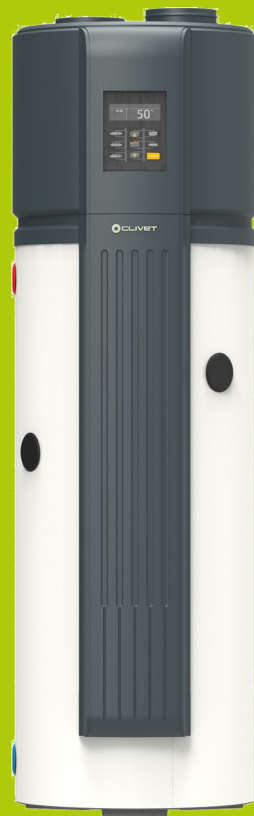# Troubleshooting

AQUA PLUS

SWAN-2 190-190S-300-300S

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Allarms

Code	Description	Solution
E0	Error of sensor T5U (upper water temperature sensor)	Maybe the connection between sensor and PCB has released or sensor has been broken. Contact a qualified person to service the unit. 1. Check if T5U sensor is connected to the main PCB board; 2. Change a new T5U sensor; 3. Change a new PCB;
E1	Error of sensor T5L(lower water temperature sensor)	Maybe the connection between sensor and PCB has released or sensor has been broken. Contact a qualified person to service the unit. 1. Check if T5L sensor is connected to the main PCB board; 2. Change a new T5L sensor; 3. Change a new PCB;
E2	Wired Controller communication error	Maybe the connection between controller and PCB has released or PCB has been broken. 1. Check if the cable between HMI and PCB is connected well; 2. Change a new cable; 3. Change a new HMI; 4. Change a new PCB
E4	Evaporator temperature sensor T3 error	Maybe the connection between sensor and PCB has released or sensor has been broken. Contact a qualified person to service the unit. 1. Check if T3 sensor is connected to the main PCB board; 2. Change a new T3 sensor; 3. Change a new PCB;
E5	Ambient temperature sensor T4 error	Maybe the connection between sensor and PCB has released or sensor has been broken. Contact a qualified person to service the unit. 1. Check if T4 sensor is connected to the main PCB board; 2. Change a new T4 sensor; 3. Change a new PCB;
E6	Compressor discharge temperature sensor TP error	Maybe the connection between sensor and PCB has released or sensor has been broken. Contact a qualified person to service the unit. 1. Check if TP sensor is connected to the main PCB board; 2. Change a new TP sensor; 3. Change a new PCB;
E8	Electric leakage error If PCB current_induction_circuit check the current difference between L,N >14mA, system consider it as "electric leakage error"	Maybe some wires have been broken or bad wire connection. Contact a qualified person to service the unit. 1. Remove connector CN2/CN3/CN6/CN13/CN14 one by one, and check if it is the issue cause by component that connect to those connectors, if yes, we need to check if there any shut circuit of this component or change this component; 2. Change the PCB;

Allarms

Code	Description	Solution
E9	Compressor suction temperature sensor TH error	Maybe the connection between sensor and PCB has released or sensor has been broken. Contact a qualified person to service the unit. 1 Check if TP sensor is connected to the main PCB board; 2 Change a new TP sensor; 3 Change a new PCB;
EE	E-heater open-circuit error IEH (Current difference E-heater on and off)<1A	Maybe the E-heater has been broken or bad wire connection after repair. Contact a qualified person to service the unit. 1 Check the connection of heater; 2 Measure the resistor value of the heater; (around 15-18Ω) 3 Change the heater; 4 Change the PCB;
EF	Clock chip error	Maybe the chip has been broken, but unit can work well without clock-memory, so it is needed to reset clock when power put on again. If necessary, contact a qualified person to service the unit. 1. Change the PCB;
Ed	E-EPROM chip error	Contact a qualified person to service the unit. 1. Change the PCB;
P1	System high pressure protection: Unit 300 : >=3.0Mpa active; <=2.4MPa inactive. Unit 190 : P1 error code never appear because pressure switch	Maybe because of system blocked, air or water or more refrigerant in system (after repair), water temperature sensor malfunction, ect. Contact a qualified person to service the unit. 1 Measure if the high pressure switch is short circuit when the unit is off for a long time; 2 Short circuit CN16, and keep measure the high pressure switch, when the compressor is turned on, and check if the high pressure switch will become open circuit; 3 Recharge the system and check again; 4 Change the unit;
P2	High discharge temperature protection Unit 190/300 : >115 °C Protection active; <90 °C Protection inactive	Maybe because of system blocked, air or water or less refrigerant(leakage) in system(after repair), water temperature sensor malfunction, ect. 1 Contact a qualified person to service the unit. 2 Use another temperature meter to measure the TP temperature, and make sure TP is good; 3 Recharge the system and check again; 4 Change the unit;

