247	72.8629
1160	77.3349	79.7135	79.0105	64.9019	64.9019	73.2401
1161	77.1602	79.5389	78.8359	65.1646	65.1646	73.5028
1162	76.9937	79.3724	78.6694	65.3691	65.3691	73.7073
1163	76.8321	79.2108	78.5078	65.5437	65.5437	73.8519
1164	76.6737	79.0524	78.3494	65.7026	65.7026	74.0408



**ANEXO 1E**      **INVERTER TEMPERAT-EBRCL13.xls**  
**SIMULACIONES, CÁLCULOS Y GRÁFICAS**

**00012222**



1165	78.5175	78.8962	78.1932	65.8529	65.8529	74.191
1166	76.3631	78.7417	78.0388	65.9981	65.9981	74.3363
1167	76.21	78.5887	77.8857	66.1402	66.1402	74.4784
1168	76.0583	78.4369	77.734	66.28	66.28	74.6182
1169	75.9077	78.2884	77.5834	66.418	66.418	74.7561
1170	75.7583	78.1369	77.434	66.5544	66.5544	74.8925
1171	75.61	77.9886	77.2856	66.6893	66.6893	75.0275
1172	75.4627	77.8413	77.1384	66.8229	66.8229	75.1611
1173	75.3175	77.7037	76.9929	66.9596	66.9596	75.3148
1174	75.1729	77.5595	76.8484	67.0933	67.0933	75.4491
1175	75.0291	77.4148	76.7046	67.224	67.224	75.5777
1176	74.8833	77.2449	76.5596	67.3392	67.3392	75.6396
1177	74.7368	77.0749	76.4139	67.4453	67.4453	75.6935
1178	74.5931	76.9317	76.2702	67.5595	67.5595	75.8088
1179	74.4548	76.821	76.131	67.693	67.693	76.0035
1180	74.3197	76.7098	75.995	67.8345	67.8345	76.1981
1181	74.1846	76.5808	75.8597	67.9998	67.9998	76.3469
1182	74.0468	76.4229	75.7226	68.0863	68.0863	76.4186
1183	73.9049	76.2384	75.5823	68.1777	68.1777	76.4113
1184	73.7605	76.0452	75.4396	68.2531	68.2531	76.3827
1185	73.615	75.8528	75.2957	68.3182	68.3182	76.3438
1186	73.4689	75.6599	75.1513	68.3759	68.3759	76.2976
1187	73.3235	75.4701	75.0091	68.4277	68.4277	76.243
1188	73.1801	75.2848	74.8686	68.4814	68.4814	76.2174
1189	73.0416	75.1563	74.7301	68.5547	68.5547	76.2907
1190	72.9062	75.0208	74.5947	68.6374	68.6374	76.3734
1191	72.7728	74.8875	74.4613	68.7243	68.7243	76.4604
1192	72.641	74.7557	74.3296	68.813	68.813	76.549
1193	72.5105	74.6252	74.199	68.902	68.902	76.638
1194	72.3811	74.4958	74.0697	68.9908	68.9908	76.7269
1195	72.2528	74.3674	73.9413	69.079	69.079	76.8151
1196	72.1254	74.24	73.8139	69.1666	69.1666	76.9026
1197	71.9989	74.1136	73.6875	69.2533	69.2533	76.9894
1198	71.8734	73.9881	73.5619	69.3393	69.3393	77.0753
1199	71.7488	73.8636	73.4373	69.4244	69.4244	77.1604
1200	71.6251	73.7398	73.3136	69.5086	69.5086	77.2447
1201	71.5023	73.617	73.1908	69.5921	69.5921	77.3281
1202	71.3804	73.495	73.0689	69.6747	69.6747	77.4107
1203	71.2593	73.374	72.9479	69.7565	69.7565	77.4925
1204	72.4478	83.2014	74.8505	73.2075	73.2075	92.5548
1205	73.3222	85.5196	75.8798	75.5726	75.5726	96.1164
1206	73.811	88.091	76.3281	77.0446	77.0446	97.6375
1207	74.0826	86.3955	76.5592	78.0498	78.0498	98.6407
1208	74.1909	86.2201	76.6191	78.7198	78.7198	99.0048
1209	74.3171	86.0364	77.2268	79.1516	79.1516	98.9363
1210	74.5807	85.9805	78.563	79.3894	79.3894	98.4757
1211	74.8259	86.0453	79.3653	79.4985	79.4985	97.8266
1212	75.2782	86.7308	81.053	79.5278	79.5278	97.0927
1213	74.4901	79.5315	78.6927	77.5831	77.5831	87.7745
1214	73.5727	76.1802	78.8583	75.7542	75.7542	82.4844
1215	73.0419	75.6494	76.3275	74.8392	74.8392	81.5694
1216	72.721	75.3285	76.0066	74.3833	74.3833	81.1135
1217	72.5142	75.1217	75.7998	74.158	74.158	80.8852
1218	72.3696	74.9771	75.6552	74.0485	74.0485	80.7797
1219	72.1885	74.4046	75.4413	73.8027	73.8027	79.7641
1220	72.0512	74.2361	75.309	73.6526	73.6526	79.5407





1221	71.9376	74.0915	75.2004	73.5496	73.5496	79.3642
1222	71.8371	73.9699	75.1049	73.4692	73.4692	79.2104
1223	71.7436	73.8354	75.0164	73.399	73.399	79.0668
1224	71.6733	73.915	74.922	73.4394	73.4394	79.4616
1225	71.6007	73.8425	74.8494	73.4527	73.4527	79.4749
1226	71.5272	73.769	74.7759	73.4524	73.4524	79.4747
1227	71.4534	73.6952	74.7021	73.4454	73.4454	79.4676
1228	71.3797	73.6215	74.6284	73.4351	73.4351	79.4573
1229	71.3063	73.5481	74.555	73.4231	73.4231	79.4453
1230	71.2333	73.4751	74.482	73.4103	73.4103	79.4325
1231	71.1607	73.4025	74.4094	73.3972	73.3972	79.4194
1232	71.0887	73.3304	74.3373	73.384	73.384	79.4063
1233	71.0171	73.2589	74.2658	73.3708	73.3708	79.393
1234	70.946	73.1878	74.1947	73.3577	73.3577	79.3799
1235	70.8727	73.0852	74.1256	73.3292	73.3292	79.2893
1236	70.7869	72.869	74.0612	73.2292	73.2292	78.8743
1237	70.6937	72.6426	73.9896	73.0885	73.0885	78.4186
1238	70.4521	72.0456	73.2546	72.7779	72.7779	77.1576
1239	69.989	70.9717	71.7324	72.2144	72.2144	74.9703
1240	69.3384	69.7503	70.0628	71.5007	71.5007	72.8327
1241	70.9496	79.175	76.5778	74.3226	74.3226	88.1017
1242	72.5846	84.1745	79.7565	76.8189	76.8189	92.9236
1243	73.3378	84.1741	80.1237	77.6639	77.6639	93.0438
1244	73.7219	83.9306	80.6606	78.0524	78.0524	92.4605
1245	74.2561	85.1671	81.7716	78.0979	78.0979	91.5265
1246	74.5279	85.2275	82.005	77.9401	77.9401	90.3375
1247	74.7205	85.1391	82.6619	77.671	77.671	89.0522
1248	74.9839	85.3816	83.7786	77.3409	77.3409	87.7323
1249	75.3246	88.0361	84.9086	76.9717	76.9717	86.3903
1250	75.6238	88.5752	85.7974	76.5466	76.5466	84.8957
1251	75.8966	87.0218	86.7283	76.0931	76.0931	83.4083
1252	75.4689	83.973	84.6007	74.9782	74.9782	78.5398
1253	74.5933	80.9264	82.245	73.5651	73.5651	73.5651
1254	74.1833	81.8775	83.0416	72.8331	72.8331	72.8331
1255	72.2234	72.2234	72.2234	72.4448	72.4448	72.4448
1256	71.1311	71.1311	71.1311	72.2381	72.2381	72.2381
1257	70.5209	70.5209	70.5209	72.1251	72.1251	72.1251
1258	70.1786	70.1786	70.1786	72.0606	72.0606	72.0606
1259	69.9852	69.9852	69.9852	72.021	72.021	72.021
1260	69.8745	69.8745	69.8745	71.9944	71.9944	71.9944
1261	69.8097	69.8097	69.8097	71.9745	71.9745	71.9745
1262	69.7704	69.7704	69.7704	71.958	71.958	71.958
1263	69.7454	69.7454	69.7454	71.9433	71.9433	71.9433
1264	69.7282	69.7282	69.7282	71.9295	71.9295	71.9295
1265	69.7154	69.7154	69.7154	71.9162	71.9162	71.9162
1266	69.7051	69.7051	69.7051	71.9032	71.9032	71.9032
1267	69.6961	69.6961	69.6961	71.8903	71.8903	71.8903
1268	69.6879	69.6879	69.6879	71.8775	71.8775	71.8775
1269	69.6801	69.6801	69.6801	71.8647	71.8647	71.8647
1270	69.6725	69.6725	69.6725	71.852	71.852	71.852
1271	69.665	69.665	69.665	71.8393	71.8393	71.8393
1272	72.9814	88.5841	89.8479	71.8413	71.8413	71.8413
1273	74.9038	88.0376	89.9245	71.8431	71.8431	71.8431
1274	76.05	86.5697	89.1967	71.8449	71.8449	71.8449
1275	76.78	86.3103	89.7811	71.8466	71.8466	71.8466
1276	77.2656	85.8696	90.1651	71.7958	71.7958	71.7958



Handwritten red mark or signature



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012224

1277	77.6087	85.4112	90.4958	71.6773	71.6773	71.6773
1278	77.8814	84.957	90.7592	71.5258	71.5258	71.5258
1279	78.1265	84.5489	91.0134	71.3587	71.3587	71.3587
1280	78.3252	84.0151	91.2169	71.1845	71.1845	71.1845
1281	78.4891	83.4262	91.3866	71.0076	71.0076	71.0076
1282	78.6676	83.3111	91.2386	70.8302	70.8302	70.8302
1283	78.9099	83.3639	91.4059	70.6539	70.6539	70.6539
1284	79.3989	84.0249	92.7754	70.4798	70.4798	70.4798
1285	79.7588	84.1778	93.0705	70.3073	70.3073	70.3073
1286	79.6804	83.4001	91.6761	70.1346	70.1346	70.1346
1287	79.5022	82.7928	90.7043	69.9627	69.9627	69.9627
1288	79.4354	82.5971	90.4254	69.7923	69.7923	69.7923
1289	79.4305	82.4767	90.2304	69.6234	69.6234	69.6234
1290	79.4815	82.5041	90.2367	69.4561	69.4561	69.4561
1291	79.5875	82.5691	90.2823	69.2905	69.2905	69.2905
1292	79.6895	82.62	90.297	69.1265	69.1265	69.1265
1293	79.5742	82.0775	89.4118	68.9631	68.9631	68.9631
1294	79.3499	81.4666	88.4905	68.8003	68.8003	68.8003
1295	79.0793	80.8561	87.6054	68.6384	68.6384	68.6384
1296	78.7907	80.2579	86.7604	68.4773	68.4773	68.4773
1297	78.509	80.0204	86.4496	68.3176	68.3176	68.3176
1298	78.4896	79.856	86.2229	68.1592	68.1592	68.1592
1299	78.4023	79.724	86.0292	68.0023	68.0023	68.0023
1300	78.3309	79.6081	85.8517	67.8466	67.8466	67.8466
1301	78.267	79.5011	85.6849	67.6924	67.6924	67.6924
1302	78.2061	79.3976	85.5225	67.5395	67.5395	67.5395
1303	78.1259	79.2418	85.2489	67.3878	67.3878	67.3878
1304	78.0278	79.0611	84.9388	67.2374	67.2374	67.2374
1305	77.9142	78.8603	84.6015	67.0881	67.0881	67.0881
1306	77.7869	78.6426	84.2426	66.94	66.94	66.94
1307	77.6457	78.4081	83.8569	66.793	66.793	66.793
1308	77.5425	78.2714	83.6918	66.6474	66.6474	66.6474
1309	77.4787	78.2006	83.6378	66.5031	66.5031	66.5031
1310	77.4368	78.1515	83.6063	66.3603	66.3603	66.3603
1311	77.4072	78.1146	83.587	66.2188	66.2188	66.2188
1312	77.3828	78.0843	83.5661	66.0787	66.0787	66.0787
1313	77.36	78.0586	83.5413	65.9399	65.9399	65.9399
1314	77.3382	78.0301	83.5176	65.8025	65.8025	65.8025
1315	77.3171	78.0044	83.4947	65.6663	65.6663	65.6663
1316	77.2957	77.9789	83.469	65.5315	65.5315	65.5315
1317	77.2715	77.9523	83.4298	65.3979	65.3979	65.3979
1318	77.2457	77.9241	83.3891	65.2656	65.2656	65.2656
1319	77.219	77.8951	83.3479	65.1345	65.1345	65.1345
1320	77.1919	77.8657	83.3064	65.0047	65.0047	65.0047
1321	75.9719	76.4895	77.7036	64.871	64.871	64.871
1322	75.2122	75.7874	76.8351	64.7385	64.7385	64.7385
1323	74.2732	74.3512	74.3958	64.6821	64.6821	65.015
1324	74.2142	75.3842	76.0541	65.6723	65.6723	70.6871
1325	74.1297	75.5143	75.9278	66.3593	66.3593	72.0966
1326	74.0348	75.6716	75.7789	66.9128	66.9128	73.4085
1327	73.9482	75.911	75.6503	67.4396	67.4396	74.7996
1328	73.8719	76.148	75.5514	67.939	67.939	76.0451
1329	73.7803	76.1506	75.4593	68.2996	68.2996	76.6192
1330	73.6454	75.8201	75.3285	68.4227	68.4227	76.3075
1331	73.4741	75.3139	75.1871	68.3212	68.3212	75.3767
1332	73.2904	74.8242	75.0518	68.0905	68.0905	74.2969



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012225

1333	73.11	74.3793	74.9436	67.782	67.782	73.1263
1334	72.6288	73.1587	73.5094	66.9474	66.9474	69.3381
1335	72.336	72.7809	73.414	65.9426	65.9426	65.9426
1336	72.6252	76.1396	74.3114	67.9686	67.9686	78.5208
1337	74.0719	66.2431	76.6385	72.0731	72.0731	92.5978
1338	74.866	67.1438	77.3858	74.4327	74.4327	95.0258
1339	75.2941	67.5995	77.7671	75.8885	75.8885	96.4694
1340	75.47	67.4294	77.8868	76.7714	76.7714	96.9818
1341	75.708	67.3056	79.026	77.2559	77.2559	96.7747
1342	75.9993	67.3123	80.2496	77.4931	77.4931	96.2155
1343	74.234	74.7893	75.6262	72.8236	72.8236	72.8236
1344	73.3461	74.1067	75.2531	70.3968	70.3968	70.3968
1345	72.8612	73.7121	74.9946	69.0973	69.0973	69.0973
1346	72.5989	73.54	74.9586	68.365	68.365	68.365
1347	72.4408	73.4392	74.9556	67.9185	67.9185	67.9185
1348	72.337	73.2019	75.0566	67.6162	67.6162	67.6162
1349	72.2342	73.0826	74.9893	67.3872	67.3872	67.3872
1350	72.1325	72.9649	74.9221	67.1956	67.1956	67.1956
1351	72.0307	72.8561	74.8434	67.0236	67.0236	67.0236
1352	71.9067	72.7654	74.6396	66.862	66.862	66.862
1353	71.7873	72.646	74.5202	66.7064	66.7064	66.7064
1354	71.6707	72.5295	74.4037	66.5545	66.5545	66.5545
1355	71.5562	72.4149	74.2891	66.4052	66.4052	66.4052
1356	71.443	72.3017	74.176	66.2578	66.2578	66.2578
1357	71.3309	72.1897	74.0639	66.112	66.112	66.112
1358	71.2149	72.0849	73.9234	65.9677	65.9677	65.9677
1359	71.121	71.9496	73.9219	65.8249	65.8249	65.8249
1360	71.0213	71.8499	73.8222	65.6835	65.6835	65.6835
1361	70.9187	71.7474	73.7197	65.5434	65.5434	65.5434
1362	70.8455	71.6411	73.7701	65.4047	65.4047	65.4047
1363	70.7533	71.5558	73.6516	65.2673	65.2673	65.2673
1364	72.2739	83.4383	76.9897	69.947	69.947	88.0344
1365	73.6213	85.3571	80.2516	72.2564	72.2564	89.4671
1366	74.5007	86.0765	81.6612	73.3452	73.3452	89.6333
1367	74.8418	85.6585	81.6313	73.8006	73.8006	89.1518
1368	75.0091	85.2363	81.963	73.9142	73.9142	88.2966
1369	75.4186	86.3385	82.9398	73.8461	73.8461	87.2649
1370	75.6183	86.3214	83.0968	73.6567	73.6567	86.0637
1371	75.7856	86.1886	83.6892	73.395	73.395	84.7966
1372	75.9982	86.3859	84.7875	73.091	73.091	83.5125
1373	76.3215	87.023	85.8808	72.7588	72.7588	82.2221
1374	76.6076	87.5485	86.7506	72.3752	72.3752	80.7798
1375	76.87	87.9852	87.6808	71.9639	71.9639	79.3419
1376	76.5098	85.3226	85.8678	70.9651	70.9651	74.9097
1377	75.5979	81.8271	83.1575	69.5338	69.5338	69.5338
1378	75.1864	82.7544	83.9307	68.793	68.793	68.793
1379	73.1962	73.1962	73.1962	68.4014	68.4014	68.4014
1380	72.0981	72.0981	72.0981	68.1938	68.1938	68.1938
1381	71.4846	71.4846	71.4846	68.0812	68.0812	68.0812
1382	71.1403	71.1403	71.1403	68.0177	68.0177	68.0177
1383	70.9456	70.9456	70.9456	67.9795	67.9795	67.9795
1384	70.8341	70.8341	70.8341	67.9545	67.9545	67.9545
1385	70.7688	70.7688	70.7688	67.9362	67.9362	67.9362
1386	70.7291	70.7291	70.7291	67.9214	67.9214	67.9214
1387	70.7037	70.7037	70.7037	67.9084	67.9084	67.9084
1388	70.6863	70.6863	70.6863	67.8963	67.8963	67.8963



**ANEXO 1E**  
**SIMULACIONES, CÁLCULOS Y GRÁFICAS**

INVERTER TEMPERAT-EBRCL13.xls

**ALSTOM**

**00012226**

1389	70.6732	70.6732	70.6732	67.8848	67.8848	67.8848
1390	70.6826	70.6826	70.6826	67.8735	67.8735	67.8735
1391	70.6533	70.6533	70.6533	67.8623	67.8623	67.8623
1392	70.6448	70.6448	70.6448	67.8512	67.8512	67.8512
1393	70.6368	70.6368	70.6368	67.8402	67.8402	67.8402
1394	70.6289	70.6289	70.6289	67.8292	67.8292	67.8292
1395	70.6212	70.6212	70.6212	67.8182	67.8182	67.8182
1396	73.939	89.7325	90.9481	67.8206	67.8206	67.8206
1397	75.8821	89.1728	91.015	67.8229	67.8229	67.8229
1398	77.0074	87.5917	90.1838	67.8251	67.8251	67.8251
1399	77.7368	87.3219	90.7459	67.8272	67.8272	67.8272
1400	78.2201	86.8616	91.1205	67.787	67.787	67.787
1401	78.557	86.3845	91.4388	67.6923	67.6923	67.6923
1402	78.8243	85.9206	91.7018	67.571	67.571	67.571
1403	79.0834	85.5032	91.9501	67.437	67.437	67.437
1404	79.2572	84.9653	92.1499	67.2974	67.2974	67.2974
1405	79.414	84.362	92.309	67.1556	67.1556	67.1556
1406	79.5858	84.2348	92.1831	67.0135	67.0135	67.0135
1407	79.8164	84.267	92.2952	66.8721	66.8721	66.8721
1408	80.2957	84.9184	93.6553	66.7328	66.7328	66.7328
1409	80.66	85.0932	93.9984	66.5946	66.5946	66.5946
1410	80.5808	84.3133	92.6007	66.4563	66.4563	66.4563
1411	80.3934	83.8866	91.5998	66.3184	66.3184	66.3184
1412	80.3181	83.4797	91.3079	66.1817	66.1817	66.1817
1413	80.3061	83.3501	91.1025	66.0462	66.0462	66.0462
1414	80.3608	83.3679	91.0971	65.912	65.912	65.912
1415	80.4514	83.4229	91.1297	65.7792	65.7792	65.7792
1416	80.4148	83.0991	90.5784	65.6471	65.6471	65.6471
1417	80.1571	82.3088	89.3572	65.5152	65.5152	65.5152
1418	79.7715	81.4015	88.0346	65.3834	65.3834	65.3834
1419	79.4442	80.8436	87.2563	65.2524	65.2524	65.2524
1420	79.2107	80.5203	86.8088	65.1224	65.1224	65.1224
1421	79.0258	80.2475	86.4142	64.9934	64.9934	64.9934
1422	78.844	79.9423	85.9218	64.8652	64.8652	64.8652
1423	78.6492	79.8066	85.3831	64.738	64.738	64.738
1424	78.4443	79.2623	84.8029	64.6116	64.6116	64.6116
1425	78.2676	78.9979	84.4148	64.4861	64.4861	64.4861
1426	78.1629	78.8847	84.3222	64.3619	64.3619	64.3619
1427	78.0977	78.811	84.2689	64.2389	64.2389	64.2389
1428	78.0541	78.7593	84.237	64.1171	64.1171	64.1171
1429	78.0195	78.7187	84.2018	63.9965	63.9965	63.9965
1430	77.9894	78.6831	84.1696	63.877	63.877	63.877
1431	77.9619	78.6504	84.14	63.7586	63.7586	63.7586
1432	77.9357	78.6192	84.1108	63.6414	63.6414	63.6414
1433	77.9086	78.5873	84.0646	63.5253	63.5253	63.5253
1434	77.8758	78.5539	84.0174	63.4102	63.4102	63.4102
1435	77.8443	78.5198	83.9699	63.2963	63.2963	63.2963
1436	77.8123	78.4854	83.9226	63.1834	63.1834	63.1834
1437	76.5572	77.1637	78.135	63.0669	63.0669	63.0669
1438	75.7972	76.4036	77.3749	62.9514	62.9514	62.9514
1439	75.3061	75.9126	78.8839	62.8369	62.8369	62.8369
1440	74.9615	75.568	78.5393	62.7235	62.7235	62.7235
1441	74.697	75.3035	76.2747	62.6111	62.6111	62.6111
1442	74.4764	75.0826	76.0541	62.4998	62.4998	62.4998
1443	74.2801	74.8866	75.8579	62.3895	62.3895	62.3895
1444	74.0977	74.7042	75.6755	62.2802	62.2802	62.2802



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012227

1445	73.9233	74.5298	75.501	62.1718	62.1718	62.1718
1446	73.7581	74.354	75.3462	62.0645	62.0645	62.0645
1447	73.589	74.1948	75.1679	61.9582	61.9582	61.9582
1448	73.4244	74.0309	75.0021	61.8528	61.8528	61.8528
1449	73.2621	73.8674	74.8416	61.7484	61.7484	61.7484
1450	73.101	73.7073	74.679	61.6449	61.6449	61.6449
1451	72.9413	73.5478	74.5191	61.5424	61.5424	61.5424
1452	72.783	73.3895	74.3607	61.4408	61.4408	61.4408
1453	72.6259	73.2323	74.2036	61.3402	61.3402	61.3402
1454	72.4699	73.0764	74.0477	61.2404	61.2404	61.2404
1455	72.3151	72.9216	73.8929	61.1416	61.1416	61.1416
1456	72.1615	72.768	73.7393	61.0436	61.0436	61.0436
1457	72.0089	72.6154	73.5867	60.9466	60.9466	60.9466
1458	71.8575	72.464	73.4353	60.8504	60.8504	60.8504
1459	71.7072	72.3137	73.2849	60.7551	60.7551	60.7551
1460	71.5579	72.1644	73.1357	60.6607	60.6607	60.6607
1461	71.4097	72.0162	72.9875	60.5671	60.5671	60.5671
1462	71.2628	71.8691	72.8404	60.4744	60.4744	60.4744
1463	71.1165	71.723	72.6943	60.3825	60.3825	60.3825
1464	70.9715	71.578	72.5493	60.2915	60.2915	60.2915
1465	70.8276	71.4341	72.4053	60.2013	60.2013	60.2013
1466	70.6846	71.2911	72.2624	60.1119	60.1119	60.1119
1467	70.5427	71.1492	72.1205	60.0233	60.0233	60.0233
1468	70.4019	71.0083	71.9796	59.9355	59.9355	59.9355
1469	70.262	70.8685	71.8396	59.8485	59.8485	59.8485
1470	70.1231	70.7296	71.7009	59.7623	59.7623	59.7623
1471	69.9853	70.5918	71.563	59.6769	59.6769	59.6769
1472	69.8484	70.4549	71.4262	59.5923	59.5923	59.5923
1473	69.7184	70.3033	71.3275	59.5084	59.5084	59.5084
1474	69.6172	70.1243	71.3738	59.4254	59.4254	59.4254
1475	69.541	69.9961	71.463	59.3433	59.3433	59.3433
1476	69.4873	69.9051	71.5948	59.2621	59.2621	59.2621
1477	69.4543	69.8535	71.7637	59.1819	59.1819	59.1819
1478	69.4415	69.8334	71.9663	59.1026	59.1026	59.1026
1479	69.4489	69.8414	72.1984	59.0242	59.0242	59.0242
1480	69.4141	69.8071	72.1755	58.9466	58.9466	58.9466
1481	69.3524	69.7453	72.1138	58.8697	58.8697	58.8697
1482	69.2763	69.6693	72.0377	58.7934	58.7934	58.7934
1483	69.157	69.549	71.7961	58.7178	58.7178	58.7178
1484	68.9992	69.3933	71.4511	58.6426	58.6426	58.6426
1485	68.822	69.2239	71.0968	58.568	58.568	58.568
1486	68.6364	69.0542	70.7432	58.4939	58.4939	58.4939
1487	68.448	68.8957	70.3979	58.4203	58.4203	58.4203
1488	68.261	68.7483	70.0886	58.3472	58.3472	58.3472
1489	68.0893	68.6083	69.8181	58.2748	58.2748	58.2748
1490	67.9423	68.4613	69.6711	58.203	58.203	58.203
1491	69.496	81.8591	72.0853	63.7204	63.7204	64.2392
1492	70.3634	82.6393	72.8858	66.8232	66.8232	67.4164
1493	70.8468	83.1612	73.3218	68.6868	68.6868	69.2776
1494	71.0865	83.0321	73.4844	69.8049	69.8049	90.0218
1495	71.3411	82.9391	74.6579	70.4363	70.4363	89.956
1496	71.6713	82.9721	75.9594	70.7613	70.7613	89.4321
1497	72.0737	83.3527	77.324	70.9041	70.9041	88.6882
1498	72.903	84.8974	80.3149	70.9395	70.9395	87.8255
1499	73.231	84.5463	80.1795	70.9011	70.9011	86.8819
1500	73.323	83.9024	80.1514	70.8	70.8	85.8373

Handwritten signature or initials in blue ink.

Handwritten mark or signature in red ink.



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012228

1501	73.479	83.924	80.6118	70.6492	70.6492	84.7277
1502	73.8265	84.7934	81.4122	70.4576	70.4576	83.5704
1503	73.9345	84.5217	81.3659	70.2152	70.2152	82.3122
1504	74.1031	84.4633	82.2871	69.942	69.942	81.0446
1505	74.3746	84.8578	83.3847	69.6477	69.6477	79.7847
1506	74.6969	85.4893	84.4305	69.3237	69.3237	78.4709
1507	74.9878	85.9898	85.3133	68.9557	68.9557	77.0484
1508	75.2575	86.421	86.2464	68.5656	68.5656	75.8395
1509	74.5714	82.0751	82.9727	67.2784	67.2784	69.5887
1510	73.8022	80.4371	81.7215	66.0748	66.0748	66.0748
1511	73.4504	81.4442	82.5744	65.4519	65.4519	65.4519
1512	71.518	71.518	71.518	65.1222	65.1222	65.1222
1513	70.4411	70.4411	70.4411	64.9473	64.9473	64.9473
1514	69.8396	69.8396	69.8396	64.8523	64.8523	64.8523
1515	69.5021	69.5021	69.5021	64.7986	64.7986	64.7986
1516	69.3115	69.3115	69.3115	64.7663	64.7663	64.7663
1517	69.2023	69.2023	69.2023	64.7449	64.7449	64.7449
1518	69.1385	69.1385	69.1385	64.7292	64.7292	64.7292
1519	69.0999	69.0999	69.0999	64.7165	64.7165	64.7165
1520	69.0753	69.0753	69.0753	64.7053	64.7053	64.7053
1521	69.0584	69.0584	69.0584	64.6949	64.6949	64.6949
1522	69.0459	69.0459	69.0459	64.6849	64.6849	64.6849
1523	69.0358	69.0358	69.0358	64.6751	64.6751	64.6751
1524	69.027	69.027	69.027	64.6654	64.6654	64.6654
1525	69.019	69.019	69.019	64.6558	64.6558	64.6558
1526	69.0113	69.0113	69.0113	64.6462	64.6462	64.6462
1527	69.0039	69.0039	69.0039	64.6367	64.6367	64.6367
1528	68.9966	68.9966	68.9966	64.6272	64.6272	64.6272
1529	72.3083	87.3605	88.7632	64.6298	64.6298	64.6298
1530	74.228	86.7973	88.8267	64.6324	64.6324	64.6324
1531	75.3758	85.6617	88.4882	64.6349	64.6349	64.6349
1532	76.1081	85.3987	89.078	64.6374	64.6374	64.6374
1533	76.5853	84.9936	89.49	64.6053	64.6053	64.6053
1534	76.9394	84.5241	89.8155	64.5289	64.5289	64.5289
1535	77.223	84.1267	90.1067	64.4308	64.4308	64.4308
1536	77.4736	83.7125	90.3628	64.3224	64.3224	64.3224
1537	77.6883	83.1483	90.5808	64.2093	64.2093	64.2093
1538	77.8409	82.6902	90.6475	64.0945	64.0945	64.0945
1539	78.0276	82.5914	90.5074	63.9794	63.9794	63.9794
1540	78.3506	82.8528	91.0934	63.8652	63.8652	63.8652
1541	78.8887	83.5624	92.5093	63.7528	63.7528	63.7528
1542	79.0985	83.3156	92.0303	63.6407	63.6407	63.6407
1543	78.9445	82.4802	90.594	63.5283	63.5283	63.5283
1544	78.8094	82.0625	89.9499	63.4165	63.4165	63.4165
1545	78.7874	81.8914	89.6954	63.3057	63.3057	63.3057
1546	78.7891	81.8225	89.5681	63.1959	63.1959	63.1959
1547	78.867	81.8644	89.5875	63.0872	63.0872	63.0872
1548	78.9749	81.9379	89.6394	62.9796	62.9796	62.9796
1549	78.8917	81.4643	88.8542	62.8723	62.8723	62.8723
1550	78.6246	80.8898	87.6722	62.765	62.765	62.765
1551	78.253	79.8299	86.4203	62.6579	62.6579	62.6579
1552	77.9636	79.3612	85.7714	62.5514	62.5514	62.5514
1553	77.7816	79.0781	85.3761	62.4457	62.4457	62.4457
1554	77.6082	78.8451	85.0358	62.3409	62.3409	62.3409
1555	77.4646	78.6102	84.6837	62.2368	62.2368	62.2368
1556	77.3088	78.3292	84.1869	62.1334	62.1334	62.1334



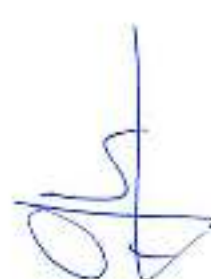
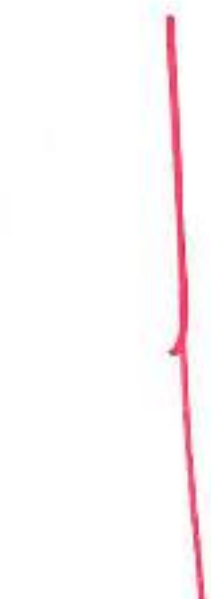
**ANEXO 1E**  
**SIMULACIONES, CÁLCULOS Y GRÁFICAS**

