

编译者说明

由于电子工业和电影、电视、照相等事业的飞速发展，近年来，我国在光学镜头设计及加工方面取得了很大进展。成系列的各类镜头已被设计和试制出来，有些并已进入成批生产阶段。但在品种、数量和质量方面，跟世界先进水平相比，差距还是比较大。

近年来，我们收集了美、英、德、日等国从 1811 年到现在的光学镜头资料共 3000 多种。现挑选其中的一部分经补充整理之后，将其出版，以供我国从事光学镜头设计的人员参考。

原资料中，大部分没有给出象差曲线图，我们均重新计算给予补上。由于原资料的光栏位置大多没有给出，我们计算时只能根据我们主观给定的光栏位置进行计算，因此相应的象差曲线图仅供参考。

本册的内容为中等视场中等孔径物镜。

由于我们水平有限，时间仓促，力量不足，所以只能一部分一部分地整理出版，而且在整理编译过程中，一定存在不少缺点和错误，分类也可能不完全合理，望读者批评指正。

本册的部分内容是由春光同志翻译的。参加本册编译工作的有林茂智、杨甦田等同志。

编译者

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符号说明

1. 凡数据后有符号“*”，表示光栏位置或其值间有光栏。
凡数据后有符号“**”，表示原资料中未给出 F. A. 值，此系编者在计算时给定的值。

2. 凡没有注明数值单位的，均以毫米为单位；若注明以英寸为单位的，则在该镜头资料中均以英寸为单位。

3. 常用符号：

ΣS_1	球差系数和；
ΣS_2	彗差系数和；
ΣS_3	象散系数和；
ΣS_4	场曲系数和；
ΣS_5	畸变系数和；
LA'	球差；
$\Delta H'$	绝对畸变；
x'_i	细光束子午场曲；
x'_s	细光束弧矢场曲；
$x'_i - x'_s$	象散；
K'_{T1}	全口径的子午彗差；
$K'_{T0.7}$	0.707 口径的子午彗差；
QP	相对畸变；
HI	理想象高；
E. F. L	焦距；
B. F. L	后截距；
FNo.	相对孔径倒数；
F. A.	视场角；
L'_p	入瞳距离或光栏距 L'_p 下标所示面的距离；
η	物高；
ω	镜头视场。

编号: 05-04-001

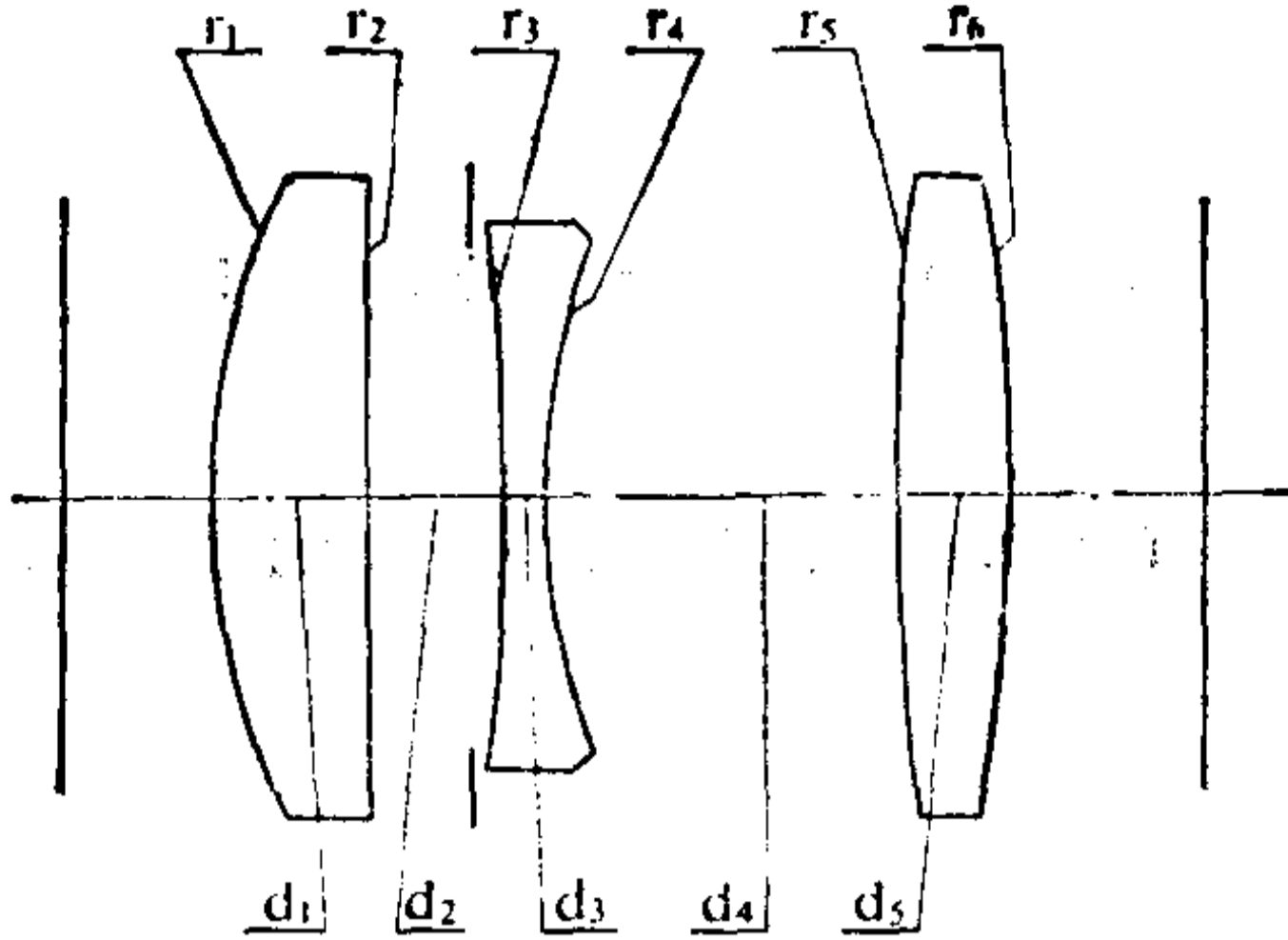
重显透镜系统

E. F. L = 100

B. F. L = 79.61

FNo. = 5.6

F. A. = ±22.5°



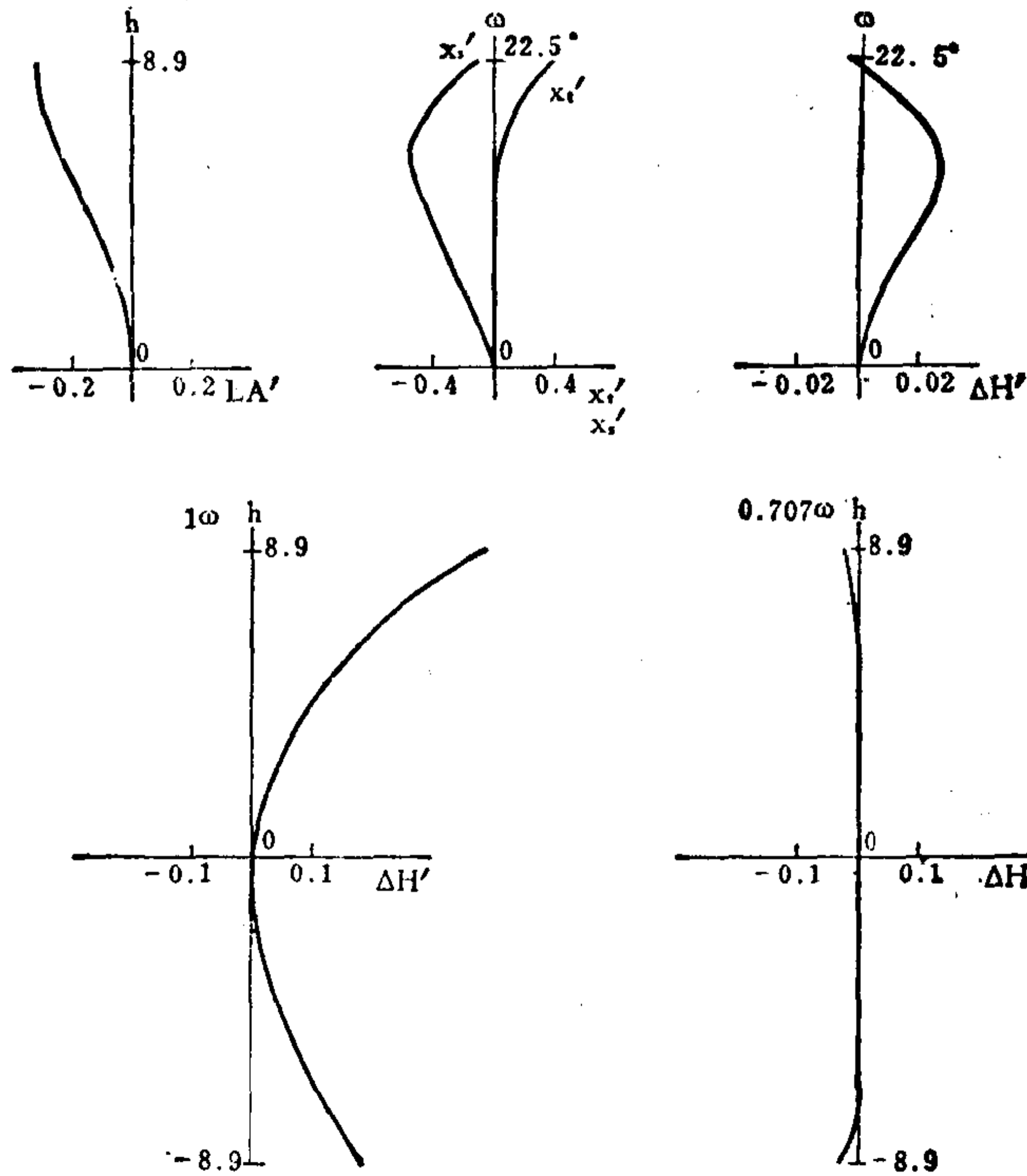
序号	r	d	nd	v	序号	r	d	nd	v
1	25.11	5.14	1.65844	50.8	4	24.54	11.74		
2	2844.42	4.75*			5	142.77	3.88	1.65844	50.8
3	-79.796	1.36	1.66680	33.1	6	-64.56			

4.75* = 3.75 + 1.00

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.01010	-0.00667	0.00896	-0.03791	0.01885	41.27	-0.01%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_e	$x'_i - x'_e$	K'_{T1}	$K'_{T0.7}$
100	-0.320	-0.0041	0.398	-0.073	0.471	0.2790	0.1504
70	-0.248	0.0257	0.021	-0.570	0.591	-0.0229	0.0059

注: 1. M = 2^x ~ 10^x;

2. 以上象差值是按 l = -∞ 计算的。



编号: 05-04-002

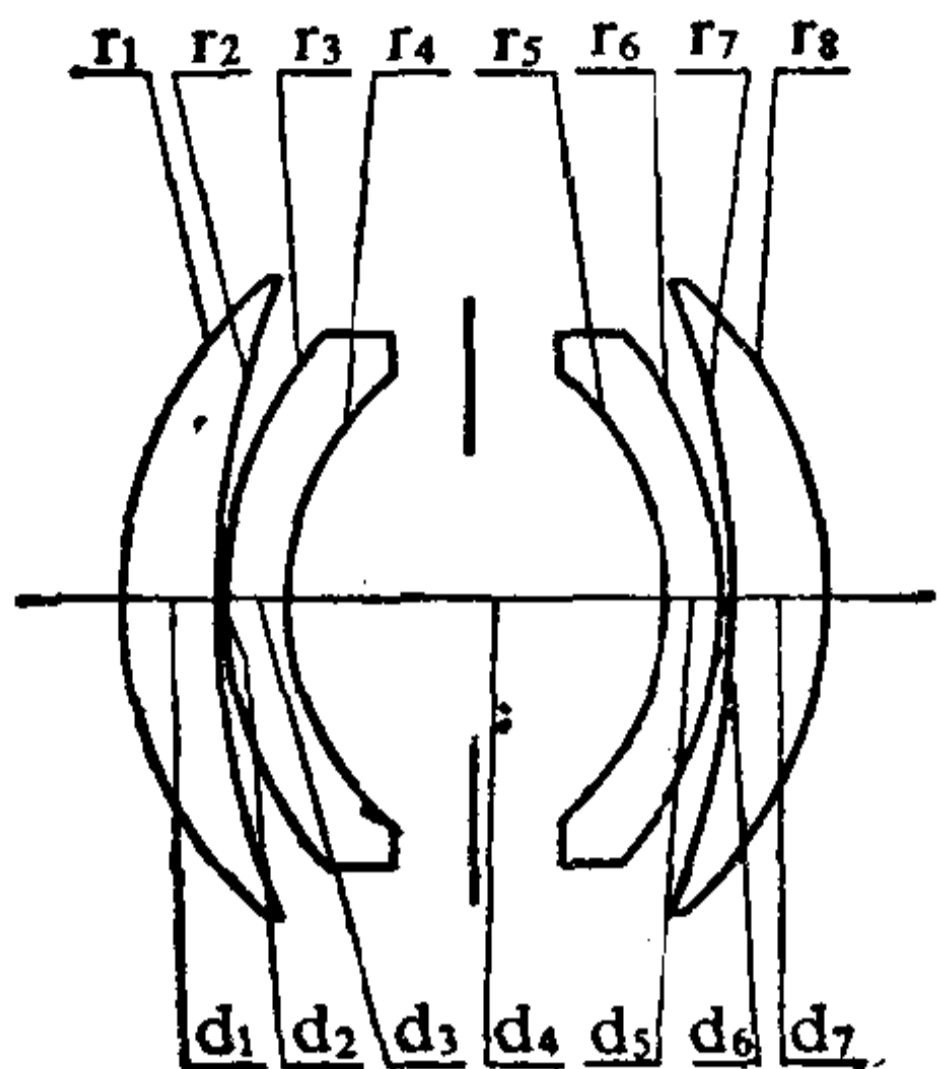
对称复制透镜系统

E.F.L=0.99

B.F.L=0.78

FNo.=4.5

F.A. = ±25°**

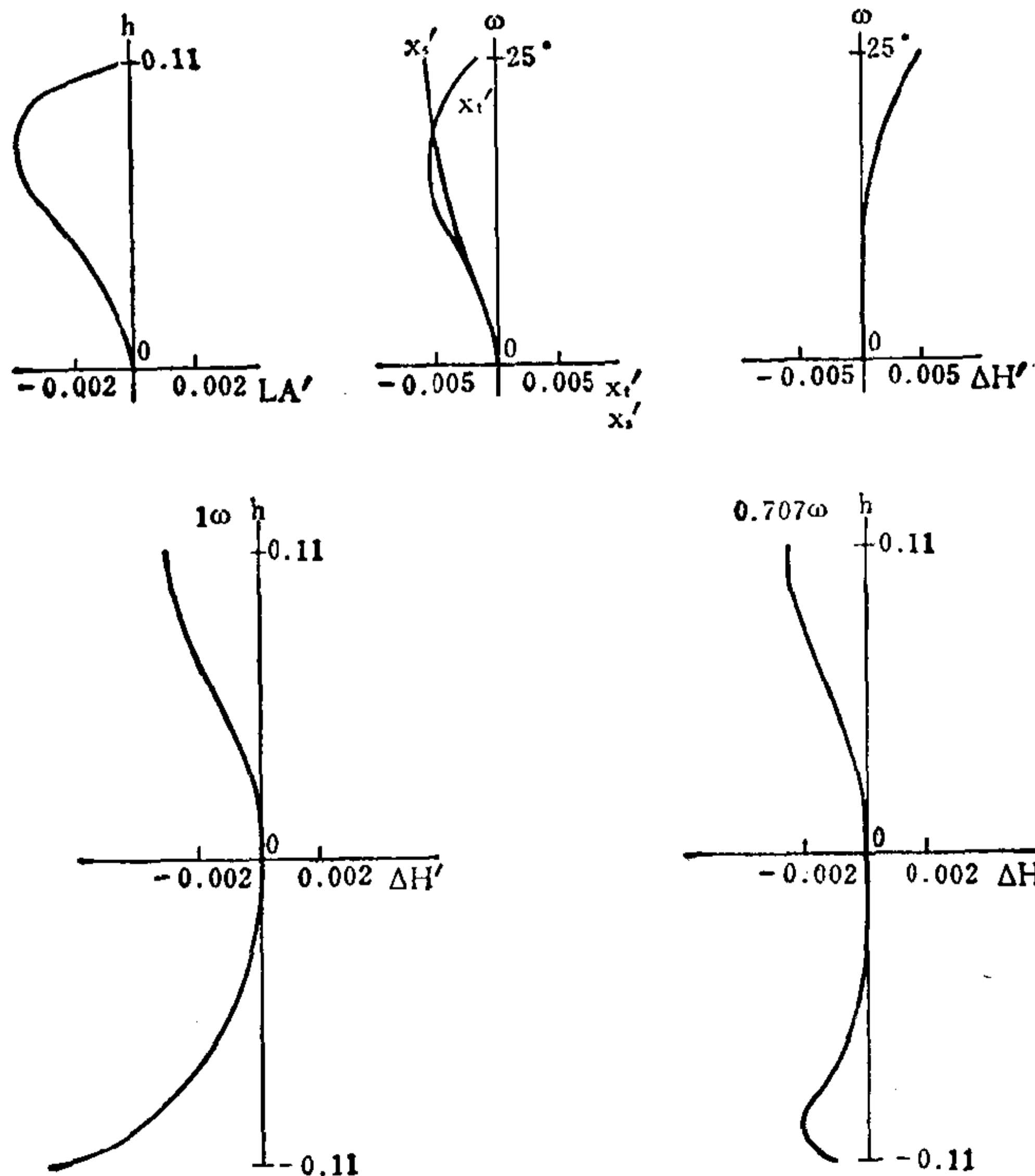


序号	r	d	n _d	v	序号	r	d	n _d	v
1	0.217	0.0480	1.62	60.3	5	-0.147	0.0300	1.72	29.3
2	0.435	0.0004			6	-0.207	0.0004		
3	0.207	0.0300	1.72	29.3	7	-0.435	0.0480	1.62	60.3
4	0.147	0.1900*			8	-0.217			

0.1900* = 0.0950 + 0.0950

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.00034	-0.00025	-0.00004	-0.00025	0.0008	0.4586	1.03%
h 或 ω%	LA'	ΔH'	x' _i	x' _s	x' _i -x' _s	K _{T1}	K' _{T0.7}
100	-0.00039	0.00474	-0.00159	-0.00606	0.00447	-0.00493	-0.00224
70	-0.00388	0.00152	-0.00524	-0.00488	-0.00036	-0.00165	-0.00149

注: 以上象差值是按 l = -∞ 计算的。



编号: 05-04-003

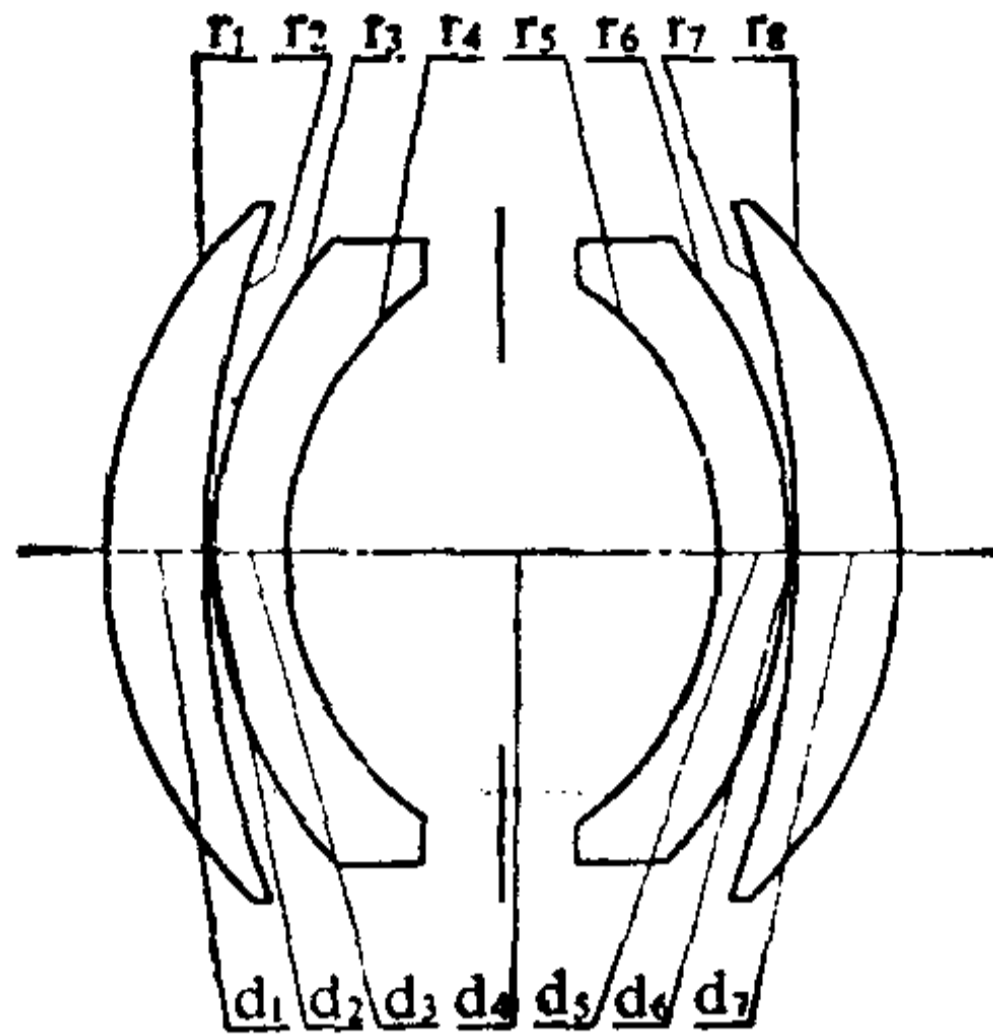
对称复制透镜系统

E.F.L=1.02

B.F.L=0.82

FNo.=4.5

F.A. = ±25°**

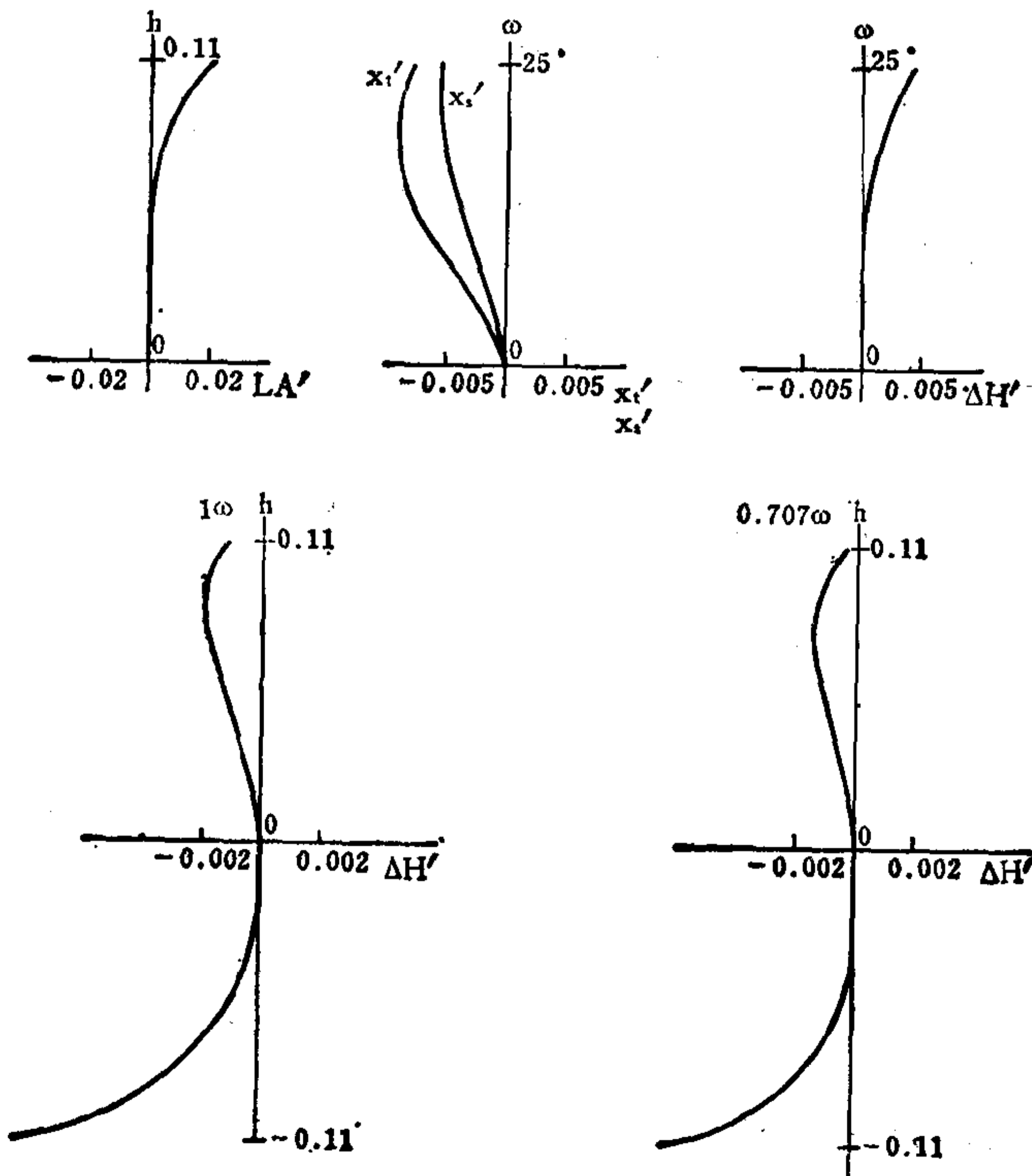


序号	r	d	n_d	v	序号	r	d	n_d	v
1	0.211	0.0460	1.62	60.3	5	-0.143	0.0290	1.72	29.3
2	0.424	0.0005			6	-0.204	0.0005		
3	0.204	0.0290	1.72	29.3	7	-0.424	0.0460	1.62	60.3
4	0.143	0.1860*			8	-0.211			

$0.1860^* = 0.0930 + 0.0930$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	0.000009	-0.000219	-0.000120	-0.000154	0.000736	0.4758	0.94%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_s	$x'_i - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.0216	0.0045	-0.0086	-0.0056	-0.0030	-0.00466	-0.00206
70	0.0048	0.0014	-0.0090	-0.0048	-0.0042	-0.00336	-0.00135

注: 以上象差值是按 $l = -\infty$ 计算的。



编号: 05-04-004

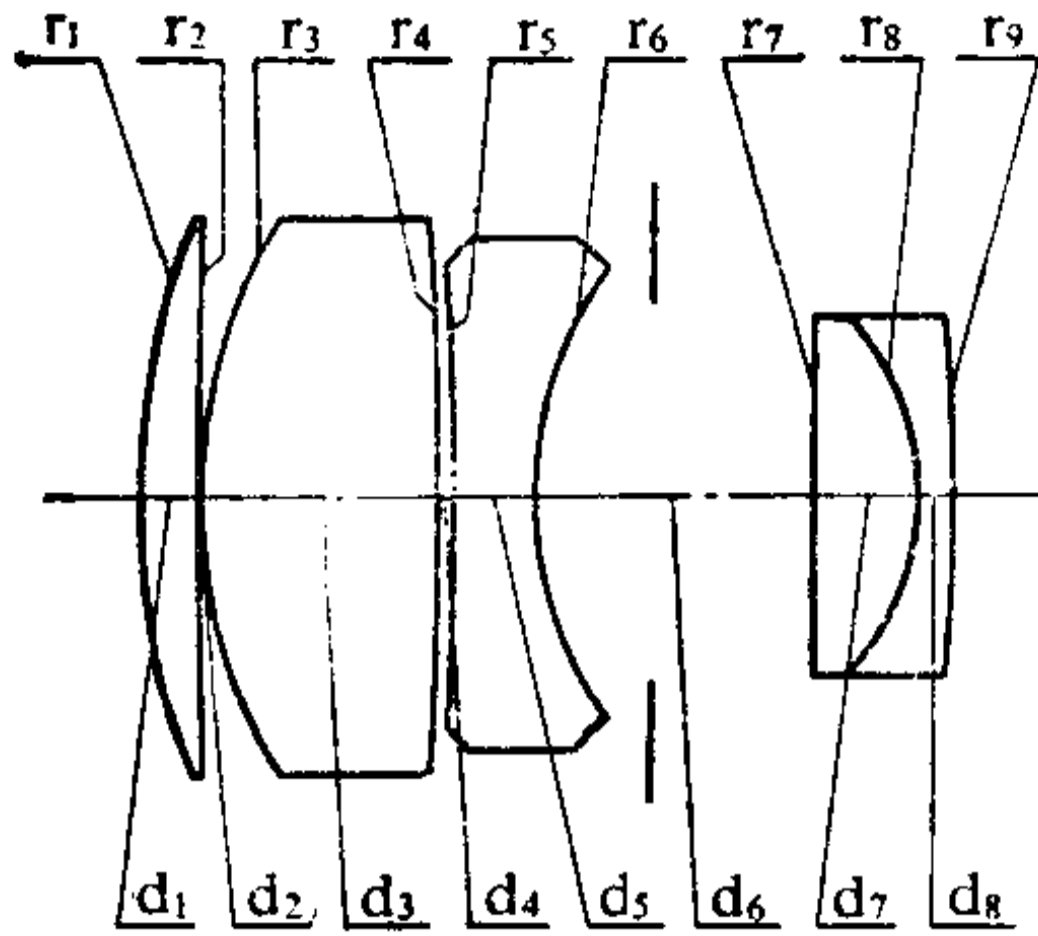
摄影物镜

E. F. L = 1.0

B. F. L = 0.5555

FNo. = 4

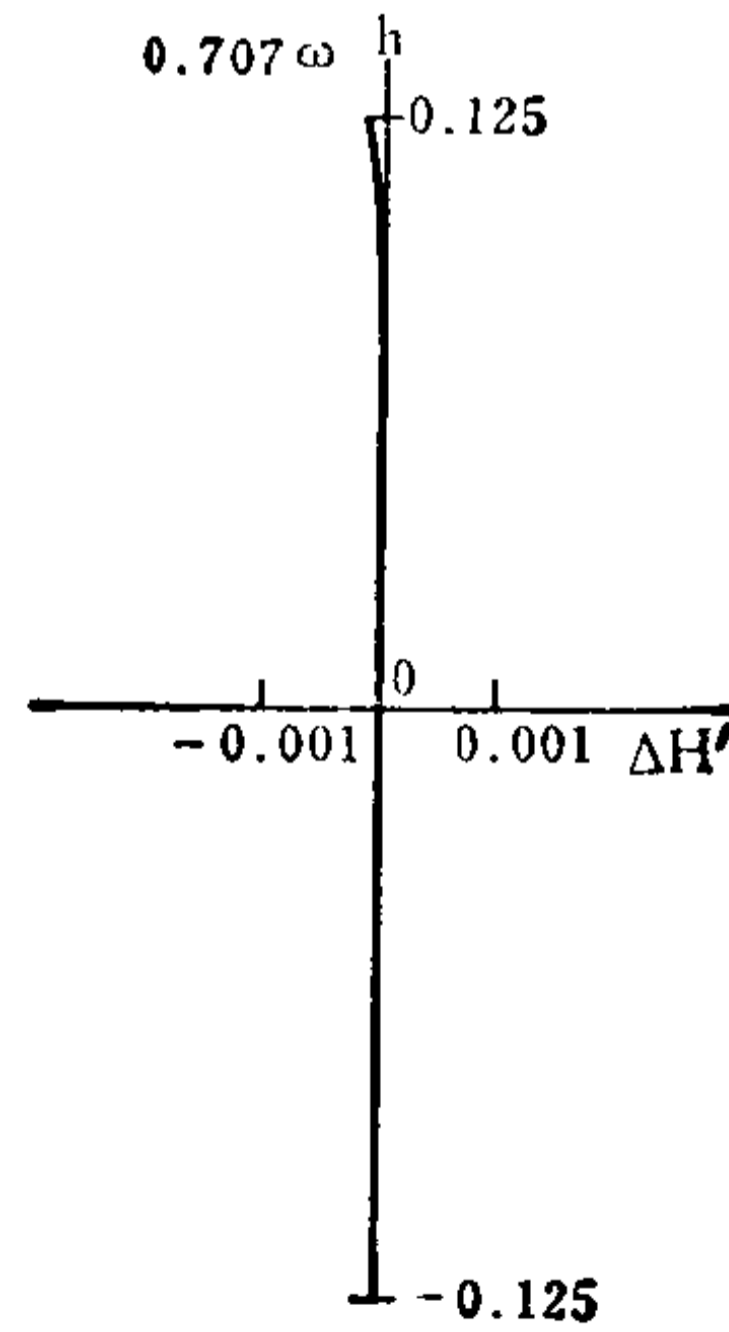
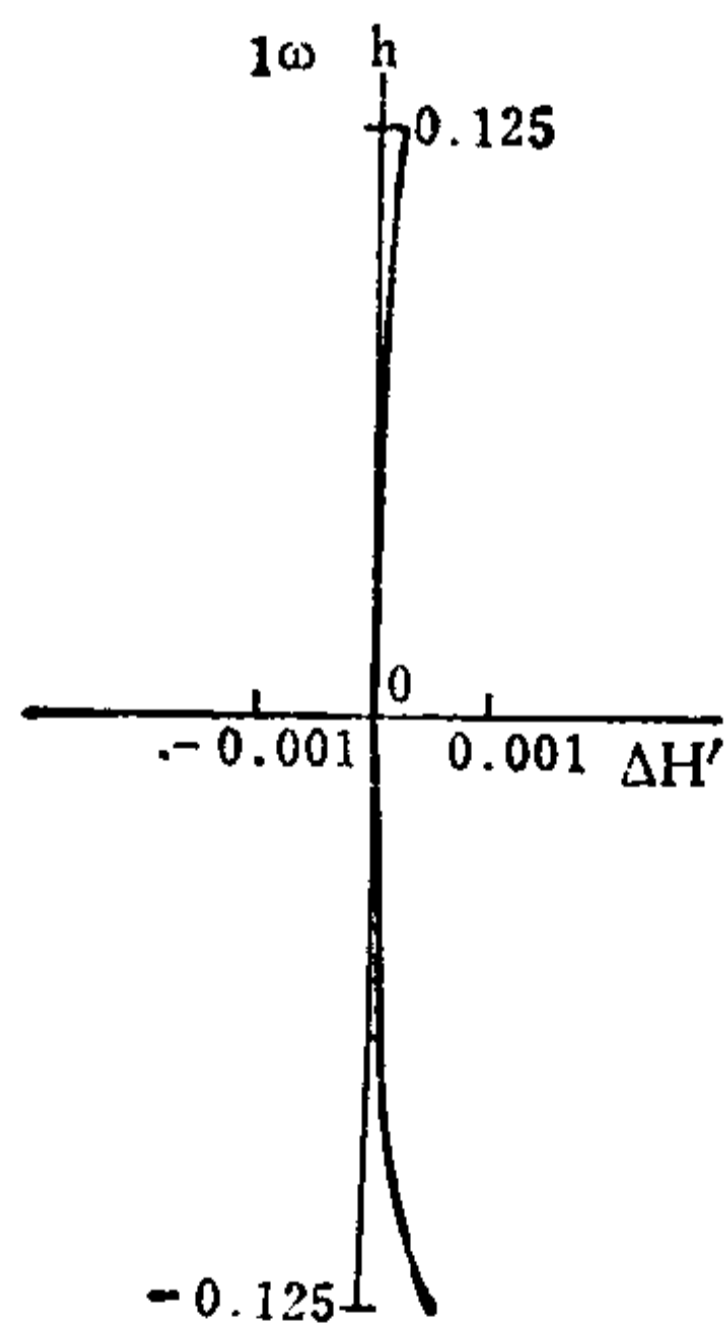
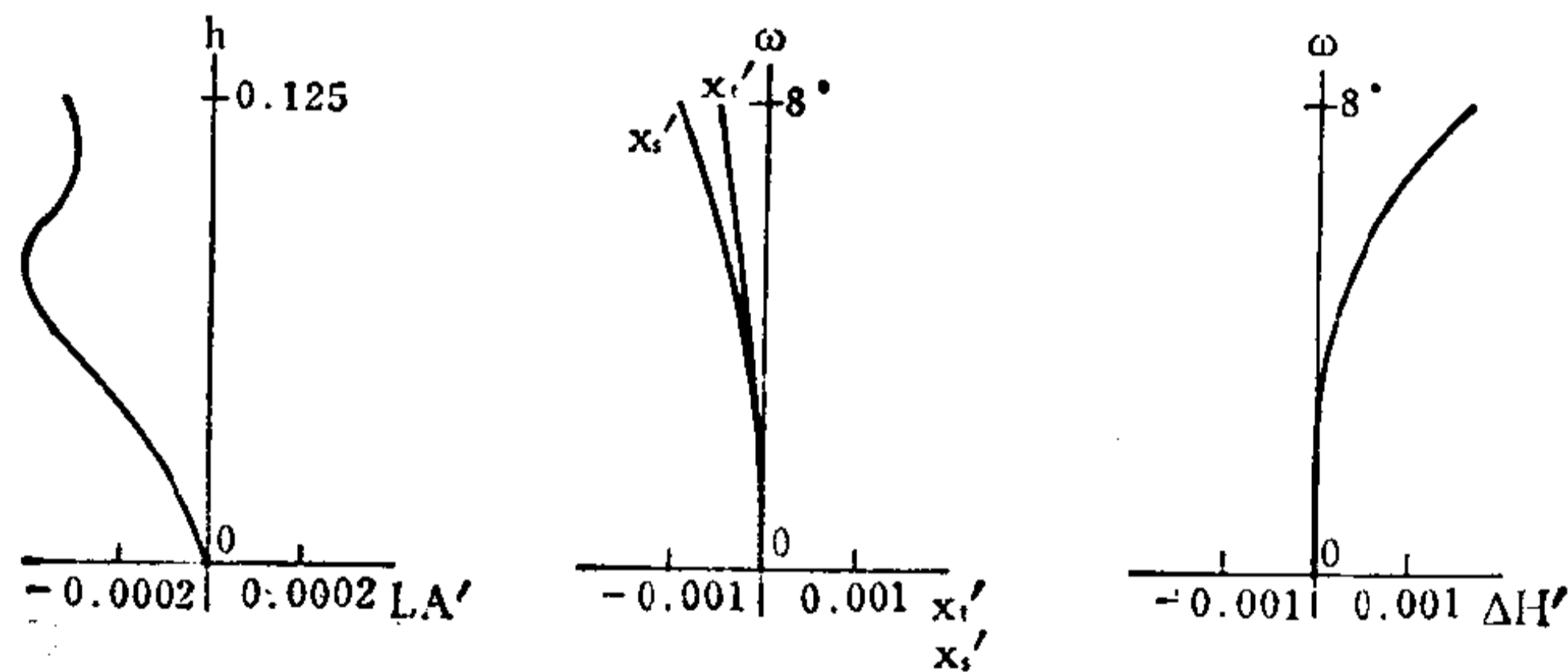
F. A. = $\pm 8^\circ$



序号	r	d	n _d	v _d	序号	r	d	n _d	v _d
1	0.37371	0.02413	1.62041	60.29	6	0.16813	0.11845*		
2	2.10155	0.00016			7	∞	0.04432	1.56965	49.45
3	0.23750	0.10210	1.48749	70.04	8	-0.11648	0.01477	1.55232	63.49
4	-1.32595	0.00607			9	-1.11563			
5	-1.16431	0.03339	1.66446	35.88					

$0.11845^* = 0.04000 + 0.07845$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.000064	-0.000012	0.000007	-0.000039	0.000377	0.1399	1.13%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-0.00033	0.00158	-0.00052	-0.00091	0.00039	0.000410	0.000097
70	-0.00040	0.00055	-0.00027	-0.00049	0.00022	-0.000017	-0.000020



编号: 05-04-005

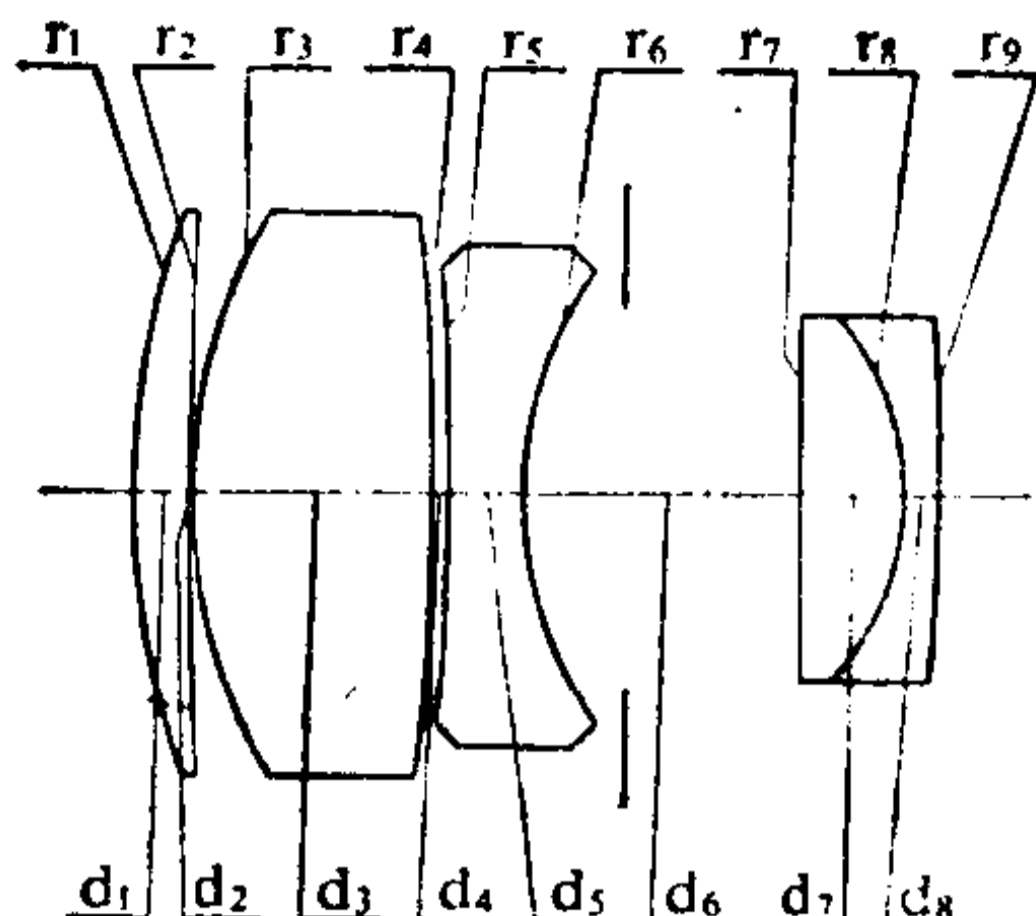
摄影物镜

E.F.L=1.0

B.F.L=0.56

FNo. = 4

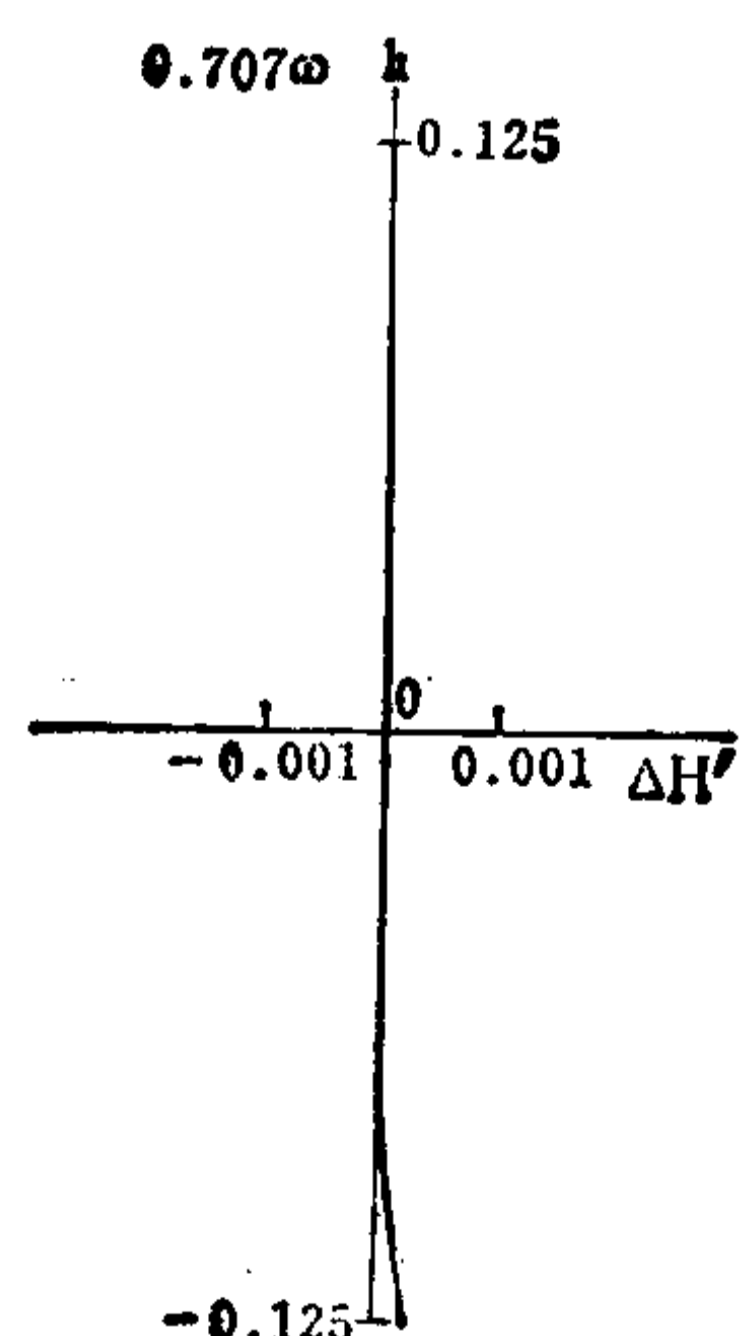
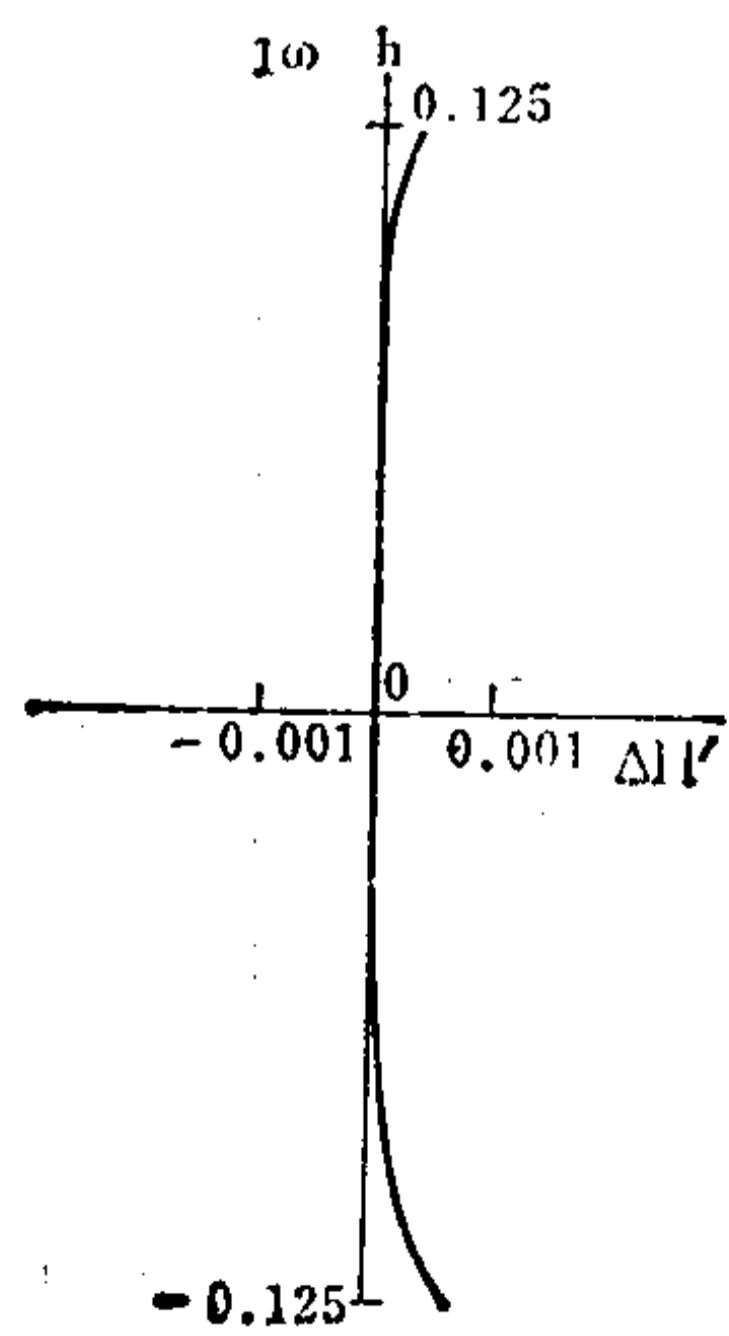
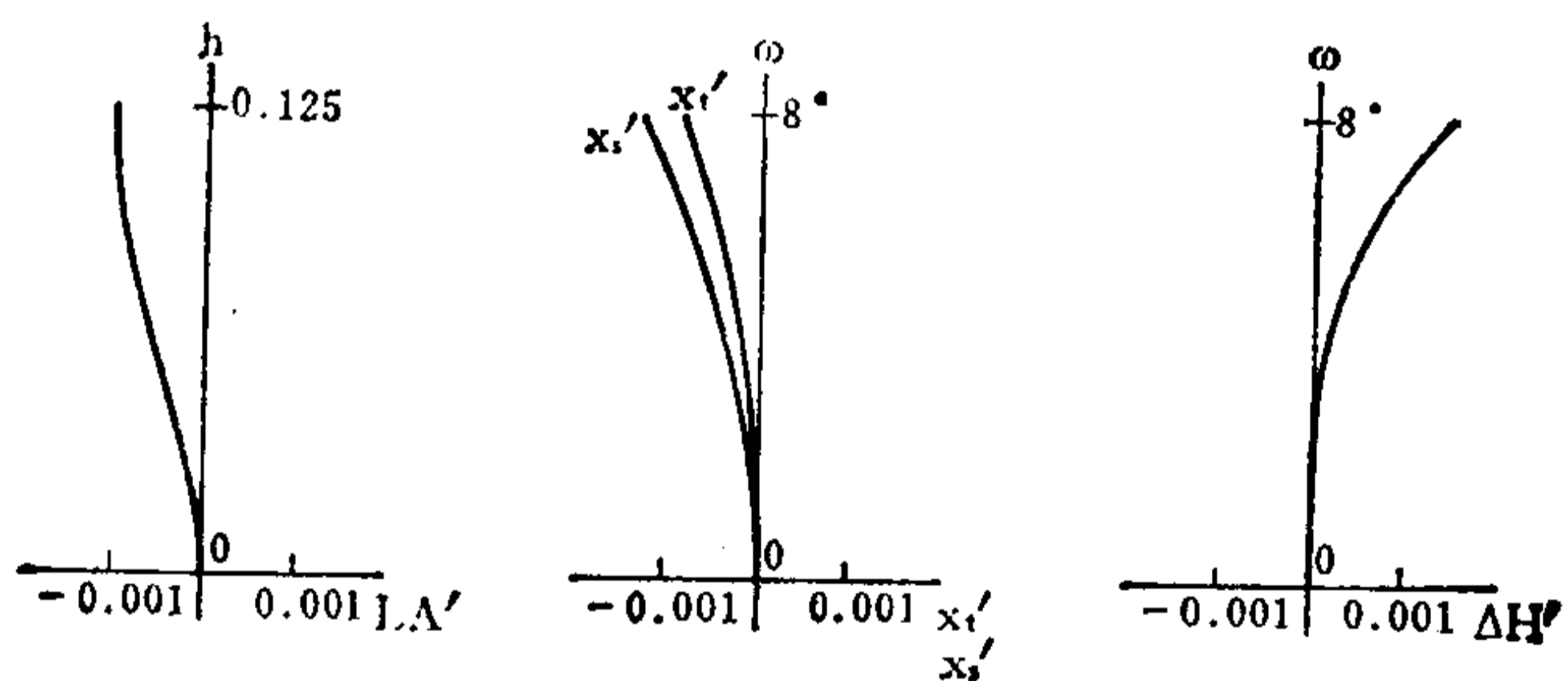
F.A. = ±8°



序号	r	d	n_d	v_d	序号	r	d	n_d	v_d
1	0.36712	0.02405	1.62041	60.29	6	0.17245	0.11812*		
2	1.92115	0.00016			7	∞	0.04417	1.56965	49.45
3	0.24535	0.10176	1.48794	70.04	8	-0.12034	0.01472	1.55232	63.49
4	-1.39973	0.00605			9	-1.04970			
5	-1.21222	0.03337	1.66446	35.88					

$0.11812^* = 0.04000 + 0.07812$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.000092	0.000002	0.000006	-0.000050	0.000357	0.1396	1.06%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-0.00107	0.00148	-0.00079	-0.00125	0.00046	0.00050	0.00017
70	-0.00086	0.00052	-0.00043	-0.00066	0.00023	0.00011	0.00004



编号: 05-04-006

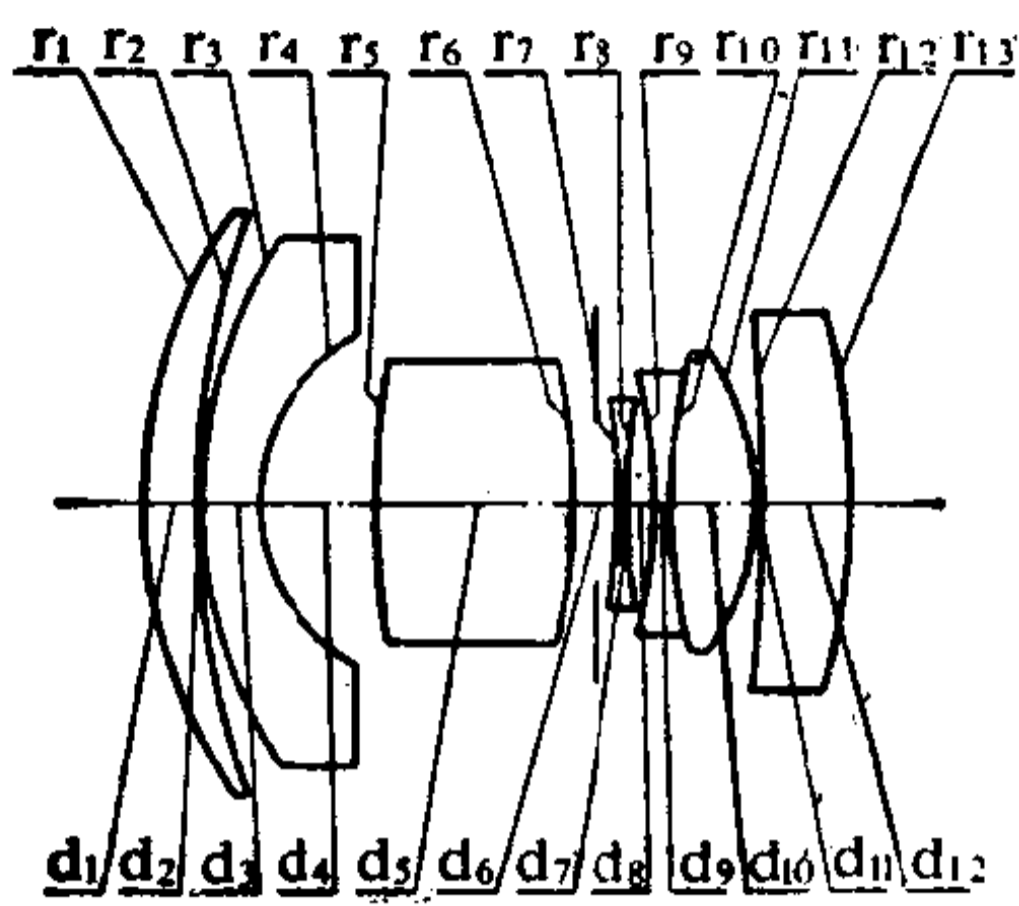
摄影物镜

E.F.L=1.0

B.F.L=1.127

FNo. = 4

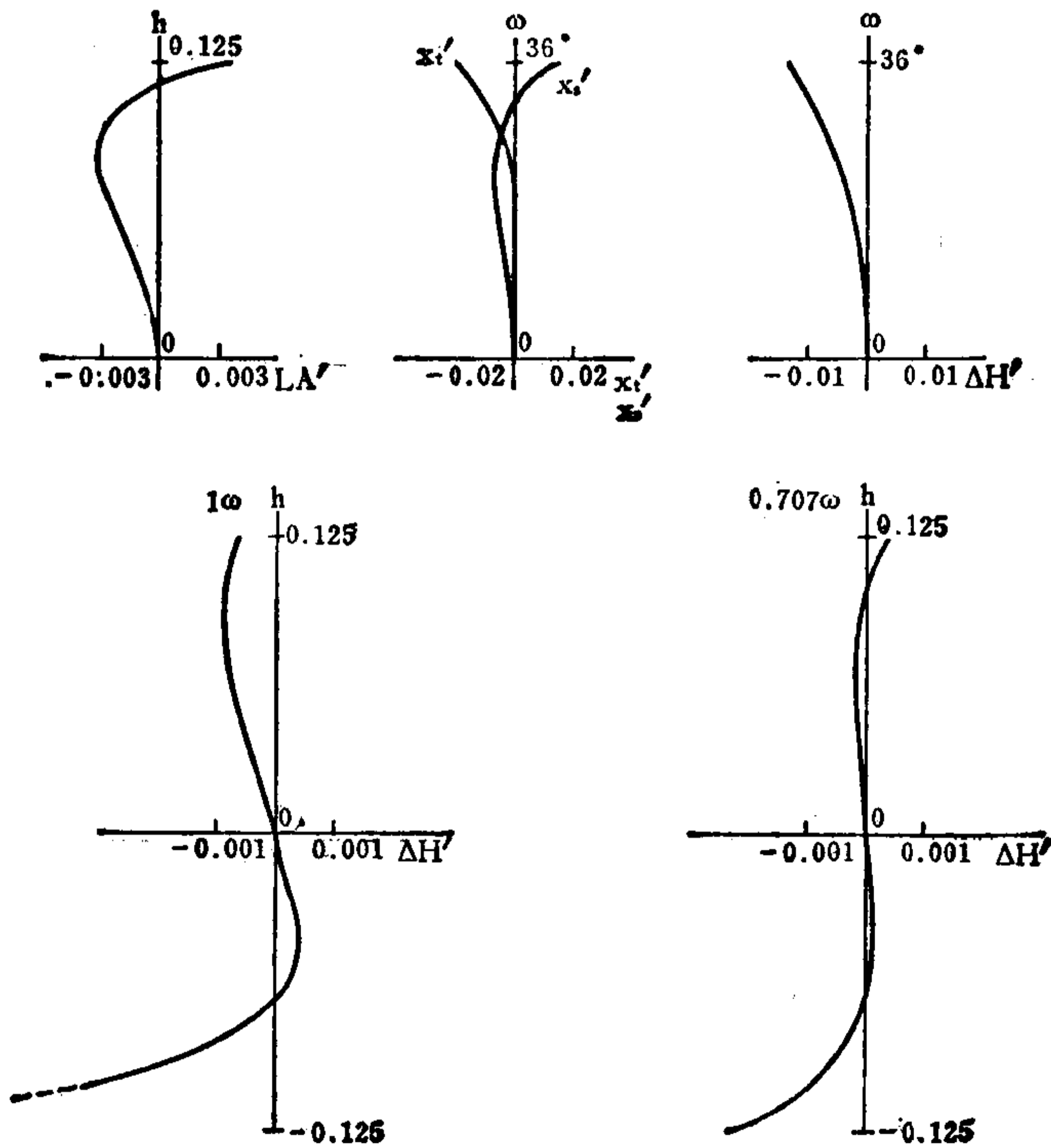
F.A. = ± 36°



序号	r	d	nd	vd	序号	r	d	nd	vd
1	0.6687	0.0684	1.66755	41.88	8	1.2328	0.0273		
2	1.1066	0.0018			9	-0.6883	0.0227	1.51742	52.16
3	0.6268	0.0755	1.51821	65.18	10	0.7778	0.1089	1.62041	60.29
4	0.2407	0.1516			11	-0.3499	0.0018		
5	1.1472	0.2415	1.66672	48.38	12	-2.8404	0.1178	1.62041	60.29
6	-0.8727	0.0604*			13	-0.9178			
7	-0.7238	0.0187	1.72151	29.28					

0.0604* = 0.0300 + 0.0304

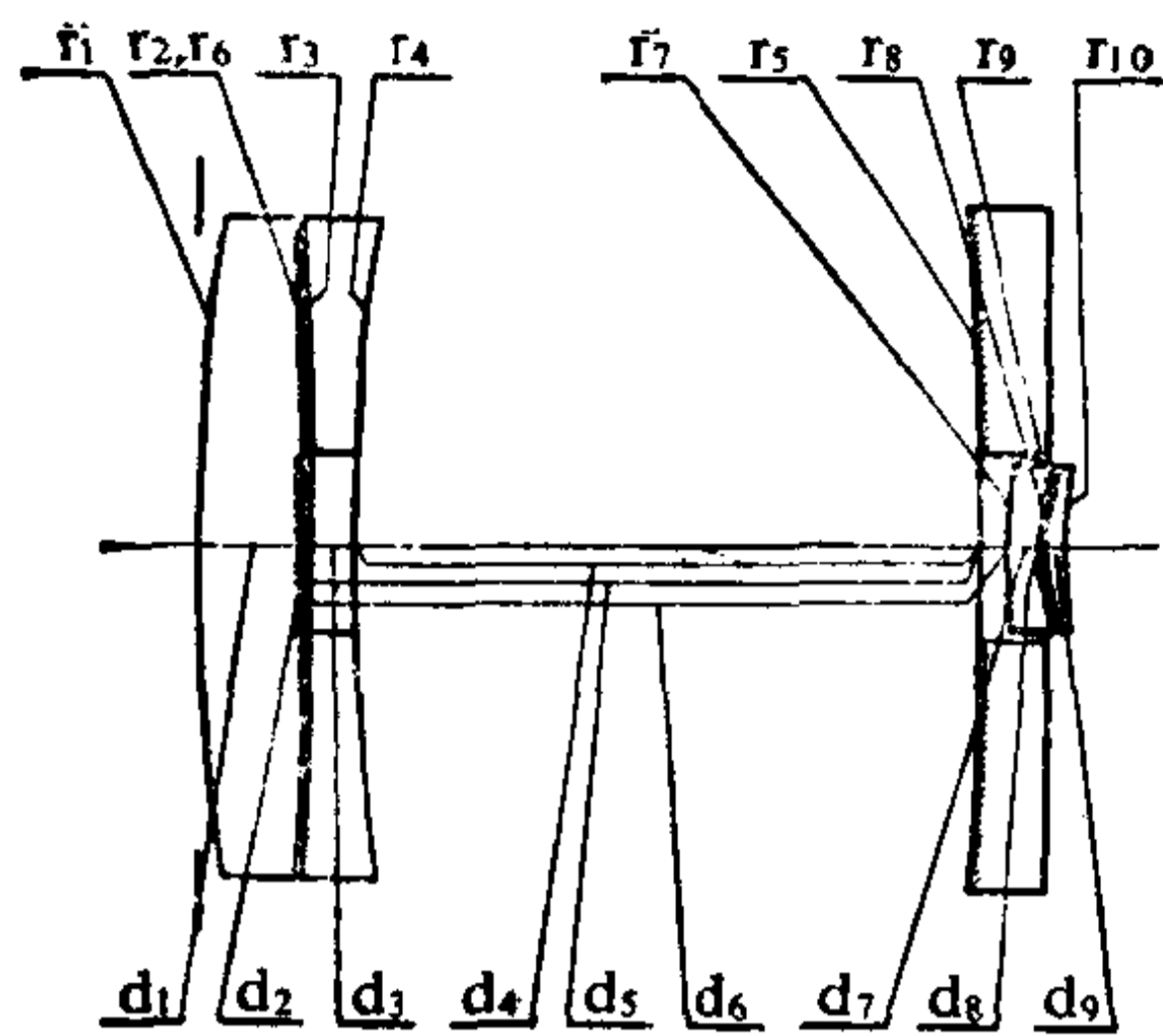
	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.000419	0.000212	0.000145	-0.001007	-0.003871	0.7253	-1.88%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.00361	-0.0136	-0.0202	0.0156	-0.0358	-0.00399	-0.00106
70	-0.00332	-0.0064	-0.0027	-0.0073	0.0046	-0.00096	-0.00018



编号: 05-04-007

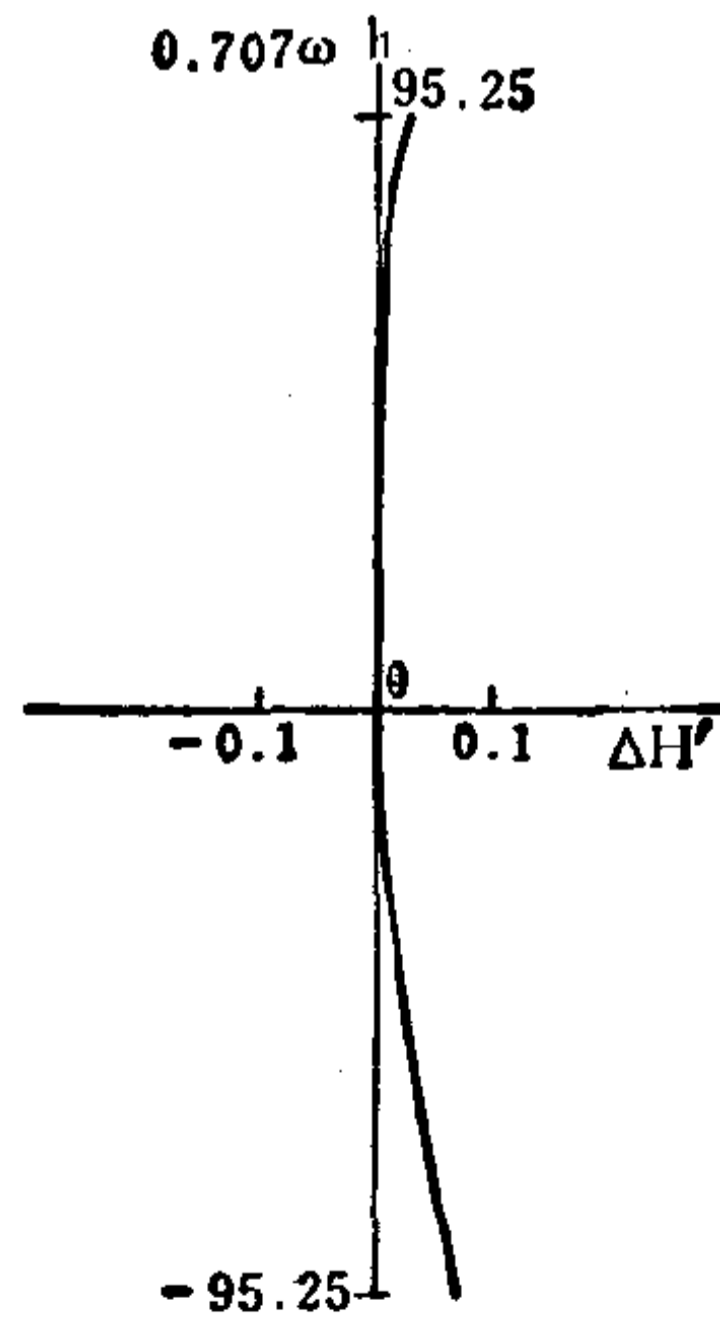
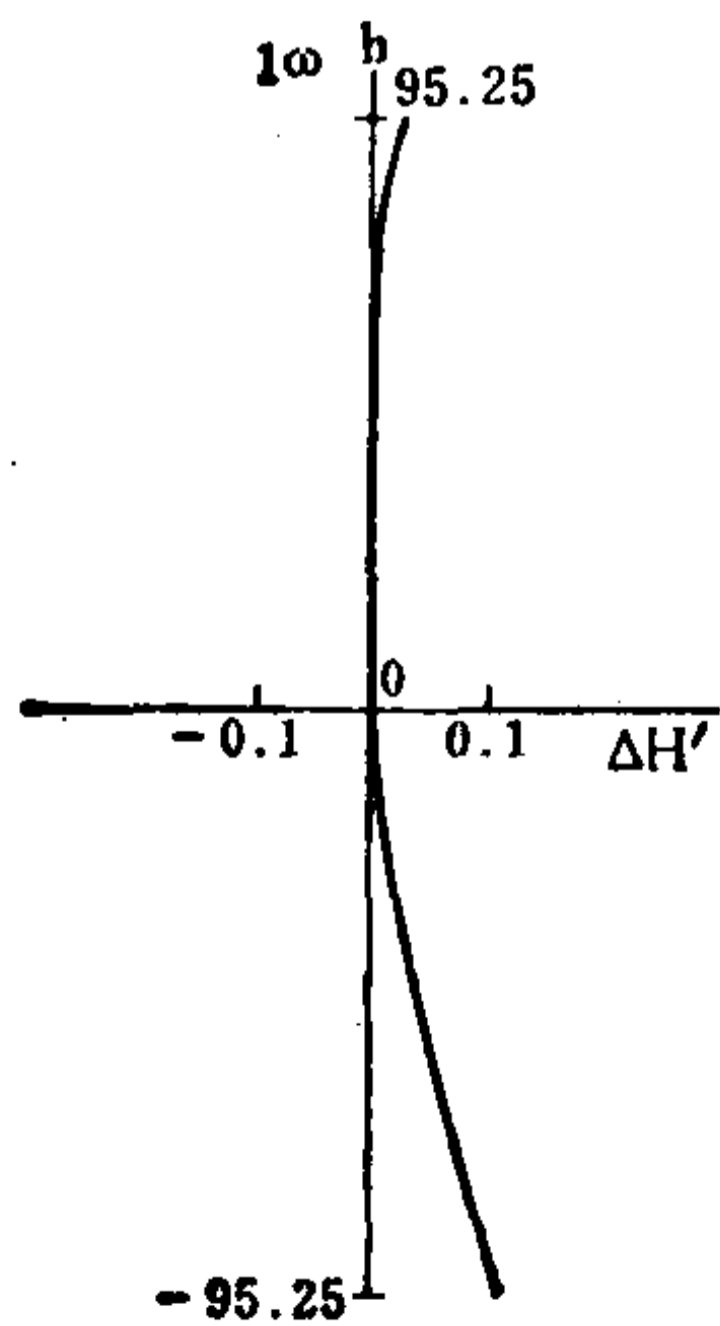
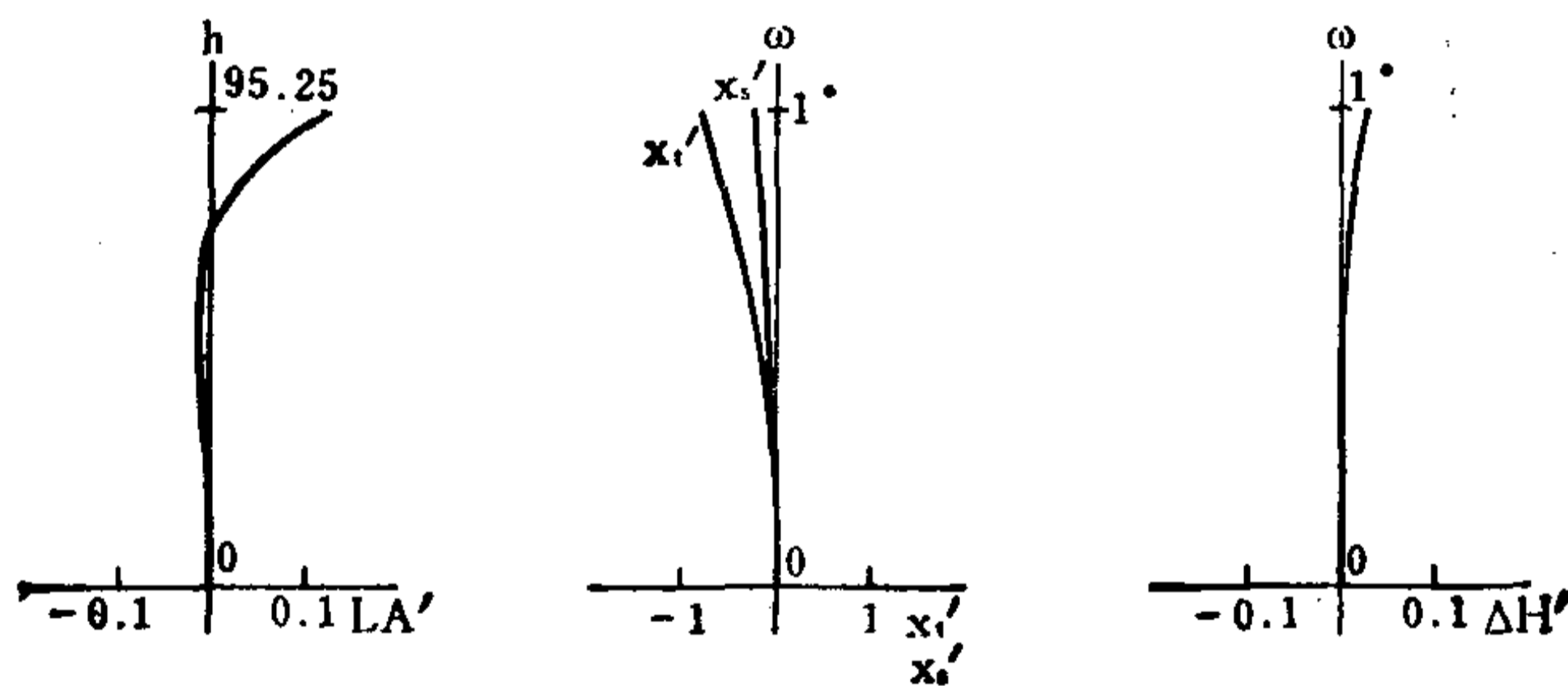
卡塞格伦型折反射透镜系统

E.F.L=1516 B.F.L=97.16 FNo.=7.96 F.A.=±1° L'p1=0



序号	r	d	n	v	序号	r	d	n	v
1	605.59	25.90	1.5168	64.2	6	-1146.29	445.46		
2	-1146.29	1.00			7	195.96	8.20	1.5168	64.2
3	-1018.75	11.50	1.5168	64.2	8	60.91	1.03		
4	634.29	424.27			9	61.51	4.57	1.5168	64.2
5	-1433.83	-435.85	-1.0000		10	151.13			

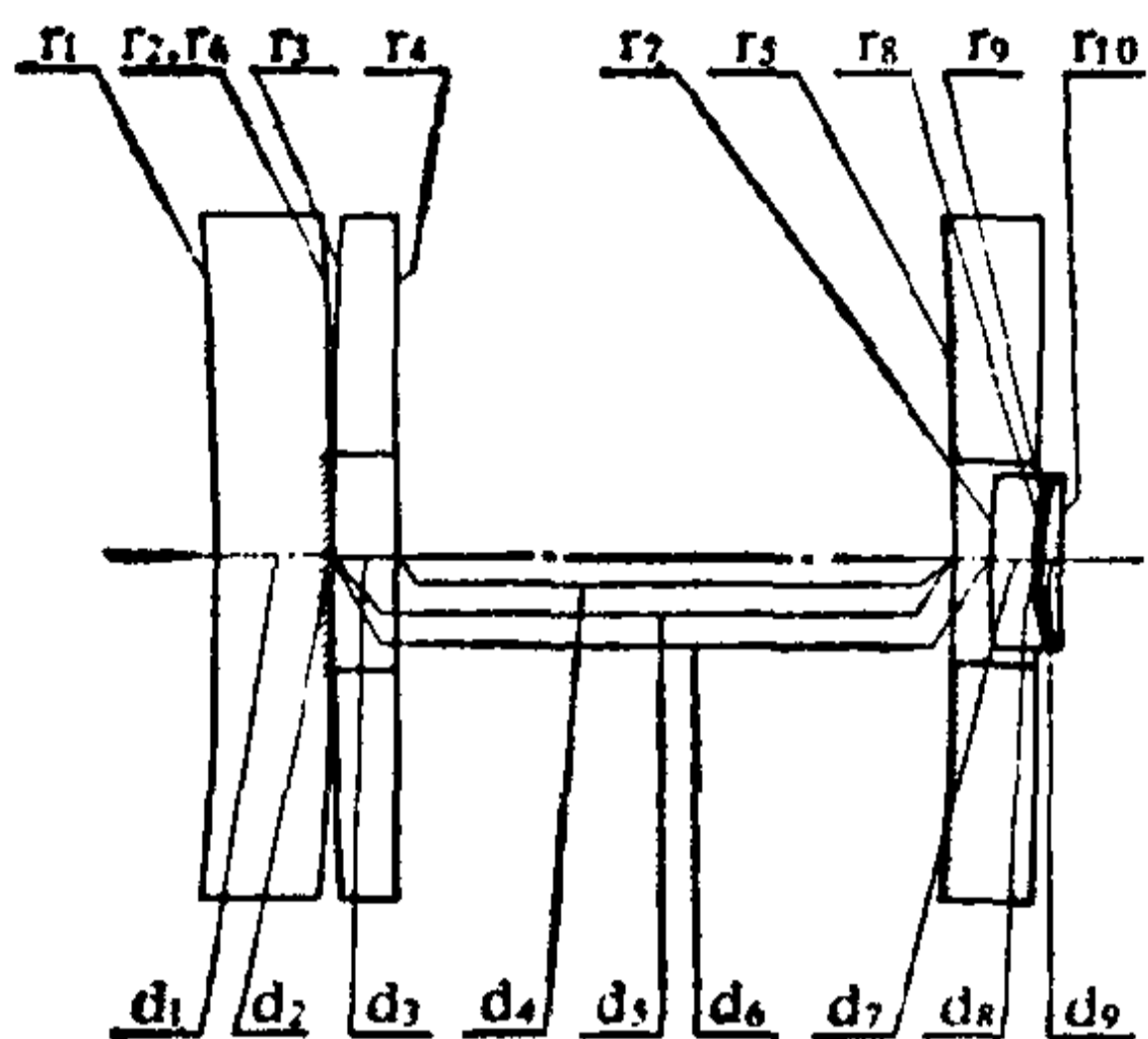
	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.00119	0.00289	-0.00233	0.00064	0.00326	26.46	0.097%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.132	0.026	-0.776	-0.203	-0.573	0.0684	0.0349
70	-0.007	0.009	-0.395	-0.104	-0.291	0.0476	0.0243



编号: 05-04-008

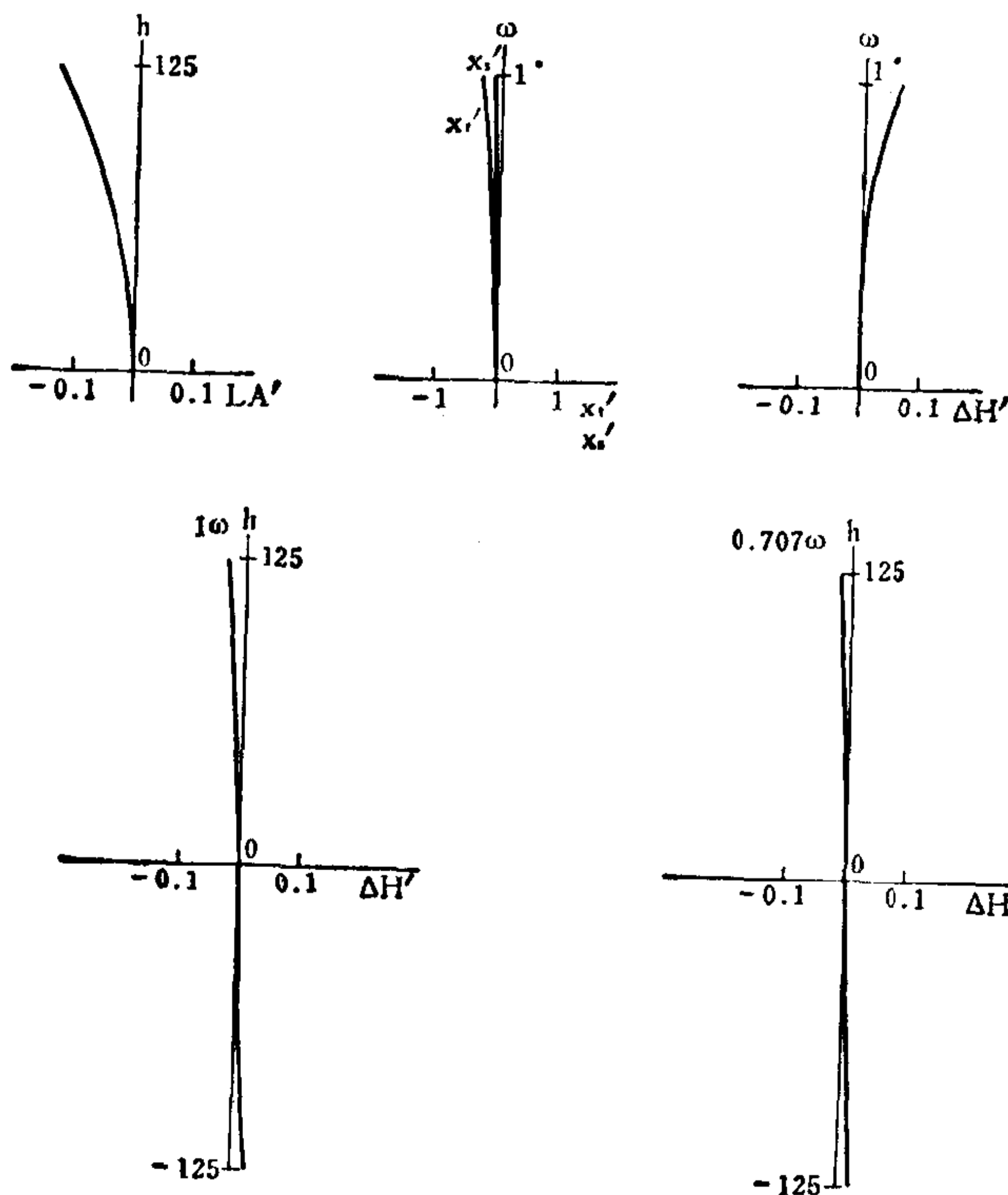
卡塞格伦型折反射透镜系统

E. F. L = 2095 B. F. L = 164.8 FNo. = 8.38 F. A. = ±1° $L'_p = -7.33$



序号	r	d	n	v	序号	r	d	n	v
1	-1062.13	31.59	1.516864.2		6	-1550.06	616.34		
2	-1550.06	0			7	363.76	11.45	1.516864.2	
3	3507.61	16.02	1.516864.2		8	80.35	1.42		
4	∞	587.01			9	81.53	3.45	1.516864.2	
5	-1983.84	-603.04	-1.0000		10	288.52			

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.00099	-0.00027	-0.00103	0.00013	0.00669	36.56	0.16%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-0.133	0.057	-0.283	-0.089	-0.194	-0.00202	-0.00063
70	-0.068	0.020	-0.171	-0.054	-0.117	-0.00377	-0.00161



编号: 05-04-009

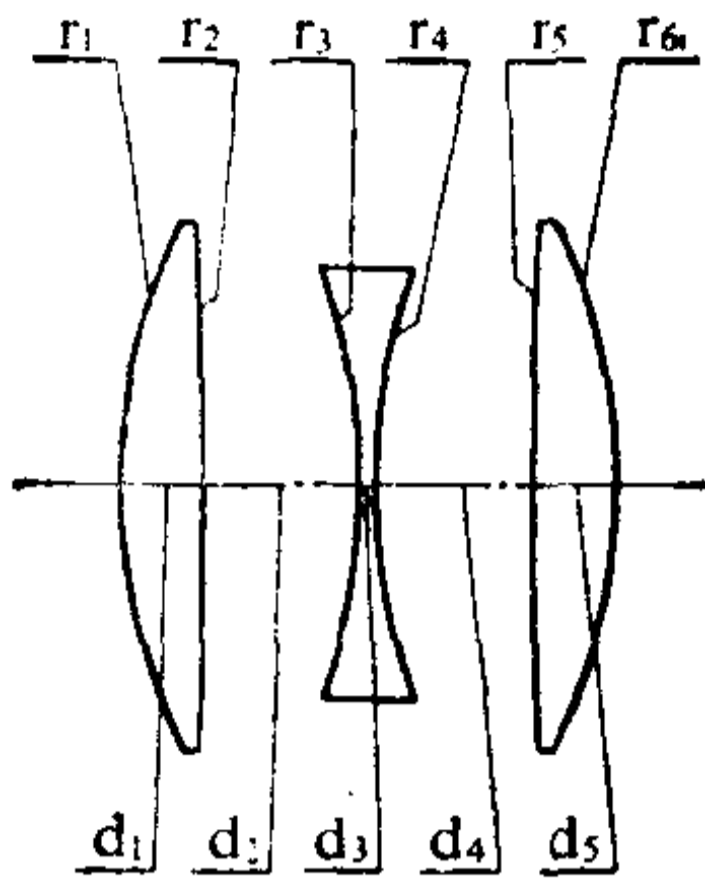
对称三组元照相复印装置透镜系统

E. F. L = 1.0

B. F. L = 0.825

FNo. = 5.6

F. A. = ± 20°

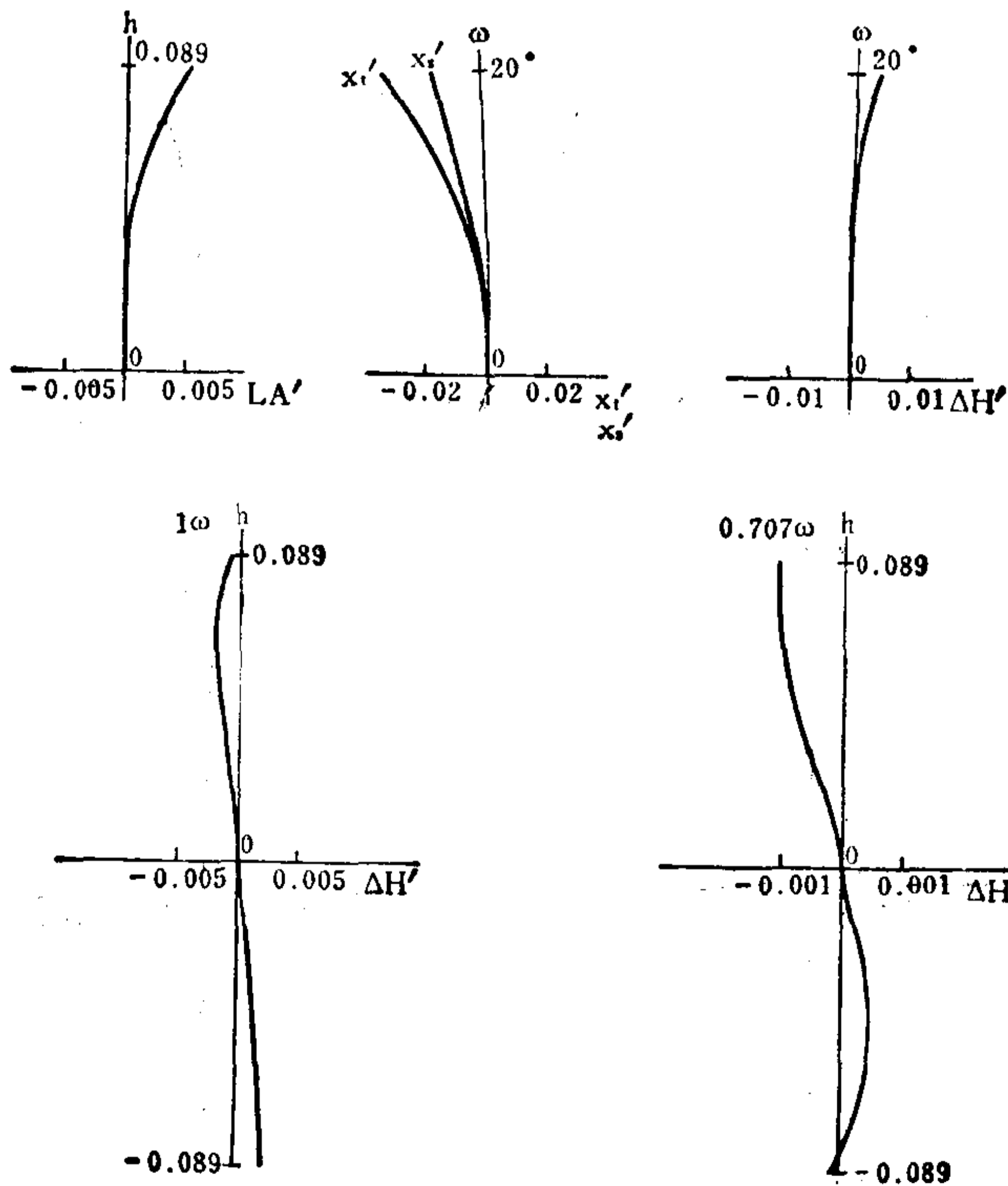


序号	r	d	n _D	v	序号	r	d	n _D	v
1	0.3907	0.0542	1.620	60.3	4	0.4153	0.0995		
2	-3.4709	0.0995*			5	3.4709	0.0542	1.620	60.3
3	-0.4153	0.0101	1.596	39.7	6	-0.3907			