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Allarms

Code	Description	Solution
P3	Compressor abnormally stopped protection The discharge temperature is not so higher than evaporator temperature after compressor running a term.	Maybe because of compressor broken or bad connection between PCB and compressor. 1 Use another temperature meter to measure the TP and T3 temperature, and make sure TP and T3 are good; 2 Recharge the system and check again; 3 Change the unit;
P4	Compressor overloaded protection (10 sec after compressor startup, Current checking starts , 1) only compressor running, if it is >10A , the compressor will be stopped and protected.) 2) Compressor + e-heater opened, if it is >IEH+10,the compressor will be stopped and protected.) Possible absorption or abnormal activation of the electrical resistance.	Maybe because of compressor broken, system blocked, air or water or more refrigerant in system(after repair), water temperature sensor malfunction, ect. Check that the resistance does not absorb current when the display is turned off. This circumstance is interpreted by the unit as a compressor anomalous absorption. Contact a qualified person to service the unit. 1 Measure the resistor value of compressor between UVW, and measure the resistor value of heater, Compressor resistor value around 4-5Ω, heater resistor value around 15 -18Ω, if the value of the component is wrong, change the component； 2 Change PCB; 3 Change unit;
LA	When the ambient temp T4 is out of Heat Pump running range (-7 ~ 43 °C) Heat Pump will stop, unit will show LA on the position of clock on display until T4 back to (-7 ~ 43 °C). Only valid for the unit without e-heater. Unit with e-heater will never show "LA".	It is normal, and no necessary to repair. 1 Use another temperature meter to measure the T4 temperature, and make sure T4 are good;

Note

⇒ The alarm codes listed above are the most common. If a alarm code not listed above is displayed, contact technical assistance.

⇒ If any of P3/P4/P2/P1 continuously appear 3 times within single heating cycle, system will consider it as "Heat Pump system error".

Contact a qualified person to service the unit.

Room temperature sensor

Temp	Resistance (KΩ)		
(°C)	Rmax	R (t) Normal	Rmin
-20	116,539	106,732	96,92
-19	110,231	100,552	91,451
-18	103,743	94,769	86,328
-17	97,673	89,353	81,525
-16	91,99	84,278	77,017
-15	86,669	79,521	72,788
-14	81,684	75,059	68,815
-13	77,013	70,873	65,083
-12	72,632	66,943	61,574
-11	68,523	63,252	58,274
-10	64,668	59,784	55,169
-9	61,048	56,524	52,246
-8	57,649	53,458	49,492
-7	54,456	50,575	46,899
-6	51,456	47,862	44,455
-5	48,636	45,308	42,15
-4	45,984	42,903	39,977
-3	43,49	40,638	37,927
-2	41,144	38,504	35,992
-1	38,935	36,492	34,165
0	36,857	34,596	32,44
1	34,898	32,807	30,81
2	33,055	31,12	29,271
3	31,317	29,528	27,815
4	29,681	28,026	26,44
5	28,138	26,608	25,14
6	26,682	25,268	23,909
7	25,31	24,003	22,745
8	24,016	22,808	21,644
9	22,794	21,678	20,601
10	21,641	20,61	19,614
11	20,553	19,601	18,68
12	19,525	18,646	17,794
13	18,554	17,743	16,955
14	17,636	16,888	16,16
15	16,769	16,079	15,406
16	15,949	15,313	14,691
17	15,174	14,588	14,014