INVERTER TEMPERAT-EBRCL13.xls



**00012229**

1557	77.1423	78.0389	83.7053	62.0307	62.0307	62.0307
1558	78.9668	77.7434	83.2192	61.9287	61.9287	61.9287
1559	78.8377	77.5684	82.9872	61.8275	61.8275	61.8275
1560	78.7826	77.4838	82.9227	61.7274	61.7274	61.7274
1561	76.717	77.431	82.8875	61.6282	61.6282	61.6282
1562	78.6877	77.3946	82.8681	61.53	61.53	61.53
1563	78.6856	77.3689	82.8487	61.4327	61.4327	61.4327
1564	78.6461	77.343	82.8275	61.3363	61.3363	61.3363
1565	78.6283	77.3208	82.808	61.2409	61.2409	61.2409
1566	78.6114	77.2988	82.7894	61.1464	61.1464	61.1464
1567	78.5951	77.2795	82.7718	61.0528	61.0528	61.0528
1568	78.5767	77.2586	82.7421	60.9601	60.9601	60.9601
1569	78.5566	77.2384	82.7088	60.8682	60.8682	60.8682
1570	78.5355	77.2132	82.6749	60.7772	60.7772	60.7772
1571	76.5139	77.1897	82.841	60.6871	60.6871	60.6871
1572	78.4921	77.1659	82.6071	60.5978	60.5978	60.5978
1573	75.3758	75.7887	77.5324	60.5055	60.5055	60.5055
1574	74.7012	75.1124	76.8531	60.414	60.414	60.414
1575	74.2865	74.6781	76.4138	60.3233	60.3233	60.3233
1576	73.9824	74.3743	76.1051	60.2335	60.2335	60.2335
1577	73.7306	74.1425	75.8733	60.1445	60.1445	60.1445
1578	73.5386	73.9505	75.6813	60.0563	60.0563	60.0563
1579	73.3686	73.7805	75.5113	59.9689	59.9689	59.9689
1580	73.211	73.6229	75.3537	59.8823	59.8823	59.8823
1581	73.0606	73.4725	75.2033	59.7965	59.7965	59.7965
1582	72.9146	73.3285	75.0573	59.7115	59.7115	59.7115
1583	74.3648	86.4949	76.9453	65.2073	65.2073	85.7022
1584	75.1846	87.4285	77.6995	68.2996	68.2996	88.8919
1585	75.5957	87.9008	78.0821	70.1517	70.1517	90.7431
1586	75.7835	87.8287	78.2138	71.2841	71.2841	91.5843
1587	75.9684	87.6424	79.03	71.9439	71.9439	91.6297
1588	78.2579	87.5989	80.422	72.28	72.28	91.1201
1589	76.536	87.8843	81.3912	72.4222	72.4222	90.3878
1590	77.2797	89.1484	84.3057	72.4524	72.4524	89.4992
1591	77.6856	89.1377	84.7454	72.4079	72.4079	88.5501
1592	77.7826	88.49	84.5899	72.302	72.302	87.5101
1593	77.8813	88.1843	84.8938	72.1438	72.1438	86.3924
1594	78.2139	89.2228	85.8099	71.9473	71.9473	85.2393
1595	78.3216	88.9749	85.7809	71.6993	71.6993	83.9761
1596	78.4376	88.8319	86.4889	71.4172	71.4172	82.6945
1597	78.6532	89.0796	87.5203	71.1124	71.1124	81.4183
1598	78.9474	89.8776	88.5772	70.7837	70.7837	80.1191
1599	79.2095	90.1771	89.4229	70.4081	70.4081	78.6848
1600	79.4498	90.5846	90.3208	70.0093	70.0093	77.2643
1601	78.9337	87.217	87.9048	68.8985	68.8985	72.182
1602	78.0814	84.4547	85.7865	67.563	67.563	67.563
1603	77.6517	85.4038	86.5814	66.8718	66.8718	66.8718
1604	75.6906	75.6906	75.6906	66.5071	66.5071	66.5071
1605	74.5972	74.5972	74.5972	66.314	66.314	66.314
1606	73.986	73.986	73.986	66.2097	66.2097	66.2097
1607	73.6428	73.6428	73.6428	66.1512	66.1512	66.1512
1608	73.4484	73.4484	73.4484	66.1163	66.1163	66.1163
1609	73.3367	73.3367	73.3367	66.0936	66.0936	66.0936
1610	73.271	73.271	73.271	66.0772	66.0772	66.0772
1611	73.2309	73.2309	73.2309	66.0641	66.0641	66.0641
1612	73.2048	73.2048	73.2048	66.0527	66.0527	66.0527





ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012230



1613	73.1868	73.1868	73.1868	66.0421	66.0421	66.0421
1614	73.1731	73.1731	73.1731	66.0321	66.0321	66.0321
1615	73.1619	73.1619	73.1619	66.0222	66.0222	66.0222
1616	73.152	73.152	73.152	66.0125	66.0125	66.0125
1617	73.1428	73.1428	73.1428	66.0028	66.0028	66.0028
1618	73.1341	73.1341	73.1341	65.9932	65.9932	65.9932
1619	73.1256	73.1256	73.1256	65.9836	65.9836	65.9836
1620	73.1172	73.1172	73.1172	65.9741	65.9741	65.9741
1621	76.4318	91.9254	93.2168	65.976	65.976	65.976
1622	78.3626	91.3634	93.2813	65.9779	65.9779	65.9779
1623	79.4981	89.9617	92.6368	65.9797	65.9797	65.9797
1624	80.2284	89.6961	93.2239	65.9814	65.9814	65.9814
1625	80.7084	89.2567	93.6127	65.9454	65.9454	65.9454
1626	81.0336	88.7629	93.913	65.8608	65.8608	65.8608
1627	81.2889	88.3059	94.1676	65.7524	65.7524	65.7524
1628	81.5136	87.8742	94.4015	65.6328	65.6328	65.6328
1629	81.6863	87.3012	94.5793	65.5082	65.5082	65.5082
1630	81.8283	86.732	94.6953	65.3816	65.3816	65.3816
1631	81.9645	86.5984	94.5216	65.2546	65.2546	65.2546
1632	82.2332	86.7062	94.8265	65.1285	65.1285	65.1285
1633	82.7192	87.3659	96.2017	65.0042	65.0042	65.0042
1634	82.9826	87.3013	96.1055	64.8806	64.8806	64.8806
1635	82.8346	86.447	94.6284	64.7589	64.7589	64.7589
1636	82.655	85.9192	93.8137	64.6338	64.6338	64.6338
1637	82.5752	85.7052	93.5131	64.5117	64.5117	64.5117
1638	82.5623	85.5972	93.3439	64.3908	64.3908	64.3908
1639	82.6092	85.6077	93.3315	64.271	64.271	64.271
1640	82.6881	85.6516	93.3535	64.1525	64.1525	64.1525
1641	82.5747	85.1426	92.5287	64.0344	64.0344	64.0344
1642	82.2706	84.3152	91.2812	63.9165	63.9165	63.9165
1643	81.8488	83.3721	89.9196	63.7988	63.7988	63.7988
1644	81.535	82.9156	89.3022	63.6819	63.6819	63.6819
1645	81.3021	82.5943	88.8586	63.5659	63.5659	63.5659
1646	80.2055	80.9732	84.2345	63.4477	63.4477	63.4477
1647	78.5048	78.574	78.6224	63.3723	63.3723	63.5679
1648	77.4693	77.5385	77.5869	63.2782	63.2782	63.4738
1649	76.7971	76.8863	76.9147	63.1752	63.1752	63.3709
1650	76.3227	76.3919	76.4403	63.0683	63.0683	63.264
1651	75.9564	76.0256	76.074	62.9599	62.9599	63.1556
1652	75.6494	75.7186	75.767	62.8513	62.8513	63.0469
1653	75.3755	75.4446	75.4931	62.743	62.743	62.9387
1654	75.1202	75.1894	75.2378	62.6354	62.6354	62.831
1655	74.8758	74.945	74.9934	62.5286	62.5286	62.7243
1656	74.6381	74.7072	74.7557	62.4227	62.4227	62.6184
1657	74.4047	74.4739	74.5223	62.3177	62.3177	62.5134
1658	74.1745	74.2437	74.2921	62.2137	62.2137	62.4093
1659	73.9467	74.0159	74.0643	62.1105	62.1105	62.3062
1660	73.721	73.7902	73.8386	62.0084	62.0084	62.204
1661	73.5346	73.6448	73.7898	61.862	61.862	61.862
1662	73.3726	73.5898	73.7419	61.8784	61.8784	62.4927
1663	73.1078	73.1525	73.2112	61.7014	61.7014	61.7014
1664	73.0548	73.3883	73.8266	61.5617	61.5617	61.5617
1665	73.1278	73.75	74.5678	61.4416	61.4416	61.4416
1666	74.8373	75.79	81.8545	61.3366	61.3366	61.3366
1667	75.3771	76.3998	82.2609	61.2368	61.2368	61.2368
1668	75.6966	76.5974	82.2647	61.1399	61.1399	61.1399



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012231



1669	75.7929	76.5737	82.0585	61.0448	61.0448	61.0448
1670	75.8096	76.5389	81.9582	60.9511	60.9511	60.9511
1671	75.8161	76.5383	81.975	60.8585	60.8585	60.8585
1672	75.8175	76.5325	81.9863	60.767	60.767	60.767
1673	75.8162	76.5244	81.9949	60.6765	60.6765	60.6765
1674	75.8125	76.5147	81.9961	60.5868	60.5868	60.5868
1675	75.8059	76.5035	81.9876	60.4981	60.4981	60.4981
1676	75.7978	76.4909	81.9777	60.4102	60.4102	60.4102
1677	75.789	76.4777	81.9672	60.3231	60.3231	60.3231
1678	75.78	76.4643	81.9584	60.2389	60.2389	60.2389
1679	75.7679	76.4498	81.9319	60.1515	60.1515	60.1515
1680	75.7537	76.4331	81.9035	60.0689	60.0689	60.0689
1681	75.7384	76.4155	81.8742	59.9831	59.9831	59.9831
1682	76.2112	88.4049	78.7701	65.4911	65.4911	86.0322
1683	76.4707	88.758	78.9815	68.5742	68.5742	89.1668
1684	76.5914	88.8133	79.0509	70.388	70.388	90.8795
1685	76.6035	88.4582	79.0588	71.4593	71.4593	91.54
1686	76.8331	88.2948	80.6081	72.0056	72.0056	91.2268
1687	76.0623	81.1085	79.3847	70.3043	70.3043	82.0667
1688	75.1126	75.8724	78.2879	66.6402	66.6402	66.6402
1689	74.5702	75.324	77.8487	64.743	64.743	64.743
1690	74.2514	75.0013	77.8316	63.7339	63.7339	63.7339
1691	74.0484	74.7985	77.5017	63.1715	63.1715	63.1715
1692	73.9107	74.6609	77.441	62.8341	62.8341	62.8341
1693	73.8588	74.6146	77.8167	62.6104	62.6104	62.6104
1694	73.7976	74.5649	77.5874	62.4442	62.4442	62.4442
1695	73.7328	74.4919	77.5557	62.3075	62.3075	62.3075
1696	73.6668	74.4278	77.5227	62.1861	62.1861	62.1861
1697	73.5521	74.3072	77.2798	62.0727	62.0727	62.0727
1698	73.4481	74.2032	77.1759	61.9639	61.9639	61.9639
1699	73.3503	74.1053	77.078	61.8579	61.8579	61.8579
1700	73.256	74.0111	76.9838	61.7537	61.7537	61.7537
1701	73.164	73.9191	76.8918	61.651	61.651	61.651
1702	73.0736	73.8286	76.8013	61.5494	61.5494	61.5494
1703	72.9842	73.7393	76.7119	61.4489	61.4489	61.4489
1704	72.8958	73.6508	76.6235	61.3494	61.3494	61.3494
1705	72.8081	73.5631	76.5358	61.2509	61.2509	61.2509
1706	72.7211	73.4761	76.4488	61.1533	61.1533	61.1533
1707	72.6274	73.3817	76.3314	61.0565	61.0565	61.0565
1708	72.5	73.2509	76.0844	60.9606	60.9606	60.9606
1709	72.1792	73.0325	74.9238	60.8648	60.8648	60.8648
1710	73.6592	84.8456	78.6296	65.5254	65.5254	83.4234
1711	75.0991	87.0523	82.3864	67.8164	67.8164	84.755
1712	75.7732	87.0717	82.708	68.894	68.894	84.855
1713	76.038	86.5616	82.8774	69.337	69.337	84.2865
1714	76.3277	86.877	83.5462	69.4457	69.4457	83.3787
1715	76.6684	87.5676	84.2225	69.3682	69.3682	82.2729
1716	76.7859	87.3029	84.3203	69.173	69.173	81.0218
1717	76.9758	87.2792	85.3949	68.9179	68.9179	79.7504
1718	77.2718	87.8477	86.5154	68.6317	68.6317	78.4929
1719	77.5718	88.416	87.482	68.3011	68.3011	77.1278
1720	77.8403	88.8926	88.3724	67.9318	67.9318	75.7071
1721	77.9091	88.3956	88.4902	67.372	67.372	73.4061
1722	76.908	82.9767	84.2606	65.8136	65.8136	66.3323
1723	78.3115	83.3951	84.6286	64.8768	64.8768	64.8768
1724	76.0557	84.5003	85.5793	64.3917	64.3917	64.3917



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012232



1725	74.1688	74.1688	74.1688	64.1341	64.1341	64.1341
1726	73.1169	73.1169	73.1169	63.9969	63.9969	63.9969
1727	72.5289	72.5289	72.5289	63.9218	63.9218	63.9218
1728	72.1987	72.1987	72.1987	63.8789	63.8789	63.8789
1729	72.0117	72.0117	72.0117	63.8528	63.8528	63.8528
1730	71.9044	71.9044	71.9044	63.8348	63.8348	63.8348
1731	71.8412	71.8412	71.8412	63.8215	63.8215	63.8215
1732	71.8026	71.8026	71.8026	63.8104	63.8104	63.8104
1733	71.7777	71.7777	71.7777	63.8005	63.8005	63.8005
1734	71.7604	71.7604	71.7604	63.7913	63.7913	63.7913
1735	71.7473	71.7473	71.7473	63.7823	63.7823	63.7823
1736	71.7365	71.7365	71.7365	63.7736	63.7736	63.7736
1737	71.727	71.727	71.727	63.7649	63.7649	63.7649
1738	71.7183	71.7183	71.7183	63.7563	63.7563	63.7563
1739	71.71	71.71	71.71	63.7477	63.7477	63.7477
1740	71.7019	71.7019	71.7019	63.7391	63.7391	63.7391
1741	71.6939	71.6939	71.6939	63.7305	63.7305	63.7305
1742	74.9977	89.2387	90.8461	63.7326	63.7326	63.7326
1743	78.9118	88.6055	90.8558	63.7347	63.7347	63.7347
1744	78.0617	88.0352	91.128	63.7367	63.7367	63.7367
1745	78.7934	87.7773	91.714	63.7386	63.7386	63.7386
1746	79.277	87.4353	92.1863	63.7084	63.7084	63.7084
1747	79.6127	86.9808	92.4864	63.6367	63.6367	63.6367
1748	79.8862	86.6042	92.7715	63.5449	63.5449	63.5449
1749	80.1117	86.1408	93.0018	63.4434	63.4434	63.4434
1750	80.2839	85.5668	93.1774	63.3376	63.3376	63.3376
1751	80.4456	85.2174	93.1635	63.2302	63.2302	63.2302
1752	80.618	85.1044	93.0092	63.1225	63.1225	63.1225
1753	80.9966	85.5455	93.9784	63.0159	63.0159	63.0159
1754	81.5696	86.2794	95.4168	62.9109	62.9109	62.9109
1755	81.6038	85.6298	94.1759	62.8056	62.8056	62.8056
1756	81.355	84.7187	92.877	62.7002	62.7002	62.7002
1757	81.2382	84.4555	92.3197	62.5956	62.5956	62.5956
1758	81.1979	84.2681	92.0703	62.4919	62.4919	62.4919
1759	81.2221	84.2456	91.985	62.3892	62.3892	62.3892
1760	81.2933	84.2815	91.9988	62.2876	62.2876	62.2876
1761	81.3896	84.3443	92.0407	62.1869	62.1869	62.1869
1762	81.2314	83.8925	90.9928	62.0864	62.0864	62.0864
1763	80.9261	82.9048	89.8179	61.9861	61.9861	61.9861
1764	80.5394	82.0597	88.6047	61.8859	61.8859	61.8859
1765	80.2587	81.651	88.0538	61.7865	61.7865	61.7865
1766	78.8061	79.581	81.8529	61.6839	61.6839	61.6839
1767	77.9725	78.7364	81.0986	61.5822	61.5822	61.5822
1768	77.4779	78.2356	80.688	61.4816	61.4816	61.4816
1769	77.1581	77.9134	80.4092	61.382	61.382	61.382
1770	76.8958	77.6577	80.0367	61.2832	61.2832	61.2832
1771	76.6915	77.4534	79.8324	61.1853	61.1853	61.1853
1772	76.5191	77.2809	79.66	61.0883	61.0883	61.0883
1773	76.3644	77.1263	79.5053	60.9922	60.9922	60.9922
1774	76.2198	76.9817	79.3607	60.897	60.897	60.897
1775	76.0811	76.843	79.2221	60.8027	60.8027	60.8027
1776	75.9355	76.7034	79.0331	60.7092	60.7092	60.7092
1777	75.784	76.559	78.8301	60.6165	60.6165	60.6165
1778	75.6233	76.4087	78.5947	60.5247	60.5247	60.5247
1779	75.4609	76.2596	78.3735	60.4336	60.4336	60.4336
1780	75.3283	76.1117	78.2985	60.3434	60.3434	60.3434



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012233



1781	75.1821	75.9773	78.1081	60.2541	60.2541	60.2541
1782	75.0332	75.8399	77.9161	60.1655	60.1655	60.1655
1783	74.8854	75.6994	77.7406	60.0777	60.0777	60.0777
1784	74.7175	75.5759	77.4509	59.9906	59.9906	59.9906
1785	74.5651	75.4238	77.298	59.9044	59.9044	59.9044
1786	74.4216	75.2803	77.1548	59.8189	59.8189	59.8189
1787	74.2835	75.1422	77.0165	59.7342	59.7342	59.7342
1788	74.1487	75.0074	76.8816	59.6503	59.6503	59.6503
1789	74.0161	74.8748	76.749	59.5672	59.5672	59.5672
1790	74.7854	81.53	78.4929	62.9982	62.9962	76.7718
1791	76.2017	87.6461	81.9516	66.0374	66.0374	83.6126
1792	77.425	89.3114	84.8383	67.5257	67.5257	84.1802
1793	77.8975	89.0024	84.6747	68.2165	68.2165	83.9491
1794	78.0848	88.4601	84.9471	68.4799	68.4799	83.2449
1795	78.383	89.0281	85.8801	68.5156	68.5156	82.3151
1796	78.8728	89.5267	86.2126	68.415	68.415	81.2253
1797	78.7735	89.2791	86.355	68.2229	68.2229	80.0176
1798	78.9487	89.2432	87.3939	67.9787	67.9787	78.7788
1799	79.2273	89.8082	88.4838	67.7065	67.7065	77.5524
1800	79.5105	90.3658	89.4232	67.3888	67.3888	76.2123
1801	79.7634	90.8149	90.2924	67.0341	67.0341	74.8142
1802	79.8318	90.375	90.4543	66.5008	66.5008	72.8058
1803	78.8333	84.9924	86.252	64.9709	64.9709	65.6025
1804	78.2133	85.265	86.5021	64.0251	64.0251	64.0251
1805	77.9441	86.3546	87.4375	63.5356	63.5356	63.5356
1806	76.0501	76.0501	76.0501	63.276	63.276	63.276
1807	74.994	74.994	74.994	63.1379	63.1379	63.1379
1808	74.4035	74.4035	74.4035	63.0627	63.0627	63.0627
1809	74.0717	74.0717	74.0717	63.0199	63.0199	63.0199
1810	73.8836	73.8836	73.8836	62.9939	62.9939	62.9939
1811	73.7754	73.7754	73.7754	62.9765	62.9765	62.9765
1812	73.7115	73.7115	73.7115	62.9635	62.9635	62.9635
1813	73.6724	73.6724	73.6724	62.9529	62.9529	62.9529
1814	73.6469	73.6469	73.6469	62.9435	62.9435	62.9435
1815	73.829	73.629	73.829	62.9347	62.9347	62.9347
1816	73.6154	73.6154	73.6154	62.9262	62.9262	62.9262
1817	73.6042	73.6042	73.6042	62.9179	62.9179	62.9179
1818	73.5942	73.5942	73.5942	62.9097	62.9097	62.9097
1819	73.585	73.585	73.585	62.9015	62.9015	62.9015
1820	73.5761	73.5761	73.5761	62.8934	62.8934	62.8934
1821	73.5675	73.5675	73.5675	62.8852	62.8852	62.8852
1822	73.5591	73.5591	73.5591	62.8771	62.8771	62.8771
1823	76.8628	91.1534	92.7483	62.8792	62.8792	62.8792
1824	78.7768	90.5224	92.7597	62.8813	62.8813	62.8813
1825	79.9259	89.9053	92.9931	62.8832	62.8832	62.8832
1826	80.6569	89.6375	93.577	62.8852	62.8852	62.8852
1827	81.1366	89.2854	94.0257	62.8571	62.8571	62.8571
1828	81.4644	88.8199	94.3383	62.7905	62.7905	62.7905
1829	81.727	88.4258	94.6101	62.7051	62.7051	62.7051
1830	81.94	87.9461	94.8303	62.6107	62.6107	62.6107
1831	82.0993	87.3466	94.993	62.5122	62.5122	62.5122
1832	82.2494	87.0116	94.9563	62.4123	62.4123	62.4123
1833	82.4095	86.8891	94.7928	62.3121	62.3121	62.3121
1834	82.7765	87.3261	95.7621	62.213	62.213	62.213
1835	83.3192	88.0347	97.1537	62.1153	62.1153	62.1153
1836	83.3789	87.4533	96.0422	62.0174	62.0174	62.0174





ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012234

1837	83.1526	88.5978	94.6314	81.9195	61.9195	61.9195
1838	83.0074	86.2513	94.1327	81.8222	61.8222	61.8222
1839	82.9484	86.0732	93.8776	81.7257	61.7257	61.7257
1840	82.9486	85.9831	93.7307	81.6302	61.6302	61.6302
1841	82.9977	86.001	93.7278	81.5356	61.5356	61.5356
1842	83.077	86.0487	93.7556	81.4419	61.4419	61.4419
1843	83.0617	85.8133	93.3468	81.3488	61.3488	61.3488
1844	82.8448	85.1292	92.2877	81.2559	61.2559	61.2559
1845	82.5097	84.3361	91.1268	81.1632	61.1632	61.1632
1846	82.1345	83.5788	90.0534	81.0707	61.0707	61.0707
1847	81.8741	83.2365	89.5979	80.9789	60.9789	60.9789
1848	81.6759	82.9608	89.215	80.8879	60.8879	60.8879
1849	81.5131	82.7269	88.8827	80.7975	60.7975	60.7975
1850	81.3551	82.4758	88.4904	80.7079	60.7079	60.7079
1851	81.1935	82.2145	88.0729	80.6189	60.6189	60.6189
1852	81.0326	81.9634	87.6807	80.5305	60.5305	60.5305
1853	80.8753	81.7253	87.3162	80.4429	60.4429	60.4429
1854	80.7233	81.5018	86.9808	80.3559	60.3559	60.3559
1855	80.5902	81.3228	86.7344	80.2696	60.2696	60.2696
1856	80.4977	81.2264	86.6473	80.1842	60.1842	60.1842
1857	80.4274	81.1523	86.5823	80.0997	60.0997	60.0997
1858	80.3697	81.0905	86.5303	80.0159	60.0159	60.0159
1859	80.3194	81.0359	86.4883	59.9329	59.9329	59.9329
1860	80.674	92.7115	83.1035	85.3617	65.3617	85.6556
1861	80.9509	92.5932	84.1192	68.167	68.167	87.7834
1862	81.2686	92.5806	85.5222	69.5707	69.5707	88.2887
1863	81.6328	92.9067	86.8677	70.2441	70.2441	88.0325
1864	82.4255	94.4352	89.8836	70.5386	70.5386	87.4085
1865	82.6829	93.9724	89.6104	70.6273	70.6273	86.5777
1866	82.7097	93.2647	89.5423	70.5897	70.5897	85.5944
1867	82.8124	93.2806	89.9643	70.471	70.471	84.5171
1868	83.0866	94.0407	90.6671	70.2951	70.2951	83.3734
1869	83.1244	93.6988	90.5506	70.0606	70.0606	82.123
1870	83.2326	93.5827	91.4469	69.7913	69.7913	80.8585
1871	83.4436	93.9377	92.4811	69.4999	69.4999	79.6046
1872	83.7004	94.4809	93.4538	69.1766	69.1766	78.2878
1873	83.9263	94.9337	94.2743	68.8095	68.8095	76.8674
1874	84.1316	95.3005	95.143	68.4197	68.4197	75.4589
1875	83.3433	90.698	91.8358	67.0981	67.0981	69.2223
1876	82.5408	89.222	90.5011	65.9194	65.9194	65.9194
1877	82.1696	90.2095	91.3345	65.3093	65.3093	65.3093
1878	80.2245	80.2245	80.2245	64.9874	64.9874	64.9874
1879	79.1396	79.1396	79.1396	64.8172	64.8172	64.8172
1880	78.5326	78.5326	78.5326	64.7252	64.7252	64.7252
1881	78.1911	78.1911	78.1911	64.6736	64.6736	64.6736
1882	77.9971	77.9971	77.9971	64.6429	64.6429	64.6429
1883	77.8852	77.8852	77.8852	64.6229	64.6229	64.6229
1884	77.8188	77.8188	77.8188	64.6065	64.6065	64.6065
1885	77.7777	77.7777	77.7777	64.5971	64.5971	64.5971
1886	77.7507	77.7507	77.7507	64.5871	64.5871	64.5871
1887	77.7315	77.7315	77.7315	64.5778	64.5778	64.5778
1888	77.7167	77.7167	77.7167	64.569	64.569	64.569
1889	77.7042	77.7042	77.7042	64.5604	64.5604	64.5604
1890	77.6932	77.6932	77.6932	64.5519	64.5519	64.5519
1891	77.6828	77.6828	77.6828	64.5434	64.5434	64.5434
1892	77.6729	77.6728	77.6729	64.535	64.535	64.535

Handwritten signature or initials in blue ink.

Handwritten mark or signature in red ink.





1893	77.6632	77.6632	77.6632	64.5266	64.5266	64.5266
1894	77.6537	77.8537	77.6537	64.5183	64.5183	64.5183
1895	80.9585	95.9236	97.3056	64.5197	64.5197	64.5197
1896	82.8733	95.358	97.3909	64.5211	64.5211	64.5211
1897	84.0215	94.2735	97.1289	64.5224	64.5224	64.5224
1898	84.7517	94.0046	97.7119	64.5237	64.5237	64.5237
1899	85.2245	93.6006	98.1249	64.4911	64.4911	64.4911
1900	85.5309	93.0879	98.4063	64.4147	64.4147	64.4147
1901	85.7656	92.6435	98.6462	64.3171	64.3171	64.3171
1902	85.9612	92.1743	98.8505	64.2093	64.2093	64.2093
1903	86.0989	91.5554	98.9932	64.0969	64.0969	64.0969
1904	86.2138	91.0534	99.0093	63.9828	63.9828	63.9828
1905	86.3418	90.8959	98.8105	63.8685	63.8685	63.8685
1906	86.6149	91.123	99.3877	63.755	63.755	63.755
1907	87.0993	91.7788	100.75	63.643	63.643	63.643
1908	87.2317	91.4245	100.118	63.5314	63.5314	63.5314
1909	87.011	90.5275	98.6243	63.4198	63.4198	63.4198
1910	86.8226	90.0742	97.9605	63.3089	63.3089	63.3089
1911	86.7266	89.8535	97.6593	63.1989	63.1989	63.1989
1912	86.6919	89.7281	97.4755	63.09	63.09	63.09
1913	86.713	89.7157	97.4421	62.9821	62.9821	62.9821
1914	86.7639	89.7353	97.442	62.8753	62.8753	62.8753
1915	86.7281	89.4928	97.0368	62.7693	62.7693	62.7693
1916	86.5034	88.829	96.0205	62.6636	62.6636	62.6636
1917	86.1785	88.093	94.9545	62.5582	62.5582	62.5582
1918	85.8018	87.3326	93.8861	62.4533	62.4533	62.4533
1919	85.5155	86.9239	93.3488	62.3492	62.3492	62.3492
1920	85.3045	86.6505	92.9894	62.246	62.246	62.246
1921	85.1332	86.419	92.6745	62.1436	62.1436	62.1436
1922	84.9827	86.2101	92.3847	62.0421	62.0421	62.0421
1923	84.835	85.9926	92.0648	61.9414	61.9414	61.9414
1924	84.6733	85.7378	91.6643	61.8415	61.8415	61.8415
1925	84.5023	85.4758	91.26	61.7423	61.7423	61.7423
1926	84.3245	85.2091	90.8542	61.6439	61.6439	61.6439
1927	84.1413	84.9391	90.4484	61.5463	61.5463	61.5463
1928	83.9684	84.7007	90.1128	61.4496	61.4496	61.4496
1929	83.8444	84.5714	89.9965	61.3537	61.3537	61.3537
1930	83.7474	84.4691	89.9089	61.2587	61.2587	61.2587
1931	83.6654	84.382	89.8322	61.1647	61.1647	61.1647
1932	83.5919	84.3034	89.7658	61.0716	61.0716	61.0716
1933	83.5234	84.23	89.7042	60.9793	60.9793	60.9793
1934	83.4568	84.1593	89.6404	60.888	60.888	60.888
1935	83.3904	84.0898	89.5728	60.7975	60.7975	60.7975
1936	83.3245	84.0207	89.5057	60.7079	60.7079	60.7079
1937	83.2592	83.9522	89.4391	60.6191	60.6191	60.6191
1938	83.1944	83.8843	89.3731	60.5312	60.5312	60.5312
1939	83.1301	83.8171	89.3076	60.4441	60.4441	60.4441
1940	83.0665	83.7505	89.2428	60.3579	60.3579	60.3579
1941	83.0013	83.6836	89.1688	60.2724	60.2724	60.2724
1942	82.9352	83.616	89.0933	60.1878	60.1878	60.1878
1943	82.8688	83.5481	89.0179	60.104	60.104	60.104
1944	83.2822	95.5515	85.8125	65.6287	65.6287	86.2223
1945	83.4768	95.7878	85.9559	68.7036	68.7036	89.2946
1946	83.4989	95.471	85.9178	70.4272	70.4272	90.6511
1947	83.8317	95.2166	86.9929	71.3462	71.3462	90.837
1948	83.8446	95.1294	88.1825	71.7977	71.7977	90.4007





1949	84.1969	95.552	89.6757	71.9897	71.9897	89.6773
1950	84.9201	96.9074	82.4172	72.0374	72.0374	88.8132
1951	85.1028	98.3165	81.9686	71.9955	71.9955	87.8564
1952	85.0938	95.5777	81.9381	71.8839	71.8839	86.7937
1953	85.2057	95.7417	82.4132	71.7215	71.7215	85.673
1954	85.4373	98.3538	83.0026	71.5148	71.5148	84.4928
1955	85.4488	95.9897	82.8841	71.2579	71.2579	83.2206
1956	85.551	95.8835	83.8496	70.9719	70.9719	81.9427
1957	85.7588	96.2844	84.8757	70.6661	70.6661	80.6789
1958	85.9972	96.8011	85.8082	70.3264	70.3264	79.333
1959	86.2052	97.2286	86.8187	69.9459	69.9459	77.9033
1960	86.3935	97.5784	87.4705	69.5426	69.5426	76.4812
1961	85.4778	92.3995	83.4538	68.1055	68.1055	89.8891
1962	84.7075	91.5228	82.7867	66.9872	66.9872	66.9872
1963	84.3539	92.5281	83.8378	66.4081	66.4081	66.4081
1964	82.4162	82.4162	82.4162	66.1023	66.1023	66.1023
1965	81.3351	81.3351	81.3351	65.9403	65.9403	65.9403
1966	80.7299	80.7299	80.7299	65.8525	65.8525	65.8525
1967	80.3892	80.3892	80.3892	65.8031	65.8031	65.8031
1968	80.1954	80.1954	80.1954	65.7734	65.7734	65.7734
1969	80.0833	80.0833	80.0833	65.754	65.754	65.754
1970	80.0166	80.0166	80.0166	65.7398	65.7398	65.7398
1971	79.9751	79.9751	79.9751	65.7284	65.7284	65.7284
1972	79.9476	79.9476	79.9476	65.7183	65.7183	65.7183
1973	79.9278	79.9278	79.9278	65.7091	65.7091	65.7091
1974	79.9124	79.9124	79.9124	65.7001	65.7001	65.7001
1975	79.8994	79.8994	79.8994	65.6914	65.6914	65.6914
1976	79.8878	79.8878	79.8878	65.6828	65.6828	65.6828
1977	79.8769	79.8769	79.8769	65.6743	65.6743	65.6743
1978	79.8664	79.8664	79.8664	65.6658	65.6658	65.6658
1979	79.8561	79.8561	79.8561	65.6573	65.6573	65.6573
1980	79.846	79.846	79.846	65.6488	65.6488	65.6488
1981	83.1519	97.8744	99.3603	65.6497	65.6497	65.6497
1982	85.067	97.3067	99.4193	65.6506	65.6506	65.6506
1983	86.2134	96.368	99.3079	65.6514	65.6514	65.6514
1984	86.9418	96.0961	99.8875	65.6522	65.6522	65.6522
1985	87.4081	95.6984	100.3	65.6163	65.6163	65.6163
1986	87.7053	95.182	100.579	65.5333	65.5333	65.5333
1987	87.9299	94.7429	100.811	65.4273	65.4273	65.4273
1988	88.109	94.2471	100.999	65.3105	65.3105	65.3105
1989	88.2306	93.6124	101.125	65.1888	65.1888	65.1888
1990	88.3337	93.1489	101.099	65.065	65.065	65.065
1991	88.4479	92.9791	100.89	64.941	64.941	64.941
1992	88.72	93.237	101.539	64.8179	64.8179	64.8179
1993	89.1858	93.8667	102.843	64.6965	64.6965	64.6965
1994	89.3191	93.5497	102.276	64.5754	64.5754	64.5754
1995	89.1196	92.7239	100.898	64.4546	64.4546	64.4546
1996	88.9001	92.1827	100.089	64.3344	64.3344	64.3344
1997	88.7843	91.9548	99.7888	64.2154	64.2154	64.2154
1998	88.7254	91.7941	99.5824	64.0974	64.0974	64.0974
1999	88.7198	91.745	99.4856	63.9805	63.9805	63.9805
2000	88.7487	91.7477	99.4718	63.8648	63.8648	63.8648
2001	88.7982	91.7711	99.4802	63.7502	63.7502	63.7502
2002	88.8464	91.7874	99.473	63.6367	63.6367	63.6367
2003	88.7272	91.3421	98.7658	63.5238	63.5238	63.5238
2004	88.512	90.811	97.9811	63.4116	63.4116	63.4116