0.0995* = 0.0500 + 0.0495

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP (1ω)
	0.000038	-0.000092	-0.000034	-0.000353	0.000473	0.365	1.05%
h 或 ω %	LA'	ΔH'	x _t	x' _s	x' _t -x' _s	K' _{T1}	K' _{T0.7}
100	0.0050	0.0038	-0.0339	-0.0186	-0.0153	0.000294	0.000092
70	0.0018	0.0011	-0.0156	-0.0113	-0.0043	-0.000633	-0.000331

注: 以上象差值是按 l = -∞ 计算的。



编号: 05-04-010

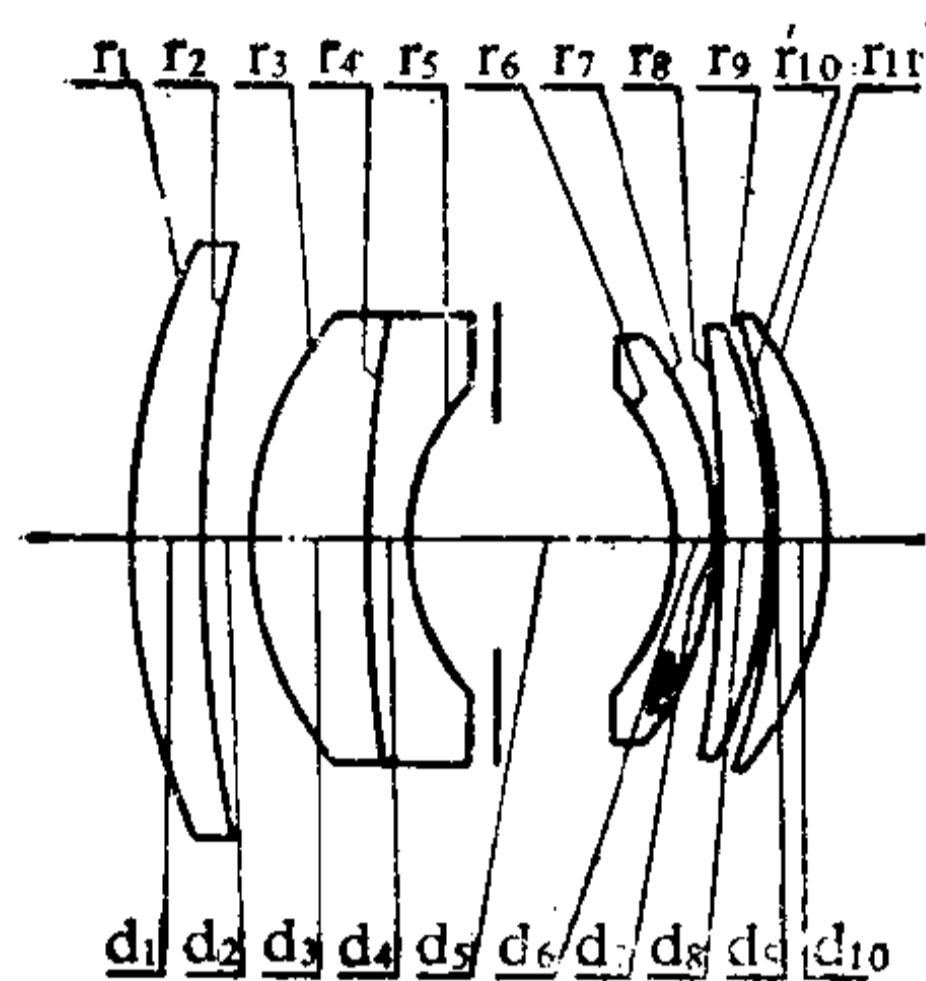
高斯型摄影物镜

E. F. L = 1.0

B. F. L = 0.68

FNo. = 2.8

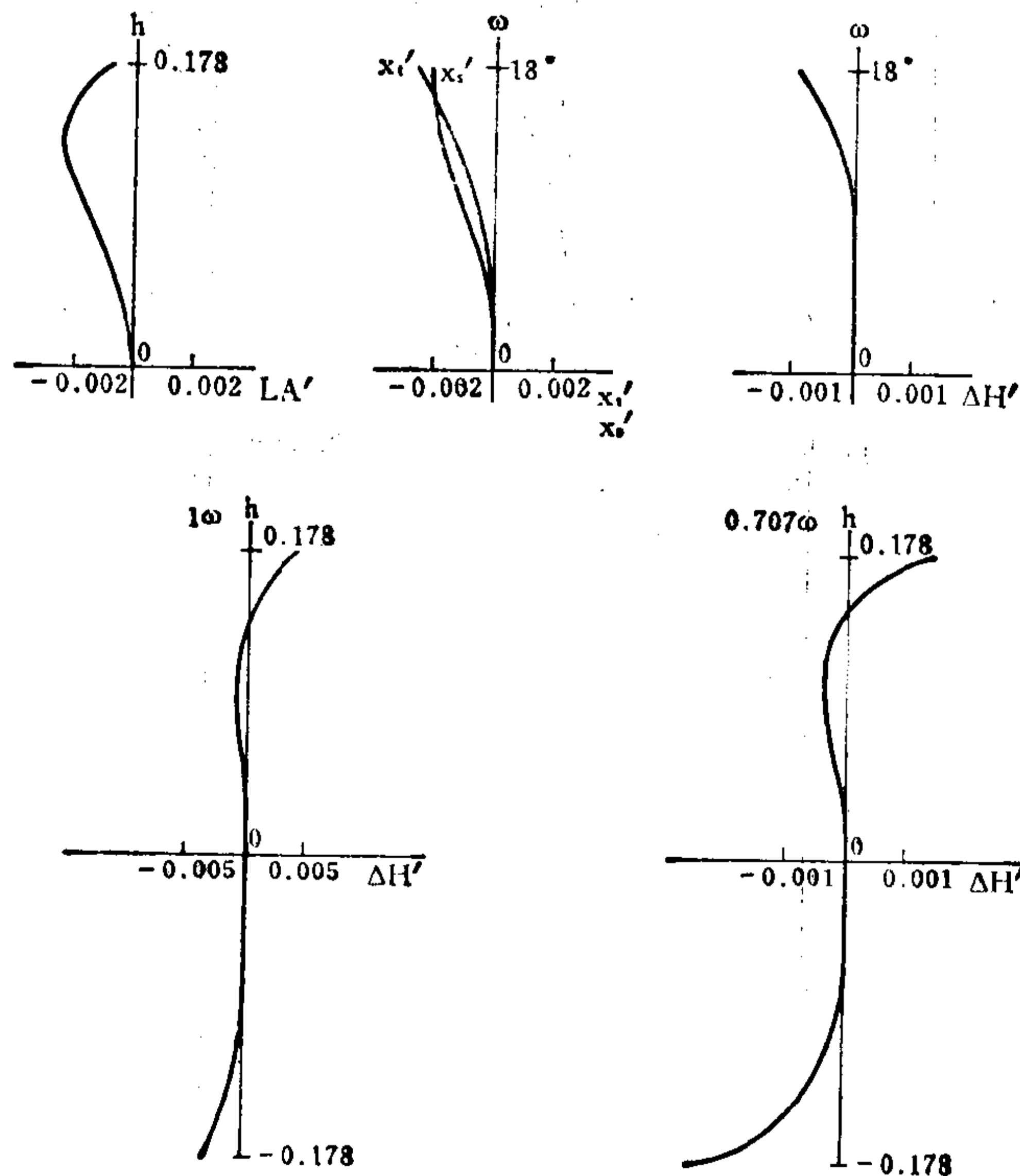
F. A. = ± 18°



序号	r	d	n _e	v _e	序号	r	d	n _e	v _e
1	0.6373	0.0600	1.74795	44.5	7	-0.2853	0.0028		
2	1.2995	0.0390			8	-1.1428	0.0432	1.62287	60.1
3	0.2895	0.1029	1.69282	49.5	9	-0.4434	0.0028		
4	1.1521	0.0339	1.67764	32.0	10	-0.5971	0.0440	1.61521	58.4
5	0.1928	0.2234*			11	-0.3237			
6	-0.2020	0.0359	1.74070	26.2					

0.2234* = 0.0700 + 0.1534

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP (1ω)
	-0.000532	-0.000157	0.000063	-0.000331	-0.000137	0.324	-0.27%
h 或 ω %	LA'	ΔH'	x' _t	x' _s	x' _t - x' _s	K' _{T1}	K' _{T0.7}
100	-0.00088	-0.00086	-0.0027	-0.0022	-0.0005	0.00047	-0.00039
70	-0.00233	-0.00021	-0.0012	-0.0017	0.0005	-0.00049	-0.00036



编号: 05-04-011

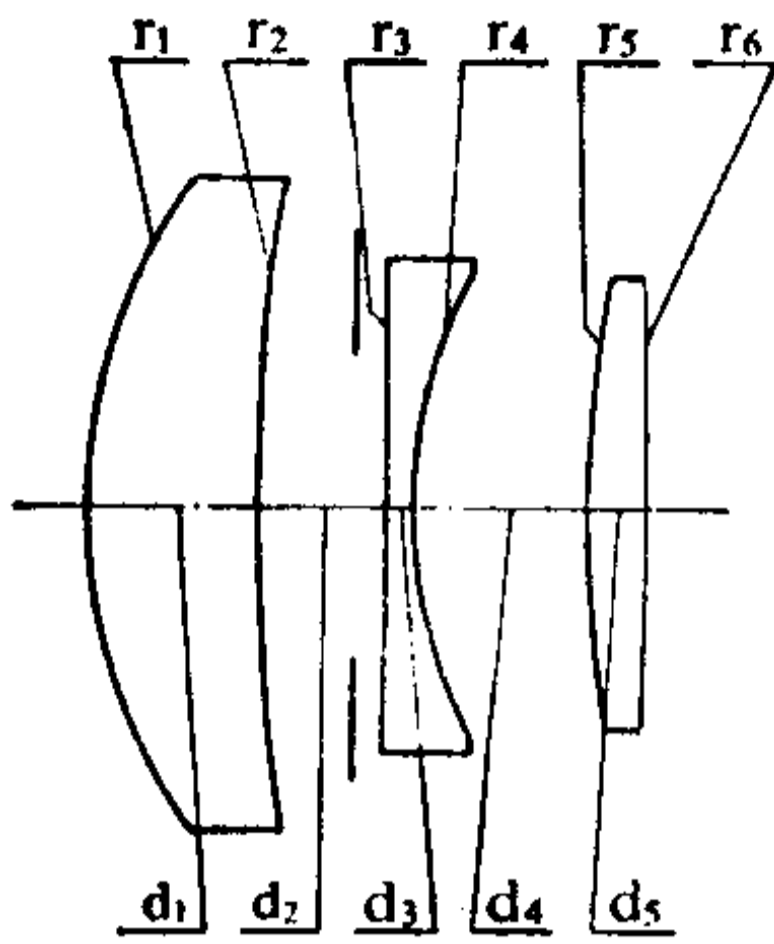
改进的物镜系统

E. F. L = 100.1

B. F. L = 78.81

FNo. = 10

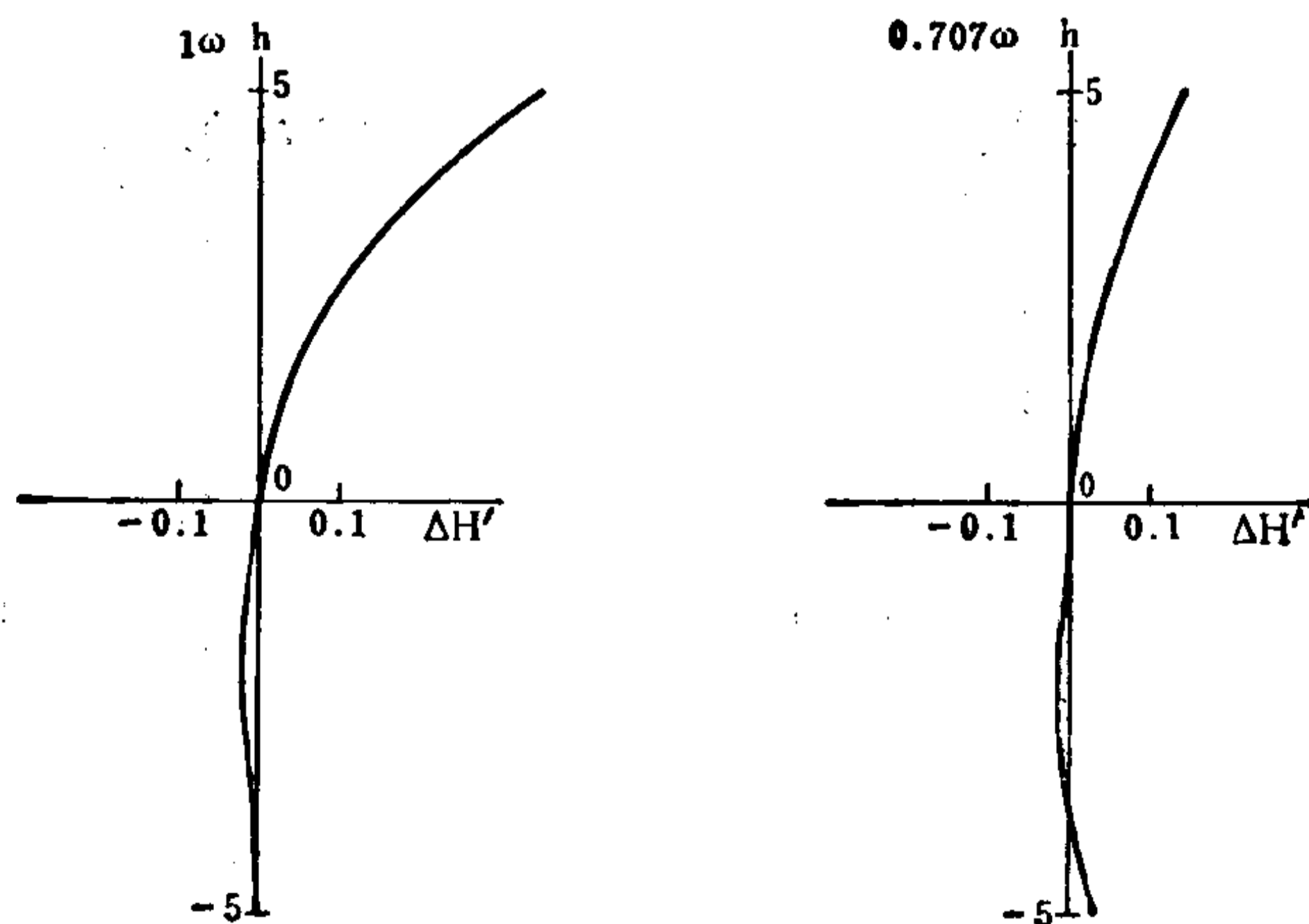
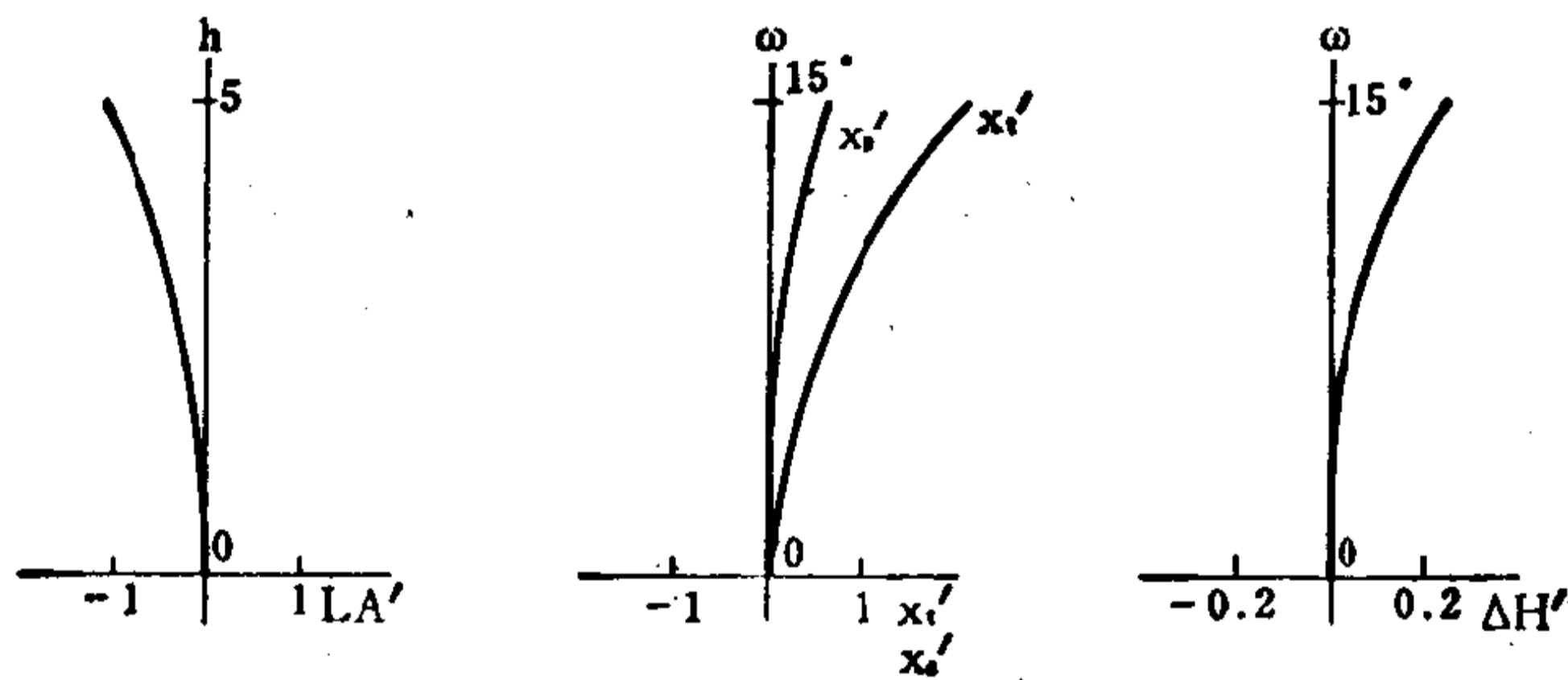
F. A. = $\pm 15^\circ$ **



序号	r	d	n_D	v	序号	r	d	n_D	v
1	14.70	4.36	1.613	58.6	4	13.00	4.28		
2	60.11	3.30*			5	31.87	1.48	1.620	36.4
3	-2324.90	0.79	1.673	32.2	6	-293.57			

$3.30^* = 2.50 + 0.80$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.00508	0.00226	0.00453	-0.00289	0.02578	26.85	0.94%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_s	$x'_i - x'_s$	K'_{T1}	$K_{T0.7}$
100	-1.077	0.253	2.069	0.654	1.415	0.1731	0.0834
70	-0.524	0.093	1.126	0.246	0.880	0.0806	0.0408



编号: 05-04-012

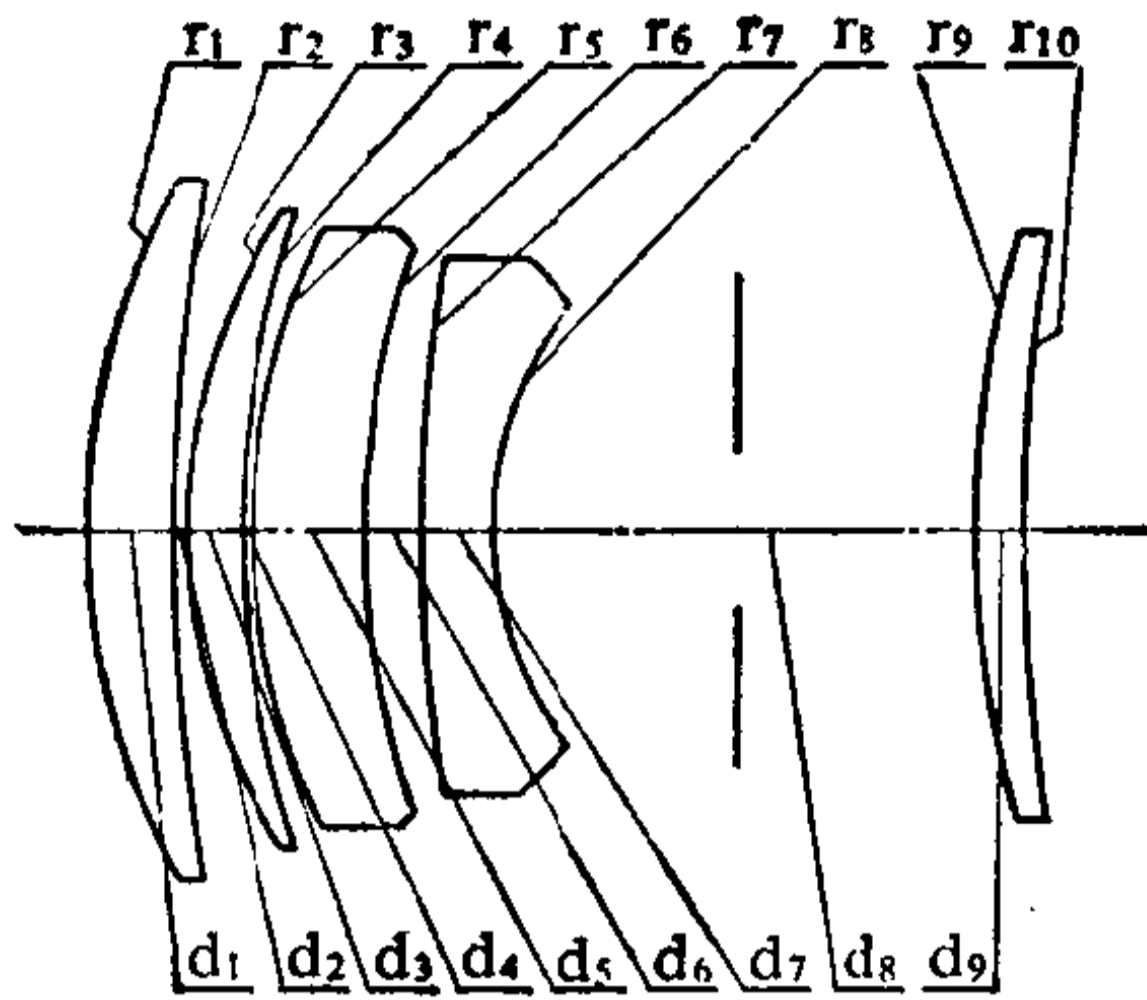
远 距 离 照 相 物 镜

E. F. L = 100

B. F. L = 42.618

FN₀ = 4.5

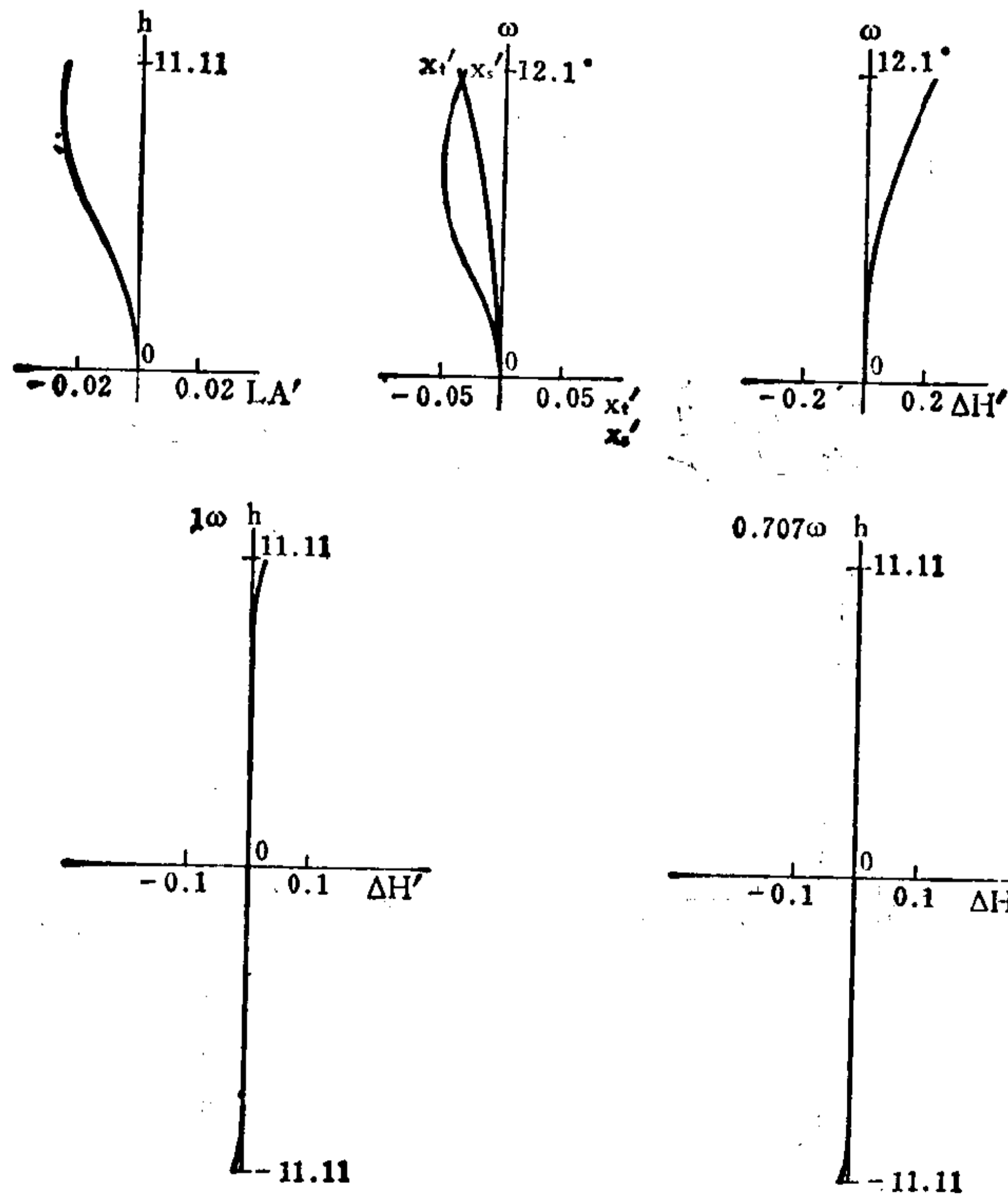
F. A. = ±12.1°



序号	r	d	n	v	序号	r	d	n	v
1	39.42	4.72	1.58913	61.1	6	45.79	2.61		
2	192.88	0.42			7	91.23	3.89	1.78470	26.2
3	31.58	3.36	1.56873	63.1	8	19.10	25.78*		
4	54.73	0.25			9	63.30	2.55	1.78470	26.2
5	36.24	6.39	1.70154	41.1	10	174.15			

25.78* = 13.00 + 12.78

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.00182	-0.00057	0.00095	-0.00505	0.06888	21.42	1.08%
h 或 ω %	LA'	$\Delta H'$	x_t	x_n	$x_t' - x_n'$	KT ₁	KT _{0.7}
100	-0.0235	0.2307	-0.0433	-0.0384	-0.0049	0.00327	0.00322
70	-0.0248	0.0984	-0.0193	-0.0544	0.0351	-0.00778	-0.00243



编号: 05-04-013

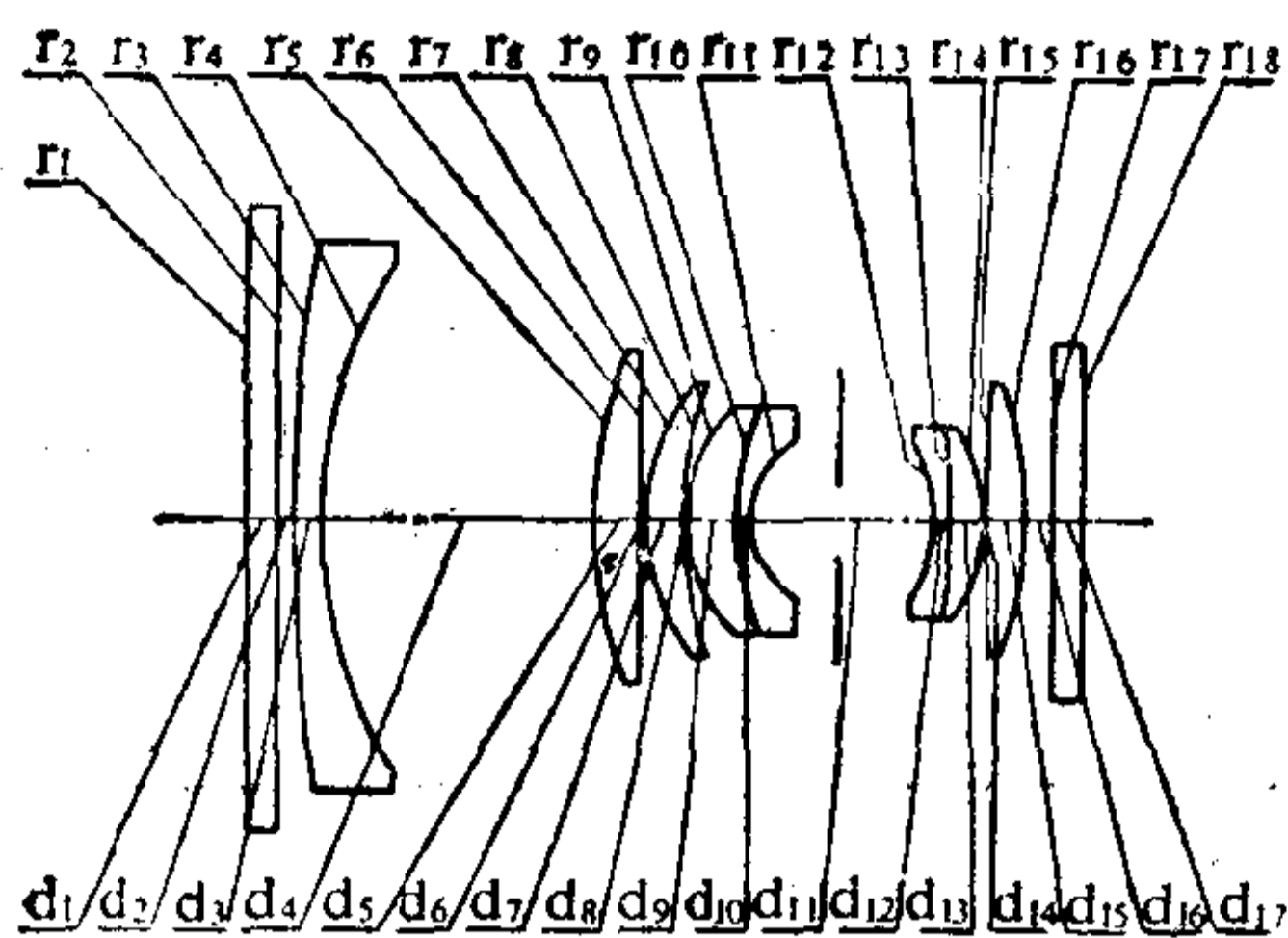
显微照相物镜

E. F. L = 65

B. F. L = 34.2

FNo. = 6

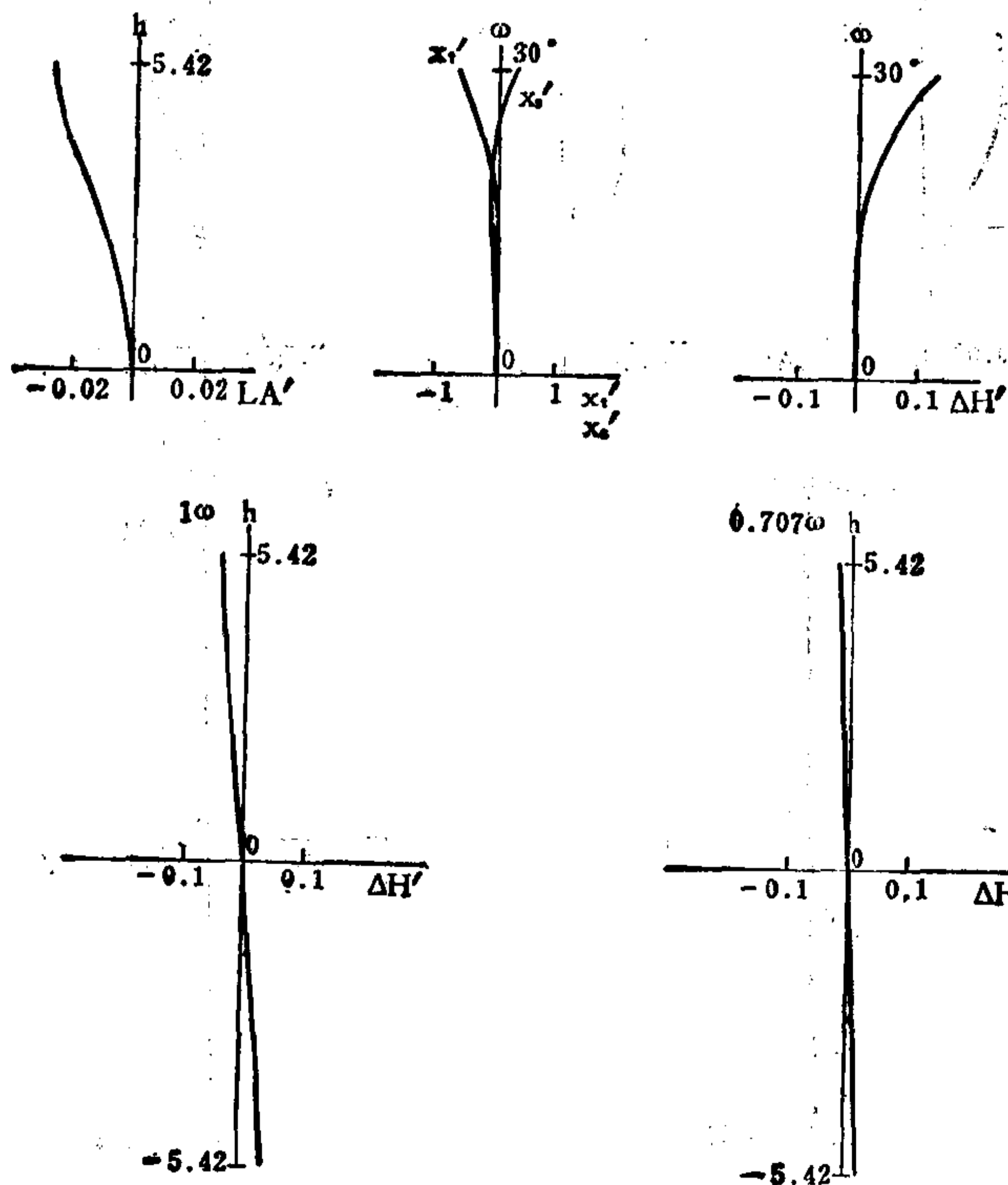
F. A. = $\pm 30^{\circ}$ **



序号	r	d	n _D	v	序号	r	d	n _D	v
1	∞	4.000	1.5169	64.20	10	40.25	2.000	1.6722	32.20
2	∞	2.000			11	13.79	23.658*		
3	238.00	4.000	1.5891	61.24	12	-19.76	2.100	1.6476	33.90
4	65.61	36.000			13	-95.00	4.395	1.6591	50.88
5	58.00	6.500	1.5891	61.24	14	-23.20	0.200		
6	∞	0.200			15	731.00	5.200	1.5891	61.24
7	29.60	5.000	1.5169	64.20	16	-52.50	3.775		
8	49.65	0.200			17	∞	3.810	1.5224	59.48
9	21.20	7.094	1.6591	50.88	18	∞			

$23.658^* = 10.000 + 13.658$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.000805	-0.000651	0.001775	-0.010330	0.012281	37.41	0.35%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-0.0282	0.1297	-0.6715	0.2610	-0.9325	-0.0044	-0.0034
70	-0.0217	0.0334	-0.2078	-0.1365	-0.0713	-0.0035	-0.0030



编号: 05-04-014

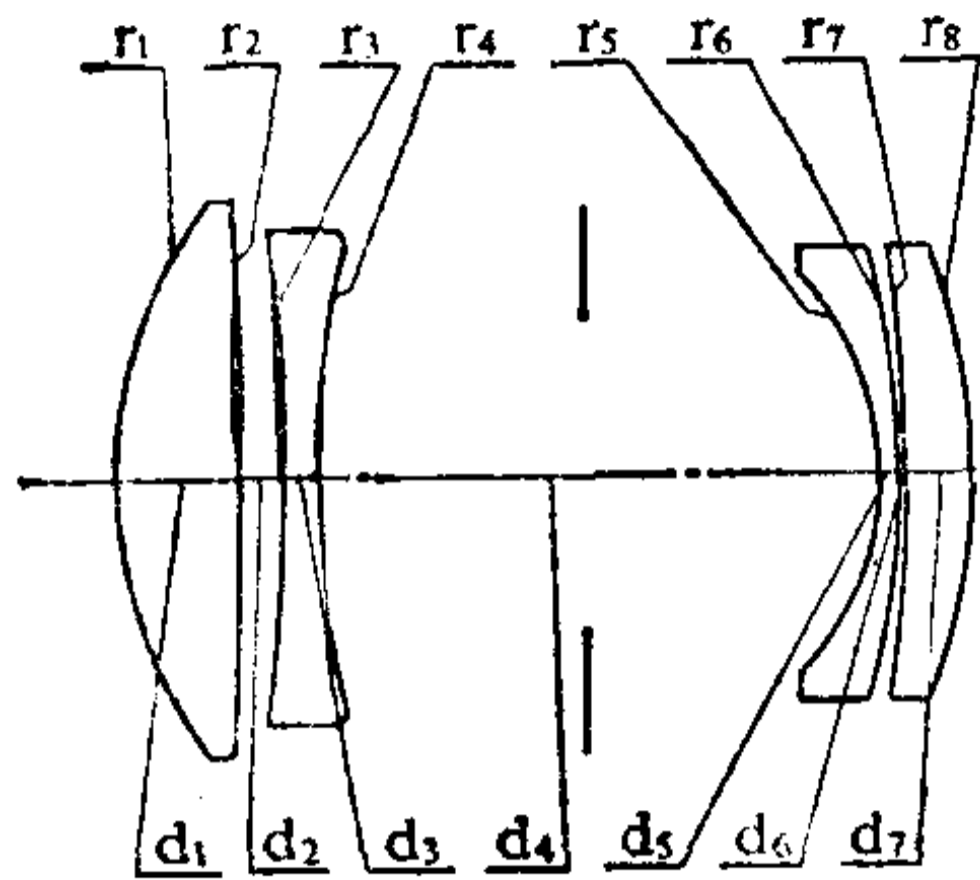


四片型摄影物镜

E.F.L=1.0

B.F.L=0.5105

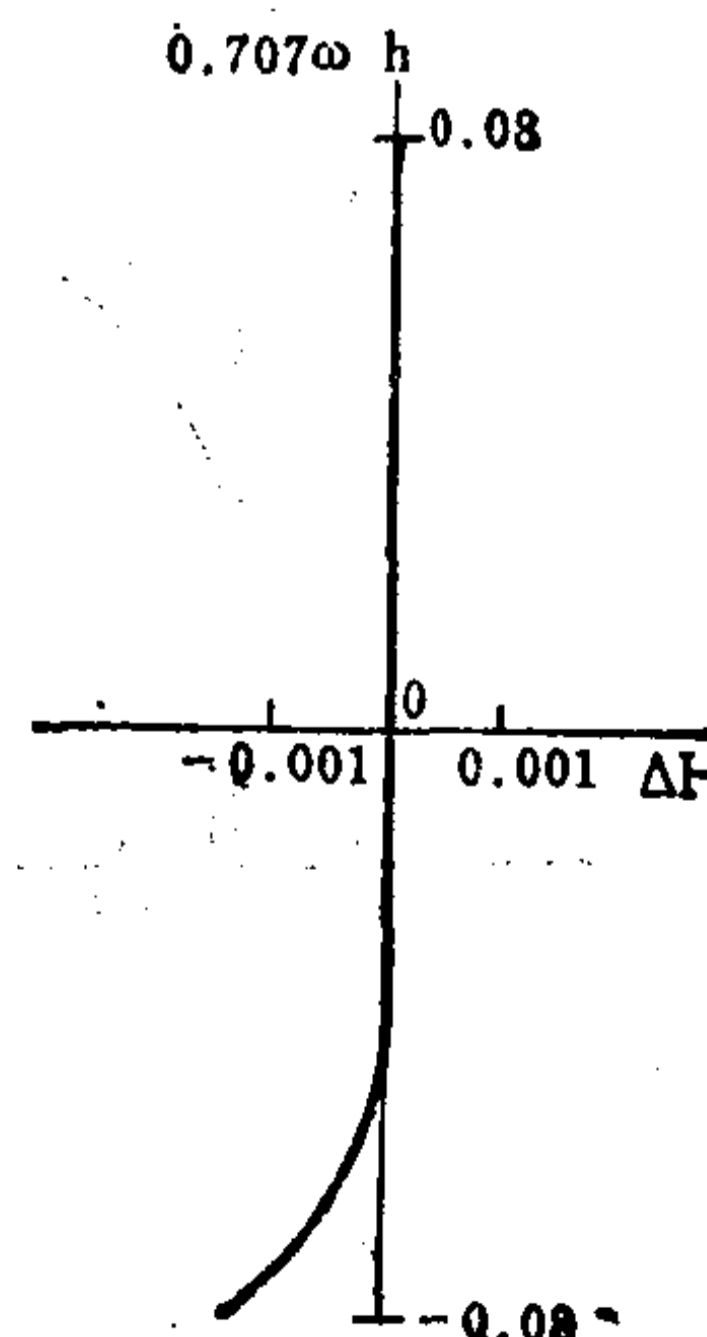
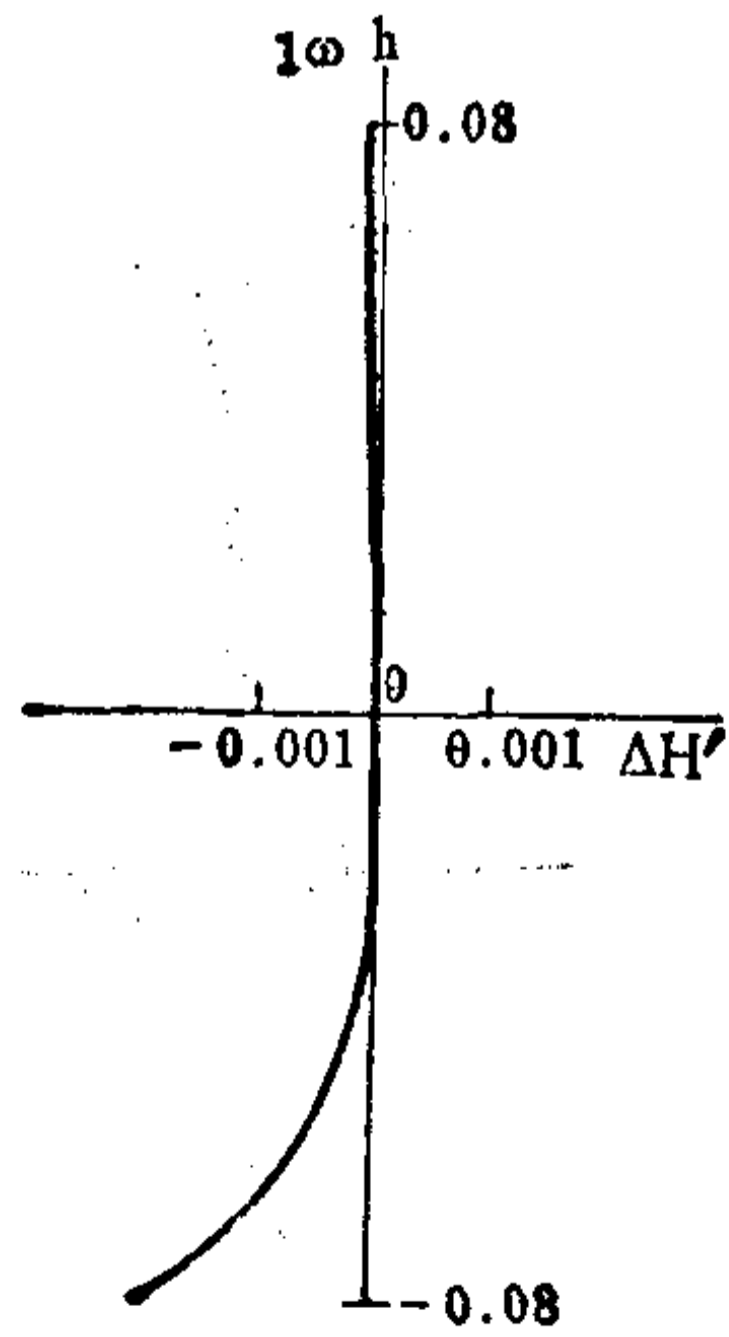
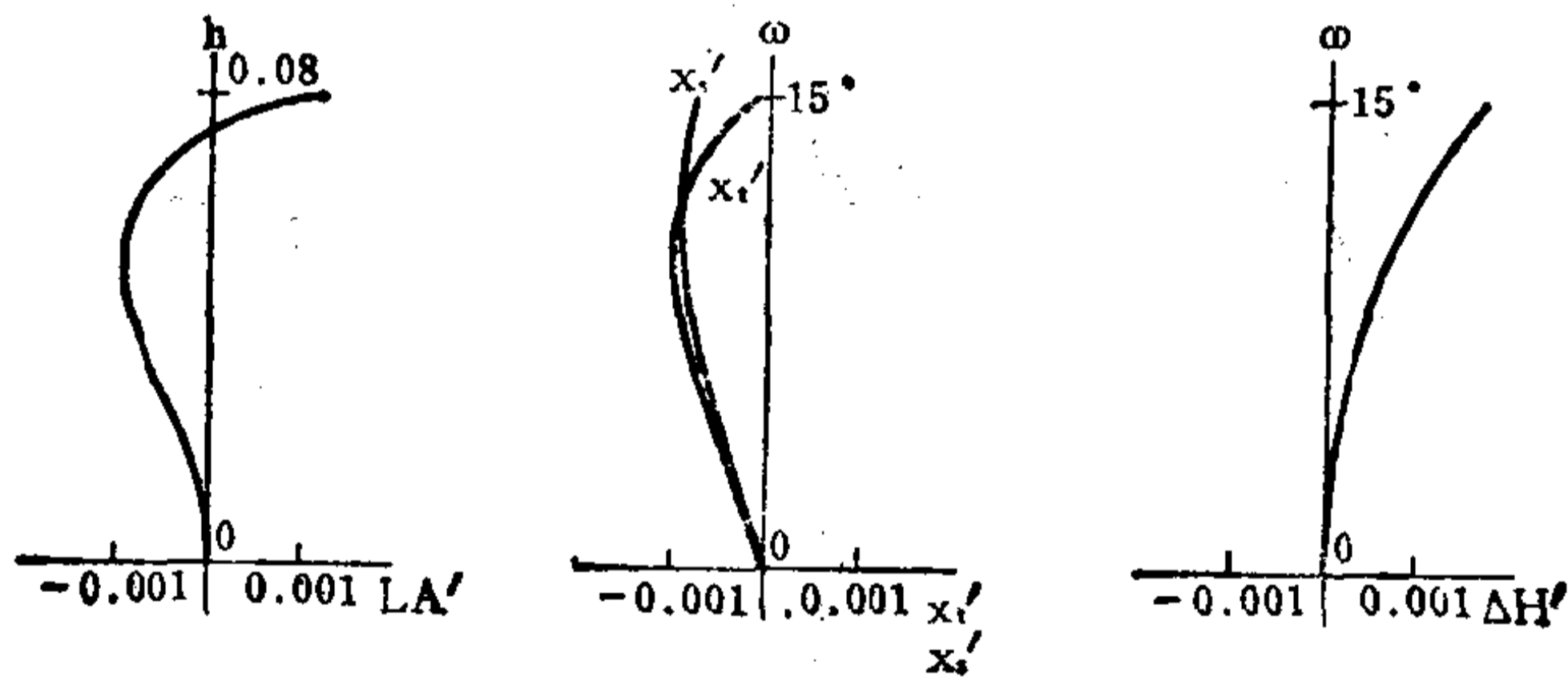
FNo. =6.3



序号	r	d	n _e	v _e	序号	r	d	n _e	v _e
1	0.20485	0.05013	1.62286	60.06	5	-0.12450	0.01003	1.51872	63.96
2	-2.27185	0.02005			6	-0.37166	0.00060		
3	-0.95746	0.01404	1.67764	31.97	7	-1.92084	0.03008	1.64647	47.66
4	0.40183	0.24062*			8	-0.26705			

0.24062* = 0.10000 + 0.14062

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.000053	0.000037	-0.000017	-0.000024	0.000349	0.267	0.62%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.00123	0.00165	-0.00012	-0.00080	0.00068	-0.00106	-0.00032
70	-0.00092	0.00069	-0.00104	-0.00098	-0.00006	-0.00069	-0.00011



编号: 05-04-015

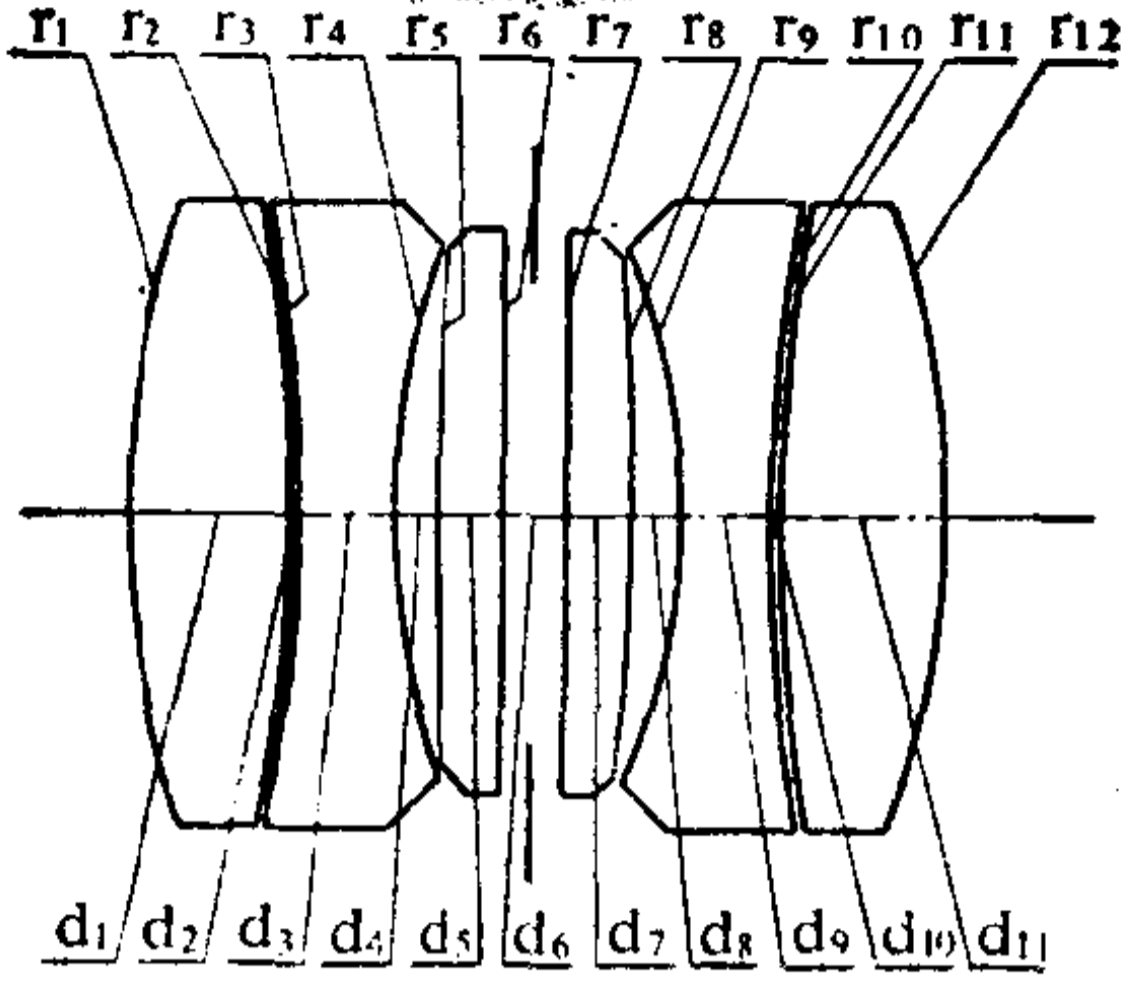
校正了球差、象散、色差的对称型摄影及重显透镜系统

E. F. L = 100

B. F. L = 92.87

FNo. = 9

F. A. = ± 20° **

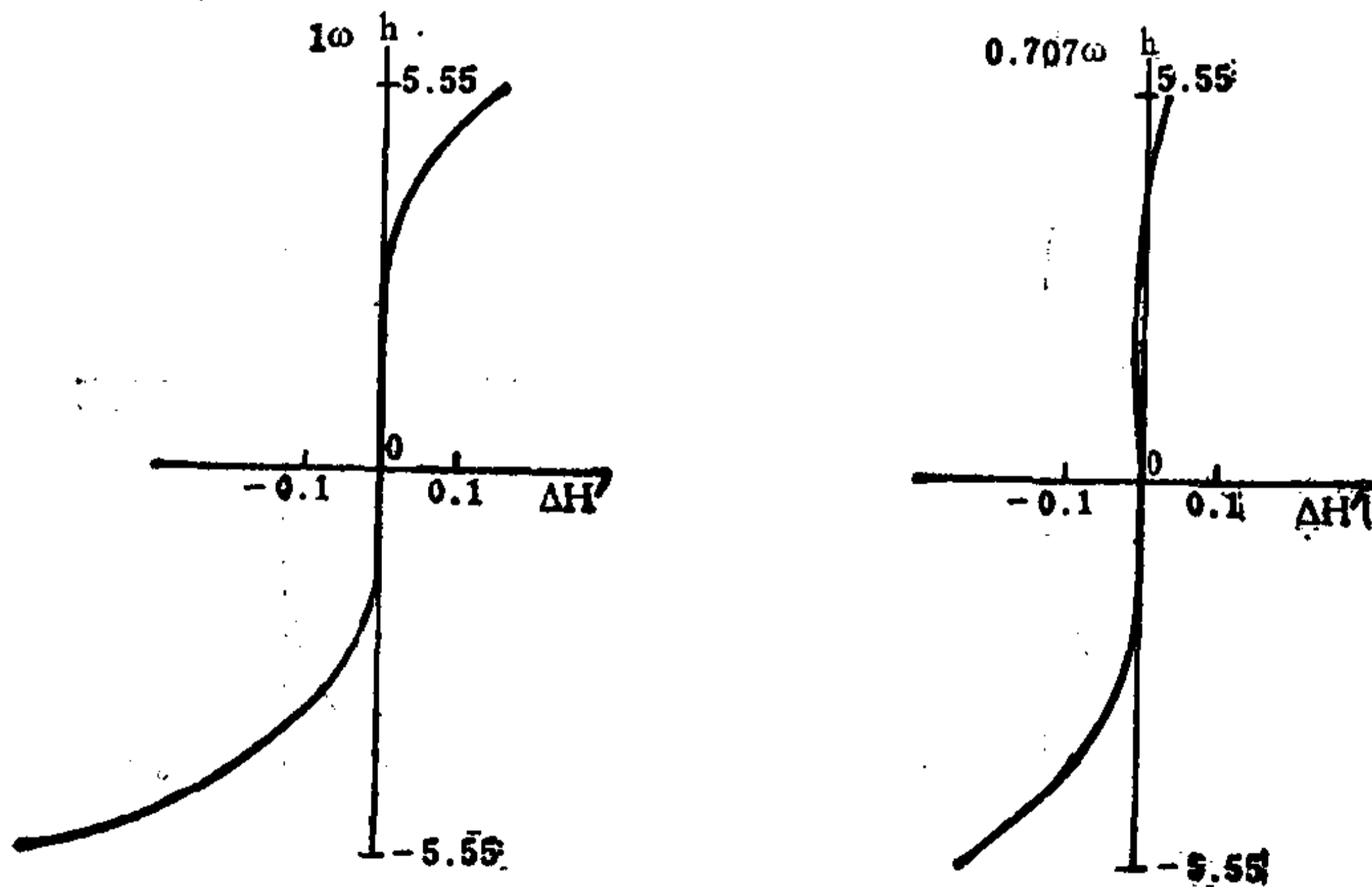
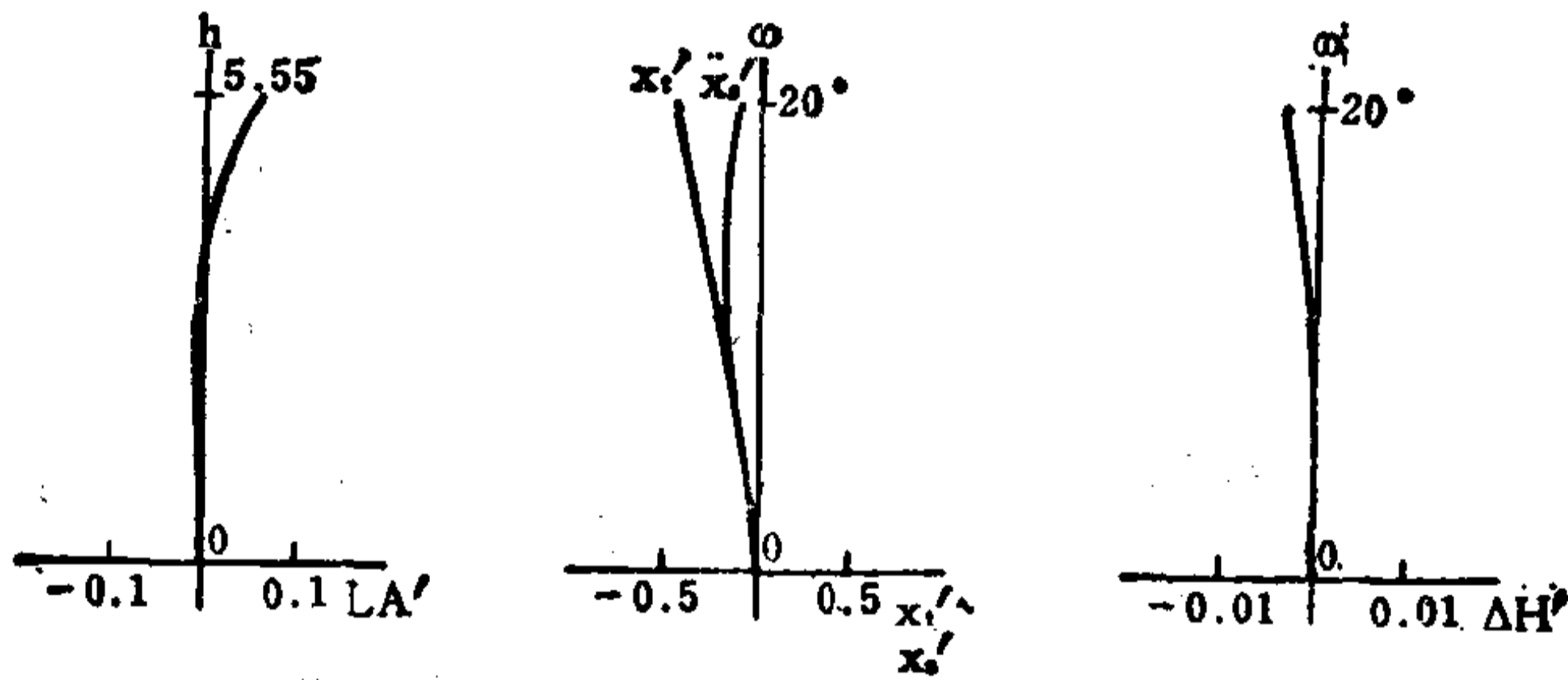


序号	r	d	n_d	v	序号	r	d	n_d	v
1	20.52	3.450	1.62146	57.4	7	∞	1.420	1.49715	66.9
2	-41.17	0.093			8	-128.26	0.800		
3	-38.34	2.170	1.54960	50.0	9	-16.95	2.170	1.54960	50.0
4	16.95	0.800			10	38.34	0.093		
5	128.26	1.420	1.49715	66.9	11	41.17	3.450	1.62146	57.4
6	∞	1.330*			12	-20.52			

1.330* = 0.665 + 0.665

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.00017	-0.00251	-0.00070	-0.00290	-0.00064	36.52	-0.01%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_s	$x'_i - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.0608	-0.0039	-0.4506	-0.0909	-0.3597	-0.1557	-0.0544
70	0.0049	-0.0018	-0.3113	-0.1821	-0.1292	-0.0969	-0.0358

注: 以上象差值是按 $l = -\infty$ 计算的。



编号: 05-04-016

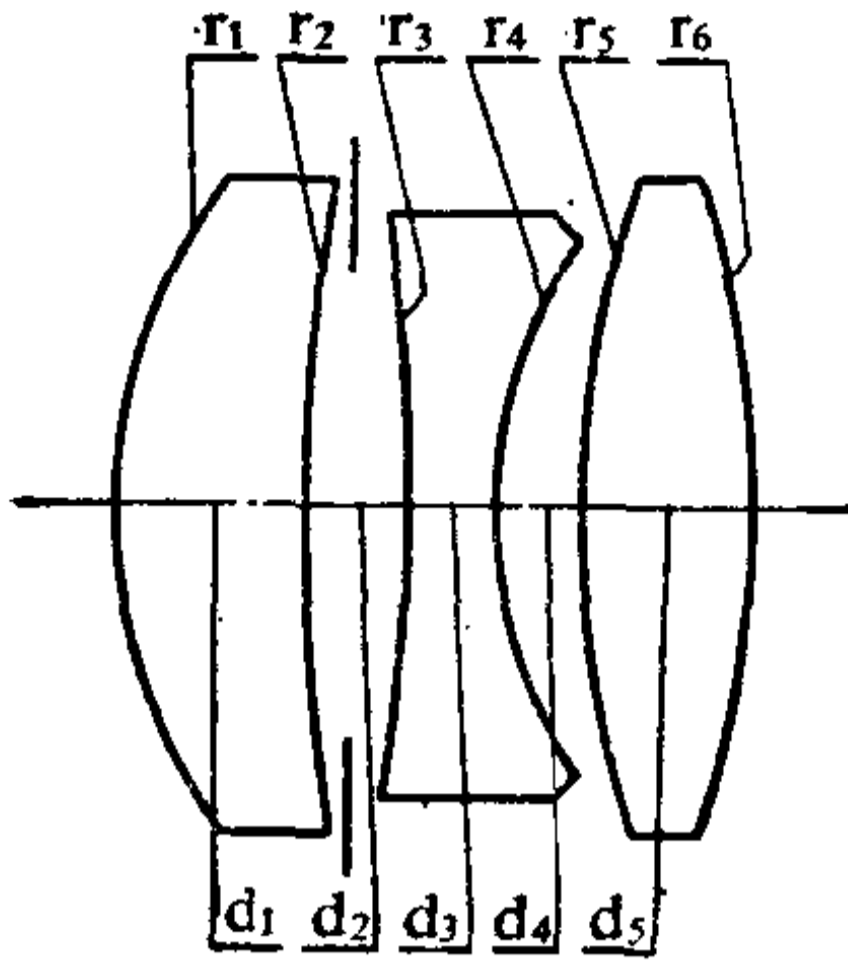
三片型投影透镜系统

E. F. L = 99.91

B. F. L = 65.65

FNo. = 2.5

F. A. = $\pm 20.05^\circ$



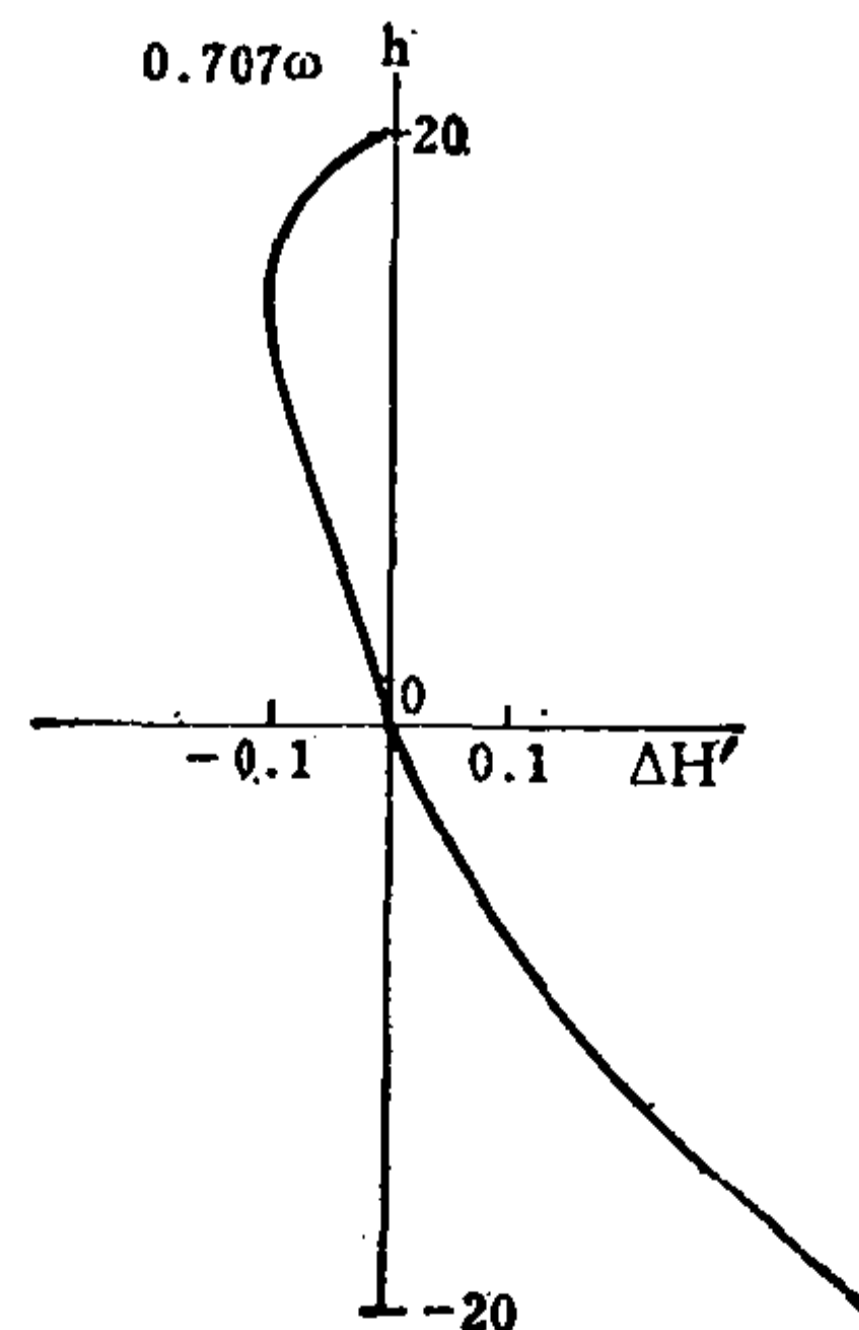
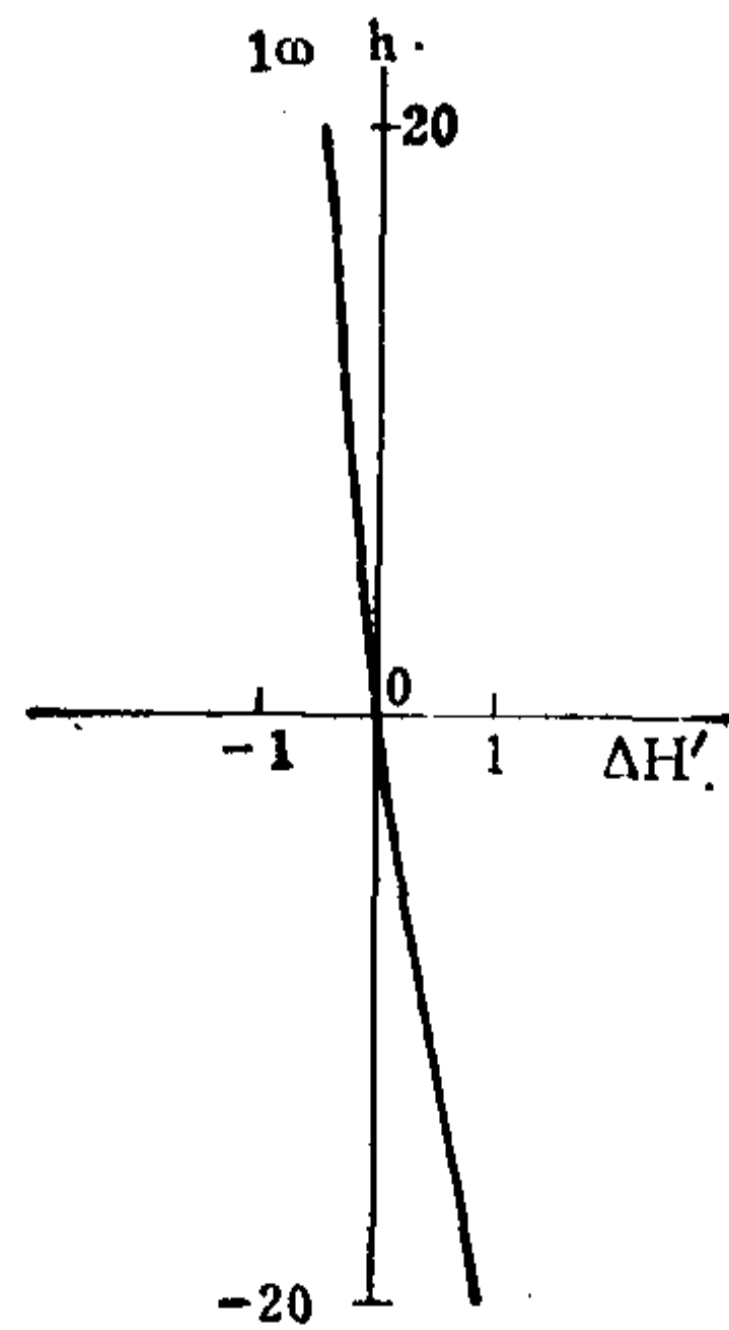
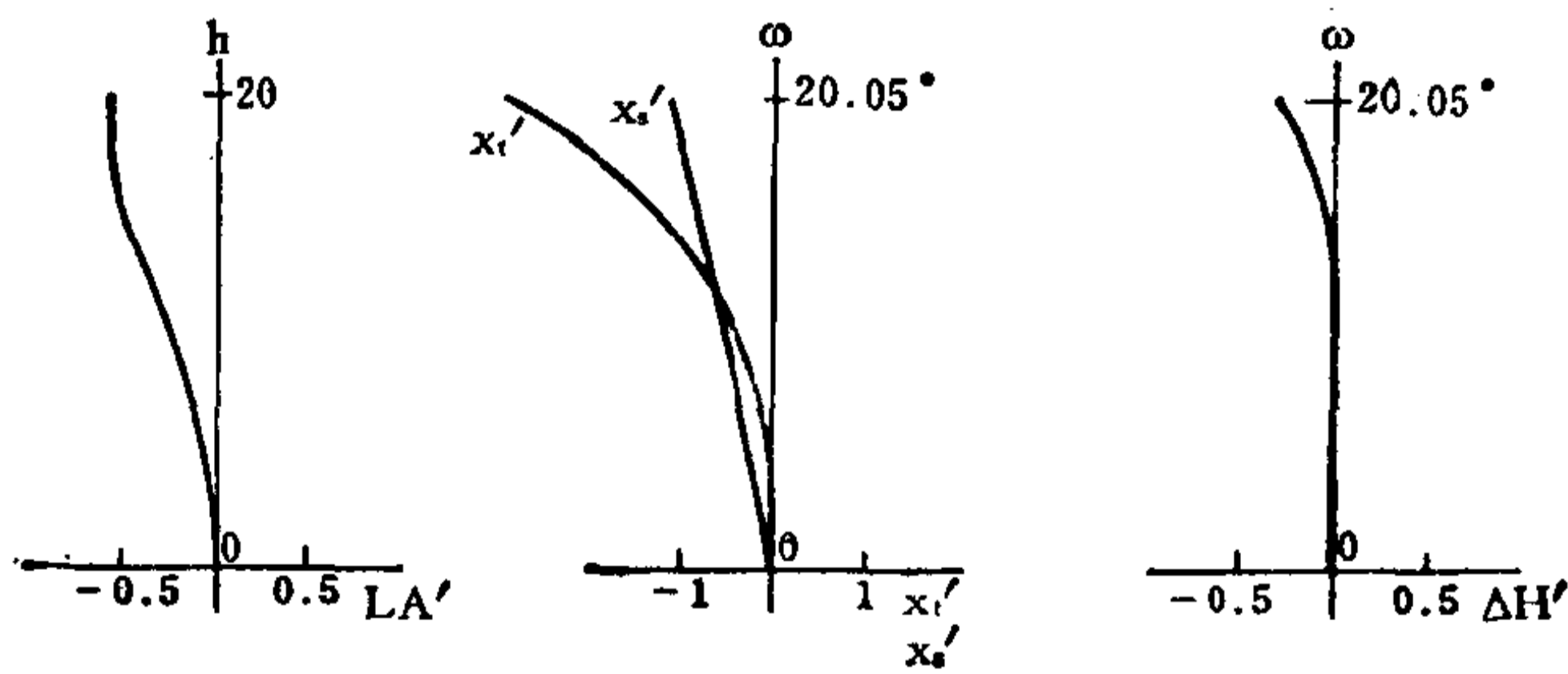
序号	r	d	n	v	序号	r	d	n	v
1	49.530	16.97	1.94283	36.1	4	42.293	7.93		
2	195.690	8.59*			5	95.029	14.87	1.94283	36.1
3	-188.130	8.00	1.94910	20.4	6	-95.029			

$8.59^* = 4.00 + 4.59$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (ω)
	-0.09485	-0.00051	-0.00322	-0.16129	0.02855	36.47	-0.82%
h 或 $\omega\%$	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{F1}	$K'_{F0.7}$
100	-0.553	-0.299	-2.974	-1.064	-1.910	0.1964	0.1115
70	-0.461	-0.015	-1.028	-0.838	-0.190	0.2051	0.0756

注: 1. $M = 37.894^*$;

2. 以上象差值是按 $l = -\infty$ 计算的。



编号: 05-04-017

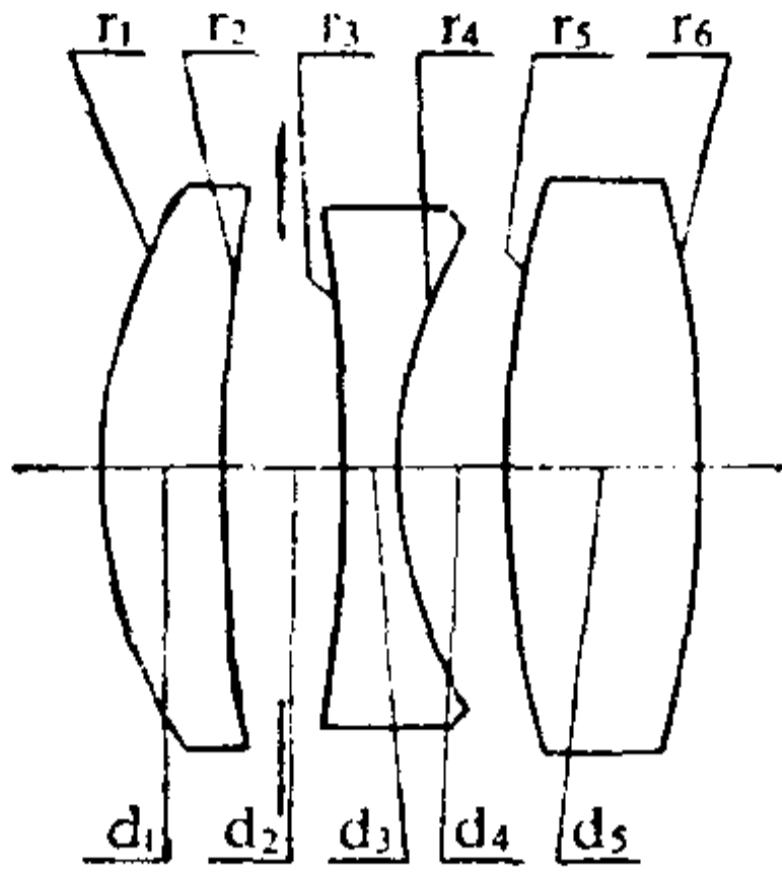
三片型投影透镜系统

E. F. L = 100

B. F. L = 68.39

FNo. = 2.8

F. A. = $\pm 20.5^\circ$



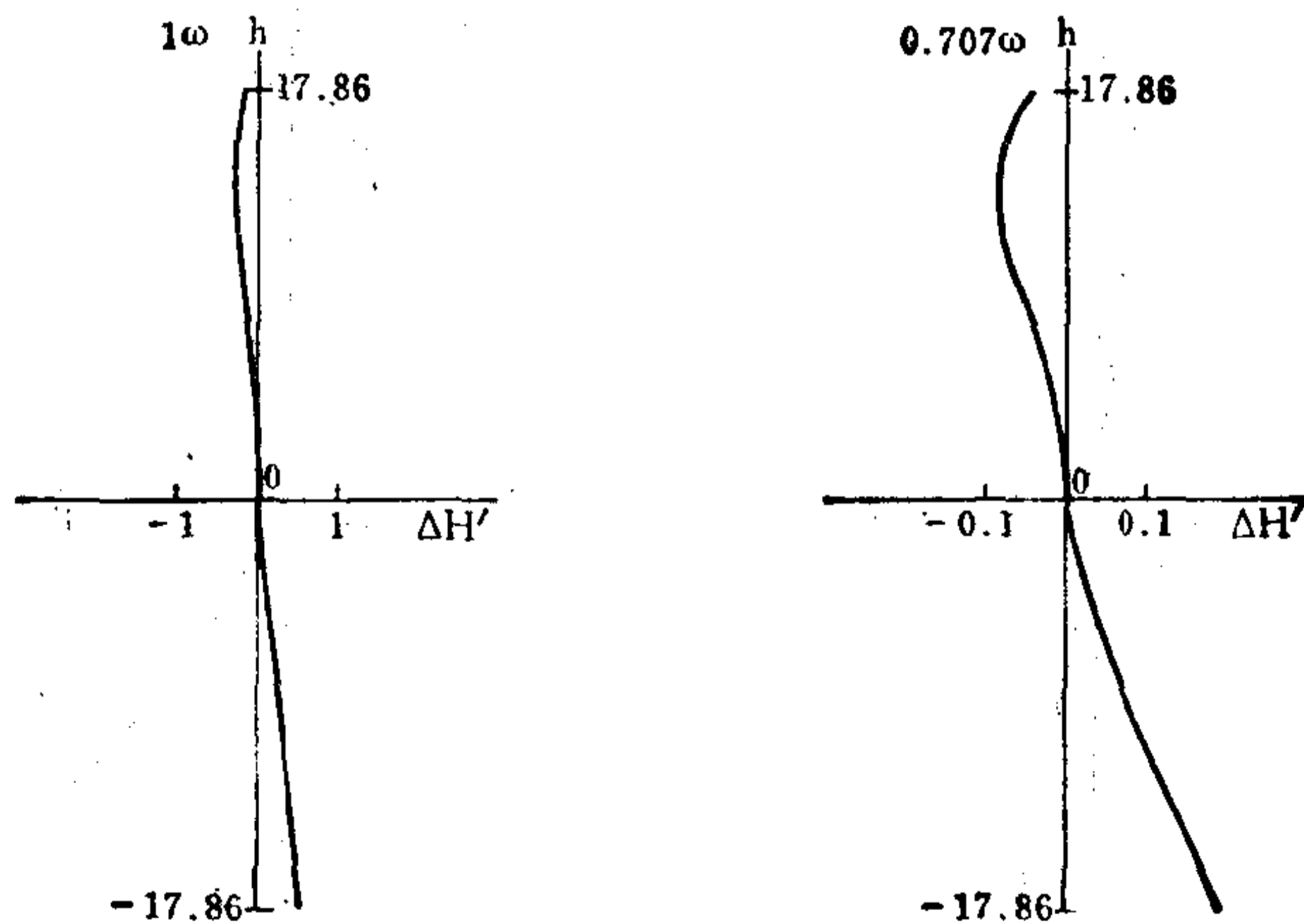
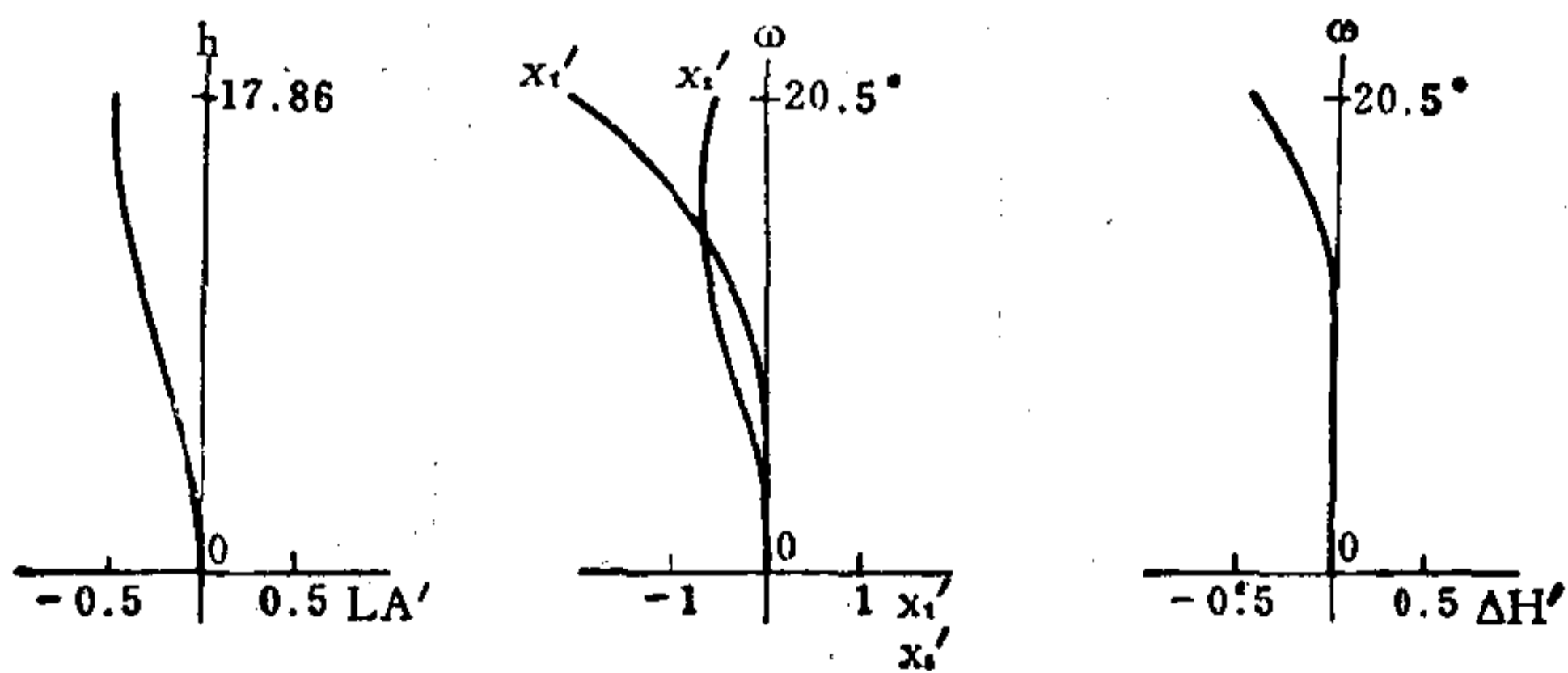
序号	r	d	n	v	序号	r	d	n	v
1	43.418	10.597	1.94283	36.1	4	38.567	8.982		
2	152.150	10.120*			5	97.978	16.710	1.94283	36.1
3	-234.000	5.089	1.94910	20.4	6	-97.978			

$10.120^* = 5.000 + 5.120$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.0695	-0.0147	0.0138	-0.1248	-0.0272	37.42	-1.26%
h 或 ω %	LA'	$\Delta H'$	x_t	x'_s	$x_t - x_s$	K'_{T1}	$K'_{T0.7}$
100	-0.505	-0.471	-2.133	-0.538	-1.595	0.1507	0.0603
70	-0.422	-0.074	-0.581	-0.633	0.052	0.0733	0.0213