Temp	Resistance (KΩ)		
(°C)	Rmax	R (t) Normal	Rmin
18	14,442	13,902	13,372
19	13,748	13,251	12,762
20	13,093	12,635	12,183
21	12,471	12,05	11,634
22	11,883	11,496	11,112
23	11,327	10,971	10,617
24	10,8	10,473	10,147
25	10,3	10	9,7
26	9,848	9,551	9,255
27	9,418	9,125	8,834
28	9,01	8,721	8,434
29	8,621	8,337	8,055
30	8,252	7,972	7,695
31	7,9	7,625	7,353
32	7,566	7,296	7,029
33	7,247	6,982	6,721
34	6,944	6,684	6,428
35	6,656	6,401	6,15
36	6,381	6,131	5,886
37	6,119	5,874	5,634
38	5,87	5,63	5,395
39	5,631	5,397	5,167
40	5,404	5,175	4,951
41	5,188	4,964	4,745
42	4,982	4,763	4,549
43	4,785	4,571	4,362
44	4,596	4,387	4,183
45	4,417	4,213	4,014
46	4,246	4,046	3,851
47	4,082	3,887	3,697
48	3,925	3,735	3,55
49	3,776	3,59	3,409
50	3,632	3,451	3,274
51	3,495	3,318	3,146
52	3,363	3,191	3,023
53	3,237	3,069	2,905
54	3,116	2,952	2,793
55	3,001	2,841	2,685

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Room temperature sensor

Temp	Resistance (KΩ)		
(°C)	Rmax	R (t) Normal	Rmin
56	2,89	2,734	2,582
57	2,784	2,632	2,484
58	2,682	2,534	2,39
59	2,585	2,44	2,299
60	2,491	2,35	2,213
61	2,401	2,264	2,13
62	2,315	2,181	2,051
63	2,233	2,102	1,975
64	2,154	2,026	1,903
65	2,077	1,953	1,833
66	2,004	1,883	1,766
67	1,934	1,816	1,702
68	1,867	1,752	1,641
69	1,802	1,69	1,582
70	1,74	1,631	1,525
71	1,68	1,574	1,471
72	1,622	1,519	1,419
73	1,567	1,466	1,369
74	1,514	1,416	1,321
75	1,463	1,367	1,275
76	1,414	1,321	1,23
77	1,367	1,276	1,188
78	1,321	1,233	1,147
79	1,277	1,191	1,108
80	1,235	1,151	1,07
81	1,195	1,113	1,034
82	1,156	1,076	0,999
83	1,118	1,041	0,966
84	1,082	1,007	0,934
85	1,047	0,974	0,903
86	1,014	0,942	0,874
87	0,982	0,912	0,845
88	0,951	0,883	0,818
89	0,921	0,855	0,791
90	0,892	0,828	0,766
91	0,864	0,802	0,742
92	0,838	0,777	0,719
93	0,812	0,753	0,696

Temp	Resistance (KΩ)		
(°C)	Rmax	R (t) Normal	Rmin
94	0,787	0,73	0,675
95	0,763	0,708	0,654
96	0,74	0,686	0,634
97	0,718	0,666	0,615
98	0,697	0,646	0,597
99	0,677	0,627	0,579
100	0,657	0,609	0,562
101	0,638	0,591	0,546
102	0,62	0,574	0,53
103	0,602	0,558	0,515
104	0,585	0,542	0,501
105	0,569	0,527	0,485