*Handwritten signature*

*Handwritten mark*



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012237

2005	88.2414	90.2356	97.1611	63.3	63.3	63.3
2008	87.9377	89.638	96.3276	63.189	63.189	63.189
2007	87.6307	89.0833	95.5696	63.0788	63.0788	63.0788
2008	87.4126	88.8156	95.2332	62.9694	62.9694	62.9694
2009	87.242	88.5968	94.9478	62.8611	62.8611	62.8611
2010	87.0963	88.4045	94.691	62.7536	62.7536	62.7536
2011	86.9637	88.2266	94.4506	62.6471	62.6471	62.6471
2012	86.8382	88.0584	94.2232	62.5416	62.5416	62.5416
2013	86.7121	87.8839	93.9754	62.4369	62.4369	62.4369
2014	86.5742	87.6798	93.6707	62.3331	62.3331	62.3331
2015	86.4287	87.4696	93.3593	62.2302	62.2302	62.2302
2016	86.2772	87.2537	93.0427	62.1282	62.1282	62.1282
2017	86.121	87.0341	92.7239	62.027	62.027	62.027
2018	85.9604	86.8106	92.4018	61.9267	61.9267	61.9267
2019	85.7983	86.5848	92.079	61.8272	61.8272	61.8272
2020	85.6333	86.3665	91.7763	61.7285	61.7285	61.7285
2021	85.508	86.2374	91.6566	61.6308	61.6308	61.6308
2022	85.4035	86.1291	91.5574	61.534	61.534	61.534
2023	85.3108	86.0326	91.47	61.4382	61.4382	61.4382
2024	85.2251	85.9428	91.3903	61.3432	61.3432	61.3432
2025	85.1441	85.8572	91.3158	61.2492	61.2492	61.2492
2026	85.0664	85.7745	91.2452	61.156	61.156	61.156
2027	84.9907	85.6938	91.1746	61.0638	61.0638	61.0638
2028	84.9147	85.6138	91.097	60.9724	60.9724	60.9724
2029	85.303	97.5991	87.8002	66.4891	66.4891	87.081
2030	85.4497	97.5797	87.8943	69.4928	69.4928	89.8857
2031	85.51	97.2825	88.2414	71.1336	71.1336	91.0345
2032	85.7283	97.1273	89.7129	71.9753	71.9753	91.06
2033	85.9236	97.1124	90.5578	72.379	72.379	90.5777
2034	86.463	98.1233	92.8652	72.5453	72.5453	89.8504
2035	86.9529	98.6277	94.194	72.5745	72.5745	88.9794
2036	87.0285	97.9441	93.8012	72.5134	72.5134	87.9992
2037	86.9776	97.1735	93.8697	72.3806	72.3806	86.9062
2038	87.208	98.0184	94.641	72.201	72.201	85.7699
2039	87.3363	98.1009	94.8398	71.9707	71.9707	84.5422
2040	87.3716	97.8291	95.1522	71.6981	71.6981	83.284
2041	87.4935	97.8249	96.1289	71.397	71.397	81.9761
2042	87.7241	98.3773	97.1627	71.0789	71.0789	80.7096
2043	87.9318	98.8307	97.9764	70.7152	70.7152	79.2983
2044	88.1154	99.2034	98.7944	70.3213	70.3213	77.871
2045	87.865	97.4168	97.783	69.5165	69.5165	74.3837
2046	86.8142	92.7179	94.0853	67.981	67.981	67.981
2047	86.3058	93.6848	94.867	67.1865	67.1865	67.1865
2048	84.2953	84.2953	84.2953	66.7696	66.7696	66.7696
2049	83.1735	83.1735	83.1735	66.5502	66.5502	66.5502
2050	82.5455	82.5455	82.5455	66.4328	66.4328	66.4328
2051	82.1919	82.1919	82.1919	66.3681	66.3681	66.3681
2052	81.9908	81.9908	81.9908	66.3305	66.3305	66.3305
2053	81.8744	81.8744	81.8744	66.307	66.307	66.307
2054	81.805	81.805	81.805	66.2908	66.2908	66.2908
2055	81.7619	81.7619	81.7619	66.2783	66.2783	66.2783
2056	81.7332	81.7332	81.7332	66.2678	66.2678	66.2678
2057	81.7127	81.7127	81.7127	66.2582	66.2582	66.2582
2058	81.6966	81.6966	81.6966	66.2492	66.2492	66.2492
2059	81.683	81.683	81.683	66.2404	66.2404	66.2404
2060	81.6708	81.6708	81.6708	66.2318	66.2318	66.2318



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS



00012238

2061	81.6594	81.8594	81.6594	66.2233	66.2233	66.2233
2062	81.6484	81.8484	81.6484	66.2148	66.2148	66.2148
2063	81.6377	81.8377	81.6377	66.2063	66.2063	66.2063
2064	81.6271	81.8271	81.6271	66.1978	66.1978	66.1978
2065	81.6166	81.8166	81.6166	66.1894	66.1894	66.1894
2066	81.6061	81.8061	81.6061	66.1809	66.1809	66.1809
2067	81.5956	81.7956	81.5956	66.1725	66.1725	66.1725
2068	81.5852	81.7852	81.5852	66.1641	66.1641	66.1641
2069	81.5747	81.7747	81.5747	66.1557	66.1557	66.1557
2070	81.5643	81.7643	81.5643	66.1472	66.1472	66.1472
2071	81.5539	81.7539	81.5539	66.1388	66.1388	66.1388
2072	81.5434	81.7434	81.5434	66.1304	66.1304	66.1304
2073	81.533	81.733	81.533	66.122	66.122	66.122
2074	81.5226	81.7226	81.5226	66.1136	66.1136	66.1136
2075	81.5122	81.7122	81.5122	66.1052	66.1052	66.1052
2076	81.5018	81.7018	81.5018	66.0969	66.0969	66.0969
2077	81.4914	81.6914	81.4914	66.0885	66.0885	66.0885
2078	81.481	81.681	81.481	66.0801	66.0801	66.0801
2079	81.4706	81.6706	81.4706	66.0717	66.0717	66.0717
2080	81.4602	81.6602	81.4602	66.0634	66.0634	66.0634
2081	81.4498	81.6498	81.4498	66.055	66.055	66.055
2082	81.4394	81.6394	81.4394	66.0467	66.0467	66.0467
2083	81.429	81.629	81.429	66.0383	66.0383	66.0383
2084	81.4186	81.6186	81.4186	66.03	66.03	66.03
2085	81.4082	81.6082	81.4082	66.0216	66.0216	66.0216
2086	81.3978	81.5978	81.3978	66.0133	66.0133	66.0133
2087	81.3875	81.5875	81.3875	66.005	66.005	66.005
2088	81.3771	81.5771	81.3771	65.9967	65.9967	65.9967
2089	81.3667	81.5667	81.3667	65.9884	65.9884	65.9884
2090	81.3563	81.5563	81.3563	65.98	65.98	65.98
2091	81.346	81.546	81.346	65.9717	65.9717	65.9717
2092	81.3356	81.5356	81.3356	65.9634	65.9634	65.9634
2093	81.3252	81.5252	81.3252	65.9552	65.9552	65.9552
2094	81.3149	81.5149	81.3149	65.9469	65.9469	65.9469
2095	81.3045	81.5045	81.3045	65.9386	65.9386	65.9386
2096	81.2942	81.4942	81.2942	65.9303	65.9303	65.9303
2097	81.2838	81.4838	81.2838	65.922	65.922	65.922
2098	81.2735	81.4735	81.2735	65.9138	65.9138	65.9138
2099	81.2631	81.4631	81.2631	65.9055	65.9055	65.9055
2100	81.2528	81.4528	81.2528	65.8972	65.8972	65.8972
2101	81.2424	81.4424	81.2424	65.889	65.889	65.889
2102	81.2321	81.4321	81.2321	65.8807	65.8807	65.8807
2103	81.2217	81.4217	81.2217	65.8725	65.8725	65.8725
2104	81.2114	81.4114	81.2114	65.8643	65.8643	65.8643
2105	81.2011	81.4011	81.2011	65.856	65.856	65.856
2106	81.1908	81.3908	81.1908	65.8478	65.8478	65.8478
2107	81.1804	81.3804	81.1804	65.8396	65.8396	65.8396
2108	81.1701	81.3701	81.1701	65.8314	65.8314	65.8314
2109	81.1598	81.3598	81.1598	65.8232	65.8232	65.8232
2110	81.1495	81.3495	81.1495	65.815	65.815	65.815
2111	81.1392	81.3392	81.1392	65.8068	65.8068	65.8068
2112	81.1288	81.3288	81.1288	65.7986	65.7986	65.7986
2113	81.1185	81.3185	81.1185	65.7904	65.7904	65.7904
2114	81.1082	81.3082	81.1082	65.7822	65.7822	65.7822
2115	81.0979	81.2979	81.0979	65.774	65.774	65.774
2116	81.0876	81.2876	81.0876	65.7658	65.7658	65.7658



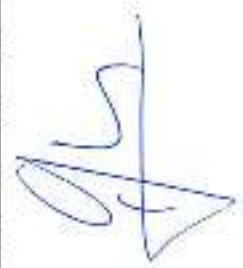
ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls



00012239

2117	81.0773	81.0773	81.0773	65.7577	65.7577	65.7577
2118	81.067	81.067	81.067	65.7495	65.7495	65.7495
2119	81.0567	81.0567	81.0567	65.7413	65.7413	65.7413
2120	81.0464	81.0464	81.0464	65.7332	65.7332	65.7332
2121	81.0362	81.0362	81.0362	65.725	65.725	65.725
2122	81.0259	81.0259	81.0259	65.7169	65.7169	65.7169
2123	81.0156	81.0156	81.0156	65.7088	65.7088	65.7088
2124	81.0053	81.0053	81.0053	65.7006	65.7006	65.7006
2125	80.995	80.995	80.995	65.6925	65.6925	65.6925
2126	80.9848	80.9848	80.9848	65.6844	65.6844	65.6844
2127	80.9745	80.9745	80.9745	65.6763	65.6763	65.6763
2128	80.9642	80.9642	80.9642	65.6681	65.6681	65.6681
2129	80.954	80.954	80.954	65.66	65.66	65.66
2130	80.9437	80.9437	80.9437	65.6519	65.6519	65.6519
2131	80.9334	80.9334	80.9334	65.6438	65.6438	65.6438
2132	80.9232	80.9232	80.9232	65.6357	65.6357	65.6357
2133	80.9129	80.9129	80.9129	65.6277	65.6277	65.6277
2134	80.9027	80.9027	80.9027	65.6196	65.6196	65.6196
2135	80.8924	80.8924	80.8924	65.6115	65.6115	65.6115
2136	80.8822	80.8822	80.8822	65.6034	65.6034	65.6034
2137	80.8719	80.8719	80.8719	65.5953	65.5953	65.5953
2138	80.8617	80.8617	80.8617	65.5873	65.5873	65.5873
2139	80.8515	80.8515	80.8515	65.5792	65.5792	65.5792
2140	80.8412	80.8412	80.8412	65.5712	65.5712	65.5712
2141	80.831	80.831	80.831	65.5631	65.5631	65.5631
2142	80.8208	80.8208	80.8208	65.5551	65.5551	65.5551
2143	80.8105	80.8105	80.8105	65.547	65.547	65.547
2144	80.8003	80.8003	80.8003	65.539	65.539	65.539
2145	80.7901	80.7901	80.7901	65.531	65.531	65.531
2146	80.7799	80.7799	80.7799	65.523	65.523	65.523
2147	80.7696	80.7696	80.7696	65.5149	65.5149	65.5149
2148	80.7594	80.7594	80.7594	65.5069	65.5069	65.5069
2149	80.7492	80.7492	80.7492	65.4989	65.4989	65.4989
2150	80.739	80.739	80.739	65.4909	65.4909	65.4909
2151	80.7288	80.7288	80.7288	65.4829	65.4829	65.4829
2152	80.7186	80.7186	80.7186	65.4749	65.4749	65.4749
2153	80.7084	80.7084	80.7084	65.4669	65.4669	65.4669
2154	80.6982	80.6982	80.6982	65.4589	65.4589	65.4589
2155	80.688	80.688	80.688	65.451	65.451	65.451
2156	80.6778	80.6778	80.6778	65.443	65.443	65.443
2157	80.6676	80.6676	80.6676	65.435	65.435	65.435
2158	80.6574	80.6574	80.6574	65.4271	65.4271	65.4271
2159	80.6472	80.6472	80.6472	65.4191	65.4191	65.4191
2160	80.6371	80.6371	80.6371	65.4111	65.4111	65.4111
2161	80.6269	80.6269	80.6269	65.4032	65.4032	65.4032
2162	80.6167	80.6167	80.6167	65.3952	65.3952	65.3952
2163	80.6065	80.6065	80.6065	65.3873	65.3873	65.3873
2164	80.5964	80.5964	80.5964	65.3794	65.3794	65.3794
2165	80.5862	80.5862	80.5862	65.3714	65.3714	65.3714
2166	80.576	80.576	80.576	65.3635	65.3635	65.3635
2167	80.5659	80.5659	80.5659	65.3556	65.3556	65.3556
2168	80.5557	80.5557	80.5557	65.3477	65.3477	65.3477
2169	80.5455	80.5455	80.5455	65.3398	65.3398	65.3398
2170	80.5354	80.5354	80.5354	65.3318	65.3318	65.3318
2171	80.5252	80.5252	80.5252	65.3239	65.3239	65.3239
2172	80.5151	80.5151	80.5151	65.316	65.316	65.316





ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls



00012240

2173	80.5049	80.5049	80.5049	65.3082	65.3082	65.3082
2174	80.4948	80.4948	80.4948	65.3003	65.3003	65.3003
2175	80.4847	80.4847	80.4847	65.2924	65.2924	65.2924
2178	80.4745	80.4745	80.4745	65.2845	65.2845	65.2845
2177	80.4644	80.4644	80.4644	65.2766	65.2766	65.2766
2178	80.4542	80.4542	80.4542	65.2688	65.2688	65.2688
2179	80.4441	80.4441	80.4441	65.2609	65.2609	65.2609
2180	80.434	80.434	80.434	65.253	65.253	65.253
2181	80.4239	80.4239	80.4239	65.2452	65.2452	65.2452
2182	80.4137	80.4137	80.4137	65.2373	65.2373	65.2373
2183	80.4036	80.4036	80.4036	65.2295	65.2295	65.2295
2184	80.3935	80.3935	80.3935	65.2216	65.2216	65.2216
2185	80.3834	80.3834	80.3834	65.2138	65.2138	65.2138
2186	80.3733	80.3733	80.3733	65.206	65.206	65.206
2187	80.3632	80.3632	80.3632	65.1981	65.1981	65.1981
2188	80.353	80.353	80.353	65.1903	65.1903	65.1903
2189	80.3429	80.3429	80.3429	65.1825	65.1825	65.1825
2190	80.3328	80.3328	80.3328	65.1747	65.1747	65.1747
2191	80.3227	80.3227	80.3227	65.1669	65.1669	65.1669
2192	80.3126	80.3126	80.3126	65.1591	65.1591	65.1591
2193	80.3026	80.3026	80.3026	65.1513	65.1513	65.1513
2194	80.2925	80.2925	80.2925	65.1435	65.1435	65.1435
2195	80.2824	80.2824	80.2824	65.1357	65.1357	65.1357
2196	80.2723	80.2723	80.2723	65.1279	65.1279	65.1279
2197	80.2622	80.2622	80.2622	65.1201	65.1201	65.1201
2198	80.2521	80.2521	80.2521	65.1124	65.1124	65.1124
2199	80.242	80.242	80.242	65.1046	65.1046	65.1046
2200	80.232	80.232	80.232	65.0968	65.0968	65.0968
2201	80.2219	80.2219	80.2219	65.0891	65.0891	65.0891
2202	80.2118	80.2118	80.2118	65.0813	65.0813	65.0813
2203	80.2018	80.2018	80.2018	65.0736	65.0736	65.0736
2204	80.1917	80.1917	80.1917	65.0658	65.0658	65.0658
2205	80.1816	80.1816	80.1816	65.0581	65.0581	65.0581
2206	80.1716	80.1716	80.1716	65.0503	65.0503	65.0503
2207	80.1615	80.1615	80.1615	65.0426	65.0426	65.0426
2208	80.1515	80.1515	80.1515	65.0349	65.0349	65.0349
2209	80.1414	80.1414	80.1414	65.0271	65.0271	65.0271
2210	80.1314	80.1314	80.1314	65.0194	65.0194	65.0194
2211	80.1213	80.1213	80.1213	65.0117	65.0117	65.0117
2212	80.1113	80.1113	80.1113	65.004	65.004	65.004
2213	80.1012	80.1012	80.1012	64.9963	64.9963	64.9963
2214	80.0912	80.0912	80.0912	64.9886	64.9886	64.9886
2215	80.0812	80.0812	80.0812	64.9809	64.9809	64.9809
2216	80.0711	80.0711	80.0711	64.9732	64.9732	64.9732
2217	80.0611	80.0611	80.0611	64.9655	64.9655	64.9655
2218	80.0511	80.0511	80.0511	64.9578	64.9578	64.9578
2219	80.041	80.041	80.041	64.9501	64.9501	64.9501
2220	80.031	80.031	80.031	64.9425	64.9425	64.9425
2221	80.021	80.021	80.021	64.9348	64.9348	64.9348
2222	80.011	80.011	80.011	64.9271	64.9271	64.9271
2223	80.001	80.001	80.001	64.9195	64.9195	64.9195
2224	79.991	79.991	79.991	64.9118	64.9118	64.9118
2225	79.9809	79.9809	79.9809	64.9042	64.9042	64.9042
2226	79.9709	79.9709	79.9709	64.8965	64.8965	64.8965
2227	79.9609	79.9609	79.9609	64.8889	64.8889	64.8889
2228	83.2726	99.4837	100.54	64.8896	64.8896	64.8896



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012241



2229	85.1943	98.923	100.63	64.8903	64.8903	64.8903
2230	86.3416	97.3288	99.7574	64.8909	64.8909	64.8909
2231	87.069	96.8225	100.103	64.8915	64.8915	64.8915
2232	87.5351	96.3187	100.446	64.8559	64.8559	64.8559
2233	87.8305	95.7952	100.715	64.7736	64.7736	64.7736
2234	88.0415	95.2485	100.918	64.6686	64.6686	64.6686
2235	88.2198	94.7703	101.105	64.5529	64.5529	64.5529
2236	88.3571	94.1915	101.248	64.4323	64.4323	64.4323
2237	88.4549	93.5341	101.352	64.3098	64.3098	64.3098
2238	88.5583	93.2555	101.191	64.187	64.187	64.187
2239	88.6774	93.0984	101.006	64.0647	64.0647	64.0647
2240	89.0654	93.6592	102.277	63.9439	63.9439	63.9439
2241	89.4608	94.0186	103.034	63.8244	63.8244	63.8244
2242	89.3676	93.2137	101.601	63.7051	63.7051	63.7051
2243	89.0933	92.4094	100.337	63.5882	63.5882	63.5882
2244	88.9426	92.128	99.9682	63.4683	63.4683	63.4683
2245	88.8587	91.9169	99.6784	63.3516	63.3516	63.3516
2246	88.8433	91.8573	99.5908	63.2359	63.2359	63.2359
2247	88.8681	91.847	99.5585	63.1214	63.1214	63.1214
2248	88.8399	91.6562	99.2417	63.0078	63.0078	63.0078
2249	88.5728	90.8727	98.0436	62.8946	62.8946	62.8946
2250	88.1691	89.9673	96.7354	62.7819	62.7819	62.7819
2251	87.7426	89.1732	95.6289	62.6697	62.6697	62.6697
2252	87.4282	88.7669	95.0956	62.5585	62.5585	62.5585
2253	87.1704	88.4162	94.6162	62.4481	62.4481	62.4481
2254	86.924	88.0491	94.0706	62.3386	62.3386	62.3386
2255	86.6554	87.6184	93.3861	62.2299	62.2299	62.2299
2258	86.3668	87.1642	92.6727	62.122	62.122	62.122
2257	86.1343	86.8612	92.2865	62.015	62.015	62.015
2258	85.976	86.6916	92.144	61.909	61.909	61.909
2259	85.8585	86.5629	92.0423	61.804	61.804	61.804
2260	85.7589	86.4557	91.9403	61.7001	61.7001	61.7001
2261	85.6693	86.3587	91.8477	61.5971	61.5971	61.5971
2262	85.5842	86.267	91.7552	61.4951	61.4951	61.4951
2263	85.4973	86.1762	91.644	61.3941	61.3941	61.3941
2264	85.4096	86.0848	91.5329	61.2941	61.2941	61.2941
2265	84.3076	86.5647	85.9877	63.1214	63.1214	71.1898
2266	83.6256	85.9501	85.3033	64.1482	64.1482	72.384
2267	83.1642	85.4887	84.8419	64.7302	64.7302	72.948
2268	82.8295	85.205	84.5053	65.122	65.122	73.4533
2269	82.5596	84.9479	84.235	65.3959	65.3959	73.7555
2270	83.8185	95.9379	86.4027	69.173	69.173	89.6601
2271	84.4857	96.7171	87.0318	71.3839	71.3839	91.9525
2272	84.823	97.1117	87.3296	72.7882	72.7882	93.3806
2273	84.9683	97.2272	87.4338	73.7576	73.7576	94.2887
2274	84.9708	96.9342	87.3883	74.4221	74.4221	94.6368
2275	85.0558	96.7048	88.2017	74.8403	74.8403	94.4712
2276	85.2437	96.5988	89.3641	75.0751	75.0751	93.9747
2277	85.4171	96.5835	90.1203	75.1839	75.1839	93.2885
2278	85.9494	97.6237	92.3942	75.2092	75.2092	92.4967
2279	86.4397	98.1538	93.7128	75.1719	75.1719	91.6231
2280	86.5164	97.5034	93.2755	75.0794	75.0794	90.866
2281	86.4739	96.7756	93.3484	74.9302	74.9302	89.597
2282	86.6491	97.3397	93.9836	74.7368	74.7368	88.4728
2283	86.8221	97.8591	94.355	74.495	74.495	87.2601
2284	86.842	97.3403	94.4535	74.2043	74.2043	85.9644



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012242



2285	86.945	97.2348	95.4199	73.8809	73.8809	84.6493
2286	87.1636	97.7543	96.4447	73.5396	73.5396	83.3565
2287	87.3846	98.237	97.3149	73.1578	73.1578	81.9482
2288	87.5778	98.6342	98.1289	72.7402	72.7402	80.4895
2289	87.5544	97.965	98.08	72.1154	72.1154	78.0548
2290	86.479	92.5055	93.8008	70.5093	70.5093	70.9753
2291	85.8372	92.93	94.1625	69.5491	69.5491	69.5491
2292	85.565	94.0067	95.0849	69.0513	69.0513	69.0513
2293	83.6523	83.6523	83.6523	68.7879	68.7879	68.7879
2294	82.5905	82.5905	82.5905	68.6478	68.6478	68.6478
2295	81.9959	81.9959	81.9959	68.5714	68.5714	68.5714
2296	81.6609	81.6609	81.6609	68.5278	68.5278	68.5278
2297	81.4701	81.4701	81.4701	68.5012	68.5012	68.5012
2298	81.3596	81.3596	81.3596	68.4834	68.4834	68.4834
2299	81.2935	81.2935	81.2935	68.4701	68.4701	68.4701
2300	81.2523	81.2523	81.2523	68.4591	68.4591	68.4591
2301	81.2247	81.2247	81.2247	68.4493	68.4493	68.4493
2302	81.2048	81.2048	81.2048	68.4402	68.4402	68.4402
2303	81.1892	81.1892	81.1892	68.4314	68.4314	68.4314
2304	81.1759	81.1759	81.1759	68.4228	68.4228	68.4228
2305	81.164	81.164	81.164	68.4142	68.4142	68.4142
2306	81.1527	81.1527	81.1527	68.4057	68.4057	68.4057
2307	81.1419	81.1419	81.1419	68.3972	68.3972	68.3972
2308	81.1313	81.1313	81.1313	68.3888	68.3888	68.3888
2309	81.1209	81.1209	81.1209	68.3803	68.3803	68.3803
2310	84.4172	98.6321	100.211	68.3799	68.3799	68.3799
2311	86.3304	97.9746	100.238	68.3795	68.3795	68.3795
2312	87.479	97.4282	100.542	68.379	68.379	68.379
2313	88.2088	97.1592	101.124	68.3785	68.3785	68.3785
2314	88.6738	96.7979	101.562	68.3331	68.3331	68.3331
2315	88.9894	96.3051	101.844	68.2299	68.2299	68.2299
2316	89.19	95.869	102.073	68.0984	68.0984	68.0984
2317	89.3547	95.3377	102.245	67.9536	67.9536	67.9536
2318	89.4634	94.6878	102.357	67.8027	67.8027	67.8027
2319	89.5831	94.3182	102.26	67.6498	67.6498	67.6498
2320	89.6722	94.1398	102.042	67.4961	67.4961	67.4961
2321	90.0042	94.5644	103.044	67.3437	67.3437	67.3437
2322	90.4946	95.1998	104.345	67.193	67.193	67.193
2323	90.4467	94.4265	102.932	67.0425	67.0425	67.0425
2324	90.1336	93.475	101.419	66.8926	66.8926	66.8926
2325	89.9577	93.1616	101.017	66.744	66.744	66.744
2326	89.8555	92.9278	100.698	66.5968	66.5968	66.5968
2327	89.8234	92.8393	100.574	66.4509	66.4509	66.4509
2328	89.8364	92.8141	100.525	66.3065	66.3065	66.3065
2329	89.7578	92.498	100.022	66.1632	66.1632	66.1632
2330	89.4224	91.5789	98.6348	66.0205	66.0205	66.0205
2331	88.9382	90.5256	97.1245	65.8784	65.8784	65.8784
2332	88.5365	89.9188	96.3076	65.7374	65.7374	65.7374
2333	88.2252	89.5078	95.7588	65.5976	65.5976	65.5976
2334	87.9583	89.1393	95.2482	65.459	65.459	65.459
2335	87.6781	88.6979	94.5545	65.3214	65.3214	65.3214
2336	87.387	88.2481	93.8585	65.1849	65.1849	65.1849
2337	87.1063	87.8382	93.2514	65.0495	65.0495	65.0495
2338	86.9175	87.6395	93.0766	64.9153	64.9153	64.9153
2339	86.7791	87.4914	92.952	64.7825	64.7825	64.7825
2340	86.668	87.3712	92.852	64.6509	64.6509	64.6509



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012243

2341	86.5686	87.2653	92.75	84.5206	64.5206	64.5206
2342	86.4759	87.1663	92.6548	84.3916	64.3916	64.3916
2343	86.3873	87.0715	92.5637	84.2638	64.2638	64.2638
2344	86.2967	86.9774	92.4543	84.1371	64.1371	64.1371
2345	86.2049	86.8823	92.3422	84.0117	64.0117	64.0117
2346	86.1125	86.7867	92.2299	83.8875	63.8875	63.8875
2347	84.9331	86.4728	86.8935	85.2196	65.2196	71.4427
2348	84.195	85.7398	85.9545	85.9195	65.9195	72.1588
2349	83.8985	85.2416	85.456	86.2984	66.2984	72.5366
2350	83.3287	84.8738	85.0882	86.5155	66.5155	72.7537
2351	83.0325	84.5776	84.792	86.8511	66.8511	72.8894
2352	82.7757	84.3208	84.5353	86.7456	66.7456	72.9838
2353	82.5411	84.0862	84.3007	86.819	66.819	73.0572
2354	82.3439	84.1681	84.0583	87.0789	67.0789	74.0956
2355	83.699	95.8735	86.2644	71.1768	71.1768	91.704
2356	84.4137	96.6893	86.9364	73.5341	73.5341	94.1273
2357	84.7707	97.0815	87.25	74.9934	74.9934	95.5844
2358	84.887	96.9094	87.3141	75.8986	75.8986	96.1763
2359	85.0052	96.6843	88.0497	76.4319	76.4319	96.1289
2360	85.2262	96.5817	89.3455	76.6979	76.6979	95.5997
2361	85.4228	96.575	90.1703	76.7951	76.7951	94.8394
2362	86.0369	97.8067	92.7702	76.7881	76.7881	93.9562
2363	86.4522	98.0176	93.8042	76.7084	76.7084	92.9842
2364	86.5073	97.3222	93.2967	76.5673	76.5673	91.9187
2365	86.4796	96.7002	93.4281	76.371	76.371	90.7625
2366	86.7443	97.6507	94.2561	76.1359	76.1359	89.5707
2367	86.8363	97.5477	94.3182	75.8519	75.8519	88.2812
2368	86.8837	97.312	94.7852	75.5309	75.5309	86.9579
2369	87.0237	97.4025	95.7708	75.1849	75.1849	85.6327
2370	87.2633	97.958	96.8059	74.82	74.82	84.3135
2371	87.4682	98.4004	97.5945	74.4078	74.4078	82.8426
2372	87.6512	98.7619	98.4231	73.9694	73.9694	81.3765
2373	87.2448	96.1828	98.8943	72.9755	72.9755	77.0763
2374	86.2605	92.4509	93.7858	71.507	71.507	71.507
2375	85.7875	93.3368	94.5174	70.7467	70.7467	70.7467
2376	83.7937	83.7937	83.7937	70.3477	70.3477	70.3477
2377	82.6812	82.6812	82.6812	70.1375	70.1375	70.1375
2378	82.0584	82.0584	82.0584	70.0247	70.0247	70.0247
2379	81.7078	81.7078	81.7078	69.9622	69.9622	69.9622
2380	81.5084	81.5084	81.5084	69.9257	69.9257	69.9257
2381	81.393	81.393	81.393	69.9027	69.9027	69.9027
2382	81.3242	81.3242	81.3242	69.8866	69.8866	69.8866
2383	81.2814	81.2814	81.2814	69.874	69.874	69.874
2384	81.2531	81.2531	81.2531	69.8633	69.8633	69.8633
2385	81.2327	81.2327	81.2327	69.8536	69.8536	69.8536
2386	81.2168	81.2168	81.2168	69.8444	69.8444	69.8444
2387	81.2034	81.2034	81.2034	69.8354	69.8354	69.8354
2388	81.1914	81.1914	81.1914	69.8265	69.8265	69.8265
2389	81.1801	81.1801	81.1801	69.8178	69.8178	69.8178
2390	81.1692	81.1692	81.1692	69.809	69.809	69.809
2391	81.1586	81.1586	81.1586	69.8003	69.8003	69.8003
2392	81.1481	81.1481	81.1481	69.7916	69.7916	69.7916
2393	84.4568	100.32	101.467	69.7907	69.7907	69.7907
2394	86.3768	99.7577	101.556	69.7898	69.7898	69.7898
2395	87.5221	98.1349	100.683	69.7888	69.7888	69.7888
2396	88.2503	97.864	101.264	69.7878	69.7878	69.7878

*Handwritten signature*

*Handwritten mark*



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012244

2397	88.7151	97.3848	101.622	69.7384	69.7384	69.7384
2398	89.0057	96.8565	101.888	69.6267	69.6267	69.6267
2399	89.2145	96.3342	102.096	69.4847	69.4847	69.4847
2400	89.3866	95.8452	102.273	69.3282	69.3282	69.3282
2401	89.5111	95.2392	102.403	69.1653	69.1653	69.1653
2402	89.5972	94.5668	102.492	68.9999	68.9999	68.9999
2403	89.6963	94.3535	102.283	68.8342	68.8342	68.8342
2404	89.8469	94.2926	102.3	68.6691	68.6691	68.6691
2405	90.2497	94.8675	103.584	68.5058	68.5058	68.5058
2406	90.5585	95.0126	103.936	68.3439	68.3439	68.3439
2407	90.4157	94.1661	102.469	68.1825	68.1825	68.1825
2408	90.1532	93.4472	101.361	68.0222	68.0222	68.0222
2409	90.0037	93.1603	100.985	67.8633	67.8633	67.8633
2410	89.9217	92.9617	100.712	67.7058	67.7058	67.7058
2411	89.9076	92.9075	100.632	67.5498	67.5498	67.5498
2412	89.9304	92.8907	100.591	67.3954	67.3954	67.3954
2413	89.8894	92.1207	99.397	67.2418	67.2418	67.2418
2414	89.2361	91.0454	97.8225	67.0889	67.0889	67.0889
2415	88.76	90.1714	96.6005	66.937	66.937	66.937
2416	88.3998	89.6967	95.9722	66.7863	66.7863	66.7863
2417	88.0964	89.2795	95.3918	66.6369	66.6369	66.6369
2418	87.7786	88.7738	94.592	66.4886	66.4886	66.4886
2419	87.4493	88.261	93.7918	66.3415	66.3415	66.3415
2420	87.1822	87.9095	93.3338	66.1956	66.1956	66.1956
2421	87.0013	87.7178	93.168	66.0511	66.0511	66.0511
2422	86.8673	87.5739	93.0482	65.908	65.908	65.908
2423	86.7569	87.4553	92.9383	65.7663	65.7663	65.7663
2424	86.6559	87.3494	92.836	65.6259	65.6259	65.6259
2425	86.5623	87.2504	92.7402	65.4869	65.4869	65.4869
2426	86.472	87.1553	92.6464	65.3492	65.3492	65.3492
2427	86.8513	99.1311	89.3688	70.8201	70.8201	91.413
2428	87.0148	99.3074	89.4858	73.8342	73.8342	94.4013
2429	87.0114	98.9862	89.4275	75.5026	75.5026	95.7081
2430	87.1136	98.7153	90.4182	76.3856	76.3856	95.9132
2431	87.2969	98.6082	91.6525	76.8177	76.8177	95.5329
2432	87.5222	98.7365	92.5769	76.9954	76.9954	94.8585
2433	88.1796	100.08	95.3088	77.0299	77.0299	94.034
2434	88.4765	99.9235	95.5321	76.9743	76.9743	93.1103
2435	88.484	99.2106	95.288	76.8488	76.8488	92.0824
2436	88.4632	98.7517	95.4674	76.6643	76.6643	90.961
2437	88.7227	99.6872	96.2822	76.4361	76.4361	89.7901
2438	88.7725	99.4543	96.2424	76.1535	76.1535	88.5035
2439	88.8075	99.2197	96.776	75.8318	75.8318	87.1819
2440	88.9403	99.3438	97.7496	75.4841	75.4841	85.8582
2441	89.1625	99.8757	98.7504	75.1141	75.1141	84.5255
2442	89.352	100.303	99.5236	74.6966	74.6966	83.0493
2443	89.5202	100.643	100.344	74.2546	74.2546	81.5827
2444	89.0127	97.6107	98.2137	73.1762	73.1762	76.8527
2445	88.0528	94.3486	95.6715	71.7597	71.7597	71.7597
2446	87.5833	95.2479	96.4168	71.0261	71.0261	71.0261
2447	85.605	85.605	85.605	70.641	70.641	70.641
2448	84.4953	84.4953	84.4953	70.4379	70.4379	70.4379
2449	83.8739	83.8739	83.8739	70.3288	70.3288	70.3288
2450	83.5238	83.5238	83.5238	70.2683	70.2683	70.2683
2451	83.3245	83.3245	83.3245	70.2328	70.2328	70.2328
2452	83.2089	83.2089	83.2089	70.2103	70.2103	70.2103

Handwritten red mark resembling a large 'P' or 'B' on the right margin.