注: 1. $M = 29.031^*$,

2. 以上象差值是按 $l = -\infty$ 计算的。



编号: 05-04-018

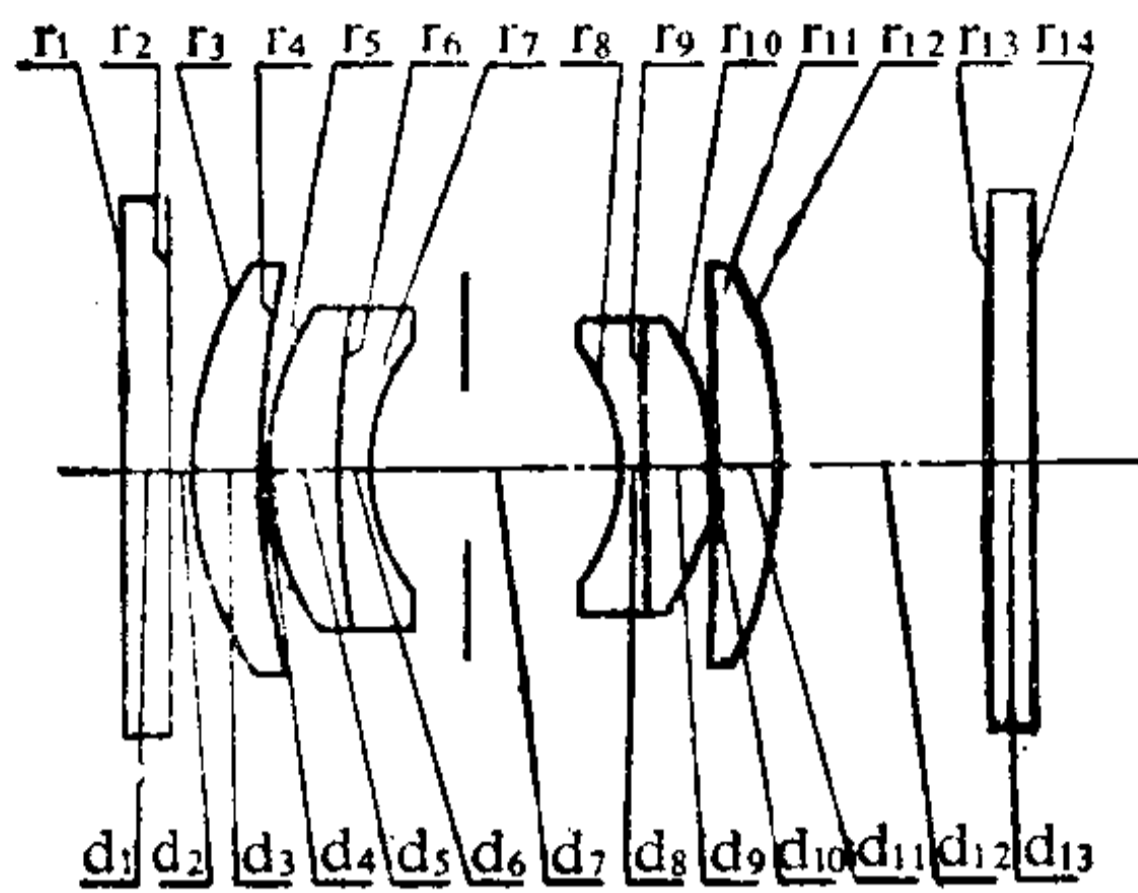
物 镜

E. F. L = 80.8

B. F. L = 33.1

FNo. = 6

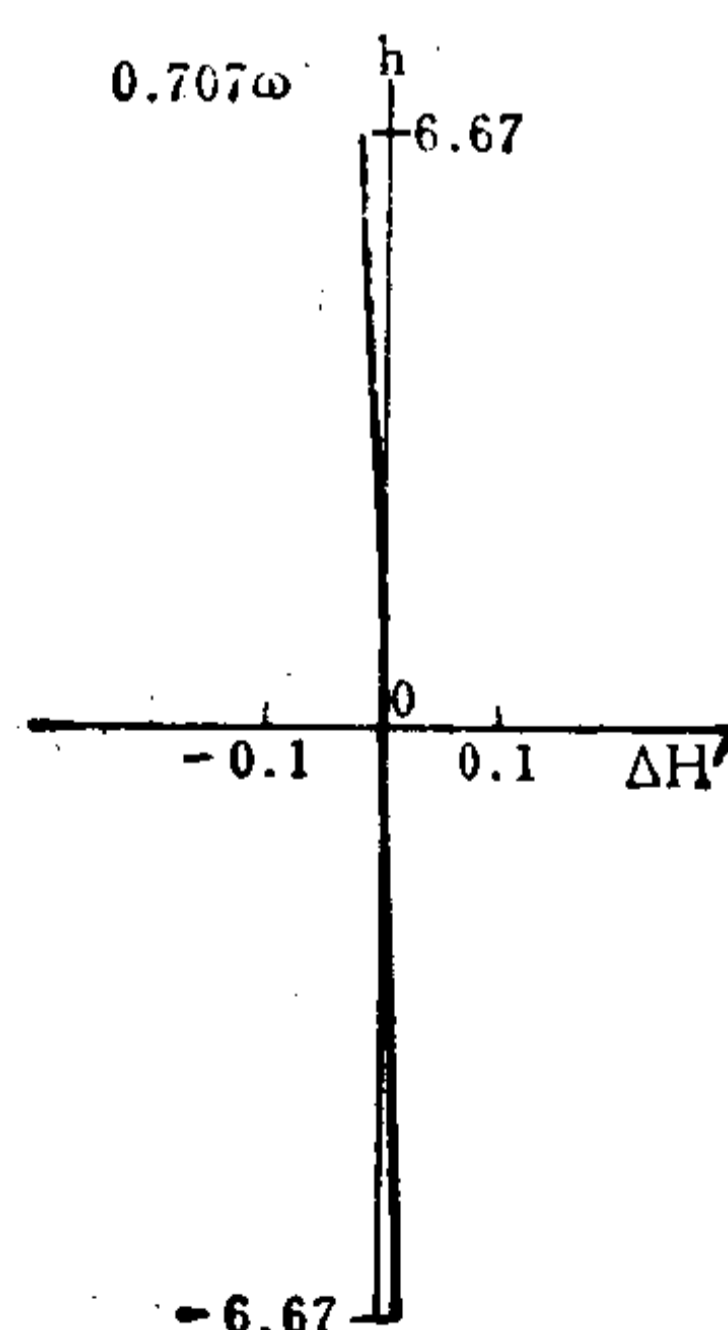
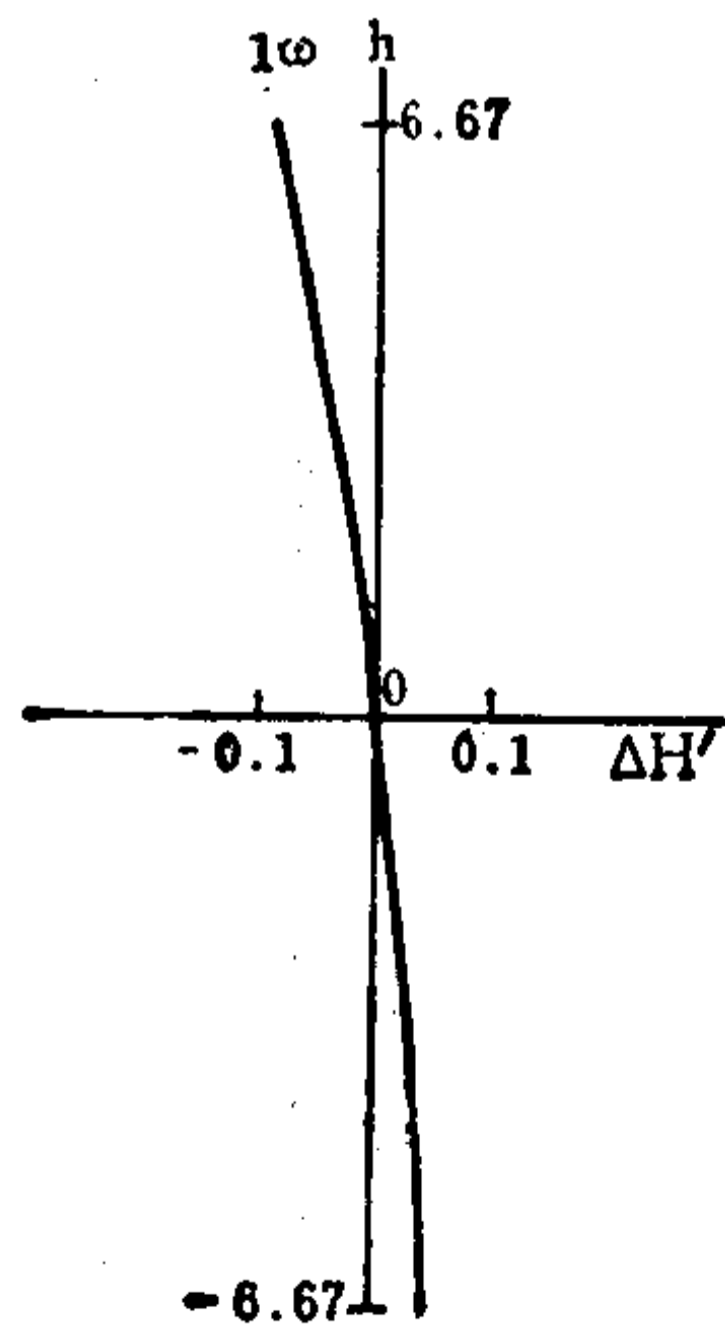
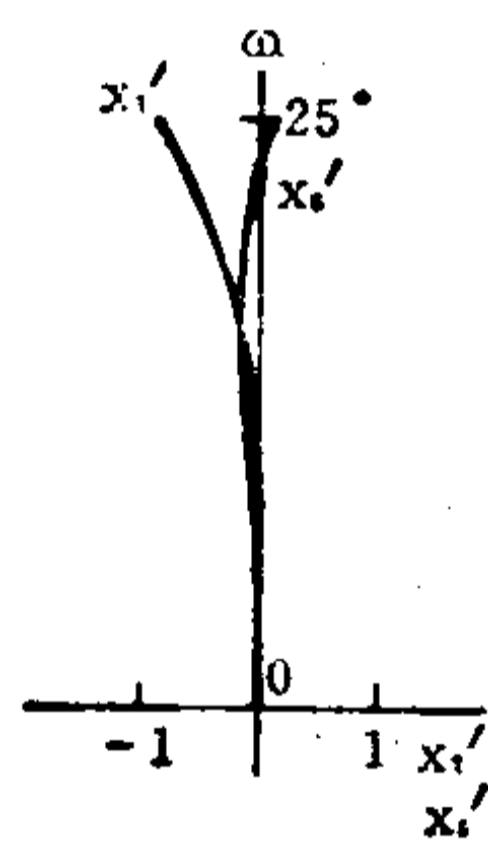
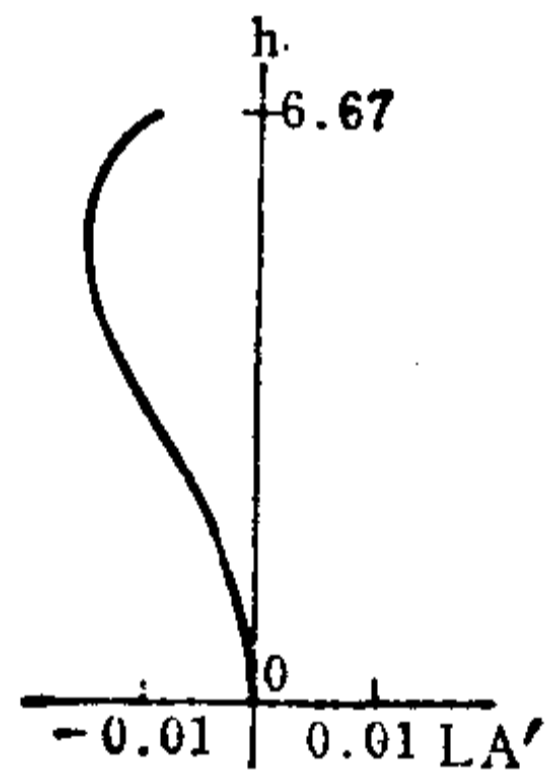
F. A. = $\pm 25^{\circ}$ **



序号	r	d	n _D	v	序号	r	d	n _D	v
1	∞	4.000	1.5163	64.20	8	-16.41	2.000	1.6039	38.02
2	∞	2.000			9	-741.30	5.557	1.6591	50.88
3	32.80	6.000	1.5891	61.24	10	-22.85	0.200		
4	75.78	0.200			11	-345.40	5.500	1.5891	61.24
5	26.20	6.995	1.6591	50.88	12	-39.30	18.057		
6	84.00	2.500	1.6200	36.34	13	∞	3.810	1.5224	59.48
7	16.58	21.386*			14	∞			

$21.386^* = 8.550 + 12.836$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.00065	-0.00068	0.00092	-0.00865	-0.03205	37.67	-1.19%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K_{T1}	$K'_{T0.7}$
100	-0.0093	-0.4497	-0.9129	0.0242	-0.9371	-0.0236	-0.0131
70	-0.0146	-0.1118	-0.2907	-0.1508	-0.1399	-0.0069	-0.0044



编号: 05-04-019

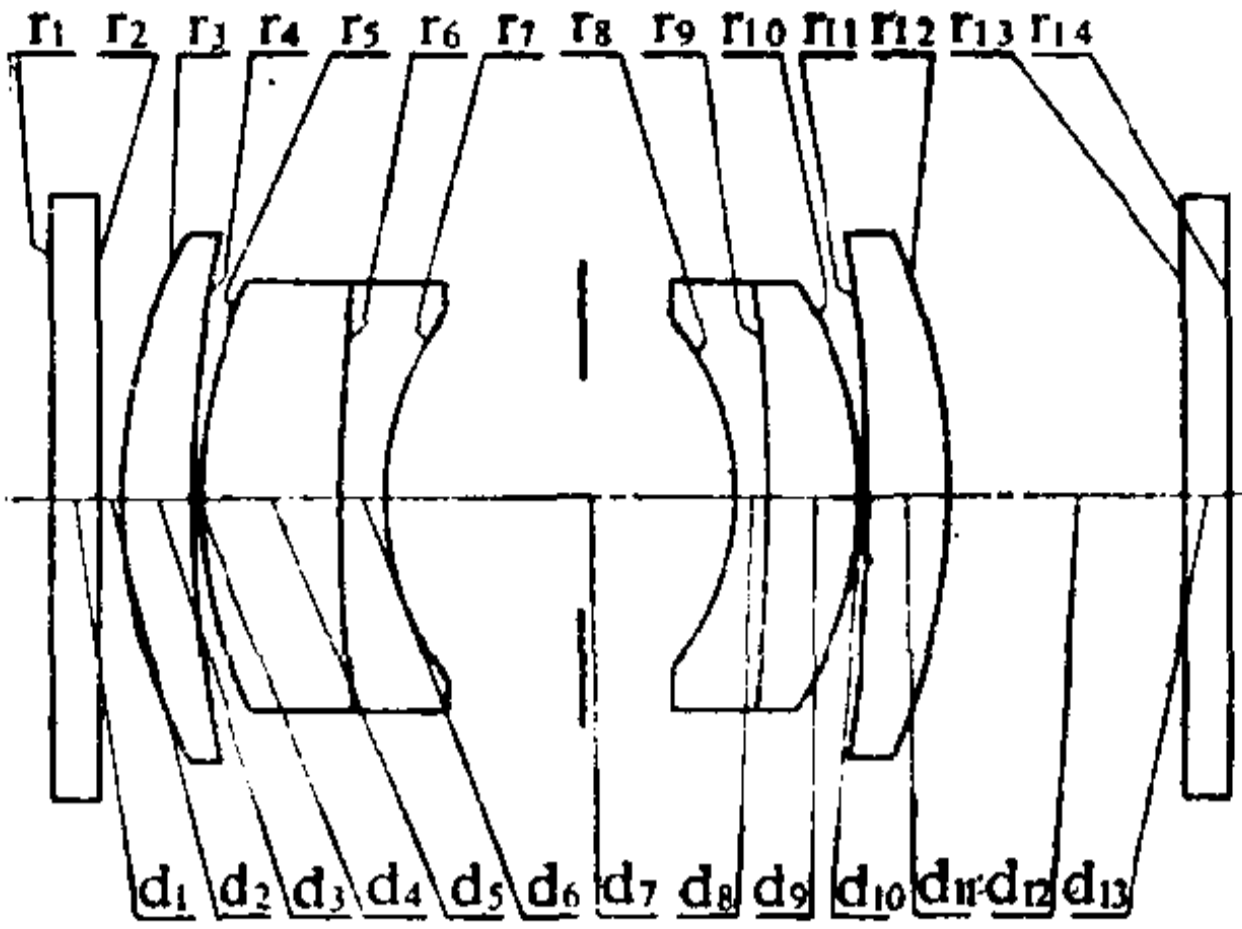
物 镜

E. F. L = 125

B. F. L = 28

FNo. = 6

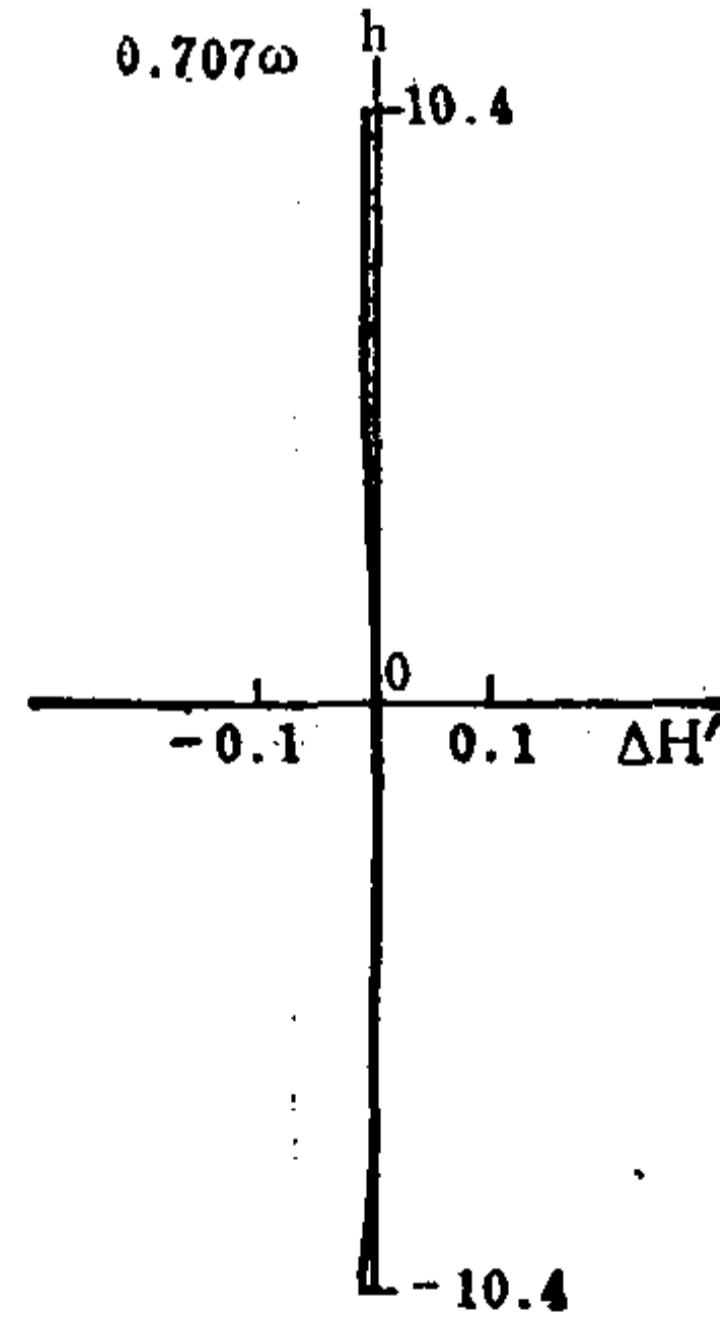
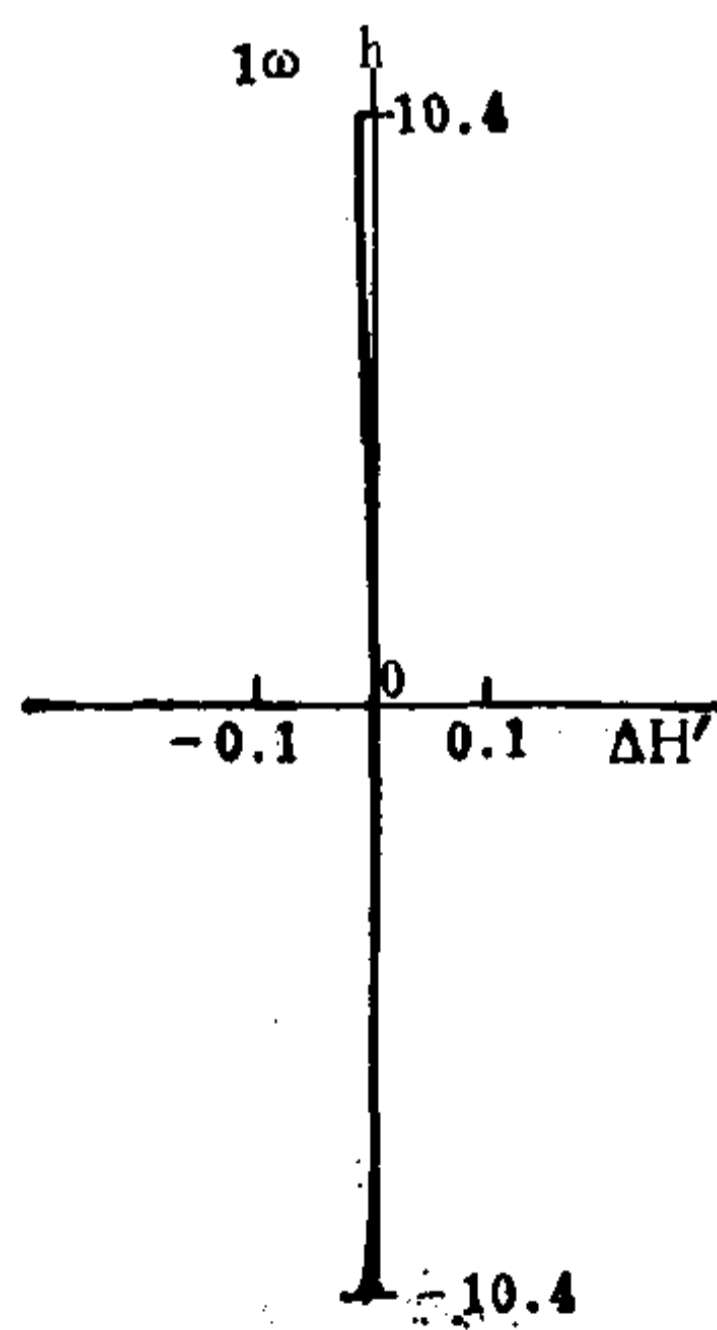
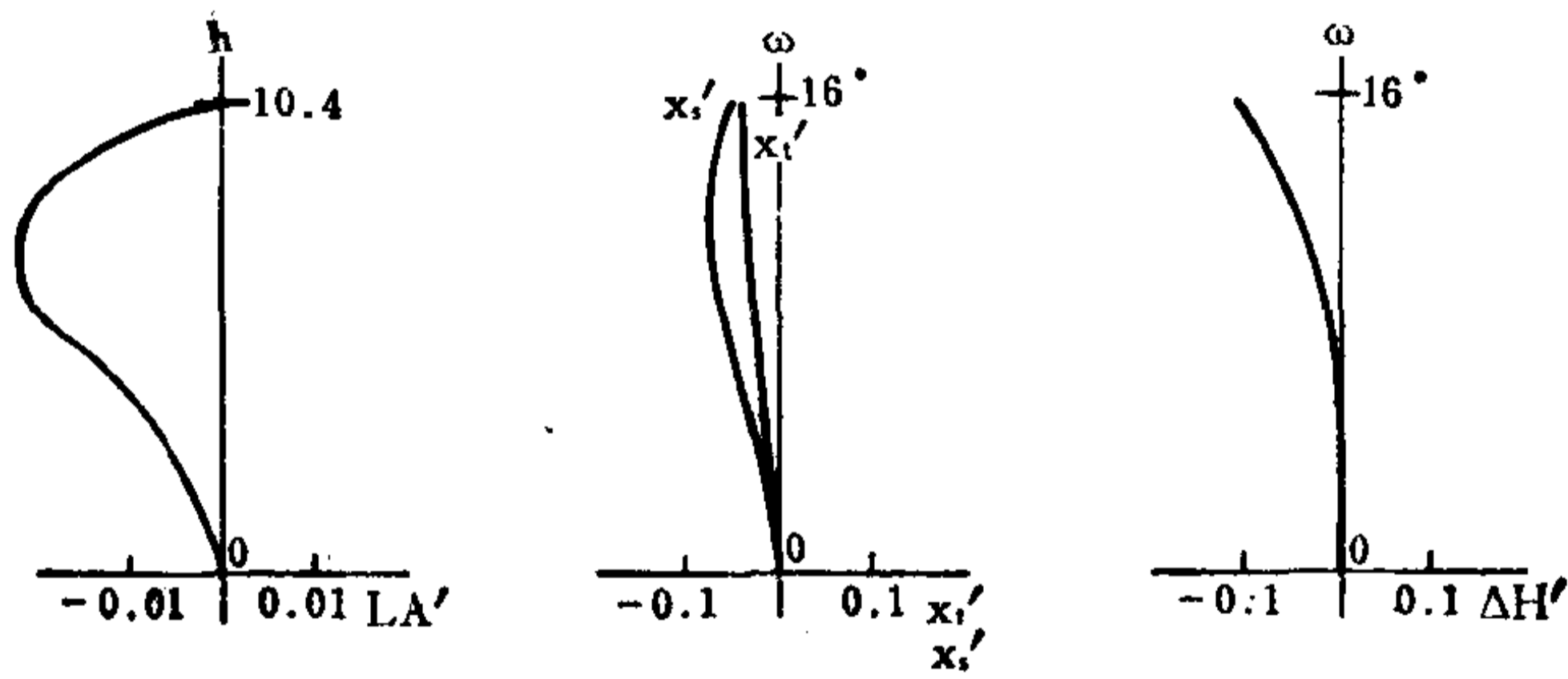
F. A. = ± 16° **



序号	r	d	n _D	v	序号	r	d	n _D	v
1	∞	4.000	1.5163	64.20	8	-23.50	3.000	1.6039	38.02
2	∞	2.000			9	-275.00	8.100	1.6591	50.88
3	48.83	5.900	1.5892	61.24	10	-33.18	0.215		
4	110.60	0.215			11	-398.00	6.970	1.5892	61.24
5	42.75	12.150	1.6591	50.88	12	-57.54	54.110		
6	150.50	3.860	1.6200	36.34	13	∞	3.810	1.5224	59.48
7	26.70	33.080*			14	∞			

33.080* = 12.950 + 20.130

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP (1ω)
	-0.00120	-0.00107	0.00088	-0.00402	-0.01332	35.79	-0.31%
h 或 ω %	LA'	ΔH'	x _t '	x _s '	x _t ' - x _s '	K _{T1}	K _{T0.7}
100	0.0028	-0.1124	-0.0399	-0.0518	0.0119	-0.0138	-0.0074
70	-0.0218	-0.0343	-0.0353	-0.0729	0.0376	-0.0118	-0.0059



编号: 05-04-020

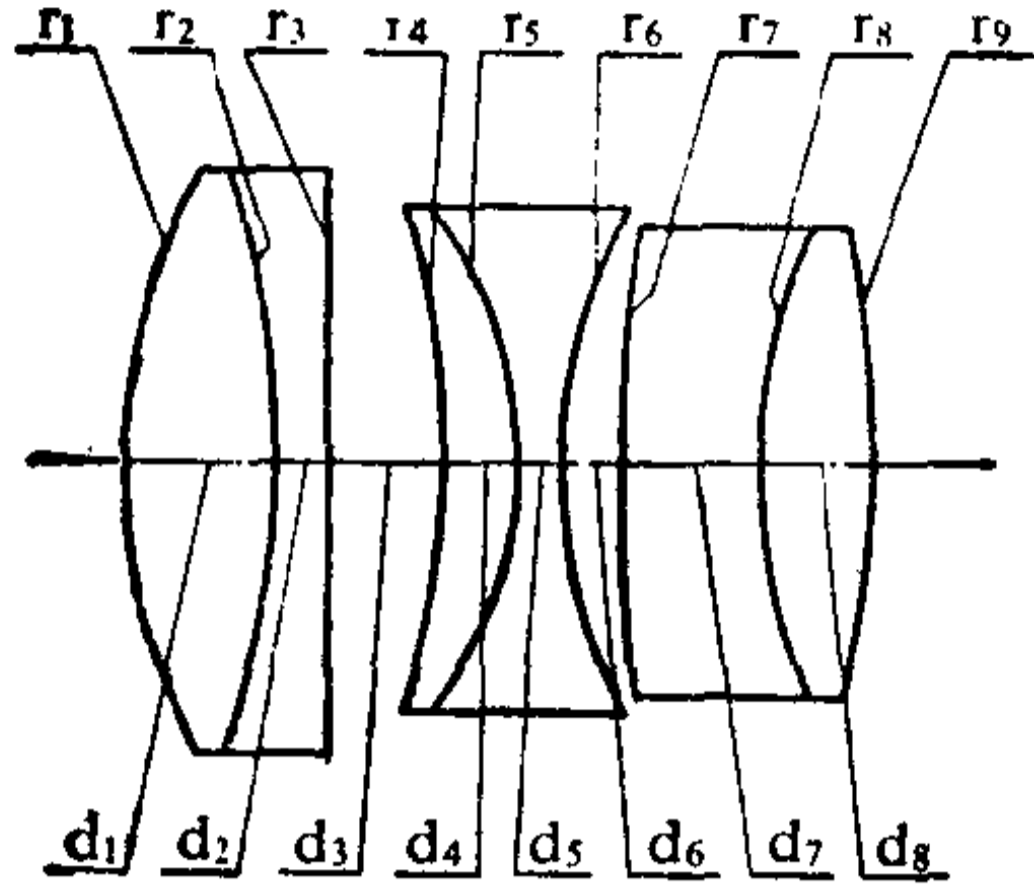
三组元物镜

E. F. L = 1.0

B. F. L = 0.7

FNo. = 2.8

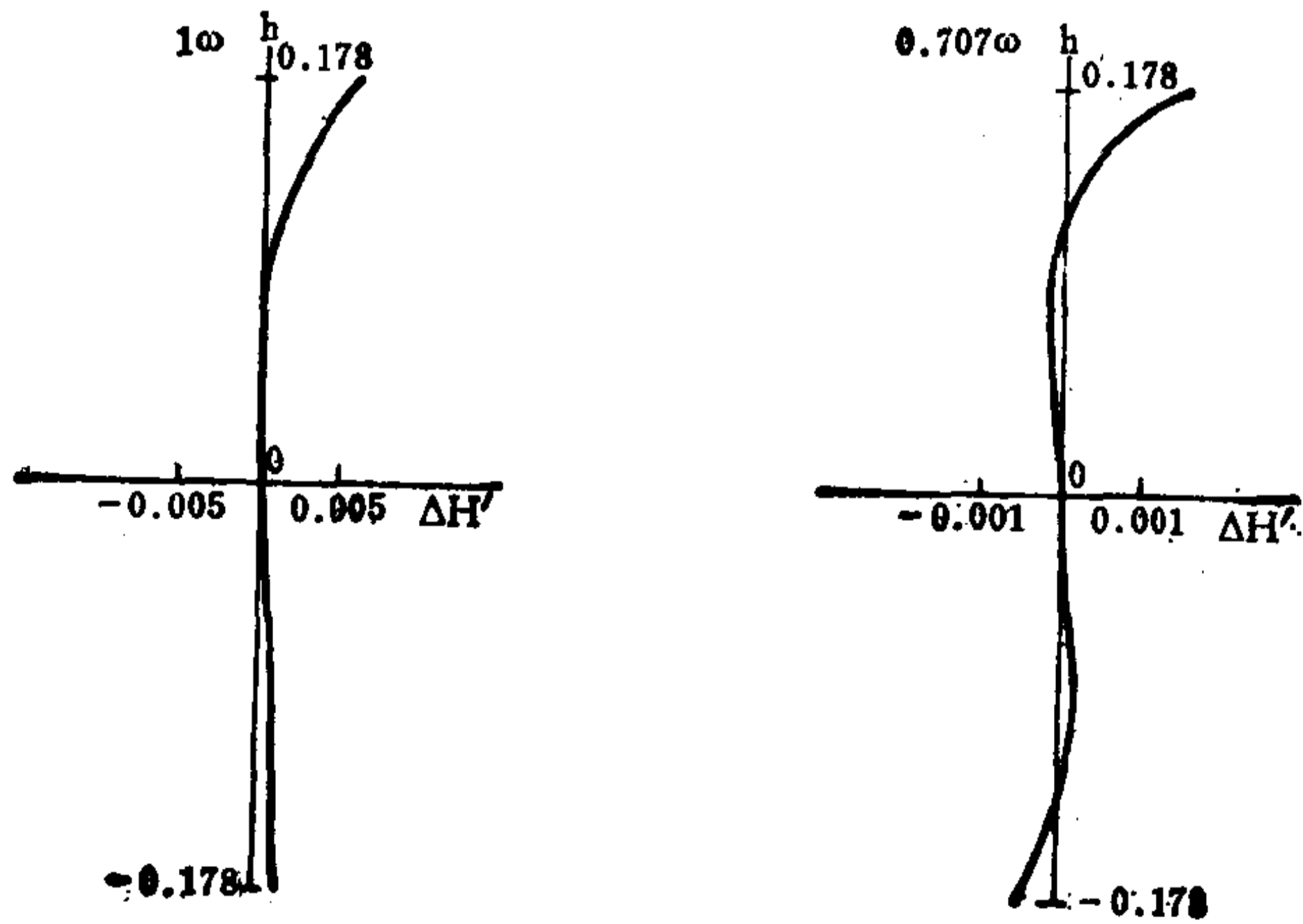
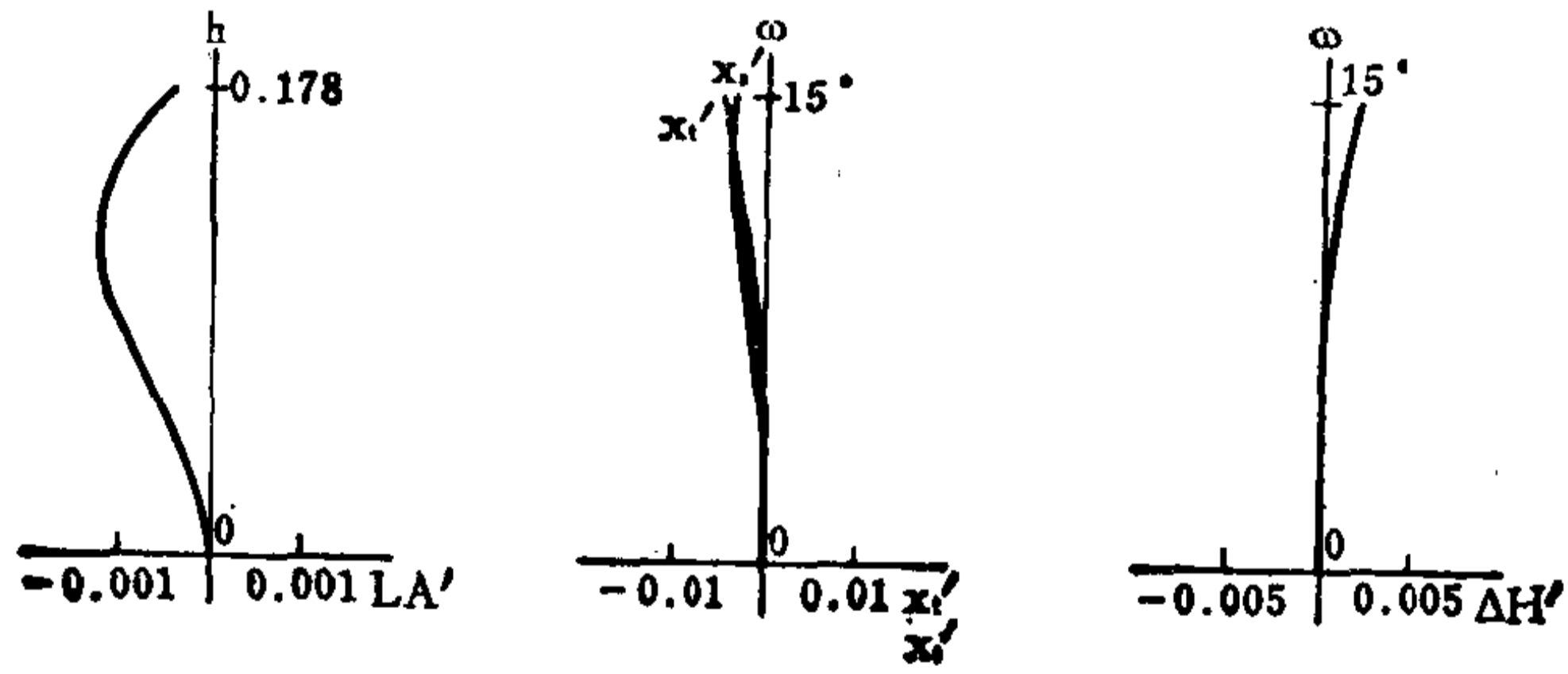
F. A. = ± 15°



序号	r	d	n _e	v _e	序号	r	d	n _e	v _e
1	0.40218	0.1007	1.69282	49.45	6	0.34854	0.0372		
2	-0.59980	0.0325	1.59910	38.98	7	1.18706	0.0889	1.62767	36.51
3	6.40992	0.0724*			8	0.37699	0.0738	1.75480	39.54
4	-0.53278	0.0474	1.81140	31.02	9	-0.67400			
5	-0.26701	0.0345	1.69416	30.92					

0.0724* = 0.0400 + 0.0324

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1 ω)
	-0.000362	-0.000178	0.000035	-0.000477	0.000668	0.268	0.78%
h 或 ω %	LA'	ΔH'	x _t	x' _s	x _t - x' _s	K _{T1}	K _{T0.7}
100	-0.00043	0.00209	-0.0049	-0.0040	-0.0009	0.00359	0.00112
70	-0.00134	0.00071	-0.0026	-0.0028	0.0002	0.00054	0.00002



编号: 05-04-021

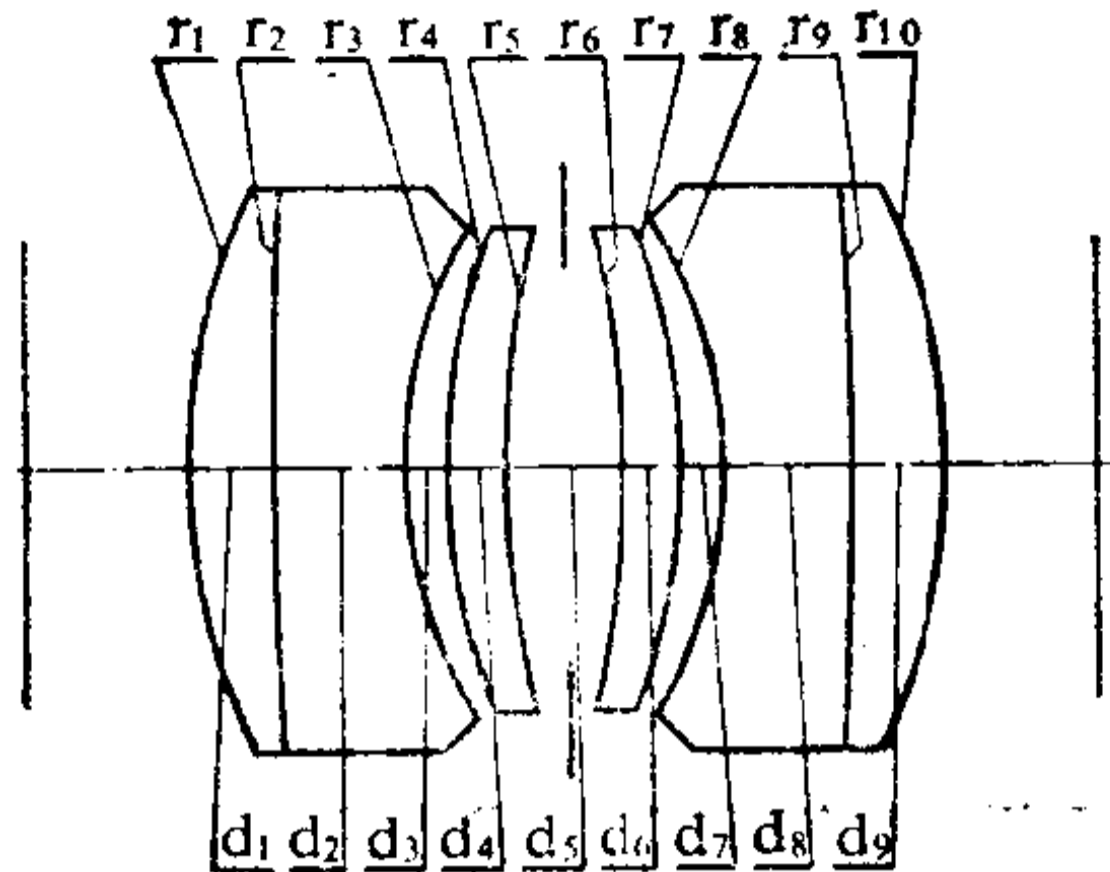
对称四组元摄影复印系统

E. F. L = 1.0

B. F. L = 0.8529

FNo. = 4.5

F. A. = ± 26.5°

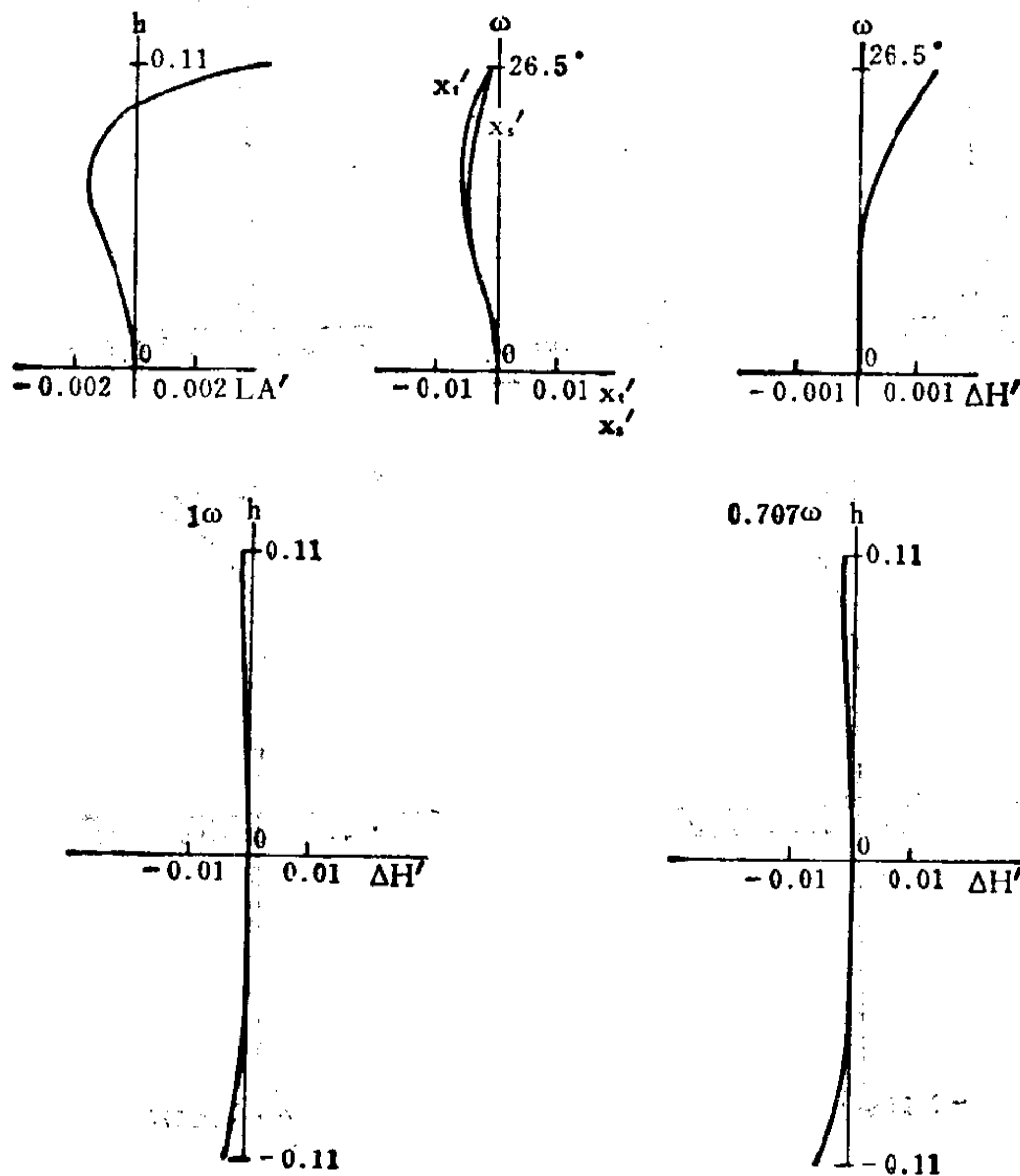


序号	r	d	nd	vd	序号	r	d	nd	vd
1	0.284724	0.038625	1.71700	47.9	6	-0.449099	0.024640	1.68578	44.0
2	2.017807	0.056605	1.62588	35.6	7	-0.298009	0.018313		
3	0.208707	0.018313			8	-0.208707	0.056605	1.62588	35.6
4	0.298009	0.024640	1.68578	44.0	9	-2.017807	0.038625	1.71700	47.9
5	0.449099	0.047282*			10	-0.284724			

0.047282* = 0.023641 + 0.023641

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.000205	-0.000245	-0.000037	-0.000312	0.000180	0.497	0.27%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.00406	0.00132	-0.00109	-0.00109	0	-0.00304	-0.00196
70	-0.00157	0.00038	-0.00578	-0.00463	-0.00115	-0.00332	-0.00142

注: 以上象差值是按 $l = -\infty$ 计算的。



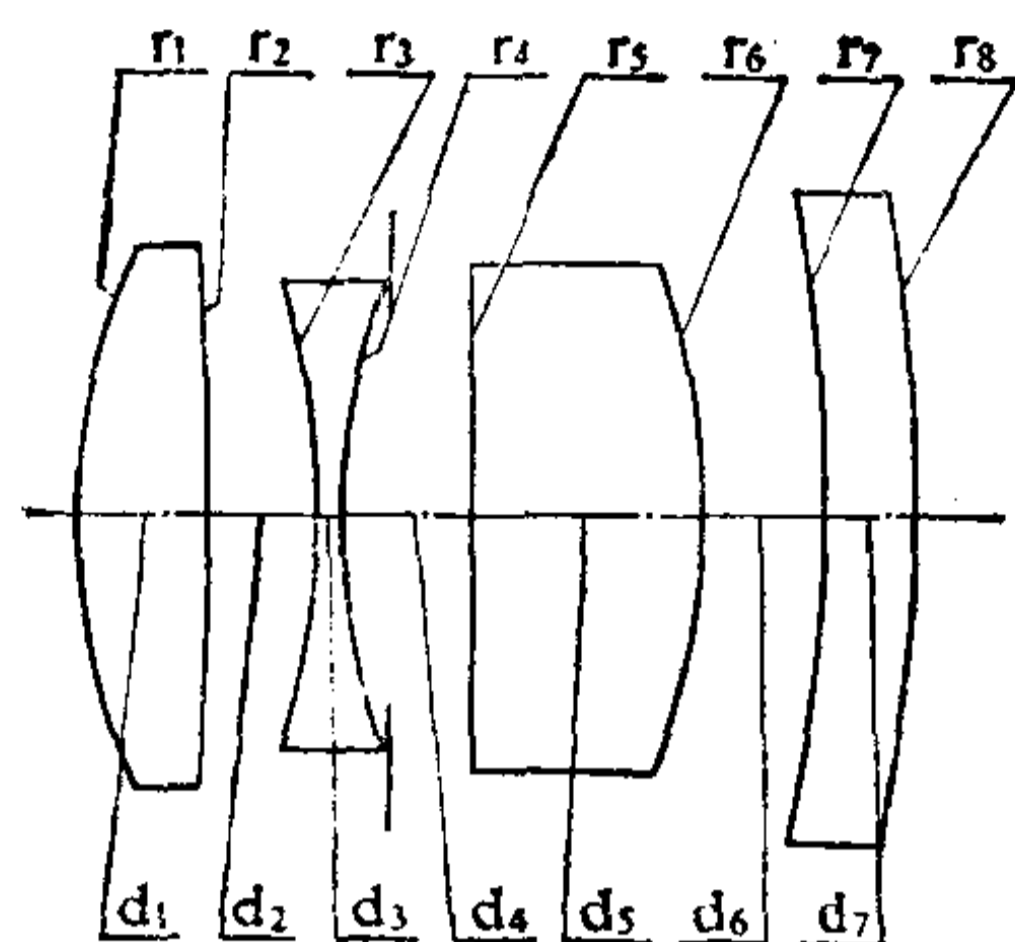
对于无限远和1:1光学放大率之间的大变化的物距上,
有一个近似不变的高性能图象的四组元物镜

E. F. L = 100

B. F. L = 71.3

FNo. = 4.8

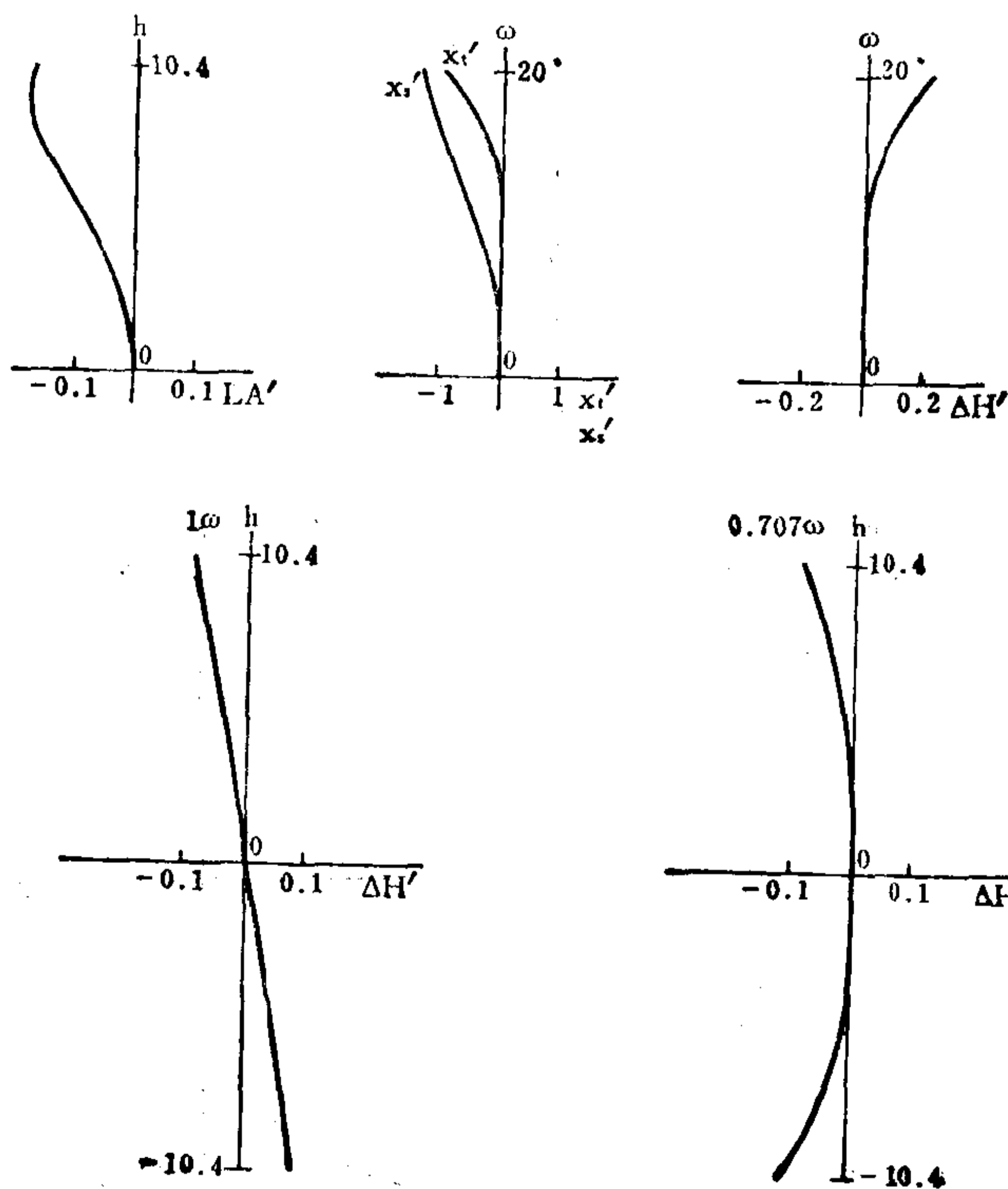
F. A. = $\pm 20^{\circ}$ **



序号	r	d	n _d	v	序号	r	d	n _d	v
1	42.745	8.177	1.6933	51.56	5	19212.100	14.750	1.6405	60.10
2	-260.615	6.938			6	-48.388	7.796		
3	-58.076	1.588	1.6461	34.05	7	-169.419	6.033	1.5168	64.17
4	43.875	8.431*			8	-116.875			

8.431* = 2.000 + 6.431

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.0088	-0.0074	0.0192	-0.0561	0.0146	36.40	0.56%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-0.169	0.205	-0.968	-1.315	0.347	-0.0079	0.0003
70	-0.148	0.044	-0.096	-0.788	0.692	-0.0967	-0.0392



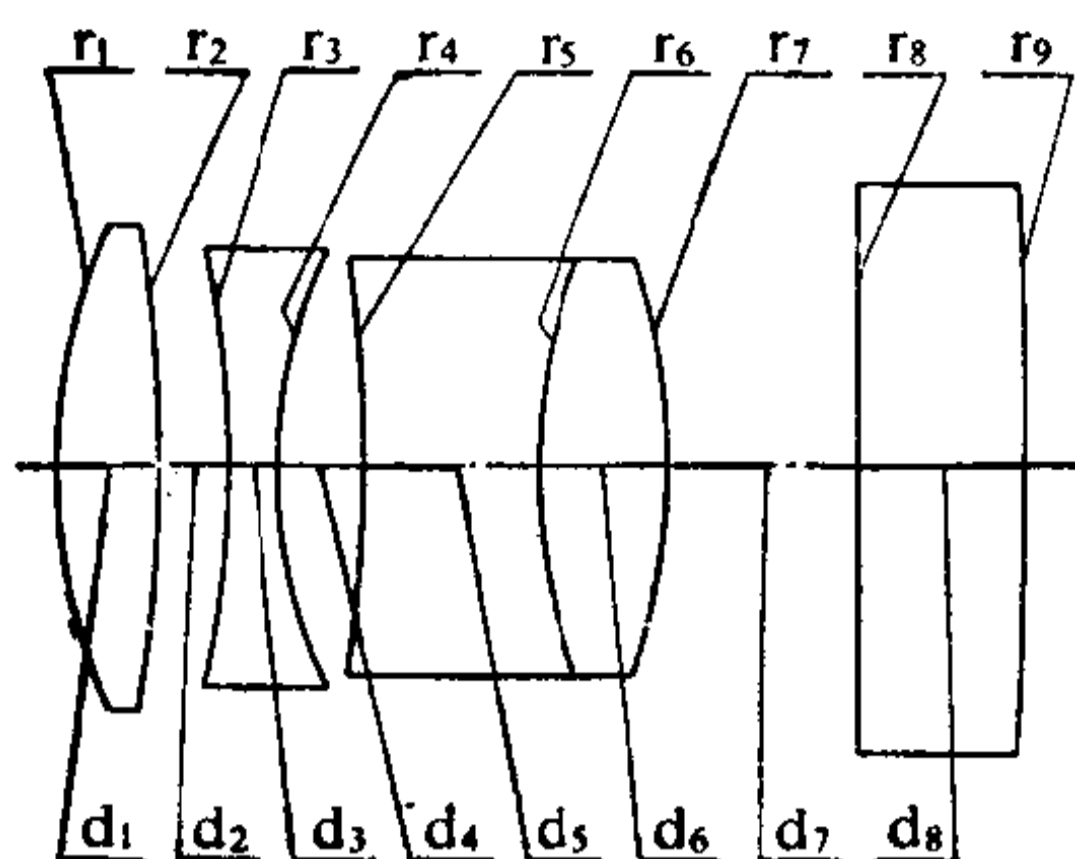
对于无限远和1:1光学放大率之间的大变化的物距上, 有一个近似不变的高性能图象的四组元物镜

E. F. L = 100

B. F. L = 68.6

FNo. = 3.9

F. A. = $\pm 20^{\circ}$ **

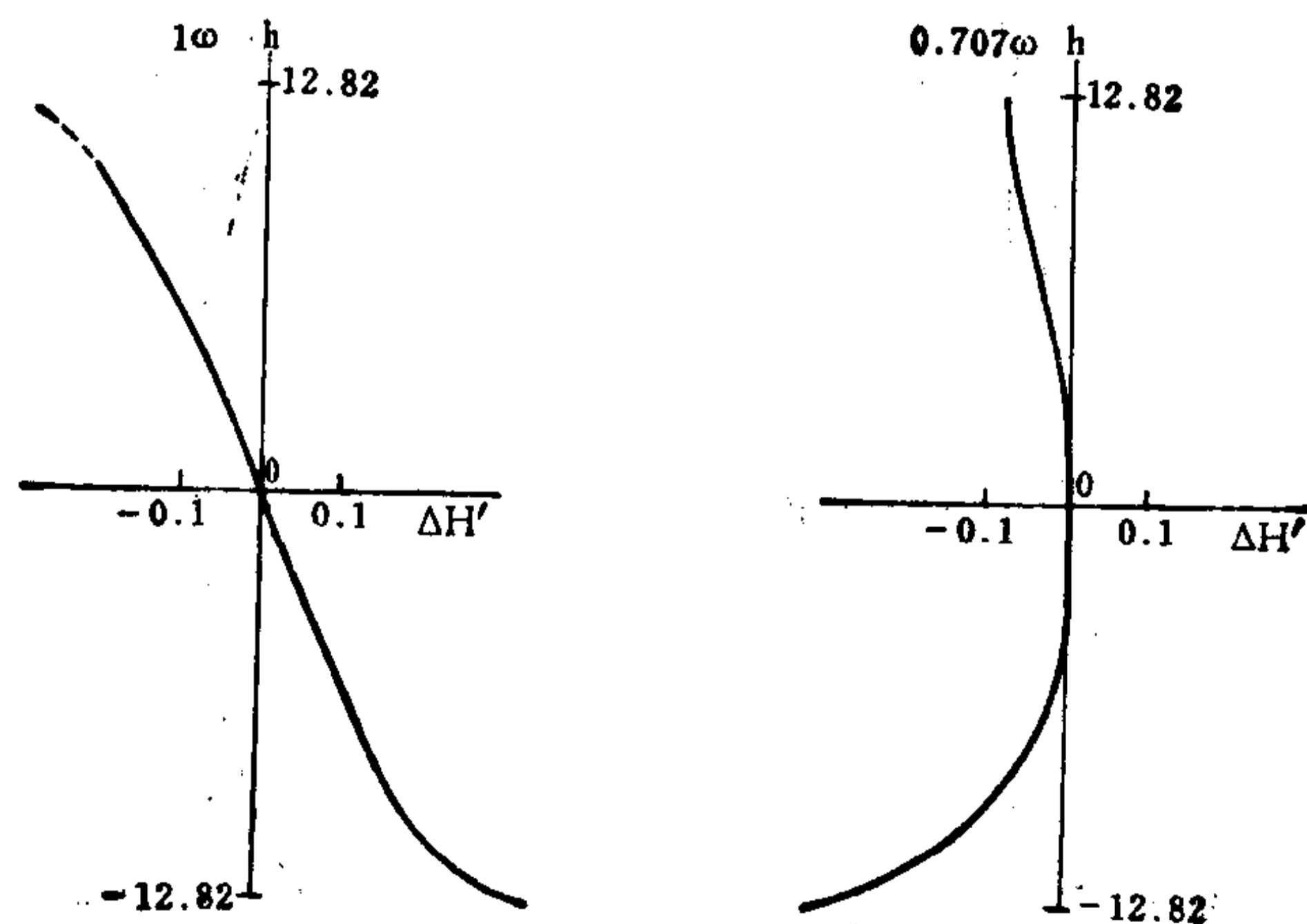
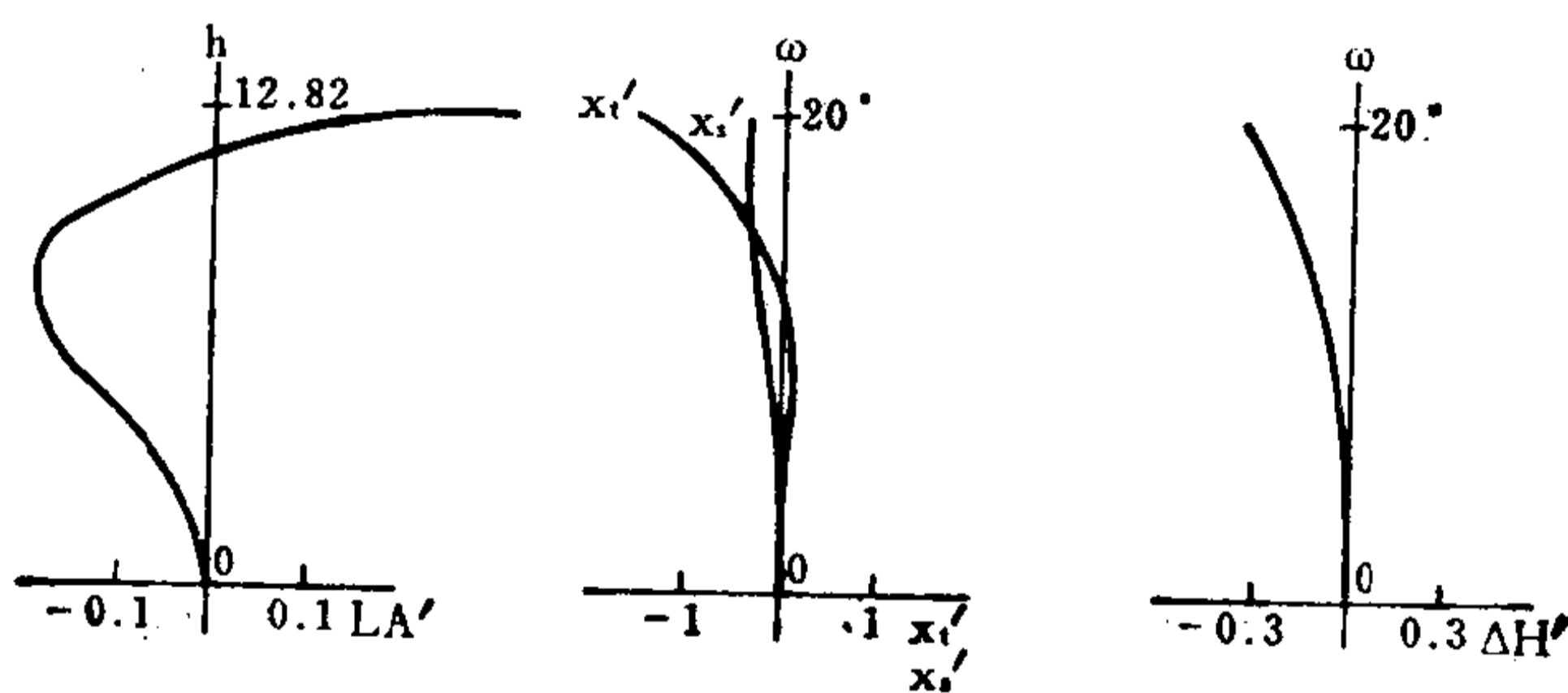


序号	r	d	n _d	v	序号	r	d	n _d	v
1	38.2267	6.467	1.71700	48.0	6	43.1965	8.083	1.64050	60.1
2	-170.7530	4.558			7	-45.4368	12.124		
3	-57.6119	3.346	1.62237	36.0	8	-4253.2700	10.734	1.51009	63.5
4	31.9357	5.436*			9	-390.6520			
5	-122.6970	11.640	1.52341	51.5					

5.436* = 1.436 + 4.000

注: 第三片和第四片采用光胶。

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.0285	-0.0123	0.0201	-0.0453	-0.0849	36.38	-0.89%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_s	$x'_i - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.3299	-0.3256	-1.553	-0.353	-1.200		-0.0077
70	-0.1816	-0.1217	-0.107	-0.295	0.188	-0.2026	-0.0700



编号: 05-04-024

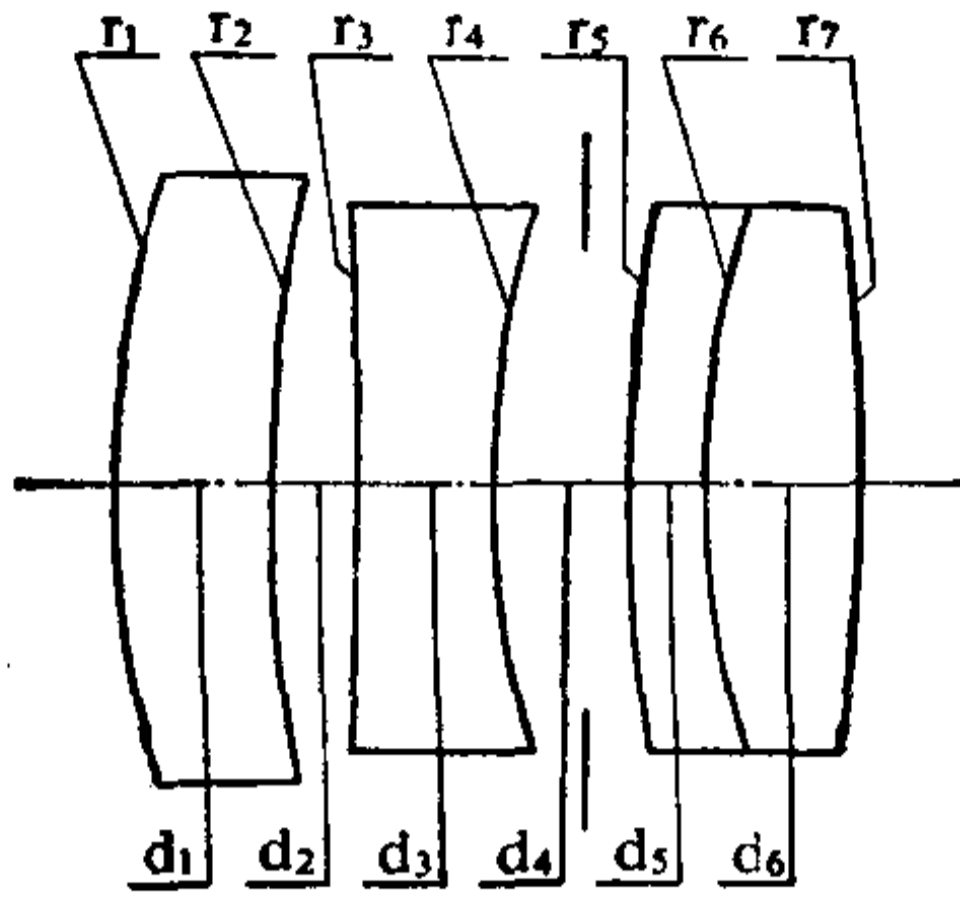
摄影物镜

E. F. L = 1.0

B. F. L = 0.79

FNo. = 2.8

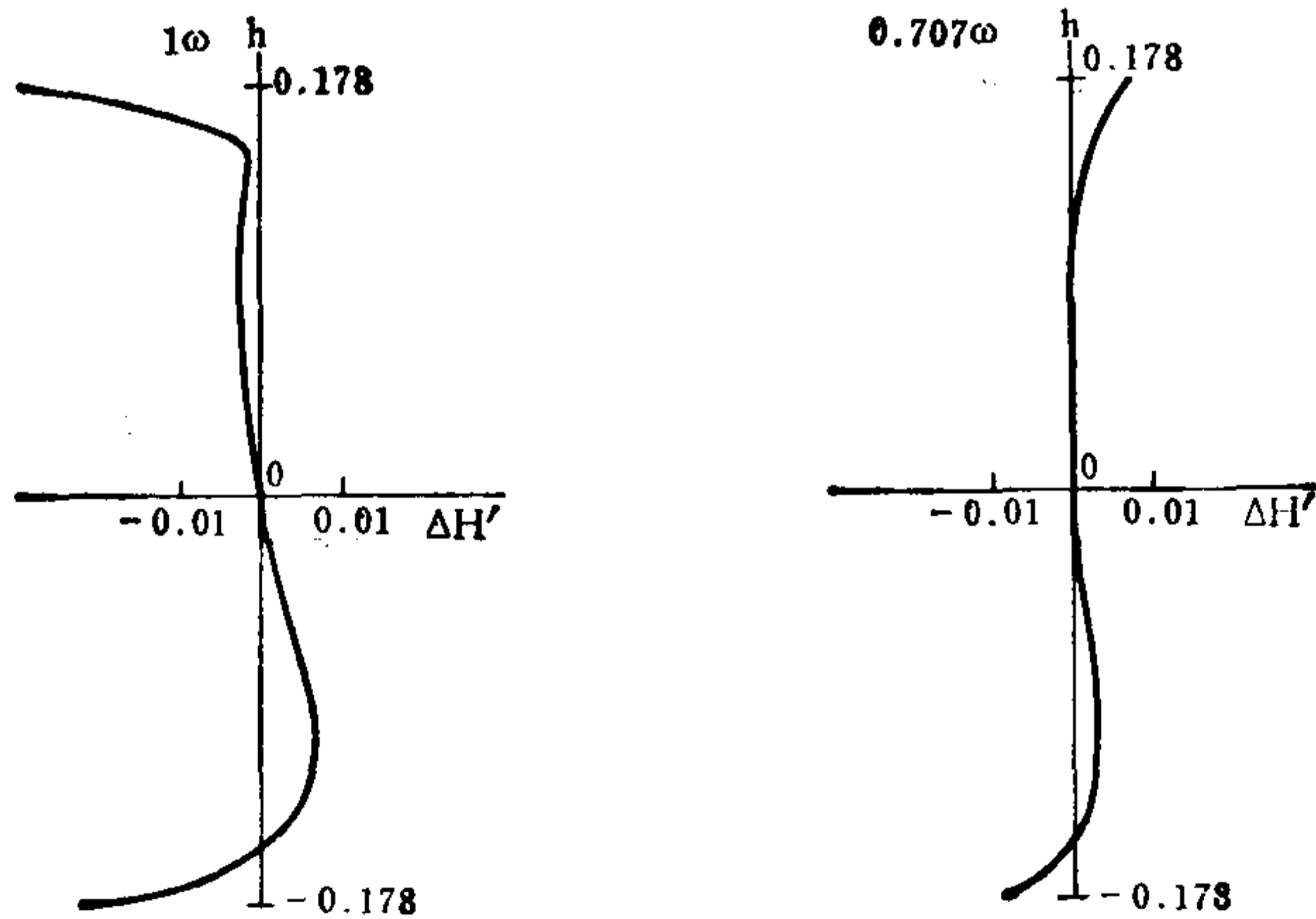
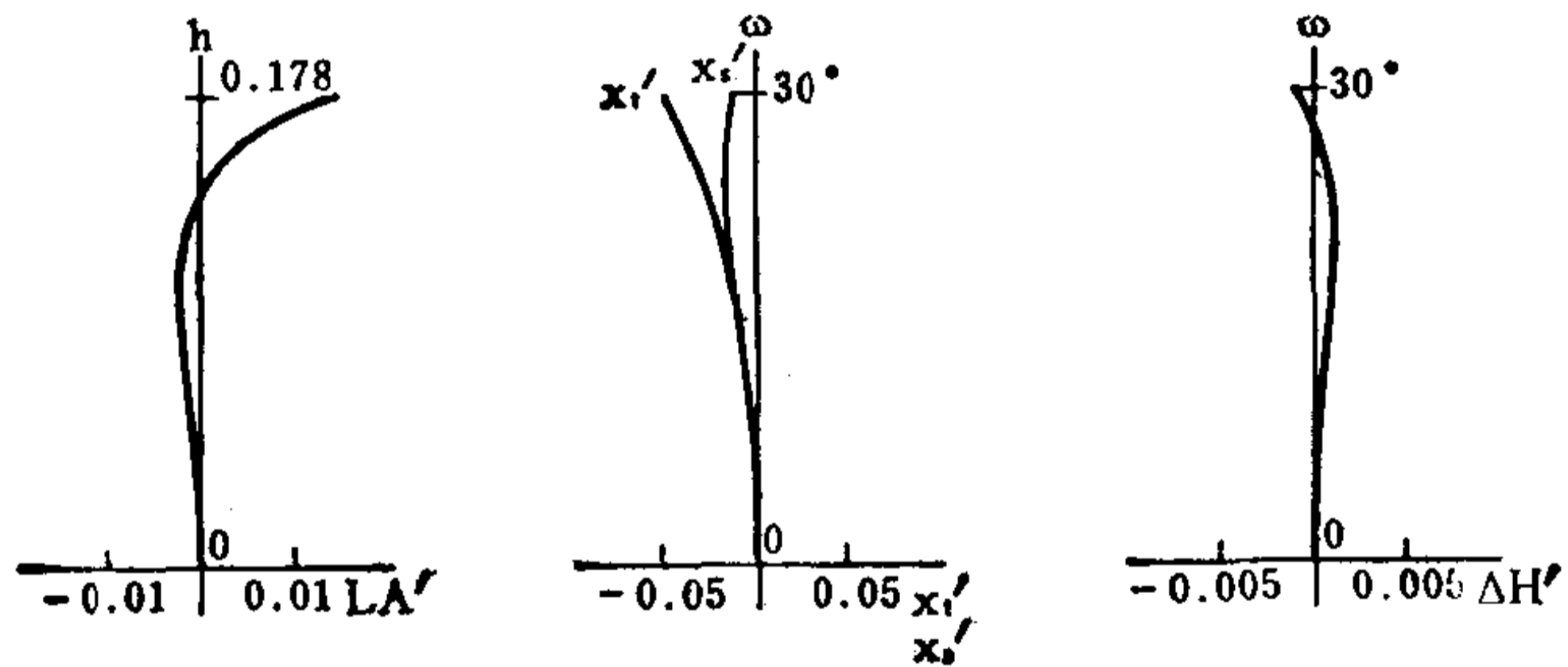
F. A. = $\pm 30^\circ$



序号	r	d	n_d	v	序号	r	d	n_d	v
1	0.3308	0.100	1.80420	46.6	5	1.2015	0.025	1.72825	28.3
2	0.9499	0.027			6	0.3308	0.100	1.83060	36.5
3	-2.8539	0.045	1.75690	31.7	7	-0.9269			
4	0.3074	0.042*							

$0.042^* = 0.030 + 0.012$

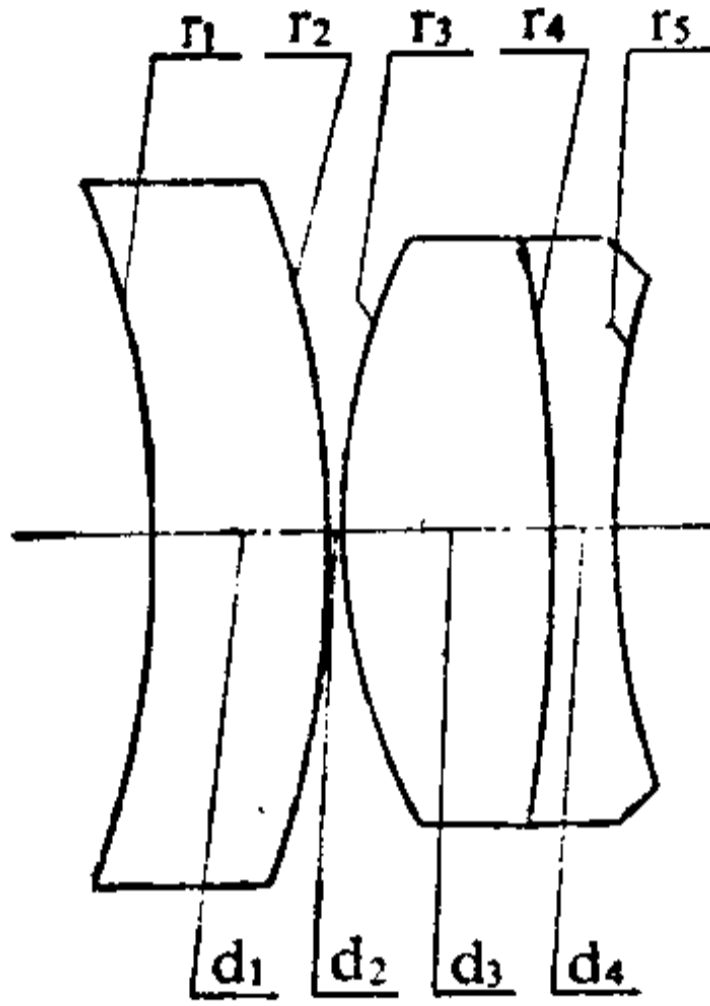
	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.00080	0.00011	-0.00025	-0.00209	0.00193	0.58	-0.18%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.0150	-0.0010	-0.0507	-0.0097	-0.0410	-0.0259	0.00210
70	-0.0015	0.0012	-0.0204	-0.0140	-0.0064	-0.0013	0.00169



编号: 05-04-025

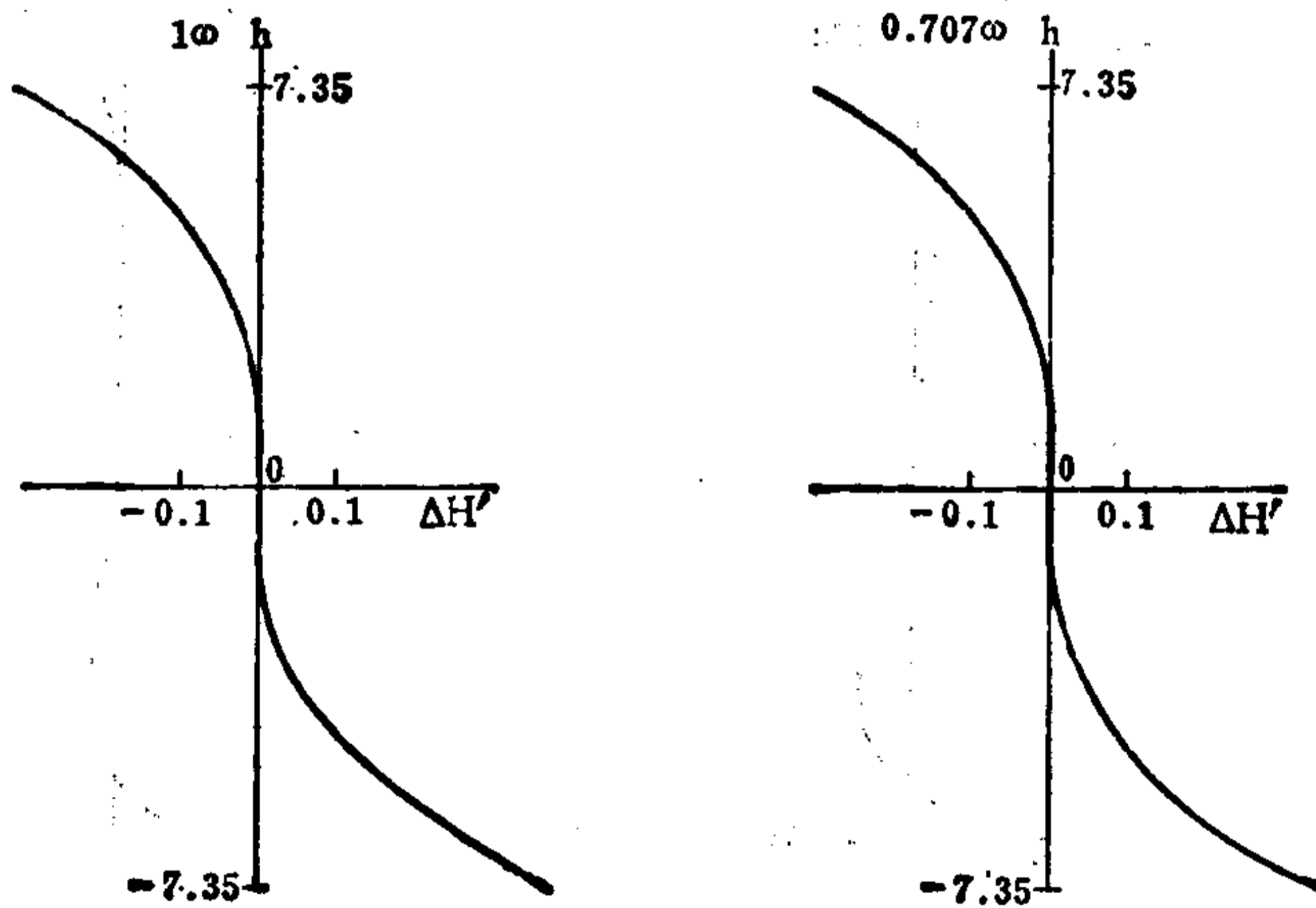
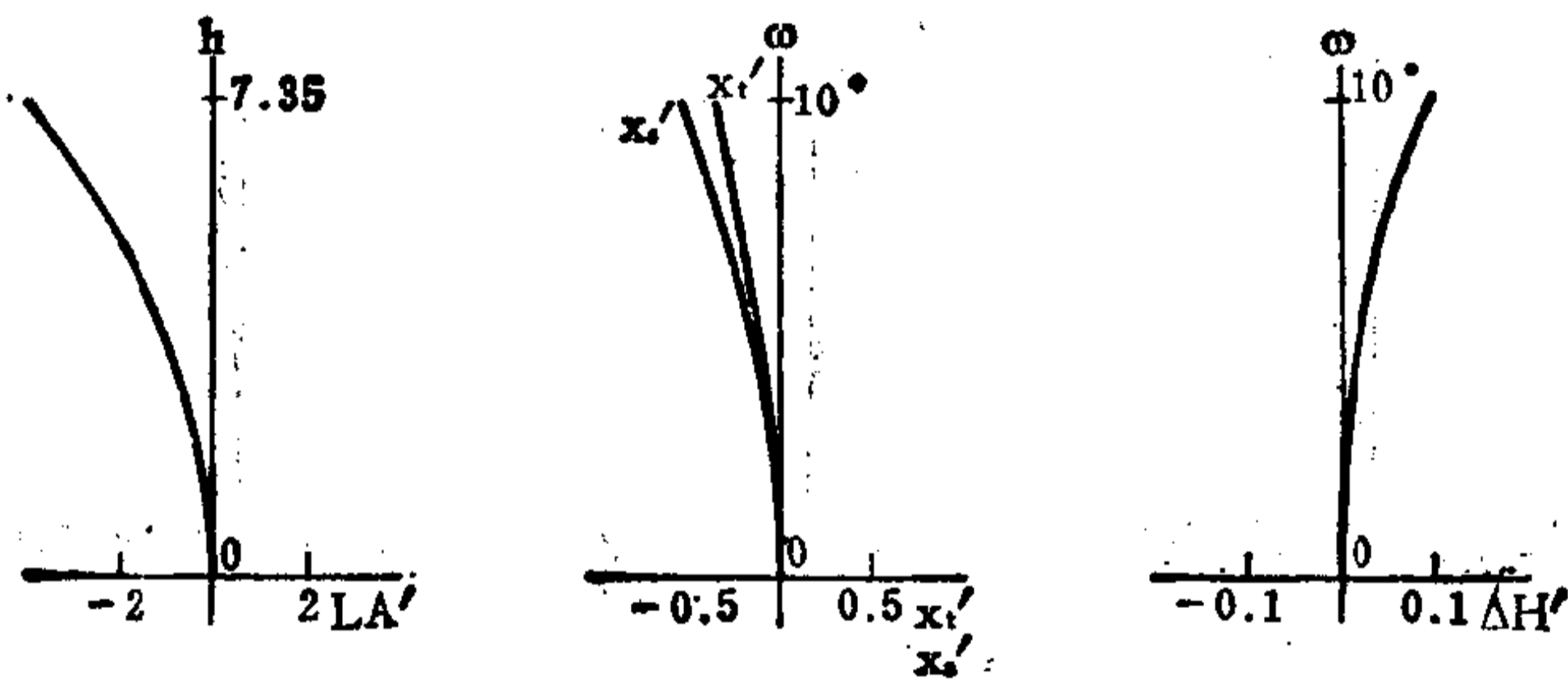
带有后光栏的摄影物镜

E.F.L=99.8 B.F.L=88.3 FNo.=6.8 F.A.=±10°** L'p5=12.000



序号	r	d	n _d	v	序号	r	d	n _d	v
1	-41.782	7.510	1.52300	59.50	4	-64.063	2.692	1.62004	36.37
2	-42.684	0.250			5	38.803			
3	27.037	9.012	1.60738	56.65					

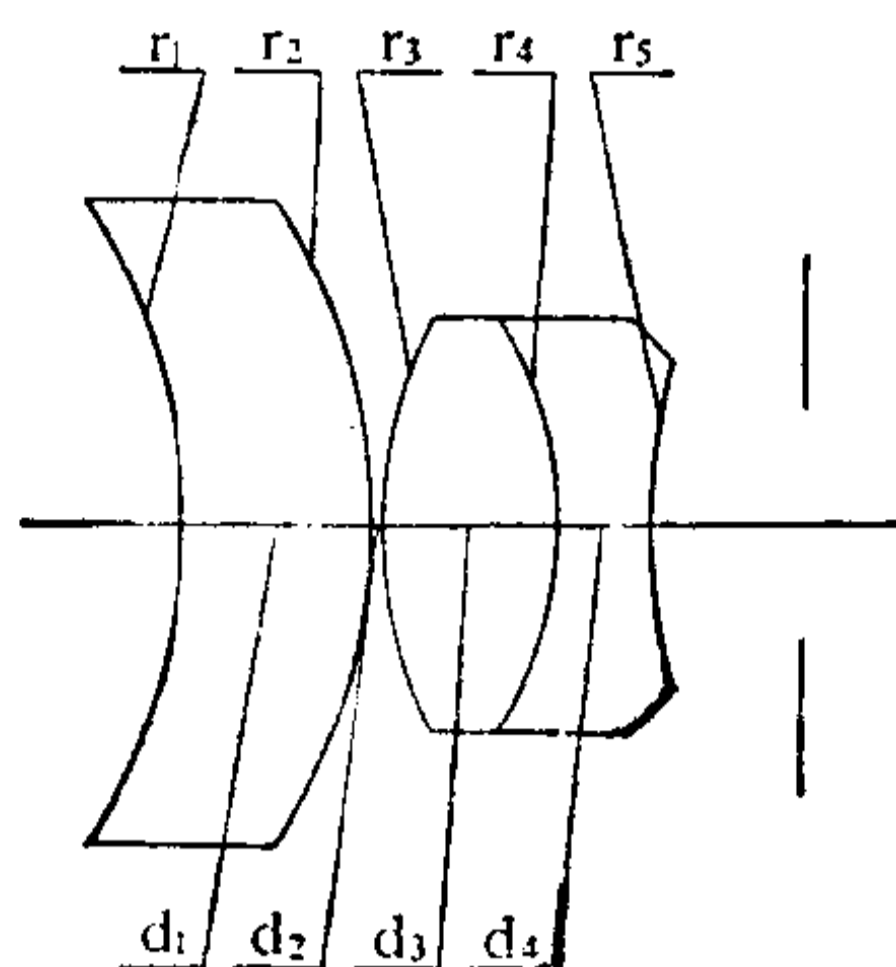
	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.04333	0.00114	0.00068	-0.00629	0.01478	17.61	0.58%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-3.946	0.102	-0.317	-0.511	0.194	0.0451	0.0203
70	-1.985	0.036	-0.179	-0.259	0.080	0.0274	0.0124



编号: 05-04-026

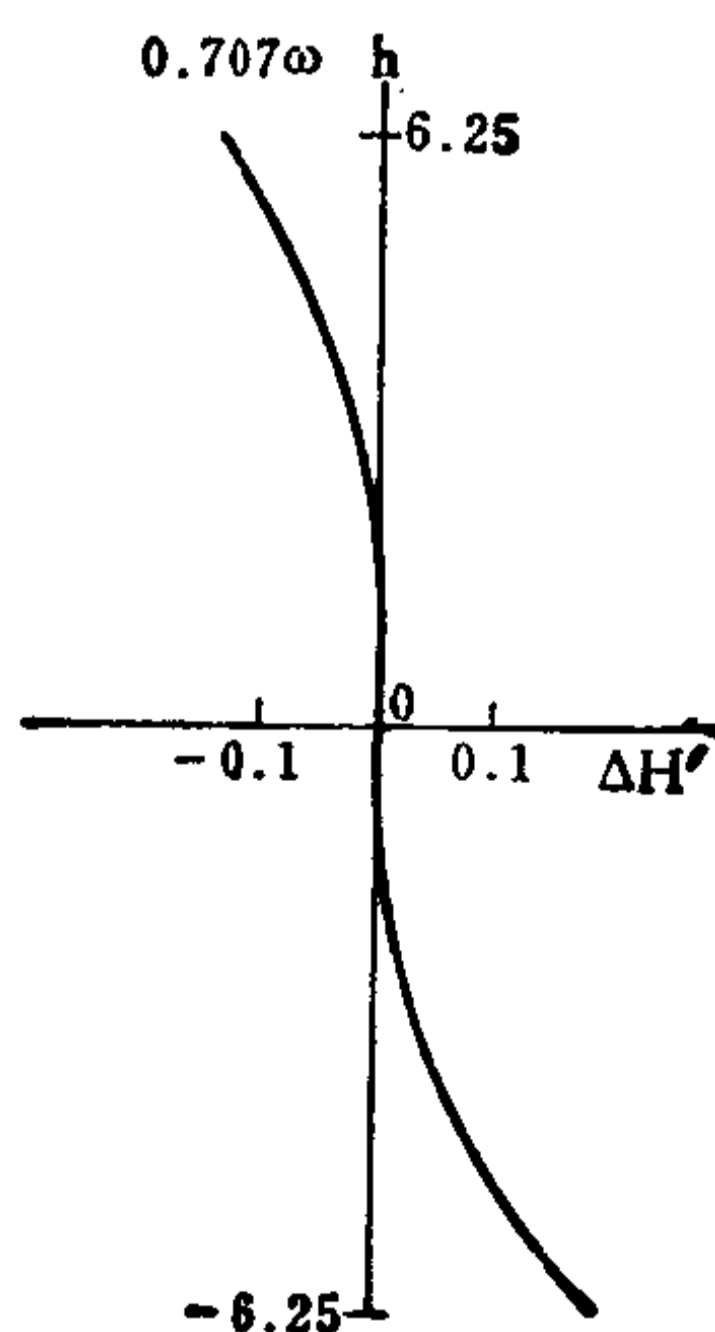
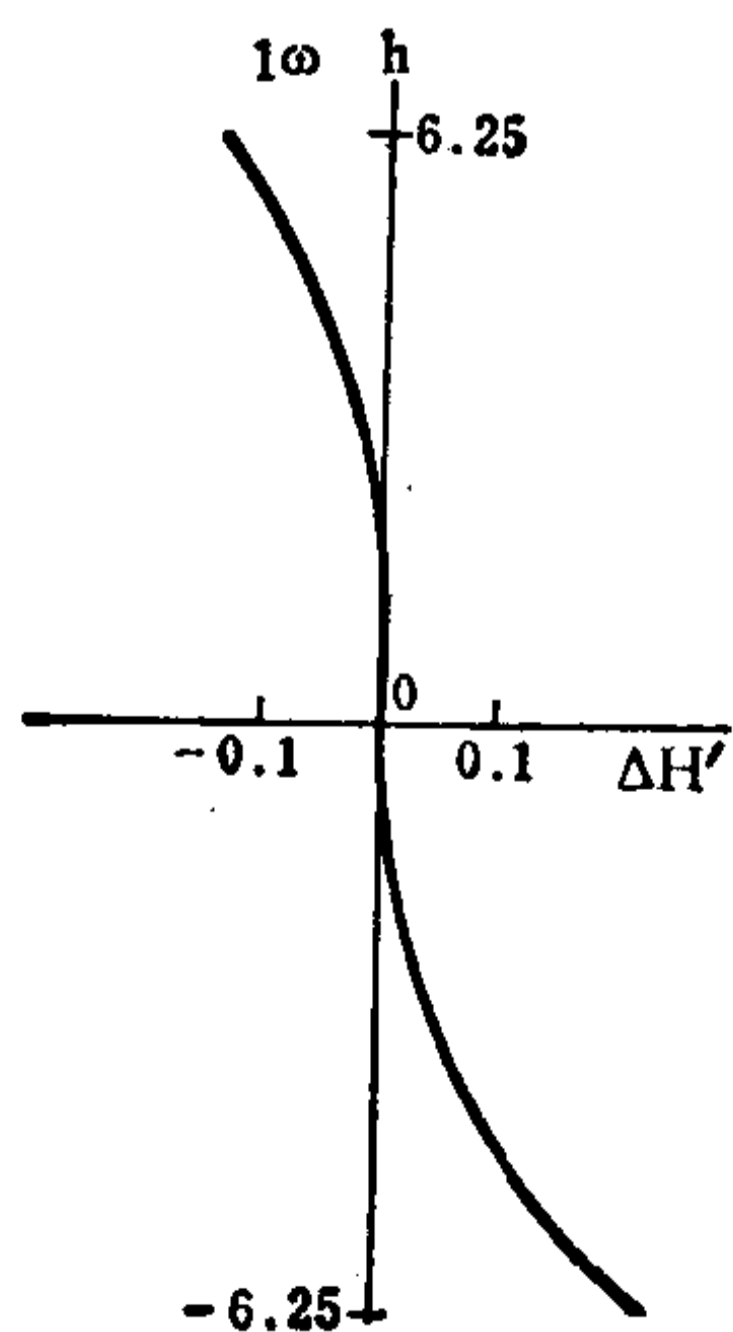
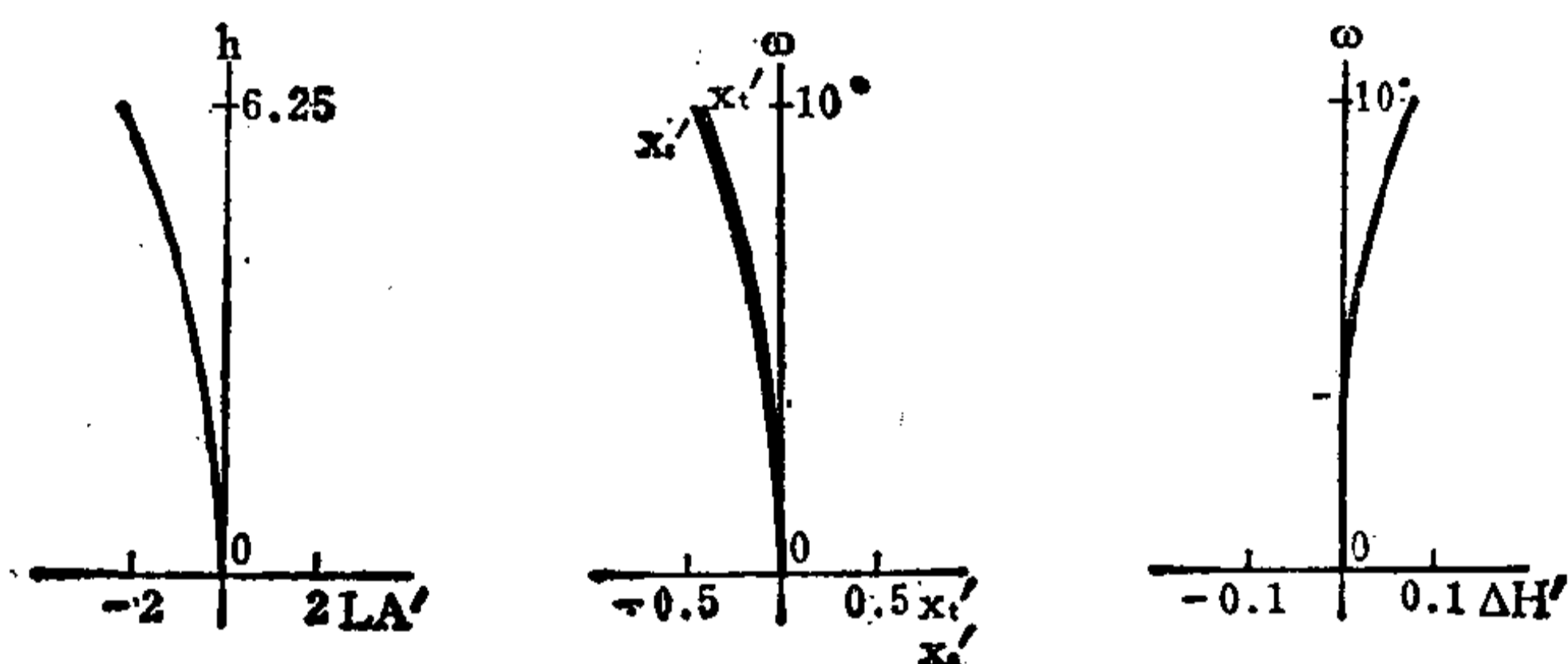
带有后光栏的摄影物镜