Pipe temperature sensor

Temp	Resistance (KΩ)			Temp	Resistance (KΩ)		
(°C)	Rmax	R (t) Normal	Rmin	(°C)	Rmax	R (t) Normal	Rmin
-20	116,539	106,732	96,92	18	14,442	13,902	13,372
-19	110,231	100,552	91,451	19	13,748	13,251	12,762
-18	103,743	94,769	86,328	20	13,093	12,635	12,183
-17	97,673	89,353	81,525	21	12,471	12,05	11,634
-16	91,99	84,278	77,017	22	11,883	11,496	11,112
-15	86,669	79,521	72,788	23	11,327	10,971	10,617
-14	81,684	75,059	68,815	24	10,8	10,473	10,147
-13	77,013	70,873	65,083	25	10,3	10	9,7
-12	72,632	66,943	61,574	26	9,848	9,551	9,255
-11	68,523	63,252	58,274	27	9,418	9,125	8,834
-10	64,668	59,784	55,169	28	9,01	8,721	8,434
-9	61,048	56,524	52,246	29	8,621	8,337	8,055
-8	57,649	53,458	49,492	30	8,252	7,972	7,695
-7	54,456	50,575	46,899	31	7,9	7,625	7,353
-6	51,456	47,862	44,455	32	7,566	7,296	7,029
-5	48,636	45,308	42,15	33	7,247	6,982	6,721
-4	45,984	42,903	39,977	34	6,944	6,684	6,428
-3	43,49	40,638	37,927	35	6,656	6,401	6,15
-2	41,144	38,504	35,992	36	6,381	6,131	5,886
-1	38,935	36,492	34,165	37	6,119	5,874	5,634
0	36,857	34,596	32,44	38	5,87	5,63	5,395
1	34,898	32,807	30,81	39	5,631	5,397	5,167
2	33,055	31,12	29,271	40	5,404	5,175	4,951
3	31,317	29,528	27,815	41	5,188	4,964	4,745
4	29,681	28,026	26,44	42	4,982	4,763	4,549
5	28,138	26,608	25,14	43	4,785	4,571	4,362
6	26,682	25,268	23,909	44	4,596	4,387	4,183
7	25,31	24,003	22,745	45	4,417	4,213	4,014
8	24,016	22,808	21,644	46	4,246	4,046	3,851
9	22,794	21,678	20,601	47	4,082	3,887	3,697
10	21,641	20,61	19,614	48	3,925	3,735	3,55
11	20,553	19,601	18,68	49	3,776	3,59	3,409
12	19,525	18,646	17,794	50	3,632	3,451	3,274
13	18,554	17,743	16,955	51	3,495	3,318	3,146
14	17,636	16,888	16,16	52	3,363	3,191	3,023
15	16,769	16,079	15,406	53	3,237	3,069	2,905
16	15,949	15,313	14,691	54	3,116	2,952	2,793
17	15,174	14,588	14,014	55	3,001	2,841	2,685

Pipe temperature sensor

Temp	Resistance (KΩ)		
(°C)	Rmax	R (t) Normal	Rmin
56	2,89	2,734	2,582
57	2,784	2,632	2,484
58	2,682	2,534	2,39
59	2,585	2,44	2,299
60	2,491	2,35	2,213
61	2,401	2,264	2,13
62	2,315	2,181	2,051
63	2,233	2,102	1,975
64	2,154	2,026	1,903
65	2,077	1,953	1,833
66	2,004	1,883	1,766
67	1,934	1,816	1,702
68	1,867	1,752	1,641
69	1,802	1,69	1,582
70	1,74	1,631	1,525
71	1,68	1,574	1,471
72	1,622	1,519	1,419
73	1,567	1,466	1,369
74	1,514	1,416	1,321
75	1,463	1,367	1,275
76	1,414	1,321	1,23
77	1,367	1,276	1,188
78	1,321	1,233	1,147
79	1,277	1,191	1,108
80	1,235	1,151	1,07
81	1,195	1,113	1,034
82	1,156	1,076	0,999
83	1,118	1,041	0,966
84	1,082	1,007	0,934
85	1,047	0,974	0,903
86	1,014	0,942	0,874
87	0,982	0,912	0,845
88	0,951	0,883	0,818
89	0,921	0,855	0,791
90	0,892	0,828	0,766
91	0,864	0,802	0,742
92	0,838	0,777	0,719
93	0,812	0,753	0,696

Temp	Resistance (KΩ)		
(°C)	Rmax	R (t) Normal	Rmin
94	0,787	0,73	0,675
95	0,763	0,708	0,654
96	0,74	0,686	0,634
97	0,718	0,666	0,615
98	0,697	0,646	0,597
99	0,677	0,627	0,579
100	0,657	0,609	0,562
101	0,638	0,591	0,546
102	0,62	0,574	0,53
103	0,602	0,558	0,515
104	0,585	0,542	0,501
105	0,569	0,527	0,485