Handwritten blue signature or initials.

Handwritten red mark resembling a signature or initials.



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012245

2453	83.1399	83.1399	83.1399	70.1945	70.1945	70.1945
2454	83.0968	83.0968	83.0968	70.1821	70.1821	70.1821
2455	83.068	83.068	83.068	70.1715	70.1715	70.1715
2456	83.0472	83.0472	83.0472	70.1618	70.1618	70.1618
2457	83.0308	83.0308	83.0308	70.1526	70.1526	70.1526
2458	83.0169	83.0169	83.0169	70.1438	70.1438	70.1438
2459	83.0044	83.0044	83.0044	70.1348	70.1348	70.1348
2460	82.9926	82.9926	82.9926	70.128	70.128	70.128
2461	82.9813	82.9813	82.9813	70.1173	70.1173	70.1173
2462	82.9702	82.9702	82.9702	70.1086	70.1086	70.1086
2463	82.9593	82.9593	82.9593	70.1	70.1	70.1
2464	88.2727	101.945	103.191	70.0989	70.0989	70.0989
2465	88.1919	101.381	103.254	70.0977	70.0977	70.0977
2466	89.3343	99.8697	102.483	70.0965	70.0965	70.0965
2467	90.0806	99.5969	103.063	70.0953	70.0953	70.0953
2468	90.5194	99.121	103.419	70.0451	70.0451	70.0451
2469	90.8024	98.5901	103.683	69.9318	69.9318	69.9318
2470	91.0014	98.0655	103.879	69.7878	69.7878	69.7878
2471	91.1637	97.5713	104.051	69.6292	69.6292	69.6292
2472	91.2739	96.9432	104.166	69.4641	69.4641	69.4641
2473	91.3481	96.2725	104.239	69.2964	69.2964	69.2964
2474	91.4363	96.0713	103.998	69.1284	69.1284	69.1284
2475	91.5958	96.056	104.118	68.9612	68.9612	68.9612
2476	91.9988	96.6299	105.401	68.7956	68.7956	68.7956
2477	92.2519	96.6492	105.523	68.6314	68.6314	68.6314
2478	92.0752	96.7751	104.034	68.4678	68.4678	68.4678
2479	91.8127	96.1025	103.013	68.3053	68.3053	68.3053
2480	91.8611	94.8264	102.657	68.1442	68.1442	68.1442
2481	91.5696	94.6181	102.373	67.9846	67.9846	67.9846
2482	91.5438	94.5672	102.29	67.8265	67.8265	67.8265
2483	91.5534	94.5345	102.247	67.67	67.67	67.67
2484	91.551	94.4468	102.096	67.5149	67.5149	67.5149
2485	91.307	93.7155	100.974	67.3607	67.3607	67.3607
2486	90.9271	92.8853	99.7459	67.2075	67.2075	67.2075
2487	90.469	91.9544	98.4715	67.0551	67.0551	67.0551
2488	90.1299	91.5157	97.9095	66.9041	66.9041	66.9041
2489	88.5333	89.4141	91.2187	66.7514	66.7514	66.7514
2490	87.5573	88.4568	90.2022	66.6001	66.6001	66.6001
2491	86.92	87.8468	89.5289	66.4502	66.4502	66.4502
2492	86.467	87.4211	89.0399	66.3017	66.3017	66.3017
2493	86.1102	87.1091	88.8244	66.1545	66.1545	66.1545
2494	85.8237	86.7899	88.3809	66.0088	66.0088	66.0088
2495	85.5626	86.5562	88.0838	65.8644	65.8644	65.8644
2496	85.184	85.9523	87.2105	65.721	65.721	65.721
2497	84.7651	85.4203	86.408	65.5787	65.5787	65.5787
2498	84.5307	85.3332	86.5428	65.438	65.438	65.438
2499	83.8755	84.0768	84.3803	65.2977	65.2977	65.2977
2500	83.3934	83.5948	83.8983	65.1588	65.1588	65.1588
2501	83.0062	83.2076	83.5111	65.0209	65.0209	65.0209
2502	82.6714	82.8727	83.1762	64.8844	64.8844	64.8844
2503	82.3658	82.5672	82.8707	64.7492	64.7492	64.7492
2504	82.1483	82.4458	82.8974	64.6154	64.6154	64.6154
2505	82.0996	82.67	83.5296	64.4832	64.4832	64.4832
2506	82.1579	82.999	84.2668	64.3527	64.3527	64.3527
2507	81.7739	82.1618	82.7453	64.2228	64.2228	64.2228
2508	81.5401	82.0514	82.8223	64.0942	64.0942	64.0942



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012246

2509	81.3931	82.028	82.9851	63.987	63.987	63.987
2510	81.2987	82.0573	83.2006	63.8412	63.8412	63.8412
2511	81.5187	82.2864	84.874	63.7173	63.7173	63.7173
2512	82.713	84.0021	90.2622	63.5972	63.5972	63.5972
2513	83.7088	94.8458	88.495	68.2572	68.2572	86.2459
2514	84.7978	98.6289	91.7123	70.5543	70.5543	87.6477
2515	85.406	98.8984	92.4987	71.8459	71.8459	87.8356
2516	85.58	96.3251	92.381	72.1085	72.1085	87.3668
2517	85.6552	95.9422	92.6582	72.2327	72.2327	86.5314
2518	85.9796	96.9544	93.5464	72.1751	72.1751	85.5177
2519	86.0672	98.7418	93.5341	71.995	71.995	84.3258
2520	86.1356	96.5437	94.1208	71.7436	71.7436	83.0745
2521	86.2985	96.7062	95.1215	71.4502	71.4502	81.8058
2522	86.5409	97.2588	96.1401	71.1253	71.1253	80.5181
2523	86.751	97.7062	96.9339	70.7486	70.7486	79.0808
2524	86.9387	98.065	97.7749	70.3455	70.3455	77.8538
2525	86.4284	94.9413	95.5672	69.2845	69.2845	72.8546
2526	85.4918	91.814	93.1338	67.9091	67.9091	67.9091
2527	85.0465	92.7265	93.8921	67.1972	67.1972	67.1972
2528	83.0643	83.0643	83.0643	66.8239	66.8239	66.8239
2529	81.959	81.959	81.959	66.6274	66.6274	66.6274
2530	81.3403	81.3403	81.3403	66.5223	66.5223	66.5223
2531	80.992	80.992	80.992	66.4644	66.4644	66.4644
2532	80.7939	80.7939	80.7939	66.4308	66.4308	66.4308
2533	80.6794	80.6794	80.6794	66.4098	66.4098	66.4098
2534	80.6112	80.6112	80.6112	66.3953	66.3953	66.3953
2535	80.5688	80.5688	80.5688	66.3841	66.3841	66.3841
2536	80.5407	80.5407	80.5407	66.3747	66.3747	66.3747
2537	80.5206	80.5206	80.5206	66.3681	66.3681	66.3681
2538	80.505	80.505	80.505	66.358	66.358	66.358
2539	80.4918	80.4918	80.4918	66.3502	66.3502	66.3502
2540	80.4799	80.4799	80.4799	66.3425	66.3425	66.3425
2541	80.4688	80.4688	80.4688	66.3349	66.3349	66.3349
2542	80.4582	80.4582	80.4582	66.3273	66.3273	66.3273
2543	80.4477	80.4477	80.4477	66.3197	66.3197	66.3197
2544	80.4374	80.4374	80.4374	66.3121	66.3121	66.3121
2545	83.7512	99.3748	100.633	66.3119	66.3119	66.3119
2546	85.8674	98.8078	100.689	66.3116	66.3116	66.3116
2547	86.812	97.3279	99.9582	66.3113	66.3113	66.3113
2548	87.5409	97.0607	100.544	66.3109	66.3109	66.3109
2549	88.0047	96.5905	100.904	66.2713	66.2713	66.2713
2550	88.2988	96.0707	101.179	66.181	66.181	66.181
2551	88.5124	95.5825	101.391	66.0661	66.0661	66.0661
2552	88.6909	95.08	101.578	65.9395	65.9395	65.9395
2553	88.8165	94.4548	101.708	65.8076	65.8076	65.8076
2554	88.9079	93.8113	101.776	65.6737	65.6737	65.6737
2555	89.0142	93.6342	101.558	65.5395	65.5395	65.5395
2556	89.204	93.6713	101.768	65.4059	65.4059	65.4059
2557	89.6322	94.2716	103.077	65.2739	65.2739	65.2739
2558	89.8718	94.2288	103.063	65.1428	65.1428	65.1428
2559	89.6895	93.338	101.551	65.012	65.012	65.012
2560	89.4528	92.7246	100.624	64.8821	64.8821	64.8821
2561	89.3195	92.4563	100.267	64.7534	64.7534	64.7534
2562	89.2544	92.2882	100.034	64.6258	64.6258	64.6258
2563	89.2517	92.2454	99.9692	64.4995	64.4995	64.4995
2564	89.2827	92.2374	99.9338	64.3744	64.3744	64.3744

*Handwritten signature in blue ink.*

*Handwritten signature in red ink.*



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012247

2565	89.0076	91.3641	98.5805	64.2498	64.2498	64.2498
2566	88.5514	90.3151	97.0566	64.1258	64.1258	64.1258
2567	88.0991	89.511	95.8409	64.0025	64.0025	64.0025
2568	86.6453	88.5216	89.8685	65.1443	65.1443	70.6
2569	85.774	87.6602	88.8972	65.7339	65.7339	71.1895
2570	85.2191	87.0953	88.4423	66.0459	66.0459	71.5015
2571	84.8364	86.7127	88.0596	66.2183	66.2183	71.6739
2572	84.5478	86.424	87.7709	66.3204	66.3204	71.776
2573	84.3107	86.1869	87.5335	66.387	66.387	71.8427
2574	84.1021	85.9783	87.3253	66.4357	66.4357	71.8913
2575	83.9096	85.7858	87.1328	66.4752	66.4752	71.9308
2576	83.7264	85.6026	86.9496	66.5099	66.5099	71.9656
2577	83.5488	85.425	86.7719	66.5421	66.5421	71.9978
2578	83.3747	85.251	86.5979	66.5729	66.5729	72.0288
2579	83.2032	85.0795	86.4264	66.6028	66.6028	72.0585
2580	83.0406	84.9313	86.2498	66.7173	66.7173	72.5156
2581	82.8782	84.8935	86.0844	66.8123	66.8123	72.684
2582	82.712	84.6759	85.9245	66.8421	66.8421	72.56
2583	82.5437	84.4494	85.7633	66.8317	66.8317	72.3756
2584	82.3746	84.2222	85.6013	66.7982	66.7982	72.1682
2585	83.3219	84.825	90.9044	65.5507	65.5507	65.5507
2586	83.7565	84.9657	91.1166	64.8615	64.8615	64.8615
2587	83.8841	84.9598	90.904	64.4533	64.4533	64.4533
2588	83.8394	84.7742	90.4978	64.1867	64.1867	64.1867
2589	83.7006	84.5018	90.0163	63.9917	63.9917	63.9917
2590	83.5529	84.2828	89.7009	63.8334	63.8334	63.8334
2591	83.4481	84.1679	89.6053	63.694	63.694	63.694
2592	83.3618	84.0758	89.5322	63.5648	63.5648	63.5648
2593	83.2902	83.9966	89.4714	63.4412	63.4412	63.4412
2594	83.2235	83.924	89.4064	63.321	63.321	63.321
2595	83.1588	83.8542	89.3397	63.2031	63.2031	63.2031
2596	83.0965	83.7859	89.2744	63.0868	63.0868	63.0868
2597	83.0333	83.7187	89.2102	62.972	62.972	62.972
2598	82.9694	83.6514	89.1353	62.8584	62.8584	62.8584
2599	82.9034	83.5828	89.0532	62.7459	62.7459	62.7459
2600	82.8363	83.5132	88.9704	62.6345	62.6345	62.6345
2601	83.2623	95.3991	85.8405	68.1013	68.1013	88.601
2602	83.481	95.7479	86.0142	71.1631	71.1631	91.7568
2603	83.5727	95.8774	86.0595	72.9846	72.9846	93.576
2604	83.5545	95.6125	85.9874	74.0922	74.0922	94.4081
2605	83.5874	95.2848	86.5709	74.7364	74.7364	94.4731
2606	82.7771	88.0862	85.7749	73.1238	73.1238	85.6138
2607	81.6724	82.5561	84.2619	69.2983	69.2983	69.2983
2608	81.0005	81.8413	83.6472	67.3074	67.3074	67.3074
2609	80.5663	81.3743	83.2742	66.2388	66.2388	66.2388
2610	80.2644	81.0507	83.0379	65.6342	65.6342	65.6342
2611	80.0903	80.8224	83.1643	65.2634	65.2634	65.2634
2612	79.933	80.6609	83.056	65.0107	65.0107	65.0107
2613	79.7813	80.5067	82.9333	64.8179	64.8179	64.8179
2614	79.6335	80.3584	82.8144	64.6558	64.6558	64.6558
2615	79.4808	80.1912	82.5546	64.5097	64.5097	64.5097
2616	79.2932	80.0242	82.3799	64.3723	64.3723	64.3723
2617	79.1306	79.8616	82.2172	64.2399	64.2399	64.2399
2618	78.9711	79.7021	82.0577	64.1105	64.1105	64.1105
2619	78.8138	79.5448	81.9005	63.9833	63.9833	63.9833
2620	78.6583	79.3893	81.7449	63.8577	63.8577	63.8577



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012248

2621	78.5042	79.2352	81.5908	63.7335	63.7335	63.7335
2622	78.3514	79.0824	81.438	63.6106	63.6106	63.6106
2623	78.1997	78.9308	81.2864	63.4889	63.4889	63.4889
2624	78.0493	78.7803	81.1359	63.3684	63.3684	63.3684
2625	77.8999	78.6309	80.9866	63.249	63.249	63.249
2626	77.7516	78.4827	80.8383	63.1308	63.1308	63.1308
2627	77.6044	78.3355	80.6911	63.0136	63.0136	63.0136
2628	77.4583	78.1893	80.545	62.8976	62.8976	62.8976
2629	77.3132	78.0442	80.3993	62.7826	62.7826	62.7826
2630	77.1594	77.8939	80.2051	62.6687	62.6687	62.6687
2631	76.9961	77.7379	79.981	62.5558	62.5558	62.5558
2632	76.9805	79.1829	79.9639	63.9442	63.8442	70.334
2633	78.3543	89.5878	82.8504	68.0849	68.0849	86.4721
2634	79.4793	91.0238	85.5318	70.1177	70.1177	87.5678
2635	80.4245	92.1985	87.7463	71.0786	71.0786	87.6003
2636	80.7479	91.7379	87.5082	71.4819	71.4819	87.067
2637	80.8498	91.1066	87.7317	71.5795	71.5795	86.1865
2638	81.1546	91.9154	88.5468	71.5132	71.5132	85.1513
2639	81.371	92.1604	88.8852	71.3402	71.3402	83.9782
2640	81.4594	91.9302	89.1848	71.0965	71.0965	82.7258
2641	81.6246	91.9355	90.2087	70.8101	70.8101	81.4499
2642	81.8974	92.5302	91.2845	70.5006	70.5006	80.1921
2643	82.1528	93.0365	92.1601	70.1438	70.1438	78.7946
2644	82.3813	93.459	93.0179	69.7533	69.7533	77.3682
2645	82.2459	92.0781	92.3488	69.0177	69.0177	74.2351
2646	81.1976	86.9566	88.3404	67.4393	67.4393	67.4393
2647	80.6921	87.9642	89.1763	66.6227	66.6227	66.6227
2648	78.6854	78.6854	78.6854	66.1956	66.1956	66.1956
2649	77.5663	77.5663	77.5663	65.9716	65.9716	65.9716
2650	76.9405	76.9405	76.9405	65.8524	65.8524	65.8524
2651	76.5888	76.5888	76.5888	65.7873	65.7873	65.7873
2652	76.3893	76.3893	76.3893	65.7502	65.7502	65.7502
2653	76.2745	76.2745	76.2745	65.7275	65.7275	65.7275
2654	76.2067	76.2067	76.2067	65.7123	65.7123	65.7123
2655	76.1651	76.1651	76.1651	65.701	65.701	65.701
2656	76.1379	76.1379	76.1379	65.6916	65.6916	65.6916
2657	76.1188	76.1188	76.1188	65.6833	65.6833	65.6833
2658	76.1042	76.1042	76.1042	65.6755	65.6755	65.6755
2659	76.0921	76.0921	76.0921	65.6679	65.6679	65.6679
2660	76.0814	76.0814	76.0814	65.6605	65.6605	65.6605
2661	76.0715	76.0715	76.0715	65.6532	65.6532	65.6532
2662	76.062	76.062	76.062	65.646	65.646	65.646
2663	76.0527	76.0527	76.0527	65.6387	65.6387	65.6387
2664	76.0436	76.0436	76.0436	65.6315	65.6315	65.6315
2665	79.3851	95.7358	96.8058	65.6313	65.6313	65.6313
2666	81.2897	95.1776	96.8742	65.631	65.631	65.631
2667	82.4356	93.6371	96.0118	65.6307	65.6307	65.6307
2668	83.1611	92.9785	96.2045	65.6304	65.6304	65.6304
2669	83.6336	92.4692	96.5444	65.5925	65.5925	65.5925
2670	83.9452	91.962	96.8312	65.5082	65.5082	65.5082
2671	84.1764	91.4255	97.0519	65.3964	65.3964	65.3964
2672	84.3789	90.973	97.2652	65.2753	65.2753	65.2753
2673	84.5438	90.4267	97.4346	65.1492	65.1492	65.1492
2674	84.6683	89.7927	97.5625	65.0212	65.0212	65.0212
2675	84.7971	89.5125	97.4504	64.8929	64.8929	64.8929
2676	84.9372	89.3666	97.2821	64.7651	64.7651	64.7651

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*Handwritten mark*



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls



00012249

2677	85.3386	89.9195	98.4923	64.6387	64.6387	64.6387
2678	85.7923	90.398	99.4553	64.5137	64.5137	64.5137
2679	85.7428	89.6325	98.0584	64.389	64.389	64.389
2680	85.4847	88.8096	96.7432	64.2648	64.2648	64.2648
2681	85.3545	88.5457	96.393	64.1418	64.1418	64.1418
2682	85.2932	88.3576	96.1231	64.0198	64.0198	64.0198
2683	85.3	88.3152	96.0495	63.8991	63.8991	63.8991
2684	85.3488	88.3278	96.0395	63.7795	63.7795	63.7795
2685	85.3381	88.1421	95.7175	63.6609	63.6609	63.6609
2686	85.0803	87.3462	94.4898	63.5429	63.5429	63.5429
2687	84.6807	86.4239	93.1479	63.4254	63.4254	63.4254
2688	84.2875	85.7071	92.1477	63.3087	63.3087	63.3087
2689	84.0034	85.333	91.6491	63.1929	63.1929	63.1929
2690	83.7763	85.0179	91.2122	63.0781	63.0781	63.0781
2691	83.5651	84.6975	90.7302	62.9543	62.9543	62.9543
2692	83.3408	84.332	90.1439	62.8514	62.8514	62.8514
2693	83.1064	83.9598	89.556	62.7393	62.7393	62.7393
2694	82.8747	83.6074	89.0185	62.6281	62.6281	62.6281
2695	82.725	83.4492	88.881	62.518	62.518	62.518
2696	82.8204	83.3362	88.7882	62.409	62.409	62.409
2697	82.5406	83.2482	88.72	62.301	62.301	62.301
2698	82.4728	83.1737	88.6557	62.194	62.194	62.194
2699	82.4099	83.1054	88.5908	62.0881	62.0881	62.0881
2700	82.3502	83.0406	88.529	61.9832	61.9832	61.9832
2701	82.2925	82.9776	88.4693	61.8793	61.8793	61.8793
2702	82.2331	82.9147	88.3964	61.7763	61.7763	61.7763
2703	82.1718	82.8506	88.3181	61.6743	61.6743	61.6743
2704	82.1095	82.7857	88.2393	61.5733	61.5733	61.5733
2705	82.047	82.7206	88.1605	61.4733	61.4733	61.4733
2706	80.2953	80.3261	80.3437	61.401	61.401	61.5322
2707	79.2344	79.28	79.3061	61.331	61.331	61.5256
2708	78.5494	78.6098	78.6444	61.2638	61.2638	61.5216
2709	78.1643	78.342	78.595	61.1248	61.1248	61.1248
2710	78.038	78.4753	78.0961	61.0067	61.0067	61.0067
2711	78.023	78.6492	78.5722	60.8997	60.8997	60.8997
2712	77.9346	78.5254	79.535	60.7984	60.7984	60.7984
2713	77.8081	78.3635	79.4598	60.7006	60.7006	60.7006
2714	77.6843	78.1922	79.3723	60.6049	60.6049	60.6049
2715	77.5049	78.0239	79.2336	60.5107	60.5107	60.5107
2716	77.3478	77.8379	79.1432	60.4177	60.4177	60.4177
2717	77.1813	77.667	78.9873	60.3258	60.3258	60.3258
2718	77.02	77.4922	78.8771	60.2348	60.2348	60.2348
2719	78.512	90.64	81.0932	65.7221	65.7221	88.2154
2720	79.3207	91.5803	81.8572	68.8056	68.8056	89.3946
2721	79.7441	92.047	82.233	70.6504	70.6504	91.2419
2722	79.9185	91.9876	82.3531	71.7843	71.7843	92.1122
2723	80.0594	91.7667	83.0094	72.4558	72.4558	92.2144
2724	80.3204	91.8826	84.419	72.8001	72.8001	91.7295
2725	80.5574	91.7093	85.3058	72.9465	72.9465	90.9898
2726	81.2214	93.0071	88.0028	72.9786	72.9786	90.1247
2727	81.6595	93.1993	88.7907	72.93	72.93	89.1756
2728	81.7465	92.5359	88.5401	72.822	72.822	88.1394
2729	81.7648	92.0096	88.7332	72.6596	72.6596	87.0173
2730	82.0702	93.001	89.602	72.4585	72.4585	85.8595
2731	82.1854	92.8834	89.6518	72.2078	72.2078	84.6012
2732	82.2684	92.6865	90.2013	71.9203	71.9203	83.3106

2943



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012250



2733	82.4452	92.8353	91.2207	71.6085	71.6085	82.0227
2734	82.7184	93.4198	92.2797	71.2763	71.2763	80.7323
2735	82.9534	93.894	93.1004	70.8965	70.8965	79.2939
2736	83.1685	94.2848	93.9638	70.4911	70.4911	77.8621
2737	82.7544	91.5371	92.0904	69.4931	69.4931	73.4002
2738	81.8105	88.049	89.3784	68.0739	68.0739	68.0739
2739	81.3606	88.9579	90.1331	67.3394	67.3394	67.3394
2740	79.3792	79.3792	79.3792	66.9547	66.9547	66.9547
2741	78.2742	78.2742	78.2742	66.7525	66.7525	66.7525
2742	77.6561	77.6561	77.6561	66.6445	66.6445	66.6445
2743	77.3086	77.3086	77.3086	66.5852	66.5852	66.5852
2744	77.1114	77.1114	77.1114	66.551	66.551	66.551
2745	76.9977	76.9977	76.9977	66.5298	66.5298	66.5298
2746	76.9305	76.9305	76.9305	66.5153	66.5153	66.5153
2747	76.8891	76.8891	76.8891	66.5042	66.5042	66.5042
2748	76.862	76.862	76.862	66.495	66.495	66.495
2749	76.8428	76.8428	76.8428	66.4868	66.4868	66.4868
2750	76.8281	76.8281	76.8281	66.4788	66.4788	66.4788
2751	76.8159	76.8159	76.8159	66.4712	66.4712	66.4712
2752	76.805	76.805	76.805	66.4637	66.4637	66.4637
2753	76.7949	76.7949	76.7949	66.4563	66.4563	66.4563
2754	76.7852	76.7852	76.7852	66.4489	66.4489	66.4489
2755	76.7757	76.7757	76.7757	66.4416	66.4416	66.4416
2756	76.7664	76.7664	76.7664	66.4343	66.4343	66.4343
2757	80.0755	95.8512	97.0212	66.4337	66.4337	66.4337
2758	81.9997	95.2933	97.1399	66.4331	66.4331	66.4331
2759	83.145	93.7225	96.3003	66.4324	66.4324	66.4324
2760	83.8737	93.452	96.8818	66.4318	66.4318	66.4318
2761	84.3452	92.9811	97.2454	66.3916	66.3916	66.3916
2762	84.8573	92.4853	97.5451	66.3005	66.3005	66.3005
2763	84.8896	91.9814	97.7673	66.1846	66.1846	66.1846
2764	85.0899	91.5252	97.9767	66.0589	66.0589	66.0589
2765	85.2423	90.9436	98.1339	65.9239	65.9239	65.9239
2766	85.3584	90.3049	98.2559	65.789	65.789	65.789
2767	85.488	90.1351	98.0631	65.6537	65.6537	65.6537
2768	85.8783	90.1302	98.1632	65.519	65.519	65.519
2769	86.1168	90.7408	99.4823	65.3857	65.3857	65.3857
2770	86.4364	90.8636	99.7643	65.2536	65.2536	65.2536
2771	86.3127	90.0407	98.324	65.1219	65.1219	65.1219
2772	86.0851	89.3773	97.2899	64.991	64.991	64.991
2773	85.9693	89.1302	96.9579	64.8613	64.8613	64.8613
2774	85.9171	88.9812	96.7136	64.7327	64.7327	64.7327
2775	85.9316	88.9393	96.6689	64.6054	64.6054	64.6054
2776	85.9821	88.956	96.6627	64.4793	64.4793	64.4793
2777	85.9273	88.6516	96.1632	64.3542	64.3542	64.3542
2778	85.6543	87.8656	94.9653	64.2298	64.2298	64.2298
2779	85.2581	86.9752	93.8783	64.108	64.108	64.108
2780	84.8787	86.2994	92.7414	63.9831	63.9831	63.9831
2781	84.6047	85.942	92.2685	63.8612	63.8612	63.8612
2782	84.3867	85.643	91.8577	63.7404	63.7404	63.7404
2783	84.193	85.3628	91.454	63.6206	63.6206	63.6206
2784	83.9857	85.0287	90.9165	63.5018	63.5018	63.5018
2785	83.7678	84.6821	90.3736	63.3839	63.3839	63.3839
2786	83.5394	84.3263	89.8185	63.267	63.267	63.267
2787	83.3535	84.0823	89.5029	63.1511	63.1511	63.1511
2788	83.2271	83.9475	89.3883	63.0363	63.0363	63.0363



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012251

2789	83.1335	83.8456	89.3068	62.9227	62.9227	62.9227
2790	83.0582	83.7618	89.2423	62.8101	62.8101	62.8101
2791	82.9897	83.6873	89.1714	62.6986	62.6986	62.6986
2792	82.9253	83.6169	89.1046	62.5882	62.5882	62.5882
2793	82.8635	83.5491	89.0404	62.4788	62.4788	62.4788
2794	82.8001	83.4816	88.963	62.3705	62.3705	62.3705
2795	82.7345	83.4129	88.8778	62.2632	62.2632	62.2632
2796	82.6679	83.3432	88.7922	62.1569	62.1569	62.1569
2797	81.7345	82.1352	84.6939	62.0498	62.0498	62.0498
2798	80.3805	80.5135	80.5897	62.0734	62.0734	62.6416
2799	79.8722	80.4217	81.2034	61.9102	61.9102	61.9102
2800	79.585	80.1367	81.242	61.7766	61.7766	61.7766
2801	79.37	79.8544	81.1812	61.6583	61.6583	61.6583
2802	79.1842	79.6451	81.0842	61.5482	61.5482	61.5482
2803	78.9954	79.4563	80.9954	61.4426	61.4426	61.4426
2804	78.8057	79.2665	80.7056	61.3399	61.3399	61.3399
2805	78.616	79.0769	80.5159	61.2389	61.2389	61.2389
2806	78.427	78.8879	80.327	61.1394	61.1394	61.1394
2807	78.239	78.6999	80.139	61.041	61.041	61.041
2808	78.0522	78.513	79.9521	60.9436	60.9436	60.9436
2809	77.8666	78.3274	79.7665	60.8472	60.8472	60.8472
2810	77.6822	78.1431	79.5822	60.7517	60.7517	60.7517
2811	77.4992	77.96	79.3991	60.6571	60.6571	60.6571
2812	77.3174	77.7783	79.2174	60.5634	60.5634	60.5634
2813	77.137	77.5979	79.0369	60.4708	60.4708	60.4708
2814	76.9578	77.4187	78.8578	60.3786	60.3786	60.3786
2815	76.78	77.2408	78.6799	60.2875	60.2875	60.2875
2816	76.6034	77.0643	78.5033	60.1972	60.1972	60.1972
2817	76.4281	76.8889	78.328	60.1078	60.1078	60.1078
2818	76.254	76.7149	78.154	60.0192	60.0192	60.0192
2819	76.0812	76.5421	77.9812	59.9314	59.9314	59.9314
2820	75.9097	76.3705	77.8096	59.8444	59.8444	59.8444
2821	75.7393	76.2002	77.6393	59.7583	59.7583	59.7583
2822	75.5703	76.0311	77.4702	59.6729	59.6729	59.6729
2823	75.4024	75.8632	77.3023	59.5883	59.5883	59.5883
2824	75.2357	75.6966	77.1356	59.5045	59.5045	59.5045
2825	75.0702	75.5311	76.9702	59.4215	59.4215	59.4215
2826	74.9059	75.3668	76.8059	59.3393	59.3393	59.3393
2827	74.7429	75.2037	76.6428	59.2578	59.2578	59.2578
2828	74.5845	75.0413	76.4999	59.1771	59.1771	59.1771
2829	74.4223	74.8832	76.3222	59.0971	59.0971	59.0971
2830	74.2619	74.7228	76.1619	59.0178	59.0178	59.0178
2831	74.1035	74.5638	76.0054	58.9393	58.9393	58.9393
2832	73.9458	74.4066	75.8458	58.8615	58.8615	58.8615
2833	73.7894	74.2502	75.6893	58.7844	58.7844	58.7844
2834	73.6342	74.095	75.5341	58.7081	58.7081	58.7081
2835	73.4802	73.941	75.3801	58.6324	58.6324	58.6324
2836	73.3273	73.7882	75.2272	58.5575	58.5575	58.5575
2837	73.1755	73.6364	75.0755	58.4832	58.4832	58.4832
2838	73.0249	73.4858	74.9248	58.4096	58.4096	58.4096
2839	72.8837	73.335	74.8199	58.3367	58.3367	58.3367
2840	72.7507	73.1917	74.7315	58.2645	58.2645	58.2645
2841	72.624	73.0563	74.6523	58.193	58.193	58.193
2842	72.5019	72.9255	74.5777	58.1222	58.1222	58.1222
2843	72.3833	72.7992	74.5066	58.0521	58.0521	58.0521
2844	72.2686	72.6782	74.442	57.9826	57.9826	57.9826