E. F. L = 100 B. F. L = 85.9 FNo. = 8 F. A. = $\pm 10^\circ$ ** $L'_{p5} = 10.00$



序号	r	d	n_d	ν	序号	r	d	n_d	ν
1	-38.373	12.11	1.52249	59.40	4	-25.430	5.75	1.62004	36.37
2	-39.249	0.61			5	40.729			
3	30.004	11.34	1.60729	49.40					

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.01841	0.00115	-0.00016	-0.00330	0.01006	17.64	0.45%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-2.303	0.079	-0.418	-0.429	0.011	0.0382	0.0210
70	-1.165	0.028	-0.229	-0.220	-0.009	0.0239	0.0129



编号: 05-04-027

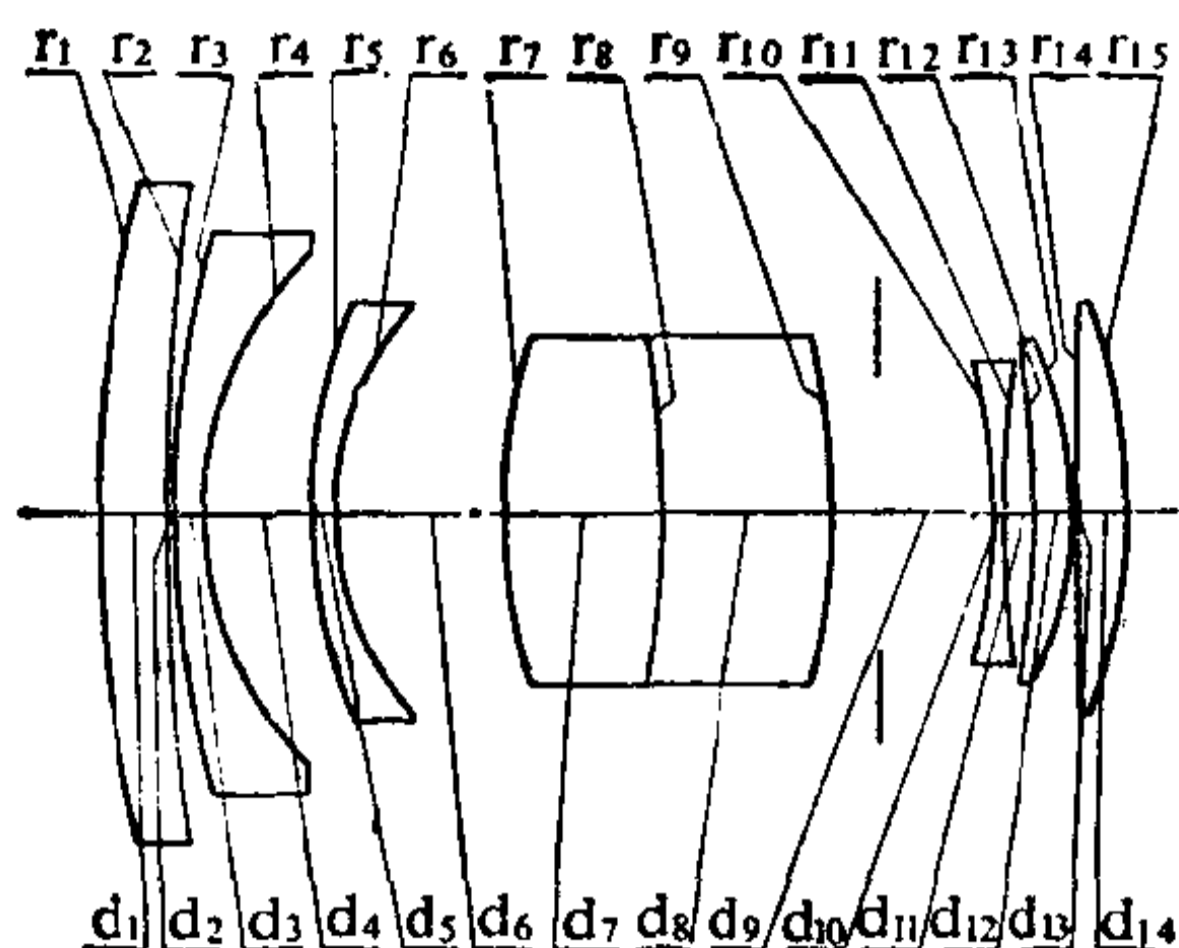
逆聚焦型透镜系统

E. F. L = 97.4

B. F. L = 132.8

FNo. = 3.9

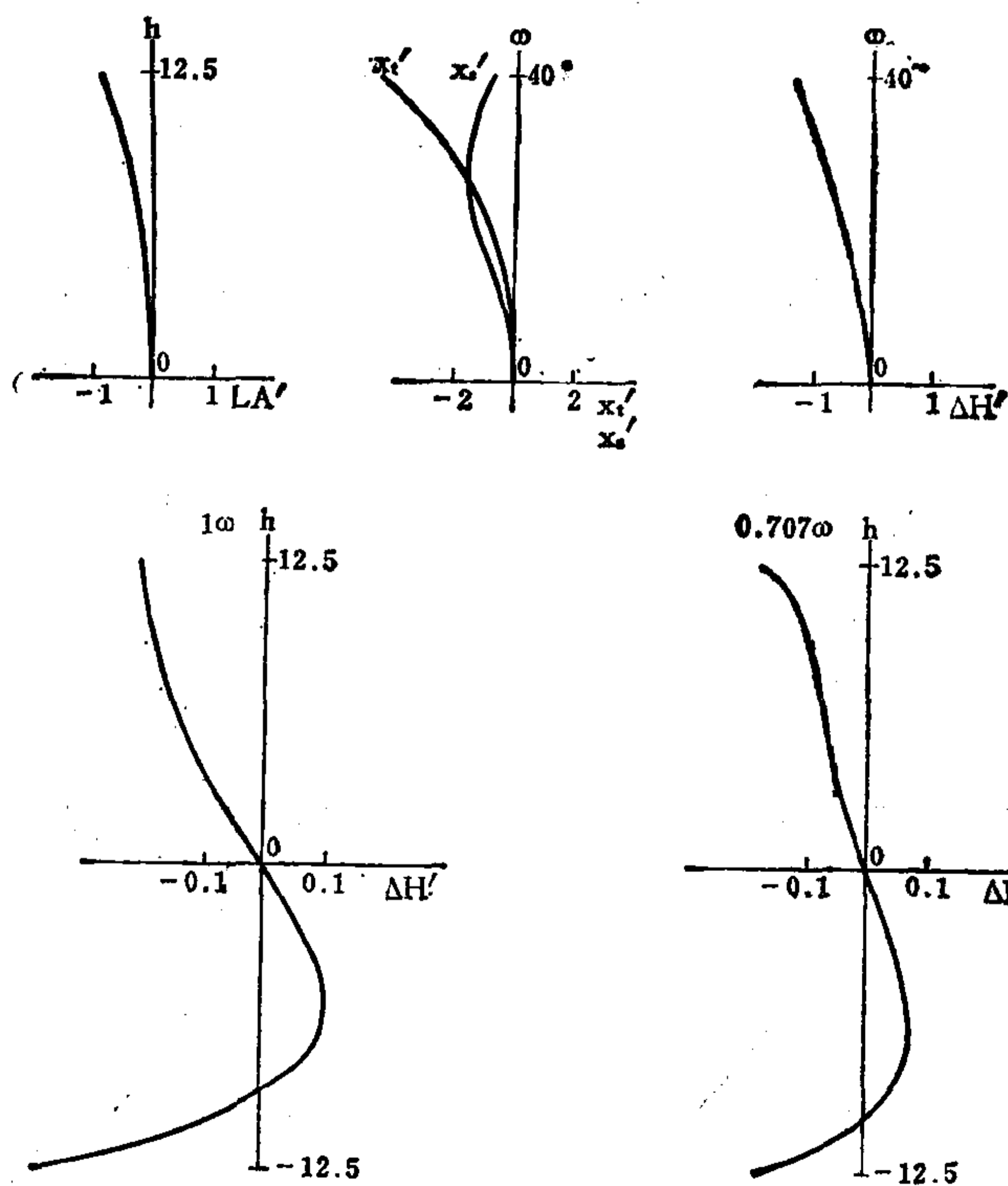
F. A. = ± 40°



序号	r	d	n	v_d	序号	r	d	n	v_d
1	180.00	9.75	1.65160	58.5	9	-92.60	20.40*		
2	339.30	0.18			10	-75.27	1.80	1.75520	27.5
3	140.97	3.97	1.65160	58.5	11	161.19	3.25		
4	47.83	13.72			12	-124.00	5.78	1.60738	56.7
5	71.30	2.89	1.65160	58.5	13	-52.71	0.18		
6	40.25	21.84			14	6317.00	6.50	1.64250	58.1
7	76.61	19.86	1.67003	47.2	15	-76.79			
8	-144.40	22.38	1.66950	51.5					

20.40* = 6.40 + 14.00

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.0369	0.0263	0.0013	-0.1143	-0.5133	81.66	-1.5%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K_{T1}	$K_{R0.7}$
100	-0.757	-1.275	-4.488	-0.791	-3.697	-0.2868	-0.0711
70	-0.459	-0.802	-1.759	-1.545	-0.214	-0.1680	-0.0218



编号: 05-04-028

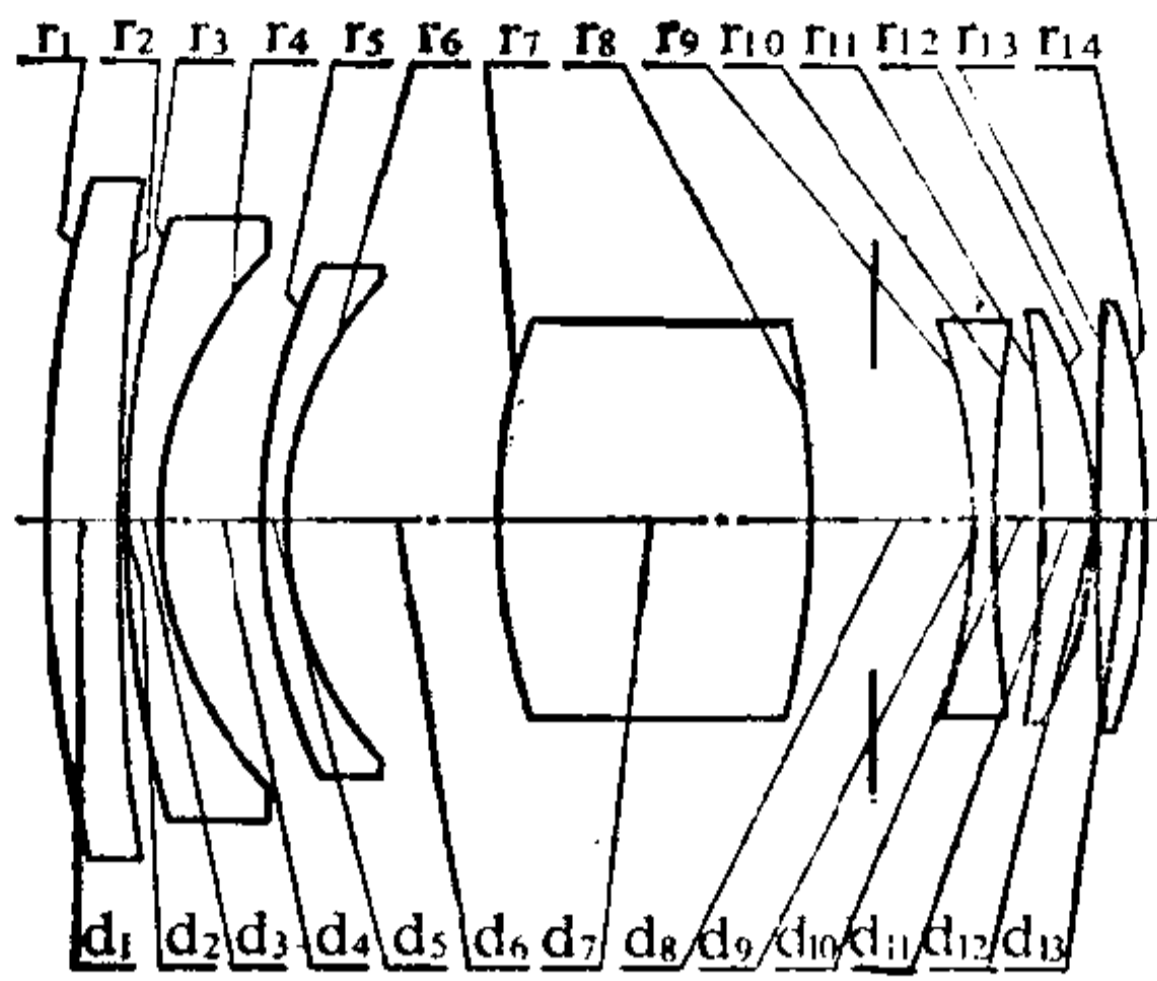
逆聚焦型透镜系统

E. F. L = 100

B. F. L = 138.8

FN_o = 2.8

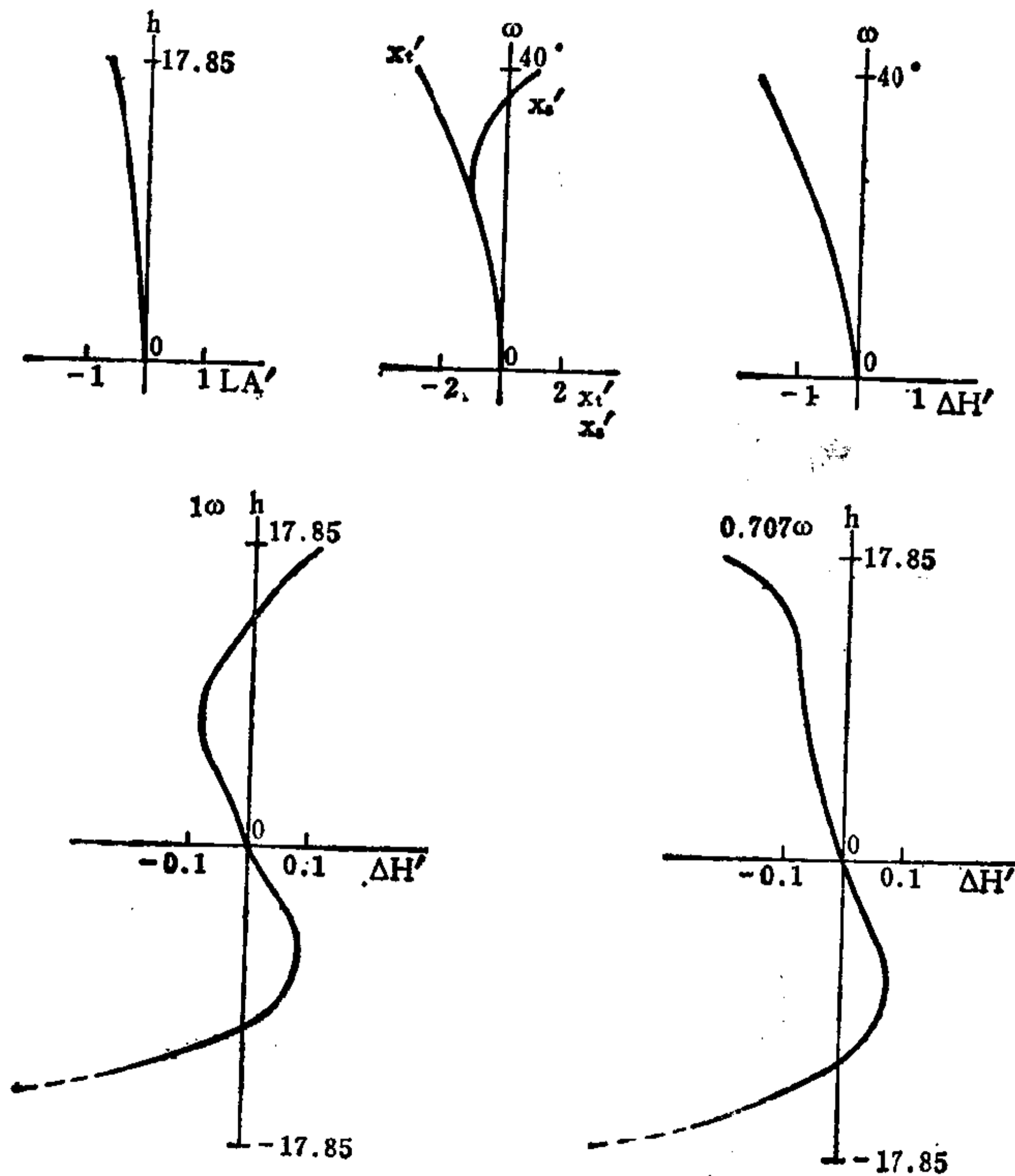
F. A. = ± 40°



序号	r	d	n	v _d	序号	r	d	n	v _d
1	183.46	9.25	1.64831	33.8	8	-109.25	20.67*		
2	356.30	0.20			9	-73.82	2.95	1.74000	28.2
3	141.73	3.94	1.62041	60.3	10	163.39	5.90		
4	49.02	13.78			11	-183.07	6.50	1.62041	60.3
5	78.54	2.95	1.65830	57.3	12	-57.87	0.20		
6	45.77	26.77			13	13780.00	6.60	1.69680	55.6
7	82.09	40.55	1.66950	51.5	14	-93.17			

20.67* = 8.00 + 12.67

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1 ω)
	-0.0883	0.0555	-0.0123	-0.1929	-0.8111	83.9	-2.1%
h 或 ω %	LA'	ΔH'	x _t '	x _s '	x _t - x _s	K _{T1}	K _{T0.7}
100	-0.737	-1.789	-3.250	1.030	-4.280	-0.4857	-0.0839
70	-0.418	-0.958	-1.575	-1.174	-0.401	-0.4090	-0.0503



编号: 05-04-029

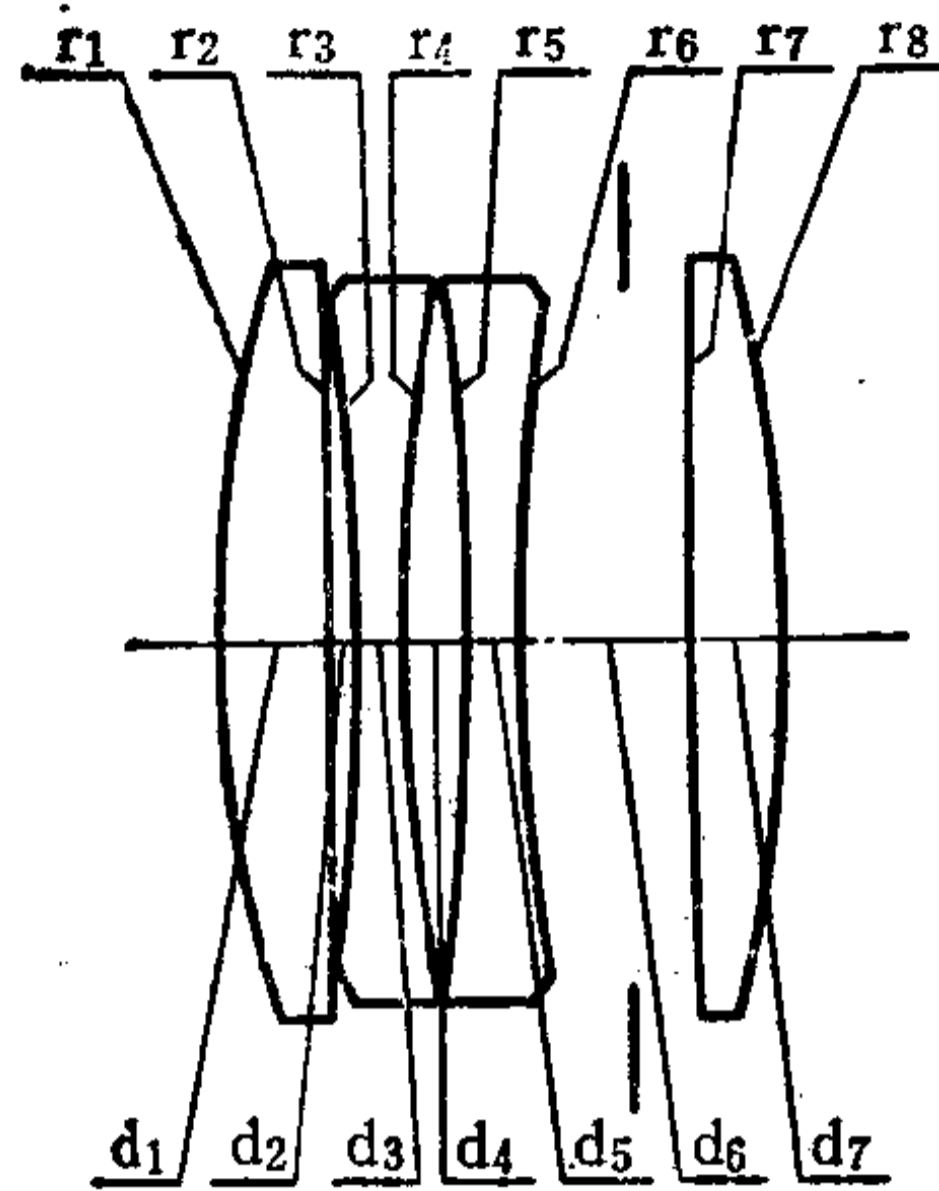
袖珍四片型摄影物镜

E.F.L=1.0

B.F.L=1.004

FNo. = 8

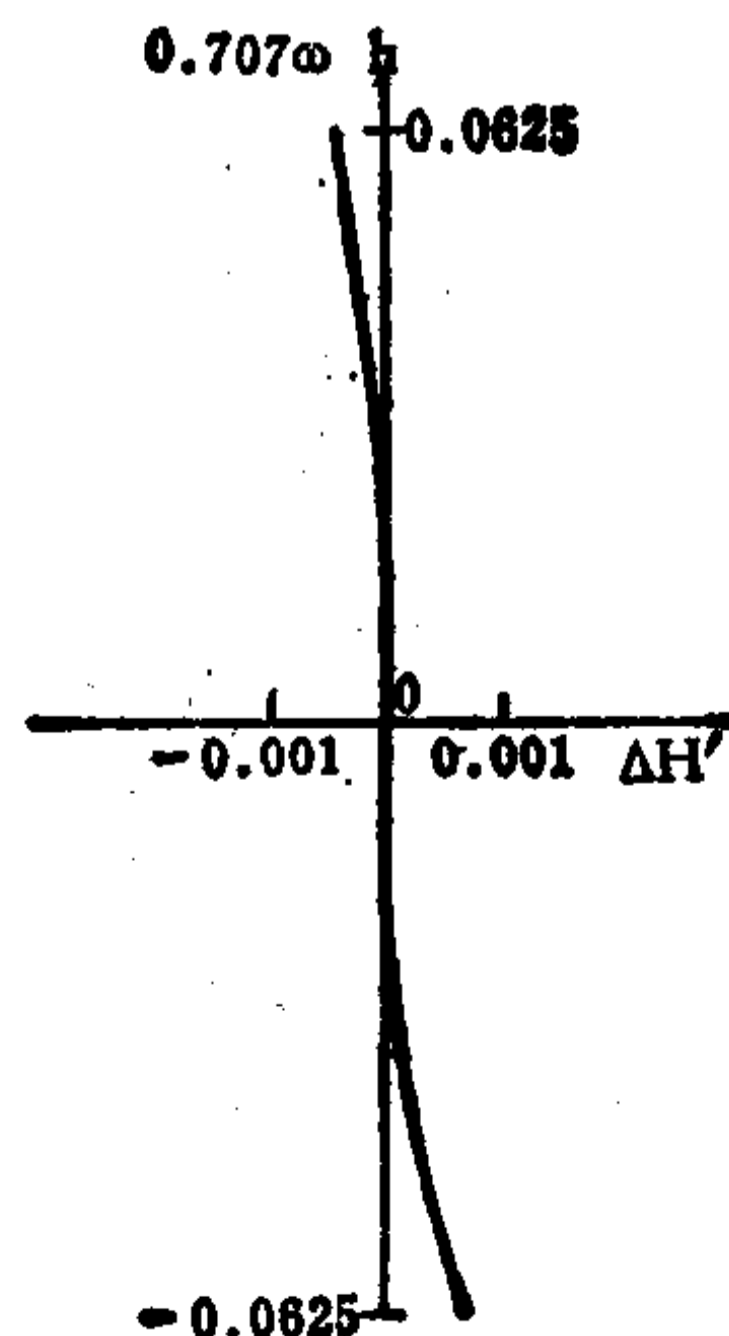
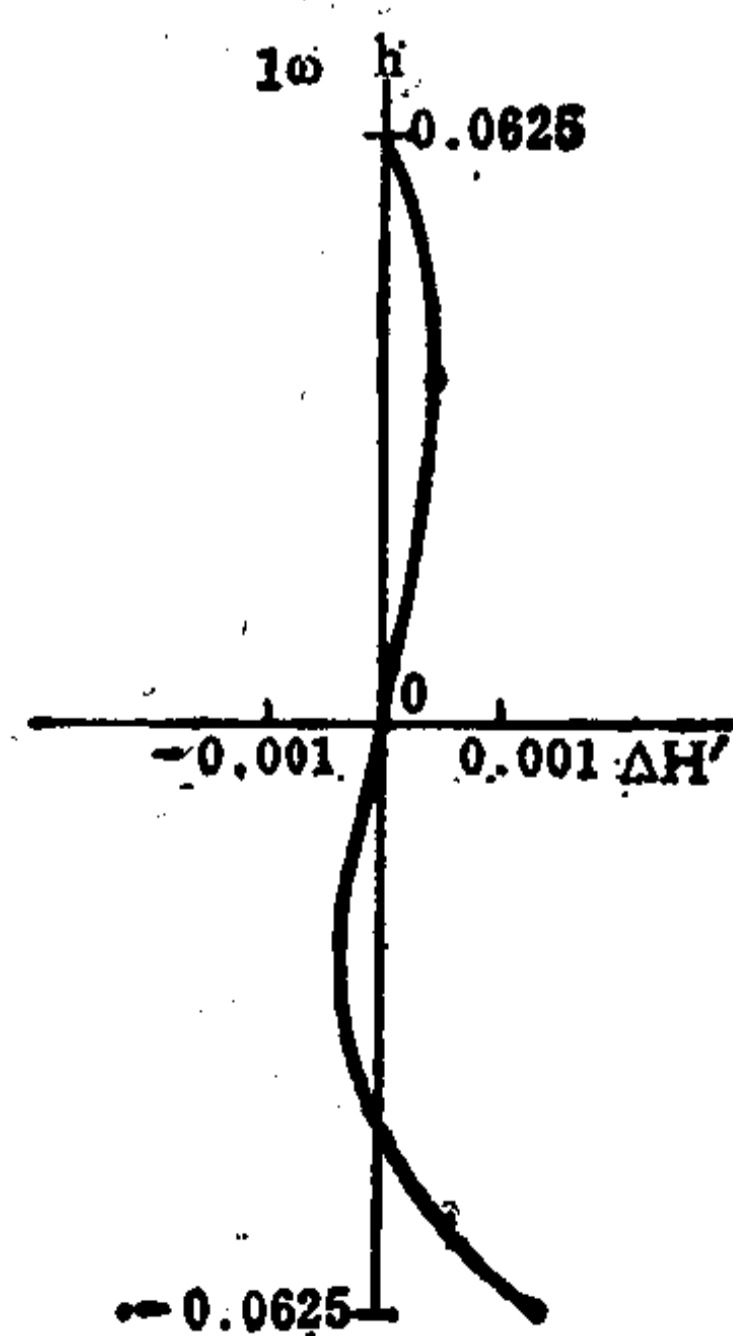
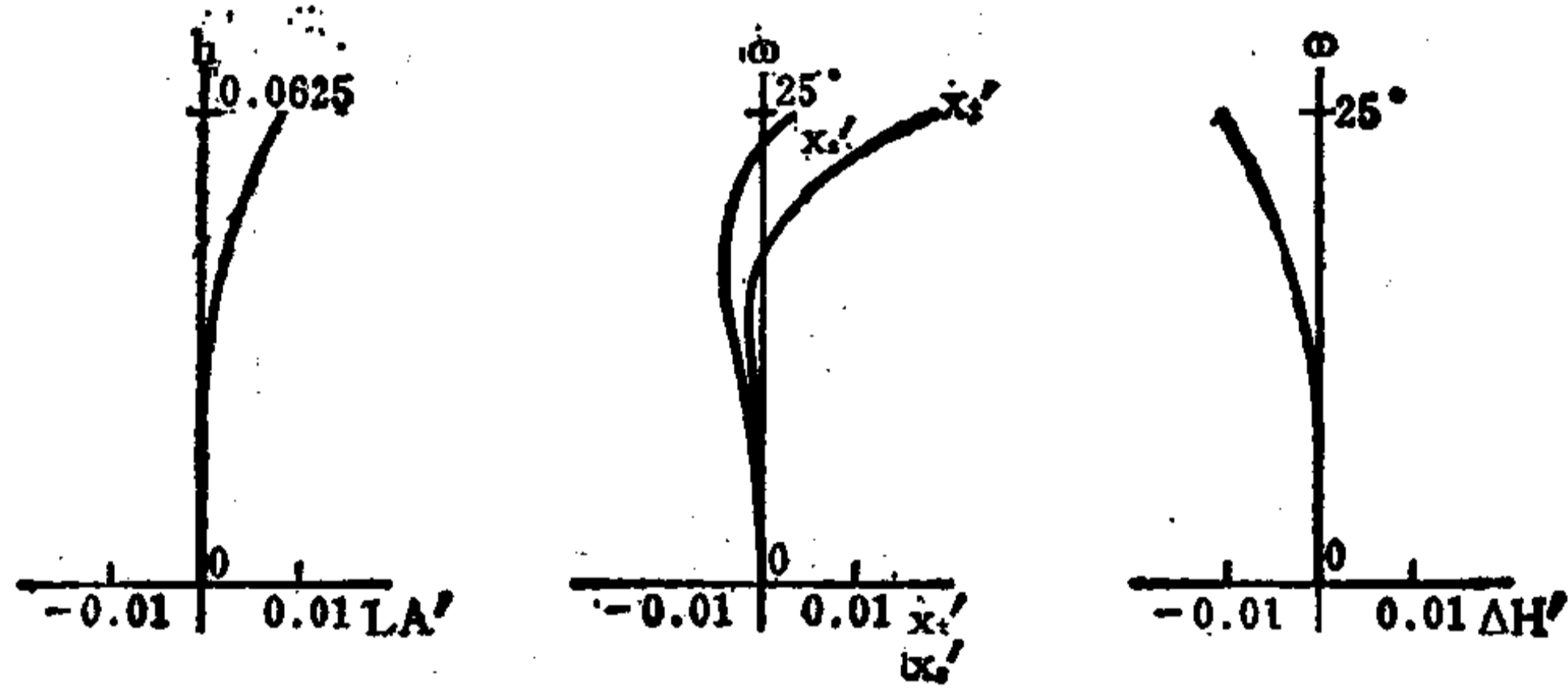
F.A. = ±25°**



序号	r	d	n _d	v _d	序号	r	d	n _d	v _d
1	0.2263	0.0189	1.682	48.2	5	-0.4715	0.0084	1.617	31.0
2	∞	0.0041			6	0.3485	0.0292*		
3	-0.6748	0.0084	1.501	56.4	7	1.3300	0.0157	1.667	48.4
4	0.3409	0.0112			8	-0.2732			

0.0292* = 0.0192 + 0.0100

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1 ω)
	0.000012	-0.000006	-0.000002	-0.000125	-0.000867	0.47	-2.3%
h 或 ω %	LA'	ΔH'	x _t	x _s	x _t - x _s	K' _{T1}	K' _{T0.7}
100	0.00883	-0.0107	0.01955	0.00381	0.01574	0.000739	0.000273
70	0.00240	-0.0032	0.00001	-0.00389	0.00390	0.000154	0.000072



编号: 05-04-030

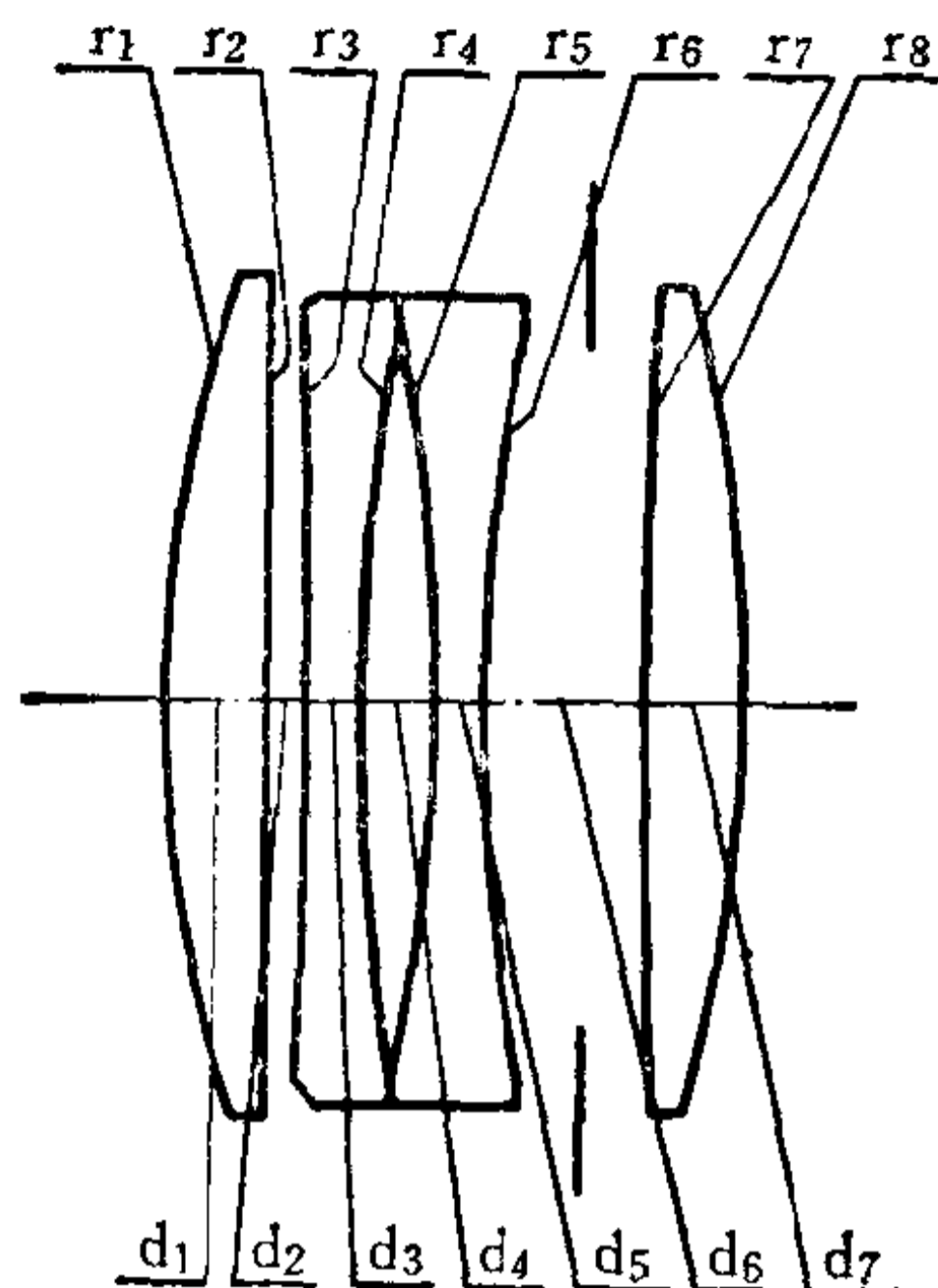
袖珍四片型摄影物镜

E. F. L = 0.998

B. F. L = 0.998

FNo. = 8

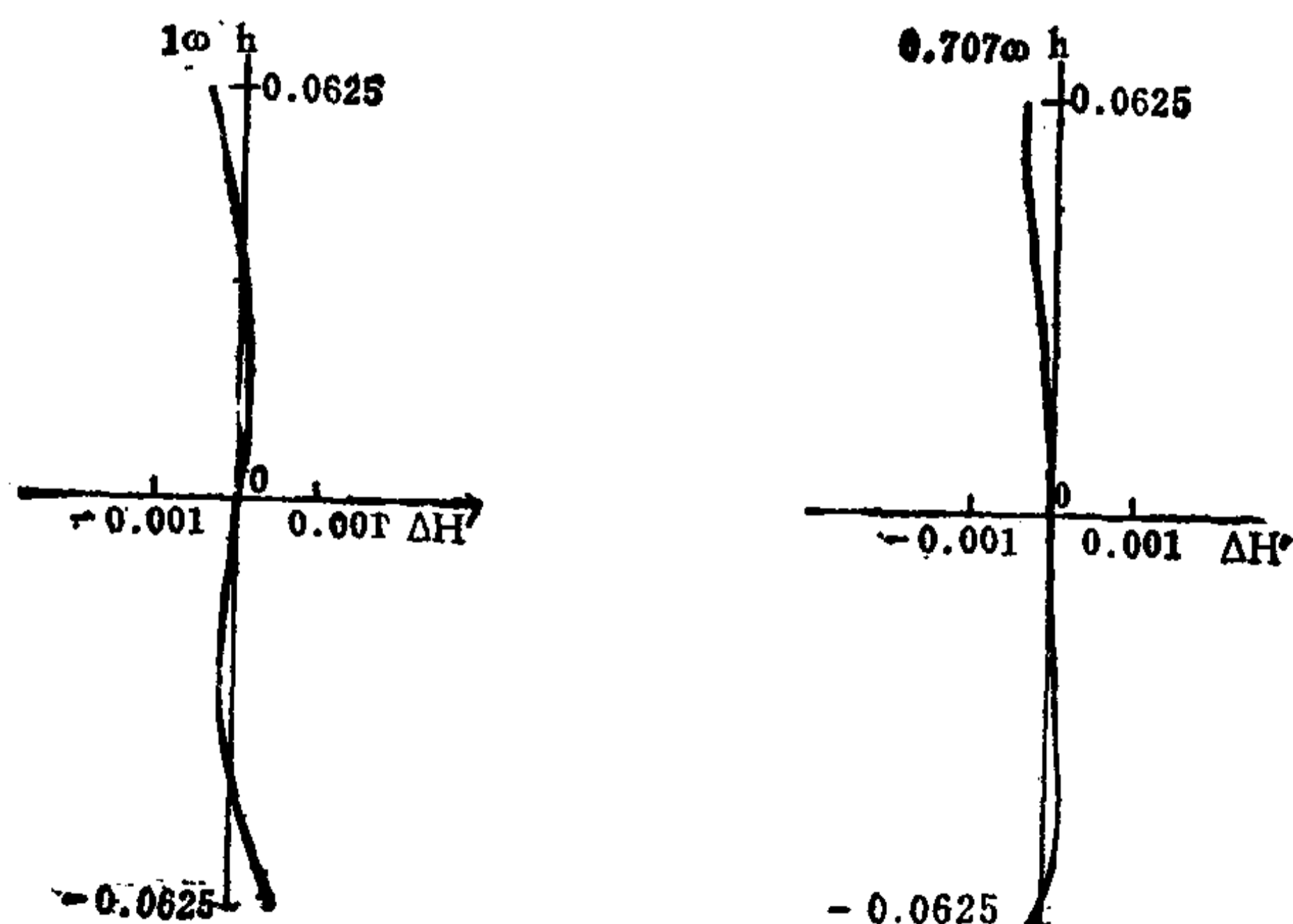
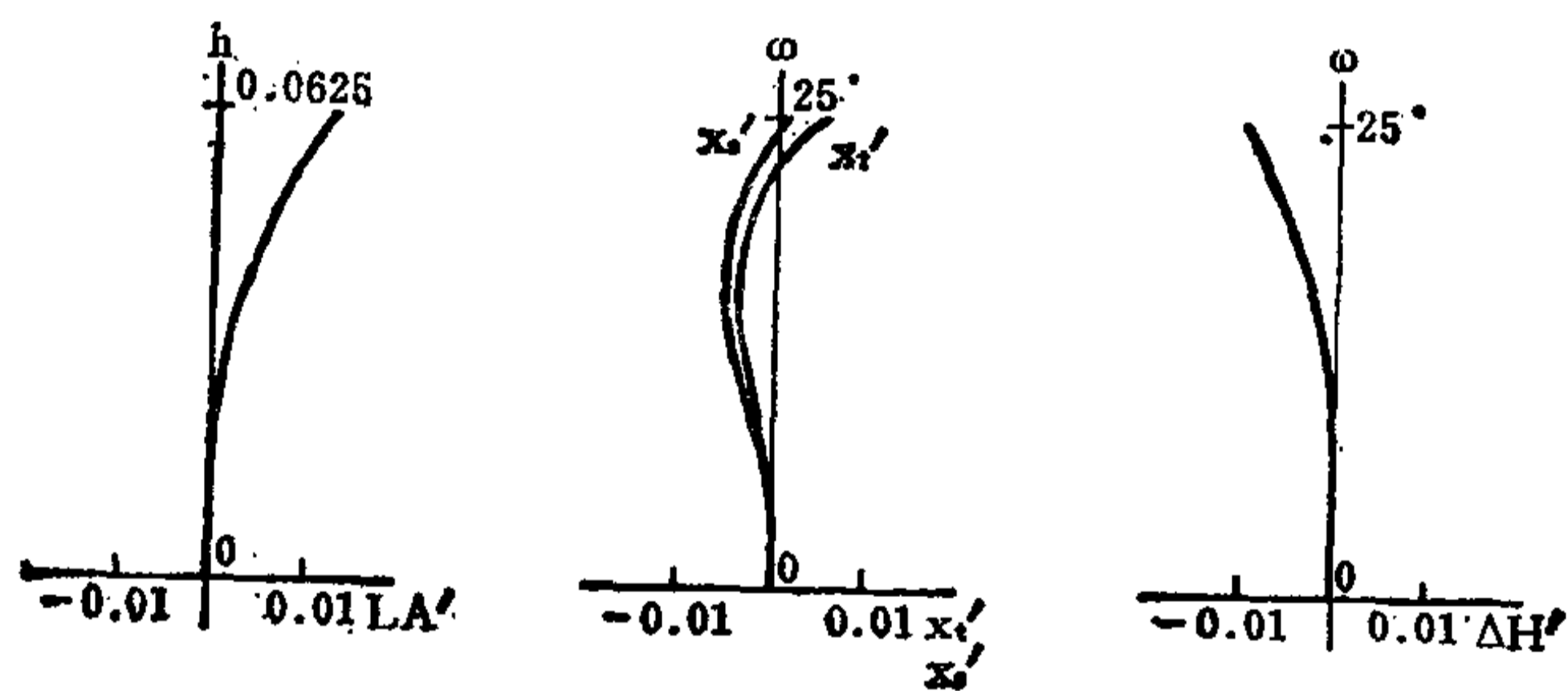
F. A. = $\pm 25^{\circ}$ **



序号	r	d	n _d	v _d	序号	r	d	n _d	v _d
1	0.2252	0.0190	1.623	56.9	5	-0.3401	0.0084	1.584	37.0
2	∞	0.0064			6	0.3262	0.0292*		
3	-1.4350	0.0084	1.552	63.5	7	1.3324	0.0168	1.713	53.8
4	0.4143	0.0129			8	-0.2786			

0.0292* = 0.0192 + 0.0100

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	0.000039	-0.000027	-0.000010	-0.000133	-0.000820	0.465	-2.2%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.0135	-0.0100	0.00529	0.00096	0.00433	0.000119	-0.000007
70	0.0044	-0.0030	-0.00410	-0.00510	0.00100	-0.000278	-0.000129



编号: 05-04-031

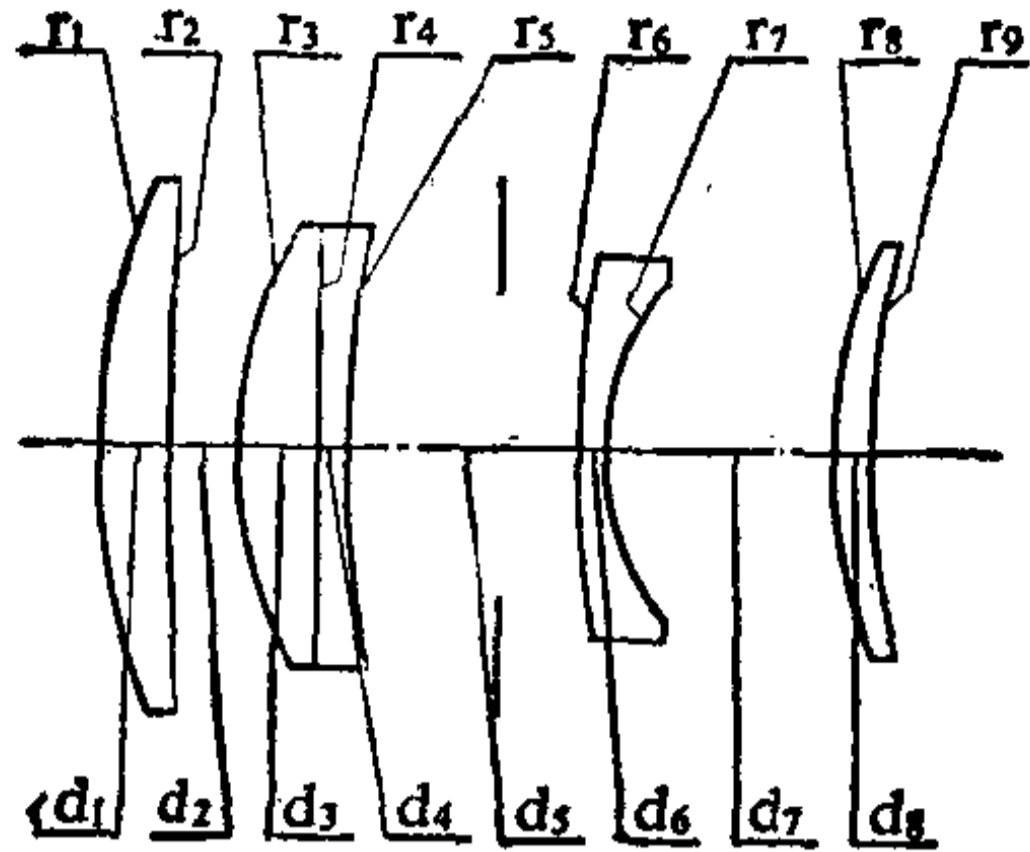
远 距 离 照 相 镜 头

E. F. L = 100.02

B. F. L = 37.41

FNo. = 3.5

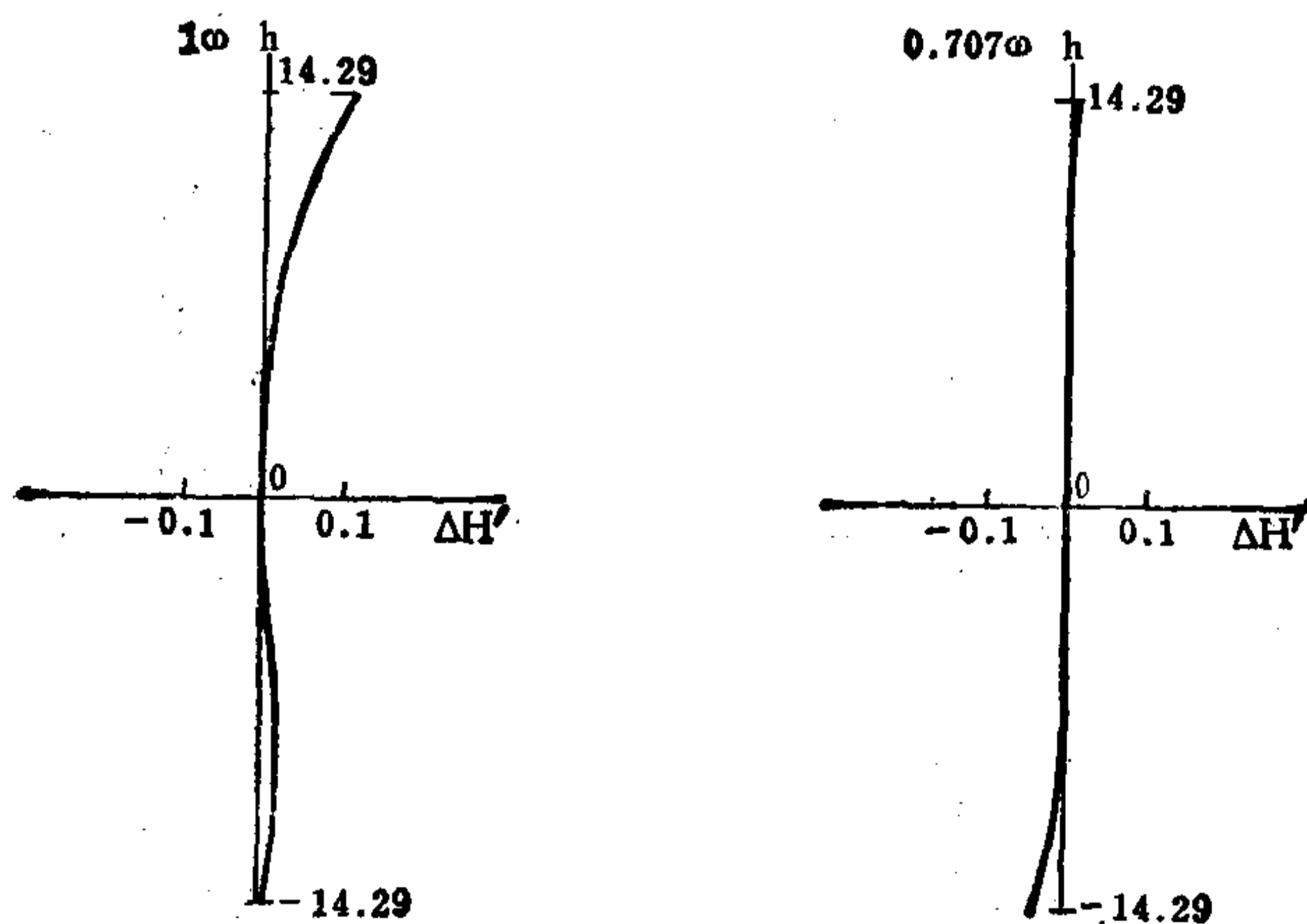
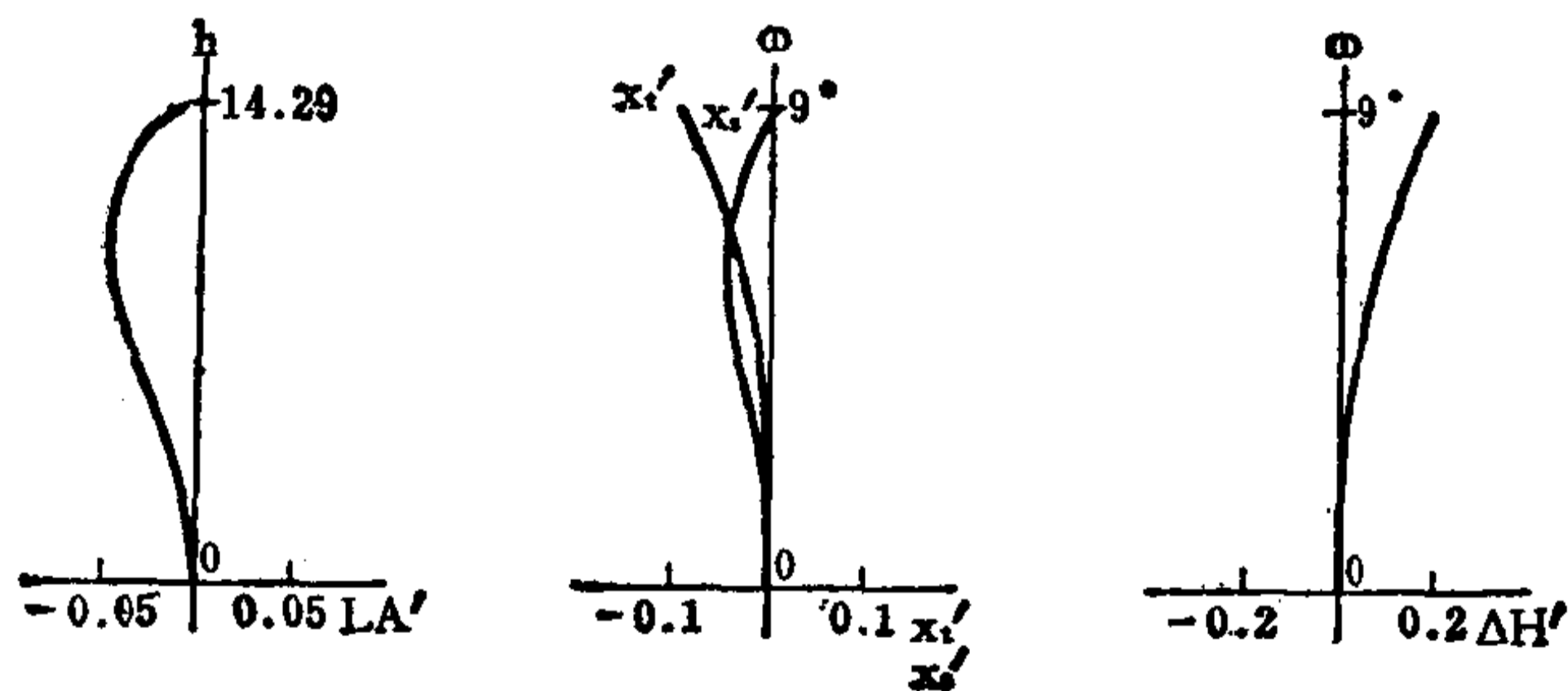
F. A. = ± 9°



序号	r	d	n	v	序号	r	d	n	v
1	45.297	4.40	1.62041	60.2	6	79.258	1.79	1.66998	39.3
2	355.454	4.43			7	17.670	14.7		
3	29.103	5.19	1.48749	69.8	8	33.946	2.52	1.80518	25.4
4	∞	1.77	1.76182	26.5	9	62.394			
5	74.890	14.91*							

14.91* = 10.00 + 4.91

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(100)
	-0.00703	-0.00434	0.00038	-0.00604	0.07379	15.83	1.2%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-0.0043	0.1939	-0.0881	0.0055	-0.0936	0.05095	0.02781
70	-0.0472	0.0829	-0.0320	-0.0365	0.0045	-0.00934	-0.00160



编号: 05-04-032

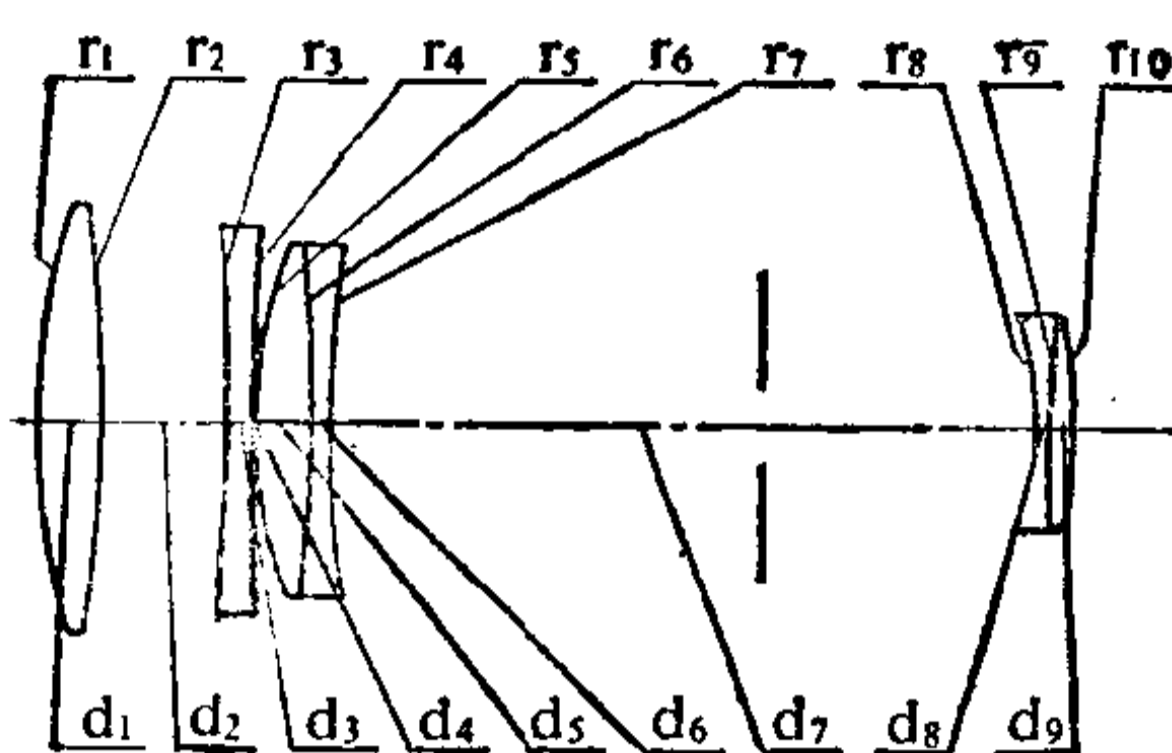
小倍率超远距照相镜头

E. F. L = 100

B. F. L = 22.37

FNo. = 6

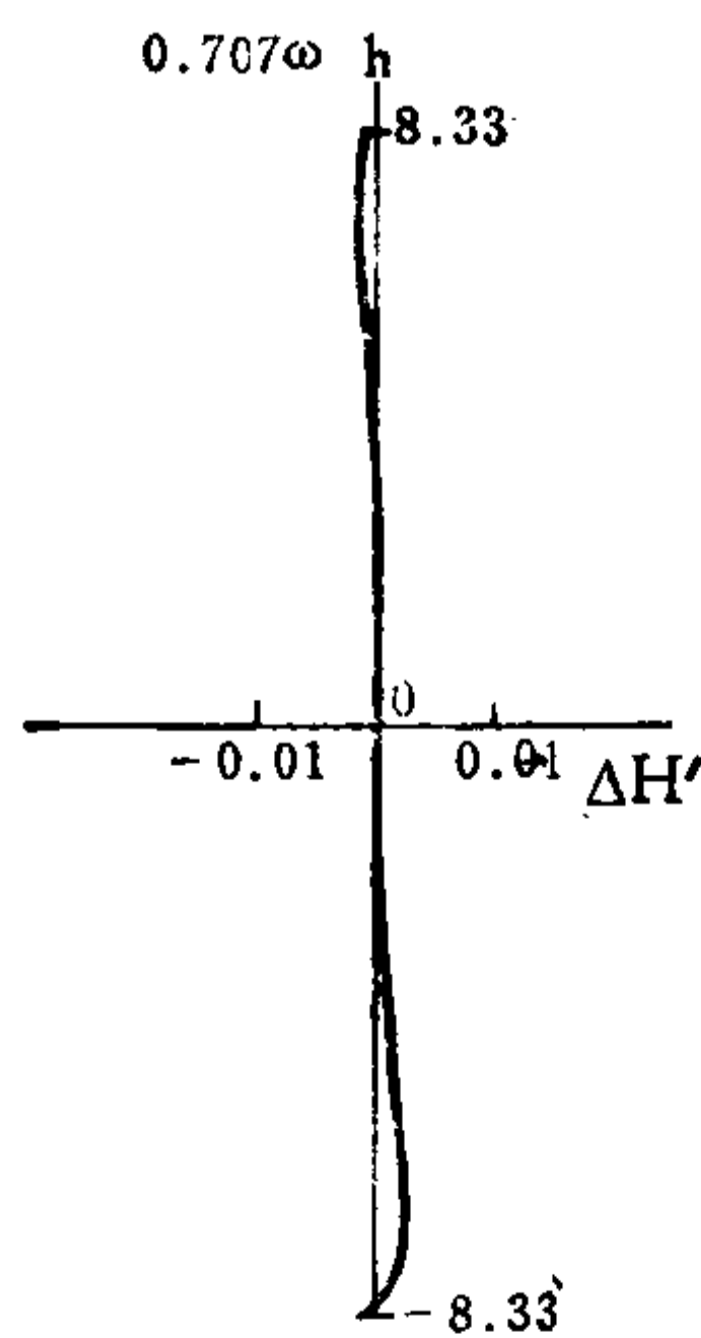
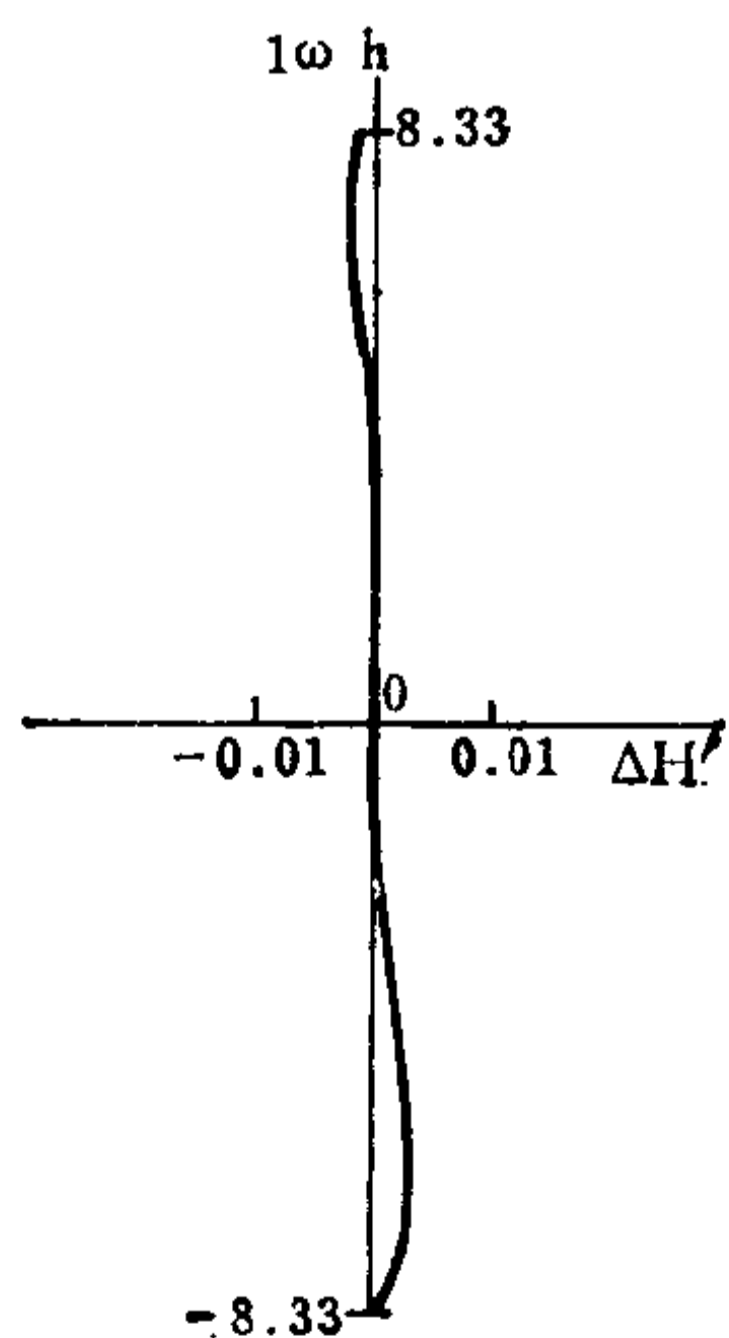
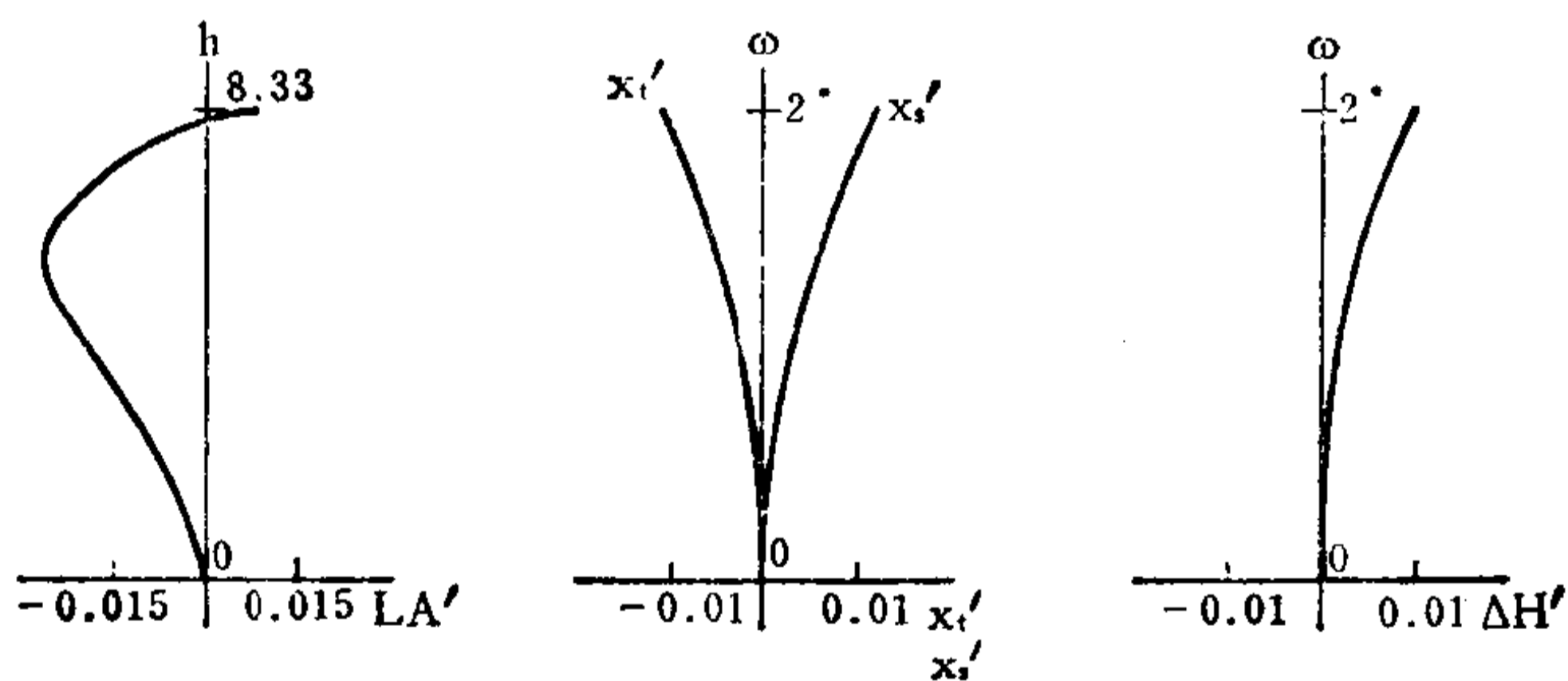
F. A. = ± 2°



序号	r	d	n	v	序号	r	d	n	v
1	30.684	2.504	1.48749	70.1	6	-54.291	0.835	1.61340	43.8
2	-86.122	5.587			7	61.567	33.643*		
3	-76.806	1.002	1.80452	39.6	8	-12.274	0.584	1.71300	54.0
4	189.665	0.200			9	42.912	1.002	1.69895	30.1
5	23.362	2.337	1.48749	70.1	10	-24.038			

33.643* = 20.000 + 13.643

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.00143	0.00013	-0.00014	0.00031	0.00173	3.5	0.3%
h 或 ω %	LA'	$\Delta H'$	x_t'	x_s'	$x_t' - x_s'$	K_{T1}'	$K_{T0.7}'$
100	0.0083	0.0104	-0.0110	0.0116	-0.0226	-0.000746	0.000585
70	-0.0252	0.0037	-0.0047	0.0060	-0.0107	-0.001187	0.000197



编号: 05-04-033

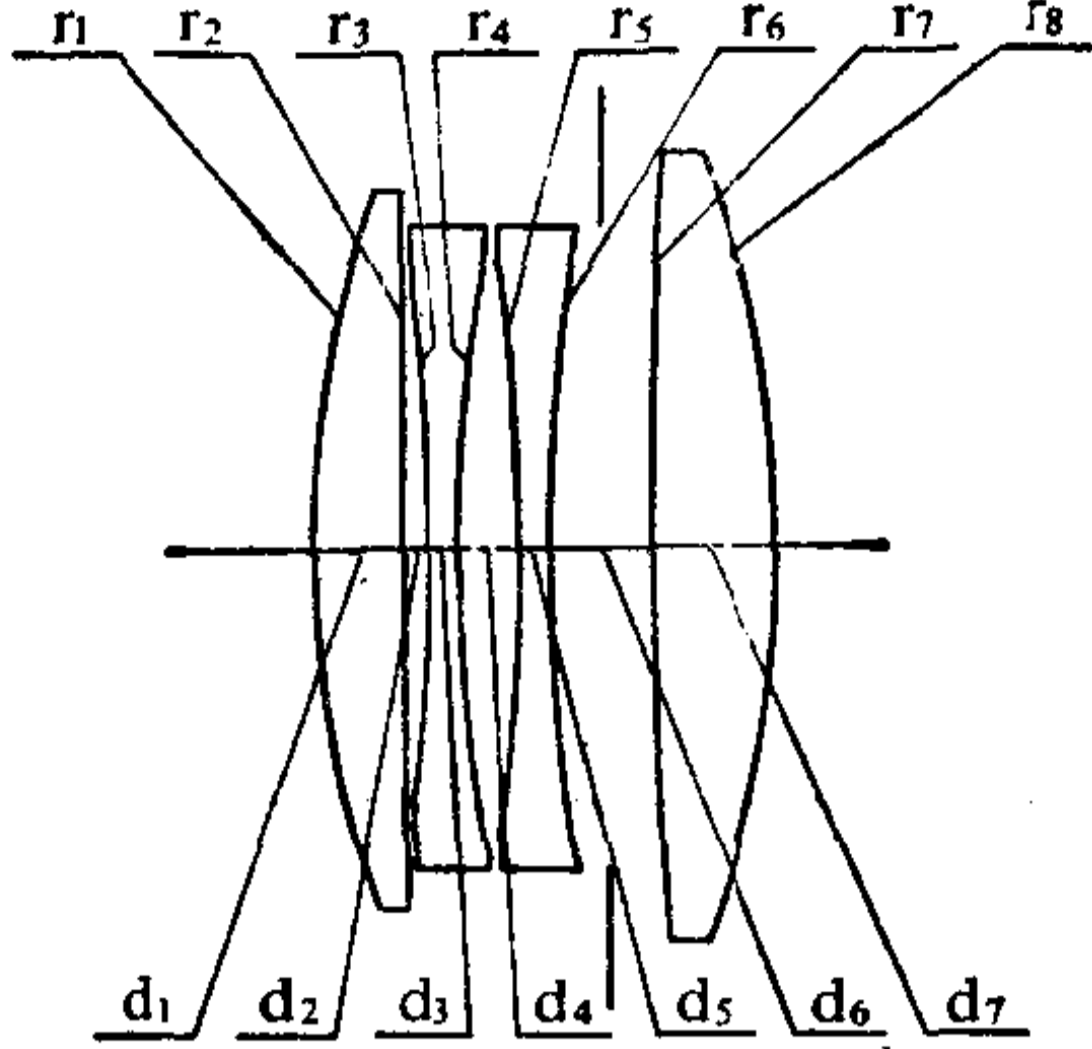
塑料及玻璃的袖珍四片型物镜

E. F. L = 0.967

B. F. L = 0.976

FNo. = 7.7

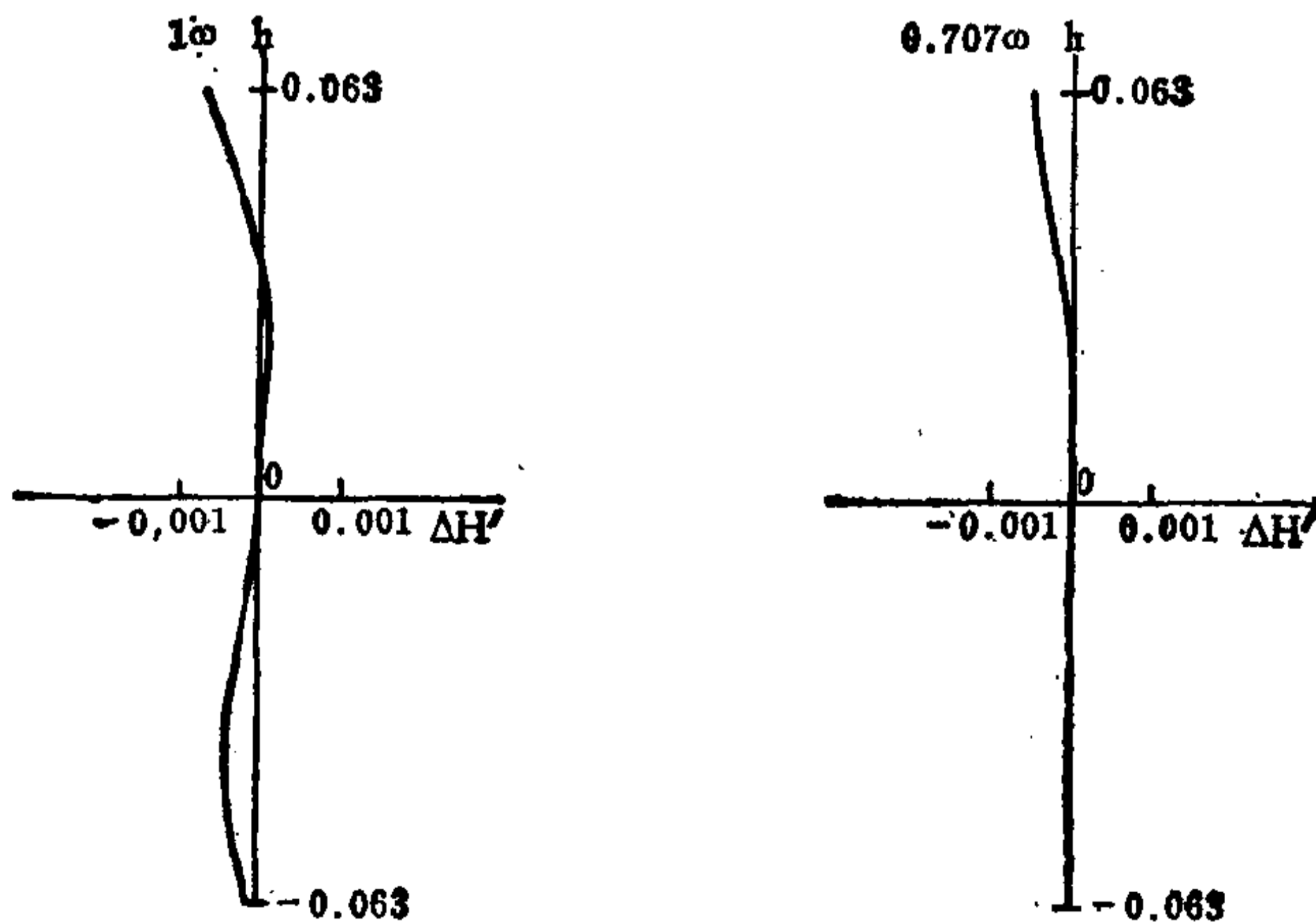
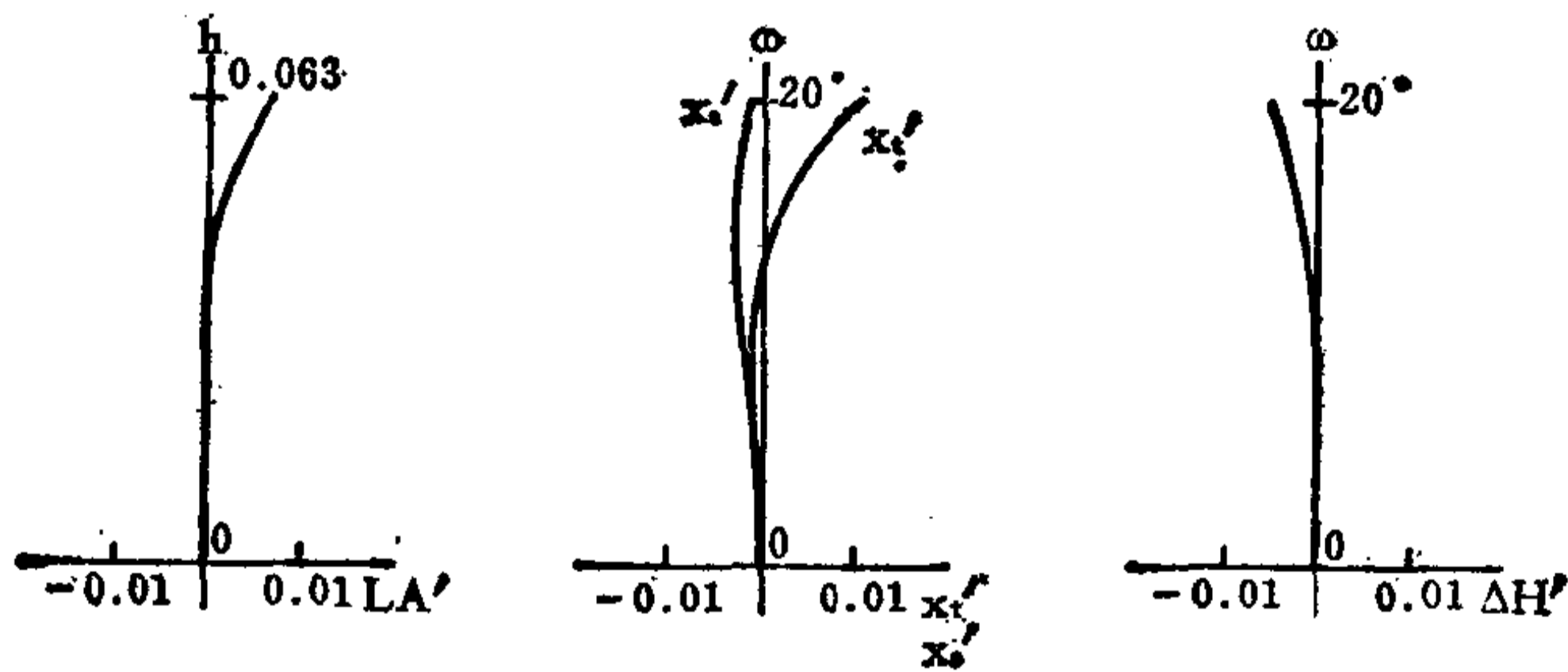
F. A. = ± 20°**



序号	r	d	nd	v	序号	r	d	nd	v
1	0.233	0.0204	1.678	55.2	5	-0.466	0.0063	1.592	30
2	∞	0.0044			6	0.392	0.0214*		
3	-0.479	0.0063	1.492	57.2	7	1.109	0.0261	1.643	48.0
4	0.326	0.0125			8	-0.253			

0.0214* = 0.0114 + 0.0100

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.000009	-0.000018	0.000011	-0.000087	-0.000493	0.35	-1.37%
h 或 ω%	LA'	ΔH'	x _t '	x _s '	x _t ' - x _s '	K _{T1}	K' _{T0.7}
100	0.00612	-0.00486	0.01129	-0.00136	0.01265	-0.000457	-0.000309
70	0.00104	-0.00156	0.00093	-0.00281	0.00374	-0.000247	-0.000158



编号: 05-04-034

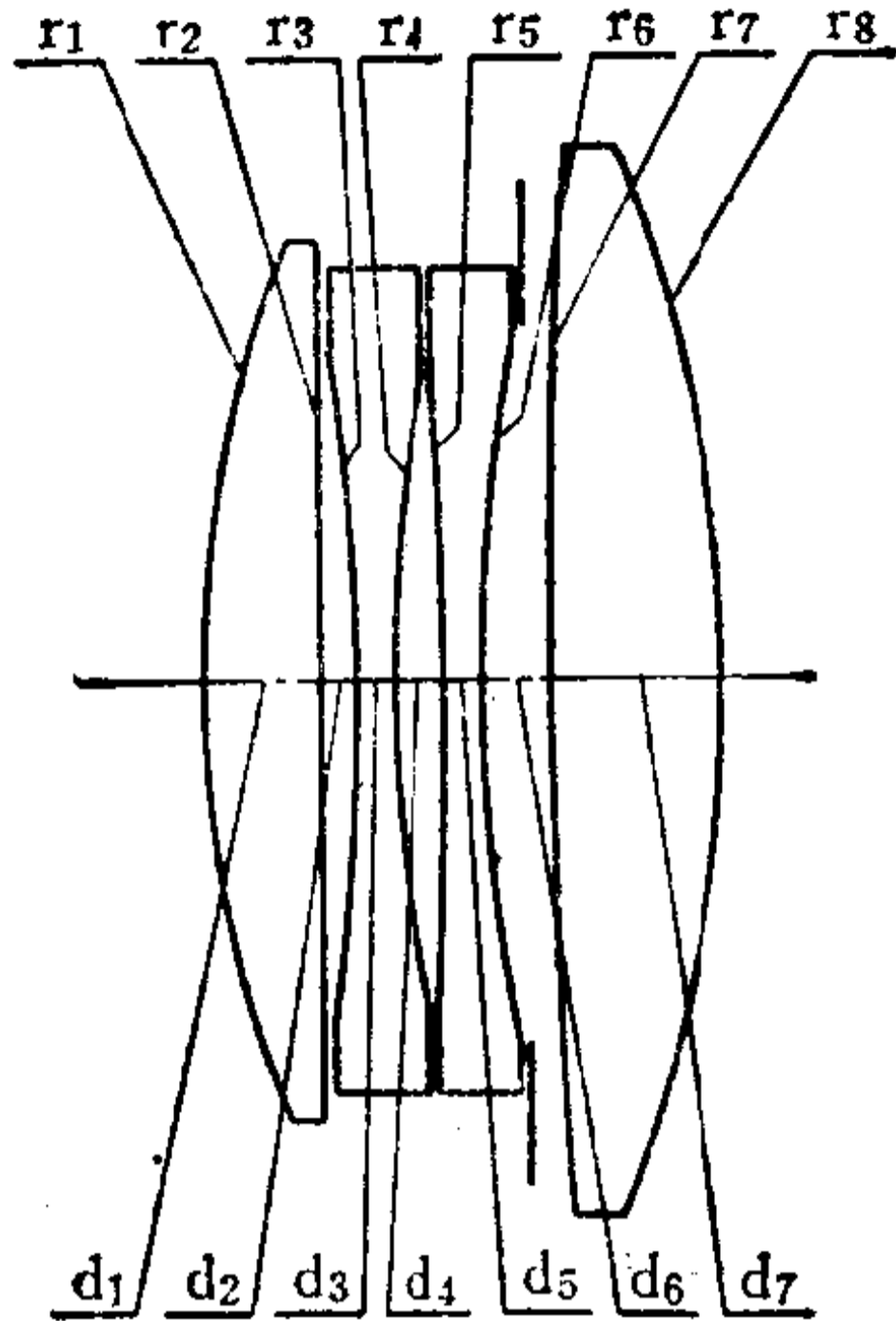
塑料及玻璃的袖珍四片型物镜

E. F. L = 1.037

B. F. L = 1

FNo. = 8.2

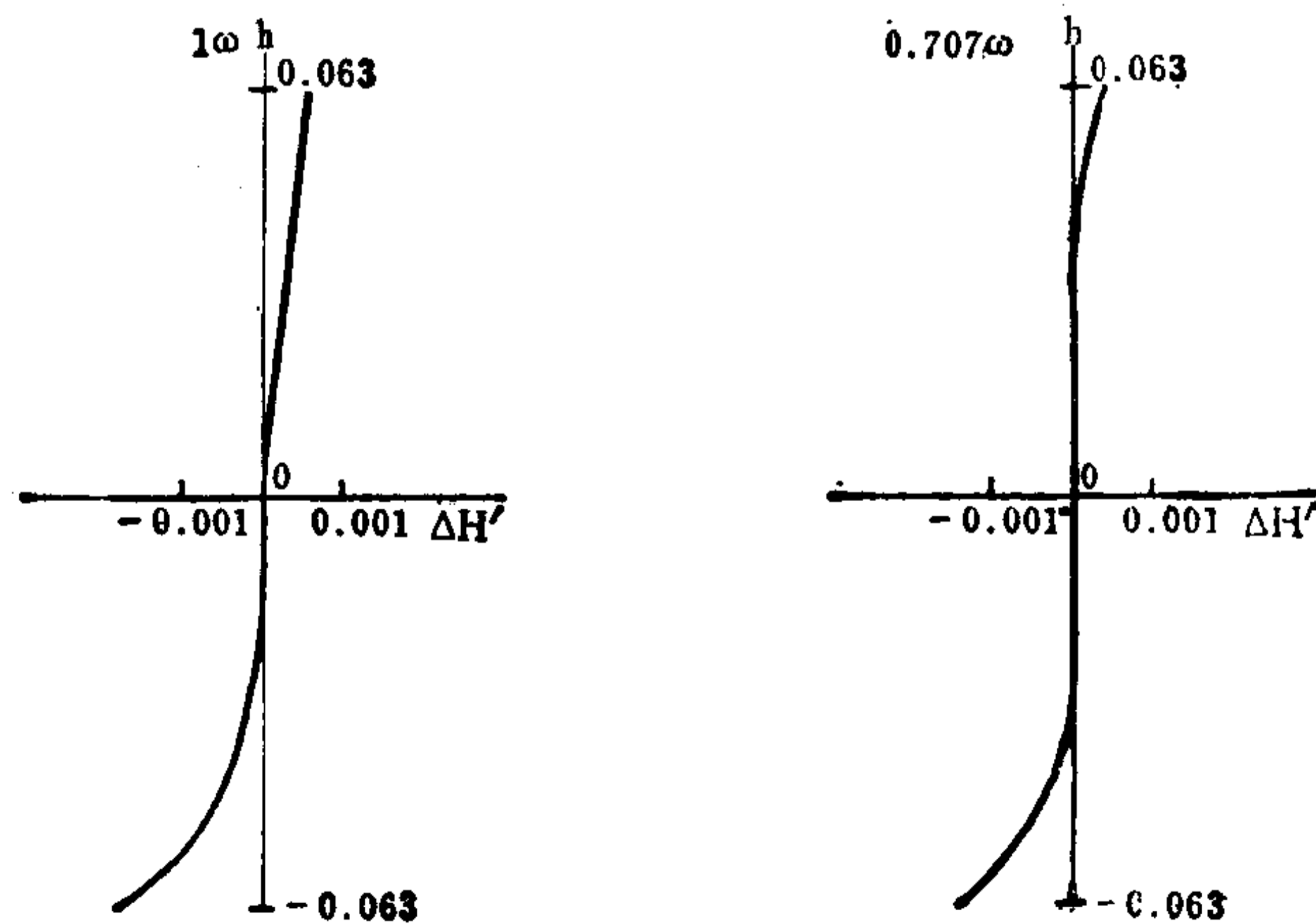
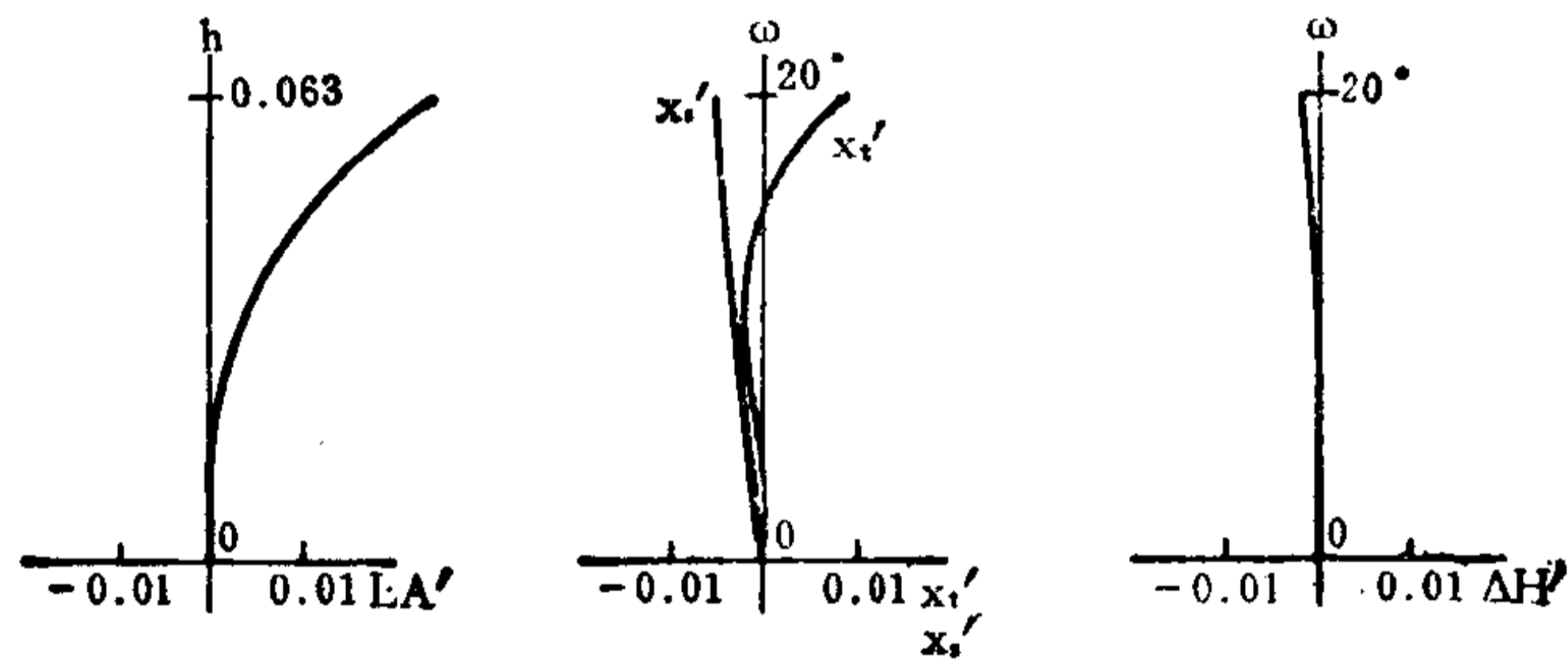
F. A. = $\pm 20^{\circ}$ **



