

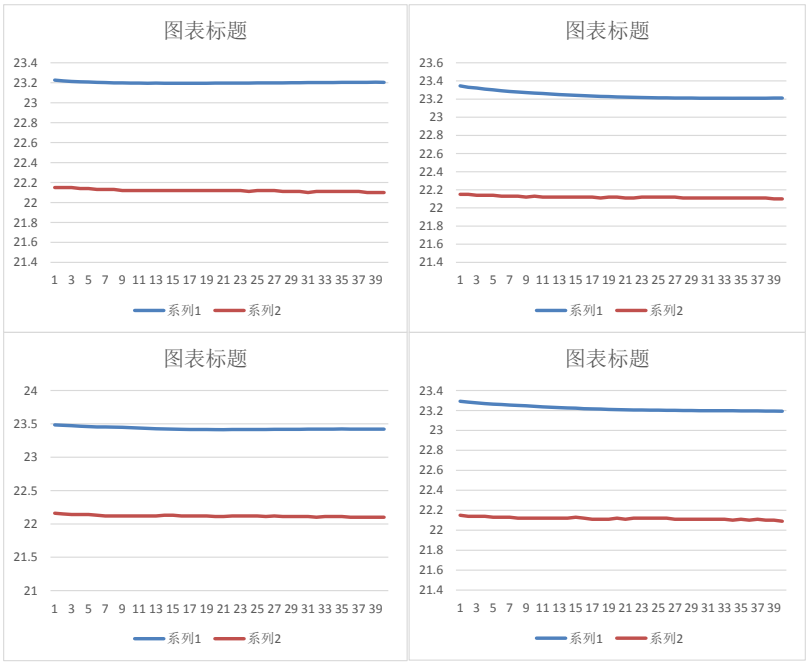
NTC热敏电阻与PT100用于测温的比较分析

- 测试约定
1. CH#?表示测试板上通道编号

2. NTC#?表示NTC热敏电阻编号

3. 每一个NTC与PT100测得的温度值可认为在同一时刻

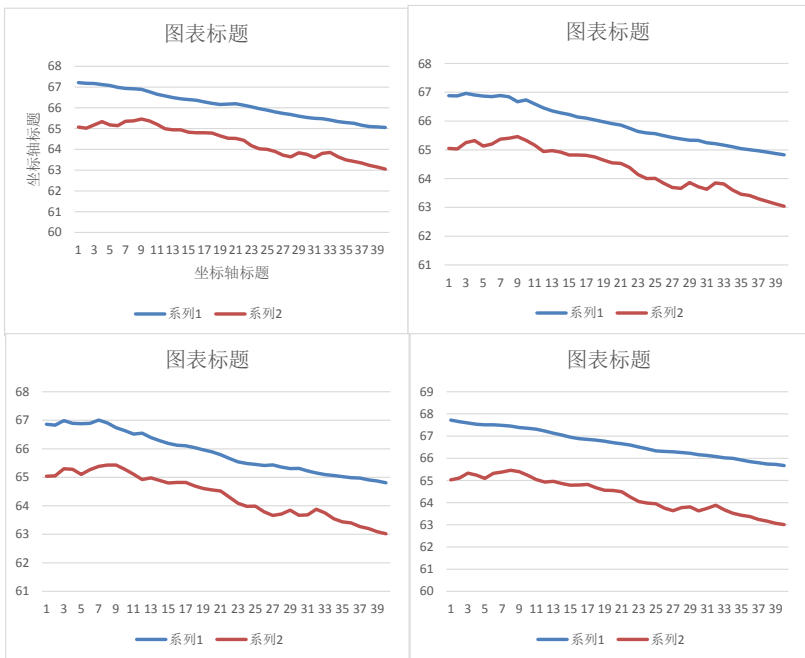
	CH#1+NTC#1	PT100	CH#2+NTC#2	PT100	CH#3+NTC#3	PT100	CH#4+NTC#4	PT100
1	23.226338	22.15	23.345251	22.15	23.484372	22.16	23.291966	22.15
2	23.219279	22.15	23.33052	22.15	23.478399	22.15	23.28363	22.14
3	23.213771	22.15	23.320944	22.14	23.472791	22.14	23.275364	22.14
4	23.209441	22.14	23.309784	22.14	23.46579	22.14	23.268674	22.14
5	23.206883	22.14	23.30116	22.14	23.459335	22.14	23.263121	22.13
6	23.203541	22.13	23.29218	22.13	23.454716	22.13	23.259199	22.13
7	23.2014	22.13	23.284429	22.13	23.45304	22.12	23.25439	22.13
8	23.198944	22.13	23.278209	22.13	23.449656	22.12	23.250357	22.12
9	23.198675	22.12	23.272081	22.12	23.446985	22.12	23.246706	22.12
10	23.197273	22.12	23.266404	22.13	23.441858	22.12	23.240708	22.12
11	23.196623	22.12	23.260683	22.12	23.43749	22.12	23.236295	22.12
12	23.195356	22.12	23.255356	22.12	23.432513	22.12	23.232635	22.12
13	23.196354	22.12	23.250064	22.12	23.427491	22.12	23.229335	22.12
14	23.195166	22.12	23.244639	22.12	23.423646	22.13	23.22562	22.12
15	23.194706	22.12	23.241966	22.12	23.42091	22.13	23.222578	22.13
16	23.194818	22.12	23.237182	22.12	23.4184	22.12	23.218157	22.12
17	23.195435	22.12	23.233691	22.12	23.416568	22.12	23.216317	22.11
18	23.194807	22.12	23.229717	22.11	23.415087	22.12	23.213299	22.11
19	23.195525	22.12	23.227663	22.12	23.413912	22.12	23.21054	22.11