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012252



2845	72.1508	72.5684	74.3489	57.9138	57.9138	57.9138
2846	72.0258	72.4337	74.2221	57.8456	57.8456	57.8456
2847	71.8978	72.3057	74.0941	57.778	57.778	57.778
2848	71.7685	72.1764	73.9648	57.7111	57.7111	57.7111
2849	71.6389	72.0468	73.8352	57.6447	57.6447	57.6447
2850	71.5096	71.9175	73.7059	57.579	57.579	57.579
2851	71.3809	71.7887	73.5772	57.5139	57.5139	57.5139
2852	72.8327	84.9666	75.4119	63.0279	63.0279	83.6255
2853	73.638	85.905	76.1712	66.1374	66.1374	86.7311
2854	74.0769	86.3834	76.5615	68.006	68.006	88.6972
2855	74.2717	86.3019	76.7001	69.1505	69.1505	89.4367
2856	74.4754	86.1359	77.5824	69.8194	69.8194	89.4756
2857	74.7762	86.1097	78.9638	70.1669	70.1669	88.9759
2858	75.0807	86.2526	80.0073	70.3227	70.3227	88.2388
2859	75.8435	87.7336	82.936	70.3668	70.3668	87.3665
2860	76.2406	87.6697	83.2817	70.3363	70.3363	86.4512
2861	76.3414	87.0273	83.1522	70.2441	70.2441	85.4234
2862	76.4379	86.7814	83.4873	70.0998	70.0998	84.3198
2863	76.8028	87.8259	84.4114	69.9166	69.9166	83.1796
2864	76.9119	87.5653	84.3661	69.6819	69.6819	81.9291
2865	77.0396	87.4305	85.0959	69.4136	69.4136	80.6628
2866	77.2685	87.7045	86.1597	69.1221	69.1221	79.3996
2867	77.5717	88.309	87.219	68.8056	68.8056	78.1093
2868	77.8433	88.818	88.0742	68.4421	68.4421	76.6871
2869	78.0931	89.2327	88.9839	68.0561	68.0561	75.2805
2870	77.553	85.705	86.428	66.9278	66.9278	70.0474
2871	76.7015	83.1356	84.4427	65.6242	65.6242	65.6242
2872	76.3036	84.0964	85.2494	64.9496	64.9496	64.9496
2873	74.3485	74.3485	74.3485	64.5963	64.5963	64.5963
2874	73.2587	73.2587	73.2587	64.4107	64.4107	64.4107
2875	72.6496	72.6496	72.6496	64.3117	64.3117	64.3117
2876	72.3077	72.3077	72.3077	64.2574	64.2574	64.2574
2877	72.1142	72.1142	72.1142	64.2262	64.2262	64.2262
2878	72.0032	72.0032	72.0032	64.2068	64.2068	64.2068
2879	71.938	71.938	71.938	64.1937	64.1937	64.1937
2880	71.8983	71.8983	71.8983	64.1837	64.1837	64.1837
2881	71.8727	71.8727	71.8727	64.1754	64.1754	64.1754
2882	71.855	71.855	71.855	64.1679	64.1679	64.1679
2883	71.8417	71.8417	71.8417	64.1608	64.1608	64.1608
2884	71.8308	71.8308	71.8308	64.154	64.154	64.154
2885	71.8212	71.8212	71.8212	64.1473	64.1473	64.1473
2886	71.8124	71.8124	71.8124	64.1407	64.1407	64.1407
2887	71.8041	71.8041	71.8041	64.1341	64.1341	64.1341
2888	71.7959	71.7959	71.7959	64.1275	64.1275	64.1275
2889	71.7879	71.7879	71.7879	64.1209	64.1209	64.1209
2890	75.0957	90.5142	91.7779	64.1208	64.1208	64.1208
2891	77.016	89.9522	91.8667	64.1206	64.1206	64.1206
2892	78.1849	88.5985	91.299	64.1204	64.1204	64.1204
2893	78.8961	88.3306	91.883	64.1202	64.1202	64.1202
2894	79.3785	87.8972	92.278	64.0863	64.0863	64.0863
2895	79.7109	87.4158	92.5897	64.0089	64.0089	64.0089
2896	79.9751	86.9724	92.8541	63.9103	63.9103	63.9103
2897	80.2089	86.5498	93.097	63.8016	63.8016	63.8016
2898	80.3886	85.9819	93.2817	63.6884	63.6884	63.6884
2899	80.5404	85.432	93.3955	63.5735	63.5735	63.5735
2900	80.7064	85.3124	93.2344	63.4584	63.4584	63.4584



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012253

2901	80.9702	85.4469	93.5824	63.3438	63.3438	63.3438
2902	81.4657	86.1141	94.9572	63.2306	63.2306	63.2306
2903	81.7382	86.0615	94.8699	63.1181	63.1181	63.1181
2904	81.6075	85.24	93.4392	63.0059	63.0059	63.0059
2905	81.4345	84.7111	92.6137	62.8944	62.8944	62.8944
2906	81.3651	84.5181	92.3408	62.7839	62.7839	62.7839
2907	81.3549	84.399	92.1514	62.6745	62.6745	62.6745
2908	81.4067	84.4171	92.1484	62.5661	62.5661	62.5661
2909	81.4916	84.4708	92.1826	62.4587	62.4587	62.4587
2910	81.5549	84.4365	92.0743	62.3524	62.3524	62.3524
2911	81.3787	83.7728	91.0193	62.2465	62.2465	62.2465
2912	81.0678	82.9822	89.8617	62.1412	62.1412	62.1412
2913	80.6788	82.1502	88.6561	62.0364	62.0364	62.0364
2914	80.4139	81.7965	88.1859	61.9326	61.9326	61.9326
2915	78.9153	79.7439	81.7163	61.8271	61.8271	61.8271
2916	78.0336	78.8822	80.8345	61.7226	61.7226	61.7226
2917	77.4869	78.3155	80.2878	61.619	61.619	61.619
2918	77.1271	77.9506	79.9475	61.5165	61.5165	61.5165
2919	76.8458	77.7045	79.5787	61.4148	61.4148	61.4148
2920	76.6253	77.484	79.3583	61.3141	61.3141	61.3141
2921	76.4385	77.2972	79.1715	61.2144	61.2144	61.2144
2922	76.2719	77.127	79.0128	61.1155	61.1155	61.1155
2923	76.1181	76.9669	78.8724	61.0177	61.0177	61.0177
2924	75.9515	76.8401	78.62	60.9206	60.9206	60.9206
2925	75.7932	76.6858	78.4532	60.8245	60.8245	60.8245
2926	75.6399	76.5365	78.2914	60.7293	60.7293	60.7293
2927	75.4897	76.3904	78.1328	60.635	60.635	60.635
2928	75.342	76.2484	77.9775	60.5415	60.5415	60.5415
2929	76.5459	77.8861	84.1693	60.4515	60.4515	60.4515
2930	77.152	78.3951	84.5915	60.3622	60.3622	60.3622
2931	77.4245	78.5784	84.8449	60.2737	60.2737	60.2737
2932	77.494	78.5254	84.4002	60.1859	60.1859	60.1859
2933	77.4506	78.3823	84.0496	60.0987	60.0987	60.0987
2934	77.3433	78.1371	83.6402	60.0123	60.0123	60.0123
2935	77.2377	77.9878	83.3853	59.9266	59.9266	59.9266
2936	77.1738	77.8965	83.3319	59.8417	59.8417	59.8417
2937	77.1329	77.8484	83.3011	59.7576	59.7576	59.7576
2938	77.1042	77.8131	83.2818	59.6743	59.6743	59.6743
2939	77.0816	77.7849	83.2656	59.5918	59.5918	59.5918
2940	77.0602	77.7597	83.2426	59.5102	59.5102	59.5102
2941	77.0394	77.7356	83.2205	59.4293	59.4293	59.4293
2942	77.0189	77.7122	83.1989	59.3491	59.3491	59.3491
2943	76.9985	77.6894	83.1775	59.2697	59.2697	59.2697
2944	76.9781	77.6669	83.1563	59.1911	59.1911	59.1911
2945	76.9578	77.6447	83.1352	59.1133	59.1133	59.1133
2946	76.9376	77.6227	83.1143	59.0361	59.0361	59.0361
2947	76.9171	77.6003	83.0905	58.9597	58.9597	58.9597
2948	76.8953	77.577	83.0598	58.8841	58.8841	58.8841
2949	76.8726	77.5526	83.0266	58.8091	58.8091	58.8091
2950	76.8491	77.5274	82.9918	58.7349	58.7349	58.7349
2951	76.8252	77.5014	82.955	58.6613	58.6613	58.6613
2952	76.801	77.475	82.9168	58.5885	58.5885	58.5885
2953	75.583	76.102	77.3117	58.514	58.514	58.514
2954	74.8479	75.3669	76.5767	58.4403	58.4403	58.4403
2955	74.3822	74.8873	76.143	58.3673	58.3673	58.3673
2956	74.0576	74.5806	75.8234	58.2949	58.2949	58.2949



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012254



2957	73.8138	74.3074	75.601	58.2232	58.2232	58.2232
2958	73.8097	74.1038	75.3984	58.1522	58.1522	58.1522
2959	73.4222	73.9276	75.1824	58.0818	58.0818	58.0818
2960	73.2456	73.759	74.9874	58.012	58.012	58.012
2961	73.0803	73.5914	74.8273	57.9429	57.9429	57.9429
2962	72.9208	73.4313	74.8693	57.8745	57.8745	57.8745
2963	72.7606	73.2796	74.4893	57.8066	57.8066	57.8066
2964	72.576	73.1758	74.1634	57.7384	57.7384	57.7384
2965	72.0438	72.2847	72.4227	57.9095	57.9095	58.938
2966	72.1426	73.3825	73.9914	58.9373	58.9373	64.1132
2967	72.1524	73.69	73.9132	59.7529	59.7529	65.9699
2968	72.1287	74.0188	73.8373	60.4626	60.4626	67.6426
2969	72.0938	74.3207	73.7749	61.1002	61.1002	69.1016
2970	72.0333	74.3835	73.71	61.5746	61.5746	69.8496
2971	71.9517	74.3564	73.6265	61.9306	61.9306	70.3265
2972	72.1962	76.9945	73.9695	63.3587	63.3587	75.987
2973	73.4377	85.6145	76.0023	66.6438	66.6438	87.1726
2974	74.125	86.4008	76.8474	68.6176	68.6176	89.2108
2975	74.5012	86.8122	76.9802	69.9094	69.9094	90.5004
2976	74.8614	88.6823	77.0882	70.7549	70.7549	91.0311
2977	74.839	86.5148	77.895	71.281	71.281	90.9705
2978	75.126	88.4754	79.2641	71.5616	71.5616	90.4372
2979	75.3941	88.5339	80.1796	71.6818	71.6818	89.6742
2980	76.126	87.9811	83.0565	71.7002	71.7002	88.7885
2981	76.5638	88.0505	83.6518	71.6521	71.6521	87.835
2982	76.6761	87.4158	83.478	71.5471	71.5471	86.7981
2983	76.7508	87.0446	83.7595	71.3902	71.3902	85.6785
2984	77.105	88.0868	84.6787	71.1954	71.1954	84.5253
2985	77.2327	87.9019	84.6974	70.9508	70.9508	83.2671
2986	77.3549	87.7597	85.3537	70.6715	70.6715	81.9867
2987	77.575	87.9903	86.4138	70.3684	70.3684	80.7077
2988	77.8785	88.6003	87.4878	70.0427	70.0427	79.4154
2989	78.149	89.1083	88.3419	69.6702	69.6702	77.9842
2990	78.3976	89.5268	89.2451	69.2737	69.2737	76.5646
2991	77.9288	88.3665	87.0127	68.203	68.203	71.6793
2992	77.0465	83.392	84.7092	66.8461	66.8461	66.8461
2993	76.6313	84.3358	85.4987	66.1439	66.1439	66.1439
2994	74.8681	74.6681	74.6681	65.7762	65.7762	65.7762
2995	73.5737	73.5737	73.5737	65.5832	65.5832	65.5832
2996	72.962	72.962	72.962	65.4802	65.4802	65.4802
2997	72.6186	72.6186	72.6186	65.4237	65.4237	65.4237
2998	72.4243	72.4243	72.4243	65.3913	65.3913	65.3913
2999	72.3127	72.3127	72.3127	65.3713	65.3713	65.3713
3000	72.2472	72.2472	72.2472	65.3577	65.3577	65.3577
3001	72.2073	72.2073	72.2073	65.3474	65.3474	65.3474
3002	72.1816	72.1816	72.1816	65.3388	65.3388	65.3388
3003	72.1638	72.1638	72.1638	65.3311	65.3311	65.3311
3004	72.1504	72.1504	72.1504	65.3238	65.3238	65.3238
3005	72.1394	72.1394	72.1394	65.3168	65.3168	65.3168
3006	72.1297	72.1297	72.1297	65.3099	65.3099	65.3099
3007	72.1208	72.1208	72.1208	65.3031	65.3031	65.3031
3008	72.1124	72.1124	72.1124	65.2963	65.2963	65.2963
3009	72.1042	72.1042	72.1042	65.2898	65.2898	65.2898
3010	72.0961	72.0961	72.0961	65.2828	65.2828	65.2828
3011	75.4116	90.9926	92.2818	65.2823	65.2823	65.2823
3012	77.3332	90.4314	92.3273	65.2817	65.2817	65.2817

*[Handwritten signature]*



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012255



3013	78.4787	88.9775	91.8224	65.281	65.281	65.281
3014	79.2091	88.7119	92.2097	65.2804	65.2804	65.2804
3015	79.6911	88.268	92.596	65.243	65.243	65.243
3016	80.0207	87.7786	92.9007	65.1585	65.1585	65.1585
3017	80.2823	87.3265	93.1647	65.0508	65.0508	65.0508
3018	80.5124	86.896	93.3999	64.9323	64.9323	64.9323
3019	80.8928	86.3343	93.5846	64.8088	64.8088	64.8088
3020	80.8409	85.7547	93.7195	64.6834	64.6834	64.6834
3021	81.0035	85.6293	93.5543	64.5578	64.5578	64.5578
3022	81.2308	85.686	93.7329	64.4327	64.4327	64.4327
3023	81.6847	86.2997	95.0051	64.3089	64.3089	64.3089
3024	82.0941	86.6258	95.6179	64.1863	64.1863	64.1863
3025	82.074	85.9739	94.4088	64.0642	64.0642	64.0642
3026	81.8444	85.1915	93.1394	63.9426	63.9426	63.9426
3027	81.7477	84.9839	92.8604	63.8222	63.8222	63.8222
3028	81.7232	84.8569	92.8672	63.7029	63.7029	63.7029
3029	81.7406	84.7849	92.5375	63.5846	63.5846	63.5846
3030	81.8049	84.822	92.5575	63.4676	63.4676	63.4676
3031	81.8943	84.8862	92.8069	63.3516	63.3516	63.3516
3032	81.9968	84.9656	92.6708	63.2368	63.2368	63.2368
3033	82.053	84.9098	92.5274	63.123	63.123	63.123
3034	80.5864	81.9445	85.5307	63.0074	63.0074	63.0074
3035	79.7542	81.1123	84.8984	62.893	62.893	62.893
3036	79.2664	80.6245	84.2106	62.7796	62.7796	62.7796
3037	78.9655	80.3236	83.9097	62.6673	62.6673	62.6673
3038	78.7664	80.1245	83.7106	62.556	62.556	62.556
3039	78.6226	79.9807	83.5689	62.4458	62.4458	62.4458
3040	78.5092	79.8673	83.4534	62.3367	62.3367	62.3367
3041	78.4125	79.7708	83.3567	62.2285	62.2285	62.2285
3042	78.325	79.6832	83.2693	62.1214	62.1214	62.1214
3043	78.2429	79.601	83.1872	62.0153	62.0153	62.0153
3044	78.1639	79.522	83.1082	61.9102	61.9102	61.9102
3045	78.0889	79.445	83.0311	61.8081	61.8081	61.8081
3046	78.0111	79.3692	82.9553	61.703	61.703	61.703
3047	77.9363	79.2944	82.8806	61.6009	61.6009	61.6009
3048	77.8623	79.2204	82.8065	61.4997	61.4997	61.4997
3049	77.7889	79.147	82.7331	61.3994	61.3994	61.3994
3050	77.6408	78.9212	82.3202	61.3	61.3	61.3
3051	77.5092	78.7746	82.1376	61.2015	61.2015	61.2015
3052	77.3862	78.6365	81.9634	61.1039	61.1039	61.1039
3053	77.2672	78.5025	81.7933	61.0072	61.0072	61.0072
3054	77.1499	78.3702	81.6249	60.9113	60.9113	60.9113
3055	78.1673	80.4145	86.6627	60.8184	60.8184	60.8184
3056	78.015	81.3403	85.5316	60.727	60.727	60.727
3057	79.3349	81.3295	88.2552	60.636	60.636	60.636
3058	79.3654	81.0413	87.7113	60.5457	60.5457	60.5457
3059	79.2725	80.7164	87.1905	60.4559	60.4559	60.4559
3060	79.1938	80.5839	86.9837	60.367	60.367	60.367
3061	79.1218	80.4599	86.7876	60.2788	60.2788	60.2788
3062	79.0526	80.3402	86.598	60.1915	60.1915	60.1915
3063	78.984	80.2226	86.4128	60.1048	60.1048	60.1048
3064	78.9148	80.1061	86.2308	60.019	60.019	60.019
3065	78.827	79.9414	85.9462	59.9339	59.9339	59.9339
3066	78.7269	79.7854	85.6514	59.8495	59.8495	59.8495
3067	78.6186	79.583	85.3529	59.7658	59.7658	59.7658
3068	78.5044	79.3963	85.0528	59.6828	59.6828	59.6828



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012256



3069	78.3868	79.2067	84.7524	59.6005	59.6005	59.8005
3070	78.2629	79.0148	84.4522	59.5189	59.5189	59.5189
3071	78.1717	78.9022	84.3187	59.4381	59.4381	59.4381
3072	78.1101	78.8363	84.2632	59.3581	59.3581	59.3581
3073	78.0648	78.7867	84.2238	59.2788	59.2788	59.2788
3074	78.0285	78.7463	84.1933	59.2003	59.2003	59.2003
3075	77.9973	78.7112	84.1679	59.1225	59.1225	59.1225
3076	77.9691	78.679	84.1453	59.0455	59.0455	59.0455
3077	77.9428	78.6488	84.1244	58.9692	58.9692	58.9692
3078	77.9168	78.6196	84.1005	58.8936	58.8936	58.8936
3079	77.8902	78.5905	84.073	58.8188	58.8188	58.8188
3080	77.8636	78.5613	84.0453	58.7446	58.7446	58.7446
3081	77.837	78.5322	84.0178	58.6712	58.6712	58.6712
3082	77.8105	78.5034	83.9904	58.5985	58.5985	58.5985
3083	77.7843	78.4748	83.9632	58.5264	58.5264	58.5264
3084	77.7584	78.4465	83.9363	58.4551	58.4551	58.4551
3085	77.7327	78.4186	83.9097	58.3844	58.3844	58.3844
3086	77.7072	78.3909	83.8834	58.3144	58.3144	58.3144
3087	77.6803	78.3629	83.8496	58.2451	58.2451	58.2451
3088	77.6527	78.3342	83.8152	58.1764	58.1764	58.1764
3089	77.6247	78.3052	83.7807	58.1084	58.1084	58.1084
3090	77.5967	78.2761	83.7465	58.041	58.041	58.041
3091	77.5687	78.2471	83.7126	57.9743	57.9743	57.9743
3092	77.5407	78.2183	83.679	57.9082	57.9082	57.9082
3093	77.5129	78.1896	83.6457	57.8427	57.8427	57.8427
3094	77.4853	78.1611	83.6127	57.7778	57.7778	57.7778
3095	77.4578	78.1328	83.5801	57.7136	57.7136	57.7136
3096	77.4304	78.1048	83.5478	57.6499	57.6499	57.6499
3097	77.4032	78.0766	83.5157	57.5869	57.5869	57.5869
3098	77.3761	78.0488	83.4838	57.5245	57.5245	57.5245
3099	75.809	77.2813	80.9625	57.4616	57.4616	57.4616
3100	76.459	78.9309	80.6071	57.3994	57.3994	57.3994
3101	76.2333	76.7064	80.3991	57.3378	57.3378	57.3378
3102	76.0723	76.5459	80.2439	57.2767	57.2767	57.2767
3103	75.9468	76.4208	80.1242	57.2162	57.2162	57.2162
3104	75.8354	76.3083	79.9988	57.1563	57.1563	57.1563
3105	75.7356	76.2086	79.8988	57.0969	57.0969	57.0969
3106	75.6425	76.1154	79.8056	57.0381	57.0381	57.0381
3107	75.5532	76.0261	79.7163	56.9798	56.9798	56.9798
3108	75.4662	75.9392	79.6294	56.9221	56.9221	56.9221
3109	75.3808	75.8538	79.544	56.8649	56.8649	56.8649
3110	75.2966	75.7695	79.4597	56.8083	56.8083	56.8083
3111	75.2132	75.6862	79.3764	56.7521	56.7521	56.7521
3112	75.1306	75.6035	79.2935	56.6966	56.6966	56.6966
3113	75.0486	75.5216	79.2118	56.6415	56.6415	56.6415
3114	74.9673	75.4403	79.1305	56.5869	56.5869	56.5869
3115	74.8866	75.3596	79.0498	56.5329	56.5329	56.5329
3116	74.7446	75.2025	78.8825	56.4792	56.4792	56.4792
3117	74.517	74.9415	78.0458	56.4259	56.4259	56.4259
3118	74.2446	74.6514	77.3927	56.3728	56.3728	56.3728
3119	73.9497	74.3449	76.772	56.3201	56.3201	56.3201
3120	74.5341	82.8564	76.6392	60.7444	60.7444	77.7558
3121	75.4396	87.885	77.9876	64.3367	64.3367	84.9009
3122	75.2672	83.2291	77.3104	65.1703	65.1703	81.6557
3123	74.2173	74.7728	76.1871	61.5049	61.5049	61.5049
3124	73.5808	74.1363	75.5506	59.6304	59.6304	59.6304



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls



00012257

3125	73.179	73.7193	75.1937	58.6559	58.6559	58.6559
3126	72.8998	73.4336	74.9338	58.1337	58.1337	58.1337
3127	72.7094	73.2253	74.8582	57.8392	57.8392	57.8392
3128	72.5464	73.0607	74.7203	57.6592	57.6592	57.6592
3129	72.4047	72.9129	74.6025	57.5372	57.5372	57.5372
3130	72.2474	72.7679	74.3868	57.4445	57.4445	57.4445
3131	72.0827	72.6151	74.1247	57.3668	57.3668	57.3668
3132	71.9155	72.4699	73.8887	57.2969	57.2969	57.2969
3133	71.7468	72.3241	73.652	57.2312	57.2312	57.2312
3134	71.5785	72.1834	73.4195	57.1679	57.1679	57.1679
3135	71.4111	72.0468	73.1906	57.1081	57.1081	57.1081
3136	71.2366	71.9414	72.9102	57.0452	57.0452	57.0452
3137	72.7377	85.0387	75.2291	62.5939	62.5939	83.1855
3138	73.5205	85.6174	75.9597	65.6182	65.6182	85.9757
3139	73.9884	85.7274	76.8235	67.2738	67.2738	87.1058
3140	74.4513	85.8344	78.485	68.1379	68.1379	87.1557
3141	74.8183	85.9905	79.4953	68.5685	68.5685	86.7061
3142	75.5131	87.2178	82.0496	68.764	68.764	86.0135
3143	76.0773	87.7095	83.2837	68.8233	68.8233	85.1778
3144	76.2362	87.1155	83.0149	68.7919	68.7919	84.2292
3145	76.2658	88.4275	83.1635	68.6888	68.6888	83.1689
3146	76.5918	87.4337	84.0506	68.5384	68.5384	82.0633
3147	76.7681	87.5353	84.2845	68.3355	68.3355	80.8605
3148	76.9046	87.3526	84.7248	68.0908	68.0908	79.6112
3149	77.1077	87.4565	85.779	67.818	67.818	78.3553
3150	77.417	88.0847	86.8925	67.5267	67.5267	77.1138
3151	77.6969	88.6067	87.7682	67.1883	67.1883	75.7229
3152	77.9528	89.0482	88.6621	66.8206	66.8206	74.3238
3153	77.7235	87.0747	87.4749	65.9948	65.9948	70.6116
3154	78.7495	82.7566	84.1122	64.5118	64.5118	64.5118
3155	78.2842	83.7054	84.9005	63.7447	63.7447	63.7447
3156	74.2979	74.2979	74.2979	63.3442	63.3442	63.3442
3157	73.1907	73.1907	73.1907	63.1344	63.1344	63.1344
3158	72.5719	72.5719	72.5719	63.0232	63.0232	63.0232
3159	72.2247	72.2247	72.2247	62.963	62.963	62.963
3160	72.0282	72.0282	72.0282	62.9289	62.9289	62.9289
3161	71.9156	71.9156	71.9156	62.9085	62.9085	62.9085
3162	71.8495	71.8495	71.8495	62.895	62.895	62.895
3163	71.8093	71.8093	71.8093	62.8852	62.8852	62.8852
3164	71.7835	71.7835	71.7835	62.8772	62.8772	62.8772
3165	71.7656	71.7656	71.7656	62.8702	62.8702	62.8702
3166	71.7522	71.7522	71.7522	62.8637	62.8637	62.8637
3167	71.7413	71.7413	71.7413	62.8575	62.8575	62.8575
3168	71.7318	71.7318	71.7318	62.8514	62.8514	62.8514
3169	71.723	71.723	71.723	62.8454	62.8454	62.8454
3170	71.7148	71.7148	71.7148	62.8394	62.8394	62.8394
3171	71.7065	71.7065	71.7065	62.8334	62.8334	62.8334
3172	71.6985	71.6985	71.6985	62.8275	62.8275	62.8275
3173	75.0187	91.1171	92.2557	62.8274	62.8274	62.8274
3174	76.9391	90.5542	92.2907	62.8273	62.8273	62.8273
3175	78.0861	88.9195	91.3871	62.8271	62.8271	62.8271
3176	78.8151	88.5229	91.8423	62.827	62.827	62.827
3177	79.2978	88.0442	92.2066	62.7964	62.7964	62.7964
3178	79.6291	87.5666	92.5131	62.7268	62.7268	62.7268
3179	79.8875	87.0644	92.7639	62.638	62.638	62.638
3180	80.1188	86.6403	93.0055	62.5403	62.5403	62.5403

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ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012258



3181	80.3087	86.1084	93.1998	82.4384	62.4384	62.4384
3182	80.4606	85.5017	93.3552	62.335	62.335	62.335
3183	80.6219	85.306	93.2394	62.2313	62.2313	62.2313
3184	80.8107	85.2401	93.1807	62.1281	62.1281	62.1281
3185	81.2626	85.8643	94.5145	62.0261	62.0261	62.0261
3186	81.689	86.214	95.2002	61.925	61.925	61.925
3187	81.64	85.4591	93.8228	61.8242	61.8242	61.8242
3188	81.4274	84.7391	92.6643	61.7239	61.7239	61.7239
3189	81.3361	84.5198	92.3623	61.6245	61.6245	61.6245
3190	81.3111	84.3786	92.1428	61.526	61.526	61.526
3191	81.3499	84.3685	92.1049	61.4284	61.4284	61.4284
3192	81.4281	84.4141	92.1301	61.3318	61.3318	61.3318
3193	81.5273	84.4825	92.1791	61.2361	61.2361	61.2361
3194	81.3929	83.8964	91.2306	61.141	61.141	61.141
3195	81.1139	83.1586	90.1247	61.0463	61.0463	61.0463
3196	80.7535	82.3595	88.9734	60.9521	60.9521	60.9521
3197	80.4564	81.867	88.2949	60.8586	60.8586	60.8586
3198	80.2479	81.5846	87.9103	60.766	60.766	60.766
3199	80.0882	81.3512	87.5779	60.6741	60.6741	60.6741
3200	79.9485	81.1442	87.2749	60.583	60.583	60.583
3201	79.7985	80.8844	86.8444	60.4926	60.4926	60.4926
3202	79.6374	80.6122	86.3983	60.403	60.403	60.403
3203	79.4674	80.3327	85.9476	60.3141	60.3141	60.3141
3204	79.2884	80.0436	85.4861	60.226	60.226	60.226
3205	79.1633	79.8914	85.3138	60.1386	60.1386	60.1386
3206	78.8514	79.4938	84.1575	60.0517	60.0517	60.0517
3207	78.8851	79.603	85.0499	59.966	59.966	59.966
3208	78.8909	79.6021	85.0653	59.8811	59.8811	59.8811
3209	78.8819	79.5864	85.0658	59.7971	59.7971	59.7971
3210	78.8624	79.5623	85.046	59.7138	59.7138	59.7138
3211	78.8372	79.5326	85.018	59.6313	59.6313	59.6313
3212	78.8091	79.5001	84.9882	59.5497	59.5497	59.5497
3213	78.7795	79.4684	84.957	59.4688	59.4688	59.4688
3214	78.7487	79.4318	84.9215	59.3887	59.3887	59.3887
3215	78.7146	79.3955	84.8735	59.3093	59.3093	59.3093
3216	79.15	91.432	81.6647	64.8376	64.8376	85.4304
3217	79.361	91.6116	81.8251	67.8943	67.8943	88.4164
3218	79.4019	91.2883	81.8068	69.6019	69.6019	89.7341
3219	78.2907	81.616	80.8262	67.5448	67.5448	76.8512
3220	77.3816	78.0981	79.8387	64.3434	64.3434	84.3434
3221	76.8357	77.5313	79.3789	62.6866	62.6866	62.6866
3222	76.4878	77.1687	79.1096	61.8063	61.8063	61.8063
3223	76.2506	76.919	78.9578	61.3185	61.3185	61.3185
3224	76.1054	76.7544	79.0207	61.0234	61.0234	61.0234
3225	75.9881	76.6323	79.003	60.8296	60.8296	60.8296
3226	75.8916	76.5339	79.0138	60.6861	60.6861	60.6861
3227	75.7953	76.4375	78.9742	60.5683	60.5683	60.5683
3228	75.6546	76.297	78.7258	60.4638	60.4638	60.4638
3229	75.5187	76.1611	78.5899	60.3664	60.3664	60.3664
3230	75.3858	76.0282	78.457	60.273	60.273	60.273
3231	75.2183	75.8667	78.1454	60.182	60.182	60.182
3232	75.0043	75.6774	77.6702	60.0925	60.0925	60.0925
3233	74.774	75.4987	77.209	60.0041	60.0041	60.0041
3234	74.5451	75.3723	76.7829	59.9167	59.9167	59.9167
3235	74.3074	75.2504	76.3112	59.8301	59.8301	59.8301
3236	73.6785	74.0167	74.1982	59.9789	59.9789	60.997

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ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012259



3237	73.5184	74.4347	74.9266	60.4284	60.4284	63.1871
3238	73.5782	74.9672	75.7129	60.9805	60.9805	65.1624
3239	73.5255	74.8696	75.5911	61.2437	61.2437	65.2904
3240	73.0973	73.7323	74.0732	60.8971	60.8971	62.809
3241	72.5346	72.6173	72.7104	60.2653	60.2653	60.2653
3242	72.6304	73.5058	74.4905	59.9066	59.9066	59.9066
3243	72.8784	73.6492	74.7587	59.6851	59.6851	59.6851
3244	74.2775	85.797	77.8576	64.7427	64.7427	84.0908
3245	75.289	86.5445	79.7171	67.2861	67.2861	85.7861
3246	76.152	87.5874	81.875	68.5427	68.5427	86.129
3247	77.0938	89.0096	84.531	69.1363	69.1363	85.8258
3248	77.42	88.5663	84.2309	69.3777	69.3777	85.159
3249	77.5244	87.9434	84.3784	69.4146	69.4146	84.2404
3250	77.7545	88.3501	85.011	69.3345	69.3345	83.203
3251	78.0397	88.9239	85.592	69.1747	69.1747	82.0645
3252	78.1228	88.8457	85.6331	68.9493	68.9493	80.8259
3253	78.2881	88.8024	86.6617	68.6856	68.6856	79.5704
3254	78.5802	89.1134	87.7468	68.399	68.399	78.3273
3255	78.8489	89.6735	88.7107	68.0733	68.0733	76.988
3256	79.1073	90.1447	89.5785	67.7079	67.7079	75.5788
3257	79.2786	90.2039	90.1804	67.2562	67.2562	73.8382
3258	78.3432	84.8843	86.0411	65.7709	65.7709	66.8794
3259	77.6657	84.599	85.8495	64.7389	64.7389	64.7389
3260	77.3645	85.8567	86.753	64.2045	64.2045	64.2045
3261	75.4549	75.4549	75.4549	63.9241	63.9241	63.9241
3262	74.3901	74.3901	74.3901	63.7764	63.7764	63.7764
3263	73.7949	73.7949	73.7949	63.6972	63.6972	63.6972
3264	73.4605	73.4605	73.4605	63.6534	63.6534	63.6534
3265	73.271	73.271	73.271	63.6278	63.6278	63.6278
3266	73.1621	73.1621	73.1621	63.6116	63.6116	63.6116
3267	73.098	73.098	73.098	63.6004	63.6004	63.6004
3268	73.0587	73.0587	73.0587	63.5916	63.5916	63.5916
3269	73.0333	73.0333	73.0333	63.5842	63.5842	63.5842
3270	73.0155	73.0155	73.0155	63.5774	63.5774	63.5774
3271	73.002	73.002	73.002	63.571	63.571	63.571
3272	72.9909	72.9909	72.9909	63.5647	63.5647	63.5647
3273	72.981	72.981	72.981	63.5586	63.5586	63.5586
3274	72.972	72.972	72.972	63.5525	63.5525	63.5525
3275	72.9633	72.9633	72.9633	63.5464	63.5464	63.5464
3276	72.9549	72.9549	72.9549	63.5403	63.5403	63.5403
3277	72.9465	72.9465	72.9465	63.5343	63.5343	63.5343
3278	76.2524	90.7593	92.2996	63.5339	63.5339	63.5339
3279	78.1681	90.1923	92.3593	63.5335	63.5335	63.5335
3280	79.3165	89.383	92.3986	63.5331	63.5331	63.5331
3281	80.0488	89.1207	92.9872	63.5326	63.5326	63.5326
3282	80.5287	88.7484	93.4194	63.5	63.5	63.5
3283	80.8568	88.2696	93.73	63.4261	63.4261	63.4261
3284	81.1216	87.8776	94.0039	63.3319	63.3319	63.3319
3285	81.3412	87.4134	94.2312	63.2282	63.2282	63.2282
3286	81.5082	86.8195	94.3996	63.1201	63.1201	63.1201
3287	81.6581	86.4448	94.393	63.0105	63.0105	63.0105
3288	81.8213	86.3224	94.2293	62.9006	62.9006	62.9006
3289	82.1772	86.7173	95.1137	62.7914	62.7914	62.7914
3290	82.7234	87.4342	96.5349	62.6834	62.6834	62.6834
3291	82.7869	86.8488	95.4267	62.5758	62.5758	62.5758
3292	82.5442	85.9386	93.9277	62.4685	62.4685	62.4685