序号	r	d	n _d	v	序号	r	d	n _d	v
1	0.213	0.0207	1.678	55.2	5	-0.701	0.0072	1.592	30.8
2	∞	0.0056			6	0.352	0.0113*		
3	-0.500	0.0072	1.492	57.2	7	1.179	0.0311	1.615	51.2
4	0.277	0.0093			8	-0.270			

$$0.0113^* = 0.0060 + 0.0053$$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	0.000089	-0.0000002	-0.0000003	-0.0000903	-0.0001243	0.379	-0.38%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{r1}	$K'_{r0.7}$
100	0.02402	-0.00143	0.00900	-0.00473	0.01373	-0.000654	-0.000084
70	0.00871	-0.00044	-0.00137	-0.00451	0.00314	-0.000448	-0.000077



编号: 05-04-035

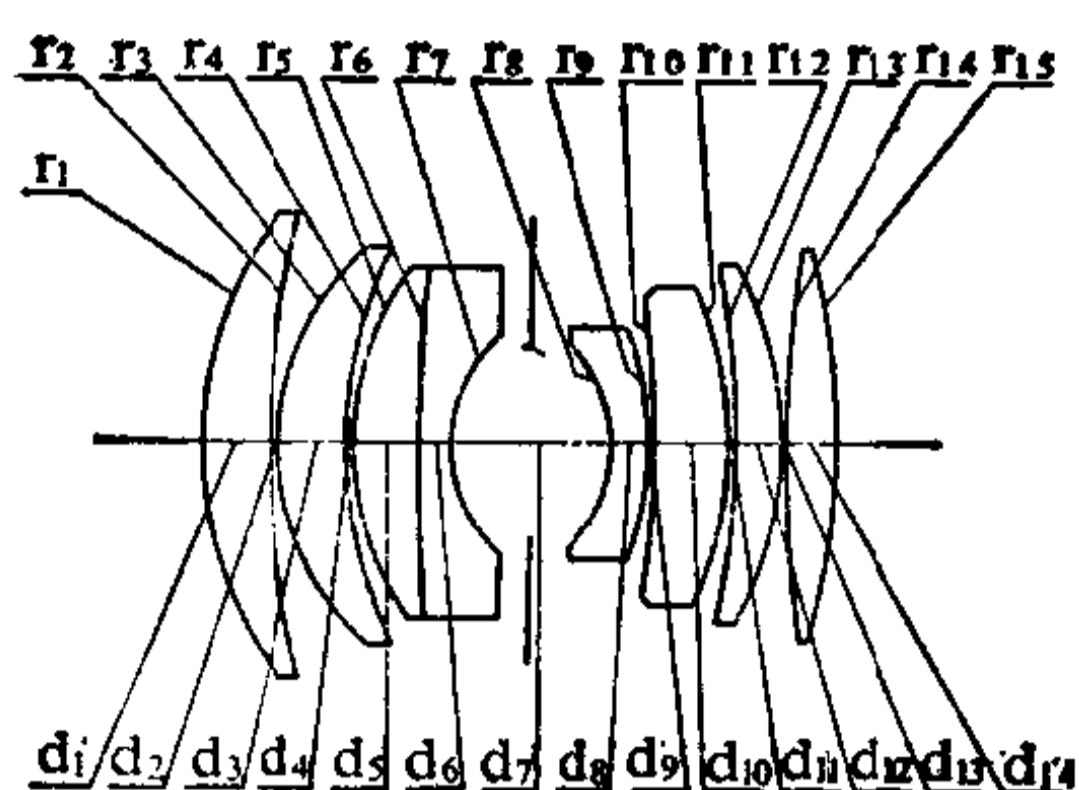
精密透镜系统

E. F. L = 183.8

B. F. L = 51.32

FNo. = 4

F. A. = $\pm 15^\circ$ **



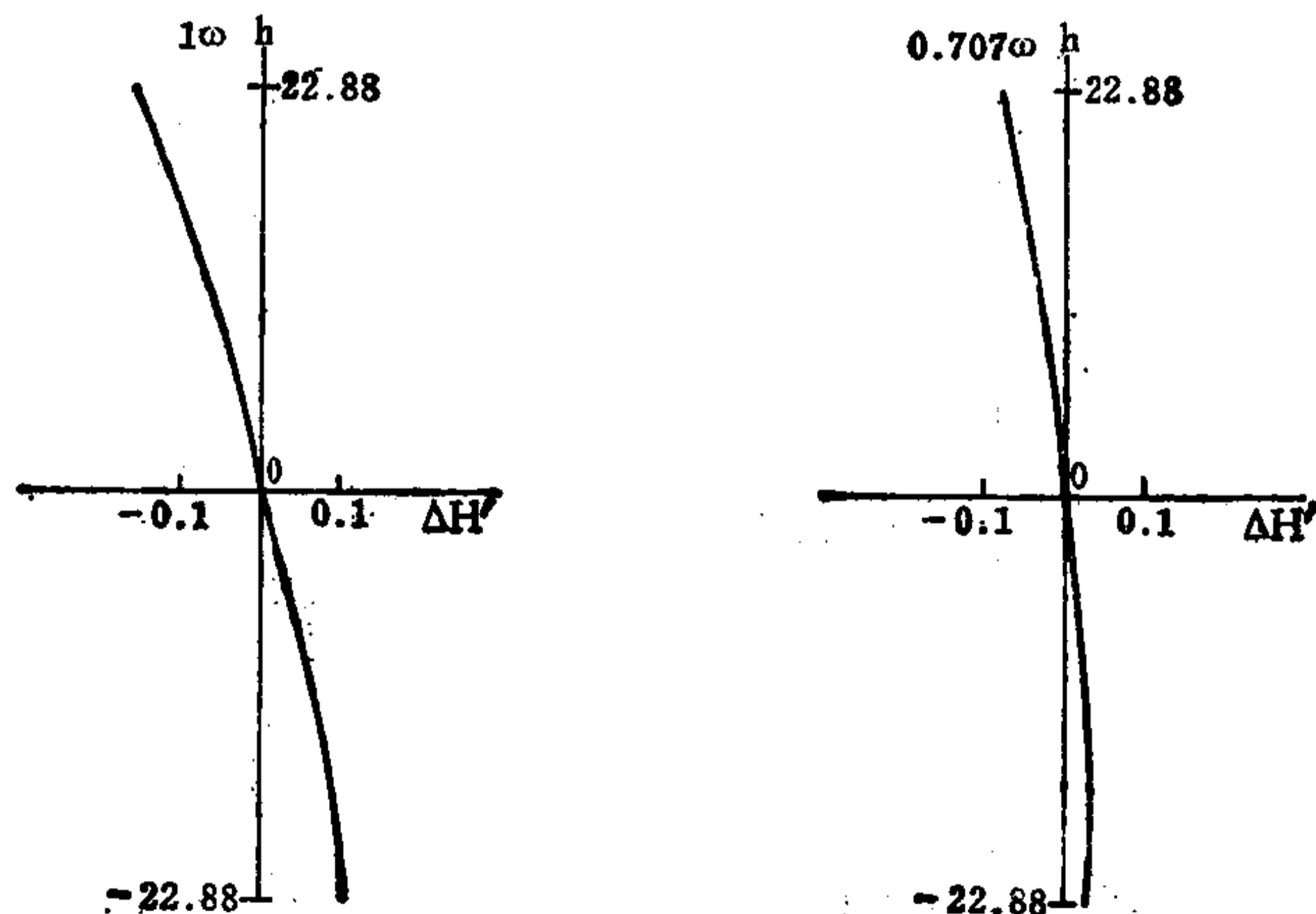
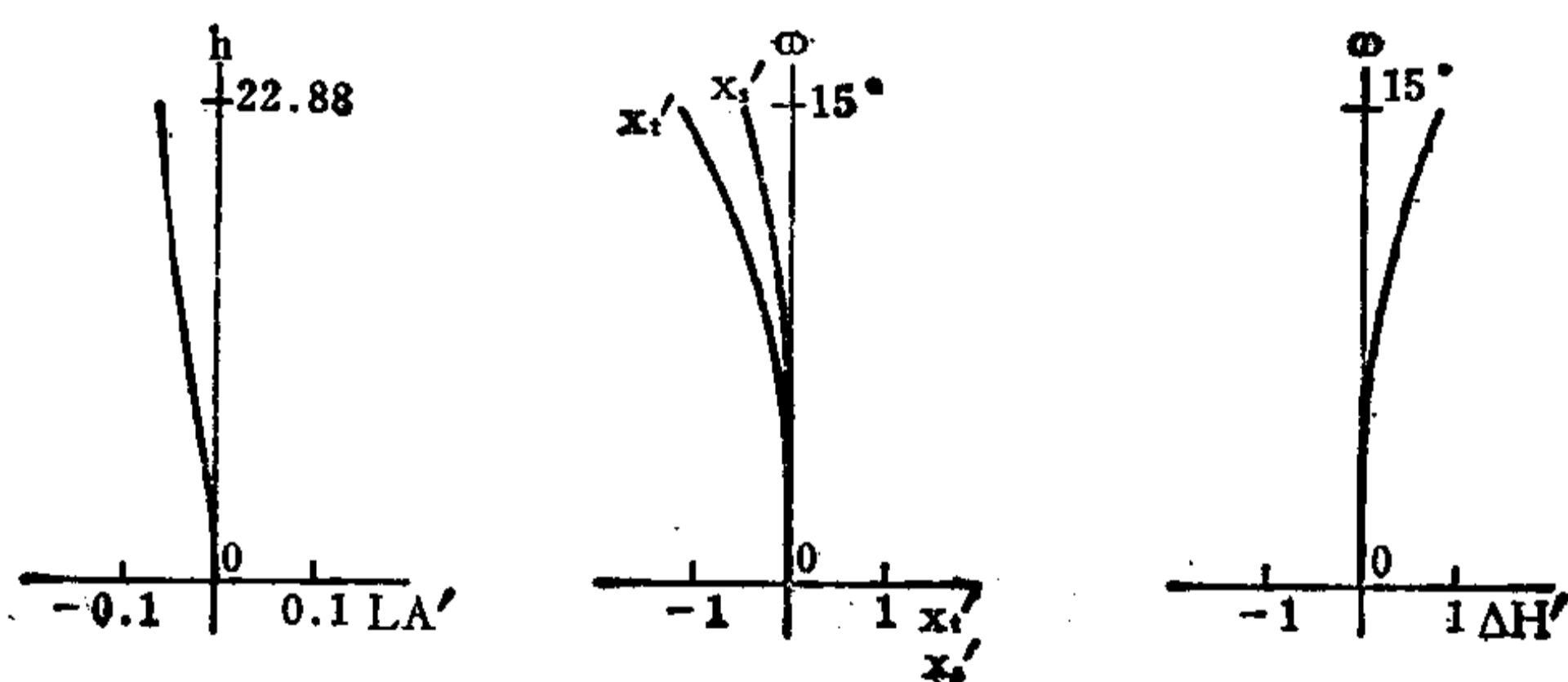
序号	r	d	n_e	v_d	序号	r	d	n_e	v_d
1	103.48	18.20	1.69978	55.62	9	-90.40	0.80		
2	251.28	0.80			10	-265.79	20.00	1.71615	53.98
3	71.41	18.20	1.69978	55.62	11	-109.94	1.00		
4	121.60	0.80			12	-310.99	13.80	1.71615	53.98
5	82.29	18.20	1.69978	55.62	13	-104.46	1.00		
6	785.20	7.50	1.74618	28.29	14	386.94	13.80	1.71615	53.98
7	39.39	43.18*			15	-198.77			
8	-38.48	10.00	1.80922	39.57					

$43.18^* = 21.59 + 21.59$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.00429	-0.00115	-0.00580	-0.00964	0.17778	49.3	1.6%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_e	$x'_i - x'_e$	K'_{T1}	$K'_{I0.7}$
100	-0.0605	0.8003	-1.1908	-0.4919	-0.6989	-0.02774	-0.00707
70	-0.0506	0.2656	-0.4496	-0.2257	-0.2239	-0.02791	-0.00714

注: 1. $M = 0.05^*$;

2. 以上象差值是按 $l = -\infty$ 计算的。



编号: 05-04-036

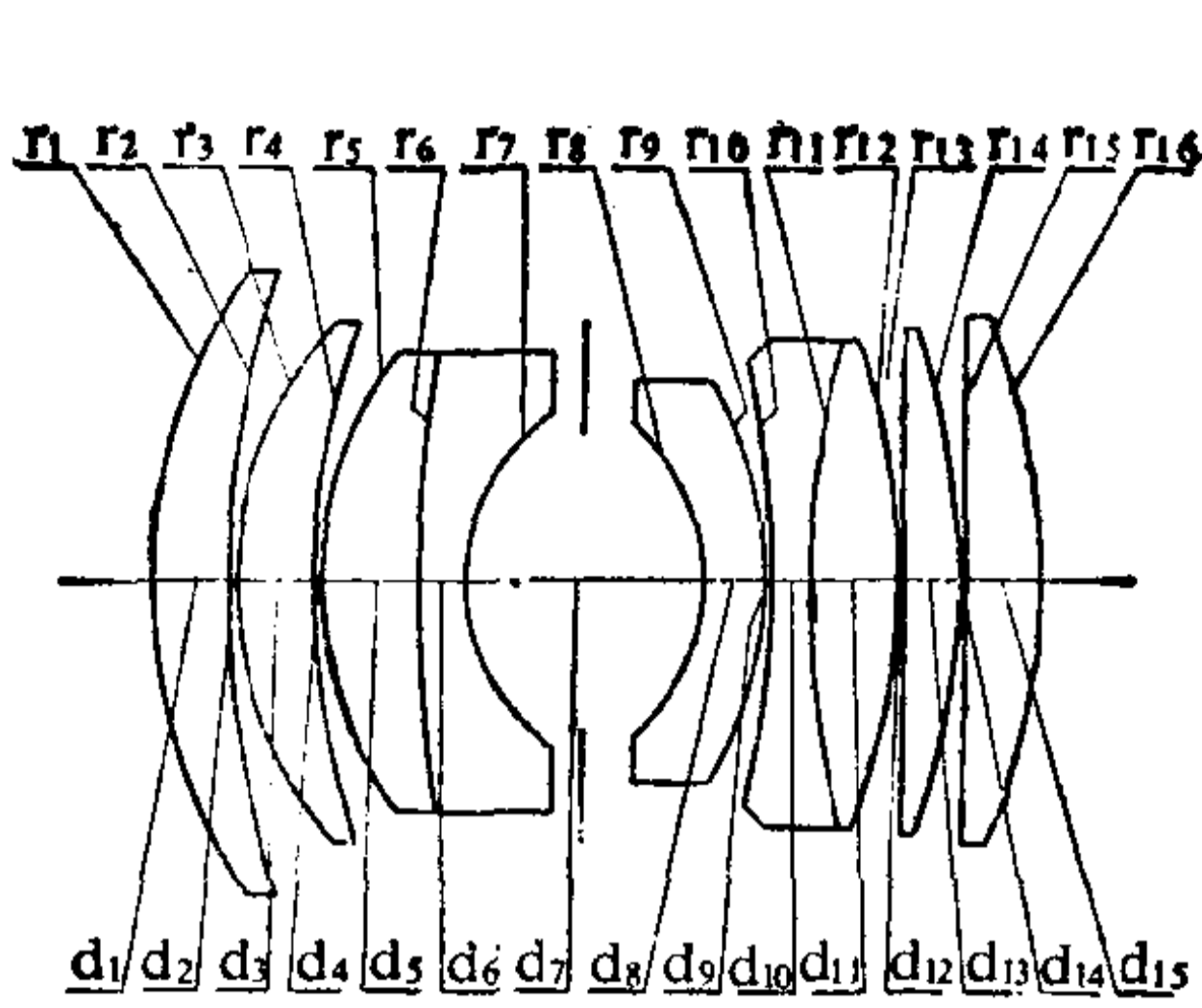
精密透镜系统

E. F. L = 180

B. F. L = 59.6

FNo. = 4

F. A. = ± 15°**



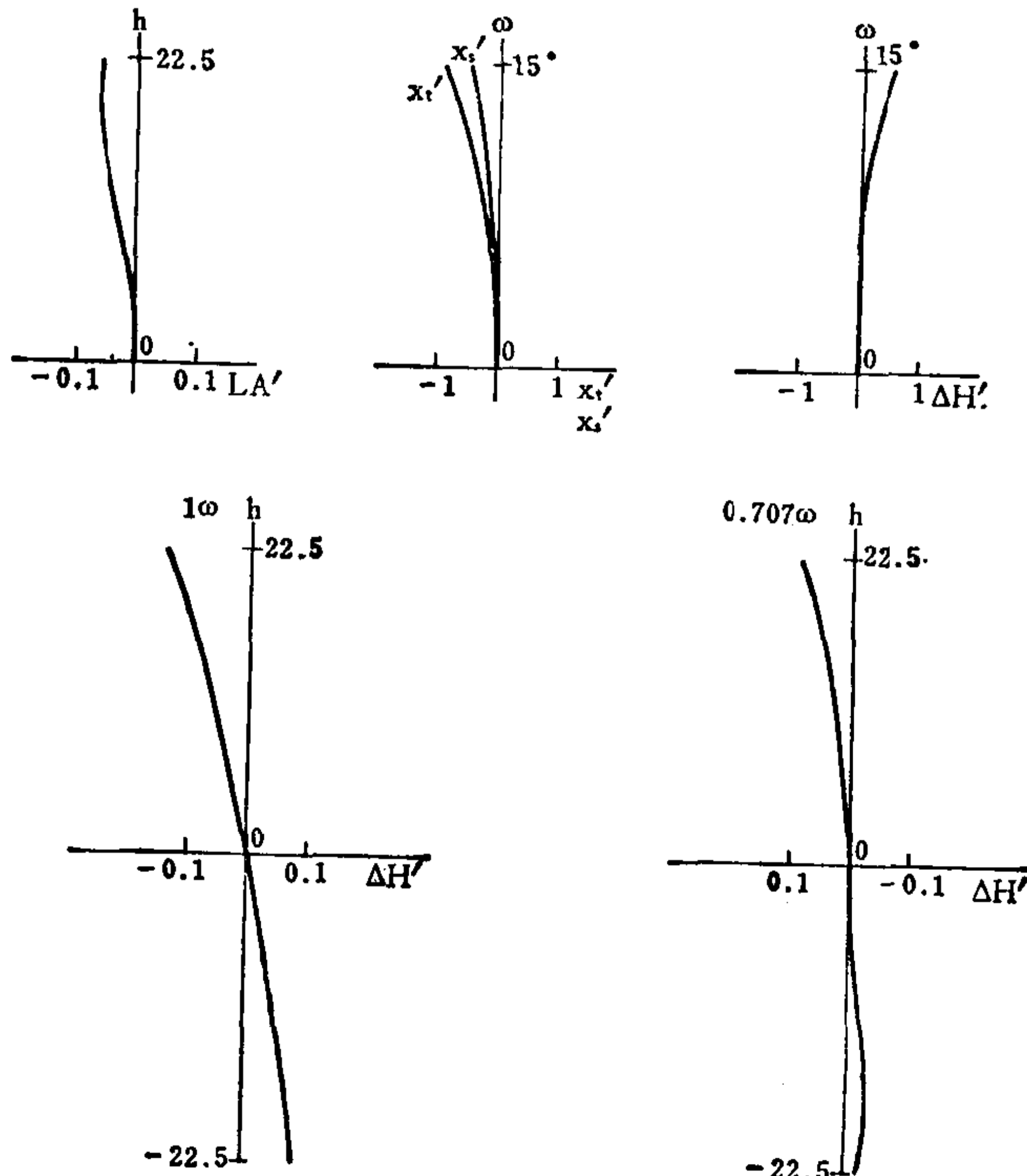
序号	r	d	n _e	v _d	序号	r	d	n _e	v _d
1	102.05	13.80	1.71615	53.98	9	-73.86	0.70		
2	180.27	0.70			10	-181.15	6.80	1.74795	44.78
3	70.37	14.60	1.69978	55.62	11	159.36	16.50	1.62540	57.06
4	140.85	0.70			12	-129.29	0.70		
5	70.34	17.50	1.69660	53.34	13	∞	10.00	1.71615	53.98
6	333.68	8.00	1.73429	28.46	14	-142.28	0.70		
7	36.28	42.06*			15	∞	13.50	1.71615	53.98
8	-38.79	11.20	1.74795	44.78	16	-124.67			

42.06* = 21.03 + 21.03

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.00439	-0.00079	-0.00498	-0.00994	0.12765	48.3	1.14%
h 或 ω%	LA'	ΔH'	x _t '	x _s '	x _t ' - x _s '	K _{T1}	K _{T0.7}
100	-0.0585	0.5524	-0.9143	-0.4089	-0.5054	-0.02489	-0.00832
70	-0.0508	0.1874	-0.3878	-0.2056	-0.1822	-0.02531	-0.00737

注: 1. M = 0.05*;

2. 以上象差值是按 l = -∞ 计算的。



编号: 05-04-037

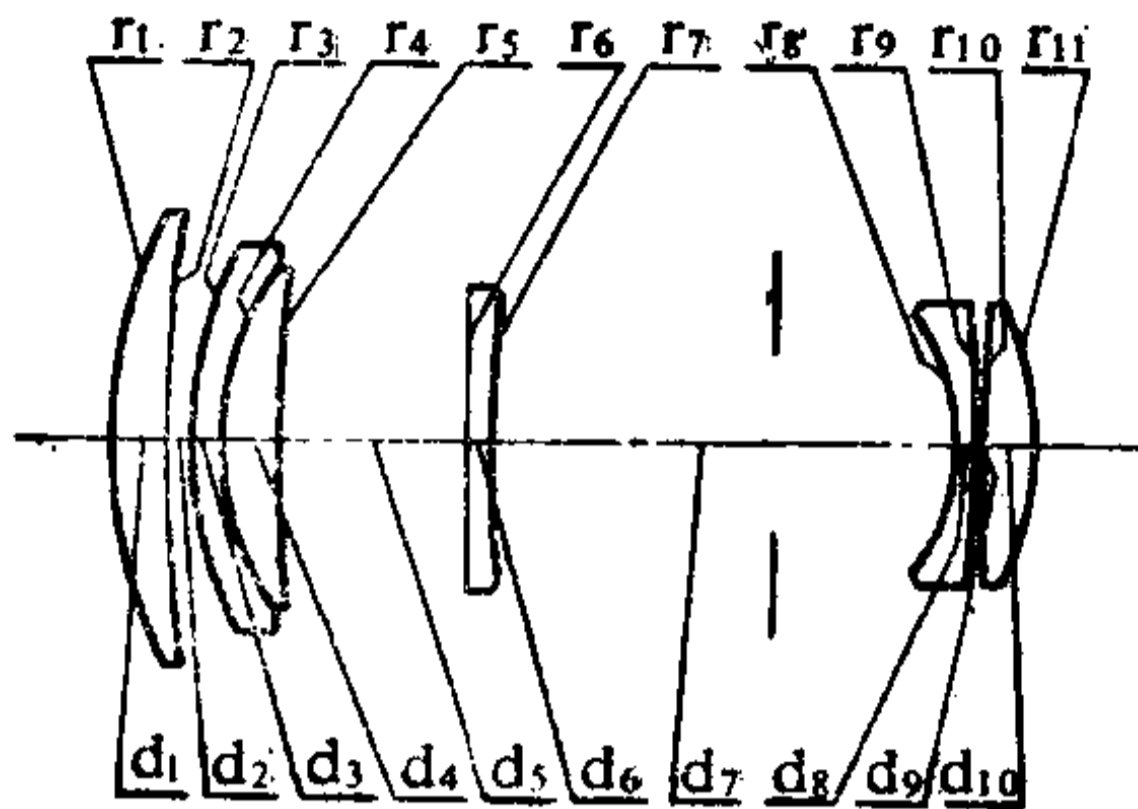
小倍率远距离照相镜头

E. F. L = 100

B. F. L = 25.5

FNo. = 5

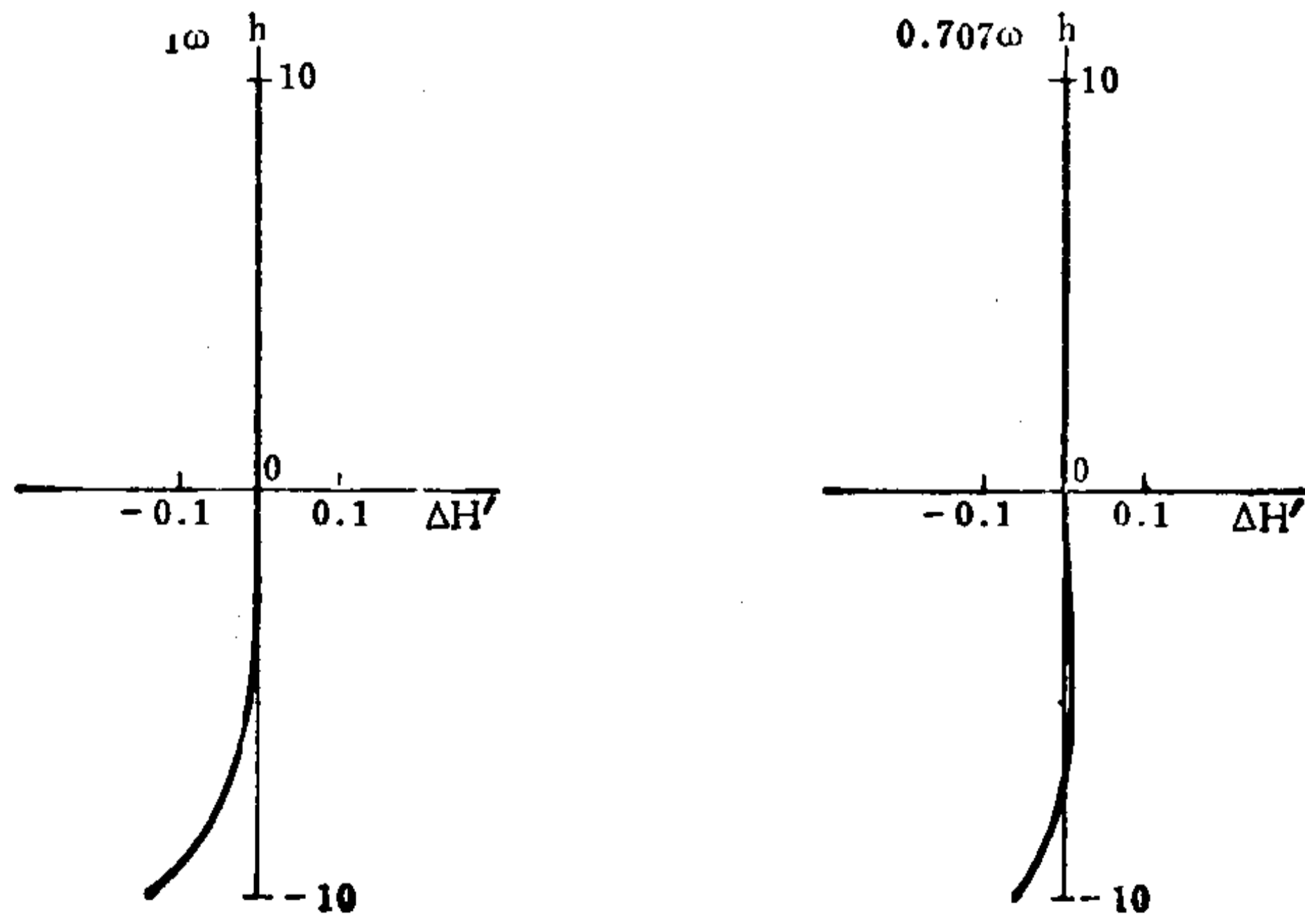
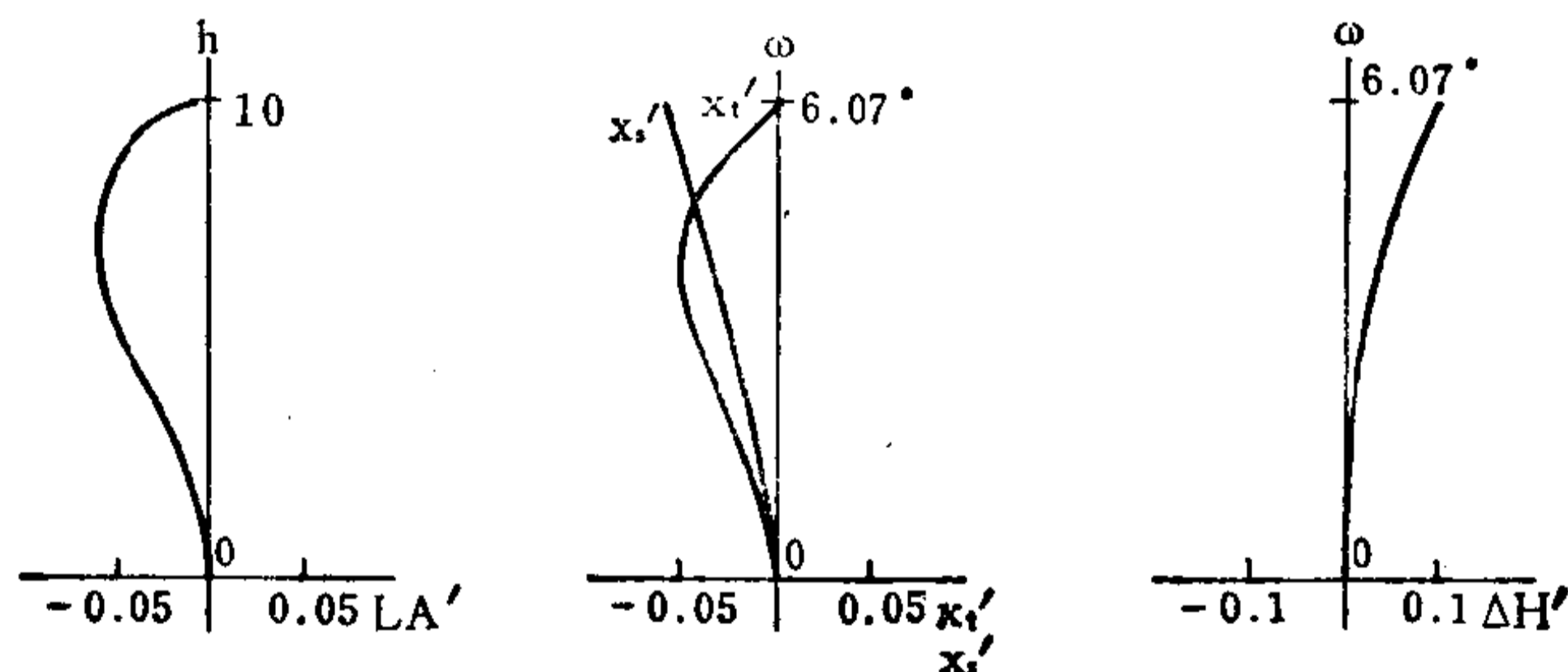
F. A. = ± 6.07°



序号	r	d	n _d	v _d	序号	r	d	n _d	v _d
1	27.37	3.0	1.4875	70.2	7	59.87	25.0*		
2	87.09	1.5			8	-12.05	1.0	1.7130	54.0
3	24.47	1.5	1.7283	28.5	9	-83.24	0.5		
4	15.93	3.0	1.5014	56.4	10	355.59	2.5	1.5927	35.5
5	76.67	10.0			11	-18.27			
6	∞	1.5	1.7440	44.8					

25.0* = 15.0 + 10.0

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.00448	0.00254	-0.00128	-0.00037	0.02361	10.6	1%
h 或 ω %	LA'	ΔH'	x _t '	x _s '	x _t ' - x _s '	K _{T1}	K _{T0.7}
100	-0.0045	0.1085	0.0026	-0.0589	0.0615	-0.07230	-0.02006
70	-0.0609	0.0402	-0.0511	-0.0354	-0.0157	-0.03072	-0.00429



编号: 05-04-038

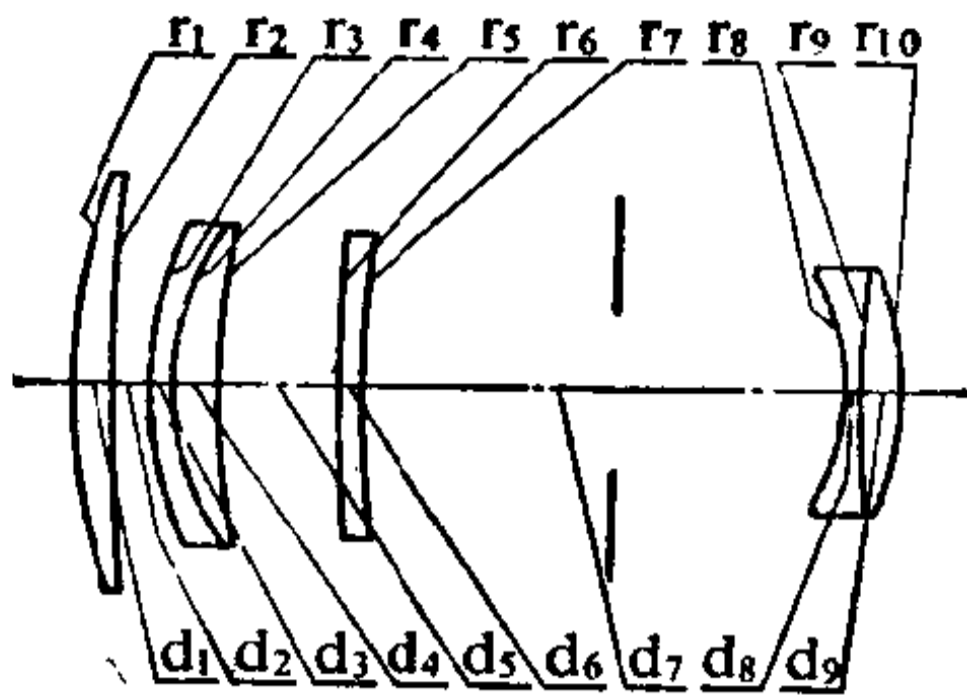
小倍率远距离照相镜头

E. F. L = 100.2

B. F. L = 24.97

FNo. = 5

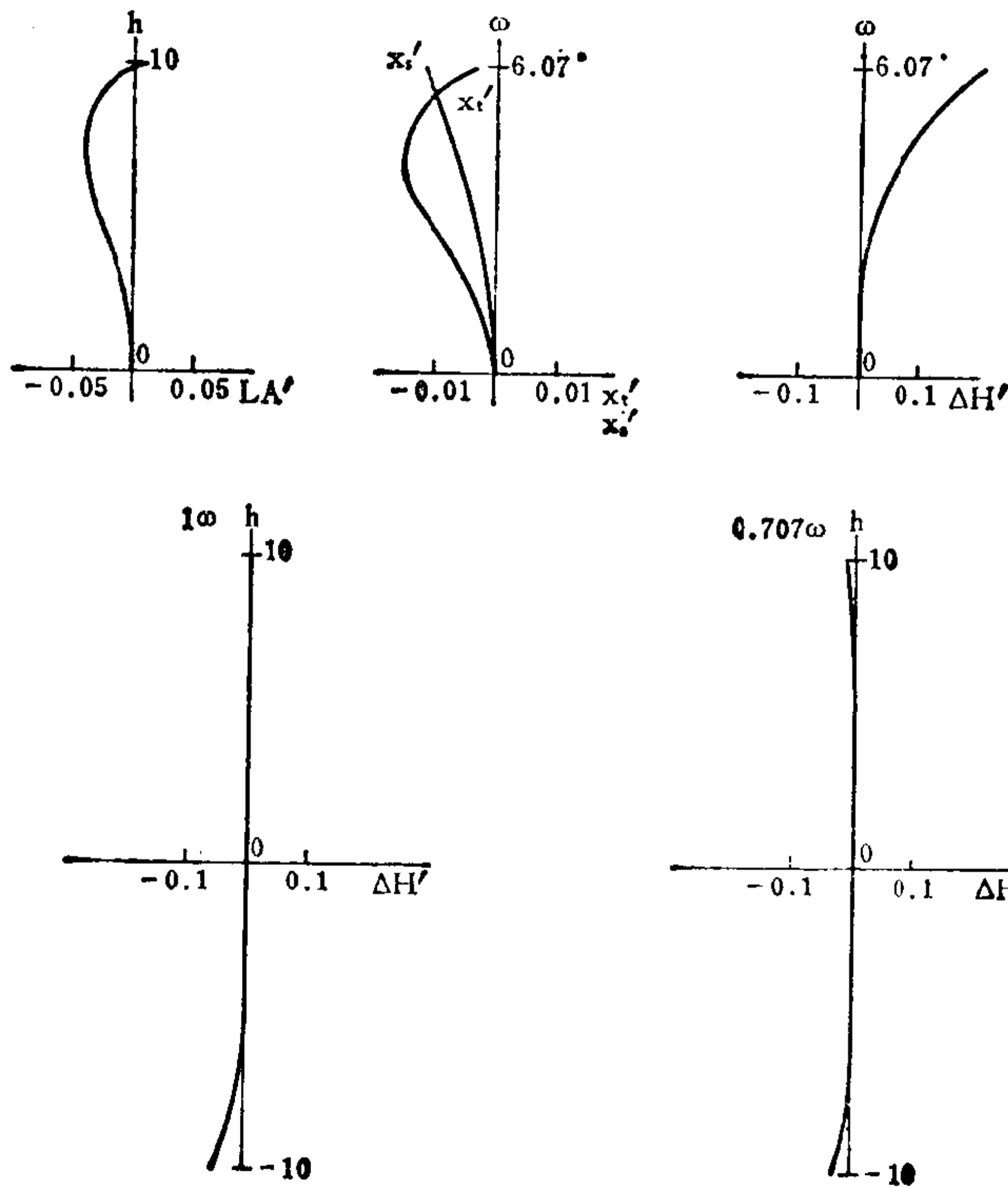
F. A. = ± 6.07°



序号	r	d	n _d	v _d	序号	r	d	n _d	v _d
1	38.54	2.5	1.4875	70.2	6	124.83	1.5	1.7408	27.8
2	150.27	2.5			7	74.01	31.0*		
3	24.61	1.5	1.7400	28.3	8	-14.38	1.0	1.7130	54.0
4	17.85	3.0	1.5163	64.2	9	80.98	2.5	1.6364	35.4
5	50.55	7.5			10	-20.18			

31.0* = 16.0 + 15.0

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.00321	0.00037	-0.00048	0.00026	0.03909	10.6	1.9%
h 或 ω %	LA'	ΔH'	x' _t	x' _s	x' _t - x' _s	K' _{T1}	K' _{r0.7}
100	0.0032	0.2038	-0.0032	-0.0124	0.0092	-0.02960	-0.00750
70	-0.0423	0.0708	-0.0161	-0.0058	-0.0103	-0.01655	-0.00345



编号: 05-04-039

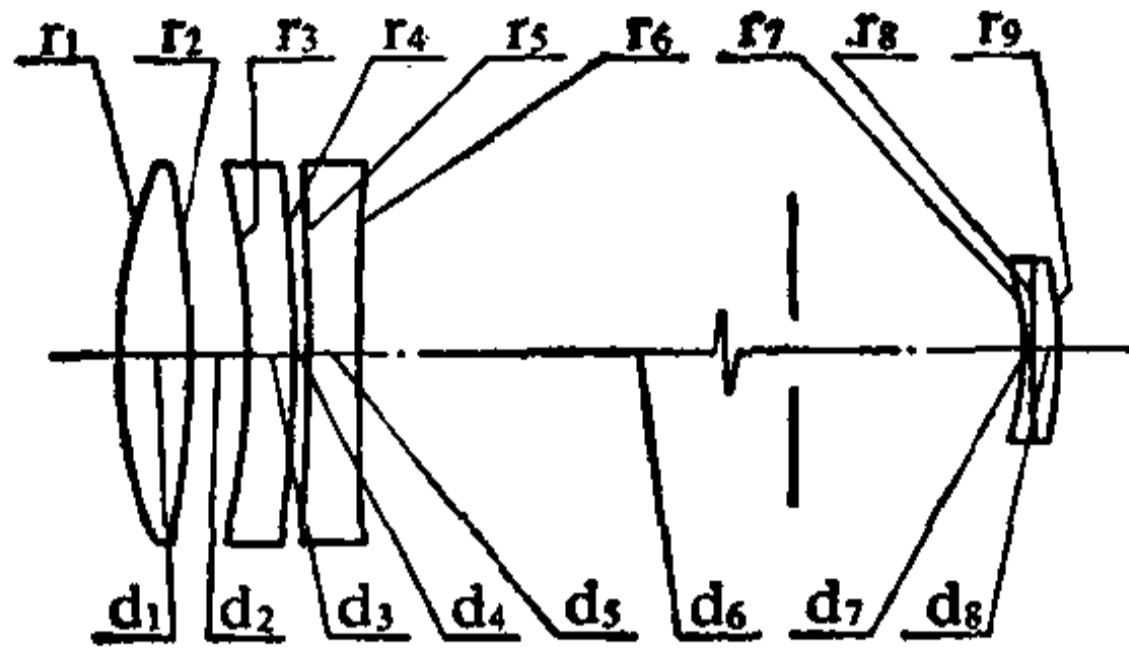
远 距 离 照 相 镜 头

E. F. L = 1.0

B. F. L = 0.2697

FNo. = 6.3

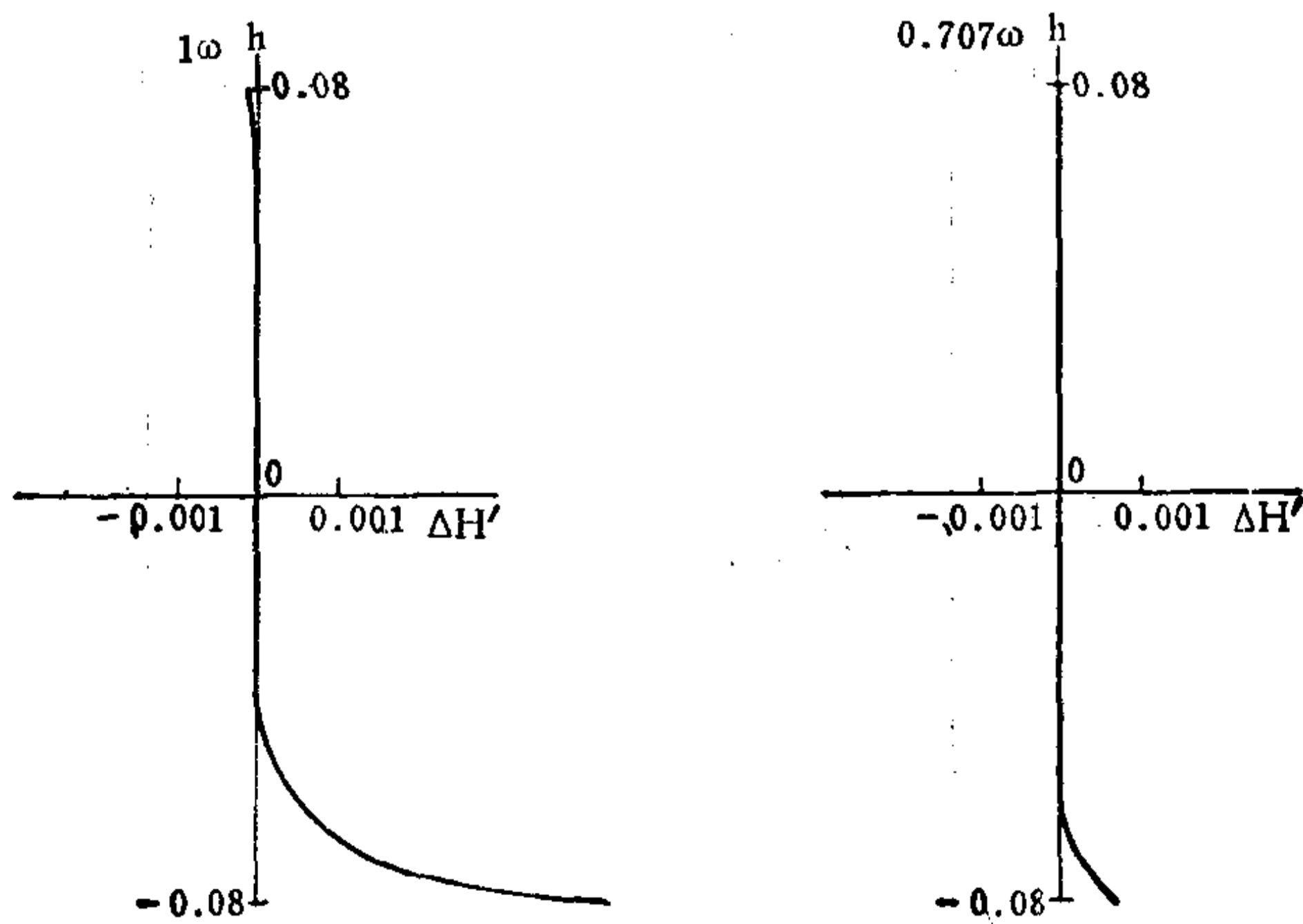
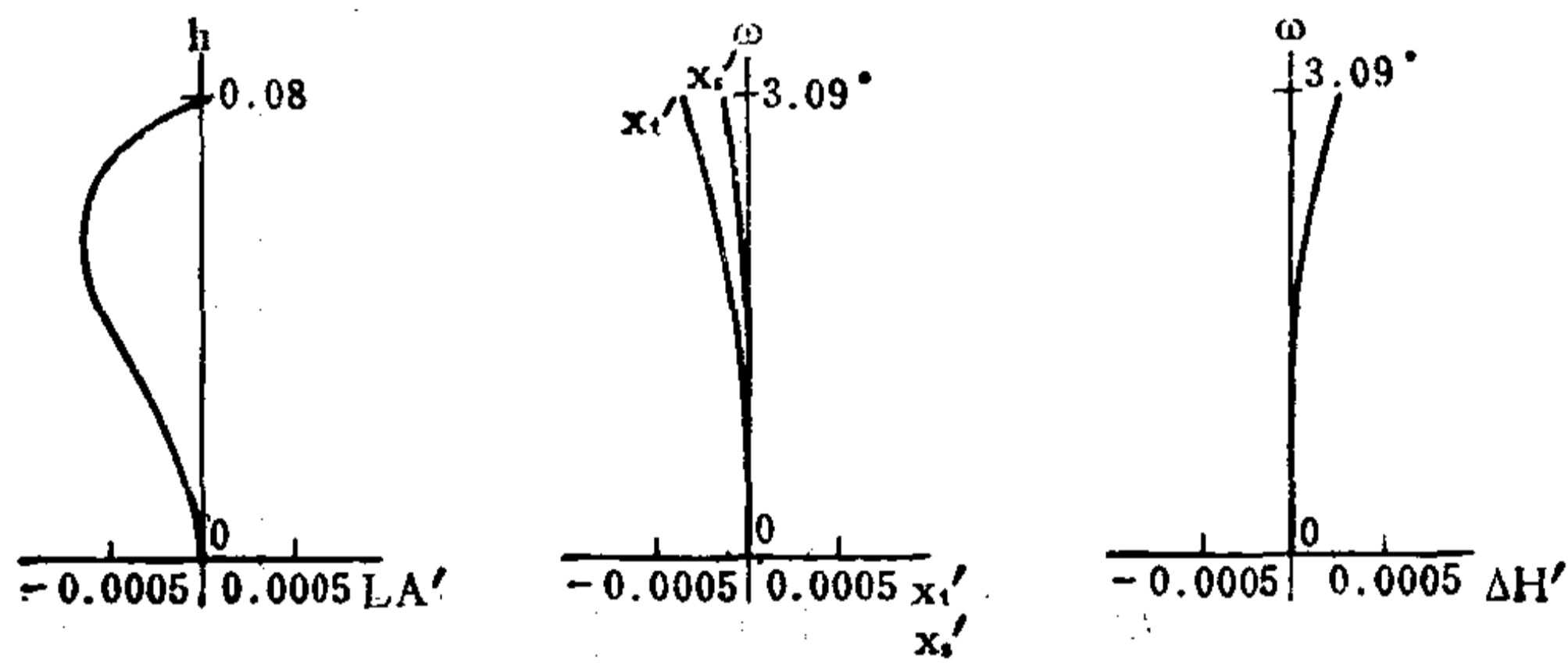
F. A. = ± 3.09°



序号	r	d	n	v	序号	r	d	n	v
1	0.22373	0.03022	1.48749	70.1	6	3.27585	0.35573*		
2	-0.40612	0.02608			7	-0.13307	0.00915	1.65160	58.6
3	-0.31658	0.01900	1.74950	35.2	8	1.13748	0.01303	1.60340	38.0
4	-0.88263	0.00544			9	-0.20273			
5	-1.64903	0.02164	1.59270	35.6					

$0.35573^* = 0.25573 + 0.10000$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.000034	0.000011	-0.000002	0.000001	0.000042	0.054	0.5%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.00002	0.00026	-0.00033	-0.00007	-0.00026	0.002196	0.000145
70	-0.00066	0.00009	-0.00016	-0.00004	-0.00012	0.000242	-0.000008



编号: 05-04-040

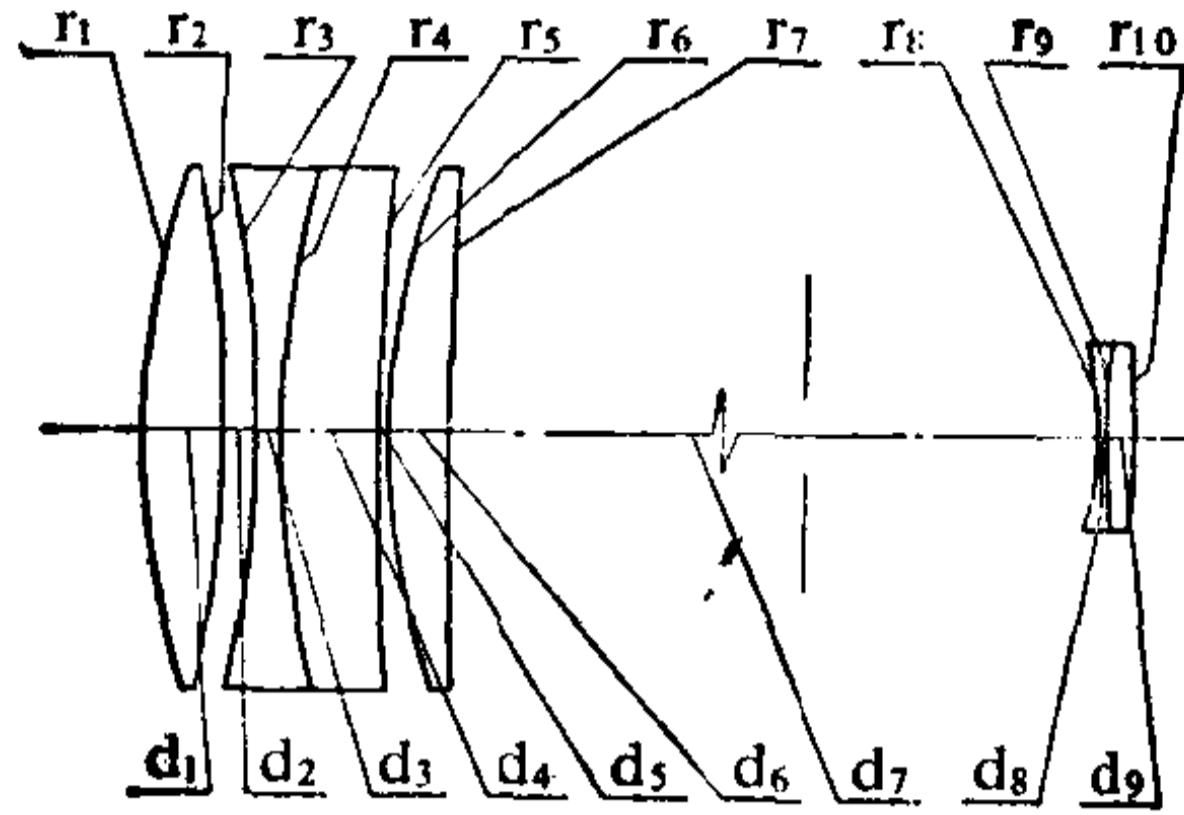
消色差远距物镜

E. F. L = 300

B. F. L = 70

FNo. = 4.5

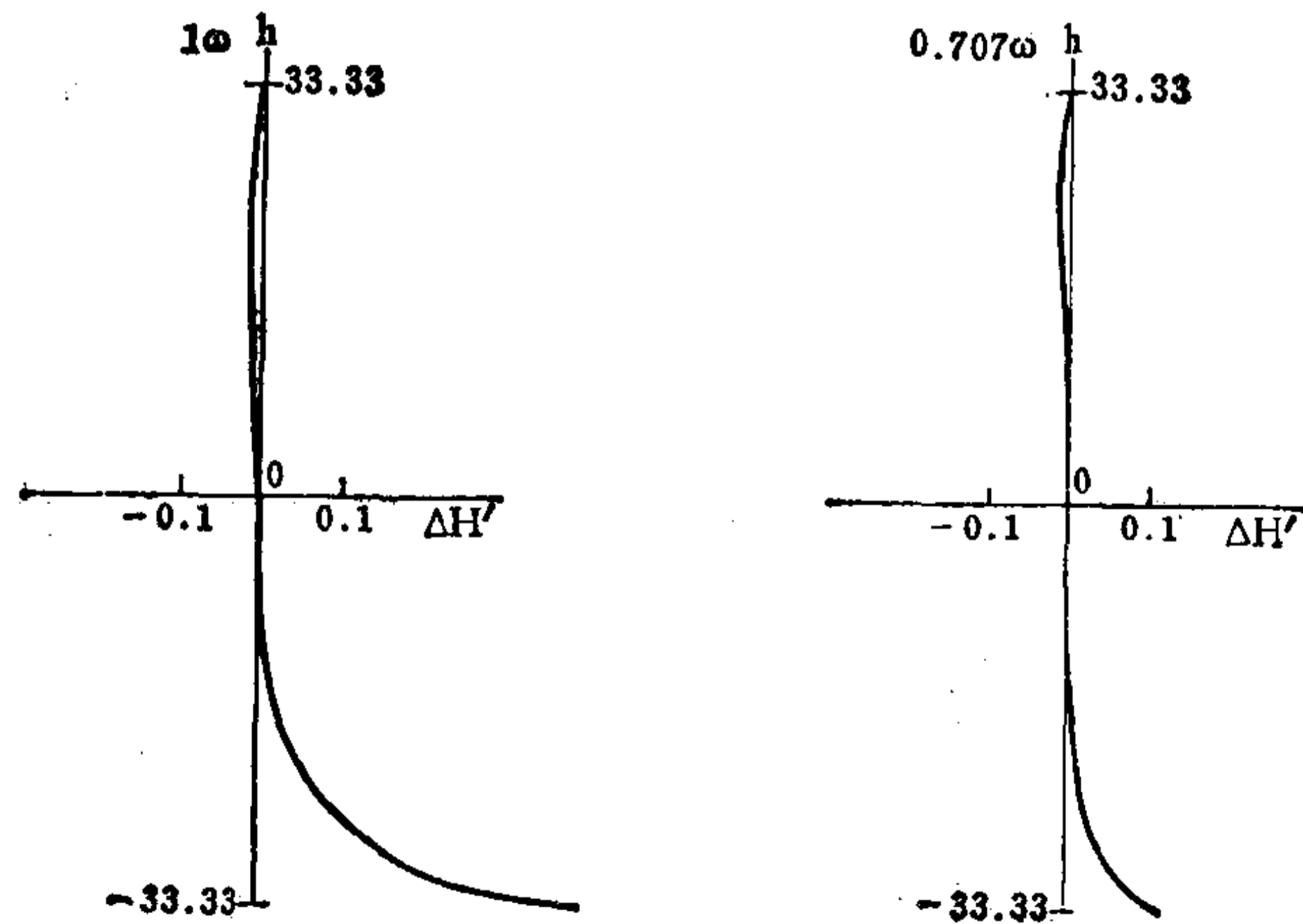
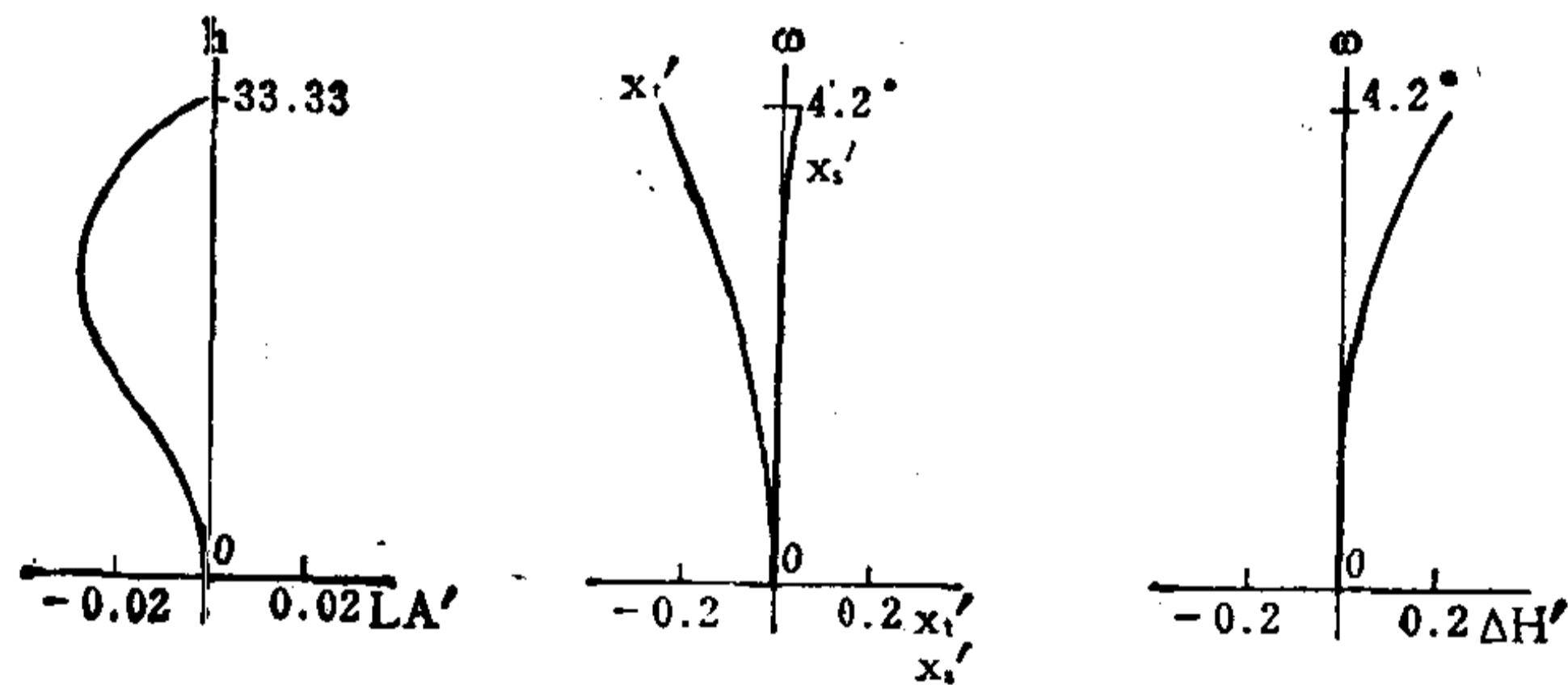
F. A. = $\pm 4.2^\circ$



序号	r	d	n	v	序号	r	d	n	v
1	106.00	11.0	1.48606	81.5	6	95.00	7.7	1.48606	81.5
2	-151.00	4.0			7	878.80	119.3*		
3	-144.00	3.0	1.74400	44.9	8	-43.00	1.0	1.62041	60.3
4	130.00	12.0	1.63930	45.0	9	150.00	3.5	1.62004	36.3
5	650.00	1.0			10	-104.82			

119.3* = 69.0 + 50.3

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.00385	0.00017	-0.00391	0.00458	0.04798	21.9	1%
h 或 ω %	LA'	$\Delta H'$	x'_t	x_s	$x'_t - x_s$	K'_{11}	$K'_{10.7}$
100	-0.00099	0.2201	-0.2563	0.0252	-0.2815	0.19537	0.01660
70	-0.02847	0.0771	-0.1344	0.0134	-0.1478	0.06035	0.00306



编号: 05-04-041

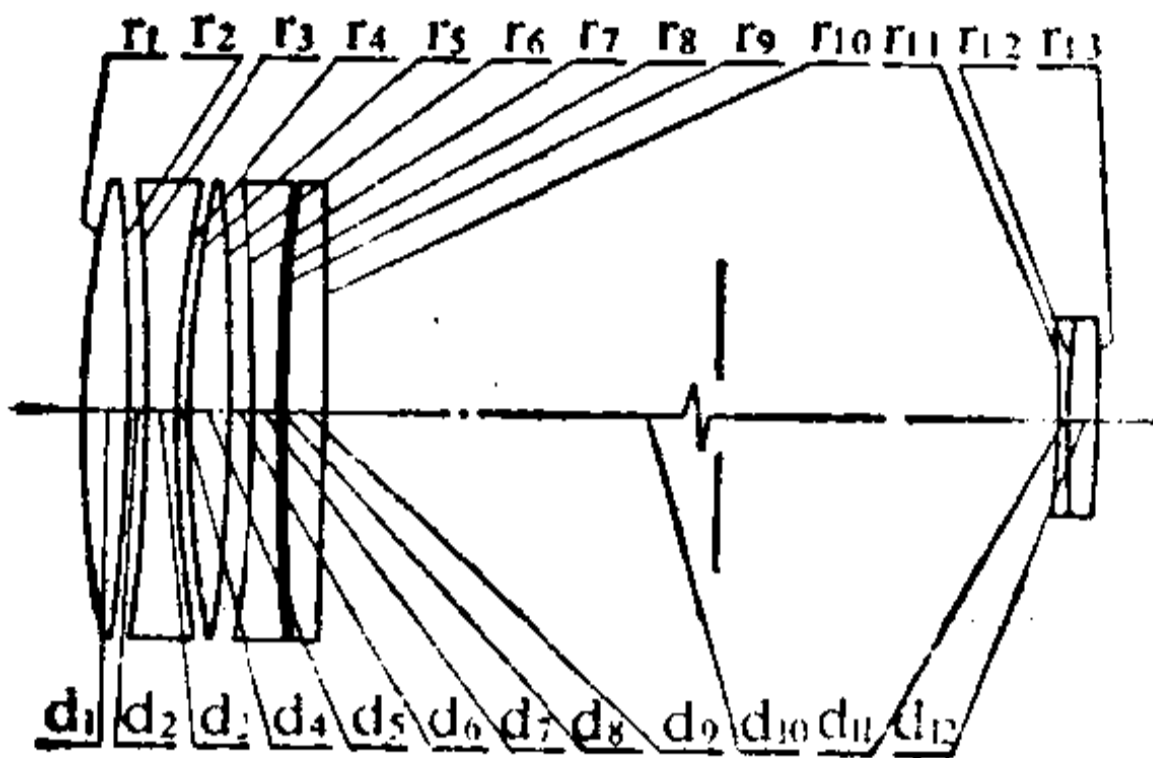
消色差远距离物镜

E.F.L=1144.6

B.F.L=328.7

FNo. = 10.5

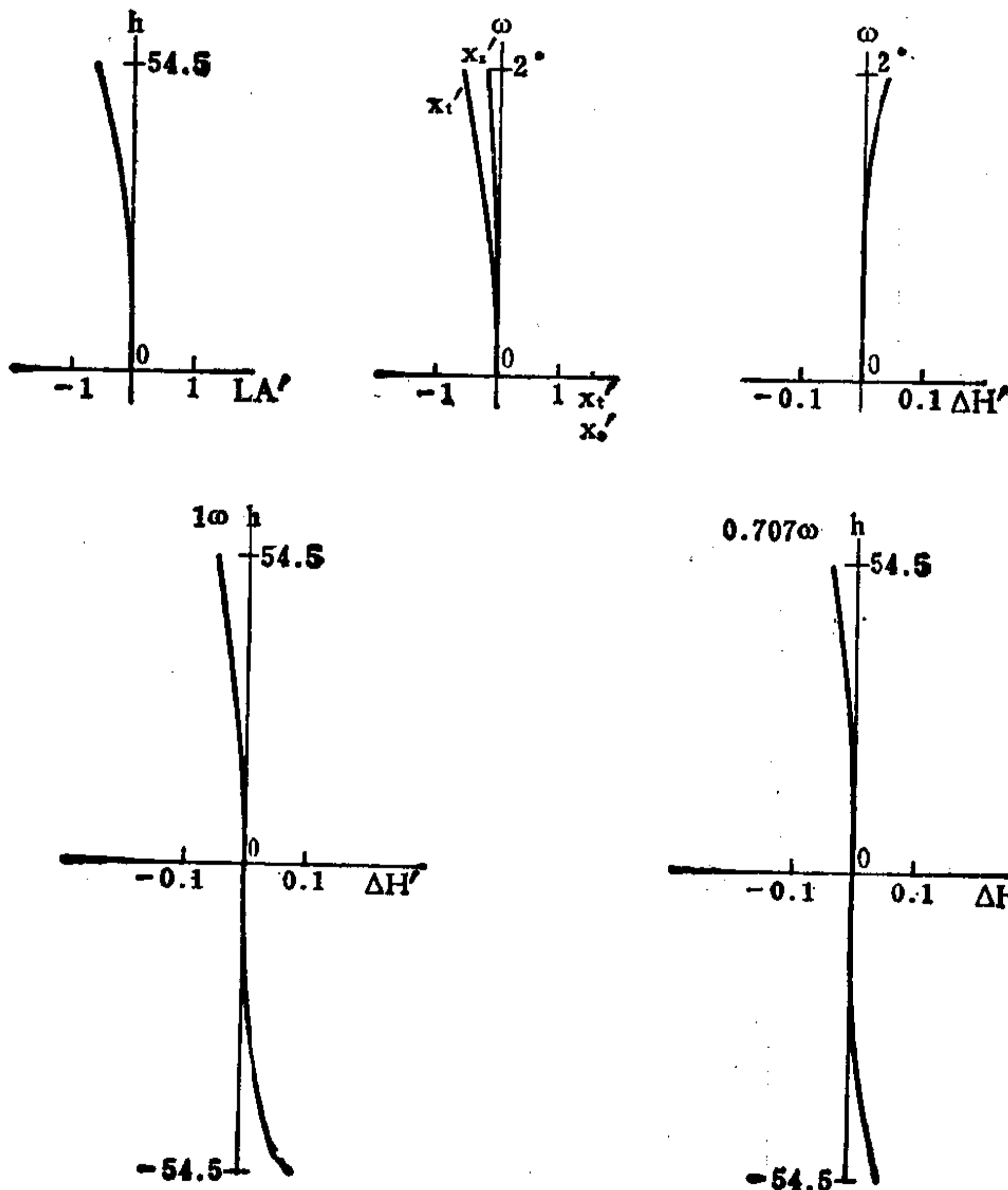
F.A. = ± 2°



序号	r	d	n	v	序号	r	d	n	v
1	310.00	11.0	1.61405	55.1	8	841.00	1.0		
2	-525.00	5.0			9	700.00	10.0	1.62374	47.0
3	-630.00	7.5	1.61150	44.3	10	-2386.10	533.0*		
4	313.00	4.0			11	-190.00	2.0	1.51680	64.2
5	341.30	10.0	1.48606	81.5	12	310.00	7.0	1.62374	47.0
6	-557.00	7.0			13	-472.83			
7	-413.00	7.5	1.71300	53.9					

$533.0^* = 280.0 + 253.0$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.00202	-0.00013	-0.00076	-0.00017	0.00359	40.1	0.09%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-0.5730	0.0377	-0.5737	-0.2136	-0.3601	0.01674	0.00322
70	-0.2504	0.0133	-0.2794	-0.1052	-0.1742	0.00843	0.00117



编号: 05-04-042

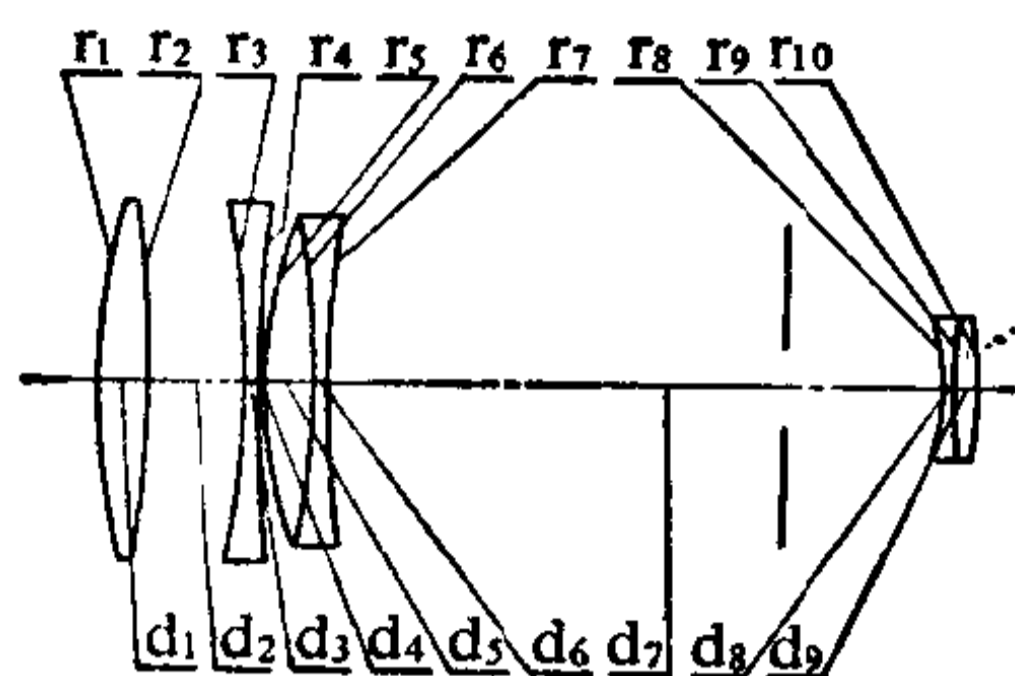
小倍率望远镜式远摄透镜系统

E. F. L = 100

B. F. L = 25.05

FNo. = 4.5

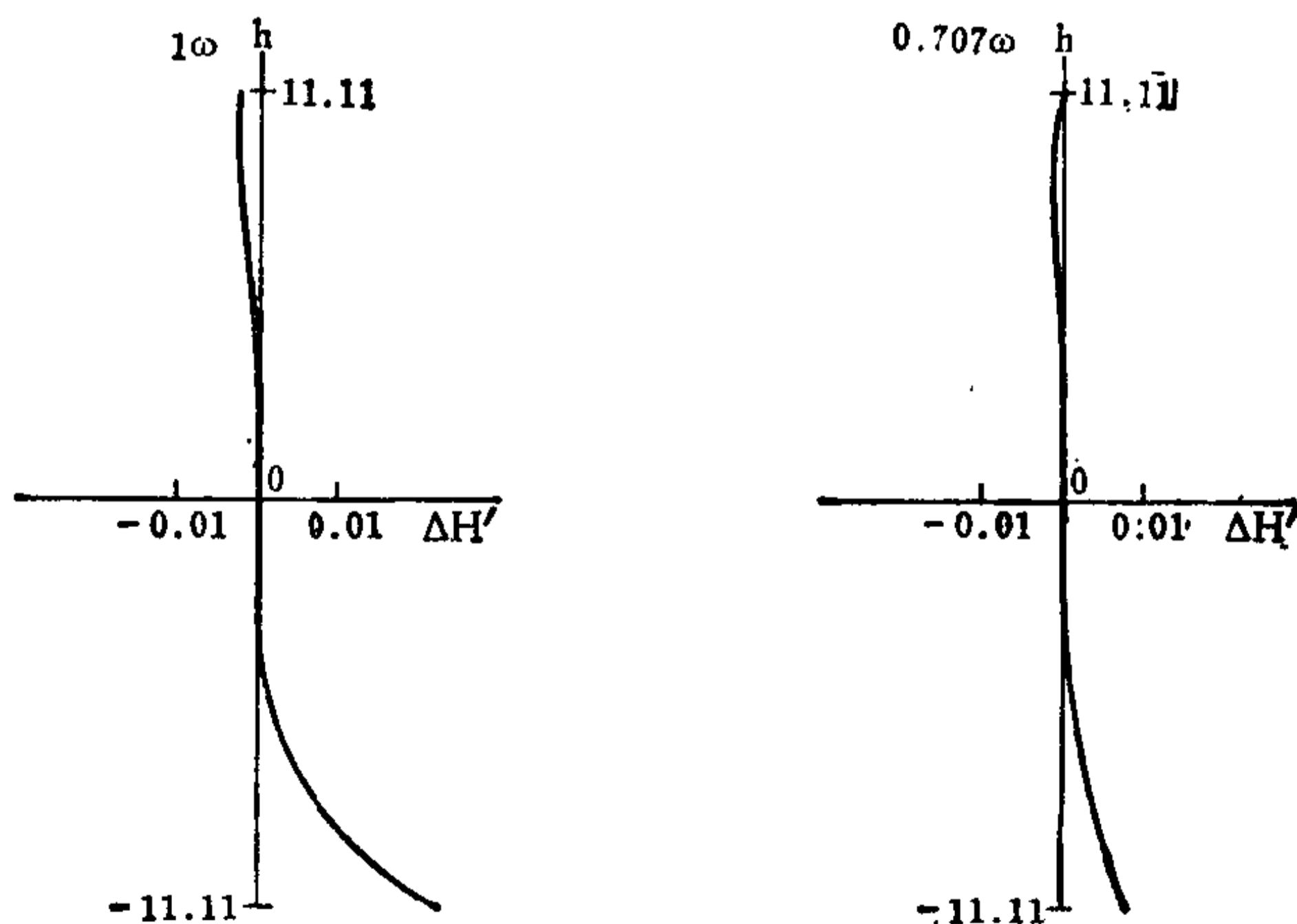
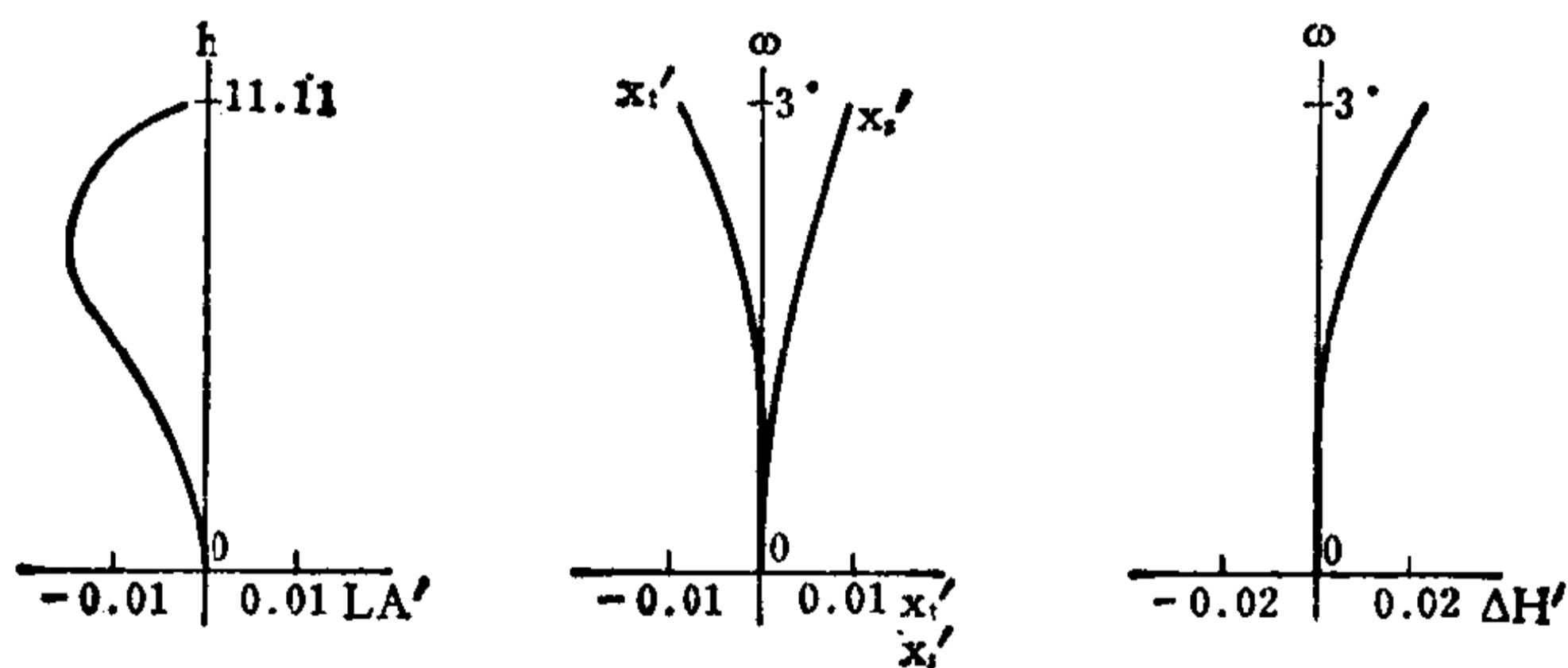
F. A. = ± 3°



序号	r	d	n	v	序号	r	d	n	v
1	44.199	3.00	1.48749	70.2	6	-59.866	1.00	1.61340	43.8
2	-79.671	6.25			7	80.935	38.50*		
3	-57.444	1.00	1.70154	41.1	8	-14.064	0.75	1.67790	55.3
4	158.310	0.20			9	44.298	1.25	1.72342	37.9
5	29.442	3.00	1.61800	63.4	10	-24.649			

38.50* = 28.50 + 10.00

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.001445	0.000017	-0.000163	0.000430	0.005025	5.2	0.4%
h 或 ω %	LA'	ΔH'	x' _t	x' _s	x' _t - x' _s	K _{T1}	K _{T0.7}
100	-0.0012	0.0229	-0.0091	0.0091	-0.0182	0.01088	0.00229
70	-0.0151	0.0080	-0.0026	0.0050	-0.0076	0.00350	0.00061



编号: 05-04-043

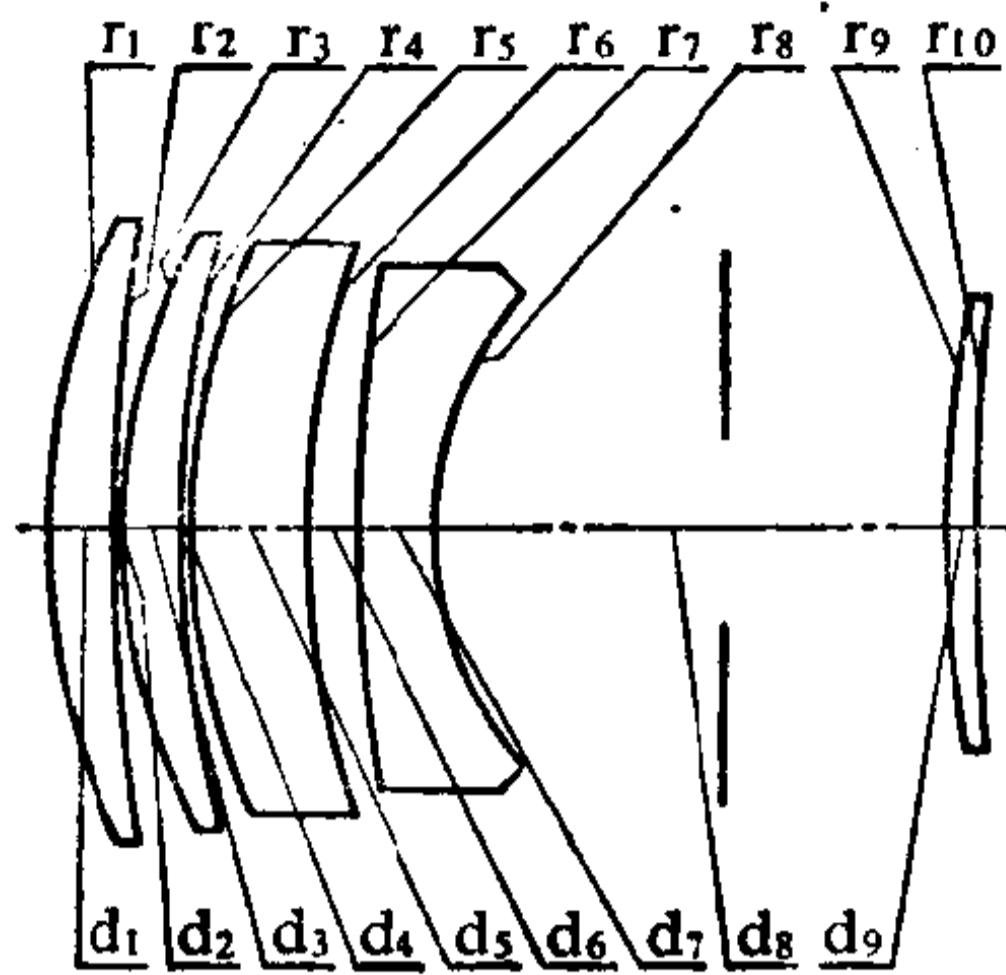
大孔径长焦距透镜系统

E. F. L = 1.0

B. F. L = 0.435

FNo. = 2.8

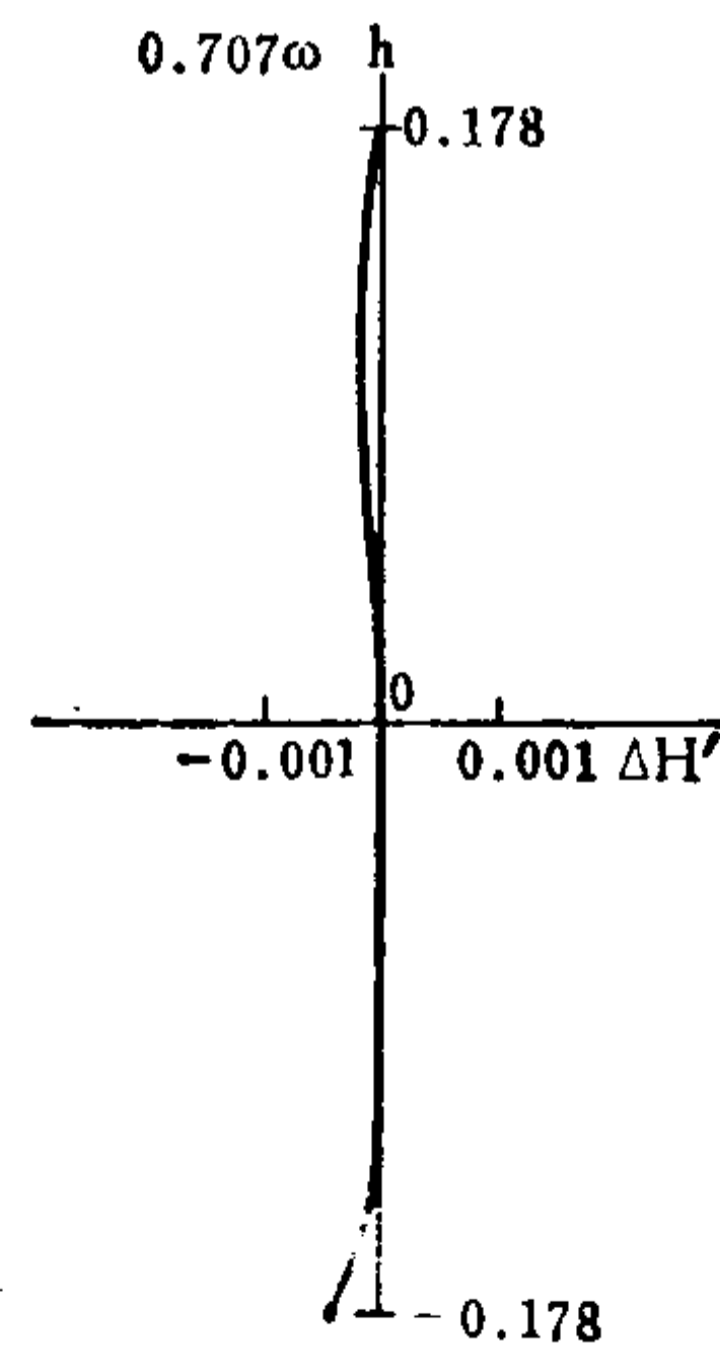
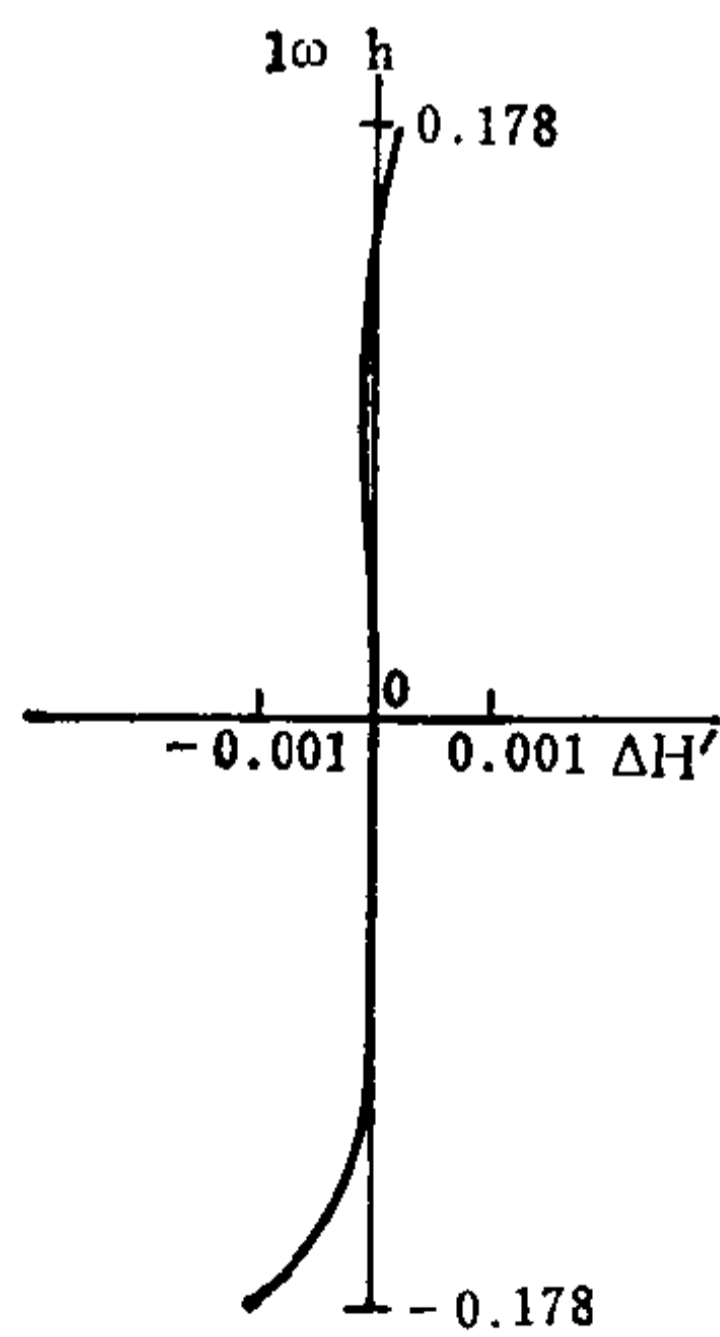
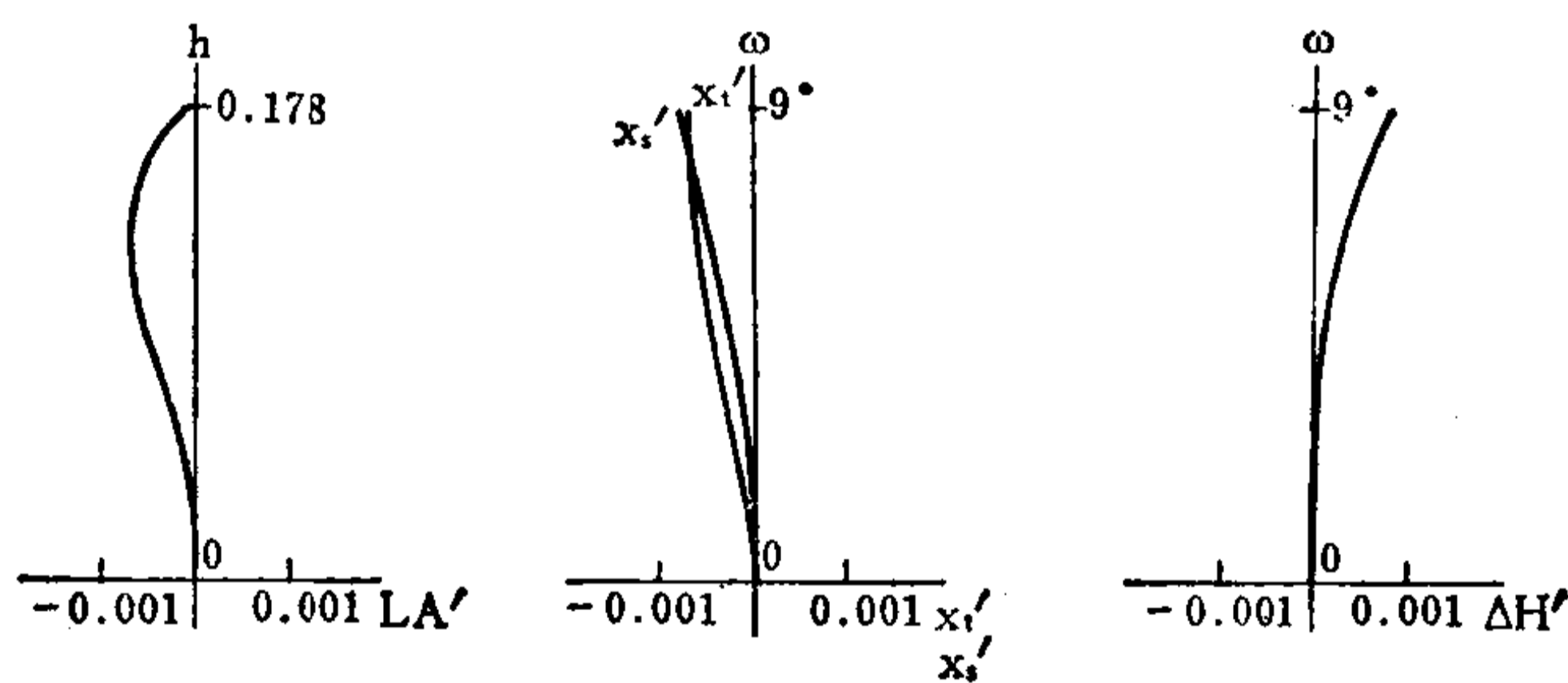
F. A. = $\pm 9^\circ$