20	23.196018	22.12	23.223925	22.12	23.413572	22.11	23.208599	22.12
21	23.19567	22.12	23.221041	22.11	23.413855	22.11	23.206995	22.11
22	23.196713	22.12	23.219986	22.11	23.414081	22.12	23.20528	22.12
23	23.196713	22.12	23.217967	22.12	23.41468	22.12	23.204786	22.12
24	23.197408	22.11	23.21561	22.12	23.414533	22.12	23.203508	22.12
25	23.19817	22.12	23.214275	22.12	23.414906	22.12	23.202084	22.12
26	23.199056	22.12	23.213041	22.12	23.415879	22.11	23.2014	22.12
27	23.199146	22.12	23.212211	22.12	23.417111	22.12	23.200267	22.11
28	23.19891	22.11	23.211347	22.11	23.417766	22.11	23.199213	22.11
29	23.200144	22.11	23.210506	22.11	23.417009	22.11	23.198877	22.11
30	23.200816	22.11	23.210001	22.11	23.41823	22.11	23.198103	22.11
31	23.201859	22.1	23.209654	22.11	23.41953	22.11	23.19724	22.11
32	23.201209	22.11	23.209441	22.11	23.419948	22.1	23.198114	22.11
33	23.201276	22.11	23.209059	22.11	23.421271	22.11	23.197094	22.11
34	23.202555	22.11	23.208969	22.11	23.421712	22.11	23.196769	22.1
35	23.202969	22.11	23.209766	22.11	23.42221	22.11	23.195547	22.11
36	23.20307	22.11	23.209463	22.11	23.42195	22.1	23.195816	22.1
37	23.203384	22.11	23.209407	22.11	23.421656	22.1	23.19511	22.11
38	23.204192	22.1	23.209721	22.11	23.421531	22.1	23.19391	22.1
39	23.204764	22.1	23.21165	22.1	23.421701	22.1	23.193148	22.1
40	23.204663	22.1	23.211347	22.1	23.421712	22.1	23.192352	22.09
平均值	23.201076	22.1195	23.241258	22.1195	23.429945	22.1185	23.220578	22.11725
差值	1.081576		1.1217578		1.311445		1.1033276	
差值平均	1.154526594							