Discharge temperature sensor

T (°C)	Rmin (KΩ)	Rnom (KΩ)	Rmax (KΩ
-40	1447,607	1780,01	2186,77
-39	1357,115	1665,411	2041,903
-38	1273,241	1559,403	1908,162
-37	1195,401	1461,215	1784,53
-36	1123,073	1370,157	1670,097
-35	1055,793	1285,615	1564,057
-34	993,138	1207,036	1465,683
-33	934,733	1133,925	1374,327
-32	880,24	1065,838	1289,407
-31	829,351	1002,371	1210,396
-30	781,789	943,162	1136,821
-29	737,301	887,881	1068,252
-28	695,659	836,229	1004,299
-27	656,652	787,933	944,609
-26	620,092	742,746	888,861
-25	585,802	700,441	836,76
-24	553,625	660,811	788,039
-23	523,412	623,665	742,452
-22	495,03	588,83	699,774
-21	468,353	556,146	659,8
-20	443,269	525,464	622,339
-19	419,671	496,649	587,217
-18	397,461	469,575	554,273
-17	376,55	444,126	523,359
-16	356,853	420,196	494,338
-15	338,293	397,684	467,082
-14	320,799	376,5	441,475
-13	304,302	356,556	417,407
-12	288,742	337,775	394,779
-11	274,059	320,082	373,497
-10	260,2	303,408	353,473
-9	247,115	287,69	334,627
-8	234,756	272,869	316,884
-7	223,08	258,888	300,175
-6	212,045	245,697	284,433
-5	201,614	233,246	269,598
-4	191,751	221,491	255,615
-3	182,421	210,39	242,429
-2	173,595	199,903	229,992

T (°C)	Rmin (KΩ)	Rnom (KΩ)	Rmax (KΩ
-1	165,241	189,994	218,258
0	157,334	180,628	207,184
1	149,846	171,772	196,729
2	142,754	163,397	186,857
3	136,035	155,474	177,532
4	129,667	147,978	168,721
5	123,632	140,882	160,394
6	117,909	134,164	152,522
7	112,481	127,802	145,078
8	107,332	121,775	138,036
9	102,447	116,064	131,373
10	97,809	110,651	125,067
11	93,406	105,52	119,098
12	89,225	100,654	113,444
13	85,253	96,038	108,09
14	81,479	91,658	103,016
15	77,892	87,501	98,207
16	74,483	83,555	93,649
17	71,24	79,808	89,326
18	68,156	76,249	85,225
19	65,222	72,867	81,335
20	62,43	69,653	77,642
21	59,772	66,598	74,137
22	57,241	63,693	70,808
23	54,831	60,93	67,646
24	52,535	58,301	64,642
25	50,346	55,799	61,787
26	48,255	53,411	59,065
27	46,262	51,138	56,478
28	44,361	48,974	54,017
29	42,549	46,912	51,676
30	40,819	44,947	49,449
31	39,169	43,075	47,329
32	37,594	41,291	45,31
33	36,091	39,59	43,389
34	34,655	37,967	41,558
35	33,284	36,419	39,814
36	31,973	34,942	38,152
37	30,722	33,533	36,568

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Discharge temperature sensor

T (°C)	Rmin (KΩ)	Rnom (KΩ)	Rmax (KΩ
38	29,525	32,187	35,057
39	28,381	30,902	33,617
40	27,288	29,675	32,243
41	26,242	28,503	30,932
42	25,241	27,383	29,681
43	24,283	26,313	28,487
44	23,367	25,29	27,347
45	22,49	24,312	26,258
46	21,65	23,376	25,218
47	20,845	22,481	24,224
48	20,075	21,625	23,274
49	19,337	20,806	22,367
50	18,629	20,022	21,499
51	17,951	19,271	20,669
52	17,301	18,552	19,875
53	16,678	17,863	19,116
54	16,08	17,204	18,389
55	15,507	16,572	17,693
56	14,957	15,966	17,028
57	14,429	15,385	16,39
58	13,922	14,828	15,779
59	13,435	14,294	15,194
60	12,968	13,782	14,634
61	12,519	13,291	14,097
62	12,089	12,819	13,582
63	11,674	12,367	13,089
64	11,277	11,933	12,616
65	10,894	11,516	12,162
66	10,527	11,115	11,727
67	10,173	10,731	11,309
68	9,833	10,361	10,908
69	9,506	10,006	10,523
70	9,192	9,665	10,154
71	8,889	9,337	9,799
72	8,598	9,022	9,459
73	8,317	8,719	9,132
74	8,048	8,427	8,817
75	7,788	8,147	8,515
76	7,537	7,877	8,225