序号	r	d	n	v	序号	r	d	n	v
1	0.3847	0.0392	1.63854	55.38	6	0.4620	0.0260		
2	1.5003	0.0007			7	0.9685	0.0409	1.78470	26.22
3	0.3465	0.0317	1.61700	62.79	8	0.1957	0.2758*		
4	0.5969	0.0025			9	0.6435	0.0150	1.80518	25.43
5	0.3748	0.0638	1.70154	41.10	10	1.8672			

$0.2758^* = 0.1558 + 0.1200$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.000163	0.000027	-0.000015	-0.000065	0.000365	0.158	0.51%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_s	$x'_i - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-0.000078	0.000811	-0.000696	-0.000759	0.000063	-0.000379	-0.000054
70	-0.000717	0.000328	-0.000584	-0.000511	-0.000073	-0.000172	-0.000008



编号: 05-04-044

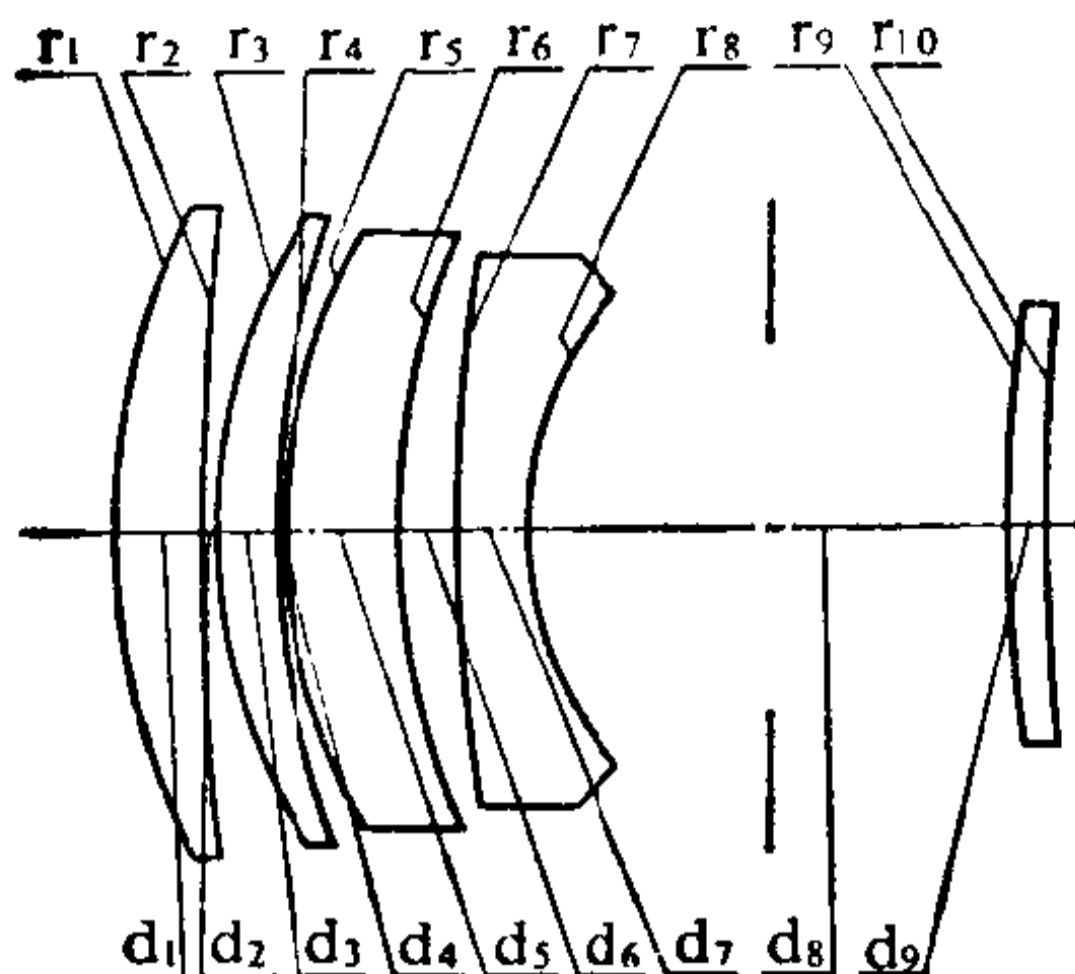
大孔径长焦距透镜系统

E.F.L=1.0

B.F.L=0.429

FNo. =2.8

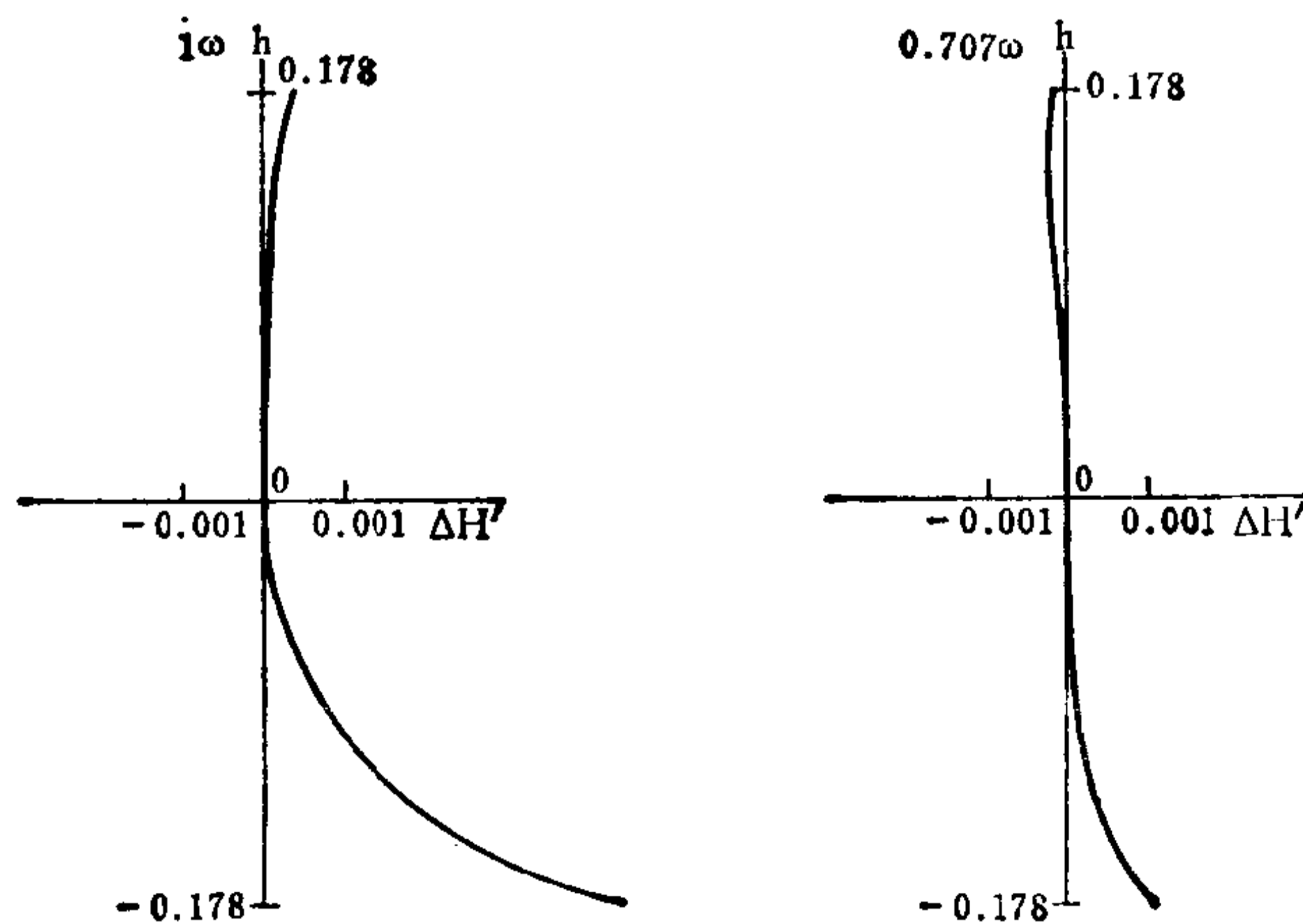
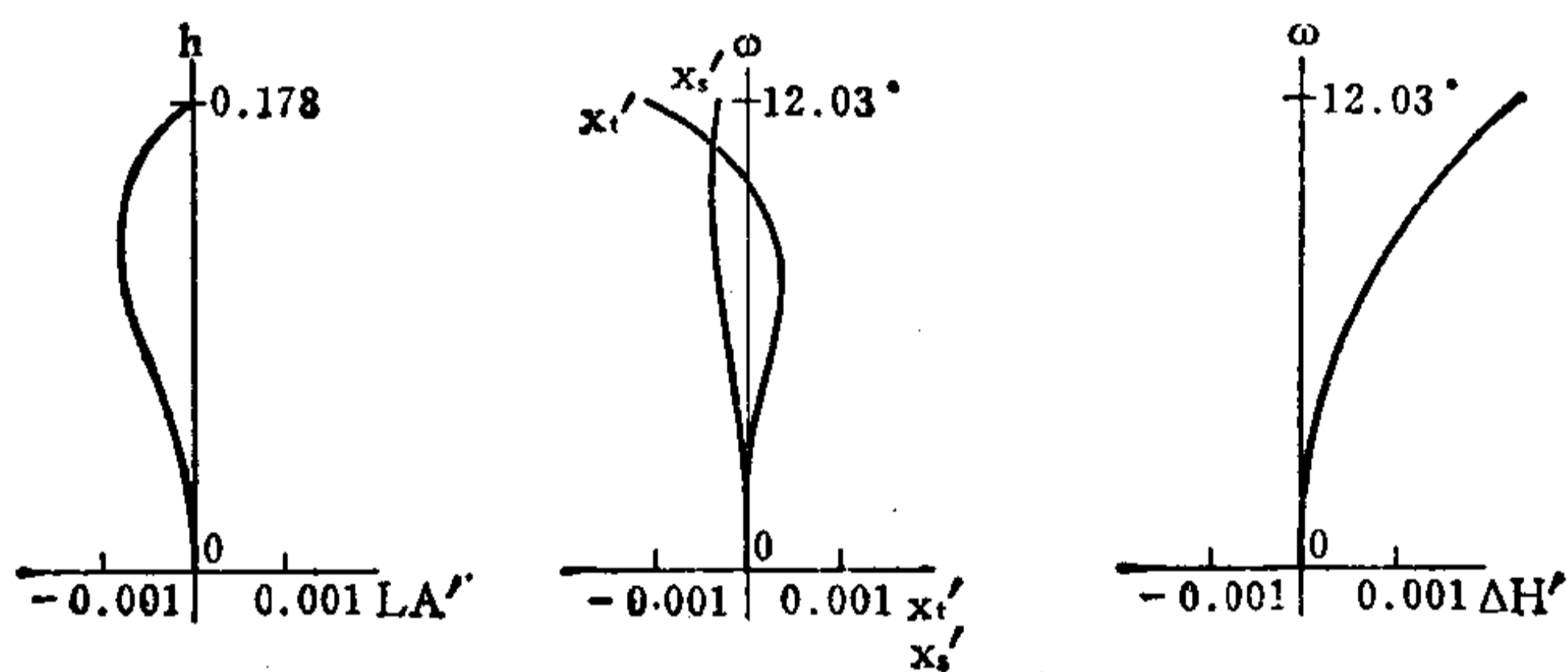
F.A. = ±12.03°



序号	r	d	n	v	序号	r	d	n	v
1	0.4011	0.0472	1.58913	61.11	6	0.4159	0.0261		
2	2.3231	0.0042			7	0.8450	0.0389	1.78470	26.22
3	0.3213	0.0336	1.56873	63.16	8	0.1960	0.2578*		
4	0.5016	0.0025			9	0.6486	0.0255	1.78470	26.22
5	0.3406	0.0639	1.70154	41.10	10	1.7995			

$0.2578^* = 0.1300 + 0.1278$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.000175	-0.000093	0.000090	-0.000137	0.001077	0.213	1.1%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{10.7}$
100	-0.000045	0.002425	-0.001137	-0.000264	-0.000873	0.002505	0.000869
70	-0.000744	0.000989	0.000377	-0.000284	0.000661	0.000509	0.000107



编号: 05-04-045

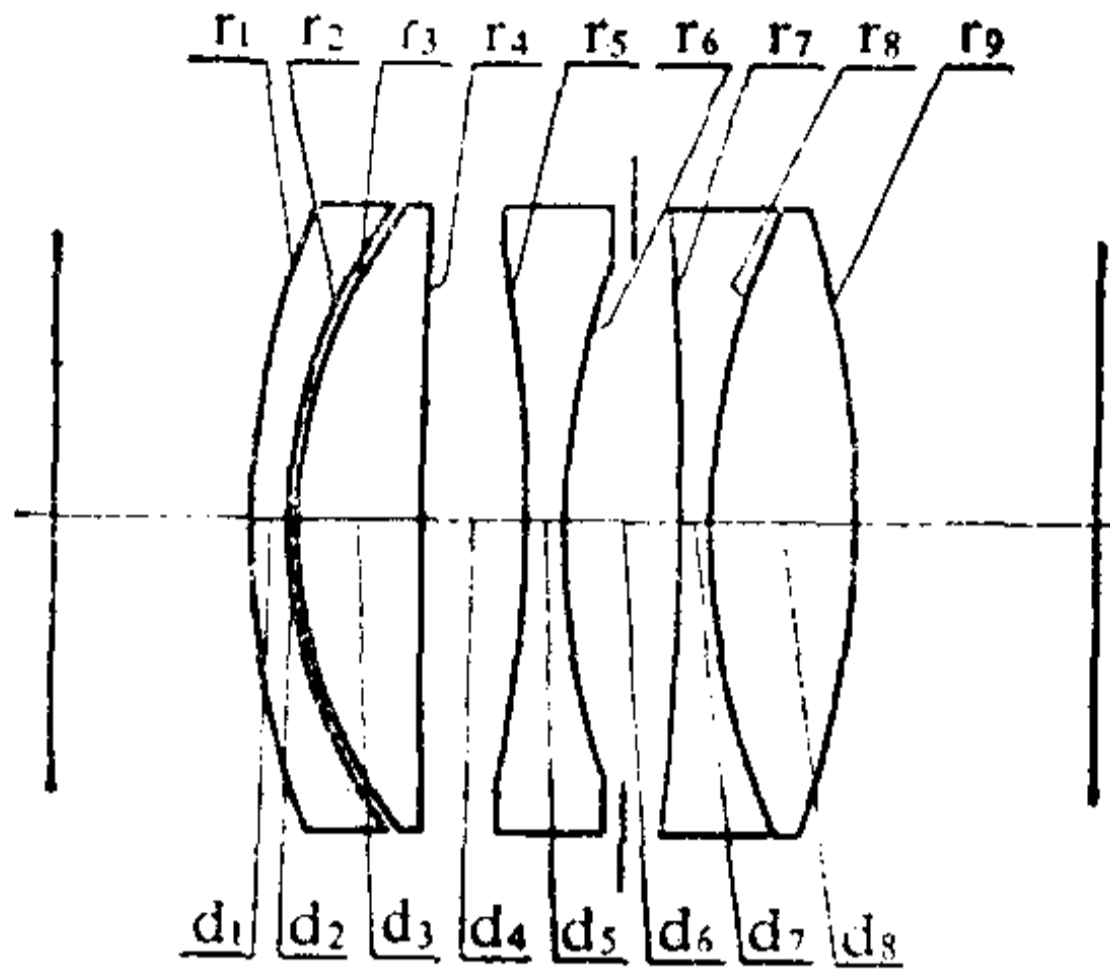
五片型重显物镜

E. F. L = 91

B. F. L = 79.97

FNo. = 5.6

F. A. = $\pm 20''$



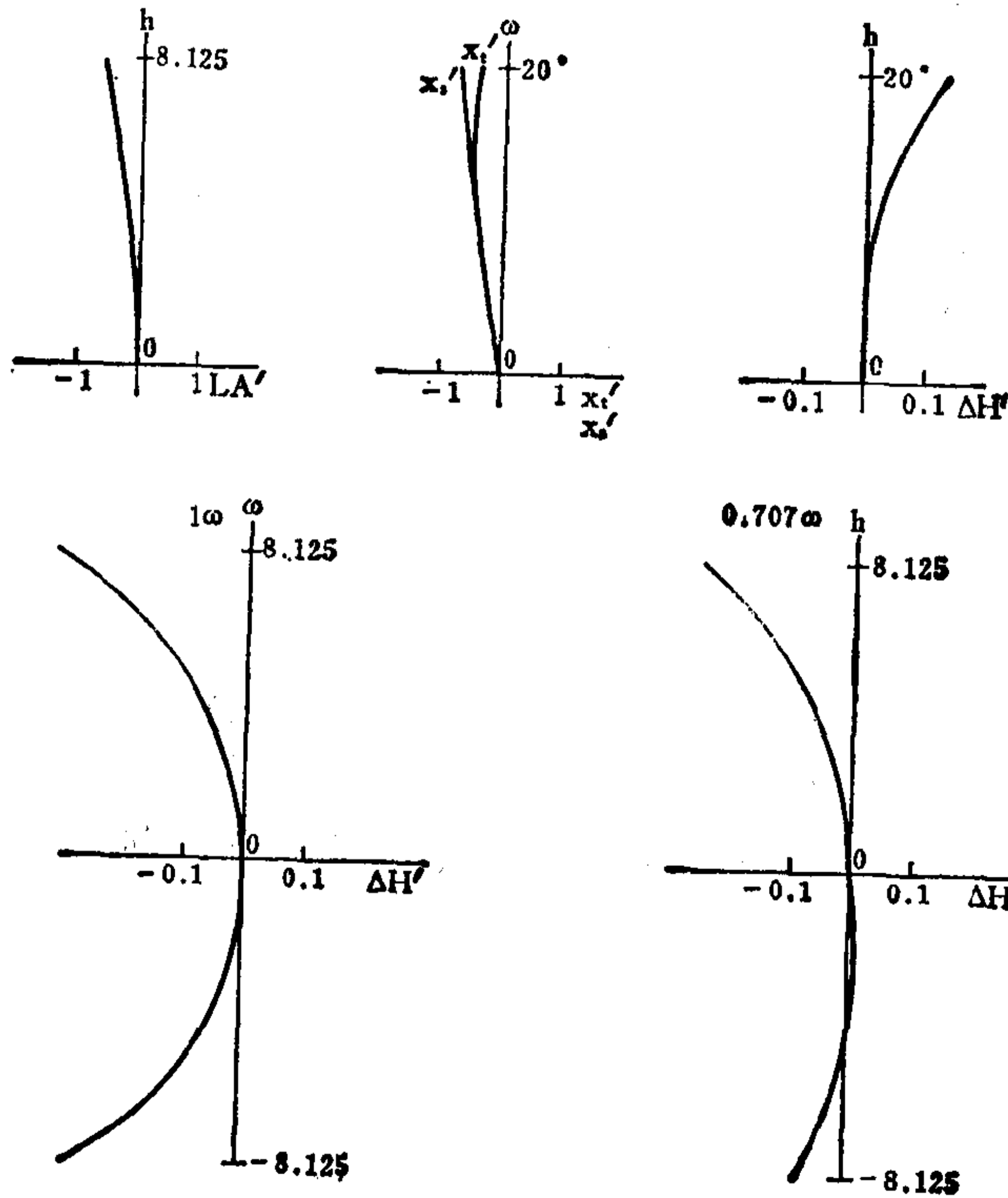
序号	r	d	n	v	序号	r	d	n	v
1	32.246	1.36	1.59551	39.2	6	29.478	3.90*		
2	19.257	0.15			7	-144.764	1.25	1.54869	45.4
3	19.257	4.49	1.65844	50.8	8	27.948	5.15	1.65844	50.8
4	1837.150	3.75			9	-36.259			
5	-48.439	1.47	1.57845	41.7					

3.90* = 2.00 + 1.90

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.01398	-0.00721	-0.00148	-0.02039	0.02197	33.2	0.4%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_s	$x'_i - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-0.6542	0.1358	-0.3712	-0.7206	0.3494	-0.3132	-0.1308
70	-0.3871	0.0466	-0.5207	-0.5568	0.0361	-0.1699	-0.0704

注: 1. M = 1*;

2. 以上象差值是按 $l = -\infty$ 计算的。



编号: 05-04-046

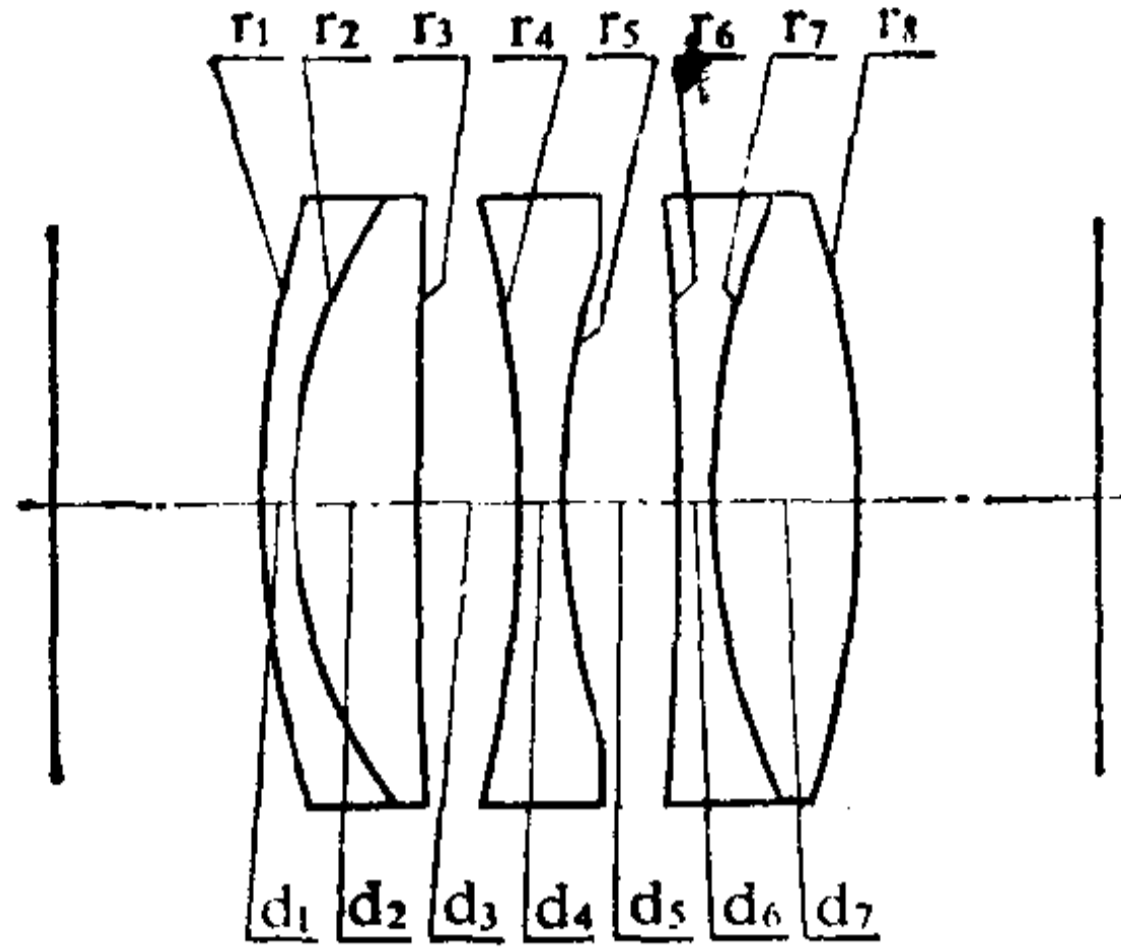
五片型重显物镜

E.F.L = 100.3

B.F.L = 90.67

FNo. = 5.6

F.A. = ±20°**



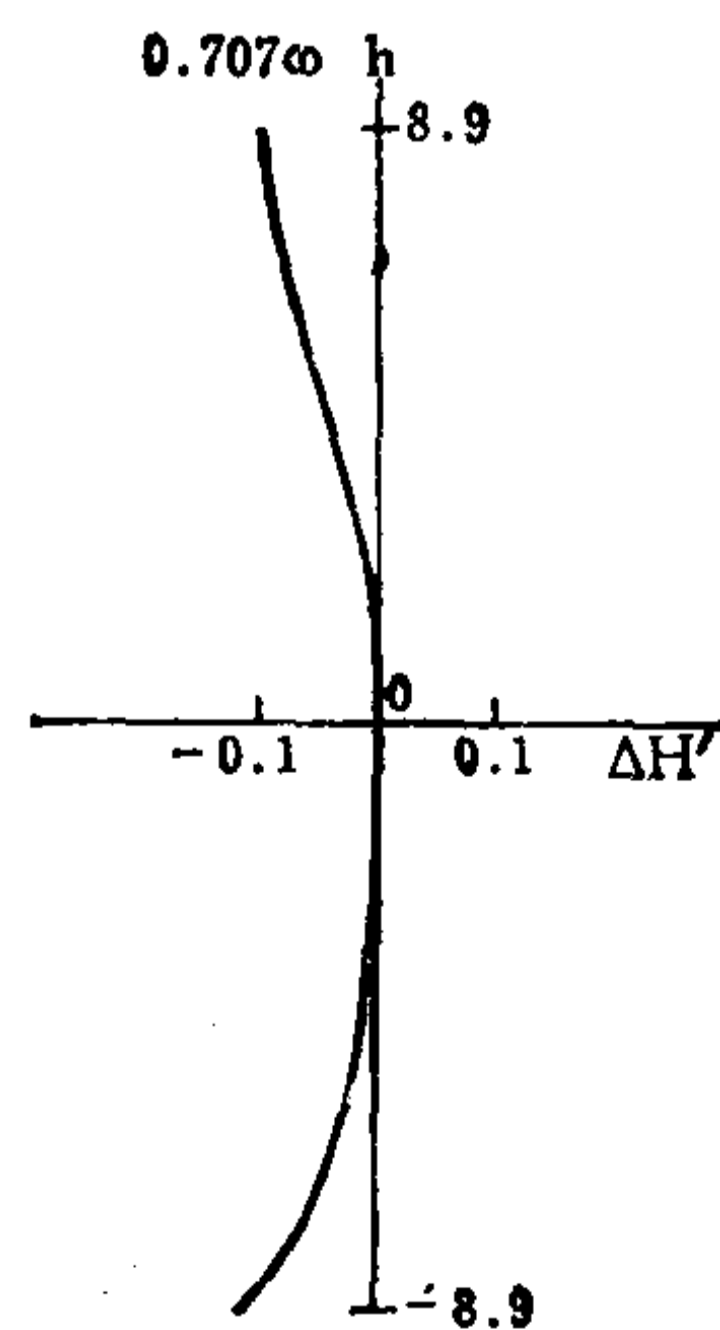
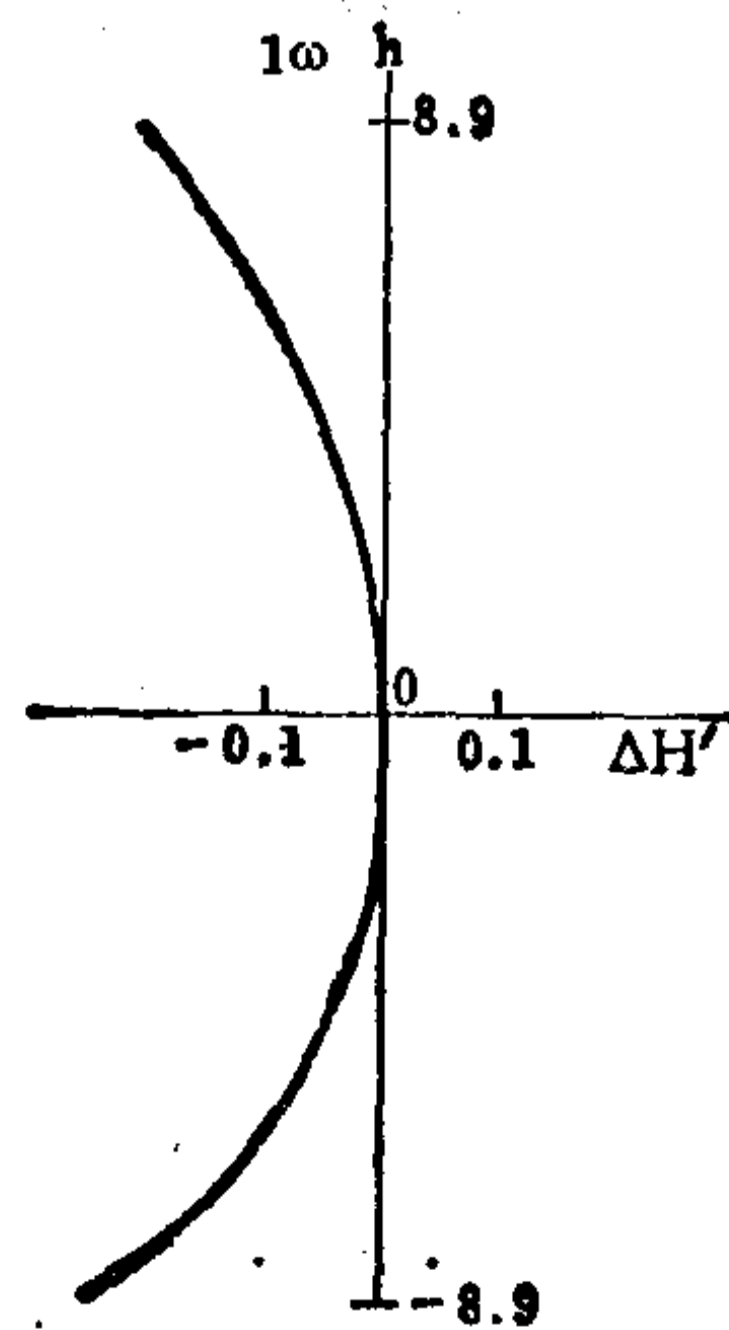
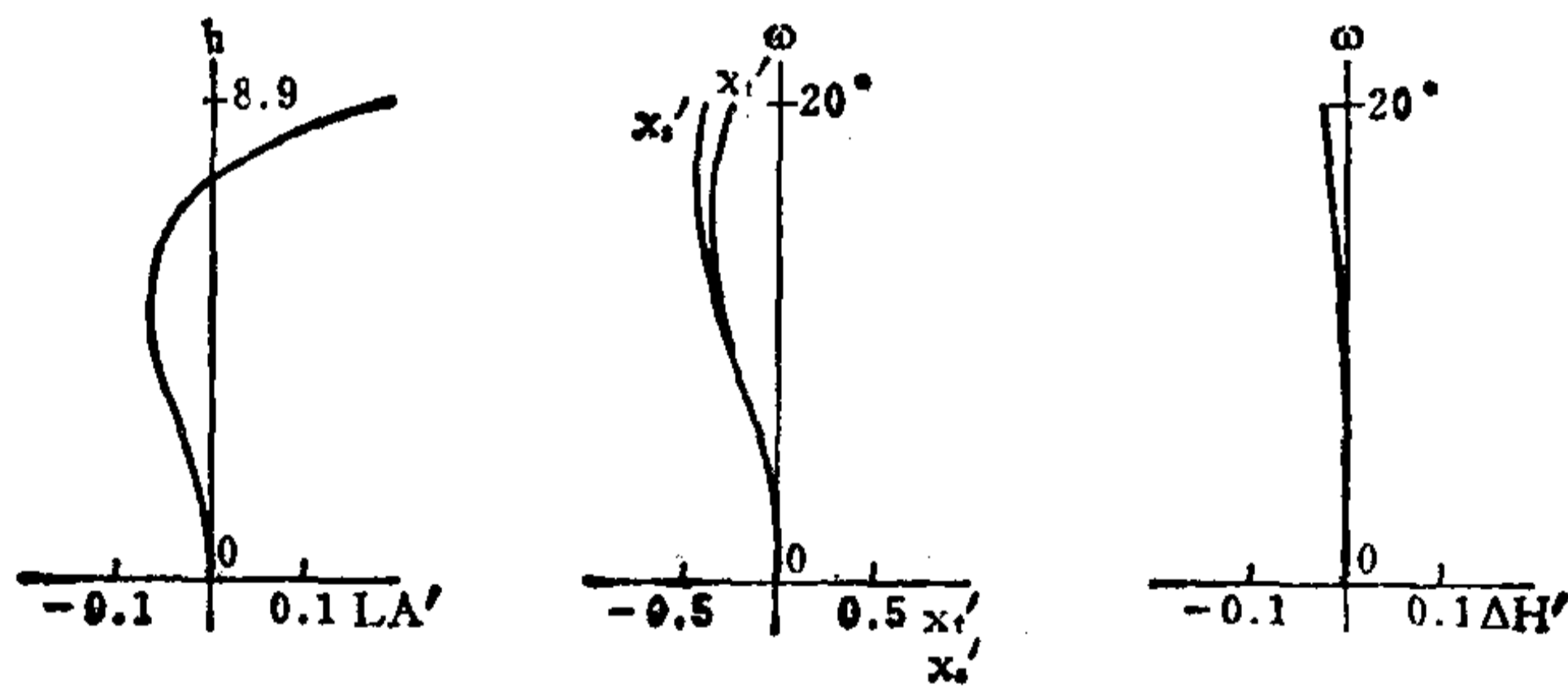
序号	r	d	n	v	序号	r	d	n	v
1	33.769	1.10	1.59551	39.2	5	29.478	4.23		
2	19.080	4.41	1.65844	50.8	6	-144.764	1.25	1.54869	45.4
3	1014.670	3.68*			7	27.948	5.15	1.65844	50.8
4	-48.439	1.47	1.57845	41.7	8	-36.259			

3.68* = 2.13 + 1.55

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.00605	-0.00561	0.00035	-0.01808	-0.00471	36.6	-0.06%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.1981	-0.0224	-0.2553	-0.4114	0.1561	-0.2264	-0.1008
70	-0.0629	-0.0088	-0.3307	-0.4107	0.0800	-0.1063	-0.0500

注: 1. M = 1*

2. 以上象差值是按 $l = -\infty$ 计算的。



编号: 05-04-047

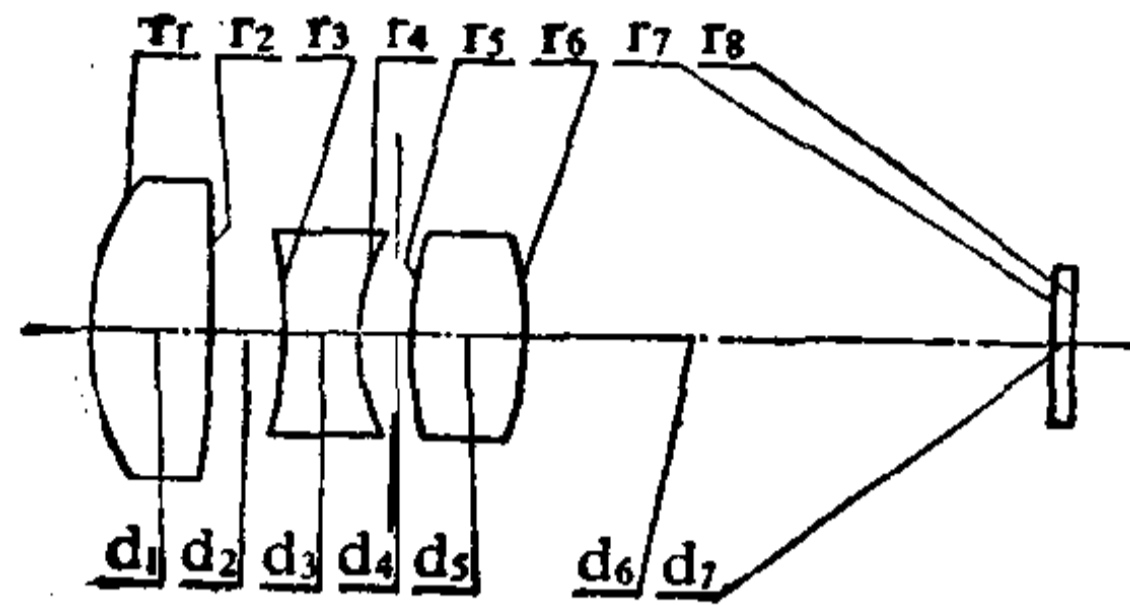
低折射率玻璃材料的三片型工业电视镜头

E.F.L=103.3

B.F.L=0

FNo.=4

F.A.=±4.6°

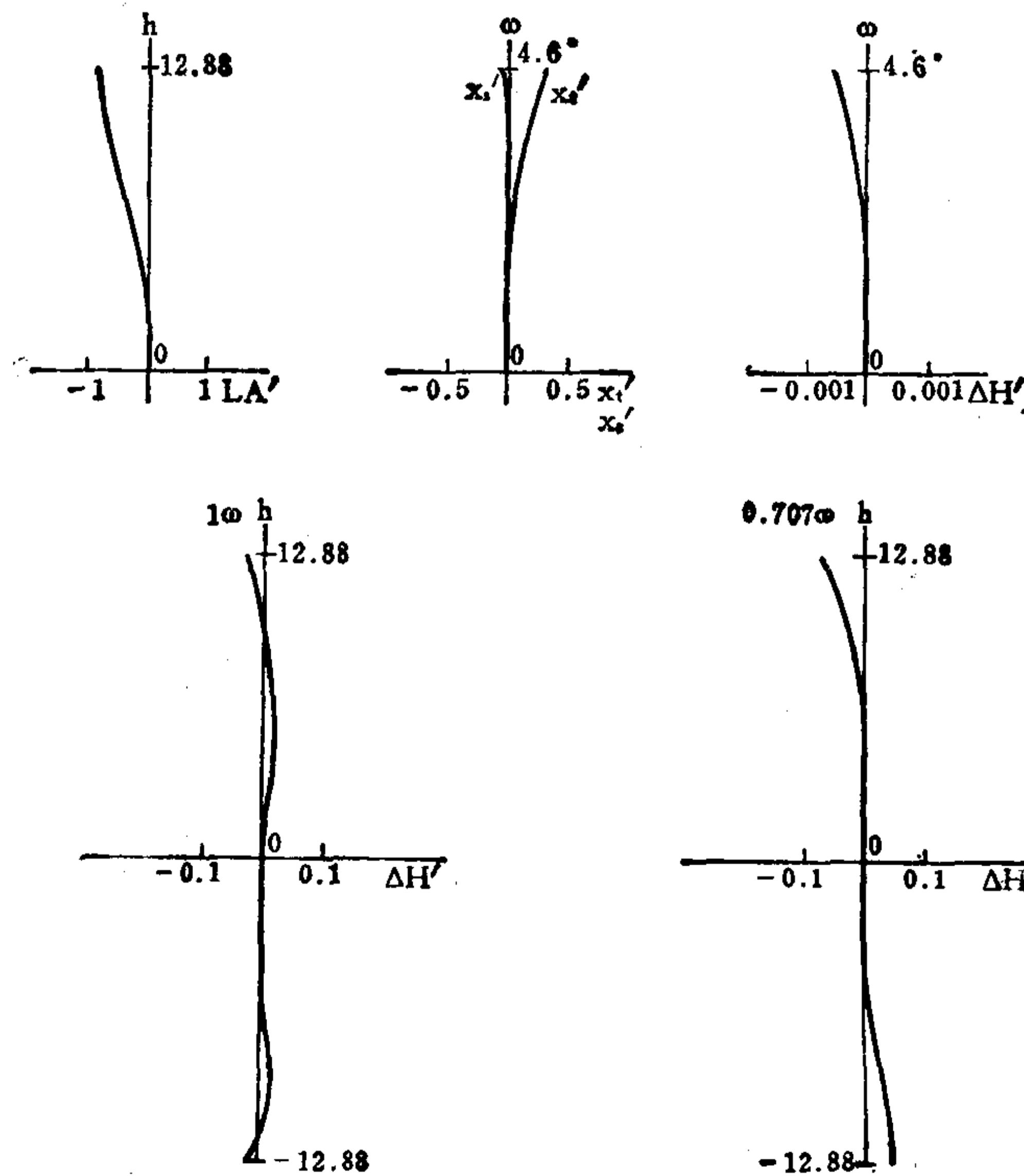


序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	32.727	15.000	1.5147	60.6	5	54.971	14.000	1.5163	64.1
2	-203.125	8.800			6	-39.447	66.394		
3	-46.696	10.000	1.6199	36.3	7	∞	2.600	1.5163	64.1
4	28.080	6.800*			8	∞			

6.800* = 4.000 + 2.800

注: 第四片为靶面玻璃。

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.04120	0.00433	0.00492	-0.00536	-0.00018	8.3	-0.007%
h 或 ω %	LA'	ΔH'	x' _i	x' _s	x' _i - x' _s	K _{T1}	K _{T0.7}
100	-0.8459	-0.0006	0.2964	-0.0131	0.3095	-0.02958	0.00704
70	-0.5610	-0.0002	0.1503	-0.0067	0.1570	-0.01566	0.00698



编号: 05-04-048

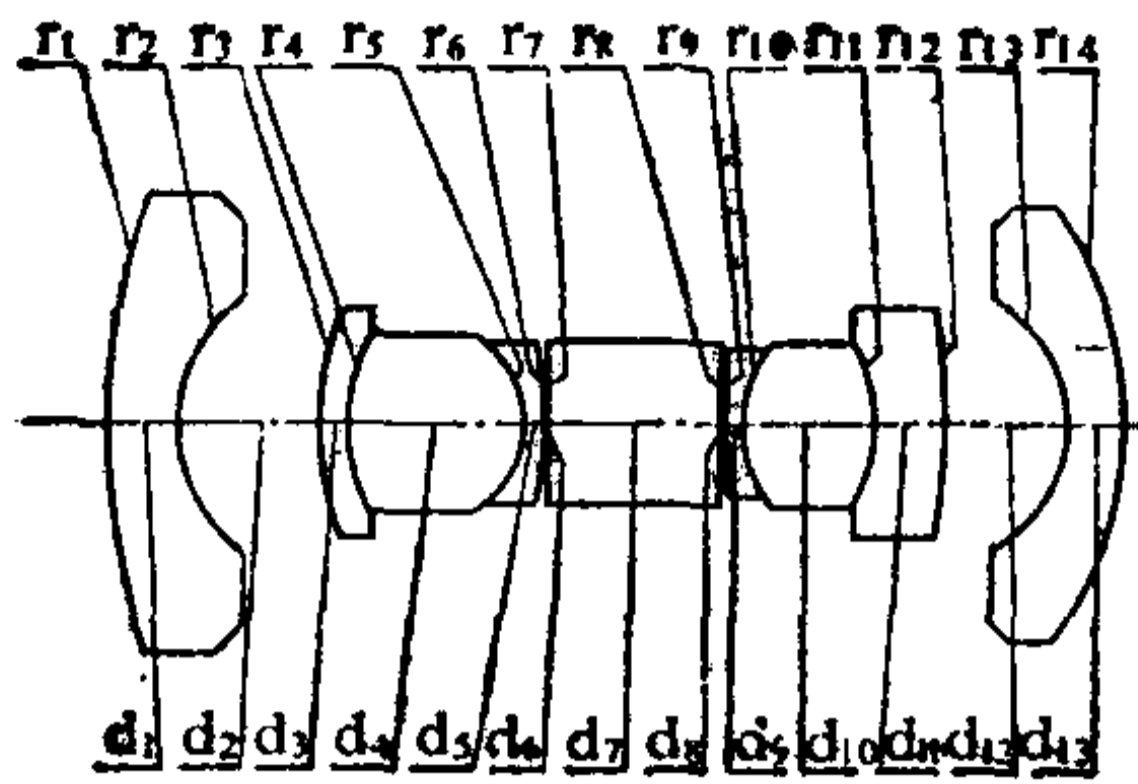
广角袖珍投影透镜系统

E.F.L=99.6

B.F.L=28.5

FN₀. = 4

F.A. = ±45°

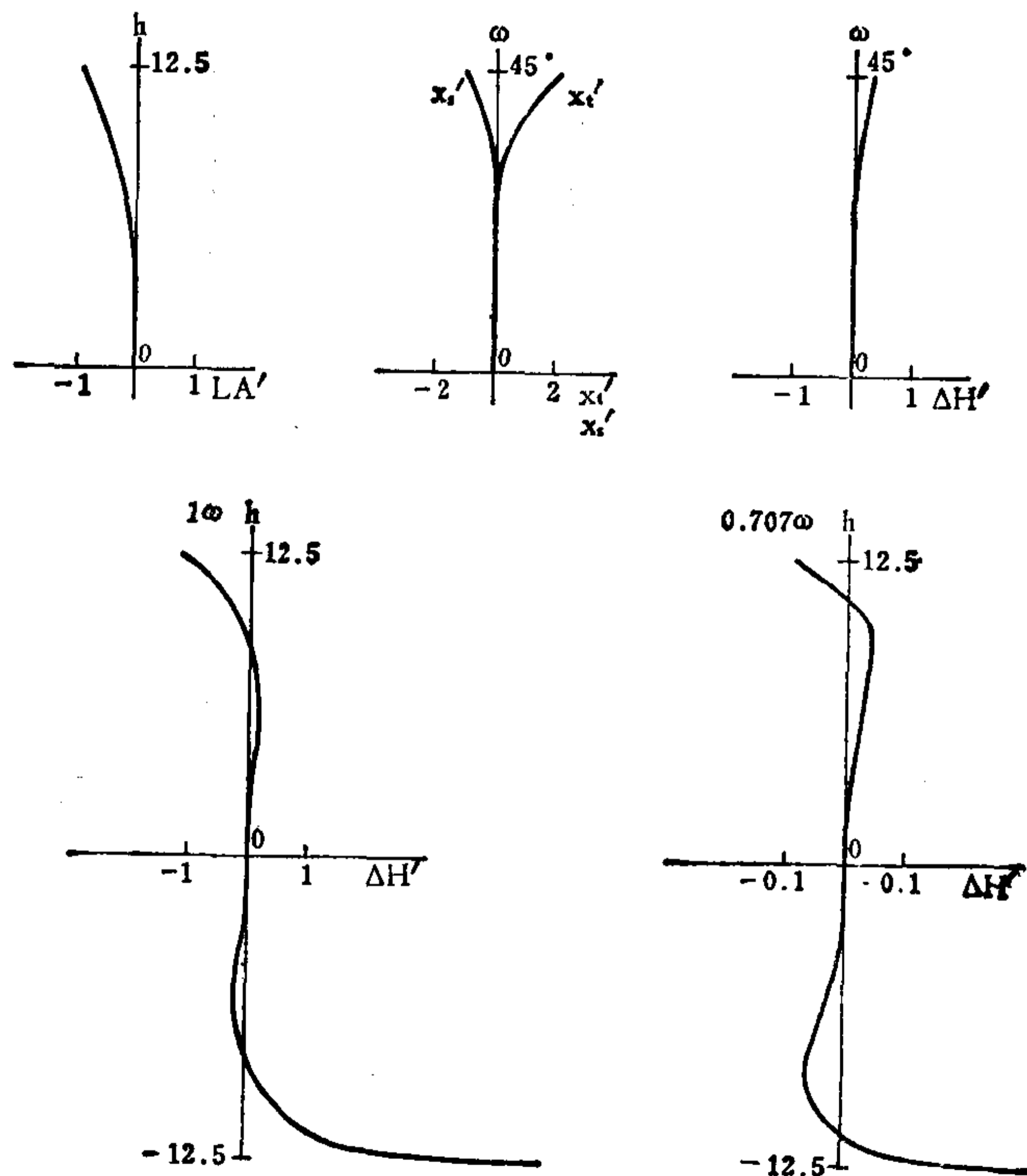


序号	r	d	n _D	v	序号	r	d	n _D	v
1	190.380	17.54	1.522	59.5	8	∞	0.07		
2	41.627	36.48			9	660.813	4.21	1.523	51.5
3	80.935	7.01	1.788	50.5	10	35.054	35.85	1.658	50.5
4	44.987	45.88	1.592	58.5	11	-42.946	18.24	1.784	26.5
5	-37.194	4.91	1.523	51.5	12	-157.627	30.87		
6	-103.752	0.07			13	-37.088	14.03	1.541	47.5
7	∞	44.55*	1.800	50.0	14	-103.401			

44.55* = 22.33 + 22.22

注: 光栏为等效光栏。

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.0228	-0.0112	-0.0425	0.0529	0.0316	99.5	0.3%
h 或 ω%	LA'	ΔH'	x _t '	x _s '	x _t ' - x _s '	K _{T1}	K _{T0.7}
100	-0.936	0.305	2.119	-1.019	3.138	1.9214	0.0128
70	-0.405	0.117	0.136	0.033	0.103	0.1217	-0.0136



编号: 05-04-049

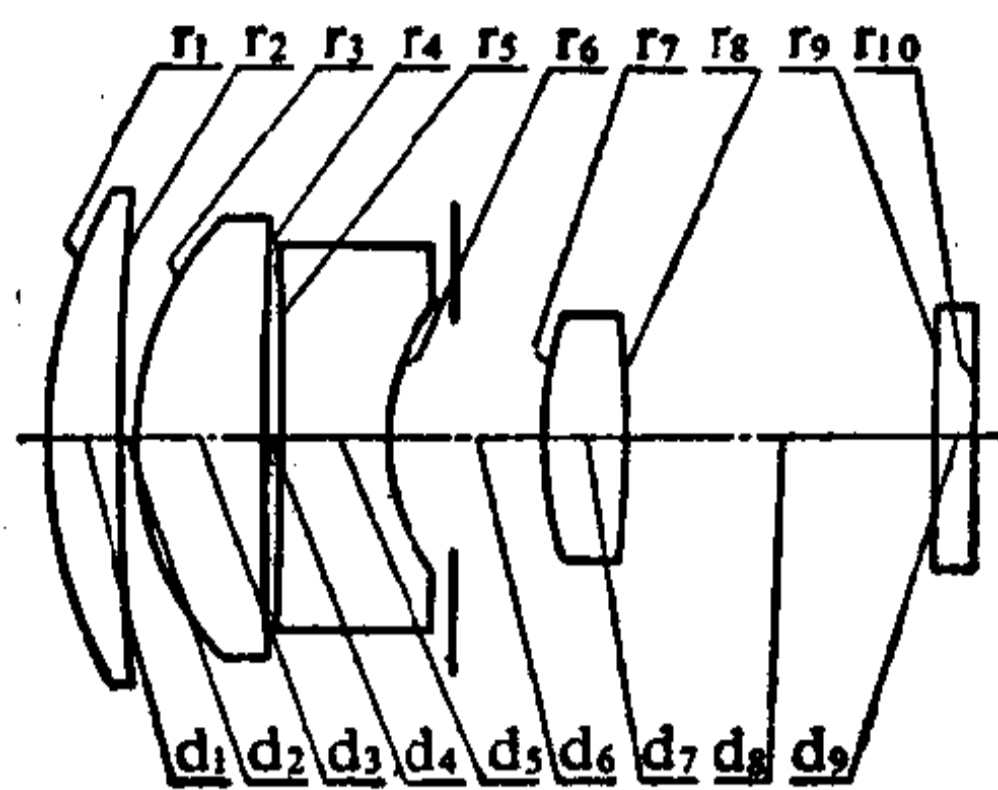
低折射率玻璃材料的四片型工业电视镜头

E.F.L=51.11

B.F.L=0

FNo.=1.75

F.A.=±9.2°

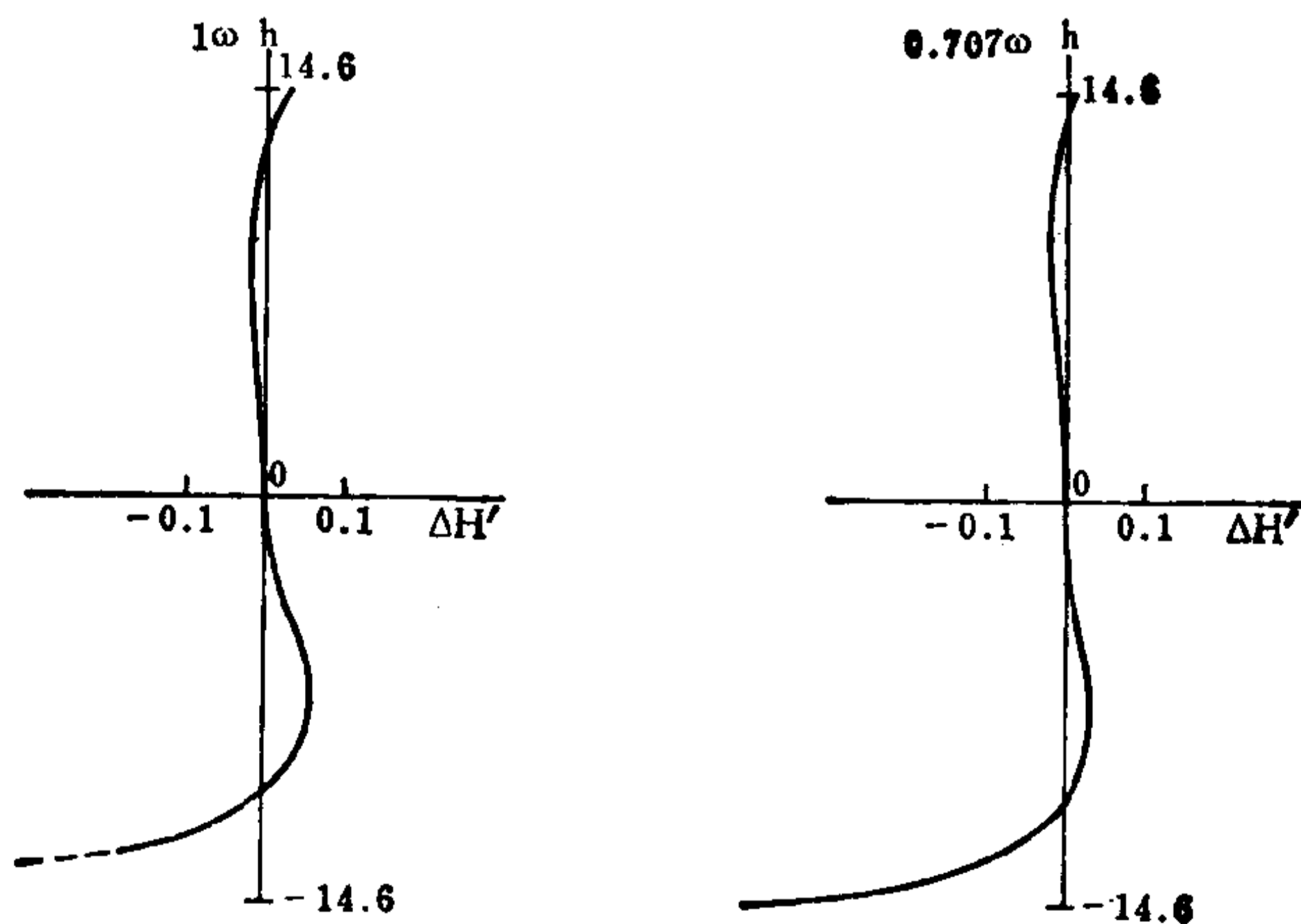
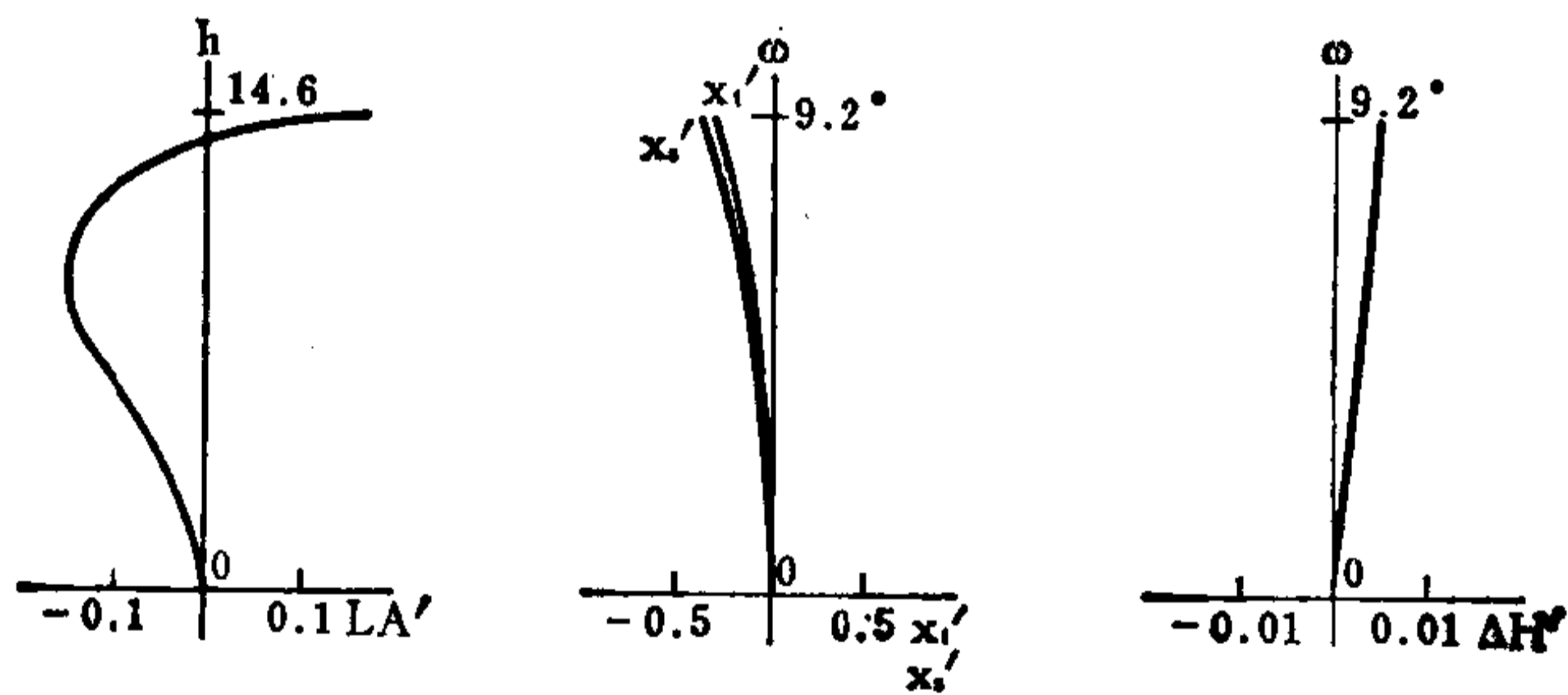


序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	32.707	5.000	1.5163	64.1	6	13.614	10.000*		
2	254.000	0.800			7	26.730	5.000	1.5147	60.6
3	20.720	8.200	1.5163	64.1	8	-74.992	19.996		
4	440.321	1.000			9	∞	2.600	1.5163	64.1
5	-299.200	7.000	1.6725	32.2	10	∞			

10.000* = 4.000 + 6.000

注: 第五片为靶面玻璃。

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.0976	0.0298	0.0061	-0.0600	0.0100	8.24	0.05%
h 或 ω %	LA'	ΔH'	x _t '	x _s '	x _t - x _s '	K _{T1} '	K _{T0.7} '
100	0.1850	0.0045	-0.2875	-0.3161	0.0286	-0.3425	0.0028
70	-0.1536	0.0039	-0.1322	-0.1616	0.0294	-0.1897	0.0073



编号: 05-04-050

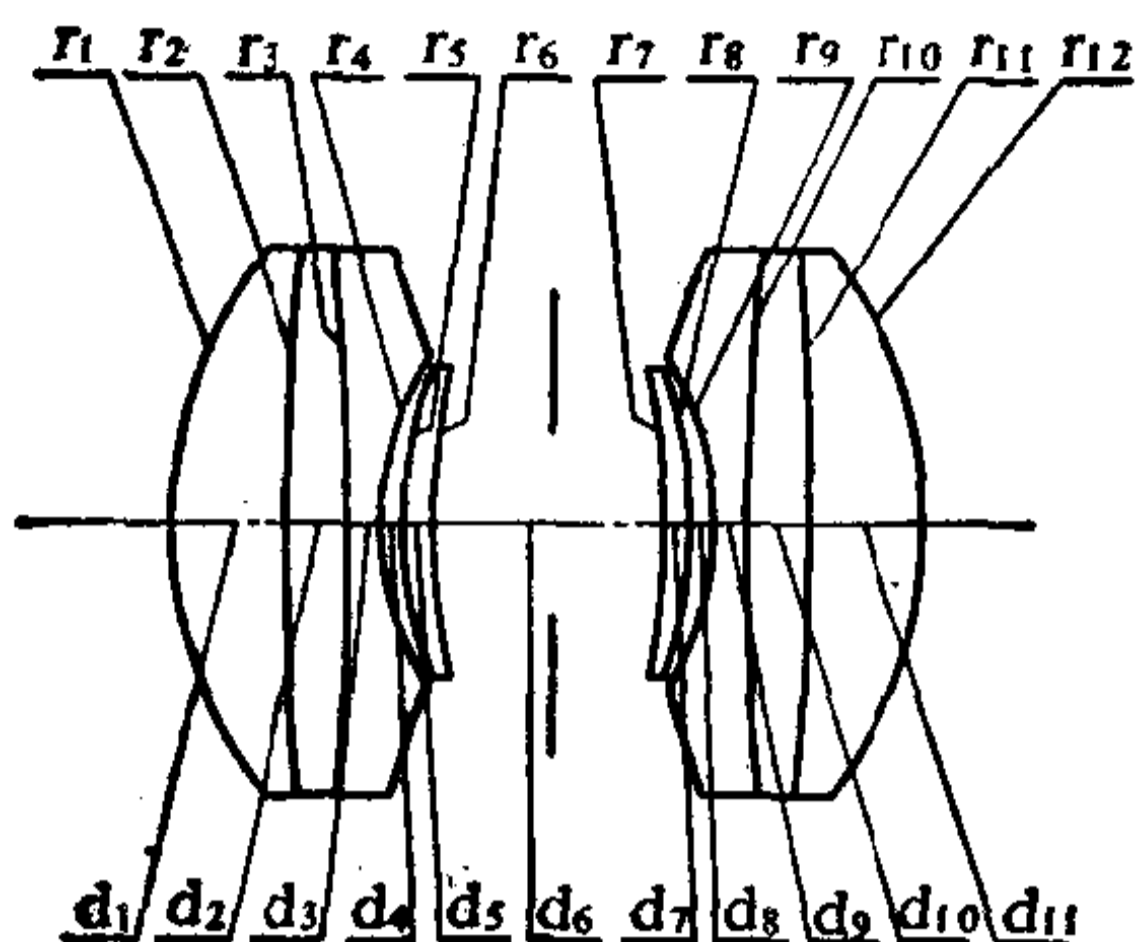
复印机聚焦透镜系统

E.F.L=1

B.F.L=0.782

FNo.=4

F.A. = ±30° **

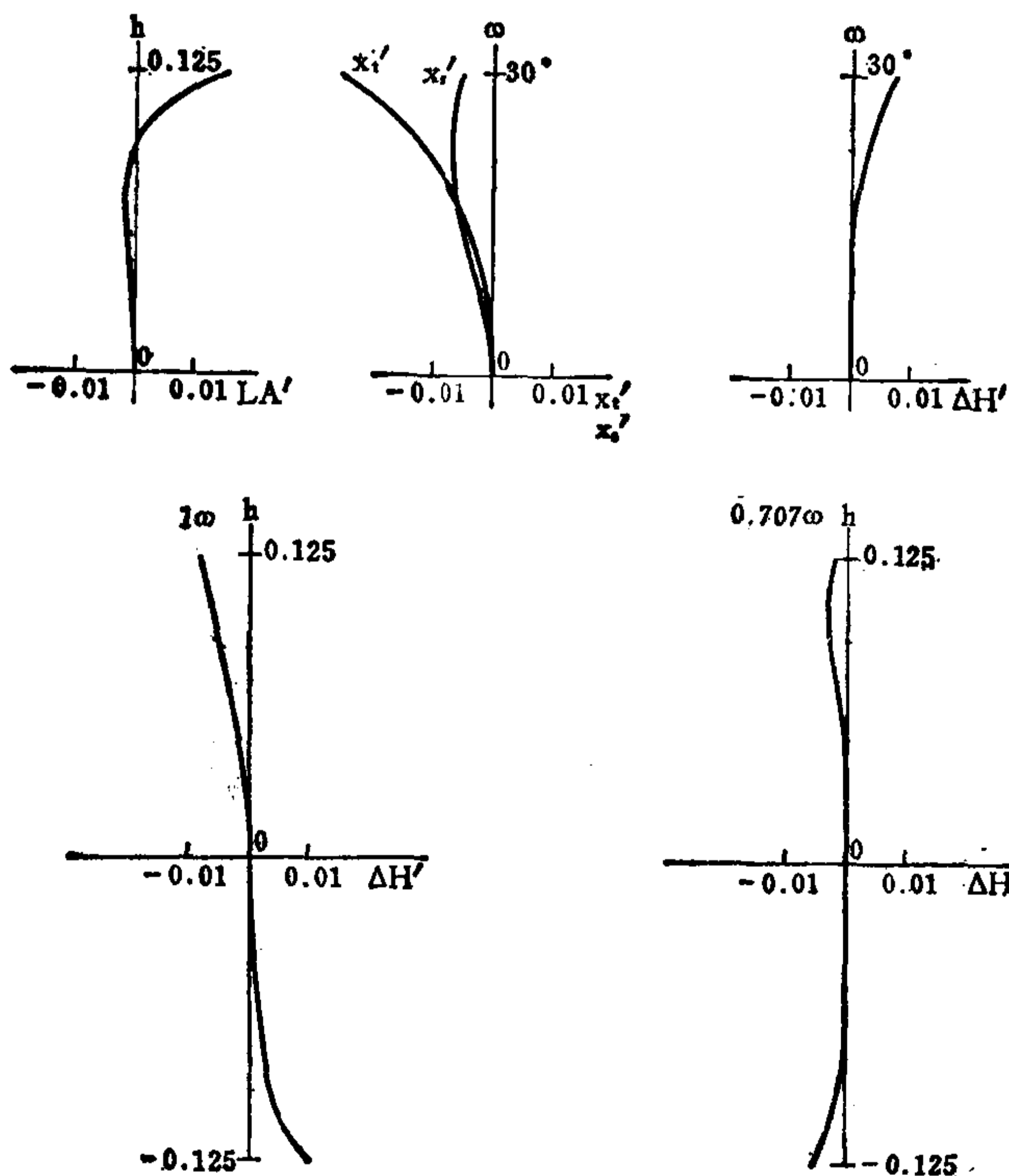


序号	r	d	n	v	序号	r	d	n	v
1	0.23987	0.06282	1.60311	60.5	7	-0.40209	0.01571	1.56873	63.1
2	1.72775	0.03141	1.60562	43.7	8	-0.25084	0.01178		
3	-1.41361	0.01728	1.54814	45.7	9	-0.17192	0.01728	1.54814	45.7
4	0.17192	0.01178			10	1.41361	0.03141	1.60562	43.7
5	0.25084	0.01571	1.56873	63.1	11	-1.72775	0.06282	1.60311	60.5
6	0.40209	0.12375*			12	-0.23987			

$0.123750^* = 0.061875 + 0.061875$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.000414	-0.000444	0.000075	-0.000542	0.001057	0.58	1.24%
h 或 ω %	LA'	$\Delta H'$	x_t	x_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.01500	0.00715	-0.02647	-0.00486	-0.02161	0.000868	-0.001058
70	-0.00098	0.00204	-0.00901	-0.00601	-0.00300	-0.003262	-0.001663

注: 以上象差值是按 $i = -\infty$ 计算的。



编号: 05-04-051

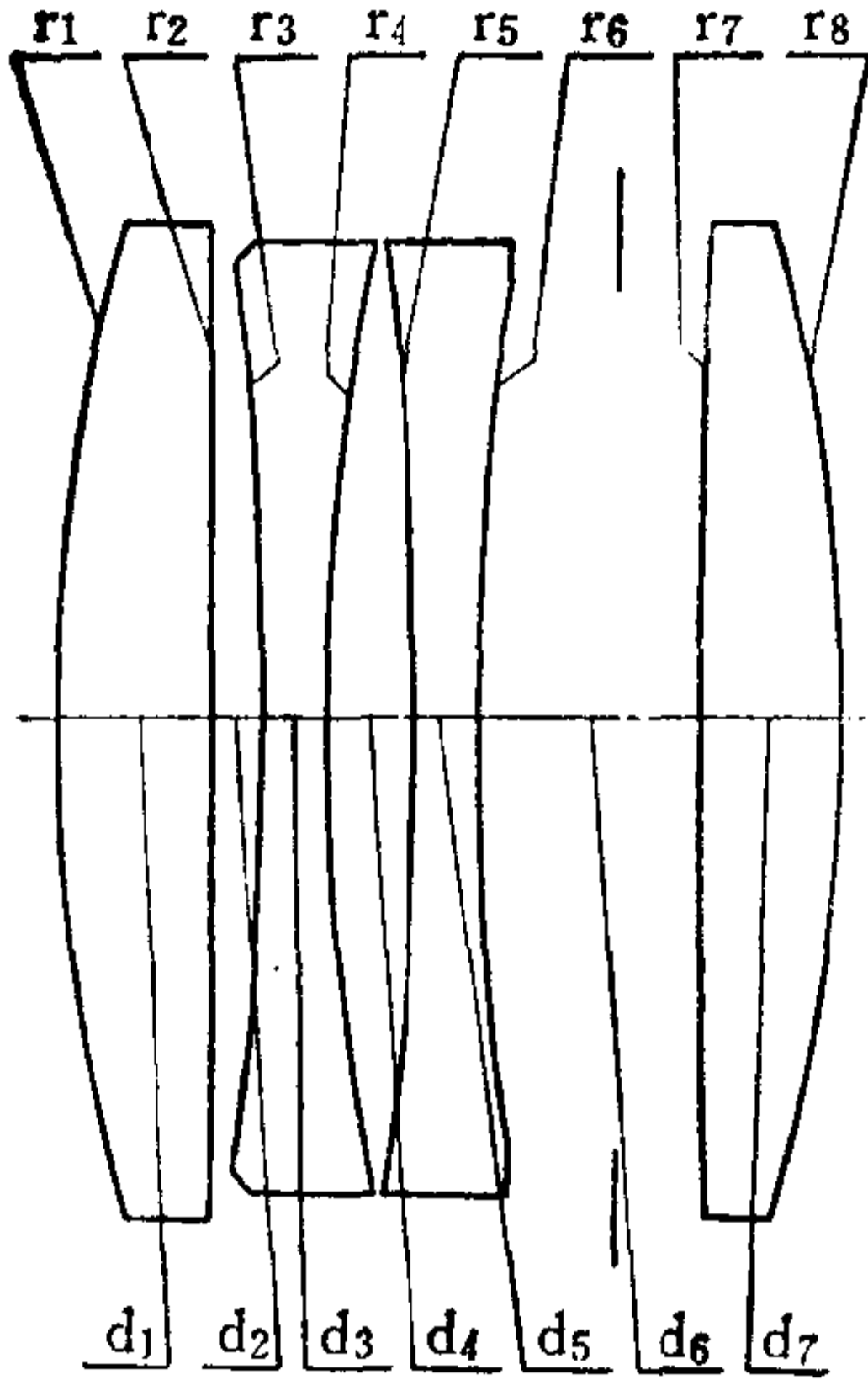
袖珍四片型物镜

E.F.L=0.999

B.F.L=0.997

FNo.=8

F.A.=±25°**

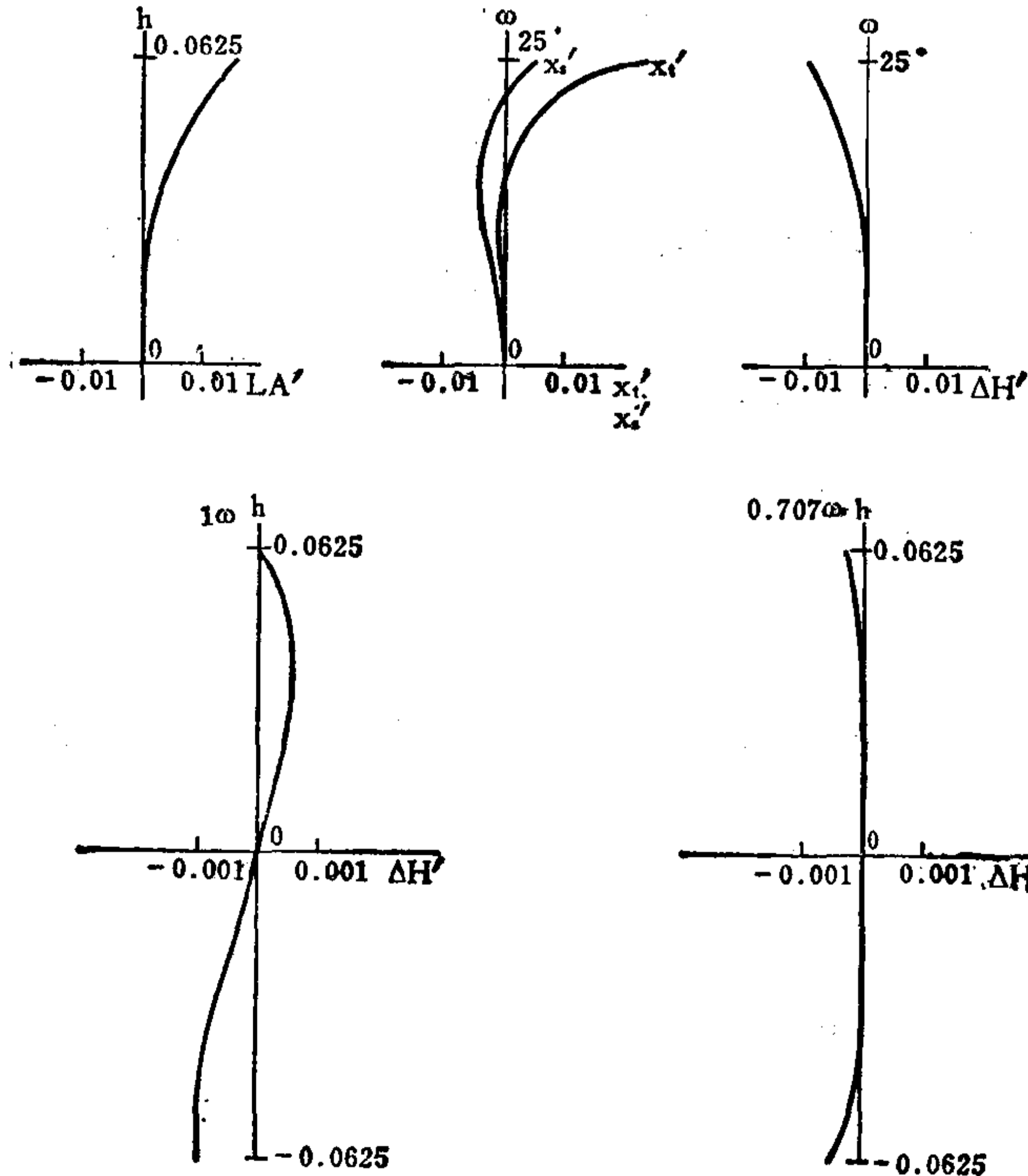


序号	r	d	n _d	v _d
1	0.2182	0.0188	1.678	55.2
2	∞	0.0057~0.0597		
3	-0.5772	0.0079	1.511	60.4
4	0.3267	0.0105		
5	-0.5302	0.0079	1.626	35.7
6	0.3385	0.0270*		
7	1.1217	0.0167	1.651	55.9
8	-0.2664			

0.0270* = 0.0170 + 0.0100

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	0.000045	-0.000020	0.000011	-0.000138	-0.000786	0.466	-2.1%
h 或 ω %	LA'	ΔH'	x' _t	x' _s	x' _t - x' _s	K' _{T1}	K' _{T0.7}
100	0.01513	-0.00976	0.02415	0.00429	0.01986	-0.000433	-0.000158
70	0.00496	-0.00290	0.00208	-0.00379	0.00587	-0.000411	-0.000142

注: 以上象差值是按d₂ = 0.0057计算的。



编号: 05-04-052

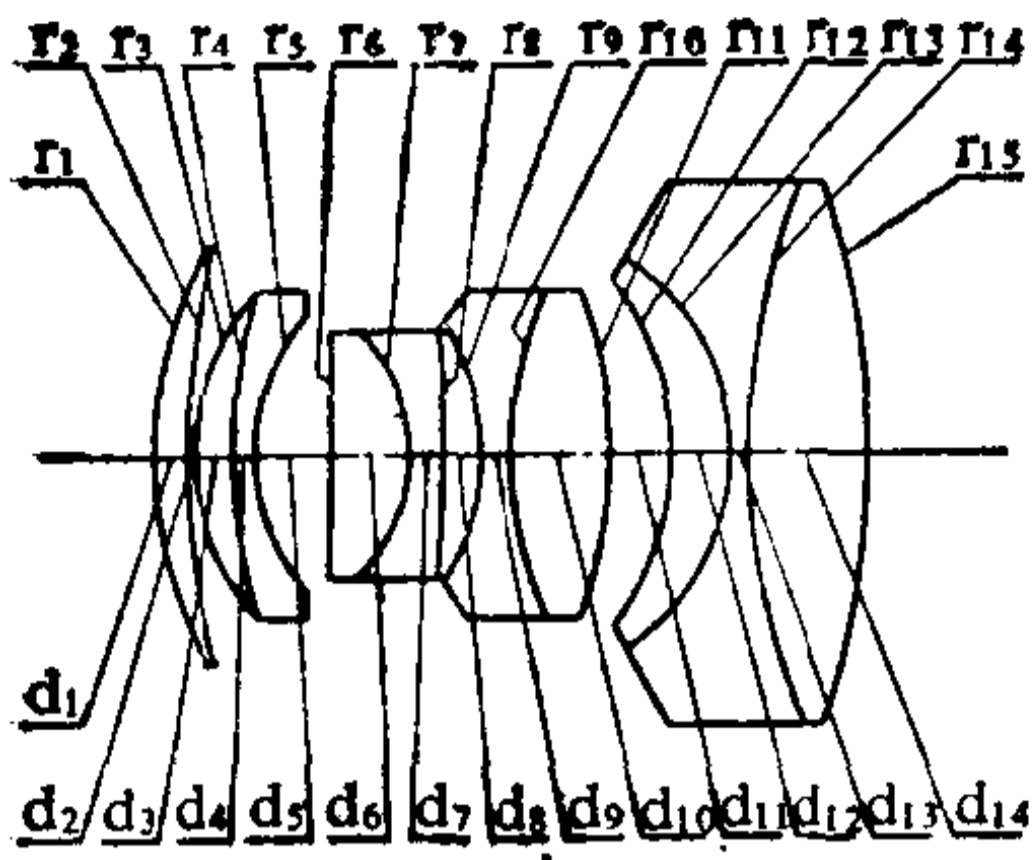
五组元物镜

E.F.L=100.6

B.F.L=48.2

FNo.=4.02

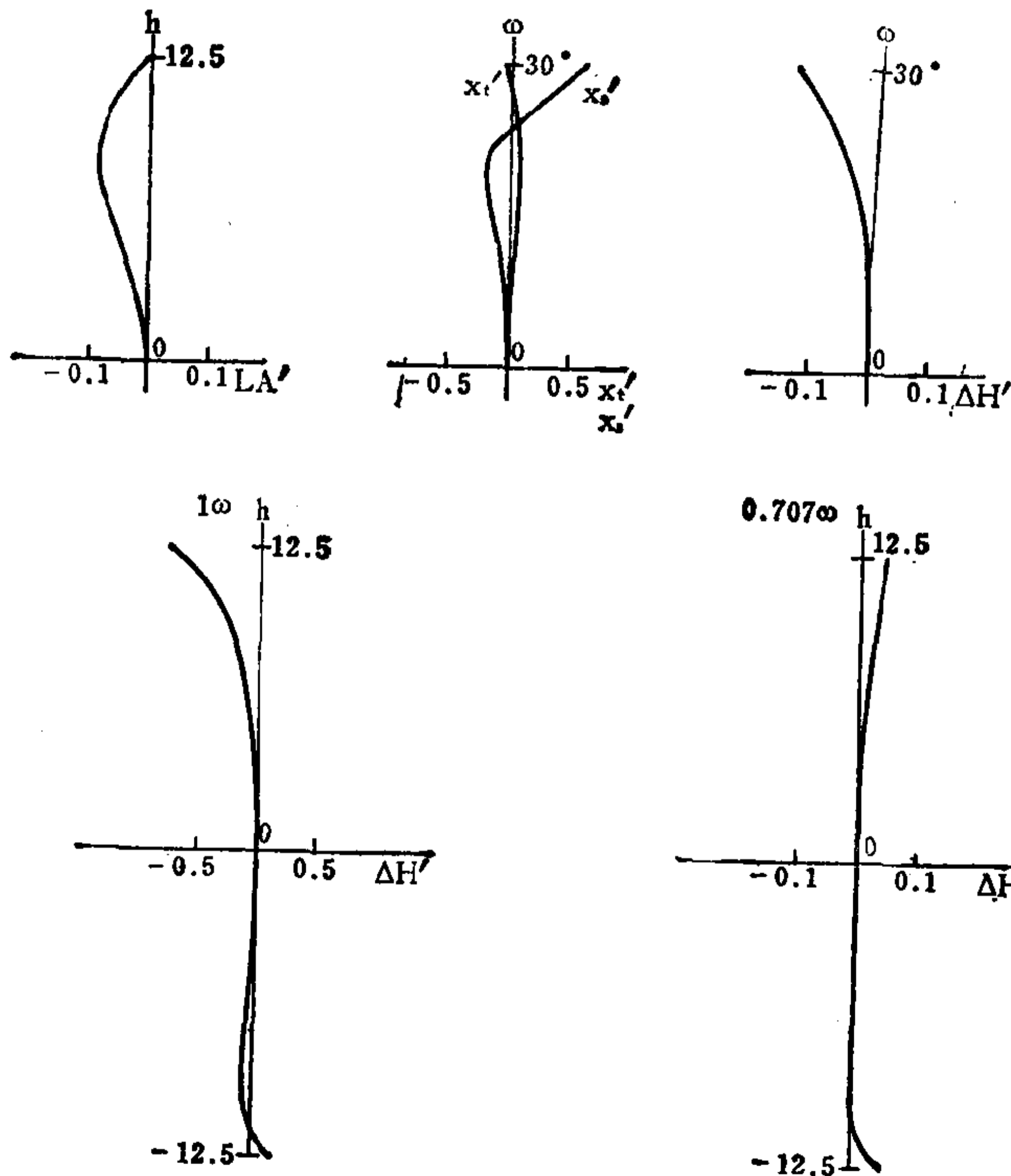
F.A.=±30°**



序号	r	d	nd	v	序号	r	d	nd	v
1	37.89	3.18	1.66882	57.4	9	-20.61	3.59	1.61340	44.3
2	68.47	0.10			10	34.77	14.80	1.74400	50.8
3	21.43	4.32	1.69100	54.8	11	-40.67	5.15		
4	51.19	1.63	1.68065	37.4	12	-24.68	4.95	1.69100	54.7
5	18.29	6.65*			13	-20.14	1.67	1.53113	62.2
6	-2070.00	6.20	1.59920	45.1	14	60.67	10.20	1.46450	65.8
7	-14.55	2.90	1.59197	48.5	15	-72.66			
8	-180.00	2.97	1.47069	67.3					

6.65* = 6.55 + 0.10

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.0113	0.0034	0.0142	-0.0456	-0.0109	58	-0.240%
h 或 ω %	LA'	$\Delta H'$	x_t	x'_s	$x'_i - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-0.0058	-0.1398	-0.0605	0.6627	-0.7232	-0.29214	-0.12961
70	-0.0861	-0.0420	0.0525	-0.1526	0.2051	0.04512	0.01170