*[Handwritten signature]*

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ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012260



3293	82.4121	85.6362	93.5048	62.3621	62.3821	62.3621
3294	82.3598	85.4564	93.2427	62.2587	62.2667	62.2587
3295	82.3719	85.3972	93.1379	62.1522	62.1522	62.1522
3296	82.4328	85.4225	93.1408	62.0488	62.0488	62.0488
3297	82.5189	85.4755	93.1725	61.9464	61.9464	61.9464
3298	82.3524	84.8119	92.111	61.8445	61.8445	61.8445
3299	82.027	83.9833	90.8783	61.7431	61.7431	61.7431
3300	81.6112	83.0828	89.5887	61.6423	61.6423	61.6423
3301	81.3253	82.7031	89.0858	61.5423	61.5423	61.5423
3302	81.113	82.4093	88.6793	61.4432	61.4432	61.4432
3303	80.9392	82.1566	88.3174	61.3449	61.3449	61.3449
3304	80.766	81.8734	87.867	61.2475	61.2475	61.2475
3305	80.5805	81.5823	87.3595	61.1508	61.1508	61.1508
3306	80.3865	81.2466	86.8533	61.0549	61.0549	61.0549
3307	80.1862	80.9284	86.3507	60.9598	60.9598	60.9598
3308	80.0557	80.7825	86.2075	60.8658	60.8658	60.8658
3309	80.3436	92.2388	82.7501	66.2335	66.2335	66.3752
3310	80.683	92.199	84.2751	68.9607	68.9607	88.301
3311	80.9961	92.2455	85.4436	70.3194	70.3194	88.775
3312	81.4835	92.9472	87.2918	70.9885	70.9885	88.5196
3313	80.1746	82.6427	83.4408	68.4022	68.4022	74.8844
3314	79.1308	80.1439	81.9685	65.6258	65.6258	65.6258
3315	78.4948	79.5079	81.3325	64.1747	64.1747	64.1747
3316	78.0805	79.0936	80.9182	63.3899	63.3899	63.3899
3317	77.7869	78.8	80.6246	62.9402	62.9402	62.9402
3318	77.5593	78.5724	80.397	62.8595	62.8595	62.8595
3319	77.4887	78.5056	80.7732	62.4643	62.4643	62.4643
3320	77.4017	78.4215	80.7296	62.3126	62.3126	62.3126
3321	77.3069	78.3298	80.6782	62.1832	62.1832	62.1832
3322	77.2095	78.2353	80.6263	62.0655	62.0655	62.0655
3323	77.1119	78.1408	80.5745	61.9542	61.9542	61.9542
3324	76.9429	77.9575	80.1924	61.8465	61.8465	61.8465
3325	76.792	77.8065	80.0415	61.7411	61.7411	61.7411
3326	76.6513	77.6668	79.9008	61.6374	61.6374	61.6374
3327	76.5166	77.5311	79.766	61.535	61.535	61.535
3328	76.3855	77.4	79.6349	61.4337	61.4337	61.4337
3329	76.2494	77.2622	79.4724	61.3335	61.3335	61.3335
3330	76.0532	77.0601	79.0382	61.2341	61.2341	61.2341
3331	75.8308	76.8551	78.5989	61.1356	61.1356	61.1356
3332	75.6097	76.6835	78.2047	61.0379	61.0379	61.0379
3333	74.8306	75.0348	75.3232	60.9402	60.9402	60.9402
3334	74.486	75.0832	75.5363	61.2232	61.2232	62.8846
3335	74.829	76.5979	77.94	62.0871	62.0871	68.9488
3336	75.04	77.0972	78.3185	62.7176	62.7176	68.3035
3337	75.1274	77.3803	78.3743	63.1815	63.1815	69.23
3338	75.1883	77.6434	78.4333	63.564	63.564	70.0497
3339	75.1831	77.8399	78.4764	63.8867	63.8867	70.7078
3340	75.1092	77.5648	78.3712	64.0044	64.0044	70.4541
3341	75.0179	77.435	78.2739	64.0894	64.0894	70.4681
3342	74.917	77.2957	78.1871	64.1564	64.1564	70.464
3343	74.811	77.1512	78.055	64.2128	64.2128	70.4493
3344	74.7023	77.0046	77.9412	64.2624	64.2624	70.4277
3345	74.631	77.0912	77.8937	64.3995	64.3995	70.8576
3346	74.5506	77.0108	77.8133	64.5104	64.5104	70.9686
3347	74.4654	76.9256	77.7281	64.6077	64.6077	71.0659
3348	74.378	76.8382	77.6407	64.6979	64.6979	71.156

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ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012261

3348	74.2896	76.7499	77.5524	64.7839	64.7839	71.2421
3350	74.2011	76.6613	77.4638	64.8676	64.8676	71.3258
3351	74.1127	76.5729	77.3755	64.9497	64.9497	71.4079
3352	74.0248	76.485	77.2875	65.0306	65.0306	71.4888
3353	73.9373	76.3975	77.2	65.1106	65.1106	71.5687
3354	73.8467	76.2885	77.1065	65.181	65.181	71.6052
3355	73.7261	75.9892	76.9714	65.1656	65.1656	71.2382
3356	73.6037	75.7145	76.8735	65.1006	65.1006	70.8132
3357	73.4798	75.4382	76.7741	65.005	65.005	70.3575
3358	73.1892	74.7404	75.9174	64.7225	64.7225	68.9859
3359	72.625	73.501	74.1856	64.1557	64.1557	66.5634
3360	71.8935	72.0943	72.2466	63.4199	63.4199	63.9716
3361	74.3516	86.1855	81.7221	67.2269	67.2269	83.8193
3362	75.509	86.5942	82.2702	69.0817	69.0817	84.7911
3363	76.0789	86.4536	82.9414	69.9249	69.9249	84.6891
3364	76.587	87.2245	83.8779	70.2435	70.2435	84.0536
3365	77.0004	87.8592	84.5422	70.2746	70.2746	83.098
3366	77.1704	87.679	84.7395	70.1378	70.1378	81.9466
3367	77.3859	87.6858	85.8193	69.9109	69.9109	80.7269
3368	77.6931	88.2684	86.9355	69.6365	69.6365	79.4989
3369	77.9973	88.8383	87.8995	69.3082	69.3082	78.1495
3370	78.2665	89.3151	88.7836	68.9355	68.9355	76.7338
3371	78.3886	88.99	89.0483	68.4018	68.4018	74.6042
3372	77.3943	83.6316	84.8701	66.8636	66.8636	67.5927
3373	76.7707	83.7982	85.0381	65.8872	65.8872	65.8872
3374	76.4997	84.8881	85.9717	65.3815	65.3815	65.3815
3375	74.6054	74.6054	74.6054	65.1158	65.1158	65.1158
3376	73.5492	73.5492	73.5492	64.9756	64.9756	64.9756
3377	72.9588	72.9588	72.9588	64.9001	64.9001	64.9001
3378	72.6272	72.6272	72.6272	64.8581	64.8581	64.8581
3379	72.4395	72.4395	72.4395	64.8334	64.8334	64.8334
3380	72.3316	72.3316	72.3316	64.8176	64.8176	64.8176
3381	72.2681	72.2681	72.2681	64.8064	64.8064	64.8064
3382	72.2293	72.2293	72.2293	64.7975	64.7975	64.7975
3383	72.2042	72.2042	72.2042	64.7899	64.7899	64.7899
3384	72.1867	72.1867	72.1867	64.783	64.783	64.783
3385	72.1735	72.1735	72.1735	64.7763	64.7763	64.7763
3386	72.1626	72.1626	72.1626	64.7699	64.7699	64.7699
3387	72.153	72.153	72.153	64.7635	64.7635	64.7635
3388	72.1442	72.1442	72.1442	64.7572	64.7572	64.7572
3389	72.1357	72.1357	72.1357	64.7509	64.7509	64.7509
3390	72.1275	72.1275	72.1275	64.7446	64.7446	64.7446
3391	72.1194	72.1194	72.1194	64.7383	64.7383	64.7383
3392	75.419	89.7533	91.3012	64.7375	64.7375	64.7375
3393	77.3357	89.1412	91.3634	64.7367	64.7367	64.7367
3394	78.4861	88.4834	91.5559	64.7359	64.7359	64.7359
3395	79.2181	88.2165	92.1405	64.735	64.735	64.735
3396	79.7027	87.8716	92.5983	64.6989	64.6989	64.6989
3397	80.0358	87.4031	92.9095	64.6174	64.6174	64.6174
3398	80.306	87.0185	93.1889	64.5139	64.5139	64.5139
3399	80.5285	86.5481	93.4187	64.3998	64.3998	64.3998
3400	80.6976	85.9584	93.5912	64.281	64.281	64.281
3401	80.8569	85.6237	93.5691	64.1605	64.1605	64.1605
3402	81.0287	85.5081	93.4121	64.0396	64.0396	64.0396
3403	81.4072	85.9591	94.4046	63.9196	63.9196	63.9196
3404	81.9682	86.6888	95.8336	63.8007	63.8007	63.8007

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ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012202

3405	82.0008	86.0144	94.5497	63.6823	63.6823	63.6823
3406	81.7446	85.0961	93.0454	63.5643	63.5643	63.5643
3407	81.6274	84.8425	92.7052	63.4474	63.4474	63.4474
3408	81.5857	84.674	92.4548	63.3315	63.3315	63.3315
3409	81.6085	84.6315	92.3707	63.2168	63.2168	63.2168
3410	81.6778	84.6655	92.3826	63.1031	63.1031	63.1031
3411	81.7715	84.7259	92.4221	62.9905	62.9905	62.9905
3412	81.6061	84.0585	91.3517	62.8786	62.8786	62.8786
3413	81.2919	83.2556	90.1565	62.7873	62.7873	62.7873
3414	80.8939	82.3899	88.9155	62.6567	62.6567	62.6567
3415	80.6135	81.9995	88.3935	62.547	62.547	62.547
3416	80.4097	81.7179	88.0045	62.4383	62.4383	62.4383
3417	80.2464	81.48	87.6633	62.3305	62.3305	62.3305
3418	80.093	81.2351	87.2831	62.2236	62.2236	62.2236
3419	79.9263	80.9496	86.8117	62.1177	62.1177	62.1177
3420	79.7498	80.6568	86.3368	62.0126	62.0126	62.0126
3421	79.5656	80.3589	85.861	61.9084	61.9084	61.9084
3422	79.4115	80.1418	85.5587	61.8051	61.8051	61.8051
3423	79.3141	80.0374	85.4713	61.7028	61.7028	61.7028
3424	79.2478	79.9641	85.4148	61.6015	61.6015	61.6015
3425	79.1986	79.9082	85.3751	61.5011	61.5011	61.5011
3426	79.1585	79.8618	85.3425	61.4017	61.4017	61.4017
3427	79.1211	79.82	85.3033	61.3033	61.3033	61.3033
3428	79.0855	79.7799	85.2659	61.2058	61.2058	61.2058
3429	79.051	79.7411	85.2297	61.1092	61.1092	61.1092
3430	79.0172	79.7031	85.1943	61.0135	61.0135	61.0135
3431	78.9825	79.6651	85.1521	60.9188	60.9188	60.9188
3432	78.9456	79.626	85.1013	60.8249	60.8249	60.8249
3433	78.9076	79.5858	85.0497	60.732	60.732	60.732
3434	78.869	79.545	84.9978	60.6399	60.6399	60.6399
3435	78.8302	79.5041	84.946	60.5487	60.5487	60.5487
3436	77.6576	78.0965	79.6503	60.4565	60.4565	60.4565
3437	78.9439	77.3827	78.9366	60.3651	60.3651	60.3651
3438	76.4796	76.9184	78.4723	60.2746	60.2746	60.2746
3439	78.1511	76.5899	78.1437	60.185	60.185	60.185
3440	75.8968	76.3356	77.8894	60.0961	60.0961	60.0961
3441	75.6832	76.1221	77.6759	60.0082	60.0082	60.0082
3442	75.4924	75.9313	77.4851	59.921	59.921	59.921
3443	75.3144	75.7533	77.3071	59.8346	59.8346	59.8346
3444	75.1439	75.5828	77.1366	59.7491	59.7491	59.7491
3445	74.978	75.4189	76.9707	59.6643	59.6643	59.6643
3446	74.8152	75.254	76.8078	59.5803	59.5803	59.5803
3447	76.2843	88.4056	78.8678	65.0722	65.0722	85.5607
3448	77.0885	89.3369	79.6287	68.1599	68.1599	88.7408
3449	77.5175	89.815	80.0095	70.0122	70.0122	90.6039
3450	77.7047	89.791	80.1421	71.1588	71.1588	91.506
3451	77.849	89.6698	80.7535	71.8434	71.8434	91.6315
3452	78.1238	89.4914	82.2055	72.1954	72.1954	91.1478
3453	78.3759	89.5315	83.1125	72.3467	72.3467	90.4059
3454	79.0497	90.8266	85.8042	72.3805	72.3805	89.5397
3455	79.5091	91.0562	86.6452	72.3377	72.3377	88.5919
3456	79.8128	90.4044	86.4045	72.2341	72.2341	87.5589
3457	79.8444	89.8833	86.6079	72.0769	72.0769	86.4429
3458	79.9639	90.8886	87.4908	71.881	71.881	85.2903
3459	80.0971	90.7984	87.5749	71.6358	71.6358	84.038
3460	80.1948	90.8174	88.1191	71.3539	71.3539	82.7545

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Handwritten signature in red ink.

2958



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012263

3461	80.3856	90.7729	89.154	71.047	71.047	81.4695
3462	80.672	91.3731	90.2302	70.7199	70.7199	80.1852
3463	80.924	91.8625	91.0658	70.3452	70.3452	78.7518
3464	81.1537	92.2687	91.9433	69.9446	69.9446	77.3246
3465	80.764	89.5852	90.1281	68.9608	68.9608	72.9159
3466	79.8273	86.0539	87.3848	67.5394	67.5394	67.5394
3467	79.3816	86.987	88.1435	66.8037	66.8037	66.8037
3468	77.403	77.403	77.403	66.4192	66.4192	66.4192
3469	76.2997	76.2997	76.2997	66.2175	66.2175	66.2175
3470	75.6828	75.6828	75.6828	66.1102	66.1102	66.1102
3471	75.3362	75.3362	75.3362	66.0517	66.0517	66.0517
3472	75.1397	75.1397	75.1397	66.0183	66.0183	66.0183
3473	75.0267	75.0267	75.0267	65.9979	65.9979	65.9979
3474	74.9601	74.9601	74.9601	65.9842	65.9842	65.9842
3475	74.9192	74.9192	74.9192	65.9739	65.9739	65.9739
3476	74.8926	74.8926	74.8926	65.9655	65.9655	65.9655
3477	74.874	74.874	74.874	65.958	65.958	65.958
3478	74.8598	74.8598	74.8598	65.9509	65.9509	65.9509
3479	74.8481	74.8481	74.8481	65.9442	65.9442	65.9442
3480	74.8377	74.8377	74.8377	65.9375	65.9375	65.9375
3481	74.8282	74.8282	74.8282	65.9309	65.9309	65.9309
3482	74.819	74.819	74.819	65.9244	65.9244	65.9244
3483	74.81	74.81	74.81	65.9178	65.9178	65.9178
3484	74.8012	74.8012	74.8012	65.9113	65.9113	65.9113
3485	76.118	93.9162	95.1305	65.9102	65.9102	65.9102
3486	80.0399	93.3553	95.1964	65.909	65.909	65.909
3487	81.1841	91.7704	94.3407	65.9078	65.9078	65.9078
3488	81.9124	91.4995	94.9218	65.9065	65.9065	65.9065
3489	82.3874	91.0304	95.2878	65.8671	65.8671	65.8671
3490	82.7059	90.5351	95.5876	65.7787	65.7787	65.7787
3491	82.9497	90.0473	95.8273	65.6662	65.6662	65.6662
3492	83.1626	89.6036	96.0493	65.5425	65.5425	65.5425
3493	83.3264	89.0363	96.22	65.4136	65.4136	65.4136
3494	83.4571	88.4066	96.3521	65.2827	65.2827	65.2827
3495	83.6004	88.25	96.1783	65.1516	65.1516	65.1516
3496	83.8019	88.2522	96.279	65.0211	65.0211	65.0211
3497	84.2524	88.8748	97.6103	64.8918	64.8918	64.8918
3498	84.5894	89.024	97.9304	64.7636	64.7636	64.7636
3499	84.4825	88.2163	96.5048	64.636	64.636	64.636
3500	84.2668	87.5603	95.4736	64.5092	64.5092	64.5092
3501	84.1635	87.3255	95.154	64.3835	64.3835	64.3835
3502	84.1236	87.1681	94.9207	64.259	64.259	64.259
3503	84.1507	87.1587	94.8885	64.1357	64.1357	64.1357
3504	84.2138	87.1872	94.8952	64.0136	64.0136	64.0136
3505	84.1787	86.9162	94.4384	63.8925	63.8925	63.8925
3506	83.9268	86.1593	93.2761	63.7721	63.7721	63.7721
3507	83.554	85.3031	92.0318	63.6525	63.6525	63.6525
3508	83.1828	84.6117	91.0651	63.5337	63.5337	63.5337
3509	82.9214	84.2698	90.6118	63.4159	63.4159	63.4159
3510	82.7186	83.9896	90.2245	63.2992	63.2992	63.2992
3511	82.5468	83.7434	89.8754	63.1835	63.1835	63.1835
3512	82.3656	83.4457	89.3968	63.0688	63.0688	63.0688
3513	82.1745	83.1368	88.9035	62.9551	62.9551	62.9551
3514	81.9758	82.823	88.4095	62.8423	62.8423	62.8423
3515	81.7707	82.5054	87.916	62.7305	62.7305	62.7305
3516	81.6372	82.3636	87.7898	62.6197	62.6197	62.6197



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012204

3517	81.5436	82.2833	87.7059	62.51	62.51	62.51
3518	81.4721	82.185	87.6441	62.4014	62.4014	62.4014
3519	81.4129	82.1191	87.5944	62.2937	62.2937	62.2937
3520	81.3587	82.0597	87.5418	62.1871	62.1871	62.1871
3521	81.3066	82.0031	87.4879	62.0816	62.0816	62.0816
3522	81.2558	81.948	87.4354	61.977	61.977	61.977
3523	81.206	81.8939	87.3839	61.8734	61.8734	61.8734
3524	81.157	81.8407	87.3332	61.7708	61.7708	61.7708
3525	81.1053	81.7868	87.2677	61.6692	61.6692	61.6692
3526	81.0522	81.7315	87.2009	61.5685	61.5685	61.5685
3527	80.9985	81.6756	87.1338	61.4688	61.4688	61.4688
3528	80.9446	81.6195	87.0686	61.3701	61.3701	61.3701
3529	80.8906	81.5635	86.9998	61.2722	61.2722	61.2722
3530	79.7035	80.1427	81.6955	61.1735	61.1735	61.1735
3531	78.9757	79.4145	80.9684	61.0758	61.0758	61.0758
3532	78.4969	78.9357	80.4896	60.9789	60.9789	60.9789
3533	78.1813	78.5991	80.2887	60.883	60.883	60.883
3534	77.9702	78.3721	80.2455	60.788	60.788	60.788
3535	77.8227	78.2168	80.2752	60.694	60.694	60.694
3536	77.9904	82.4957	79.743	63.6537	63.6537	75.8465
3537	79.2112	91.4121	81.7677	67.8212	67.8212	88.3676
3538	79.861	92.1511	82.3658	70.2234	70.2234	90.8157
3539	80.1679	92.32	82.616	71.6652	71.6652	92.082
3540	80.3329	92.0945	83.1005	72.5019	72.5019	92.3791
3541	80.6278	92.0042	84.6823	72.9117	72.9117	91.9012
3542	80.8869	92.0392	85.6338	73.0734	73.0734	91.1184
3543	80.7473	88.5956	85.9633	72.0758	72.0758	85.7709
3544	79.3932	80.4	82.3808	68.238	68.238	68.238
3545	78.5579	79.5701	81.4169	68.2464	66.2464	66.2464
3546	78.0098	79.0401	80.7574	65.183	65.183	65.183
3547	77.6221	78.6803	80.2715	64.5863	64.5863	64.5863
3548	77.3323	78.4031	79.938	64.2248	64.2248	64.2248
3549	77.1878	78.1959	80.1443	63.9821	63.9821	63.9821
3550	77.0549	78.0614	80.0518	63.7996	63.7996	63.7996
3551	78.9294	77.9342	79.9867	63.6479	63.6479	63.6479
3552	76.809	77.812	79.8866	63.5122	63.5122	63.5122
3553	76.6938	77.6996	79.8148	63.3852	63.3852	63.3852
3554	76.5231	77.5317	79.4664	63.263	63.263	63.263
3555	76.3675	77.3781	79.3108	63.1438	63.1438	63.1438
3556	76.2206	77.2292	79.1639	63.0267	63.0267	63.0267
3557	76.0788	77.0875	79.0221	62.9111	62.9111	62.9111
3558	75.9403	76.9489	78.8836	62.7969	62.7969	62.7969
3559	75.8039	76.8126	78.7472	62.6838	62.6838	62.6838
3560	75.6692	76.6779	78.6125	62.5718	62.5718	62.5718
3561	77.8114	89.771	85.2842	66.8566	66.8566	83.5973
3562	78.7896	89.9997	85.6524	68.954	68.954	84.8107
3563	79.229	89.702	86.0752	69.916	69.916	84.8113
3564	79.6095	90.1618	86.8304	70.2922	70.2922	84.221
3565	79.9937	90.899	87.5544	70.3553	70.3553	83.303
3566	80.112	90.6459	87.5762	70.2347	70.2347	82.1641
3567	80.2895	90.6146	88.6185	70.0178	70.0178	80.9536
3568	80.5578	91.0947	89.7033	69.7482	69.7482	79.7252
3569	80.8426	91.655	90.6745	69.4269	69.4269	78.3958
3570	81.0925	92.1217	91.5297	69.0573	69.0573	76.9783
3571	81.3102	92.4601	92.3781	68.6511	68.6511	75.5134
3572	80.3968	87.1822	88.2585	67.1867	67.1867	68.6755



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

**ALSTOM**

00012265

3573	79.6732	86.5369	87.7953	66.0996	66.0996	66.0996
3574	79.3463	87.5689	88.6731	65.5367	65.5367	65.5367
3575	77.4233	77.4233	77.4233	65.2416	65.2416	65.2416
3576	76.3508	76.3508	76.3508	65.0863	65.0863	65.0863
3577	75.7511	75.7511	75.7511	65.0031	65.0031	65.0031
3578	75.414	75.414	75.414	64.9571	64.9571	64.9571
3579	75.2228	75.2228	75.2228	64.9304	64.9304	64.9304
3580	75.1127	75.1127	75.1127	64.9136	64.9136	64.9136
3581	75.0476	75.0476	75.0476	64.902	64.902	64.902
3582	75.0077	75.0077	75.0077	64.893	64.893	64.893
3583	74.9816	74.9816	74.9816	64.8854	64.8854	64.8854
3584	74.9632	74.9632	74.9632	64.8784	64.8784	64.8784
3585	74.9492	74.9492	74.9492	64.8719	64.8719	64.8719
3586	74.9375	74.9375	74.9375	64.8655	64.8655	64.8655
3587	74.9272	74.9272	74.9272	64.8593	64.8593	64.8593
3588	74.9176	74.9176	74.9176	64.8531	64.8531	64.8531
3589	74.9084	74.9084	74.9084	64.8469	64.8469	64.8469
3590	74.8994	74.8994	74.8994	64.8407	64.8407	64.8407
3591	74.8906	74.8906	74.8906	64.8346	64.8346	64.8346
3592	78.1917	92.8252	94.2947	64.8336	64.8336	64.8336
3593	80.1078	92.2589	94.3792	64.8326	64.8326	64.8326
3594	81.2574	91.375	94.3443	64.8315	64.8315	64.8315
3595	81.99	91.1129	94.9358	64.8305	64.8305	64.8305
3596	82.4665	90.7279	95.3581	64.7941	64.7941	64.7941
3597	82.7855	90.2332	95.6584	64.7122	64.7122	64.7122
3598	83.0388	89.8284	95.9206	64.6082	64.6082	64.6082
3599	83.248	89.3591	96.1378	64.4936	64.4936	64.4936
3600	83.4012	88.7534	96.2944	64.3742	64.3742	64.3742
3601	83.5386	88.3399	96.2902	64.2531	64.2531	64.2531
3602	83.6878	88.2035	96.1125	64.1317	64.1317	64.1317
3603	84.0165	88.5477	96.9078	64.0111	64.0111	64.0111
3604	84.5413	89.2437	98.3088	63.8916	63.8916	63.8916
3605	84.6193	88.7172	97.3268	63.7727	63.7727	63.7727
3606	84.3778	87.805	95.823	63.6543	63.6543	63.6543
3607	84.2259	87.4568	95.3297	63.5368	63.5368	63.5368
3608	84.1569	87.2599	95.0503	63.4205	63.4205	63.4205
3609	84.1524	87.1796	94.9213	63.3052	63.3052	63.3052
3610	84.1984	87.1899	94.9093	63.191	63.191	63.191
3611	84.2716	87.229	94.927	63.078	63.078	63.078
3612	84.1052	86.5911	93.9112	62.9656	62.9656	62.9656
3613	83.775	85.7566	92.672	62.8539	62.8539	62.8539
3614	83.3512	84.8471	91.3726	62.7429	62.7429	62.7429
3615	83.046	84.4279	90.8164	62.6328	62.6328	62.6328
3616	82.8172	84.1169	90.3916	62.5236	62.5236	62.5236
3617	82.8286	83.8485	90.0129	62.4154	62.4154	62.4154
3618	82.4418	83.552	89.5499	62.3082	62.3082	62.3082
3619	82.2425	83.2253	89.024	62.2018	62.2018	62.2018
3620	82.0338	82.8922	88.4961	62.0963	62.0963	62.0963
3621	81.8176	82.5544	87.9682	61.9917	61.9917	61.9917
3622	81.6771	82.4032	87.8302	61.8881	61.8881	61.8881
3623	81.5801	82.2987	87.7438	61.7854	61.7854	61.7854
3624	81.507	82.2183	87.6813	61.6838	61.6838	61.6838
3625	81.4474	82.1514	87.6317	61.5831	61.5831	61.5831
3626	81.8237	94.0373	84.2818	67.0547	67.0547	87.5373
3627	81.9545	93.8158	84.3875	69.9681	69.9681	90.0632
3628	82.2195	93.7074	85.9058	71.4506	71.4506	90.7296

*[Handwritten signature]*

*[Handwritten mark]*



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00013286

3629	82.4771	93.7159	86.9568	72.1822	72.1822	90.5919
3630	82.9395	94.4201	88.7989	72.5175	72.5175	90.0474
3631	81.6542	84.3929	84.9614	69.9212	69.9212	76.9033
3632	79.8156	79.8839	79.9358	67.0472	67.0472	87.2351
3633	78.8719	79.261	79.5582	65.7478	65.7478	66.817
3634	78.4235	79.1333	79.6719	65.252	65.252	67.2029
3635	78.2537	79.2842	80.0681	65.1732	65.1732	68.0056
3636	78.2448	79.5961	80.6213	65.3166	65.3166	69.0305
3637	77.5539	77.7448	77.8892	64.6416	64.6416	65.1657
3638	77.1672	77.5409	77.8245	64.3654	64.3654	65.3927
3639	76.8767	77.2915	77.6082	64.2068	64.2068	65.3468
3640	76.5465	76.8236	77.0338	63.9956	63.9956	64.7572
3641	76.1914	76.3308	76.4366	63.753	63.753	64.1362
3642	76.244	77.0526	77.6682	64.0031	64.0031	66.2257
3643	76.1856	76.9943	77.6078	64.1016	64.1016	66.3241
3644	76.0677	76.8763	77.4899	64.1241	64.1241	66.3466
3645	75.9181	76.7267	77.3403	64.1086	64.1086	66.3311
3646	75.696	76.3982	76.9309	64.0066	64.0066	65.9366
3647	75.3726	75.8554	76.2216	63.7854	63.7854	65.1122
3648	74.9887	75.2521	75.4518	63.4959	63.4959	64.2196
3649	74.5685	74.6104	74.6436	63.1639	63.1639	63.2845
3650	74.3467	74.5467	74.8292	62.9145	62.9145	62.9145
3651	74.3007	74.7508	75.3884	62.7334	62.7334	62.7334
3652	74.359	75.0591	76.0477	62.5872	62.5872	62.5872
3653	73.8523	73.8769	73.9116	62.4583	62.4583	62.4583
3654	73.5391	73.6569	73.8232	62.339	62.339	62.339
3655	73.3351	73.5461	73.8439	62.2251	62.2251	62.2251
3656	73.0946	73.2523	73.4751	62.1143	62.1143	62.1143
3657	73.6435	74.6539	76.8332	62.0068	62.0068	62.0068
3658	75.6279	77.919	85.0827	61.9035	61.9035	61.9035
3659	76.4659	78.2311	84.9728	61.801	61.801	61.801
3660	76.7582	78.1821	84.6286	61.6994	61.6994	61.6994
3661	77.1532	88.3984	81.6133	66.518	66.518	84.9543
3662	76.4647	81.4286	80.2096	67.0197	67.0197	78.1377
3663	74.6622	74.7087	74.7824	64.6328	64.6328	64.6328
3664	73.5862	73.6326	73.7063	63.3797	63.3797	63.3797
3665	72.9048	72.9512	73.0249	62.6965	62.6965	62.6965
3666	72.4381	72.4846	72.5583	62.3002	62.3002	62.3002
3667	72.0887	72.1351	72.2089	62.0484	62.0484	62.0484
3668	72.5083	73.4615	75.1717	61.8709	61.8709	61.8709
3669	72.6838	73.6257	75.3708	61.7305	61.7305	61.7305
3670	72.7277	73.6582	75.4377	61.6094	61.6094	61.6094
3671	72.7007	73.6199	75.4341	61.4984	61.4984	61.4984
3672	72.6127	73.5762	75.2551	61.3929	61.3929	61.3929
3673	72.5096	73.473	75.152	61.2906	61.2906	61.2906
3674	72.3986	73.3621	75.041	61.1904	61.1904	61.1904
3675	72.2838	73.2473	74.9262	61.0918	61.0918	61.0918
3676	72.1673	73.1308	74.8097	60.9943	60.9943	60.9943
3677	72.082	72.9975	74.7617	60.8979	60.8979	60.8979
3678	71.9909	72.8818	74.6593	60.8026	60.8026	60.8026
3679	71.9494	72.8142	74.5973	60.7082	60.7082	60.7082
3680	71.9326	72.7816	75.18	60.6149	60.6149	60.6149
3681	71.9367	72.7811	75.3995	60.5225	60.5225	60.5225
3682	71.9597	72.8186	75.6487	60.4311	60.4311	60.4311
3683	71.9488	72.8111	75.6883	60.3405	60.3405	60.3405
3684	71.9626	72.8467	75.8956	60.2509	60.2509	60.2509

Handwritten signature or initials in blue ink.

Handwritten mark or signature in red ink.