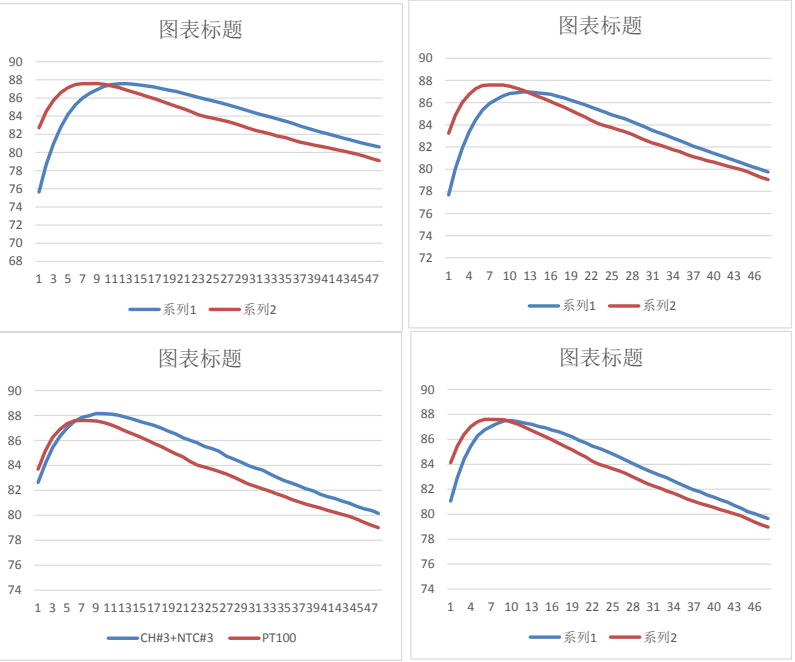
结论

1. NTC测量所得温度比同一时刻PT100温度高, 约高1.154526594° C

	CH#1+NTC#1	PT100	CH#2+NTC#2	PT100	CH#3+NTC#3	PT100	CH#4+NTC#4	PT100
1	67.21435	65.07	66.878532	65.05	66.858592	65.04	67.722486	65.03
2	67.182107	65.02	66.87554	65.03	66.830889	65.05	67.649531	65.11
3	67.169435	65.18	66.960256	65.25	66.987784	65.3	67.589518	65.33
4	67.11711	65.34	66.904102	65.32	66.890004	65.28	67.533923	65.24
5	67.073491	65.18	66.867688	65.13	66.881711	65.1	67.510671	65.09
6	66.984028	65.14	66.845266	65.2	66.891127	65.27	67.514375	65.32
7	66.930197	65.35	66.886138	65.37	67.006256	65.38	67.481826	65.38
8	66.918894	65.37	66.841033	65.4	66.906785	65.43	67.456899	65.46
9	66.889256	65.46	66.668369	65.46	66.739704	65.43	67.38906	65.4
10	66.777928	65.37	66.734124	65.33	66.635924	65.28	67.356158	65.23
11	66.653718	65.2	66.591431	65.16	66.515578	65.11	67.310873	65.04
12	66.577623	64.99	66.456133	64.94	66.549414	64.92	67.227612	64.93
13	66.494192	64.94	66.355421	64.97	66.390886	64.98	67.135925	64.96
14	66.437185	64.94	66.281282	64.92	66.287559	64.89	67.04945	64.86
15	66.399944	64.83	66.225526	64.82	66.191923	64.8	66.953129	64.79
16	66.359637	64.8	66.139205	64.82	66.123211	64.82	66.882584	64.8
17	66.288351	64.8	66.102142	64.81	66.105107	64.82	66.849873	64.82
18	66.213733	64.78	66.038614	64.75	66.041029	64.7	66.82137	64.67
19	66.15806	64.65	65.972529	64.64	65.96422	64.61	66.771161	64.56
20	66.175714	64.54	65.912198	64.55	65.89514	64.56	66.70649	64.55
21	66.19332	64.53	65.857821	64.53	65.790575	64.52	66.658601	64.49
22	66.125209	64.44	65.748448	64.39	65.661777	64.31	66.598338	64.25
23	66.050208	64.18	65.639352	64.14	65.542198	64.09	66.507771	64.05
24	65.961752	64.03	65.583876	64	65.484386	63.98	66.421376	63.98
25	65.886376	64	65.559265	64.01	65.450067	63.99	66.337095	63.95
26	65.801402	63.9	65.489529	63.84	65.417738	63.79	66.312925	63.75
27	65.732332	63.72	65.425404	63.69	65.432954	63.66	66.290058	63.64
28	65.678207	63.64	65.377678	63.66	65.359612	63.71	66.258198	63.78
29	65.598714	63.83	65.33239	63.86	65.305606	63.85	66.22431	63.81
30	65.537933	63.76	65.326807	63.72	65.311243	63.67	66.164975	63.63
31	65.498458	63.61	65.247025	63.63	65.221149	63.68	66.125028	63.74
32	65.478003	63.81	65.215766	63.85	65.155343	63.88	66.075406	63.88
33	65.413671	63.85	65.16264	63.81	65.09273	63.75	66.022499	63.68
34	65.338913	63.64	65.101931	63.6	65.060432	63.55	65.994278	63.52
35	65.294865	63.49	65.042584	63.46	65.02167	63.44	65.925239	63.43
36	65.254876	63.42	65.004603	63.41	64.988359	63.4	65.850147	63.37
37	65.162815	63.34	64.965055	63.3	64.970734	63.27	65.798889	63.24
38	65.100883	63.23	64.922268	63.21	64.912551	63.2	65.744627	63.17
39	65.080563	63.15	64.870774	63.12	64.869735	63.09	65.724636	63.07
40	65.055606	63.05	64.82647	63.04	64.807341	63.02	65.672968	63.01
平均值	66.131476	64.38925	65.90588	64.37975	65.888726	64.3655	66.690507	64.35025
差值	1.7422265		1.5261304		1.5232261		2.340257	
差值平均	1.782959969							
结论	1.NTC对温度的敏感度要比PT100稍微迟钝							