编号: 05-04-053

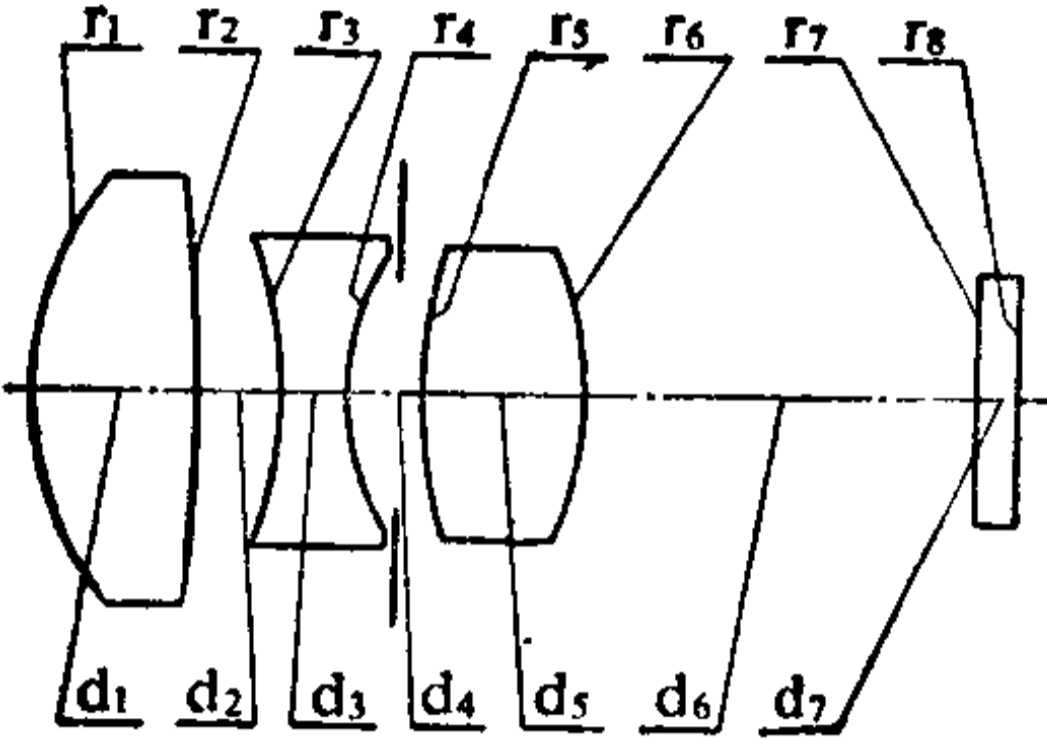
三片型工业电视镜头

E.F.L=50.56

B.F.L=0

FNo.=2.81

F.A.=±9.2°

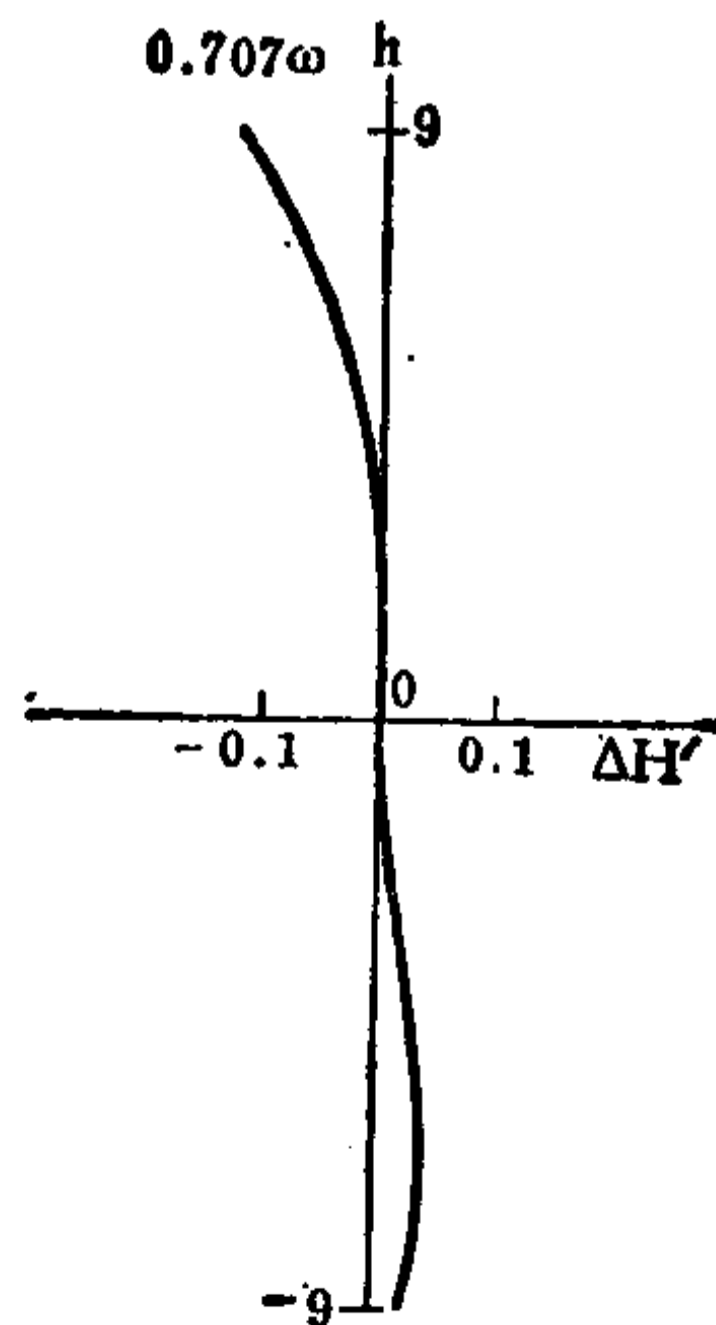
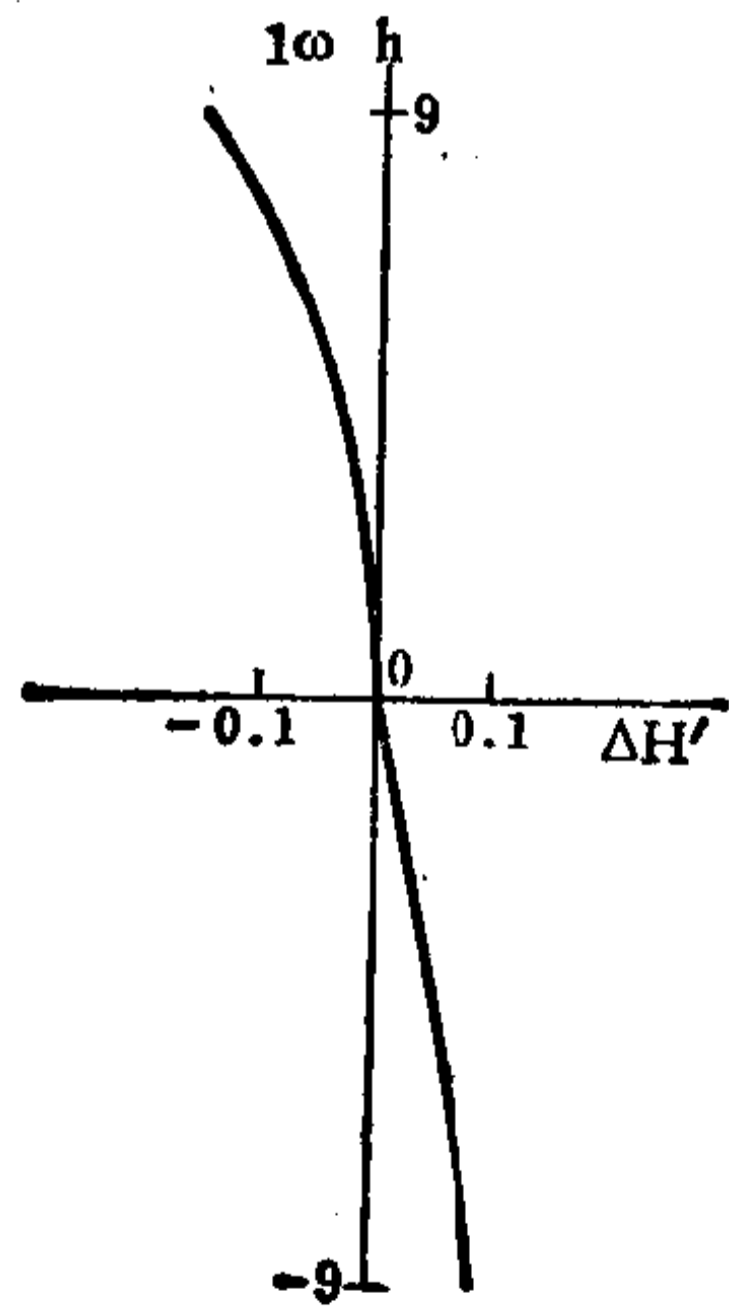
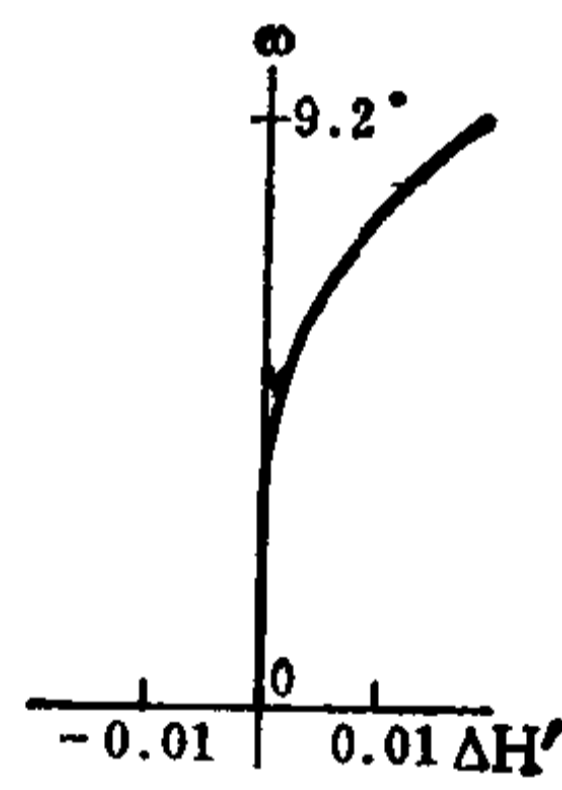
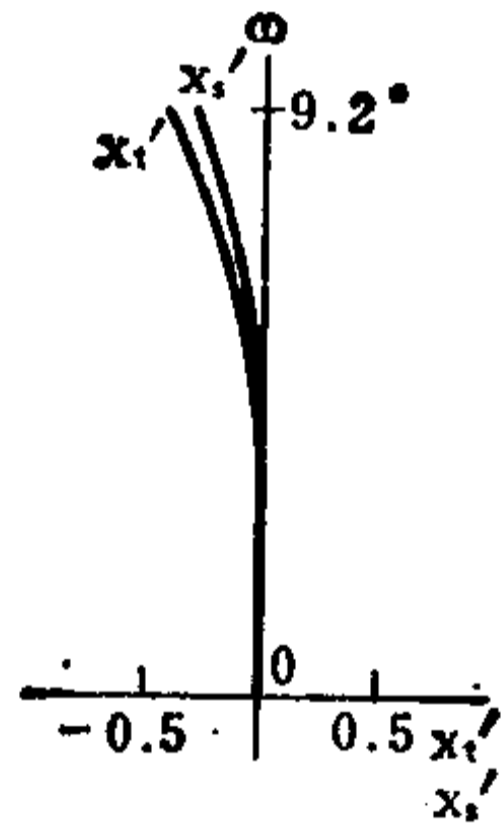
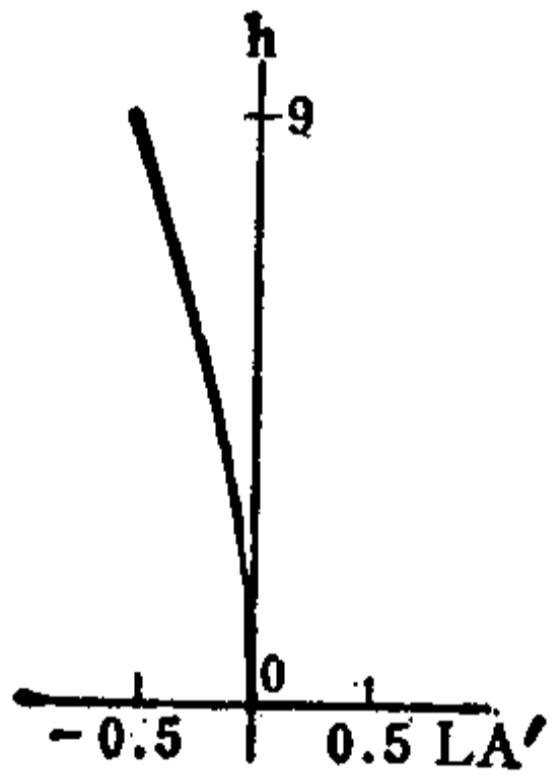


序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	22.540	10.570	1.6130	60.6	5	32.169	10.570	1.5891	61.2
2	-121.955	5.410			6	-23.501	29.497		
3	-27.800	4.300	1.6475	33.9	7	∞	2.600	1.5163	64.1
4	16.700	4.750*			8	∞			

4.750* = 3.000 + 1.750

注: 第四片为靶面玻璃。

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.0513	0.0035	0.0019	-0.0197	0.0045	8.16	0.23%
h 或 ω %	LA'	ΔH'	x _i	x _s	x _i - x _s	K _{T1}	K _{T0.7}
100	-0.5358	0.0189	-0.4292	-0.3015	-0.1277	-0.03518	-0.00392
70	-0.3477	0.0053	-0.1553	-0.1452	-0.0101	-0.05306	-0.00728



编号: 05-04-054

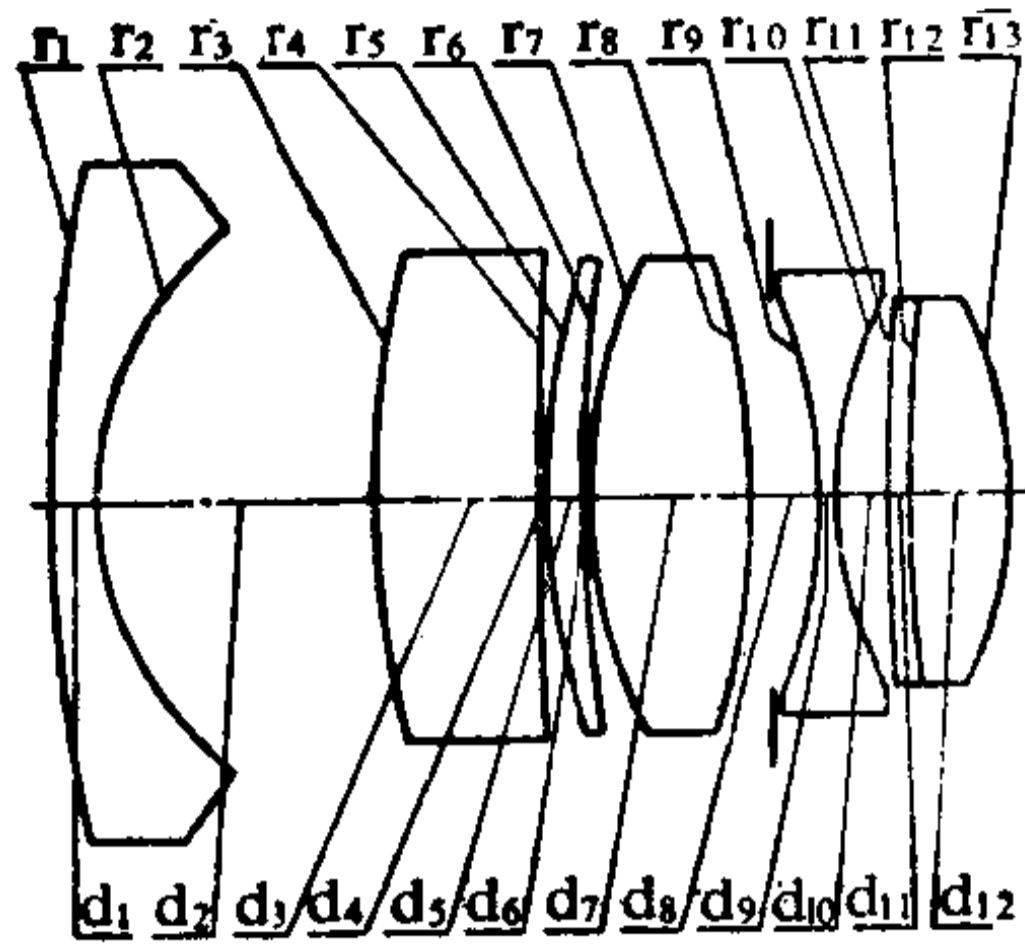
逆聚焦型广角摄影物镜

E.F.L = 100.05

B.F.L = 111.43

FNo. = 2.8

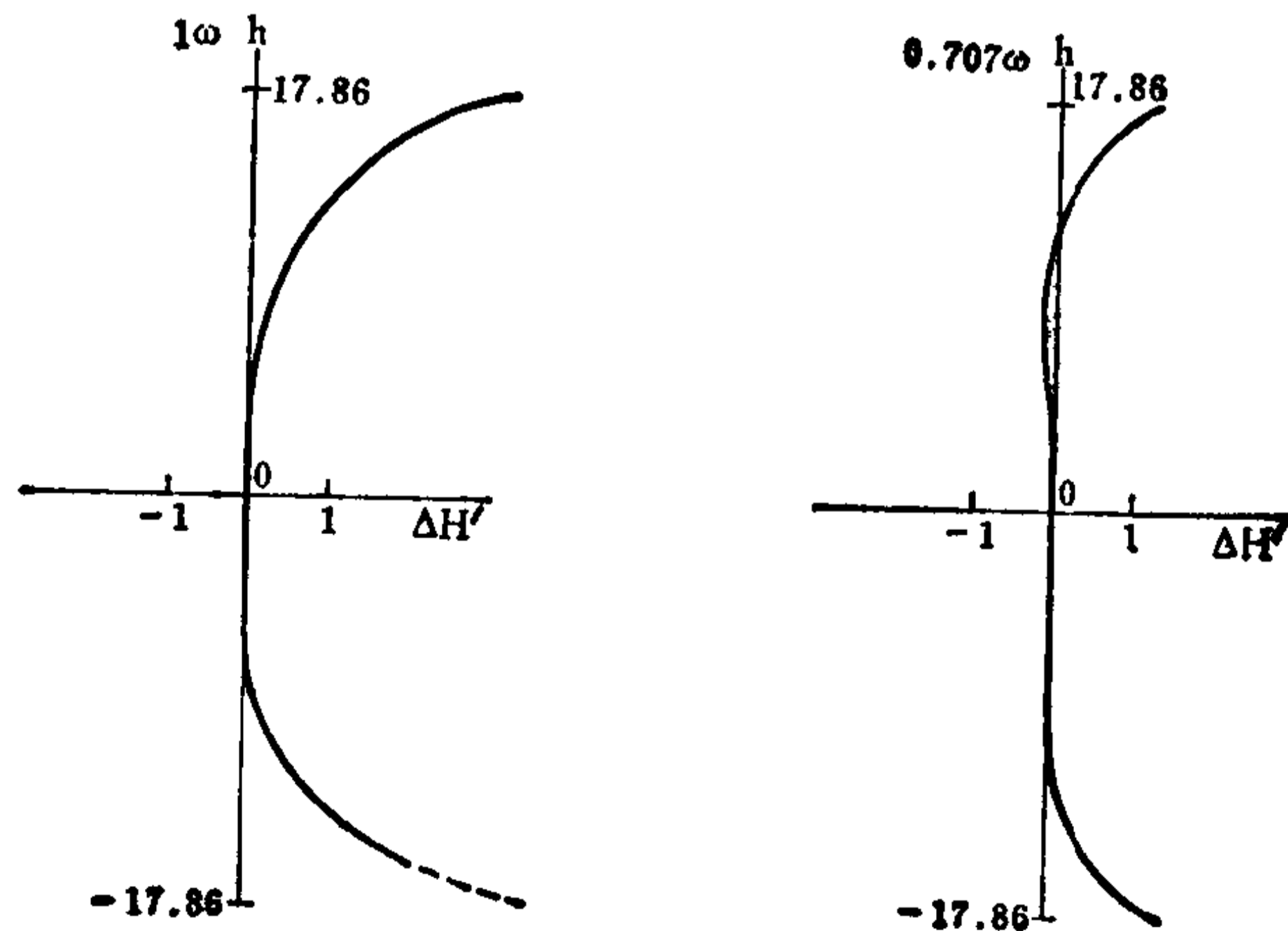
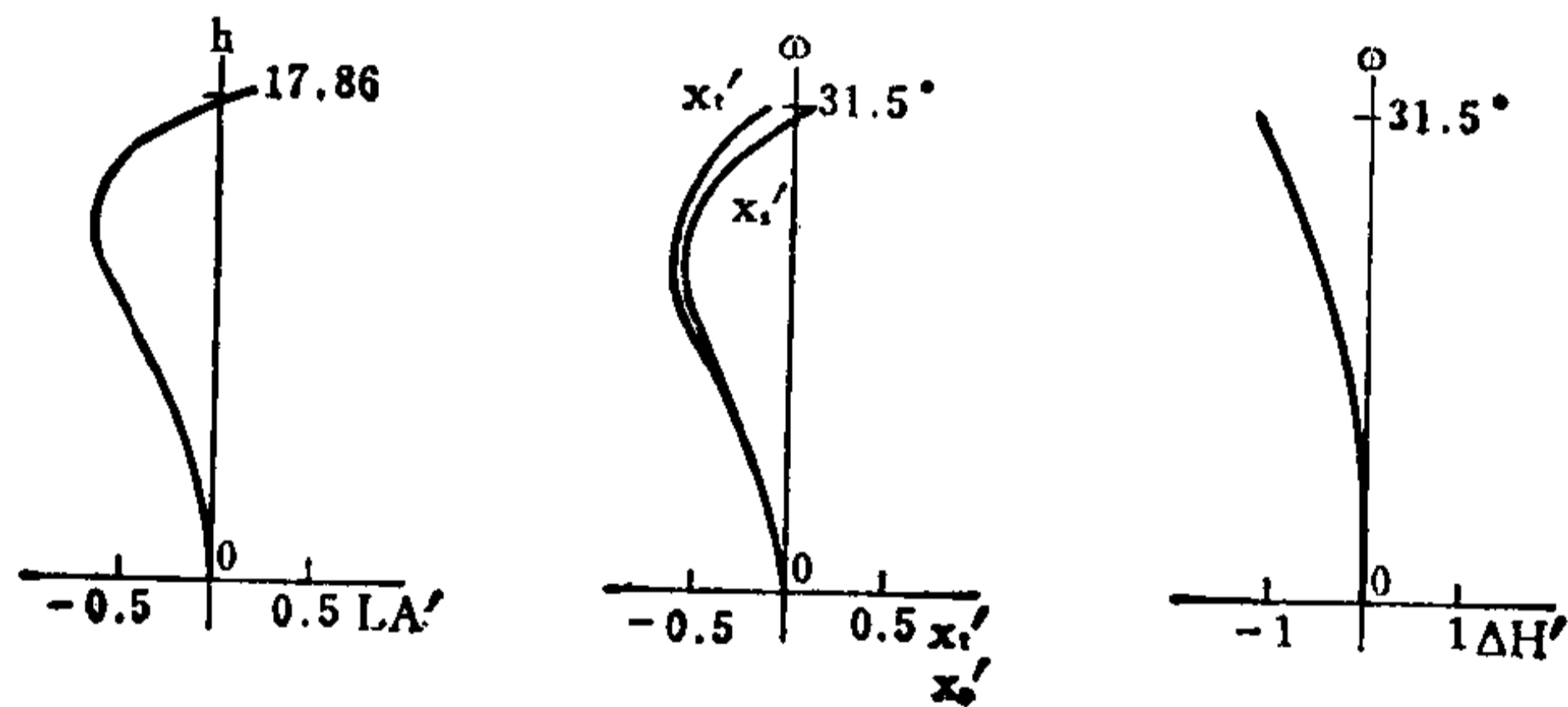
F.A. = ±31.5°



序号	r	d	n_d	v	序号	r	d	n_d	v
1	252.639	5.111	1.56883	56.0	8	-107.814	8.361*		
2	45.028	35.778			9	-69.322	2.500	1.67270	32.1
3	128.350	20.833	1.61772	49.8	10	52.258	6.944		
4	1299.453	0.444			11	740.983	2.500	1.58114	40.7
5	96.058	5.556	1.60342	38.0	12	218.769	12.778	1.65160	58.5
6	225.911	0.417			13	-56.236			
7	71.833	19.917	1.62041	60.2					

$8.361^* = 3.333 + 5.028$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.1258	-0.1334	-0.0221	-0.1163	-0.4042	61.3	-2%
h 或 ω %	LA'	$\Delta H'$	x'_i	x_e	$x'_i - x_e$	K'_{T1}	$K'_{T0.7}$
100	0.1211	-1.2297	-0.1243	0.0854	-0.2097	4.1326	0.7871
70	-0.6605	-0.4519	-0.6419	-0.6285	-0.0134	1.3766	0.0727



编号: 05-04-055

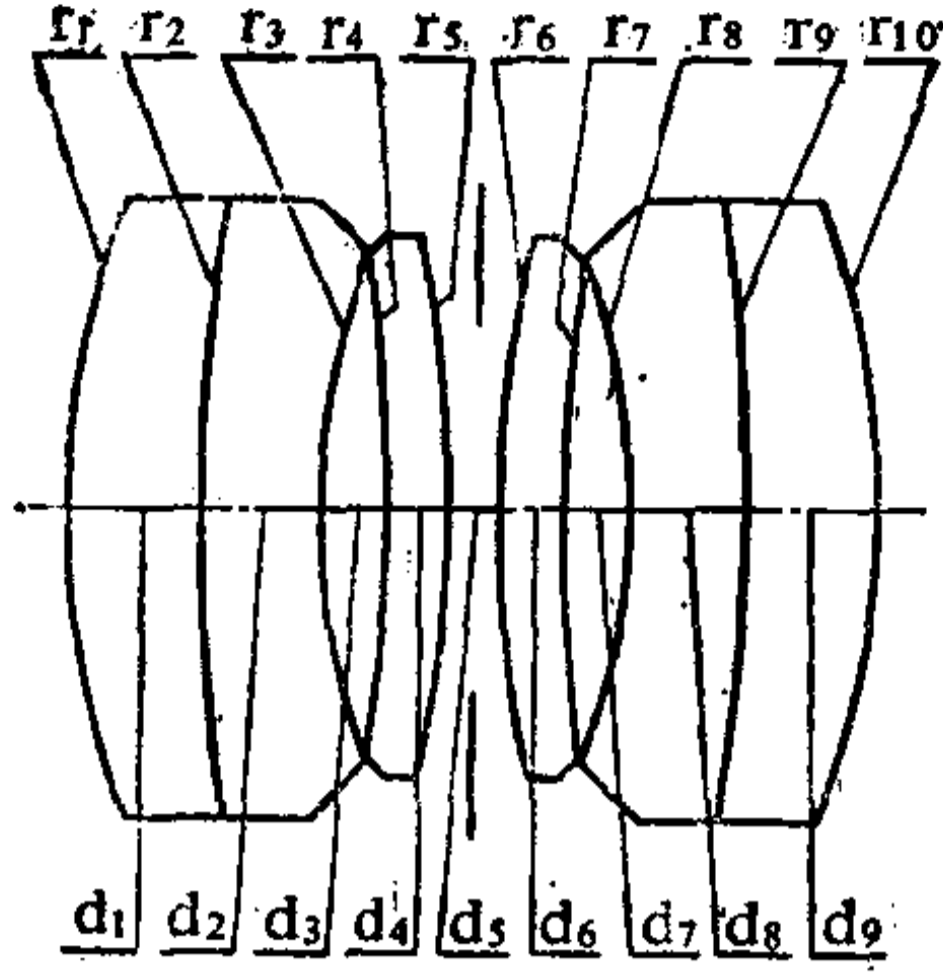
校正了球差、象散、色差的对称型摄影及重显透镜系统

E.F.L=99.94

B.F.L=92.60

FNo.=9

F.A.=±20°**

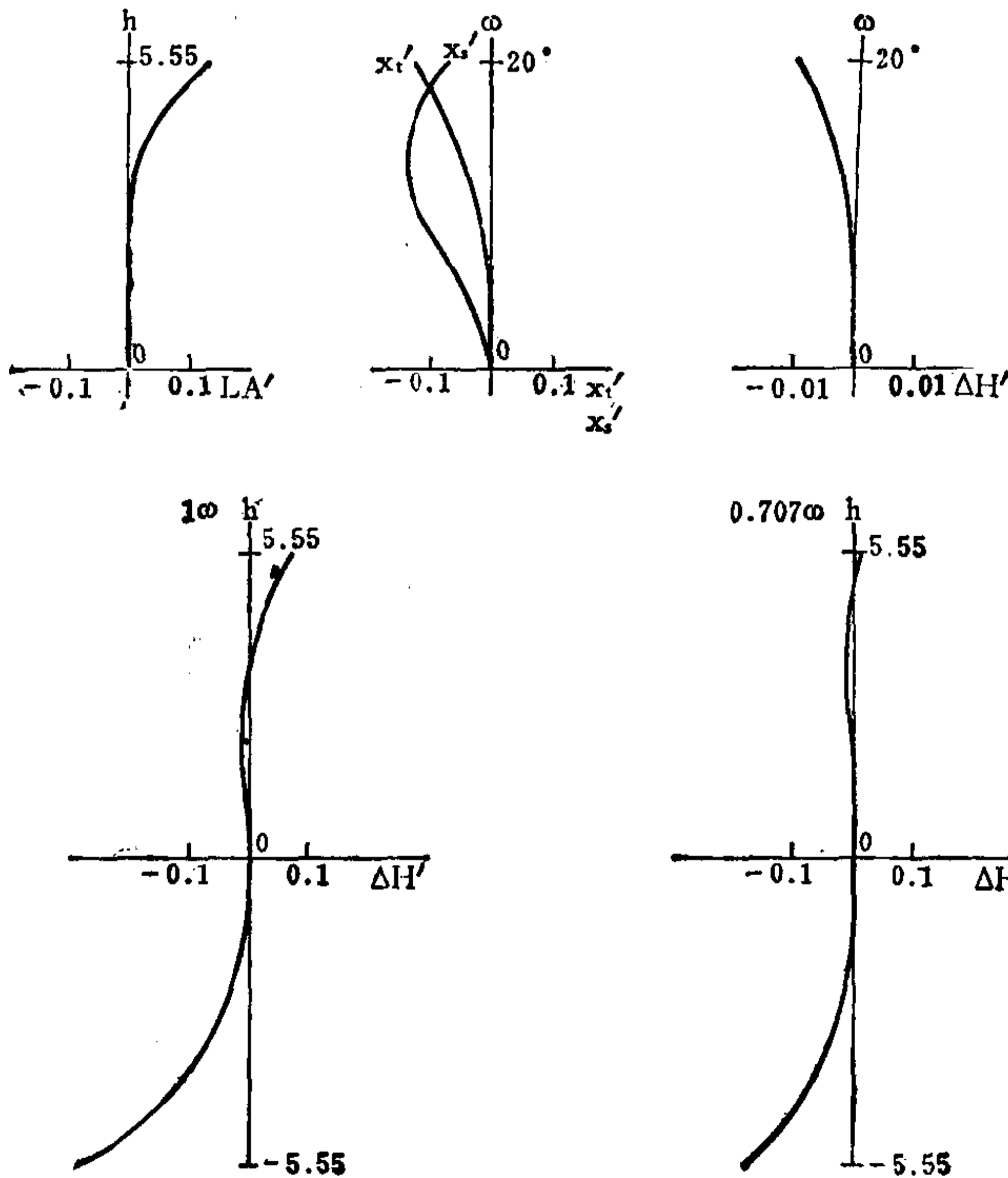


序号	r	d	n _d	v	序号	r	d	n _d	v
1	18.56	2.81	1.61900	60.6	6	27.00	1.42	1.52220	52.8
2	59.45	2.57	1.53562	45.4	7	37.04	1.31		
3	15.20	1.31			8	-15.20	2.57	1.53562	45.4
4	-37.04	1.42	1.52220	52.8	9	-59.45	2.81	1.61900	60.6
5	-27.00	1.08*			10	-18.56			

1.08* = 0.54 + 0.54

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.00035	-0.00286	0.00106	-0.00385	-0.00102	36.5	-0.03%
h 或 ω %	LA'	ΔH'	x _t '	x _s '	x _t ' - x _s '	K _{T1}	K _{T0.7}
100	0.1357	-0.0095	-0.1261	-0.0696	-0.0565	-0.1093	-0.0434
70	0.0176	-0.0034	-0.0390	-0.1394	0.1004	-0.0809	-0.0327

注: 以上象差值是按 l = -∞ 计算的。



编号: 05-04-056

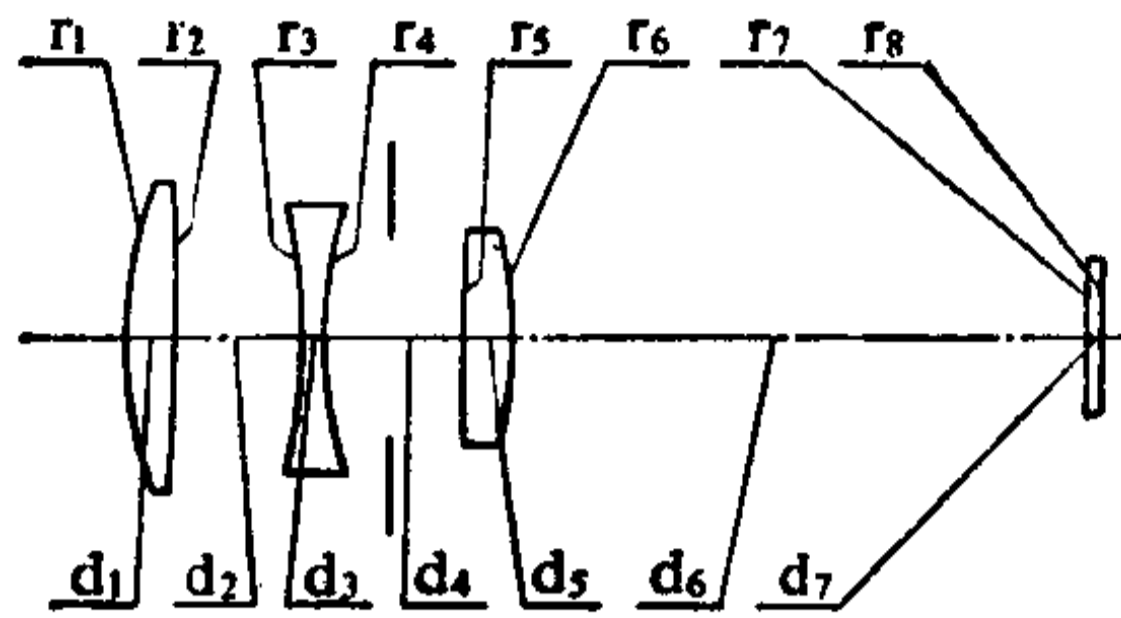
三片型工业电视镜头

E.F.L=154.34

B.F.L=0

FNo.=4.1

F.A.=±3.2°

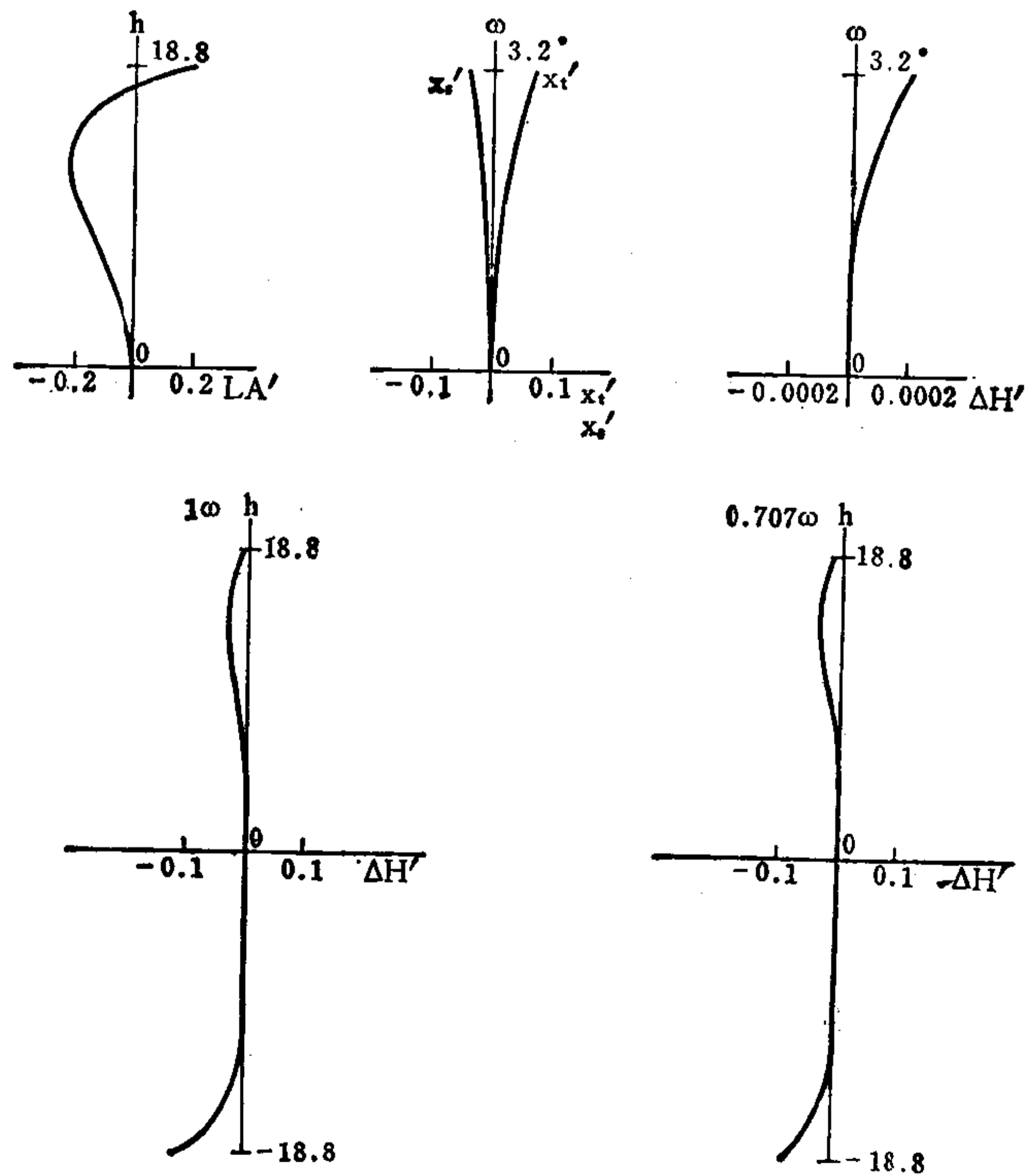


序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	57.650	6.000	1.6384	55.5	5	378.700	6.000	1.6384	55.5
2	-2592.560	16.455			6	-62.000	127.063		
3	-77.415	3.100	1.6475	33.9	7	∞	2.600	1.5163	64.1
4	59.280	17.805*			8	∞			

17.805* = 8.000 + 9.805

注: 第四片为靶面玻璃。

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.02916	-0.00179	0.00159	-0.00268	0.00005	8.5	0.002%
h 或 ω%	LA'	ΔH'	x _i	x _s	x _i - x _s	K _{T1}	K _{T0.7}
100	0.2056	0.00021	0.0715	-0.0360	0.1075	-0.06409	-0.01975
70	-0.2377	0.00007	0.0355	-0.0182	0.0537	-0.04468	-0.01371



编号: 05-04-057

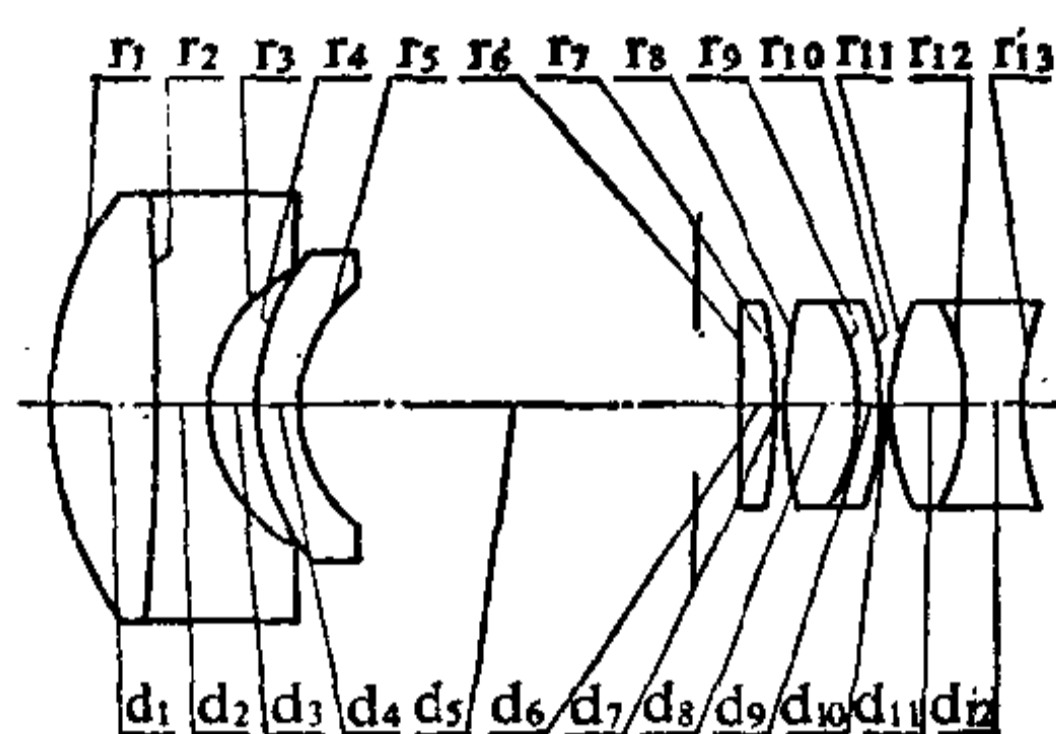
短焦距摄影及投影物镜

E.F.L=100.99

B.F.L=101.70

FN₀. = 2.02

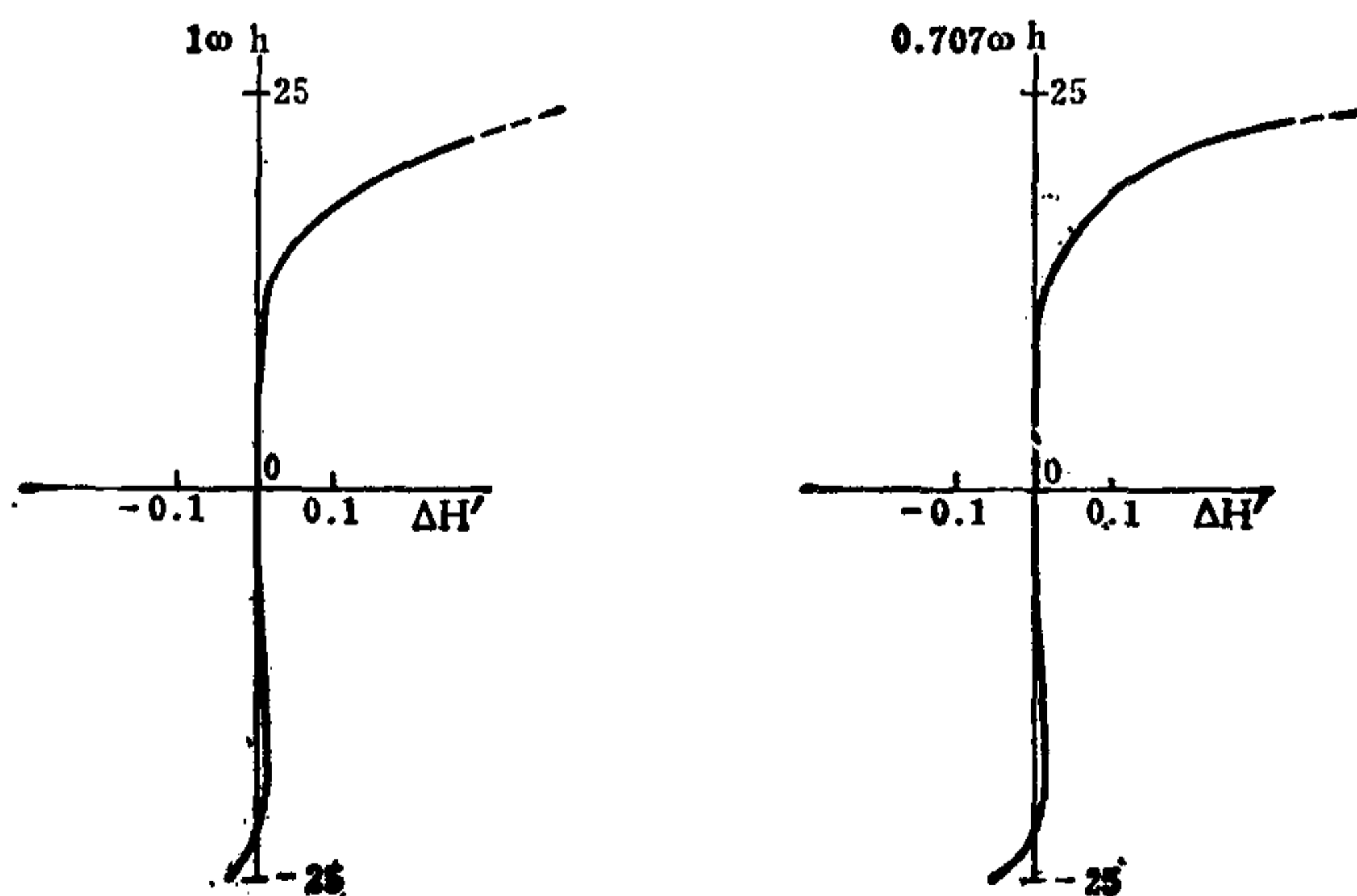
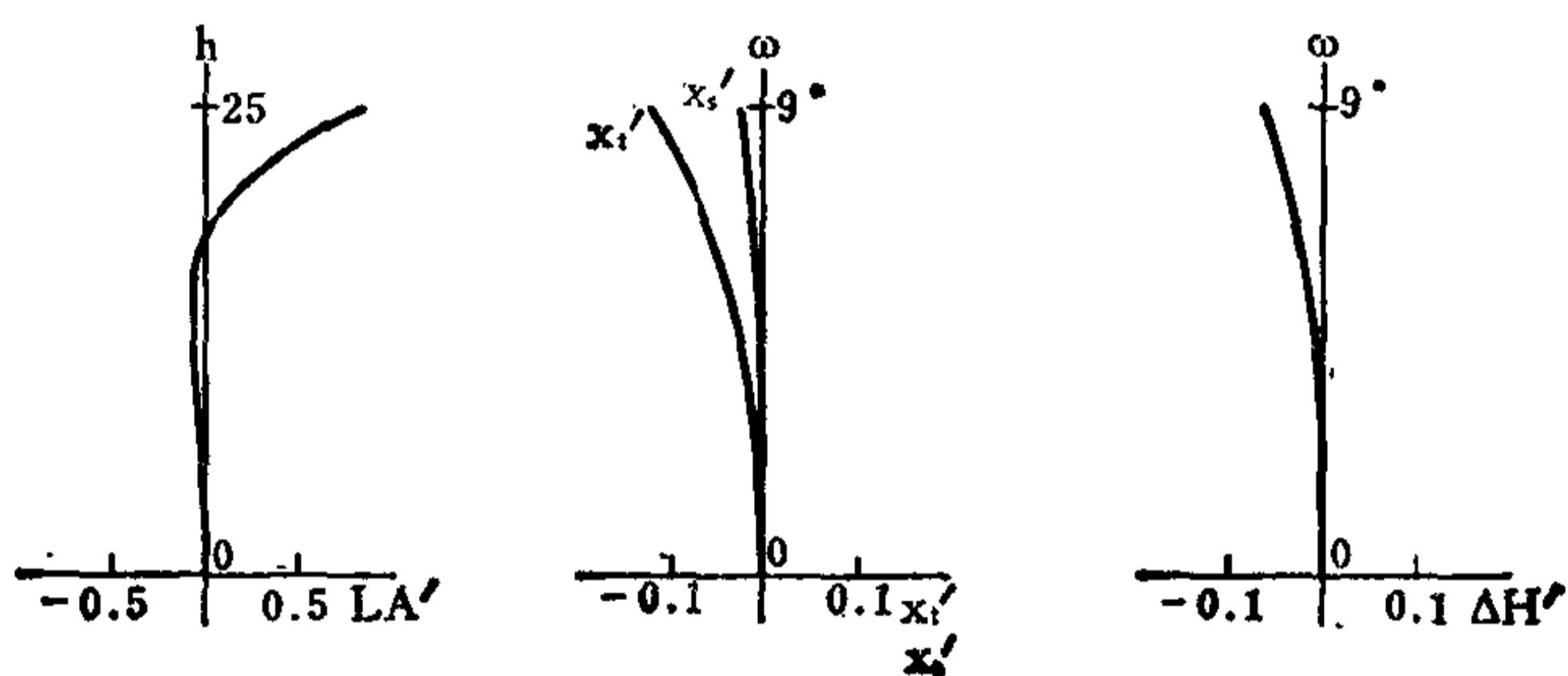
F.A. = ± 9°**



序号	r	d	n _d	v	序号	r	d	n _d	v
1	174.0	47.2	1.757	47.8	8	214.4	29.6	1.517	64.1
2	-1548.7	23.5	1.501	56.4	9	-88.2	9.7	1.689	31.2
3	68.7	21.5			10	-139.4	5.0		
4	131.6	20.1	1.620	38.1	11	118.7	32.7	1.501	56.4
5	70.8	196.7*			12	-96.0	26.7	1.648	33.8
6	-1779.0	15.0	1.733	51.6	13	140.2			
7	-220.9	6.7							

196.7* = 175.0 + 21.7

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.03765	-0.00051	-0.00299	-0.00004	-0.03275	15.99	-0.39%
h 或 ω %	LA'	ΔH'	x _i '	x _s '	x _i ' - x _s '	K _{T1}	K _{T0.7}
100	0.8317	-0.0629	-0.1181	-0.0207	-0.0974	0.30137	0.05713
70	0.0250	-0.0230	-0.0477	-0.0115	-0.0362	0.22253	0.04176



编号: 05-04-058

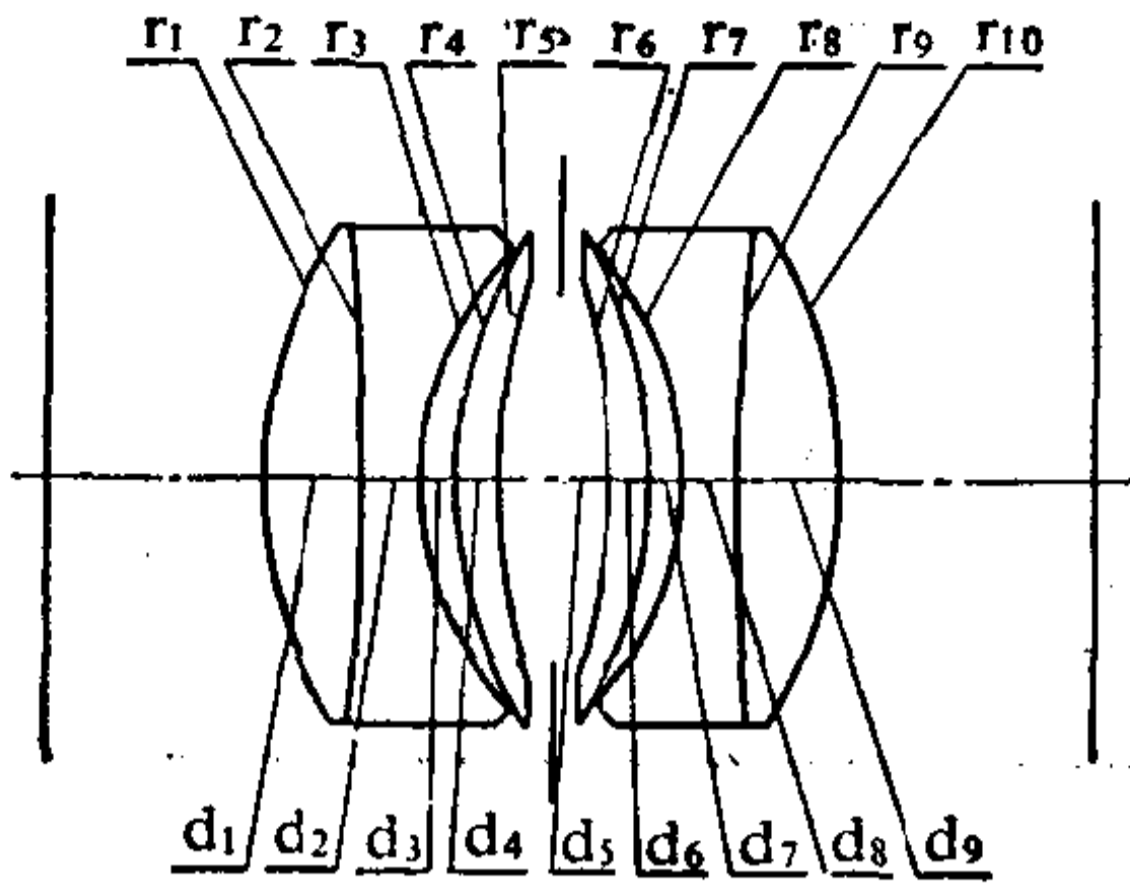
分裂式达格型对称复制透镜系统

E.F.L = 10.236

B.F.L = 8.803

FN₀ = 5.6

F.A. = ± 30°**

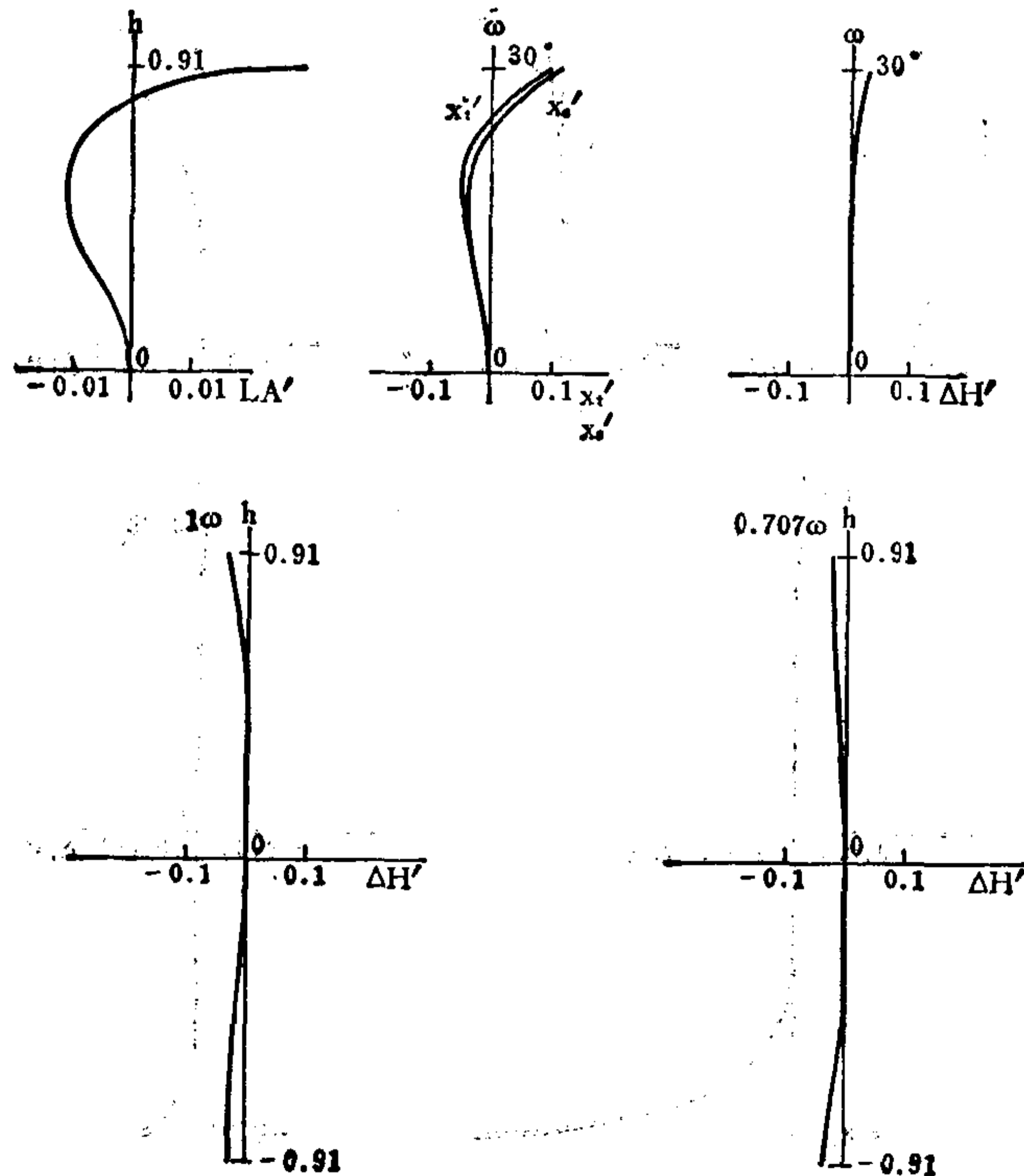


序号	r	d	n _d	v	序号	r	d	n _d	v
1	2.553	0.541	1.658	50.8	6	-3.761	0.235	1.623	57.0
2	-29.745	0.309	1.582	42.1	7	-2.585	0.167		
3	1.860	0.167			8	-1.860	0.309	1.582	42.1
4	2.585	0.235	1.623	57.0	9	29.745	0.541	1.658	50.8
5	3.761	0.562*			10	-2.553			

0.562* = 0.281 + 0.281

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.00097	-0.00152	-0.00029	-0.00209	0.00249	5.9	0.4%
h 或 ω %	LA'	ΔH'	x _t '	x _s '	x _t ' - x _s '	K _{T1}	K _{T0.7}
100	0.0295	0.0254	0.0977	0.1061	-0.0084	-0.02357	-0.01587
70	-0.0108	0.0069	-0.0448	-0.0269	-0.0179	-0.02205	-0.01075

注: 以上象差值是按 l = -∞ 计算的。



编号: 05-04-059

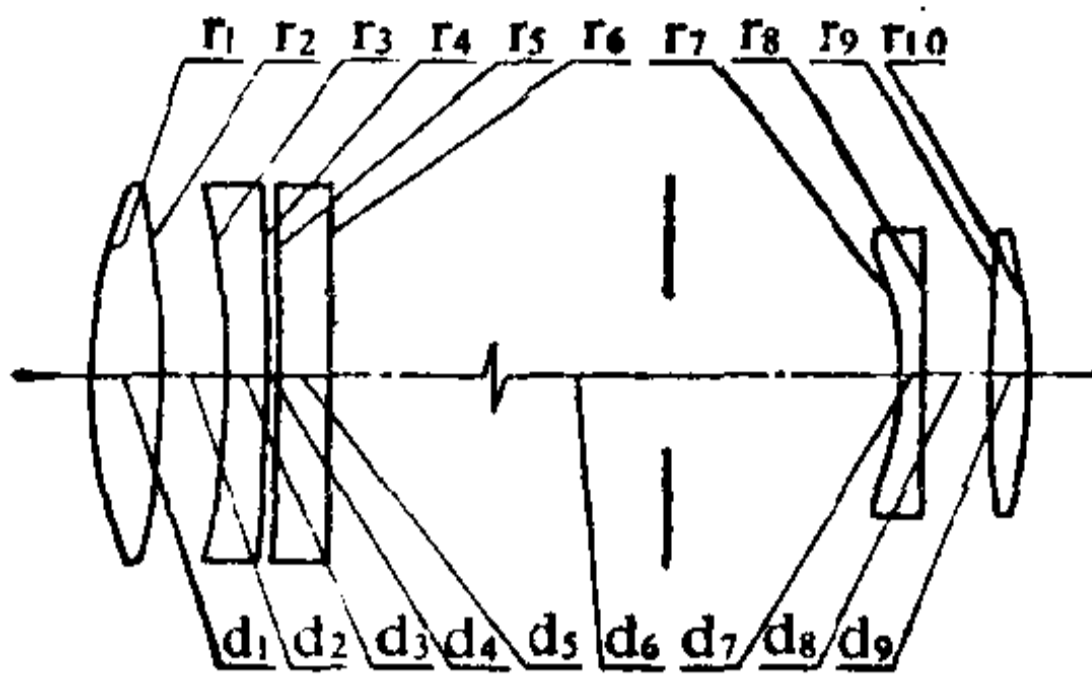
远 距 离 照 相 镜 头

E.F.L=1.0

B.F.L=0.24158

FNo.=6.3

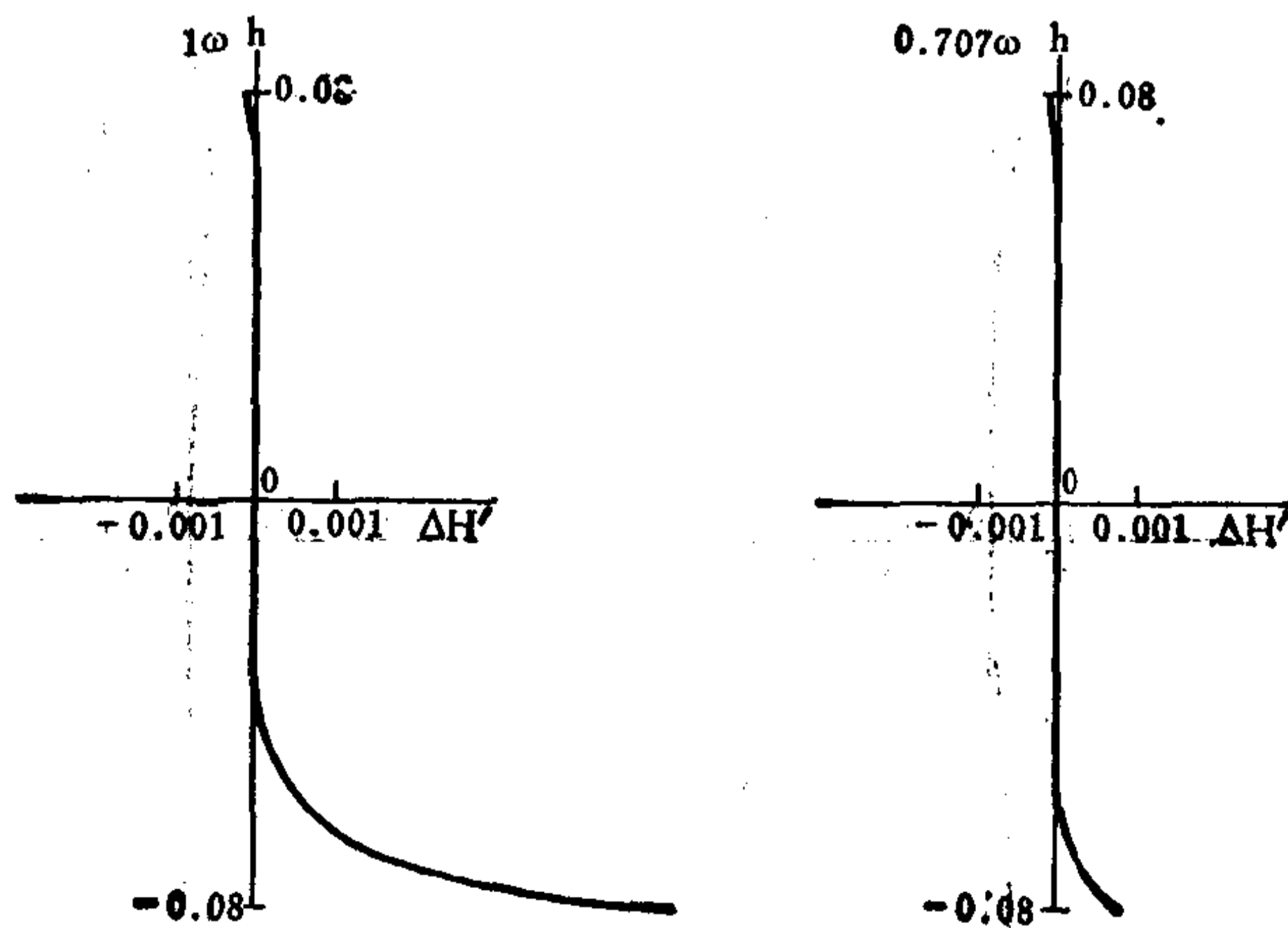
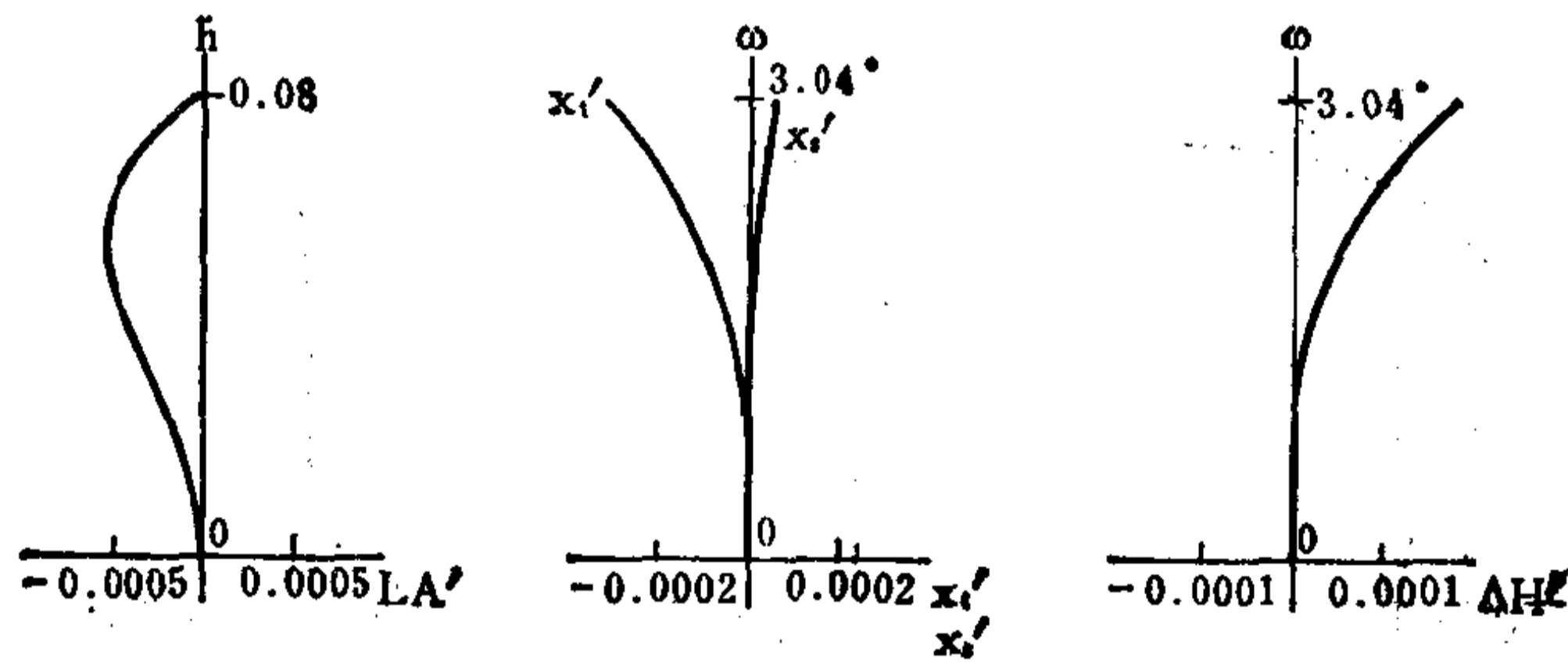
F.A.=±3.04°



序号	r	d	n	v	序号	r	d	n	v
1	0.22205	0.02996	1.48749	70.1	6	∞	0.35601*		
2	-0.41049	0.02693			7	-0.12905	0.00917	1.65100	56.2
3	-0.31939	0.01864	1.74950	35.2	8	5.90492	0.02928		
4	-1.09410	0.00506			9	1.26755	0.01305	1.60342	38.0
5	-1.72402	0.02122	1.59270	35.6	10	-0.24132			

$0.35601^* = 0.25601 + 0.10000$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.0000281	0.0000084	-0.0000026	0.0000028	0.0000283	0.053	0.34%
h 或 ω %	LA'	$\Delta H'$	x_t	x_s	$x_t - x_s$	K_{T1}	$K_{T0.7}$
100	-0.000044	0.000181	-0.000322	0.000047	-0.000369	0.002613	0.000200
70	-0.000541	0.000063	-0.000123	0.000023	-0.000146	0.000372	0.000002



编号: 05-04-060

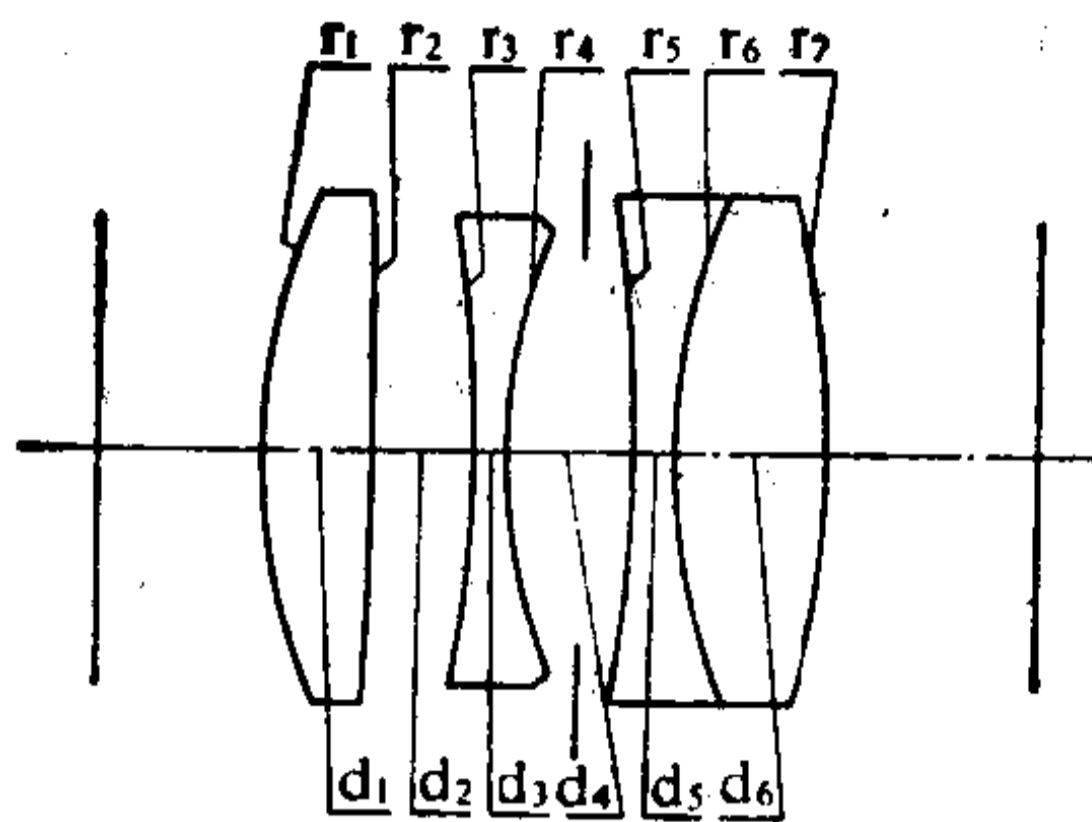
三组元重显物镜

E.F.L = 100.05

B.F.L = 86.64

FNo. = 4.5

F.A. = ±25°**



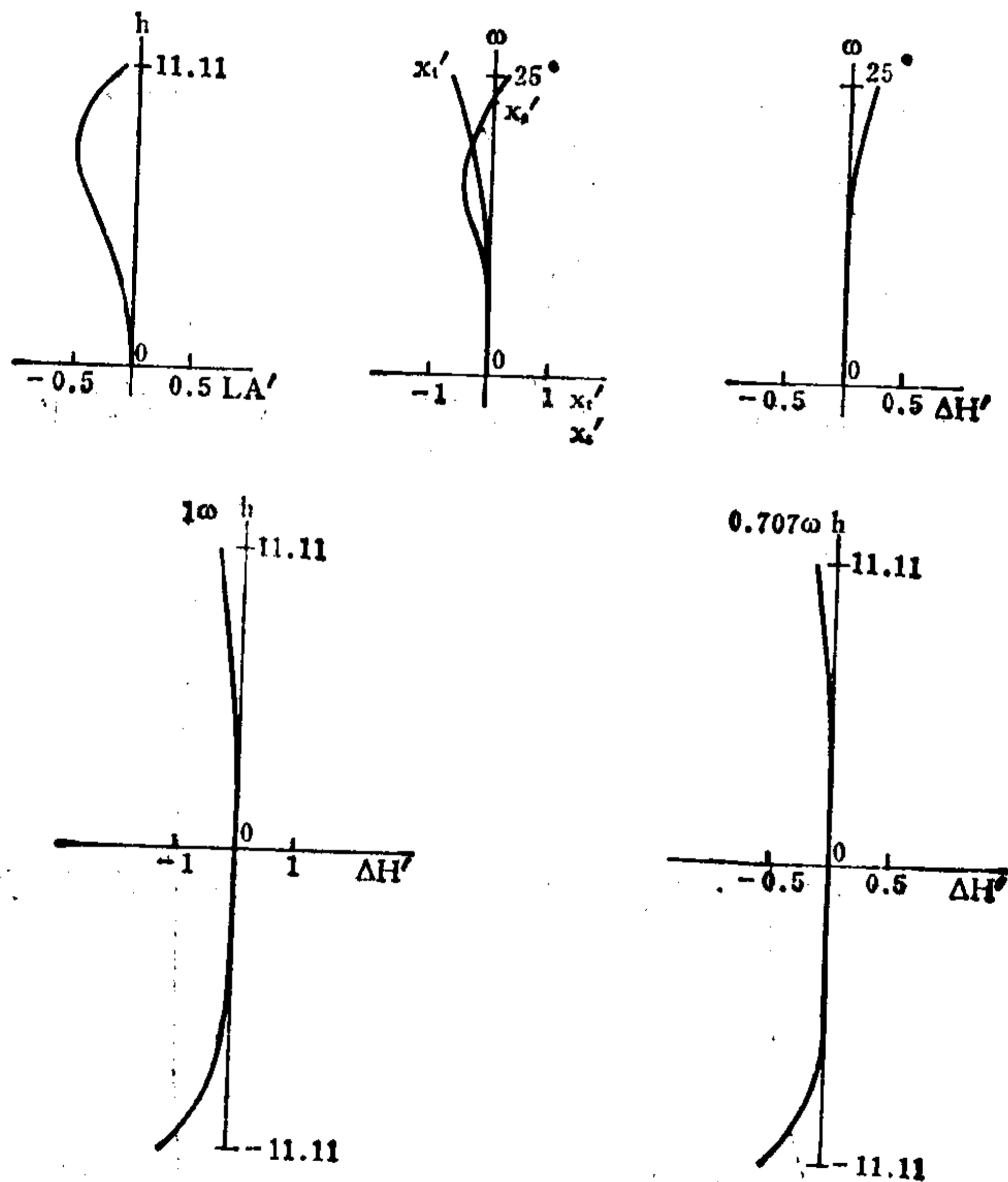
序号	r	d	n _d	v	序号	r	d	n _d	v
1	27.36	4.55	1.62041	60.3	5	-142.92	1.74	1.53172	48.9
2	-1978.05	4.36			6	28.52	6.59	1.65844	50.8
3	-62.69	1.65	1.59551	39.2	7	-41.81			
4	25.30	5.23*							

5.23* = 3.00 + 2.23

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.03797	0.00341	0.00715	-0.05057	0.03632	46.61	0.44%
h 或 ω %	LA'	ΔH'	x _i '	x _s '	x _i ' - x _s '	K _{T1} '	K _{T0.7} '
100	-0.1292	0.2077	-0.7084	0.1977	-0.9061	-0.7421	-0.1967
70	-0.4816	0.0635	-0.2575	-0.4863	0.2288	-0.3139	-0.0711

注: 1. M = 2^x ~ 10^x,

2. 以上象差值是按 l = -∞ 计算的。



编号: 05-04-061

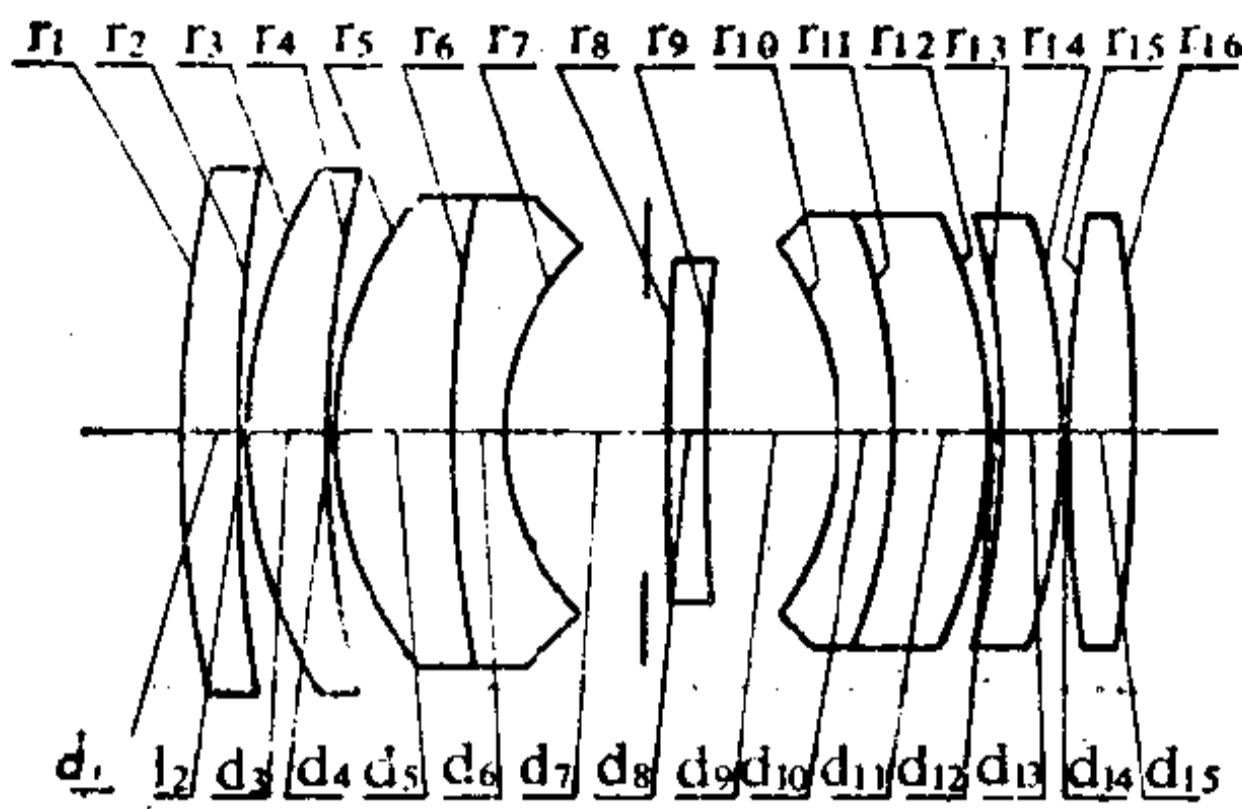
大视场透镜系统

E.F.L=1.0

B.F.L=0.359

FNo.=3

F.A.=±22.5°



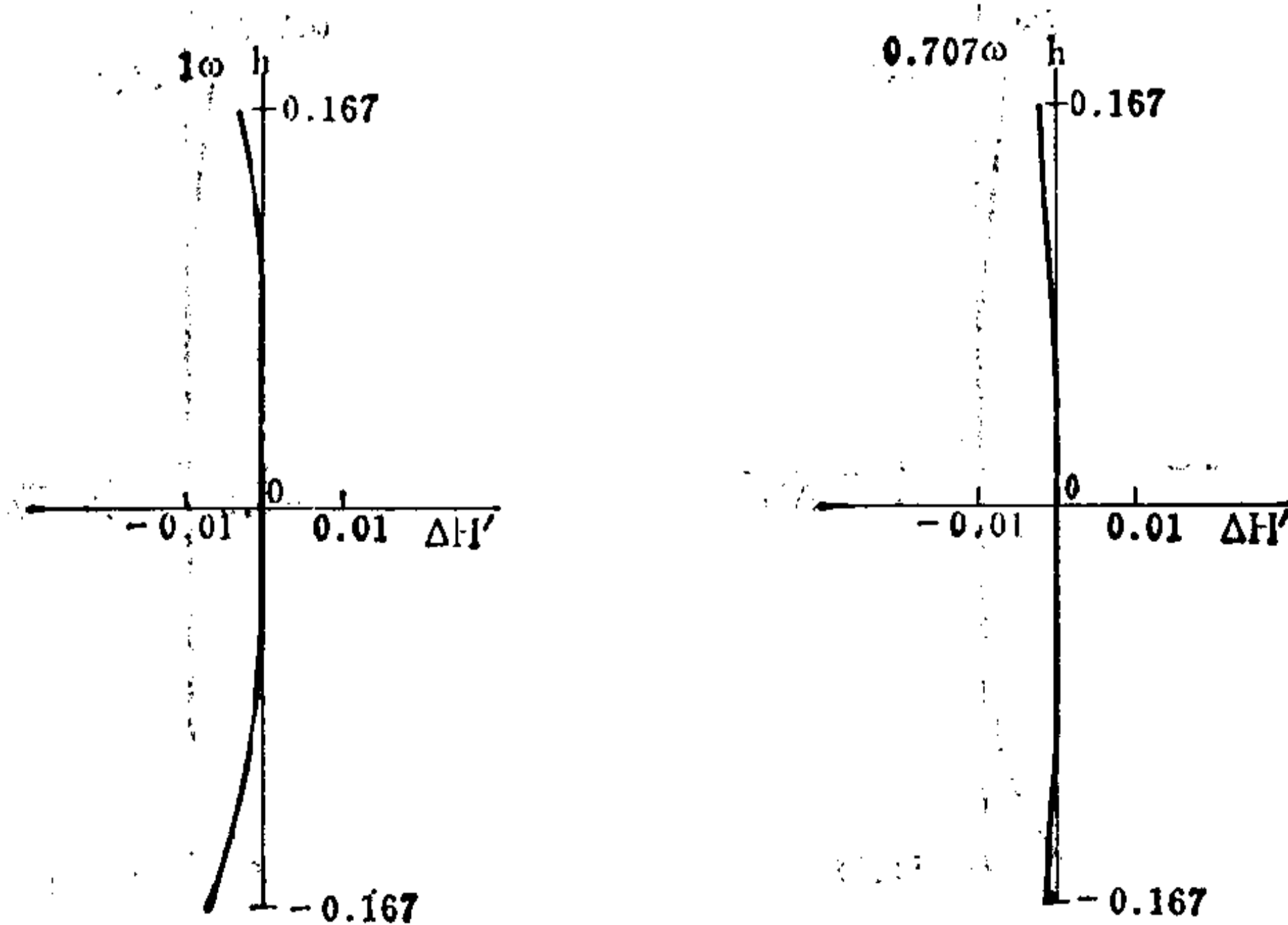
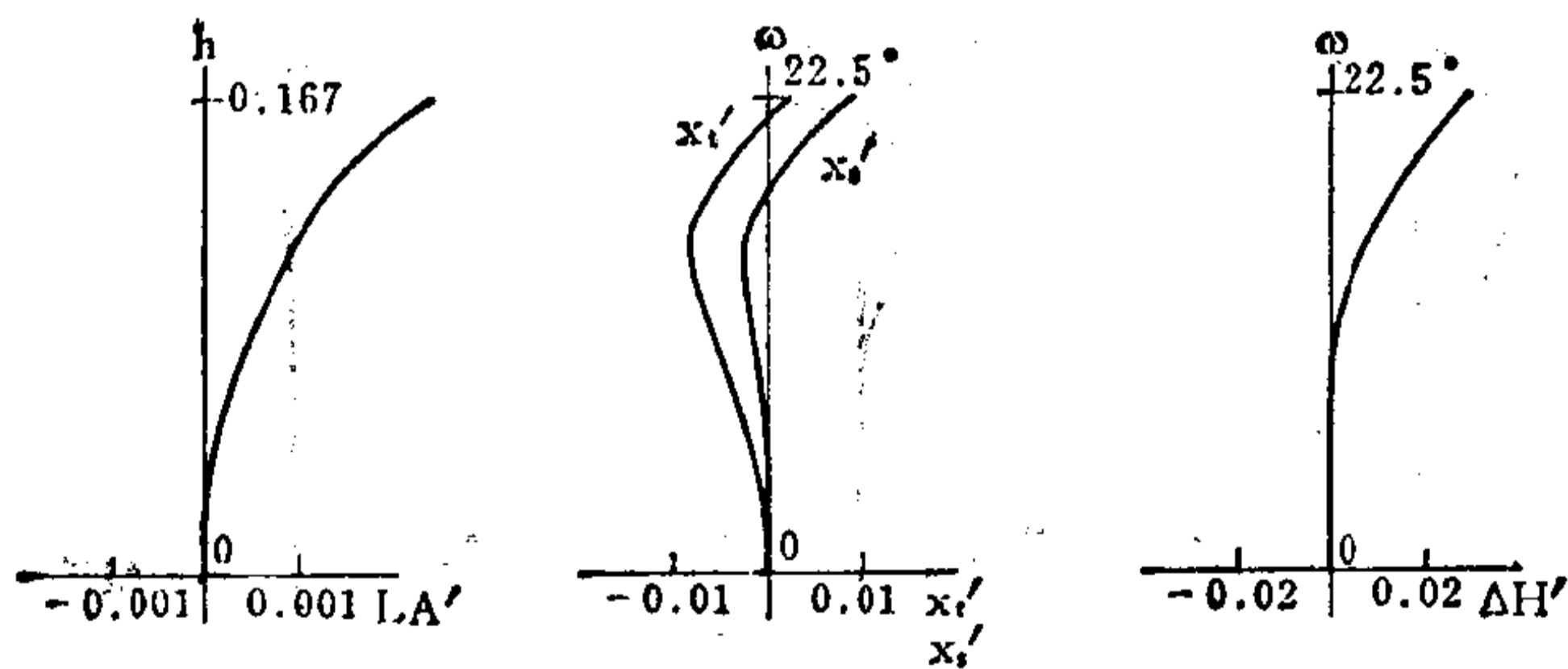
序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	1.2090	0.0543	1.69089	54.80	9	2.2438	0.1141		
2	2.9152	0.0054			10	-0.2775	0.0435	1.60328	38.02
3	0.4459	0.0679	1.69089	54.80	11	-0.6014	0.0870	1.69089	54.80
4	0.9530	0.0054			12	-0.4394	0.0054		
5	0.3691	0.1033	1.69089	54.80	13	-0.7768	0.0543	1.69089	54.80
6	1.3253	0.0435	1.64752	33.88	14	-0.6610	0.0054		
7	0.2195	0.1408*			15	1.3292	0.0543	1.69089	54.80
8	6.3772	0.0326	1.64752	33.88	16	-1.4244			

0.1408* = 0.1208 + 0.0200

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	0.000090	-0.000262	-0.000270	-0.000338	0.007274	0.41	7.1%
h 或 ω%	LA'	ΔH'	x _t '	x _s '	x _t ' - x _s '	K _{T1}	K _{i0.7}
100	0.00243	0.0295	0.00257	0.00893	-0.00636	-0.00521	-0.00257
70	0.00100	0.0087	-0.00792	-0.00223	-0.00569	-0.00224	-0.00111

注: 1. 实际的使用值是E.F.L=184;

2. M = 0.2*。



编号: 05-04-062

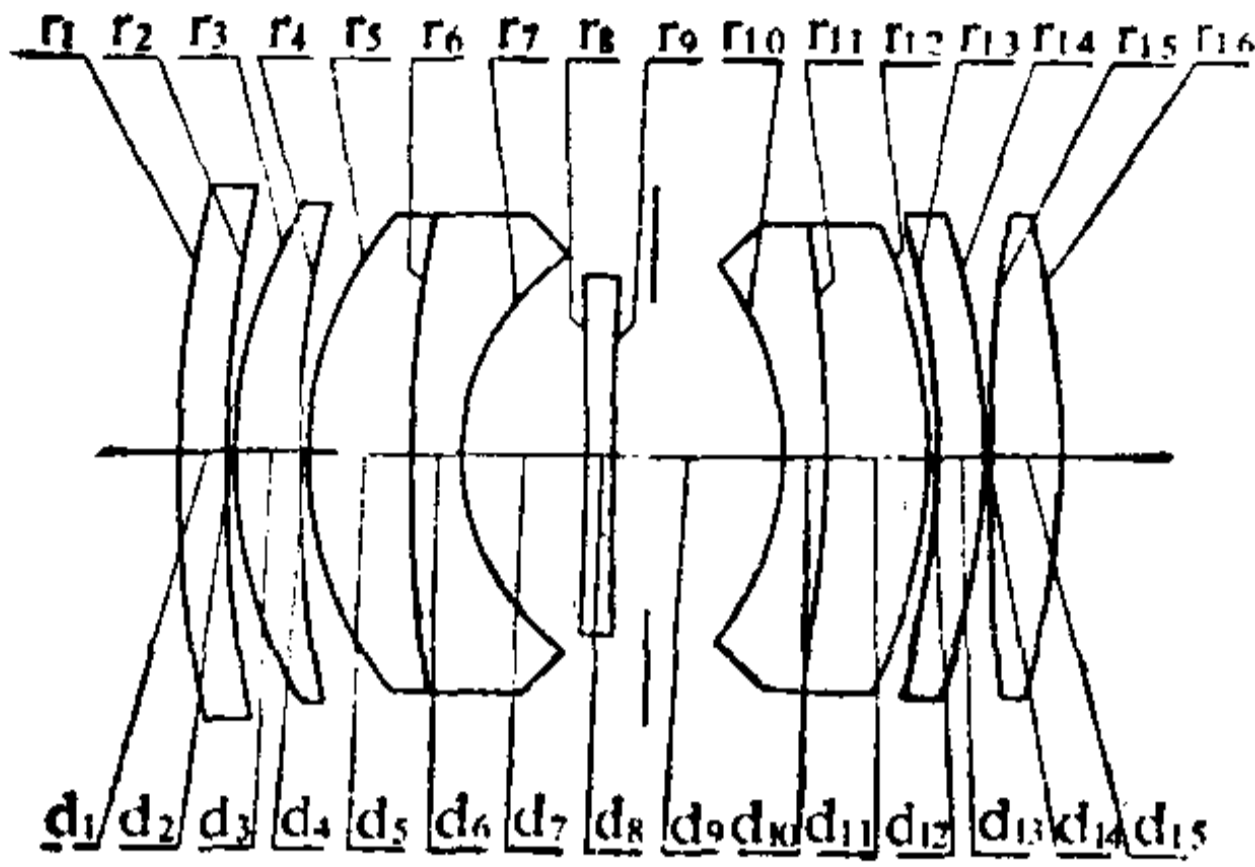
大视场透镜系统

E.F.L=1.0

B.F.L=0.4586

FNo.=4

F.A.=±22.5°



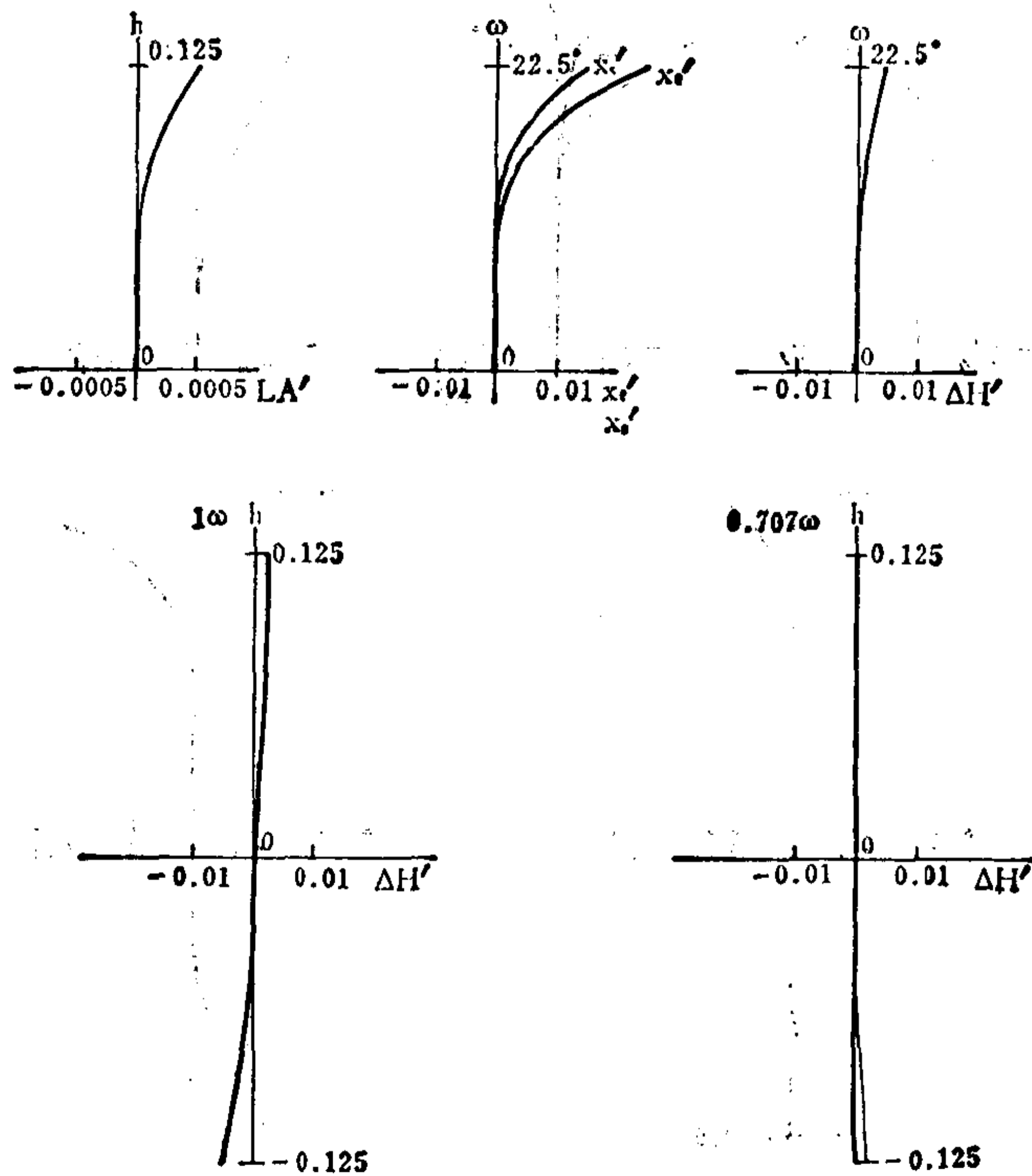
序号	r	d	n_D	ν_D	序号	r	d	n_D	ν_D
1	1.1595	0.0416	1.69089	54.80	9	5.8480	0.1408*		
2	1.6344	0.0052			10	-0.2729	0.0377	1.60328	38.02
3	0.4209	0.0571	1.69089	54.80	11	-1.3645	0.0909	1.69089	54.80
4	0.9905	0.0052			12	-0.4587	0.0052		
5	0.3319	0.0922	1.69089	54.80	13	-0.6899	0.0442	1.69089	54.80
6	2.5044	0.0377	1.64752	33.88	14	-0.6287	0.0052		
7	0.2075	0.1065			15	2.2256	0.0571	1.69089	54.80
8	-32.9440	0.0260	1.64752	33.88	16	-0.9501			

$0.1408^* = 0.0300 + 0.1108$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	0.0000019	-0.0000635	0.0000195	-0.0001124	0.0017054	0.41	1.07%
h 或 $\omega\%$	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{I1}	$K_{T0.7}$
100	0.000511	0.00442	0.02500	0.01479	0.01021	-0.001879	-0.000885
70	0.000139	0.00216	0.00405	0.00203	0.00202	-0.000863	-0.000405

注: 1. 实际的使用值是E.F.L=385;

2. $M=0.1^*$.