T (°C)	Rmin (KΩ)	Rnom (KΩ)	Rmax (KΩ
77	7,297	7,618	7,946
78	7,064	7,368	7,678
79	6,841	7,128	7,42
80	6,625	6,896	7,172
81	6,417	6,673	6,933
82	6,217	6,458	6,704
83	6,024	6,252	6,483
84	5,837	6,053	6,27
85	5,658	5,861	6,065
86	5,485	5,676	5,868
87	5,317	5,497	5,678
88	5,156	5,325	5,496
89	5	5,16	5,32
90	4,85	5	5,15
91	4,696	4,846	4,996
92	4,548	4,697	4,847
93	4,405	4,554	4,703
94	4,267	4,415	4,565
95	4,134	4,282	4,431
96	4,006	4,153	4,301
97	3,882	4,028	4,176
98	3,763	3,908	4,055
99	3,648	3,792	3,938
100	3,537	3,68	3,825
101	3,43	3,572	3,716
102	3,326	3,467	3,61
103	3,226	3,366	3,508
104	3,13	3,268	3,409
105	3,037	3,174	3,314
106	2,947	3,082	3,221
107	2,86	2,994	3,132
108	2,776	2,909	3,045
109	2,695	2,826	2,961
110	2,617	2,746	2,88
111	2,541	2,669	2,802
112	2,468	2,594	2,725
113	2,397	2,522	2,652
114	2,328	2,452	2,58
115	2,262	2,384	2,511

Discharge temperature sensor

T (°C)	Rmin (KΩ)	Rnom (KΩ)	Rmax (KΩ
116	2,198	2,319	2,444
117	2,136	2,255	2,379
118	2,076	2,194	2,316
119	2,018	2,134	2,255
120	1,962	2,077	2,196
121	1,908	2,021	2,139
122	1,855	1,967	2,083
123	1,804	1,914	2,029
124	1,755	1,863	1,977
125	1,707	1,814	1,926
126	1,661	1,766	1,877
127	1,616	1,72	1,829
128	1,573	1,675	1,783
129	1,531	1,632	1,738
130	1,49	1,59	1,695
131	1,45	1,549	1,652
132	1,412	1,509	1,611
133	1,375	1,47	1,571
134	1,339	1,433	1,532
135	1,304	1,397	1,495
136	1,27	1,361	1,458
137	1,237	1,327	1,423
138	1,205	1,294	1,388
139	1,175	1,262	1,355
140	1,145	1,231	1,322
141	1,115	1,2	1,29
142	1,087	1,171	1,26
143	1,06	1,142	1,23
144	1,033	1,114	1,201
145	1,007	1,087	1,172
146	0,982	1,061	1,145
147	0,958	1,035	1,118
148	0,934	1,011	1,092
149	0,911	0,987	1,067
150	0,889	0,963	1,042
151	0,873	0,946	1,024
152	0,857	0,929	1,006
153	0,841	0,912	0,989
154	0,825	0,896	0,972

T (°C)	Rmin (KΩ)	Rnom (KΩ)	Rmax (KΩ
155	0,81	0,88	0,955
156	0,795	0,864	0,938
157	0,78	0,848	0,921
158	0,765	0,833	0,905
159	0,751	0,818	0,889
160	0,737	0,803	0,873
161	0,723	0,788	0,858
162	0,709	0,773	0,842
163	0,696	0,759	0,827
164	0,683	0,745	0,812
165	0,669	0,731	0,798
166	0,657	0,717	0,783
167	0,644	0,704	0,769
168	0,631	0,691	0,755
169	0,619	0,678	0,741
170	0,607	0,665	0,728
171	0,595	0,652	0,714
172	0,584	0,64	0,701
173	0,572	0,628	0,688
174	0,561	0,616	0,675
175	0,55	0,604	0,662
176	0,539	0,592	0,65
177	0,528	0,581	0,638
178	0,517	0,569	0,626
179	0,507	0,558	0,614
180	0,497	0,547	0,602
181	0,486	0,536	0,591
182	0,477	0,526	0,579
183	0,467	0,515	0,568
184	0,457	0,505	0,557
185	0,448	0,495	0,546
186	0,439	0,485	0,536
187	0,43	0,475	0,525
188	0,421	0,466	0,515
189	0,412	0,456	0,505
190	0,403	0,447	0,495

NOTE