	CH#1+NTC#1	PT100	CH#2+NTC#2	PT100	CH#3+NTC#3	PT100	CH#4+NTC#4	PT100
1	75.639462	82.71	77.681166	83.24	82.63319	83.7	81.058031	84.12
2	78.669032	84.52	80.040774	84.86	84.141228	85.17	82.936669	85.47
3	80.9776	85.76	81.89441	86.01	85.421554	86.24	84.415776	86.41
4	82.799631	86.59	83.34351	86.74	86.318362	86.89	85.466166	87.03
5	84.187862	87.15	84.473135	87.26	86.99716	87.34	86.292112	87.42
6	85.221732	87.48	85.343252	87.54	87.524137	87.58	86.750901	87.6
7	85.990352	87.59	85.913467	87.59	87.838668	87.6	87.042641	87.6
8	86.520766	87.59	86.281543	87.59	87.970006	87.59	87.30361	87.59
9	86.930117	87.6	86.608988	87.59	88.160404	87.57	87.493553	87.56
10	87.272341	87.51	86.818039	87.48	88.150201	87.44	87.510569	87.39
11	87.491825	87.34	86.8908	87.3	88.123146	87.27	87.412201	87.21
12	87.57274	87.16	86.965836	87.11	88.030892	87.03	87.301894	86.97
13	87.585938	86.91	86.955924	86.84	87.884042	86.77	87.204905	86.71
14	87.517219	86.65	86.887938	86.6	87.719991	86.54	87.03061	86.47
15	87.416707	86.42	86.821543	86.36	87.539708	86.3	86.936371	86.22
16	87.318928	86.15	86.754009	86.1	87.373531	86.04	86.741582	85.97
17	87.197276	85.91	86.571788	85.84	87.210694	85.76	86.608215	85.69
18	87.030741	85.64	86.432691	85.59	86.998074	85.52	86.406335	85.42
19	86.864142	85.36	86.218337	85.3	86.745335	85.23	86.207415	85.17
20	86.710153	85.07	86.01279	85	86.52128	84.93	85.927796	84.86
21	86.498561	84.8	85.812365	84.73	86.222784	84.68	85.72011	84.6
22	86.288292	84.51	85.595833	84.4	86.017709	84.31	85.462456	84.24
23	86.072881	84.16	85.364933	84.11	85.809485	84.03	85.280399	83.99
24	85.872154	83.95	85.151077	83.91	85.520885	83.87	85.068282	83.83
25	85.687555	83.78	84.903179	83.75	85.350888	83.7	84.835136	83.65
26	85.499827	83.6	84.716878	83.55	85.132616	83.51	84.583533	83.47
27	85.277696	83.42	84.541858	83.37	84.735067	83.31	84.318973	83.25
28	85.051582	83.2	84.269631	83.14	84.520686	83.07	84.053953	82.99
29	84.813015	82.93	84.030209	82.86	84.274964	82.8	83.808905	82.74
30	84.571671	82.66	83.785019	82.59	83.989116	82.52	83.557325	82.47
31	84.331916	82.41	83.506542	82.37	83.794687	82.33	83.330673	82.27
32	84.112695	82.23	83.27081	82.19	83.623481	82.13	83.115515	82.09
33	83.89448	82.03	83.048398	81.99	83.323685	81.93	82.922777	81.86
34	83.678538	81.8	82.815037	81.75	83.046356	81.72	82.6617	81.68
35	83.455046	81.65	82.575588	81.59	82.788504	81.53	82.408485	81.46
36	83.224541	81.4	82.323707	81.33	82.589308	81.27	82.180637	81.21
37	82.939945	81.15	82.072339	81.12	82.370712	81.08	81.953011	81.04
38	82.691023	80.99	81.864721	80.96	82.124845	80.9	81.793185	80.85
39	82.450527	80.81	81.654116	80.77	81.963263	80.74	81.534532	80.7
40	82.228172	80.67	81.425411	80.63	81.678721	80.59	81.357028	80.55
41	82.031303	80.5	81.223634	80.46	81.500506	80.4	81.144944	80.36
42	81.817805	80.32	81.019526	80.28	81.342838	80.23	80.963393	80.21
43	81.597973	80.17	80.801012	80.12	81.138379	80.07	80.700477	80.03
44	81.384895	79.99	80.585047	79.96	80.961815	79.92	80.490982	79.87
45	81.177793	79.81	80.365304	79.76	80.726228	79.69	80.213257	79.63
46	80.960132	79.58	80.154042	79.51	80.534245	79.45	80.049423	79.38
47	80.778953	79.32	79.957269	79.26	80.391671	79.21	79.837938	79.15
48	80.606848	79.1	79.747193	79.06	80.163442	79.01	79.652132	78.97
平均值	84.2898	83.709375	83.781055	83.697083	84.686219	83.677292	84.105136	83.654583
差值	0.5804246		0.0839712		1.0089269		0.4505524	
差值平均	0.530968766							



所有差值平均

1.156151776

结论

1. NTC对温度的敏感度要比PT100稍微迟钝

2. 这个迟钝导致NTC温度在测试范围内(22° C~85° C)比PT100温度高约1.156151776