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012267



3685	71.8954	72.9028	76.1248	60.1622	60.1622	60.1622
3686	72.04	72.9716	76.3728	60.0745	60.0745	60.0745
3687	72.0268	72.9638	76.3191	59.9875	59.9875	59.9875
3688	73.0773	74.6944	81.3173	59.903	59.903	59.903
3689	73.5794	75.0174	81.4834	59.8192	59.8192	59.8192
3690	73.8429	75.2317	81.6295	59.7361	59.7361	59.7361
3691	72.9684	73.7362	76.9557	59.6523	59.6523	59.6523
3692	72.4012	73.1582	76.1857	59.5691	59.5691	59.5691
3693	72.0008	72.7521	75.6001	59.4866	59.4866	59.4866
3694	71.6924	72.4423	75.0952	59.4048	59.4048	59.4048
3695	71.5084	72.2586	75.0019	59.3238	59.3238	59.3238
3696	71.3263	72.0771	74.6546	59.2435	59.2435	59.2435
3697	71.1474	71.9072	74.3219	59.1639	59.1639	59.1639
3698	70.9716	71.7491	74.0005	59.085	59.085	59.085
3699	70.7993	71.6023	73.6957	59.0088	59.0088	59.0088
3700	70.622	71.4807	73.355	58.9292	58.9292	58.9292
3701	70.4781	71.3368	73.2111	58.8524	58.8524	58.8524
3702	70.3528	71.2115	73.0857	58.7763	58.7763	58.7763
3703	70.2378	71.0965	72.9707	58.7009	58.7009	58.7009
3704	71.0702	78.0797	74.8191	62.2276	62.2276	76.3165
3705	72.4978	83.9469	78.262	65.2316	65.2316	82.8009
3706	73.7342	85.6155	81.1433	66.7025	66.7025	83.351
3707	74.2233	85.3157	80.9903	67.384	67.384	83.1018
3708	74.4335	84.7958	81.298	67.644	67.644	82.3917
3709	74.7633	85.4218	82.0715	67.6791	67.6791	81.4597
3710	75.0736	85.9194	82.6101	67.579	67.579	80.3674
3711	75.2021	85.7029	82.8037	67.3885	67.3885	79.1601
3712	75.4021	85.6934	83.8709	67.1481	67.1481	77.9214
3713	75.711	86.3005	84.989	66.8759	66.8759	76.6964
3714	76.0187	86.8707	85.9479	66.5603	66.5603	75.3526
3715	76.2961	87.3524	86.8447	66.2065	66.2065	73.9584
3716	76.3554	86.7668	86.8816	65.6442	65.6442	71.5847
3717	75.3614	81.3885	82.6837	64.1008	64.1008	64.5676
3718	74.7813	81.8739	83.1064	63.1864	63.1864	63.1864
3719	74.5347	82.9861	84.0644	62.713	62.713	62.713
3720	72.653	72.653	72.653	62.4646	62.4646	62.4646
3721	71.8042	71.6042	71.8042	62.3337	62.3337	62.3337
3722	71.0181	71.0181	71.0181	62.2636	62.2636	62.2636
3723	70.6891	70.6891	70.6891	62.2247	62.2247	62.2247
3724	70.503	70.503	70.503	62.2021	62.2021	62.2021
3725	70.3962	70.3962	70.3962	62.1878	62.1878	62.1878
3726	70.3336	70.3336	70.3336	62.1779	62.1779	62.1779
3727	70.2956	70.2956	70.2956	62.1701	62.1701	62.1701
3728	70.271	70.271	70.271	62.1635	62.1635	62.1635
3729	70.2541	70.2541	70.2541	62.1576	62.1576	62.1576
3730	70.2414	70.2414	70.2414	62.1519	62.1519	62.1519
3731	70.2311	70.2311	70.2311	62.1464	62.1464	62.1464
3732	70.222	70.222	70.222	62.1409	62.1409	62.1409
3733	70.2137	70.2137	70.2137	62.1355	62.1355	62.1355
3734	70.2057	70.2057	70.2057	62.1302	62.1302	62.1302
3735	70.198	70.198	70.198	62.1248	62.1248	62.1248
3736	70.1905	70.1905	70.1905	62.1195	62.1195	62.1195
3737	73.4944	87.7103	89.3241	62.1191	62.1191	62.1191
3738	75.4086	87.0533	89.3161	62.1187	62.1187	62.1187
3739	76.5589	86.5083	89.6217	62.1183	62.1183	62.1183
3740	77.291	86.2416	90.2067	62.1179	62.1179	62.1179



Handwritten signature in blue ink.

Red handwritten mark or signature.



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012268

3741	77.7795	85.9093	90.6741	62.0889	62.0889	62.0889
3742	78.1219	85.4576	90.9961	62.0232	62.0232	62.0232
3743	78.4034	85.0825	91.2868	61.9396	61.9396	61.9396
3744	78.6364	84.6196	91.5267	61.8475	61.8475	61.8475
3745	78.818	84.0454	91.7137	61.7515	61.7515	61.7515
3746	78.9913	83.7444	91.6878	61.6541	61.6541	61.6541
3747	79.1748	83.6425	91.5445	61.5565	61.5565	61.5565
3748	79.5814	84.1416	92.621	61.4596	61.4596	61.4596
3749	80.1465	84.8518	93.9969	61.3637	61.3637	61.3637
3750	80.1728	84.1527	92.6581	61.268	61.268	61.268
3751	79.9337	83.276	91.2208	61.1727	61.1727	61.1727
3752	79.8318	83.0385	90.8959	61.0782	61.0782	61.0782
3753	79.8036	82.882	90.6564	60.9846	60.9846	60.9846
3754	79.8426	82.8617	90.5984	60.8918	60.8918	60.8918
3755	79.9264	82.9091	90.6231	60.8	60.8	60.8
3756	79.9807	82.8358	90.4524	60.7089	60.7089	60.7089
3757	79.7749	82.088	89.2696	60.6183	60.6183	60.6183
3758	79.4206	81.2077	87.9671	60.5282	60.5282	60.5282
3759	79.0525	80.4796	86.9305	60.4386	60.4386	60.4386
3760	78.7992	80.136	86.4621	60.3498	60.3498	60.3498
3761	78.6064	79.8554	86.0599	60.2618	60.2618	60.2618
3762	78.4346	79.5806	85.6347	60.1744	60.1744	60.1744
3763	78.2497	79.2567	85.0908	60.0878	60.0878	60.0878
3764	78.0547	78.924	84.5451	60.0019	60.0019	60.0019
3765	77.8515	78.5872	83.9992	59.9166	59.9166	59.9166
3766	77.7324	78.4577	83.8866	59.8322	59.8322	59.8322
3767	77.6605	78.3775	83.8265	59.7485	59.7485	59.7485
3768	77.6145	78.3235	83.792	59.6657	59.6657	59.6657
3769	77.5815	78.2835	83.765	59.5837	59.5837	59.5837
3770	77.5637	78.2502	83.736	59.5024	59.5024	59.5024
3771	77.5288	78.22	83.708	59.4219	59.4219	59.4219
3772	77.5056	78.1917	83.6827	59.3422	59.3422	59.3422
3773	77.4814	78.1636	83.6486	59.2633	59.2633	59.2633
3774	77.4547	78.1342	83.6049	59.185	59.185	59.185
3775	77.4267	78.1035	83.5602	59.1076	59.1076	59.1076
3776	77.889	90.0618	80.4549	64.6161	64.6161	85.1421
3777	78.1407	90.4182	80.6609	67.7089	67.7089	86.3
3778	78.2675	90.581	80.7419	69.5586	69.5586	90.1481
3779	78.2723	90.2431	80.691	70.6677	70.6677	90.8903
3780	78.3991	90.0107	81.6704	71.297	71.297	90.8463
3781	78.629	89.9411	82.8822	71.6214	71.6214	90.3399
3782	78.921	90.1517	84.0253	71.7626	71.7626	89.6051
3783	79.6802	91.5991	86.9043	71.7943	71.7943	88.7508
3784	79.9795	91.3598	86.9809	71.7515	71.7515	87.809
3785	80.0345	90.6774	86.8524	71.646	71.646	86.768
3786	80.1157	90.4995	87.1932	71.4882	71.4882	85.6521
3787	80.4368	91.4377	88.0364	71.2897	71.2897	84.4932
3788	80.5099	91.1293	87.9556	71.0395	71.0395	83.2262
3789	80.6189	90.9976	88.7258	70.7572	70.7572	81.9482
3790	80.8302	91.2849	89.7685	70.4522	70.4522	80.674
3791	81.1069	91.8581	90.7883	70.1203	70.1203	79.362
3792	81.3525	92.3401	91.6188	69.7421	69.7421	77.9257
3793	81.5767	92.7258	92.5064	69.3423	69.3423	76.5071
3794	80.9455	88.8405	89.6328	68.1399	68.1399	70.9387
3795	80.1013	86.8149	87.9131	66.8681	66.8681	66.8681
3796	79.7071	87.5795	88.7235	66.2097	66.2097	66.2097



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls



00012269

3797	77.7524	77.7524	77.7524	65.8655	65.8655	65.8655
3798	76.6623	76.6623	76.6623	65.6847	65.6847	65.6847
3799	76.0527	76.0527	76.0527	65.5884	65.5884	65.5884
3800	75.7101	75.7101	75.7101	65.5357	65.5357	65.5357
3801	75.5158	75.5158	75.5158	65.5055	65.5055	65.5055
3802	75.404	75.404	75.404	65.4869	65.4869	65.4869
3803	75.3379	75.3379	75.3379	65.4743	65.4743	65.4743
3804	75.2974	75.2974	75.2974	65.4648	65.4648	65.4648
3805	75.2709	75.2709	75.2709	65.4569	65.4569	65.4569
3806	75.2523	75.2523	75.2523	65.4499	65.4499	65.4499
3807	75.2381	75.2381	75.2381	65.4433	65.4433	65.4433
3808	75.2263	75.2263	75.2263	65.4369	65.4369	65.4369
3809	75.2159	75.2159	75.2159	65.4306	65.4306	65.4306
3810	75.2062	75.2062	75.2062	65.4243	65.4243	65.4243
3811	75.1969	75.1969	75.1969	65.4182	65.4182	65.4182
3812	75.1879	75.1879	75.1879	65.412	65.412	65.412
3813	75.179	75.179	75.179	65.4058	65.4058	65.4058
3814	78.4847	93.7578	95.0596	65.4045	65.4045	65.4045
3815	80.4036	93.1942	95.1469	65.4032	65.4032	65.4032
3816	81.5518	91.9269	94.6773	65.4019	65.4019	65.4019
3817	82.2834	91.683	95.2862	65.4006	65.4006	65.4006
3818	82.7587	91.2298	95.6552	65.3824	65.3824	65.3824
3819	83.0762	90.7335	95.9639	65.2769	65.2769	65.2769
3820	83.3235	90.2861	96.2067	65.1683	65.1683	65.1683
3821	83.5362	89.8387	96.4249	65.0487	65.0487	65.0487
3822	83.6923	89.24	96.5846	64.9242	64.9242	64.9242
3823	83.821	88.6959	96.6569	64.7978	64.7978	64.7978
3824	83.9644	88.5537	96.4733	64.6711	64.6711	64.6711
3825	84.2208	88.7076	96.8848	64.545	64.545	64.545
3826	84.7025	89.3809	98.2452	64.4202	64.4202	64.4202
3827	84.9194	89.2004	97.9715	64.2962	64.2962	64.2962
3828	84.7491	88.3431	96.5083	64.1728	64.1728	64.1728
3829	84.5603	87.8254	95.7204	64.0503	64.0503	64.0503
3830	84.4705	87.6057	95.4169	63.9289	63.9289	63.9289
3831	84.4445	87.4811	95.2288	63.8086	63.8086	63.8086
3832	84.478	87.4786	95.2036	63.6895	63.6895	63.6895
3833	84.5435	87.5096	95.213	63.5716	63.5716	63.5716
3834	84.4452	87.0658	94.4941	63.4545	63.4545	63.4545
3835	84.1619	86.2912	93.3262	63.3382	63.3382	63.3382
3836	83.7842	85.4604	92.1307	63.2226	63.2226	63.2226
3837	83.4427	84.8669	91.3137	63.1079	63.1079	63.1079
3838	83.2044	84.5595	90.9108	62.9942	62.9942	62.9942
3839	83.0239	84.3159	90.58	62.8816	62.8816	62.8816
3840	82.8766	84.1115	90.2967	62.77	62.77	62.77
3841	82.7469	83.9265	90.0332	62.6593	62.6593	62.6593
3842	82.6133	83.7158	89.702	62.5497	62.5497	62.5497
3843	82.4801	83.5135	89.3915	62.441	62.441	62.441
3844	82.3464	83.3131	89.0867	62.3333	62.3333	62.3333
3845	82.2111	83.1127	88.7843	62.2265	62.2265	62.2265
3846	82.0738	82.9118	88.4838	62.1208	62.1208	62.1208
3847	81.9343	82.71	88.1847	62.0159	62.0159	62.0159
3848	81.8057	82.5382	87.9499	61.912	61.912	61.912
3849	81.7116	82.4402	87.8612	61.8091	61.8091	61.8091
3850	81.6364	82.3612	87.7914	61.7072	61.7072	61.7072
3851	81.5718	82.293	87.7321	61.6062	61.6062	61.6062
3852	81.5134	82.2308	87.6789	61.5062	61.5062	61.5062



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012270

3853	81.4592	82.1721	87.6312	61.4072	61.4072	61.4072
3854	81.4085	82.1159	87.5882	61.3091	61.3091	61.3091
3855	81.3593	82.0613	87.5427	61.2119	61.2119	61.2119
3856	81.3101	82.007	87.4915	61.1157	61.1157	61.1157
3857	81.2616	81.9527	87.4407	61.0204	61.0204	61.0204
3858	81.214	81.8986	87.3908	60.926	60.926	60.926
3859	81.1625	81.8428	87.318	60.8325	60.8325	60.8325
3860	81.1082	81.7847	87.2397	60.7398	60.7398	60.7398
3861	80.2222	80.8285	83.3153	60.6469	60.6469	60.6469
3862	79.5065	81.9112	81.1813	62.5697	62.5697	70.9856
3863	79.0412	81.4458	80.7159	63.6128	63.6128	72.0087
3864	78.7121	81.1168	80.3869	64.2133	64.2133	72.6092
3865	78.4576	80.8622	80.1323	64.5907	64.5907	72.9896
3866	78.2439	80.6486	79.9187	64.8553	64.8553	73.2513
3867	78.053	80.4577	79.7278	65.0626	65.0626	73.4585
3868	77.8324	79.8763	79.5272	65.023	65.023	72.5839
3869	77.5982	79.2604	79.3381	64.8098	64.8098	71.3778
3870	77.3693	78.7003	79.1838	64.4926	64.4926	70.0473
3871	76.8369	77.3812	77.6928	63.6061	63.6061	65.9296
3872	76.6559	77.2747	78.2158	62.606	62.606	62.606
3873	76.533	77.0081	78.3793	62.0531	62.0531	62.0531
3874	76.4202	76.8591	78.4129	61.7252	61.7252	61.7252
3875	76.2812	76.72	78.2739	61.5108	61.5108	61.5108
3876	76.1576	76.574	78.2719	61.3539	61.3539	61.3539
3877	76.0195	76.4328	78.1511	61.2264	61.2264	61.2264
3878	75.8746	76.286	78.0243	61.1141	61.1141	61.1141
3879	75.7107	76.1298	77.8118	61.0099	61.0099	61.0099
3880	75.5481	75.967	77.6492	60.9101	60.9101	60.9101
3881	75.3867	75.8058	77.4878	60.8131	60.8131	60.8131
3882	75.2264	75.6454	77.3276	60.7179	60.7179	60.7179
3883	75.0674	75.4863	77.1685	60.624	60.624	60.624
3884	74.9095	75.3284	77.0106	60.5312	60.5312	60.5312
3885	74.7528	75.1717	76.8539	60.4394	60.4394	60.4394
3886	74.5972	75.0161	76.6983	60.3485	60.3485	60.3485
3887	75.1891	81.9041	77.1297	64.1818	64.1818	79.3663
3888	76.3323	88.5405	78.8862	67.9739	67.9739	88.5256
3889	76.9505	89.2402	79.4559	70.1869	70.1869	90.7792
3890	77.2572	89.4428	79.7108	71.5462	71.5462	91.9987
3891	77.3902	89.2184	79.941	72.3765	72.3765	92.395
3892	77.6745	89.1237	81.4909	72.8067	72.8067	92.001
3893	77.9475	89.1628	82.5007	73.0024	73.0024	91.3143
3894	78.4941	90.0651	84.6243	73.061	73.061	90.479
3895	79.1115	90.8829	86.4312	73.0336	73.0336	89.5524
3896	79.266	90.272	86.0237	72.9433	72.9433	88.5496
3897	79.284	89.5702	86.1811	72.794	72.794	87.4401
3898	79.5308	90.2561	86.8931	72.6029	72.6029	86.292
3899	79.7434	90.5557	87.2663	72.3663	72.3663	85.0653
3900	79.8223	90.3059	87.4946	72.0868	72.0868	83.7771
3901	79.9829	90.277	88.5135	71.7784	71.7784	82.4784
3902	80.2584	90.8718	89.5961	71.4538	71.4538	81.2037
3903	80.5263	91.3954	90.4977	71.0873	71.0873	79.8032
3904	80.7871	91.8349	91.3629	70.6873	70.6873	78.3849
3905	80.7127	90.8146	91.0127	70.0072	70.0072	75.5812
3906	79.6384	85.3582	86.7348	68.3784	68.3784	68.459
3907	79.0829	86.2714	87.493	67.4978	67.4978	67.4978
3908	77.0499	77.0499	77.0499	67.0387	67.0387	67.0387

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ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012271

3909	75.9164	75.9164	75.9164	66.7986	66.7986	66.7986
3910	75.2828	75.2828	75.2828	66.6715	66.6715	66.6715
3911	74.9269	74.9269	74.9269	66.6028	66.6028	66.6028
3912	74.7254	74.7254	74.7254	66.5643	66.5643	66.5643
3913	74.6096	74.6096	74.6096	66.5413	66.5413	66.5413
3914	74.5414	74.5414	74.5414	66.5263	66.5263	66.5263
3915	74.4998	74.4998	74.4998	66.5155	66.5155	66.5155
3916	74.4728	74.4728	74.4728	66.5068	66.5068	66.5068
3917	74.4541	74.4541	74.4541	66.4993	66.4993	66.4993
3918	74.4398	74.4398	74.4398	66.4923	66.4923	66.4923
3919	74.4281	74.4281	74.4281	66.4856	66.4856	66.4856
3920	74.4178	74.4178	74.4178	66.479	66.479	66.479
3921	74.4083	74.4083	74.4083	66.4726	66.4726	66.4726
3922	74.3992	74.3992	74.3992	66.4662	66.4662	66.4662
3923	74.3904	74.3904	74.3904	66.4598	66.4598	66.4598
3924	74.3817	74.3817	74.3817	66.4534	66.4534	66.4534
3925	77.705	94.2284	95.2597	66.4518	66.4518	66.4518
3926	79.6262	93.6664	95.2914	66.4502	66.4502	66.4502
3927	80.7754	92.1833	94.5059	66.4485	66.4485	66.4485
3928	81.5024	91.3833	94.5575	66.4468	66.4468	66.4468
3929	81.9779	90.8635	94.8899	66.4057	66.4057	66.4057
3930	82.2966	90.3635	95.1838	66.3138	66.3138	66.3138
3931	82.5376	89.8326	95.4179	66.1971	66.1971	66.1971
3932	82.7491	89.3838	95.6351	66.0686	66.0686	66.0686
3933	82.9266	88.8563	95.8172	65.9349	65.9349	65.9349
3934	83.0634	88.2344	95.9574	65.7992	65.7992	65.7992
3935	83.2018	87.9348	95.8753	65.6631	65.6631	65.6631
3936	83.3527	87.8003	95.8994	65.5276	65.5276	65.5276
3937	83.7466	88.3189	96.8483	65.3933	65.3933	65.3933
3938	84.2448	88.8968	97.9947	65.2604	65.2604	65.2604
3939	84.2226	88.1544	96.6174	65.1281	65.1281	65.1281
3940	83.9656	87.2989	95.238	64.9966	64.9966	64.9966
3941	83.841	87.0406	94.8934	64.8683	64.8683	64.8683
3942	83.7879	86.8812	94.8324	64.7372	64.7372	64.7372
3943	83.8017	86.8197	94.5557	64.6093	64.6093	64.6093
3944	83.8589	86.8408	94.5543	64.4827	64.4827	64.4827
3945	83.8804	86.7258	94.3344	64.3572	64.3572	64.3572
3946	83.1283	90.9269	88.388	67.8828	67.8828	81.2612
3947	80.7063	80.8976	81.0428	66.1693	66.1693	66.6951
3948	79.3963	79.807	80.1187	65.492	65.492	66.6209
3949	78.6964	79.3266	79.8047	65.2438	65.2438	68.9758
3950	78.3344	79.184	79.8287	65.2201	65.2201	67.5553
3951	78.1626	79.2317	80.0429	65.3181	65.3181	68.2565
3952	77.6197	77.9075	78.3139	64.6665	64.6665	64.6665
3953	77.329	77.7737	78.4018	64.2771	64.2771	64.2771
3954	77.1818	77.7833	78.6326	64.0201	64.0201	64.0201
3955	77.1188	77.8772	78.948	63.8302	63.8302	63.8302
3956	77.108	78.0232	79.3155	63.6747	63.6747	63.6747
3957	76.5513	76.7723	77.0845	63.5364	63.5364	63.5364
3958	76.147	76.368	76.6802	63.4075	63.4075	63.4075
3959	75.8261	76.0471	76.3592	63.2839	63.2839	63.2839
3960	75.5511	75.7721	76.0843	63.1635	63.1635	63.1635
3961	75.3019	75.5228	75.835	63.0453	63.0453	63.0453
3962	75.0671	75.2891	75.6003	62.9288	62.9288	62.9288
3963	74.8411	75.0621	75.3742	62.8135	62.8135	62.8135
3964	74.6204	74.8415	75.1538	62.6995	62.6995	62.6995

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**ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS**

INVERTER TEMPERAT-EBRCL13.xls

**ALSTOM**

**00012272**

3965	74.4035	74.6245	74.9368	62.5866	62.5866	62.5866
3966	74.1891	74.4102	74.7223	62.4748	62.4748	62.4748
3967	73.977	74.198	74.5102	62.364	62.364	62.364
3968	73.7667	73.9877	74.2998	62.2543	62.2543	62.2543
3969	73.558	73.7791	74.0912	62.1456	62.1456	62.1456
3970	73.351	73.5721	73.8842	62.0379	62.0379	62.0379
3971	73.1455	73.3666	73.8787	61.9313	61.9313	61.9313
3972	72.9416	73.1626	73.4747	61.8256	61.8256	61.8256
3973	72.8311	72.894	72.7828	61.7207	61.7207	61.7207
3974	72.8011	73.1303	73.5318	61.9535	61.9535	63.408
3975	72.7483	73.5183	74.8057	61.7043	61.7043	61.7043
3976	72.7586	73.5286	74.6159	61.529	61.529	61.529
3977	72.695	73.465	74.5523	61.3913	61.3913	61.3913
3978	72.648	73.5003	74.7037	61.273	61.273	61.273
3979	72.1268	72.3479	72.66	61.1643	61.1643	61.1643
3980	71.7562	71.9772	72.2894	61.0611	61.0611	61.0611
3981	71.4679	71.6889	72.001	60.9612	60.9612	60.9612
3982	71.2248	71.4459	71.758	60.8634	60.8634	60.8634
3983	71.0069	71.228	71.5401	60.7671	60.7671	60.7671
3984	70.8033	71.0244	71.3385	60.6719	60.6719	60.6719
3985	70.8081	70.8291	71.1413	60.5778	60.5778	60.5778
3986	70.418	70.839	70.9511	60.4846	60.4846	60.4846
3987	70.2312	70.4523	70.7644	60.3924	60.3924	60.3924
3988	70.047	70.268	70.5802	60.301	60.301	60.301
3989	69.8646	70.0857	70.3976	60.2104	60.2104	60.2104
3990	69.8839	69.905	70.2171	60.1207	60.1207	60.1207
3991	69.6047	69.7257	70.0379	60.0318	60.0318	60.0318
3992	69.3268	69.5479	69.86	59.9438	59.9438	59.9438
3993	69.1503	69.3714	69.6835	59.8566	59.8566	59.8566
3994	68.9751	69.1961	69.5083	59.7702	59.7702	59.7702
3995	68.9406	69.4925	69.9113	60.0355	60.0355	61.5525
3996	68.9235	69.6131	70.1363	60.236	60.236	62.1313
3997	68.9203	69.7475	70.3751	60.4094	60.4094	62.6831
3998	68.9289	69.8938	70.6269	60.5748	60.5748	63.2268
3999	68.9252	69.9835	70.7864	60.7133	60.7133	63.622
4000	70.8962	73.2889	80.1921	60.1128	60.1128	60.1128
4001	71.8907	73.8689	80.7815	59.7713	59.7713	59.7713
4002	72.1981	73.6531	80.1427	59.5599	59.5599	59.5599
4003	72.3284	73.6875	80.0445	59.4144	59.4144	59.4144
4004	72.3618	73.6295	79.8599	59.3024	59.3024	59.3024
4005	72.34	73.5187	79.6188	59.2074	59.2074	59.2074
4006	72.2802	73.3016	79.192	59.1213	59.1213	59.1213
4007	72.1496	73.0644	78.7566	59.04	59.04	59.04
4008	72.0225	72.8179	78.3232	58.9614	58.9614	58.9614
4009	71.9228	72.6531	78.07	58.8846	58.8846	58.8846
4010	71.8791	72.6026	78.0356	58.809	58.809	58.809
4011	71.8657	72.5829	78.0316	58.7343	58.7343	58.7343
4012	71.8686	72.58	78.0427	58.6606	58.6606	58.6606
4013	71.8803	72.5861	78.0623	58.5875	58.5875	58.5875
4014	71.8952	72.5967	78.0785	58.5153	58.5153	58.5153
4015	71.9111	72.6089	78.0929	58.4437	58.4437	58.4437
4016	71.9275	72.6216	78.1079	58.3728	58.3728	58.3728
4017	71.9444	72.6348	78.1232	58.3026	58.3026	58.3026
4018	71.9614	72.6482	78.1388	58.233	58.233	58.233
4019	71.9782	72.6616	78.1525	58.1642	58.1642	58.1642
4020	71.9923	72.6737	78.1545	58.0959	58.0959	58.0959



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

ALSTOM

00012273

4021	72.0049	72.6844	78.1551	58.0284	58.0284	58.0284
4022	72.5049	84.6804	75.07	63.5472	63.5472	84.0751
4023	72.7927	85.0737	75.3086	66.6473	66.6473	87.2402
4024	72.9451	85.204	75.4115	68.4893	68.4893	89.0193
4025	72.9777	84.8735	75.3842	69.5904	69.5904	89.7326
4026	73.2032	84.7191	76.7959	70.1778	70.1778	89.5178
4027	73.4784	84.7299	77.9191	70.468	70.468	88.9308
4028	73.963	85.4165	79.7386	70.5865	70.5865	88.1513
4029	74.6889	86.5852	82.1103	70.603	70.603	87.2691
4030	74.9066	86.0333	81.7018	70.5496	70.5496	86.3078
4031	74.9643	85.3673	81.8221	70.4336	70.4336	85.2356
4032	75.1868	85.7998	82.4576	70.2719	70.2719	84.116
4033	75.4659	86.3398	83.0138	70.0659	70.0659	82.9297
4034	75.5599	86.0774	83.0921	69.813	69.813	81.6643
4035	75.7399	86.0458	84.1365	69.5304	69.5304	80.388
4036	76.0298	86.5912	85.237	69.2304	69.2304	79.1345
4037	76.3342	87.1648	86.2108	68.8929	68.8929	77.7805
4038	76.6091	87.8507	87.0972	68.5173	68.5173	76.3602
4039	76.769	87.5825	87.5891	68.0298	68.0298	74.4722
4040	75.834	82.2633	83.4502	66.5207	66.5207	67.4896
4041	75.1877	82.1557	83.4023	65.5062	65.5062	65.5062
4042	74.9043	83.2311	84.3235	64.9808	64.9808	64.9808
4043	73.0042	73.0042	73.0042	64.7054	64.7054	64.7054
4044	71.945	71.945	71.945	64.5605	64.5605	64.5605
4045	71.3531	71.3531	71.3531	64.4828	64.4828	64.4828
4046	71.0209	71.0209	71.0209	64.44	64.44	64.44
4047	70.833	70.833	70.833	64.4151	64.4151	64.4151
4048	70.7252	70.7252	70.7252	64.3994	64.3994	64.3994
4049	70.6619	70.6619	70.6619	64.3886	64.3886	64.3886
4050	70.6234	70.6234	70.6234	64.3802	64.3802	64.3802
4051	70.5987	70.5987	70.5987	64.3731	64.3731	64.3731
4052	70.5816	70.5816	70.5816	64.3686	64.3686	64.3686
4053	70.5688	70.5688	70.5688	64.3605	64.3605	64.3605
4054	70.5583	70.5583	70.5583	64.3546	64.3546	64.3546
4055	70.5492	70.5492	70.5492	64.3488	64.3488	64.3488
4056	70.5407	70.5407	70.5407	64.343	64.343	64.343
4057	70.5327	70.5327	70.5327	64.3372	64.3372	64.3372
4058	70.5249	70.5249	70.5249	64.3315	64.3315	64.3315
4059	70.5172	70.5172	70.5172	64.3258	64.3258	64.3258
4060	73.8231	88.2668	89.823	64.3246	64.3246	64.3246
4061	75.7391	87.6918	89.8787	64.3234	64.3234	64.3234
4062	76.8884	86.9294	89.9647	64.3222	64.3222	64.3222
4063	77.8199	86.6821	90.5491	64.321	64.321	64.321
4064	78.1055	86.3044	90.9956	64.2856	64.2856	64.2856
4065	78.4451	85.8411	91.3185	64.2063	64.2063	64.2063
4066	78.7239	85.4633	91.6065	64.1055	64.1055	64.1055
4067	78.9581	85.011	91.8481	63.9945	63.9945	63.9945
4068	79.1387	84.4328	92.0322	63.879	63.879	63.879
4069	79.3078	84.0871	92.0343	63.7817	63.7817	63.7817
4070	79.4879	83.9818	91.9878	63.6442	63.6442	63.6442
4071	79.8674	84.4119	92.8263	63.5273	63.5273	63.5273
4072	80.4336	85.148	94.2649	63.4116	63.4116	63.4116
4073	80.5001	84.8443	93.1065	63.2964	63.2964	63.2964
4074	80.2668	83.845	91.8198	63.1818	63.1818	63.1818
4075	80.1545	83.3752	91.2417	63.0681	63.0681	63.0681
4076	80.1202	83.2137	90.998	62.9554	62.9554	62.9554

Handwritten signature and initials in blue and red ink.



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012274

4077	80.1504	83.1747	90.9148	62.8438	62.8438	62.8438
4078	80.2283	83.2171	90.9348	62.7333	62.7333	62.7333
4079	80.3317	83.2865	90.9829	62.6238	62.6238	62.6238
4080	80.1732	82.6197	89.9082	62.5151	62.5151	62.5151
4081	79.8597	81.8034	88.6883	62.407	62.407	62.407
4082	79.4577	80.9179	87.4147	62.2996	62.2996	62.2996
4083	79.1903	80.5659	86.9455	62.1931	62.1931	62.1931
4084	78.9945	80.2879	86.554	62.0875	62.0875	62.0875
4085	78.836	80.05	86.206	61.9829	61.9829	61.9829
4086	78.6756	79.7758	85.7584	61.8792	61.8792	61.8792
4087	78.5026	79.4757	85.2593	61.7763	61.7763	61.7763
4088	78.3201	79.1691	84.7583	61.6744	61.6744	61.6744
4089	78.1344	78.8676	84.2774	61.5732	61.5732	61.5732
4090	78.0244	78.75	84.1784	61.4731	61.4731	61.4731
4091	77.956	78.674	84.1206	61.3739	61.3739	61.3739
4092	77.9106	78.6209	84.0863	61.2756	61.2756	61.2756
4093	77.8776	78.5803	84.0613	61.1783	61.1783	61.1783
4094	78.2466	90.3137	80.651	66.6024	66.6024	66.9281
4095	78.4836	90.2185	81.3409	69.453	69.453	89.2719
4096	78.8016	90.1999	82.7858	70.9254	70.9254	90.0089
4097	79.0644	90.2763	83.6273	71.677	71.677	89.973
4098	79.5394	91.0304	85.4302	72.0535	72.0535	89.5703
4099	78.5818	82.9132	82.485	70.0816	70.0816	79.3538
4100	77.6816	80.2439	80.9802	68.4847	68.4847	75.1314
4101	77.1384	79.663	80.4111	67.6994	67.6994	74.2765
4102	76.8151	79.433	80.1023	67.3818	67.3818	74.1313
4103	76.5679	79.0578	79.8353	67.1978	67.1978	73.7108
4104	76.38	78.8368	79.6422	67.1213	67.1213	73.5731
4105	76.1941	78.4399	79.4421	67.0072	67.0072	73.0389
4106	76.0415	78.2591	79.294	66.9569	66.9569	72.9223
4107	75.907	78.0968	79.1641	66.9375	66.9375	72.8364
4108	75.7825	77.942	79.0444	66.9312	66.9312	72.7589
4109	75.6634	77.7918	78.9303	66.9296	66.9296	72.6839
4110	75.5667	77.8462	78.8093	67.036	67.036	73.1473
4111	75.4674	77.7468	78.71	67.1132	67.1132	73.2245
4112	75.3689	77.6464	78.6095	67.1754	67.1754	73.2867
4113	75.2682	77.5457	78.5086	67.23	67.23	73.3413
4114	75.1657	77.4452	78.4083	67.2805	67.2805	73.3918
4115	75.0657	77.3452	78.3083	67.3286	67.3286	73.4399
4116	74.9662	77.2457	78.2088	67.3754	67.3754	73.4868
4117	74.8673	77.1468	78.1099	67.4214	67.4214	73.5327
4118	74.7691	77.0486	78.0117	67.4666	67.4666	73.5779
4119	74.8716	76.9511	77.9142	67.5113	67.5113	73.6228
4120	74.5748	76.8542	77.8174	67.5555	67.5555	73.6668
4121	74.4786	76.7581	77.7212	67.5993	67.5993	73.7106
4122	74.3832	76.6626	77.6258	67.6426	67.6426	73.7539
4123	74.2884	76.5679	77.531	67.6855	67.6855	73.7968
4124	74.1943	76.4738	77.4369	67.7279	67.7279	73.8392
4125	74.1009	76.3804	77.3435	67.77	67.77	73.8813
4126	74.0322	76.4428	77.2872	67.8762	67.8762	74.2428
4127	73.9654	76.4306	77.2289	67.9794	67.9794	74.4466
4128	73.899	76.411	77.1698	68.0788	68.0788	74.6326
4129	73.8237	76.3332	77.0941	68.1542	68.1542	74.7033
4130	73.7505	76.2907	77.0257	68.2329	68.2329	74.8388
4131	73.8525	76.0805	76.3855	66.7449	66.7449	66.7449
4132	75.1149	77.1718	84.1476	65.9316	65.9316	65.9316

Handwritten signature and initials in blue and red ink.





4133	75.5152	76.9682	83.455	65.4568	65.4568	65.4568
4134	75.6749	77.0191	83.3552	65.1522	65.1522	65.1522
4135	75.7046	76.9464	83.1409	64.9341	64.9341	64.9341
4136	76.0511	87.3858	80.2346	69.7982	69.7982	88.6118
4137	76.3432	87.4825	81.1303	72.2247	72.2247	90.2148
4138	77.049	88.8383	83.8411	73.4063	73.4063	90.55
4139	77.5298	89.0971	84.6834	73.9414	73.9414	90.2184
4140	77.6521	88.4868	84.4382	74.1266	74.1266	89.5044
4141	77.6758	87.8674	84.6004	74.1085	74.1085	88.5404
4142	77.9957	88.8723	85.4821	73.9743	73.9743	87.4532
4143	78.1644	88.8932	85.6533	73.752	73.752	86.2276
4144	78.2719	88.7098	86.1341	73.4717	73.4717	84.944
4145	78.4693	88.8338	87.1797	73.1556	73.1556	83.6487
4146	78.7714	89.4548	88.286	72.8165	72.8165	82.3576
4147	79.0385	89.9599	89.1383	72.4273	72.4273	80.9104
4148	79.283	90.3863	90.0246	72.0094	72.0094	79.463
4149	78.9885	88.1264	88.5841	71.083	71.083	75.4336
4150	78.0294	84.1466	85.4898	69.5977	69.5977	69.5977
4151	77.5716	85.0589	86.2466	68.8288	68.8288	68.8288
4152	75.5882	75.5882	75.5882	68.4273	68.4273	68.4273
4153	74.4824	74.4824	74.4824	68.2188	68.2188	68.2188
4154	73.8644	73.8644	73.8644	68.1049	68.1049	68.1049
4155	73.5173	73.5173	73.5173	68.0439	68.0439	68.0439
4156	73.3208	73.3208	73.3208	68.0092	68.0092	68.0092
4157	73.208	73.208	73.208	67.988	67.988	67.988
4158	73.1417	73.1417	73.1417	67.9739	67.9739	67.9739
4159	73.1012	73.1012	73.1012	67.9634	67.9634	67.9634
4160	73.0751	73.0751	73.0751	67.9548	67.9548	67.9548
4161	73.0589	73.0589	73.0589	67.9472	67.9472	67.9472
4162	73.0432	73.0432	73.0432	67.94	67.94	67.94
4163	73.0319	73.0319	73.0319	67.9331	67.9331	67.9331
4164	73.022	73.022	73.022	67.9264	67.9264	67.9264
4165	73.0129	73.0129	73.0129	67.9197	67.9197	67.9197
4166	73.0042	73.0042	73.0042	67.913	67.913	67.913
4167	72.9958	72.9958	72.9958	67.9064	67.9064	67.9064
4168	72.9874	72.9874	72.9874	67.8998	67.8998	67.8998
4169	76.3062	92.2838	93.4529	67.8976	67.8976	67.8976
4170	78.2296	91.7244	93.5202	67.8955	67.8955	67.8955
4171	79.3739	90.0441	92.5529	67.8933	67.8933	67.8933
4172	80.1023	89.7615	93.1224	67.8911	67.8911	67.8911
4173	80.5823	89.2891	93.4902	67.8456	67.8456	67.8456
4174	80.9098	88.8036	93.799	67.7446	67.7446	67.7446
4175	81.1611	88.3061	94.038	67.6164	67.6164	67.6164
4176	81.3839	87.8723	94.2699	67.4753	67.4753	67.4753
4177	81.5638	87.3265	94.4551	67.3284	67.3284	67.3284
4178	81.708	86.7102	94.6007	67.1794	67.1794	67.1794
4179	81.8597	86.5299	94.4513	67.03	67.03	67.03
4180	82.0533	86.4911	94.4364	66.8812	66.8812	66.8812
4181	82.5044	87.1144	95.7989	66.7337	66.7337	66.7337
4182	82.894	87.3815	96.3351	66.5875	66.5875	66.5875
4183	82.8204	86.6027	94.934	66.4421	66.4421	66.4421
4184	82.6066	85.91	93.8299	66.2978	66.2978	66.2978
4185	82.5099	85.6818	93.5168	66.1547	66.1547	66.1547
4186	82.4765	85.5248	93.2799	66.013	66.013	66.013
4187	82.512	85.5239	93.2561	65.8726	65.8726	65.8726
4188	82.5849	85.5633	93.2745	65.7335	65.7335	65.7335



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012276

4189	82.6143	85.4516	93.0538	85.5958	66.5958	65.5958
4190	82.416	84.7678	91.98	85.4589	66.4589	65.4589
4191	82.0912	83.9787	90.8186	85.3231	66.3231	65.3231
4192	81.7014	83.1583	89.6503	85.1883	66.1883	65.1883
4193	81.4376	82.8158	89.1991	85.0546	66.0546	65.0546
4194	81.2408	82.5432	88.8218	84.9222	64.9222	64.9222
4195	81.0792	82.3081	88.4849	84.7909	64.7909	64.7909
4196	80.9228	82.0583	88.0959	84.6608	64.6608	64.6608
4197	80.7525	81.7707	87.6249	84.5319	64.5319	64.5319
4198	80.5723	81.476	87.1509	84.4041	64.4041	64.4041
4199	80.3845	81.1763	86.676	84.2773	64.2773	64.2773
4200	80.2266	80.957	86.3738	84.1518	64.1518	64.1518
4201	80.1244	80.8479	86.2815	84.0274	64.0274	64.0274
4202	80.0527	80.7694	86.2194	83.9042	63.9042	63.9042
4203	79.998	80.7079	86.1743	83.7822	63.7822	63.7822
4204	79.9524	80.6559	86.1365	83.6614	63.6614	63.6614
4205	79.9096	80.6084	86.0915	83.5417	63.5417	63.5417
4206	79.8684	80.5627	86.0488	83.4231	63.4231	63.4231
4207	79.8284	80.5183	86.007	83.3057	63.3057	63.3057
4208	79.7892	80.4747	85.9661	83.1894	63.1894	63.1894
4209	79.7487	80.431	85.9166	83.0742	63.0742	63.0742
4210	79.708	80.3861	85.8596	62.96	62.96	62.96
4211	79.6624	80.3401	85.802	62.847	62.847	62.847
4212	79.6182	80.2938	85.7441	62.735	62.735	62.735
4213	79.5738	80.2473	85.6863	62.6241	62.6241	62.6241
4214	79.5345	80.2035	80.2745	62.5127	62.5127	62.5127
4215	77.6427	78.1035	79.5426	62.4024	62.4024	62.4024
4216	77.165	77.6258	79.0649	62.293	62.293	62.293
4217	76.8105	77.2887	78.6448	62.1847	62.1847	62.1847
4218	76.5173	77.0308	78.2588	62.0774	62.0774	62.0774
4219	76.2588	76.8132	77.9114	61.971	61.971	61.971
4220	76.045	76.5801	77.7365	61.8657	61.8657	61.8657
4221	75.8355	76.4089	77.4609	61.7613	61.7613	61.7613
4222	75.8295	76.2464	77.1921	61.6579	61.6579	61.6579
4223	75.175	75.4848	75.877	61.555	61.555	61.555
4224	76.2569	84.8662	78.3945	66.0221	66.0221	83.3308
4225	77.3831	89.5962	79.9353	69.5223	69.5223	90.0775
4226	77.9895	90.2783	80.4958	71.5815	71.5815	92.1739
4227	78.2913	90.5009	80.7488	72.866	72.866	93.3443
4228	78.391	90.2588	80.802	73.6742	73.6742	93.7836
4229	78.645	90.1503	82.273	74.0993	74.0993	93.4162
4230	78.9108	90.1662	83.3392	74.3025	74.3025	92.782
4231	79.3385	90.7464	84.9768	74.3726	74.3726	91.9941
4232	78.3747	82.5033	82.1887	72.1423	72.1423	81.1735
4233	76.6807	77.1652	77.5328	68.2093	68.2093	70.5409
4234	75.6357	76.0552	76.3734	67.6433	67.6433	68.7961
4235	75.1062	75.7737	76.2801	66.9612	66.9612	68.7956
4236	74.7336	75.4011	75.9074	66.5755	66.5755	68.4099
4237	74.4467	75.1141	75.6205	66.3391	66.3391	68.1735
4238	74.1768	75.3888	76.6718	65.7542	65.7542	65.7542
4239	74.5311	75.588	77.1045	65.393	65.393	65.393
4240	74.5095	75.5759	77.1308	65.1449	65.1449	65.1449
4241	74.4428	75.5004	77.0949	64.9541	64.9541	64.9541
4242	74.3524	75.4012	77.0352	64.7928	64.7928	64.7928
4243	74.0312	74.8234	75.9421	64.8466	64.8466	64.8466
4244	73.7859	74.5781	75.6958	64.5088	64.5088	64.5088

2377



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

ALSTOM

00012277

4245	73.5823	74.3745	75.4932	64.3758	84.3758	64.3758
4246	73.4018	74.194	75.3127	64.2457	84.2457	64.2457
4247	73.2344	74.0266	75.1453	64.1178	84.1178	64.1178
4248	73.1102	73.9546	75.1471	63.9916	83.9916	63.9916
4249	73.1074	74.1442	75.6083	63.8869	83.8869	63.8869
4250	73.0792	74.1452	75.7017	63.7436	83.7436	63.7436
4251	73.0152	74.0704	75.6753	63.6215	83.6215	63.6215
4252	72.9325	73.977	75.6303	63.5006	83.5006	63.5006
4253	72.8406	73.8744	75.576	63.3809	83.3809	63.3809
4254	72.7446	73.7675	75.5176	63.2622	83.2622	63.2622
4255	72.6122	73.6707	75.2611	63.1447	83.1447	63.1447
4256	72.4874	73.5439	75.1433	63.0283	83.0283	63.0283
4257	72.3671	73.4216	75.0299	62.913	82.913	62.913
4258	72.2467	73.3033	74.9025	62.7987	82.7987	62.7987
4259	72.1215	73.1869	74.7466	62.6855	82.6855	62.6855
4260	73.331	75.2865	80.7712	62.5751	82.5751	62.5751
4261	74.8437	86.6117	81.5714	65.9915	86.9915	84.1619
4262	75.7784	87.3335	82.9246	69.1555	89.1555	85.4227
4263	76.1497	86.957	82.9404	70.1658	90.1658	85.5071
4264	76.3303	86.5682	83.2548	70.5724	90.5724	84.9538
4265	76.7407	87.6544	84.2585	70.6641	90.6641	84.0888
4266	76.8399	87.6473	84.4201	70.568	90.568	82.9866
4267	77.0801	87.5034	84.9916	70.3648	90.3648	81.7797
4268	77.303	87.6851	86.0585	70.1019	90.1019	80.5396
4269	77.6182	88.3154	87.167	69.8014	89.8014	79.2837
4270	77.8956	88.8303	88.0282	69.4443	89.4443	77.8679
4271	78.1492	89.2615	88.9281	69.0565	89.0565	76.4528
4272	77.8002	86.6917	87.2157	68.0999	88.0999	72.1428
4273	76.8733	83.0781	84.4113	68.6745	86.6745	68.6745
4274	76.4333	83.997	85.176	65.9369	85.9369	65.9369
4275	74.4588	74.4586	74.4586	65.5521	85.5521	65.5521
4276	73.3579	73.3579	73.3579	65.3505	85.3505	65.3505
4277	72.7428	72.7428	72.7428	65.2436	85.2436	65.2436
4278	72.3974	72.3974	72.3974	65.1856	85.1856	65.1856
4279	72.2021	72.2021	72.2021	65.1529	85.1529	65.1529
4280	72.09	72.09	72.09	65.1331	85.1331	65.1331
4281	72.0242	72.0242	72.0242	65.1201	85.1201	65.1201
4282	71.9842	71.9842	71.9842	65.1106	85.1106	65.1106
4283	71.9584	71.9584	71.9584	65.1029	85.1029	65.1029
4284	71.9406	71.9406	71.9406	65.0961	85.0961	65.0961
4285	71.9272	71.9272	71.9272	65.0898	85.0898	65.0898
4286	71.9162	71.9162	71.9162	65.0837	85.0837	65.0837
4287	71.9066	71.9066	71.9066	65.0777	85.0777	65.0777
4288	71.8978	71.8978	71.8978	65.0719	85.0719	65.0719
4289	71.8894	71.8894	71.8894	65.066	85.066	65.066
4290	71.8812	71.8812	71.8812	65.0602	85.0602	65.0602
4291	71.8732	71.8732	71.8732	65.0544	85.0544	65.0544
4292	71.8652	71.8652	71.8652	65.0486	85.0486	65.0486
4293	71.8573	71.8573	71.8573	65.0428	85.0428	65.0428
4294	71.8494	71.8494	71.8494	65.037	85.037	65.037
4295	71.8416	71.8416	71.8416	65.0312	85.0312	65.0312
4296	71.8337	71.8337	71.8337	65.0254	85.0254	65.0254
4297	71.8258	71.8258	71.8258	65.0196	85.0196	65.0196
4298	71.818	71.818	71.818	65.0138	85.0138	65.0138
4299	71.8101	71.8101	71.8101	65.0081	85.0081	65.0081
4300	71.8022	71.8022	71.8022	65.0023	85.0023	65.0023

2971



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012278



4301	71.7944	71.7944	71.7944	64.9965	64.9965	64.9965
4302	71.7865	71.7865	71.7865	64.9907	64.9907	64.9907
4303	71.7787	71.7787	71.7787	64.9849	64.9849	64.9849
4304	71.7708	71.7708	71.7708	64.9792	64.9792	64.9792
4305	71.763	71.763	71.763	64.9734	64.9734	64.9734
4306	71.7552	71.7552	71.7552	64.9676	64.9676	64.9676
4307	71.7473	71.7473	71.7473	64.9619	64.9619	64.9619
4308	71.7395	71.7395	71.7395	64.9561	64.9561	64.9561
4309	71.7317	71.7317	71.7317	64.9503	64.9503	64.9503
4310	71.7238	71.7238	71.7238	64.9446	64.9446	64.9446
4311	71.716	71.716	71.716	64.9388	64.9388	64.9388
4312	71.7082	71.7082	71.7082	64.933	64.933	64.933
4313	71.7003	71.7003	71.7003	64.9273	64.9273	64.9273
4314	71.6925	71.6925	71.6925	64.9215	64.9215	64.9215
4315	71.6847	71.6847	71.6847	64.9158	64.9158	64.9158
4316	71.6769	71.6769	71.6769	64.91	64.91	64.91
4317	71.669	71.669	71.669	64.9043	64.9043	64.9043
4318	71.6612	71.6612	71.6612	64.8985	64.8985	64.8985
4319	71.6534	71.6534	71.6534	64.8928	64.8928	64.8928
4320	71.6456	71.6456	71.6456	64.887	64.887	64.887
4321	71.6378	71.6378	71.6378	64.8813	64.8813	64.8813
4322	71.63	71.63	71.63	64.8755	64.8755	64.8755
4323	71.6222	71.6222	71.6222	64.8698	64.8698	64.8698
4324	71.6144	71.6144	71.6144	64.8641	64.8641	64.8641
4325	71.6066	71.6066	71.6066	64.8584	64.8584	64.8584
4326	71.5988	71.5988	71.5988	64.8526	64.8526	64.8526
4327	71.591	71.591	71.591	64.8469	64.8469	64.8469
4328	71.5832	71.5832	71.5832	64.8412	64.8412	64.8412
4329	71.5754	71.5754	71.5754	64.8354	64.8354	64.8354
4330	71.5676	71.5676	71.5676	64.8297	64.8297	64.8297
4331	71.5598	71.5598	71.5598	64.824	64.824	64.824
4332	71.552	71.552	71.552	64.8183	64.8183	64.8183
4333	71.5442	71.5442	71.5442	64.8125	64.8125	64.8125
4334	71.5364	71.5364	71.5364	64.8068	64.8068	64.8068
4335	71.5287	71.5287	71.5287	64.8011	64.8011	64.8011
4336	71.5209	71.5209	71.5209	64.7954	64.7954	64.7954
4337	71.5131	71.5131	71.5131	64.7897	64.7897	64.7897
4338	71.5053	71.5053	71.5053	64.784	64.784	64.784
4339	71.4976	71.4976	71.4976	64.7783	64.7783	64.7783
4340	71.4898	71.4898	71.4898	64.7726	64.7726	64.7726
4341	71.482	71.482	71.482	64.7669	64.7669	64.7669
4342	71.4742	71.4742	71.4742	64.7612	64.7612	64.7612
4343	71.4665	71.4665	71.4665	64.7555	64.7555	64.7555
4344	71.4587	71.4587	71.4587	64.7498	64.7498	64.7498
4345	71.451	71.451	71.451	64.7441	64.7441	64.7441
4346	71.4432	71.4432	71.4432	64.7384	64.7384	64.7384
4347	71.4354	71.4354	71.4354	64.7327	64.7327	64.7327
4348	71.4277	71.4277	71.4277	64.727	64.727	64.727
4349	71.4199	71.4199	71.4199	64.7213	64.7213	64.7213
4350	71.4122	71.4122	71.4122	64.7156	64.7156	64.7156
4351	71.4044	71.4044	71.4044	64.7099	64.7099	64.7099
4352	71.3967	71.3967	71.3967	64.7043	64.7043	64.7043
4353	71.3889	71.3889	71.3889	64.6986	64.6986	64.6986
4354	71.3812	71.3812	71.3812	64.6929	64.6929	64.6929
4355	71.3735	71.3735	71.3735	64.6872	64.6872	64.6872
4356	71.3657	71.3657	71.3657	64.6815	64.6815	64.6815

Handwritten signature in blue ink.

Handwritten mark in red ink.



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012279



4357	71.358	71.358	71.358	64.6759	64.6759	64.6759
4358	71.3502	71.3502	71.3502	64.6702	64.6702	64.6702
4359	71.3425	71.3425	71.3425	64.6645	64.6645	64.6645
4360	71.3348	71.3348	71.3348	64.6589	64.6589	64.6589
4361	71.327	71.327	71.327	64.6532	64.6532	64.6532
4362	71.3193	71.3193	71.3193	64.6475	64.6475	64.6475
4363	71.3116	71.3116	71.3116	64.6419	64.6419	64.6419
4364	71.3039	71.3039	71.3039	64.6362	64.6362	64.6362
4365	71.2962	71.2962	71.2962	64.6306	64.6306	64.6306
4366	71.2884	71.2884	71.2884	64.6249	64.6249	64.6249
4367	71.2807	71.2807	71.2807	64.6192	64.6192	64.6192
4368	71.273	71.273	71.273	64.6136	64.6136	64.6136
4369	71.2653	71.2653	71.2653	64.6079	64.6079	64.6079
4370	71.2576	71.2576	71.2576	64.6023	64.6023	64.6023
4371	71.2499	71.2499	71.2499	64.5966	64.5966	64.5966
4372	71.2422	71.2422	71.2422	64.591	64.591	64.591
4373	71.2345	71.2345	71.2345	64.5854	64.5854	64.5854
4374	71.2268	71.2268	71.2268	64.5797	64.5797	64.5797
4375	71.2191	71.2191	71.2191	64.5741	64.5741	64.5741
4376	71.2114	71.2114	71.2114	64.5684	64.5684	64.5684
4377	71.2037	71.2037	71.2037	64.5628	64.5628	64.5628
4378	71.196	71.196	71.196	64.5572	64.5572	64.5572
4379	71.1883	71.1883	71.1883	64.5515	64.5515	64.5515
4380	71.1806	71.1806	71.1806	64.5459	64.5459	64.5459
4381	71.1729	71.1729	71.1729	64.5403	64.5403	64.5403
4382	71.1652	71.1652	71.1652	64.5347	64.5347	64.5347
4383	71.1575	71.1575	71.1575	64.529	64.529	64.529
4384	71.1499	71.1499	71.1499	64.5234	64.5234	64.5234
4385	71.1422	71.1422	71.1422	64.5178	64.5178	64.5178
4386	71.1345	71.1345	71.1345	64.5122	64.5122	64.5122
4387	71.1268	71.1268	71.1268	64.5066	64.5066	64.5066
4388	71.1191	71.1191	71.1191	64.5009	64.5009	64.5009
4389	71.1115	71.1115	71.1115	64.4953	64.4953	64.4953
4390	71.1038	71.1038	71.1038	64.4897	64.4897	64.4897
4391	71.0961	71.0961	71.0961	64.4841	64.4841	64.4841
4392	71.0885	71.0885	71.0885	64.4785	64.4785	64.4785
4393	71.0808	71.0808	71.0808	64.4729	64.4729	64.4729
4394	71.0731	71.0731	71.0731	64.4673	64.4673	64.4673
4395	71.0655	71.0655	71.0655	64.4617	64.4617	64.4617
4396	71.0578	71.0578	71.0578	64.4561	64.4561	64.4561
4397	71.0502	71.0502	71.0502	64.4505	64.4505	64.4505
4398	71.0425	71.0425	71.0425	64.4449	64.4449	64.4449
4399	71.0349	71.0349	71.0349	64.4393	64.4393	64.4393
4400	71.0272	71.0272	71.0272	64.4337	64.4337	64.4337
4401	71.0196	71.0196	71.0196	64.4281	64.4281	64.4281
4402	71.0119	71.0119	71.0119	64.4225	64.4225	64.4225
4403	71.0043	71.0043	71.0043	64.4169	64.4169	64.4169
4404	70.9966	70.9966	70.9966	64.4114	64.4114	64.4114
4405	70.989	70.989	70.989	64.4058	64.4058	64.4058
4406	70.9814	70.9814	70.9814	64.4002	64.4002	64.4002
4407	70.9737	70.9737	70.9737	64.3946	64.3946	64.3946
4408	70.9661	70.9661	70.9661	64.389	64.389	64.389
4409	70.9585	70.9585	70.9585	64.3835	64.3835	64.3835
4410	70.9508	70.9508	70.9508	64.3779	64.3779	64.3779
4411	70.9432	70.9432	70.9432	64.3723	64.3723	64.3723
4412	70.9356	70.9356	70.9356	64.3667	64.3667	64.3667

*Handwritten signature*

*Handwritten mark*



ANEXO 1E  
SIMULACIONES, CÁLCULOS Y GRÁFICAS

INVERTER TEMPERAT-EBRCL13.xls

00012230



4413	70.928	70.928	70.928	64.3612	64.3612	64.3612
4414	70.9203	70.9203	70.9203	64.3556	64.3556	64.3556
4415	70.9127	70.9127	70.9127	64.35	64.35	64.35
4416	70.9051	70.9051	70.9051	64.3445	64.3445	64.3445
4417	70.8975	70.8975	70.8975	64.3389	64.3389	64.3389
4418	70.8899	70.8899	70.8899	64.3334	64.3334	64.3334
4419	70.8823	70.8823	70.8823	64.3278	64.3278	64.3278
4420	70.8746	70.8746	70.8746	64.3222	64.3222	64.3222
4421	70.867	70.867	70.867	64.3167	64.3167	64.3167
4422	70.8594	70.8594	70.8594	64.3111	64.3111	64.3111
4423	70.8518	70.8518	70.8518	64.3056	64.3056	64.3056
4424	70.8442	70.8442	70.8442	64.3	64.3	64.3
4425	70.8366	70.8366	70.8366	64.2945	64.2945	64.2945
4426	70.829	70.829	70.829	64.2889	64.2889	64.2889
4427	70.8214	70.8214	70.8214	64.2834	64.2834	64.2834
4428	70.8138	70.8138	70.8138	64.2779	64.2779	64.2779
4429	70.8063	70.8063	70.8063	64.2723	64.2723	64.2723
4430	70.7987	70.7987	70.7987	64.2668	64.2668	64.2668
4431	70.7911	70.7911	70.7911	64.2612	64.2612	64.2612
4432	70.7835	70.7835	70.7835	64.2557	64.2557	64.2557
4433	70.7759	70.7759	70.7759	64.2502	64.2502	64.2502
4434	70.7683	70.7683	70.7683	64.2447	64.2447	64.2447
4435	70.7607	70.7607	70.7607	64.2391	64.2391	64.2391
4436	70.7532	70.7532	70.7532	64.2336	64.2336	64.2336
4437	70.7456	70.7456	70.7456	64.2281	64.2281	64.2281
4438	70.738	70.738	70.738	64.2225	64.2225	64.2225
4439	70.7304	70.7304	70.7304	64.217	64.217	64.217
4440	70.7229	70.7229	70.7229	64.2115	64.2115	64.2115
4441	70.7153	70.7153	70.7153	64.206	64.206	64.206
4442	70.7077	70.7077	70.7077	64.2005	64.2005	64.2005
4443	70.7002	70.7002	70.7002	64.195	64.195	64.195
4444	70.6926	70.6926	70.6926	64.1894	64.1894	64.1894
4445	70.6851	70.6851	70.6851	64.1839	64.1839	64.1839
4446	70.6775	70.6775	70.6775	64.1784	64.1784	64.1784
4447	70.6699	70.6699	70.6699	64.1729	64.1729	64.1729
4448	70.6624	70.6624	70.6624	64.1674	64.1674	64.1674
4449	70.6548	70.6548	70.6548	64.1619	64.1619	64.1619
4450	70.6473	70.6473	70.6473	64.1564	64.1564	64.1564
4451	70.6397	70.6397	70.6397	64.1509	64.1509	64.1509
4452	70.6322	70.6322	70.6322	64.1454	64.1454	64.1454
4453	70.6247	70.6247	70.6247	64.1399	64.1399	64.1399
4454	70.6171	70.6171	70.6171	64.1344	64.1344	64.1344
4455	70.6096	70.6096	70.6096	64.1289	64.1289	64.1289



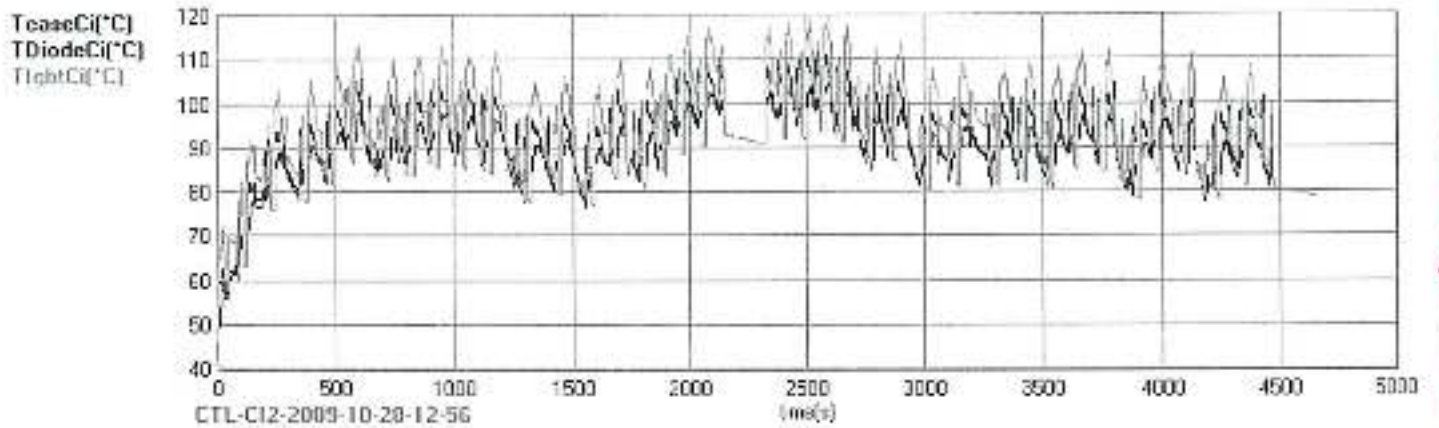


00012231

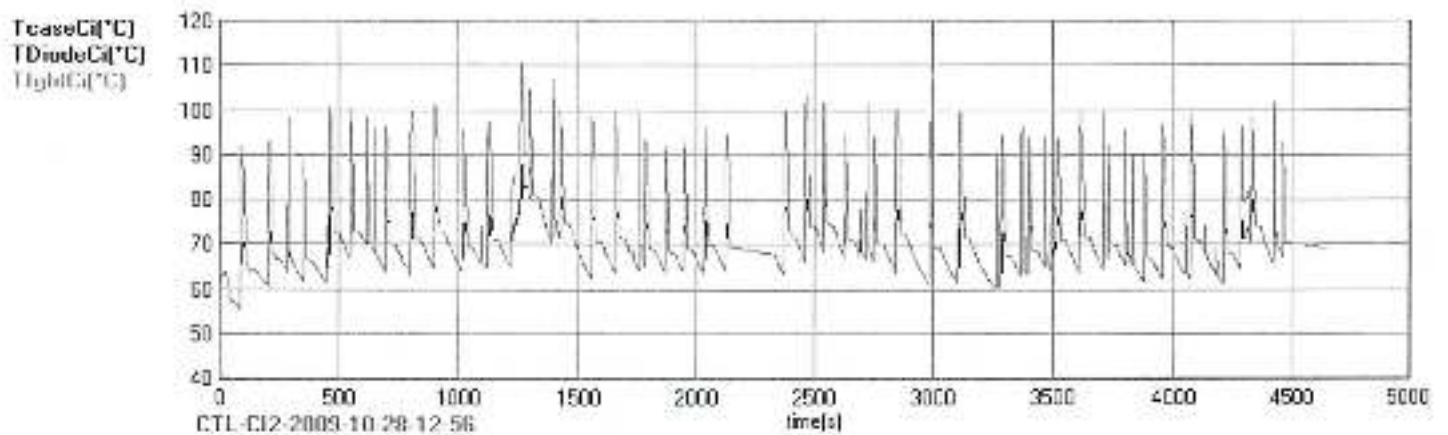
Inverter Temperature 1500V  
Air flow 2240m

7C 3M AW3 8p/m<sup>2</sup>

Degraded Mode 2Mout



Rheo temperature Temperature 1800V  
Air flow 2240m





**ANEXO 1E**  
**SIMULACIONES, CÁLCULOS Y GRÁFICAS**



00012232

**7C 3M AW3 8p/m<sup>2</sup> Degraded Mode 2Mout**

INV FZ1200R33KF2C\_Eupec\_1\_5.6  
 RHEC FD800R33KF2C\_Eupec\_1\_5.6

time(s)	TcaseCi(°C)	TDiodeCi(°C)	TlgbtCi(°C)	TcaseCi(°C)	TDiodeCi(°C)	TlgbtCi(°C)
Maximum	105.0	112.6	119.9	87.6	87.6	110.5

time(s)	TcaseCi(°C)	TDiodeCi(°C)	TlgbtCi(°C)	TcaseCi(°C)	TDiodeCi(°C)	TlgbtCi(°C)
0	42	45.5402	45.7682	42	42	42
1	44.4091	54.1872	55.7373	55.525	55.525	55.525
2	47.1712	59.8232	63.545	59.3075	59.3075	59.3075
3	48.8884	59.6482	63.9334	60.6847	60.6847	60.6847
4	49.9677	59.8275	64.6921	61.3844	61.3844	61.3844
5	50.6968	59.6552	65.0989	61.8131	61.8131	61.8131
6	51.2705	59.5403	65.5168	62.105	62.105	62.105
7	51.797	59.424	65.929	62.323	62.323	62.323
8	52.3013	59.358	66.3626	62.4977	62.4977	62.4977
9	52.7996	59.3674	66.8435	62.6478	62.6478	62.6478
10	53.291	59.3615	67.317	62.7786	62.7786	62.7786
11	53.75	59.2528	67.7546	62.8811	62.8811	62.8811
12	54.1895	59.1246	68.173	62.9623	62.9623	62.9623
13	54.6252	59.3037	68.4562	63.0309	63.0309	63.0309
14	55.0607	59.6037	68.6884	63.091	63.091	63.091
15	55.5758	60.0895	69.3067	63.1744	63.1744	63.1744
16	56.3071	61.0105	70.7851	63.3362	63.3362	63.3362
17	57.1657	62.0573	72.3844	63.5819	63.5819	63.5819
18	57.5693	61.9064	71.8054	63.6709	63.6709	63.6709
19	57.6479	61.4127	70.8139	63.6711	63.6711	63.6711
20	57.6368	60.9609	69.9871	63.6027	63.6027	63.6027
21	57.7774	61.0209	69.9862	63.5344	63.5344	63.5344
22	57.9987	61.166	70.0722	63.4663	63.4663	63.4663
23	58.2642	61.362	70.2147	63.3991	63.3991	63.3991
24	58.5753	61.6726	70.4883	63.3384	63.3384	63.3384
25	58.9101	62.0068	70.7866	63.2832	63.2832	63.2832
26	59.2565	62.3528	71.0993	63.233	63.233	63.233
27	59.5233	62.4803	71.0905	63.1695	63.1695	63.1695
28	57.5289	58.567	61.5141	62.6515	62.6515	62.6515
29	56.522	57.5898	60.6535	62.178	62.178	62.178
30	56.0529	57.1503	60.3307	61.7445	61.7445	61.7445
31	55.7676	56.8222	59.8345	61.3271	61.3271	61.3271
32	55.668	56.739	59.8155	60.9402	60.9402	60.9402
33	55.6583	56.7378	59.8474	60.579	60.579	60.579
34	55.685	56.7645	59.8741	60.239	60.239	60.239
35	55.7312	56.8107	59.9202	59.9184	59.9184	59.9184
36	55.7877	56.8672	59.9768	59.6156	59.6156	59.6156
37	55.8497	56.9291	60.0387	59.3292	59.3292	59.3292
38	55.9143	56.9938	60.1033	59.0579	59.0579	59.0579
39	55.9802	57.0598	60.1692	58.8004	58.8004	58.8004
40	56.0465	57.1259	60.2355	58.5569	58.5569	58.5569
41	56.1128	57.1923	60.3019	58.3233	58.3233	58.3233
42	56.179	57.2584	60.368	58.1017	58.1017	58.1017
43	56.2094	57.2856	60.2839	57.8859	57.8859	57.8859
44	56.1706	57.1753	59.9677	57.6693	57.6693	57.6693