编号: 05-04-063

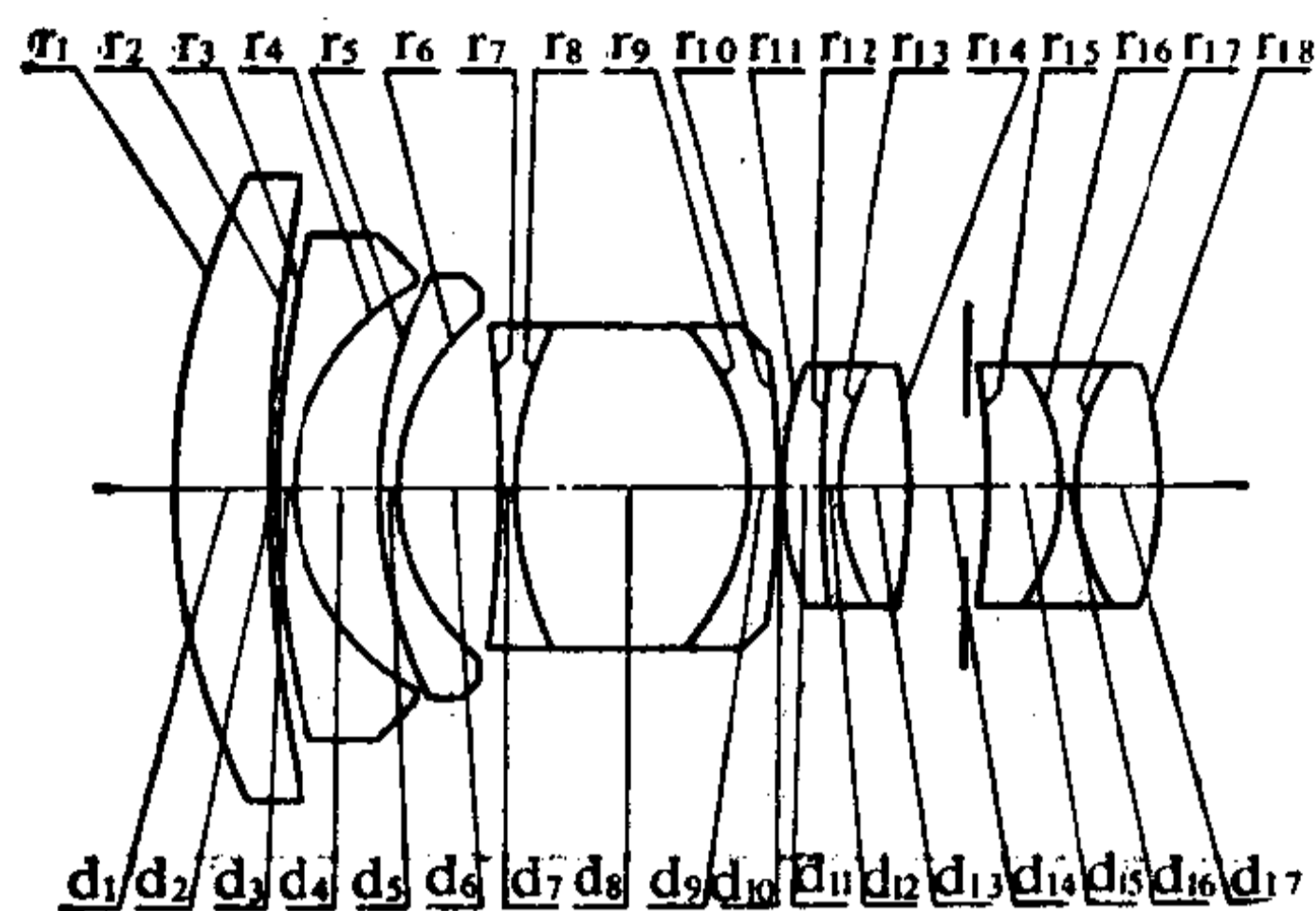
逆聚焦型透镜系统

E.F.L=100

B.F.L=189.3

FNo.=4

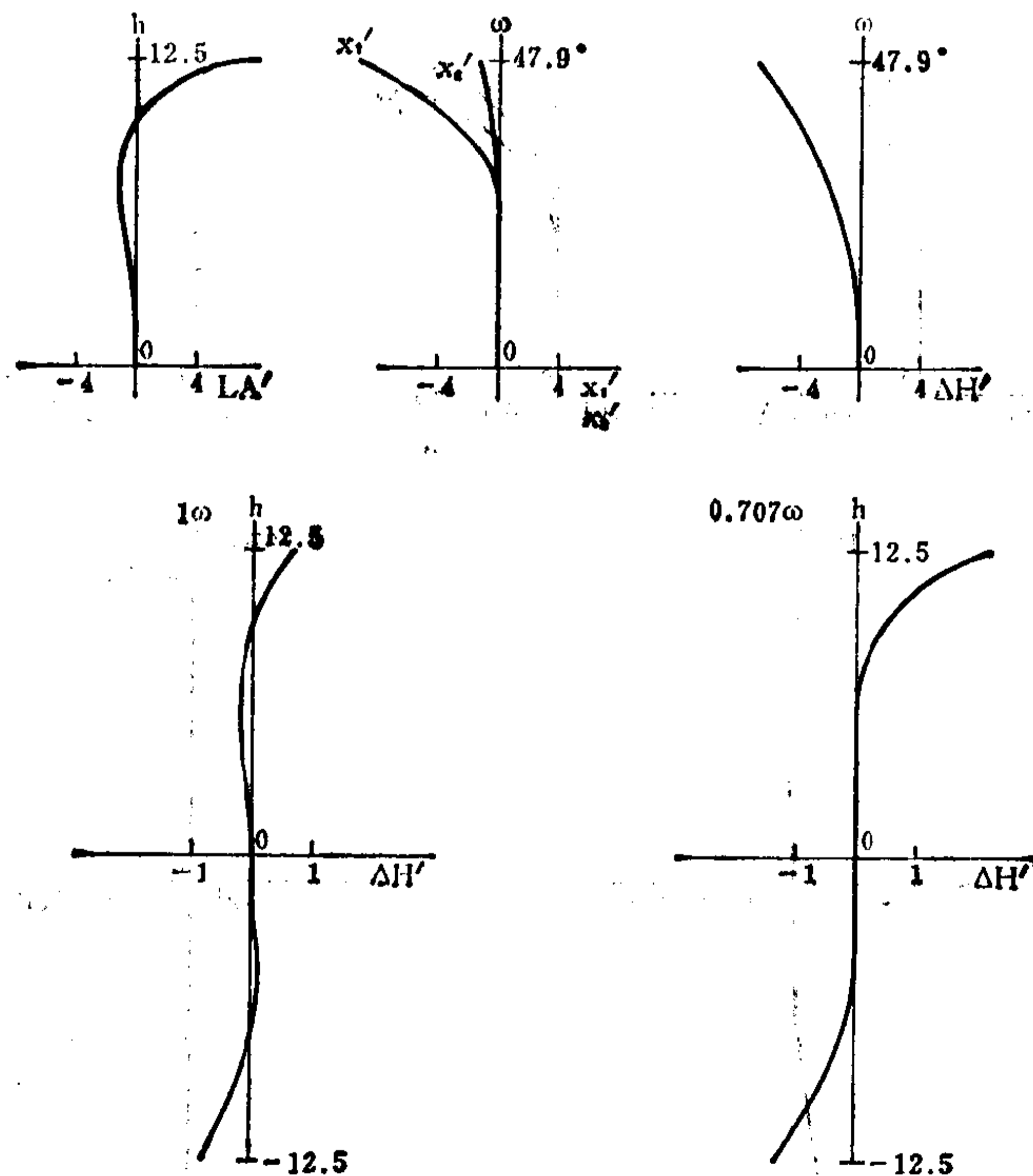
F.A. = ±47.9°



序号	r	d	n	v	序号	r	d	n	v
1	140.000	18.0	1.61720	54.0	10	-193.474	0.5		
2	406.149	0.5			11	60.500	7.5	1.59270	35.4
3	180.000	3.5	1.64000	60.2	12	180.000	3.0	1.74077	27.7
4	41.772	15.5			13	44.000	12.5	1.51118	50.9
5	88.000	3.5	1.64000	60.2	14	-119.362	14.0*		
6	41.814	18.0			15	-195.000	13.0	1.60729	49.3
7	-230.000	3.5	1.62041	60.3	16	-43.500	3.0	1.72342	38.0
8	70.000	42.0	1.66446	35.9	17	42.000	15.5	1.58921	41.0
9	-45.000	5.0	1.63980	34.6	18	-58.393			

14.0* = 10.0 + 4.0

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.1541	-0.0331	0.0562	-0.0058	-1.4384	110.67	-6.1%
h 或 ω %	LA'	$\Delta H'$	x_t	x'_s	$x_t - x_s$	K'_{T1}	$K'_{T0.7}$
100	8.0398	-6.8087	-9.668	-1.277	-8.391	-0.0310	-0.1000
70	-0.8661	-2.9294	-1.173	-0.365	-0.808	0.4992	-0.6916



编号: 05-04-064

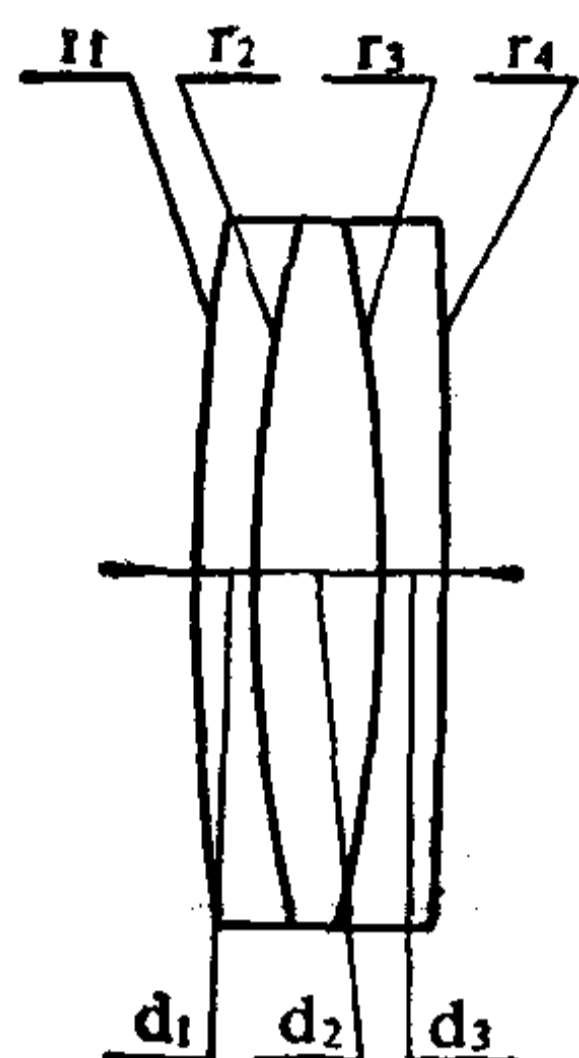
二级光谱较小的三透镜物镜

E.F.L=1.008

B.F.L=0.977

FNo.=6

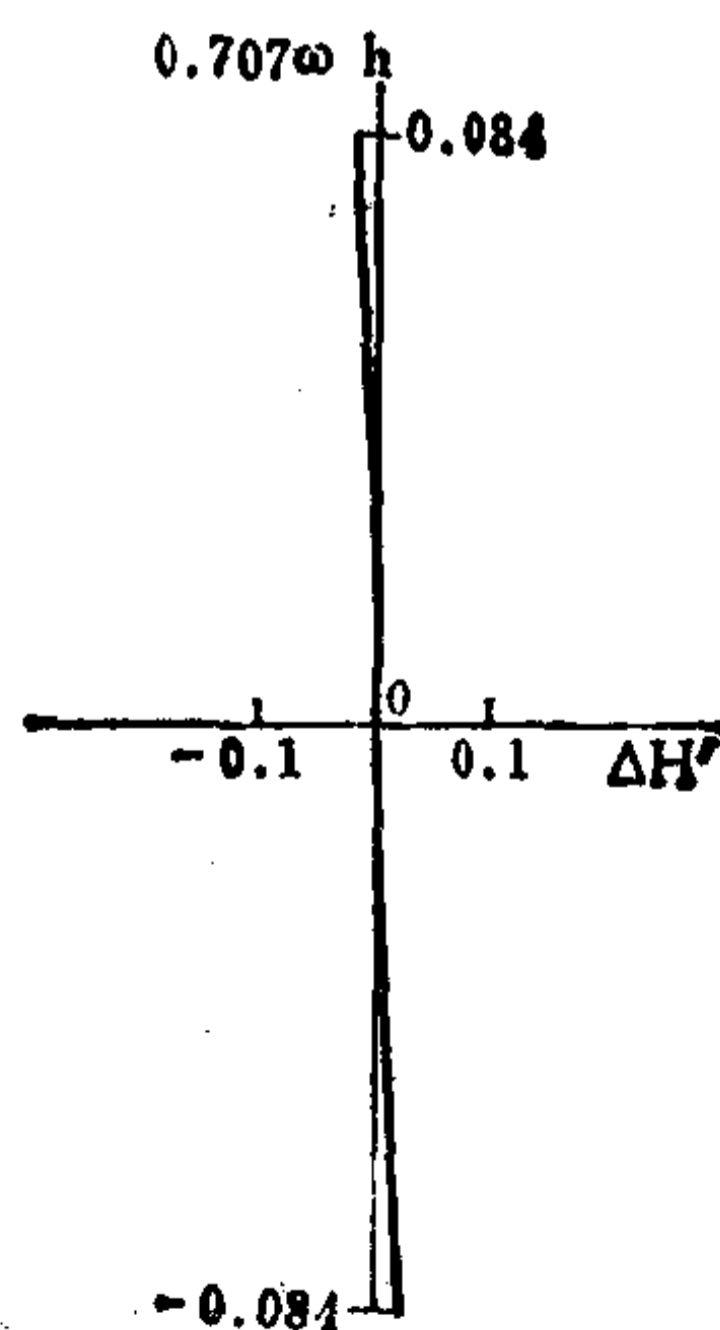
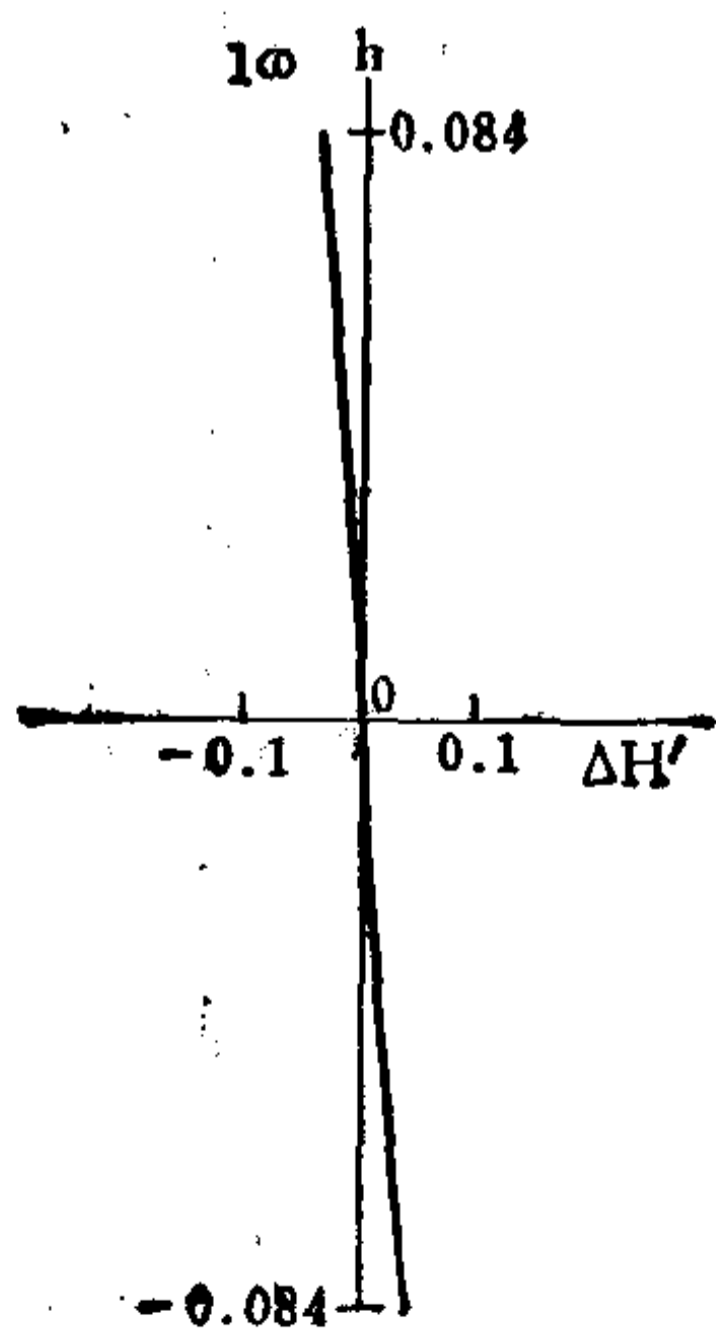
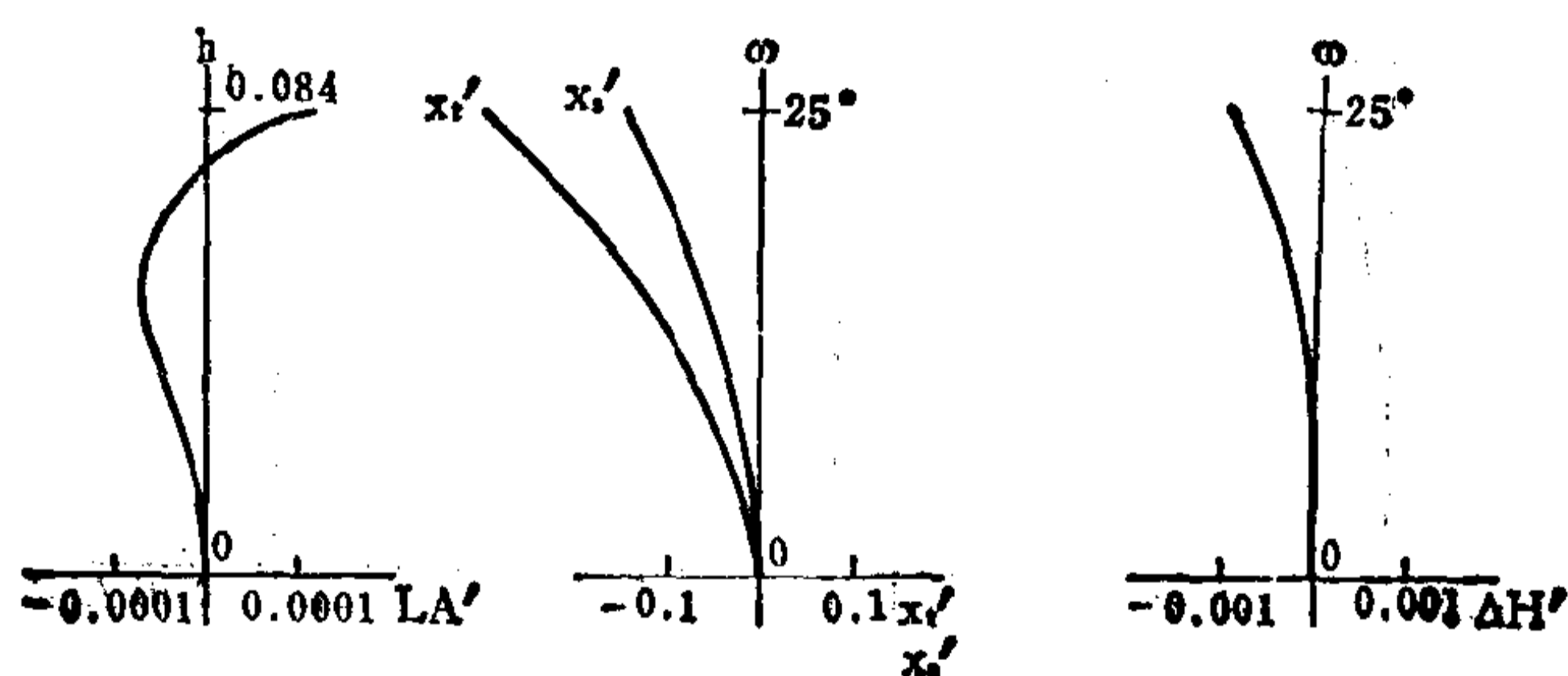
F.A.=±25°**



序号	r	d	nc	vc	序号	r	d	nc	vc
1	0.514160	0.012*	1.67245	45.8	3	-0.320041	0.012	1.57125	55.8
2	0.320041	0.025	1.54408	73.0	4	-3.373780			

$$0.012^* = 0.000 + 0.012$$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.0000051	0.0000025	-0.0012139	-0.0008802	-0.0001311	0.47	-0.21%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_o	$x'_i - x'_o$	K'_{T1}	$K'_{T0.7}$
100	0.0001115	-0.000990	-0.299	-0.151	-0.148	0.001104	0.000590
70	-0.0000698	-0.000326	-0.161	-0.078	-0.083	0.000272	0.000158



编号: 05-04-065

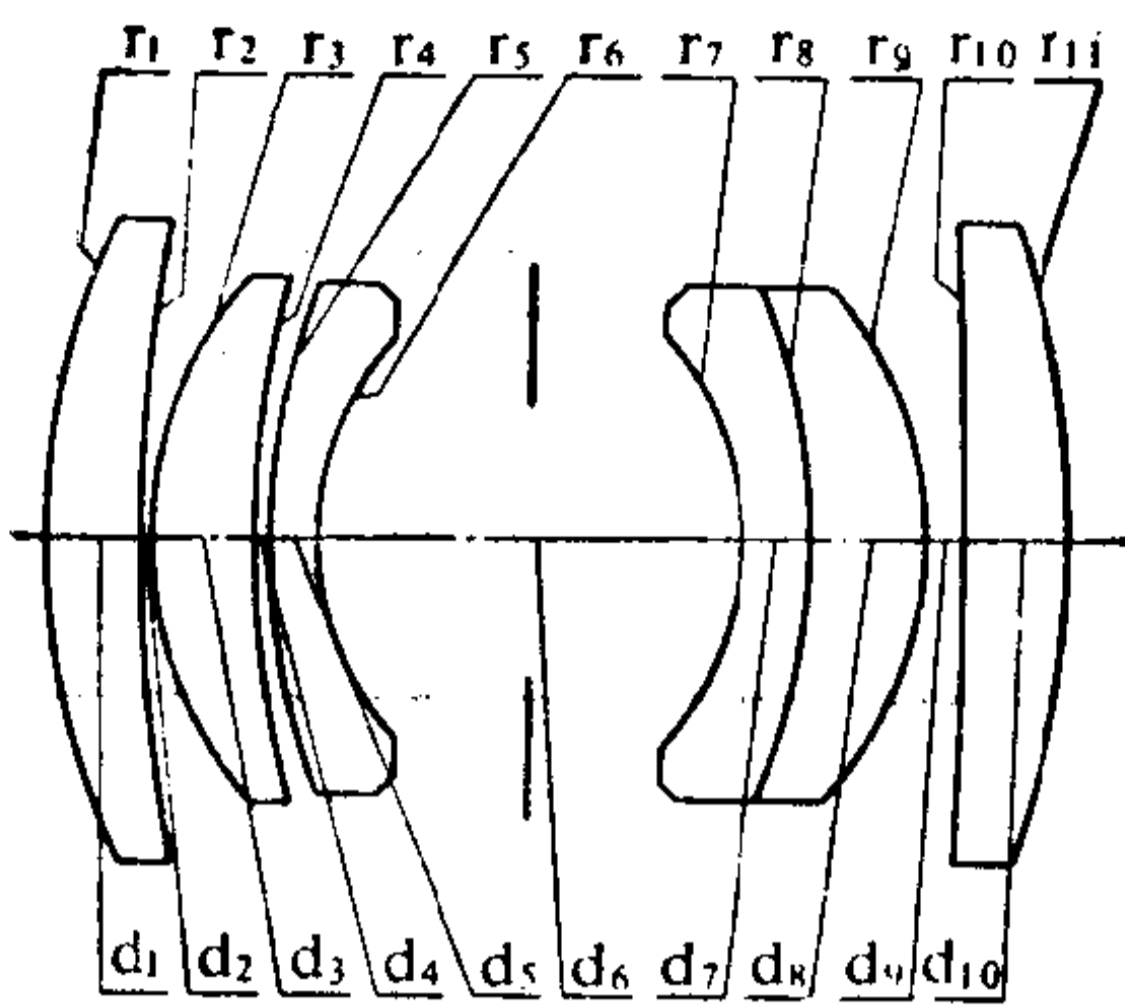
用于近紫外的透镜系统

E.F.L=9.93

B.F.L=6.62

FNo.=5.56

F.A.=±11°~±18°



序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	4.092	0.570	1.5170	64.5	6	1.601	2.246*		
2	10.298	0.016 ~0.253			7	-1.634	0.349	1.5725	42.5
3	2.173	0.546	1.5170	64.5	8	-3.838	0.650	1.5170	64.5
4	5.440	0.082			9	-2.138	0.201		
5	3.951	0.272	1.5725	42.5	10	-44.823	0.582	1.5170	64.5
					11	-5.108			

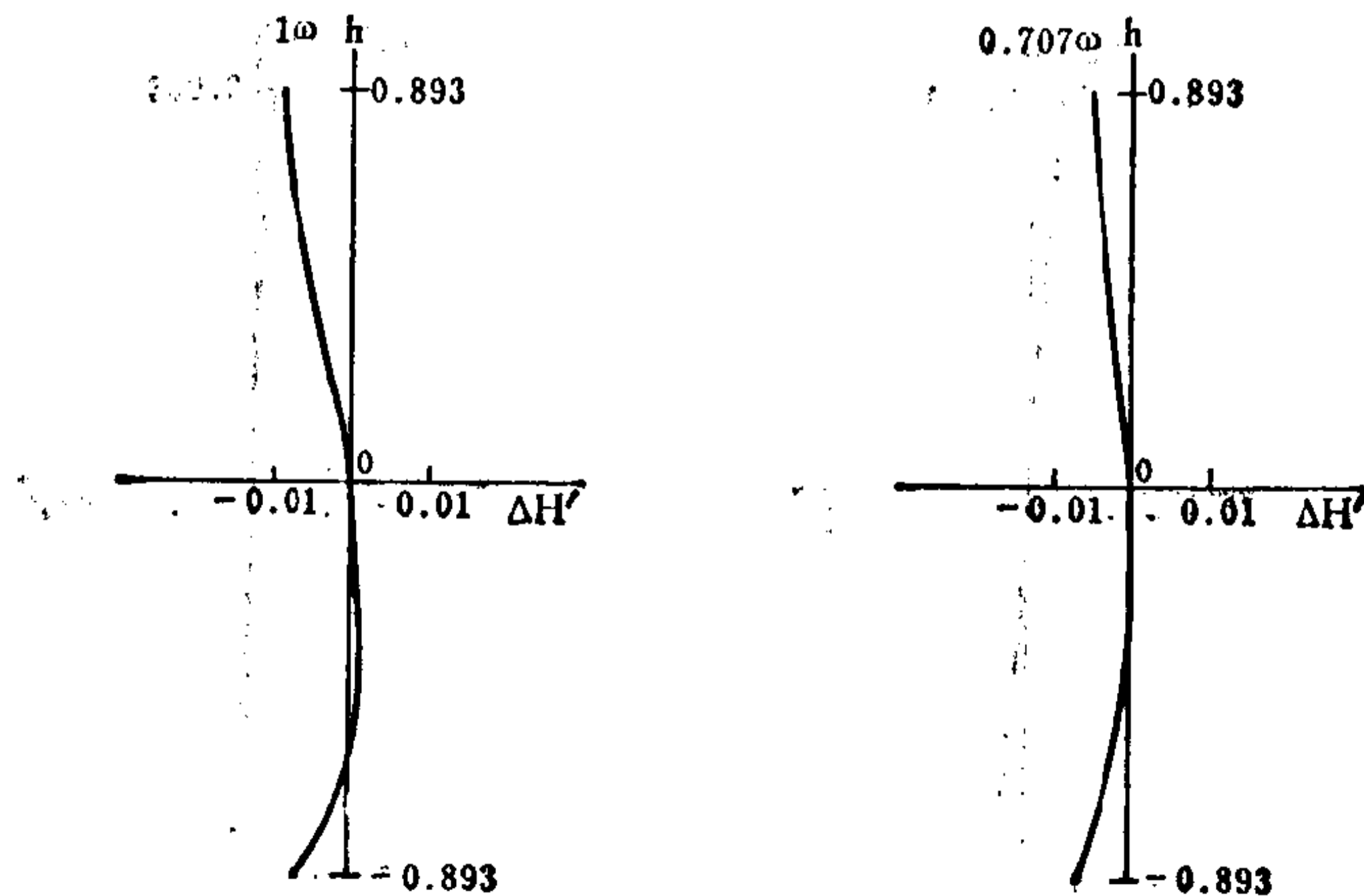
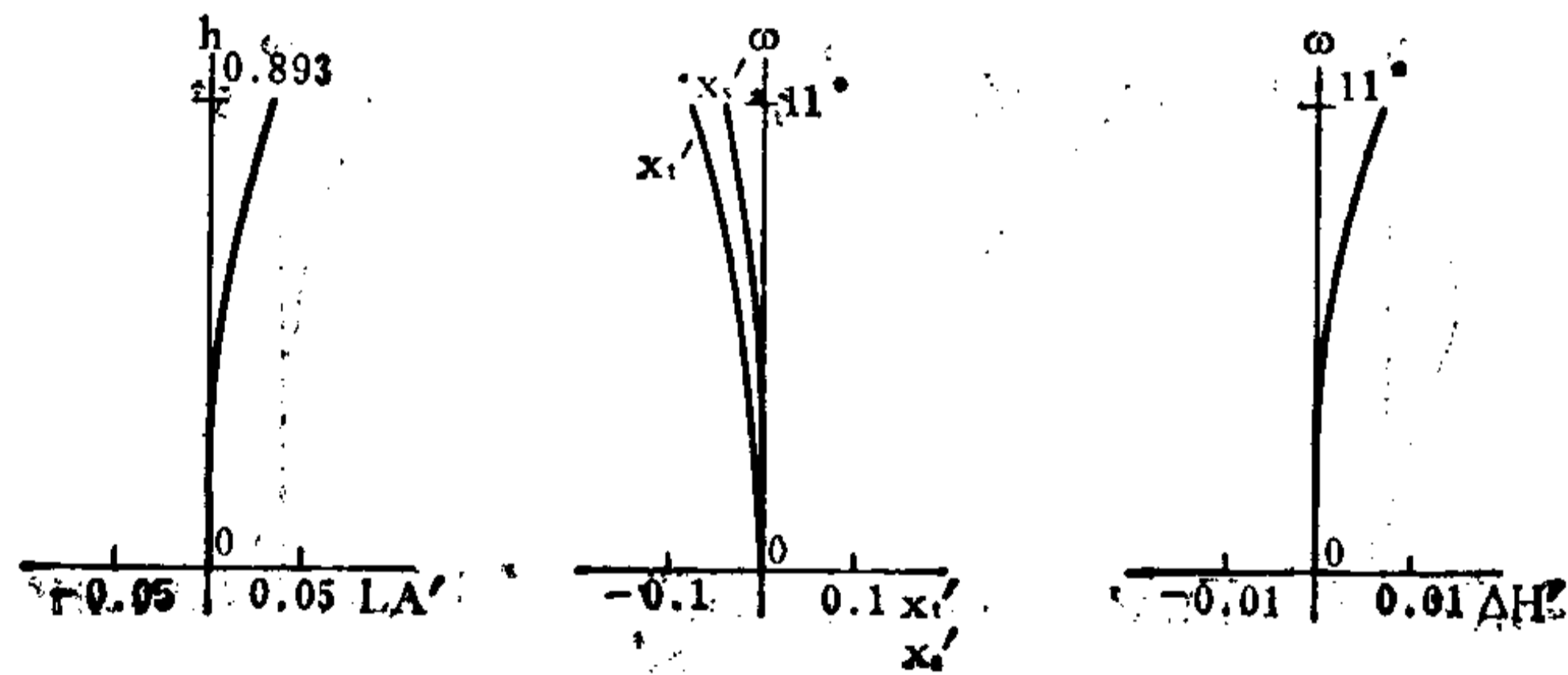
2.246* = 1.123 + 1.123

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	0.000406	-0.000476	-0.000208	-0.000507	0.001253	1.9	0.38%
h 或 ω %	LA'	ΔH'	x _t	x _s	x _t - x _s	K _{T1}	K _{10.7}
100	0.0335	0.0073	-0.0773	-0.0445	-0.0328	-0.00758	-0.00362
70	0.0146	0.0025	-0.0375	-0.0225	-0.0150	-0.00577	-0.00274

注: 1. M = 1*~0.25*, F.A. = ±11°~±18°;

2. 以上象差值是按 d₂ = 0.016 计算的;

3. λ = 3600~4400 Å.



编号: 05-04-066

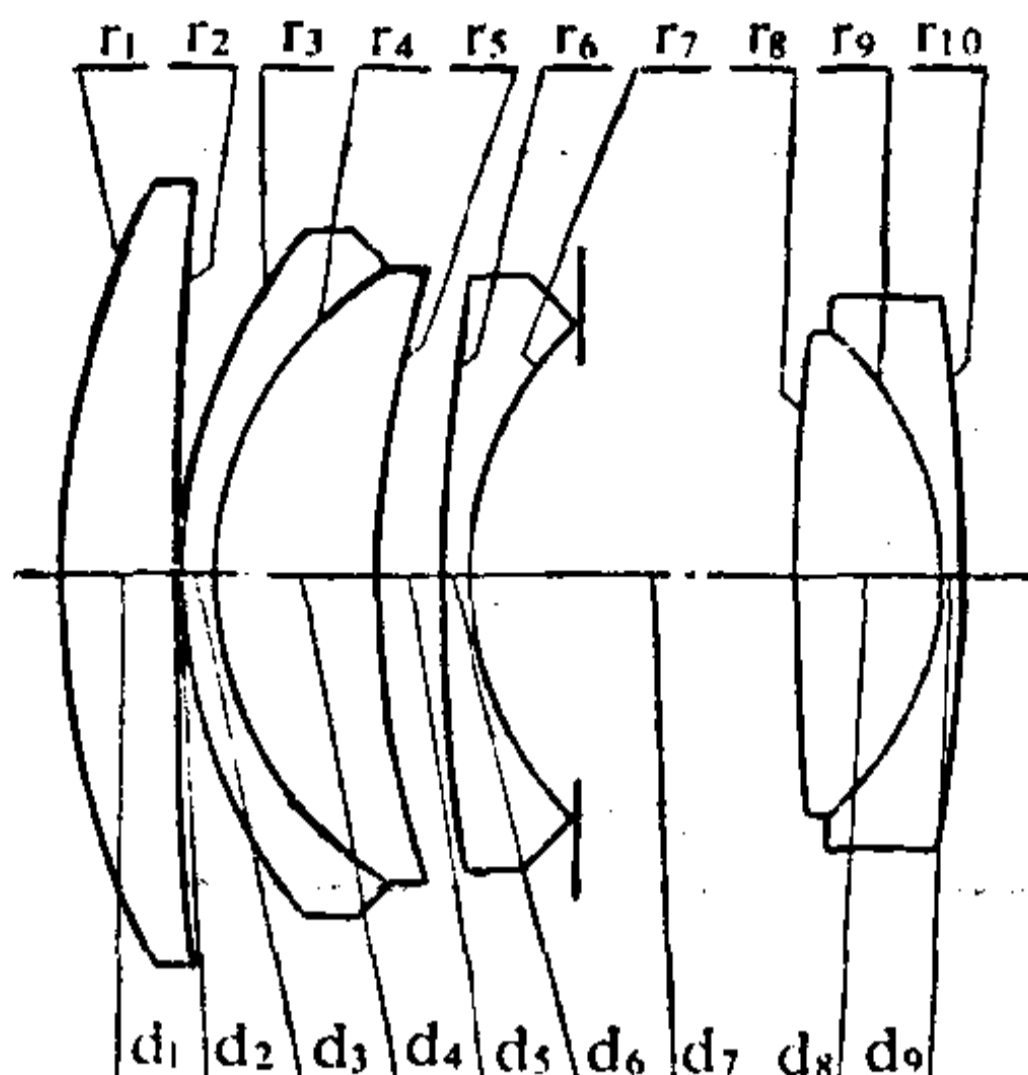
大孔径远距离照相镜头

E.F.L=84.992

B.F.L=42.327

FNo.=2.81

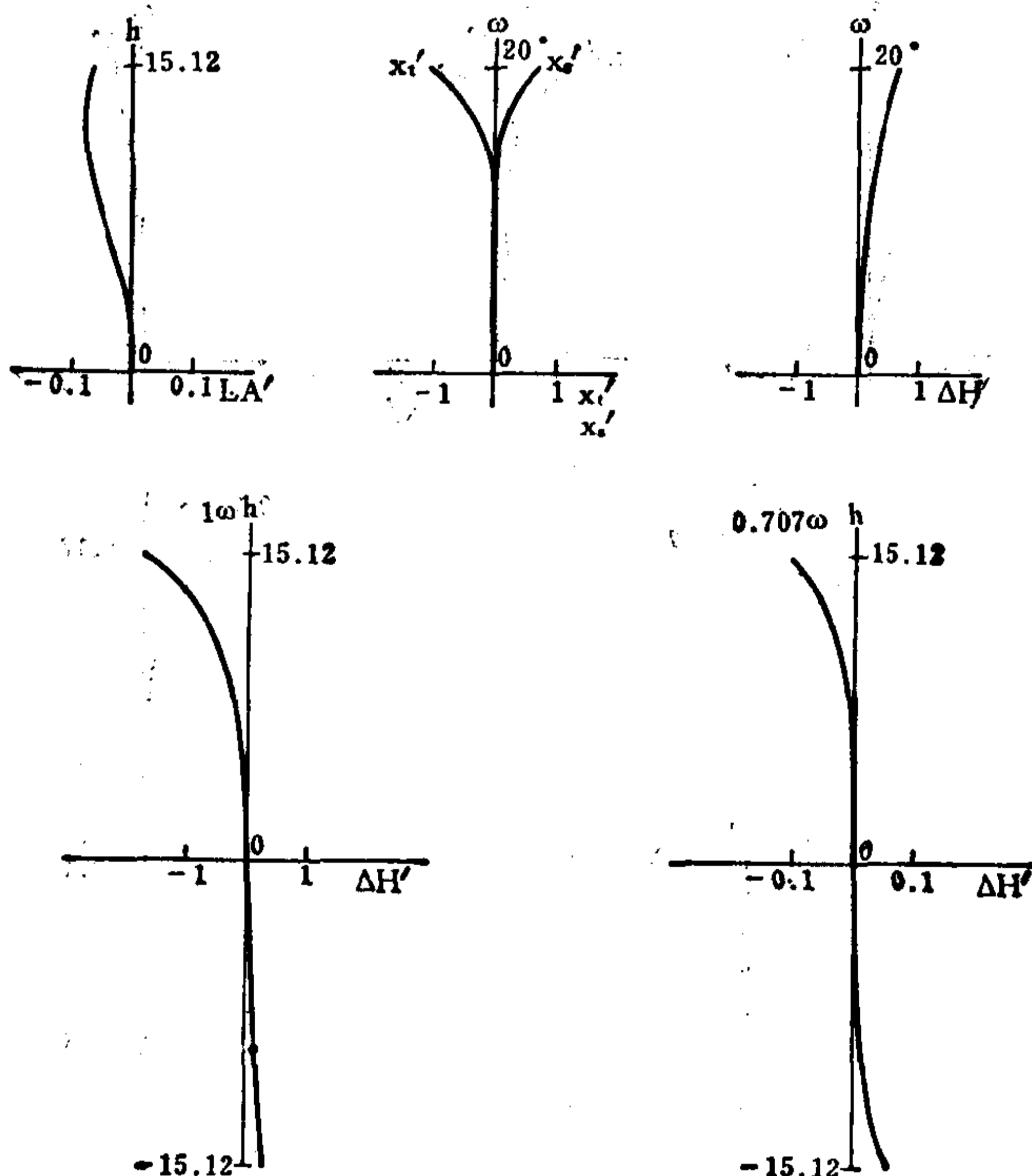
F.A.=±20°**



序号	r	d	n	v	序号	r	d	n	v
1	47.415	6.24	1.65100	56.15	6	119.915	1.40	1.80518	25.43
2	382.376	0.15			7	18.538	17.50*		
3	29.457	1.80	1.60311	60.70	8	125.044	7.60	1.69700	48.51
4	19.612	8.87	1.69100	54.84	9	-17.176	0.90	1.62299	58.14
5	53.405	3.60			10	-122.866			

17.50* = 5.00 + 12.50

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.01519	0.00067	0.01524	-0.04543	0.31837	31	2.1%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K_{T1}	$K'_{T0.7}$
100	-0.0670	0.6689	-1.0797	0.6784	-1.7581	-0.76448	-0.15946
70	-0.0768	0.3039	0.0095	0.0044	0.0051	-0.02678	-0.00165



编号: 05-04-067

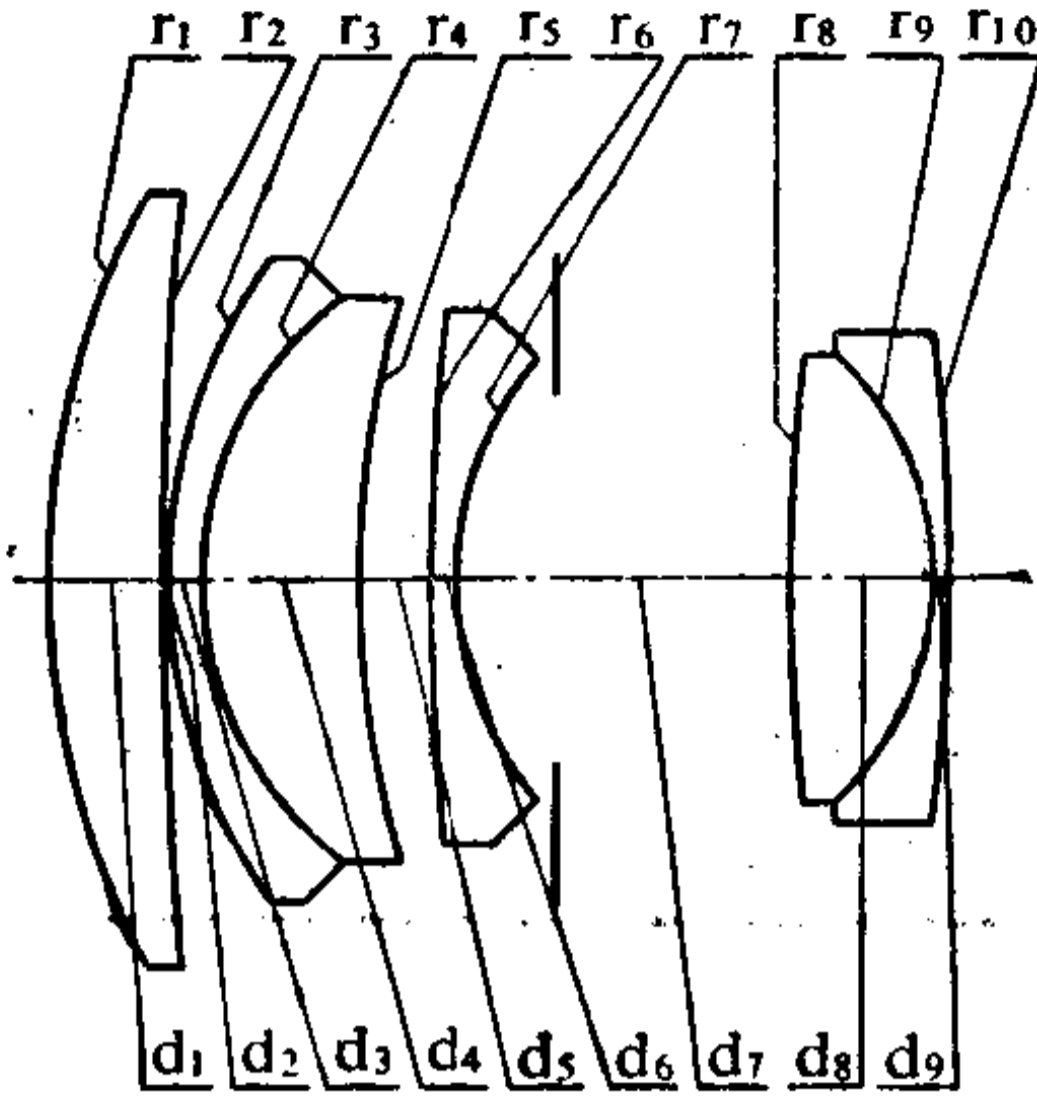
大孔径远距离照相镜头

E.F.L=85.016

B.F.L=41.621

FNo.=2.8

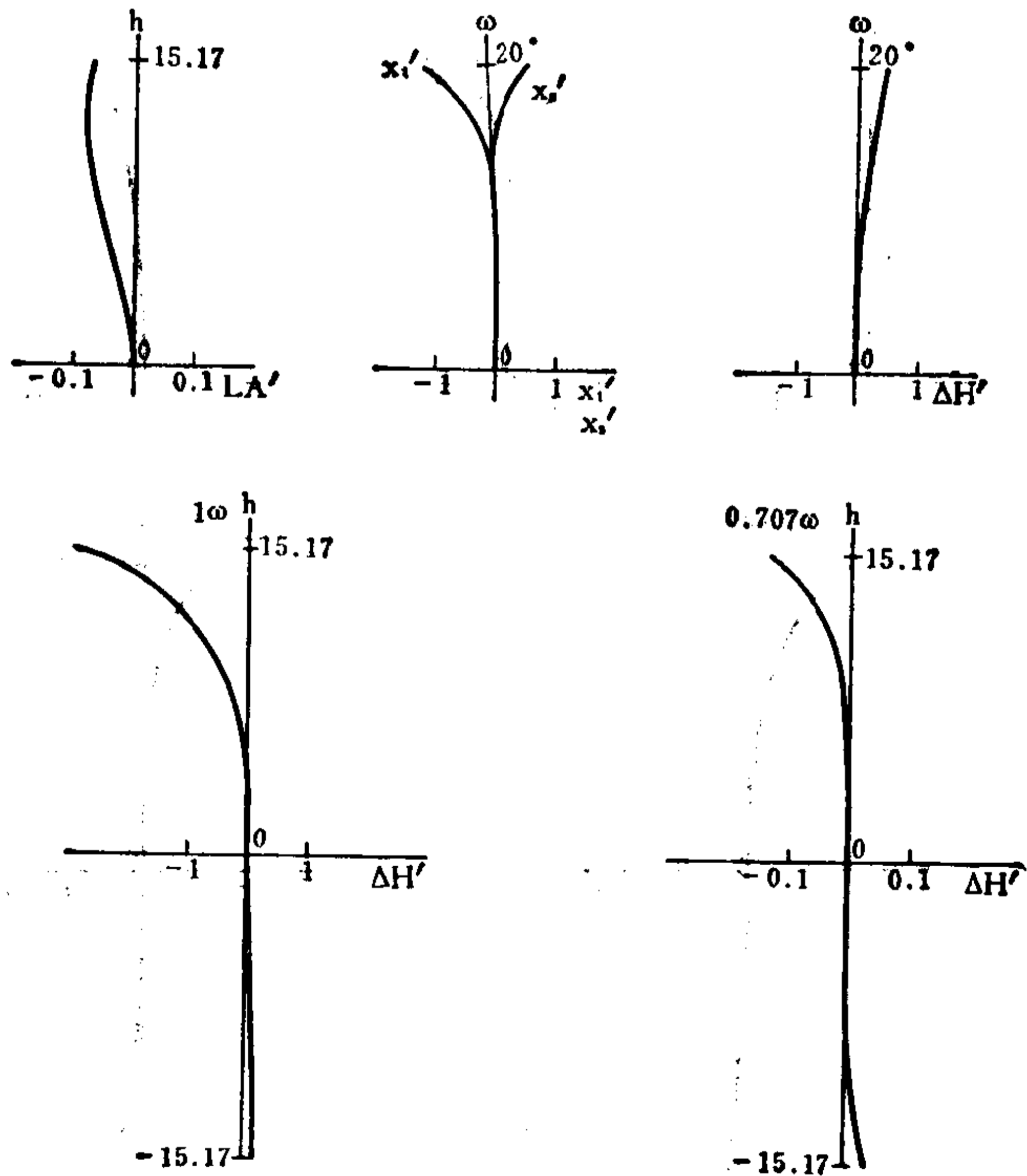
F.A.=±20°**



序号	r	d	n	v	序号	r	d	n	v
1	44.137	6.28	1.65100	56.15	6	128.926	1.40	1.78470	26.22
2	281.551	0.15			7	18.636	17.78*		
3	30.563	1.80	1.61272	58.75	8	103.353	7.60	1.67790	50.72
4	19.458	8.87	1.69680	56.51	9	-16.802	0.90	1.62041	60.27
5	53.203	3.60			10	-129.614			

17.78* = 5.00 + 12.78

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.01563	0.00334	0.01410	-0.04771	0.29069	31	1.4%
h 或 ω %	LA'	$\Delta H'$	x_t	x_s	$x_t - x_s$	K'_{T1}	$K'_{T0.7}$
100	-0.06984	0.4320	-1.0426	0.6839	-1.7265	-1.36548	-0.23047
70	-0.07926	0.2533	0.0172	-0.0048	0.0220	-0.05324	-0.00466



编号: 05-04-068

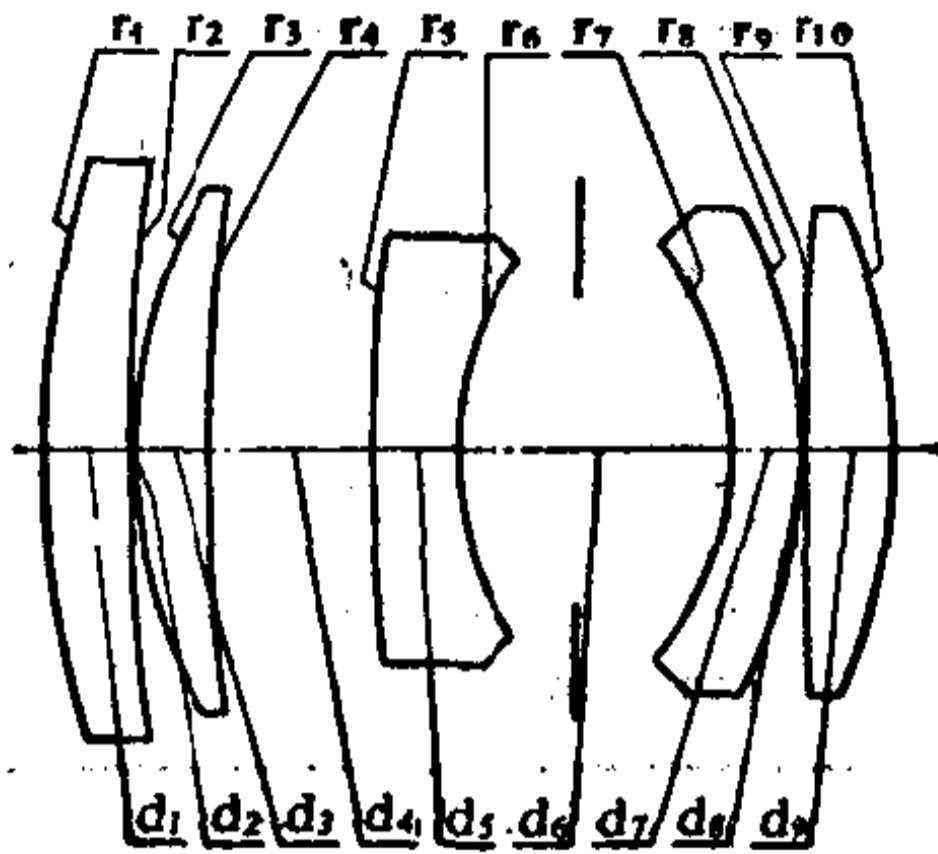
长焦距透镜系统

E.F.L = 1000.99

B.F.L = 616.65

FNo. = 4

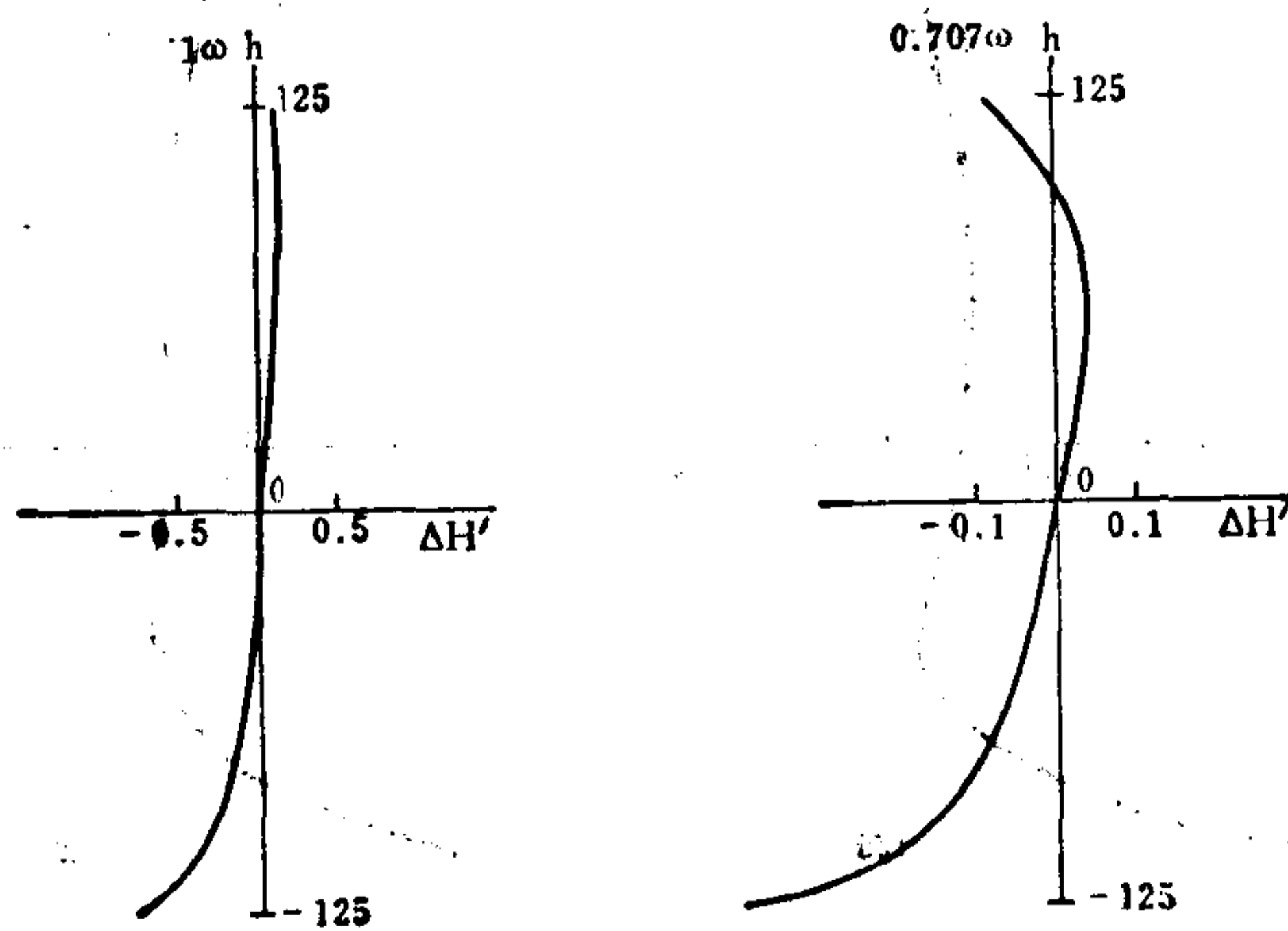
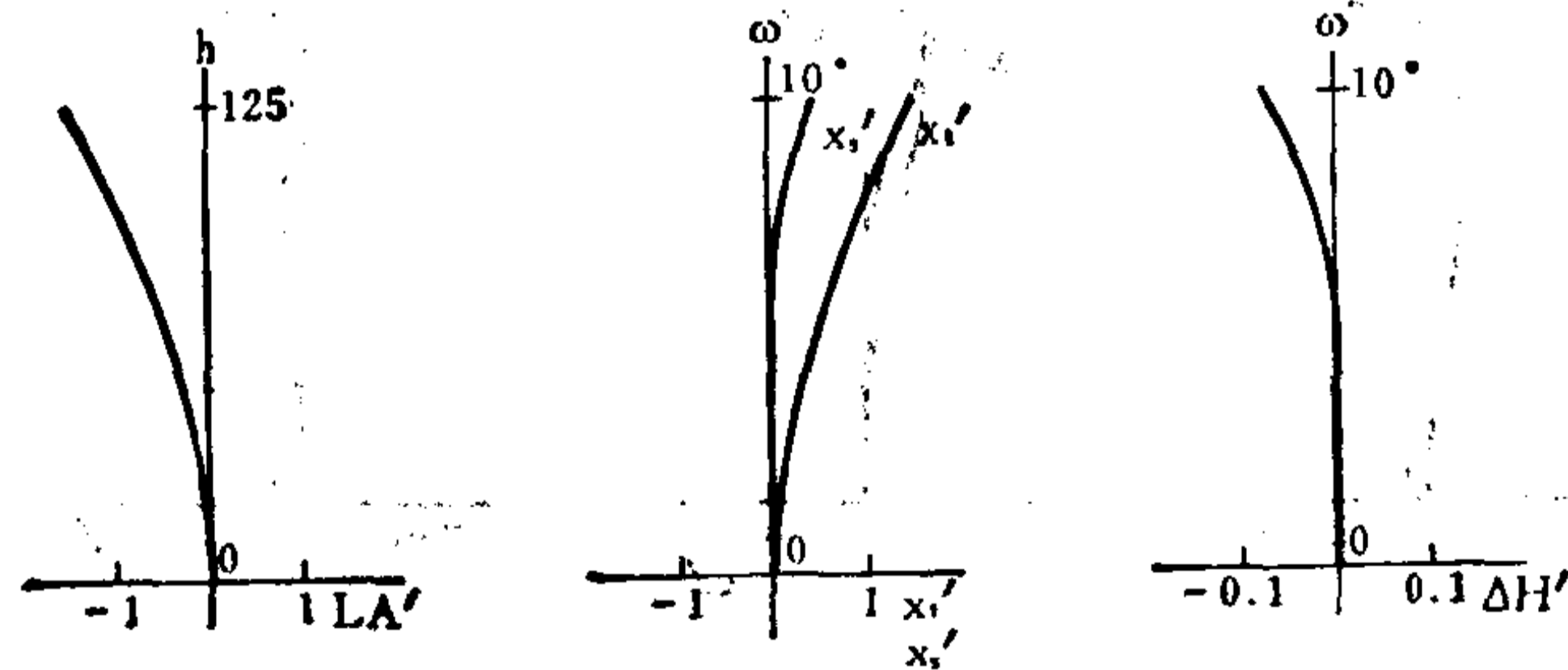
F.A. = ± 10°



序号	r	d	n _d	v _d	序号	r	d	n _d	v _d
1	634.300	54.68	1.64000	60.2	6	221.643	175.00*		
2	2007.820	1.99			7	-215.442	43.74	1.54814	45.9
3	345.582	50.00	1.64000	60.2	8	-338.465	5.01		
4	1215.569	103.89			9	5691.000	55.01	1.75700	47.7
5	1931.321	55.01	1.76182	26.5	10	-391.378			

175.00* = 75.00 + 100.00

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP (1ω)
	-0.0683	0.0022	0.0343	-0.0383	0.0033	176.5	-0.04%
h 或 ω %	LA'	ΔH'	x' _i	x' _s	x' _i - x' _s	K' _{T1}	K' _{T0.7}
100	-1.4990	-0.0763	1.5146	0.4235	1.0911	-0.3088	-0.0524
70	-0.9223	-0.0094	0.9266	0.0718	0.8548	-0.2413	-0.0474



编号: 05-04-069

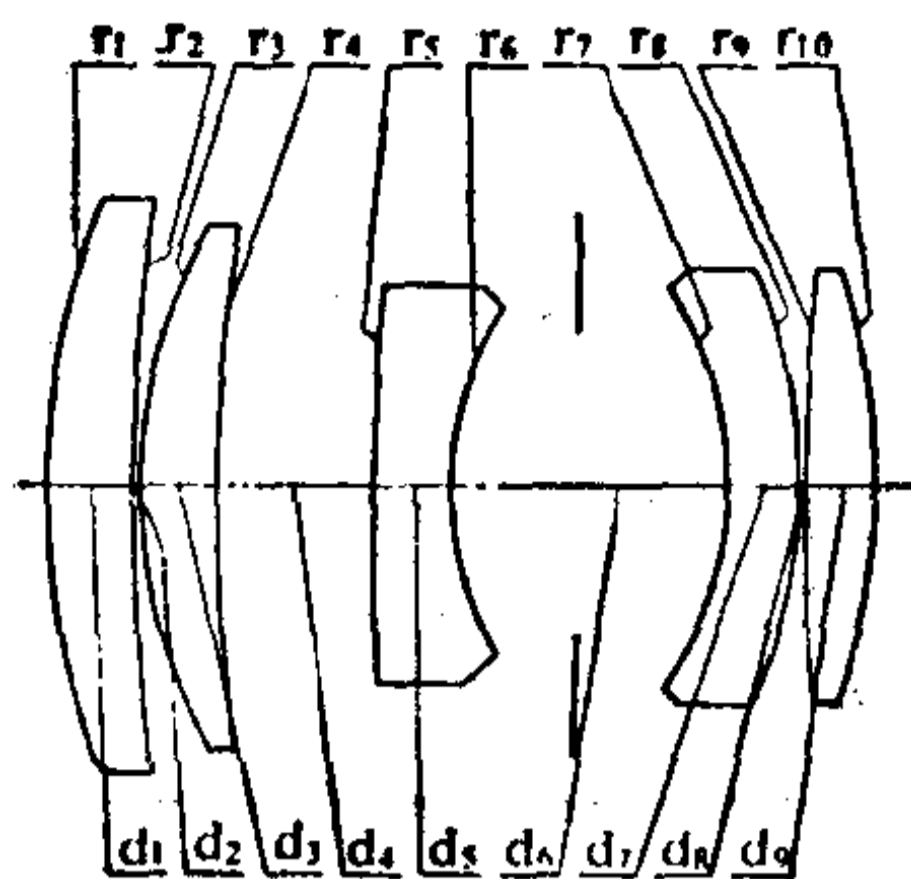
长焦距透镜系统

E.F.L = 1000

B.F.L = 586.01

FNo. = 4

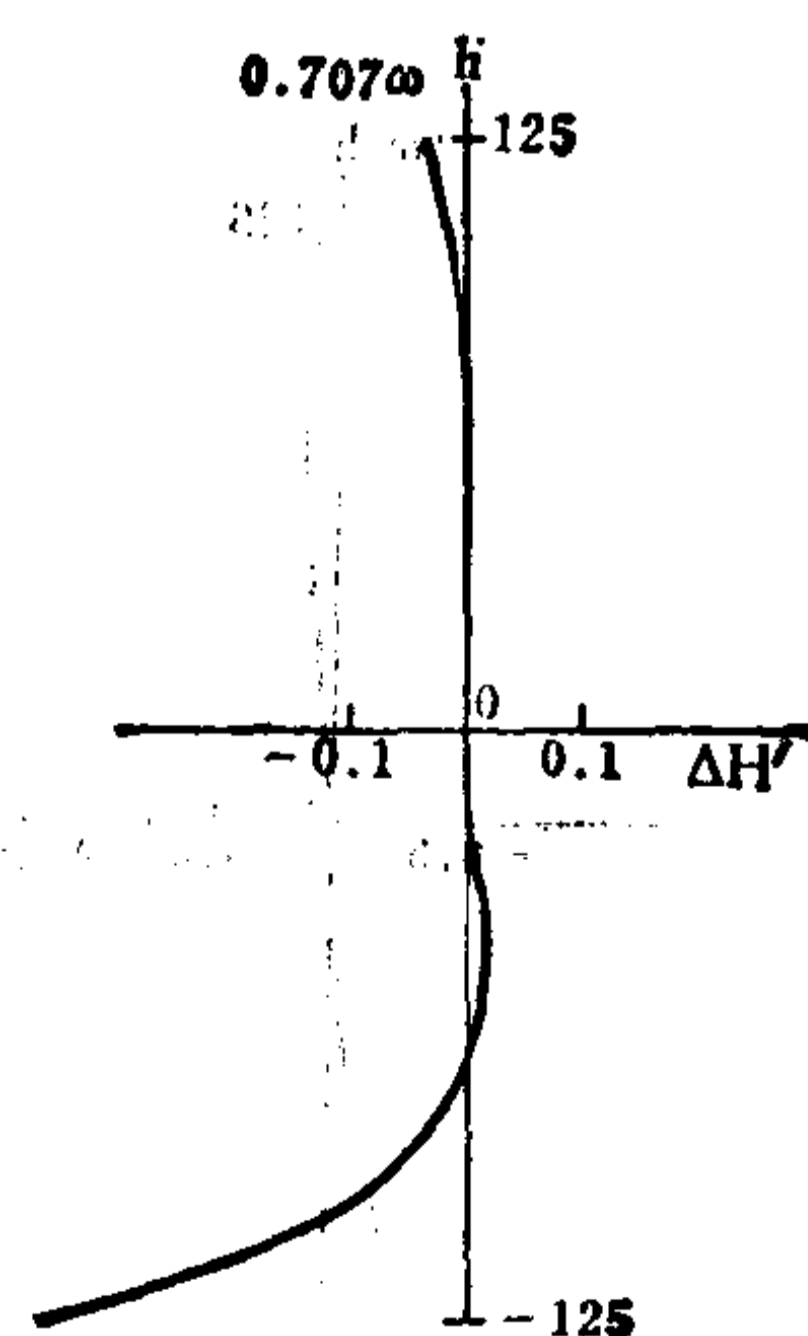
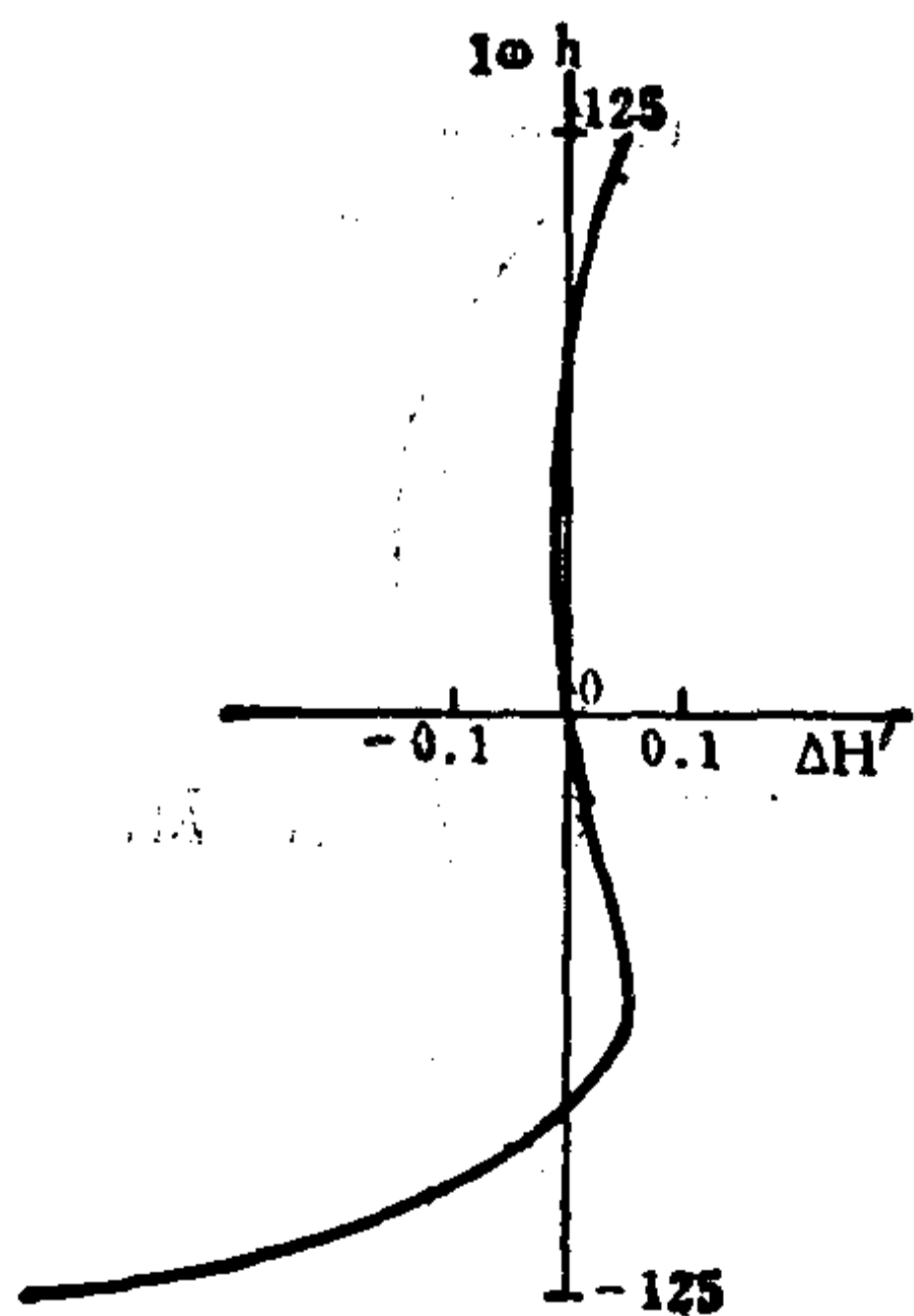
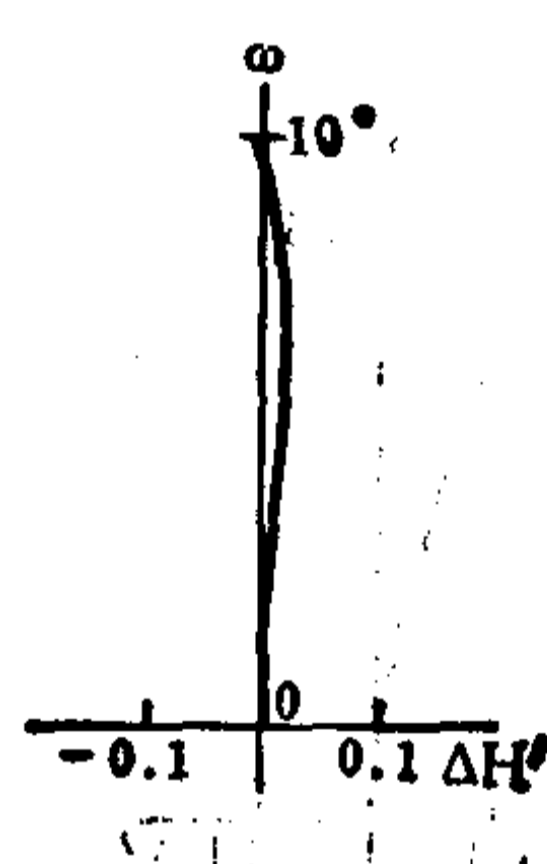
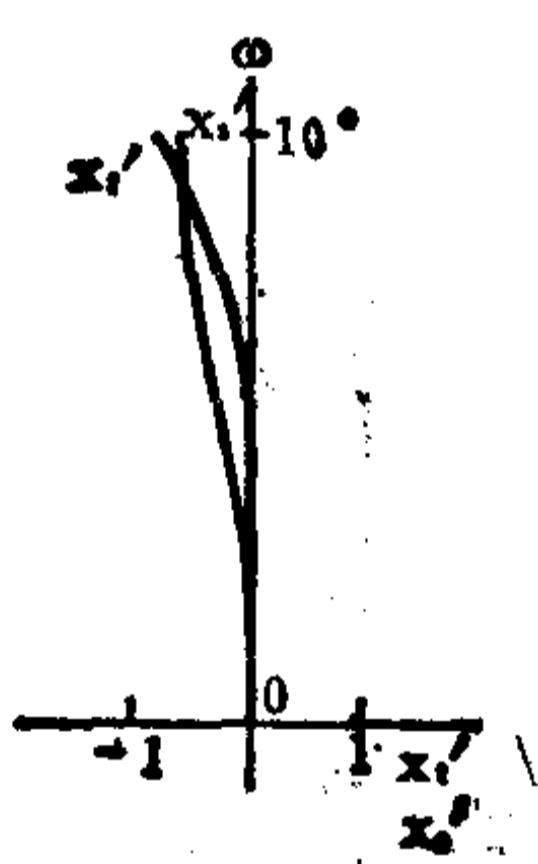
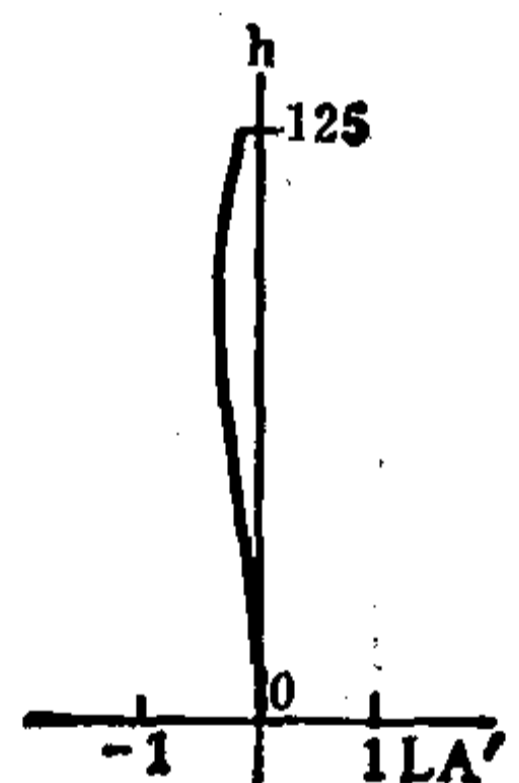
F.A. = ± 10°



序号	r	d	n _d	v _d	序号	r	d	n _d	v _d
1	513.998	55.01	1.64000	60.2	6	224.189	174.98*		
2	1365.181	1.97			7	-235.127	43.74	1.53172	43.9
3	356.518	48.99	1.64000	60.2	8	-371.879	5.01		
4	1338.771	100.61			9	2187.227	43.74	1.74320	49.3
5	2996.500	51.99	1.74077	27.7	10	-453.395			

* 174.98* = 74.98 + 100.00

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP (1ω)
	-0.0382	0.0030	0.0178	-0.0531	0.0287	176.3	-0.006%
h 或 ω %	LA'	ΔH'	x _t '	x _s '	x _t ' - x _s '	K _{T1} '	K _{T0.7} '
100	-0.1620	-0.0114	-0.8053	-0.5805	-0.2248	-0.2071	0.0023
70	-0.3568	0.0194	-0.1608	-0.4309	0.2701	-0.2076	-0.0276



编号: 05-04-070

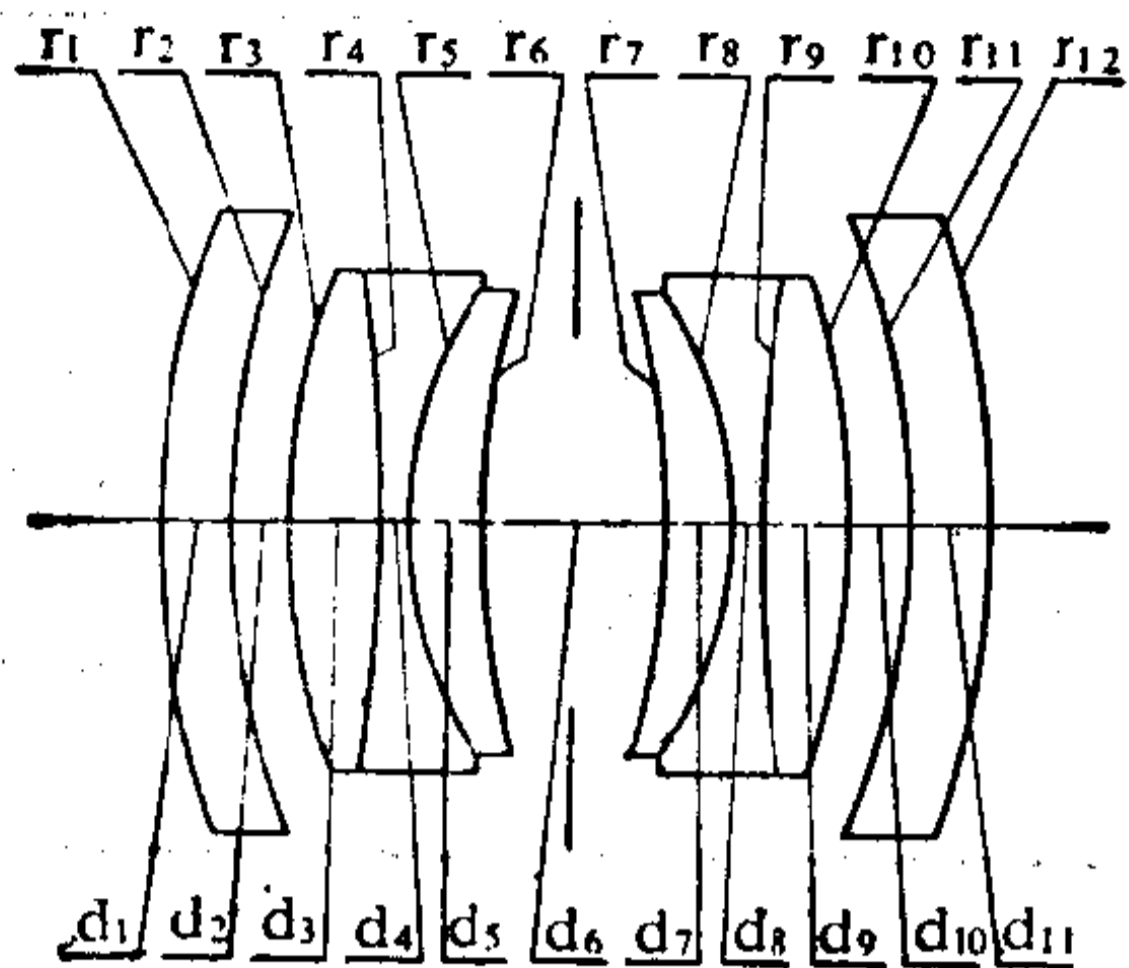
复消色差的对称广角物镜

E.F.L=97.19

B.F.L=89.15

FN₀. =14.6

F.A. = ±22.5°

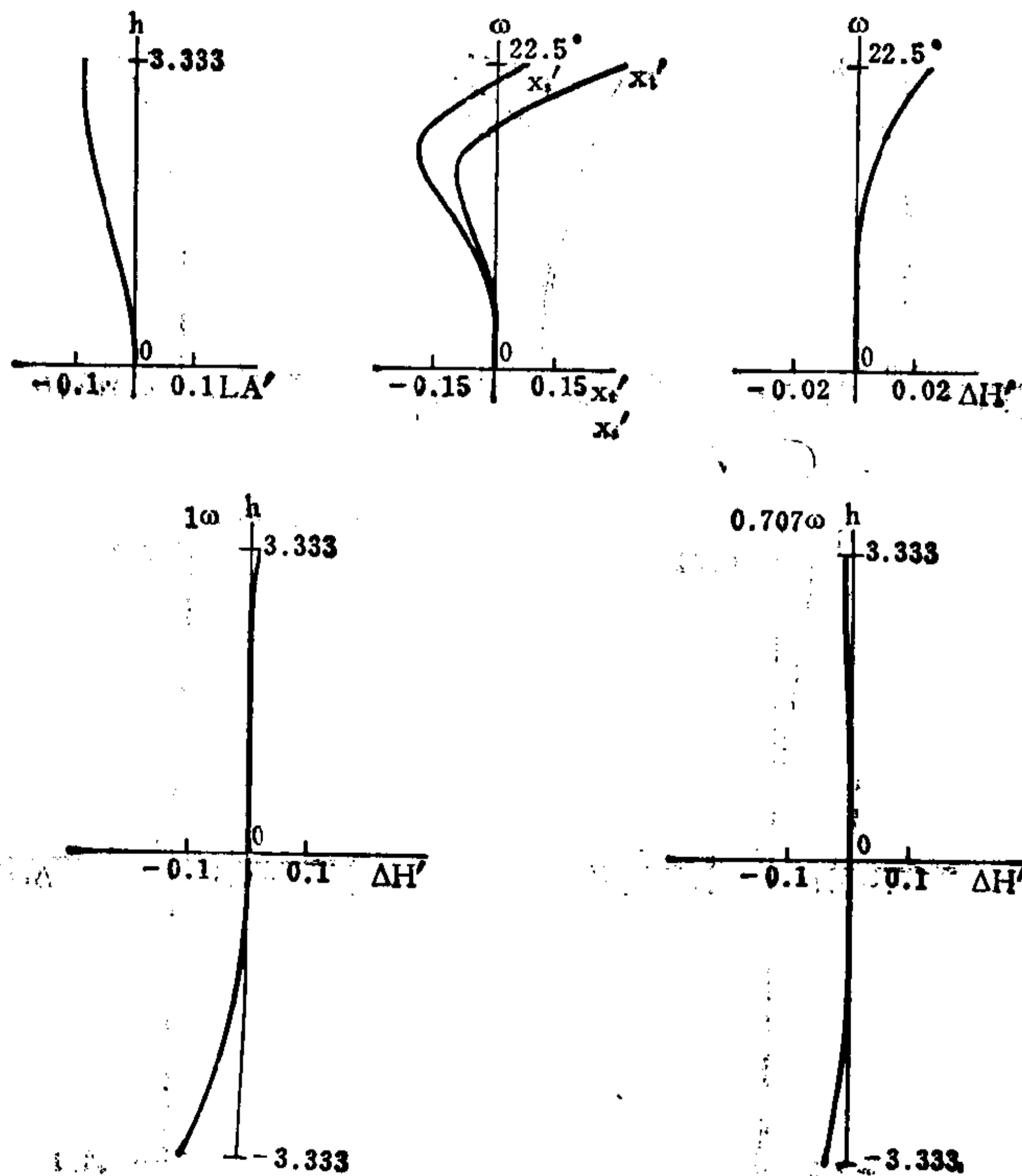


序号	r	d	n _e	v _e	序号	r	d	n _e	v _e
1	18.81	1.75	1.518	56.6	7	-18.13	1.43	1.466	65.7
2	18.71	1.22			8	-8.93	0.79	1.560	53.7
3	18.13	1.77	1.661	57.1	9	43.61	1.77	1.661	57.1
4	-43.61	0.79	1.560	53.7	10	-18.13	1.22		
5	8.93	1.43	1.466	65.7	11	-18.71	1.75	1.518	56.6
6	18.13	3.90*			12	-18.81			

3.90* = 1.95 + 1.95

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP (1ω)
	-0.00049	-0.00068	0.00014	-0.00199	0.00105	40.29	0.06%
h 或 ω %	LA'	ΔH'	x _t	x _s	x _t - x _s	K _{T1}	K _{T0.7}
100	-0.0907	0.0242	0.3308	0.0706	0.2602	-0.0404	-0.0189
70	-0.0765	0.0070	-0.0915	-0.2055	0.1140	-0.0267	-0.0125

注: 以上象差值是按 l = -∞ 计算的。



编号: 05-04-071

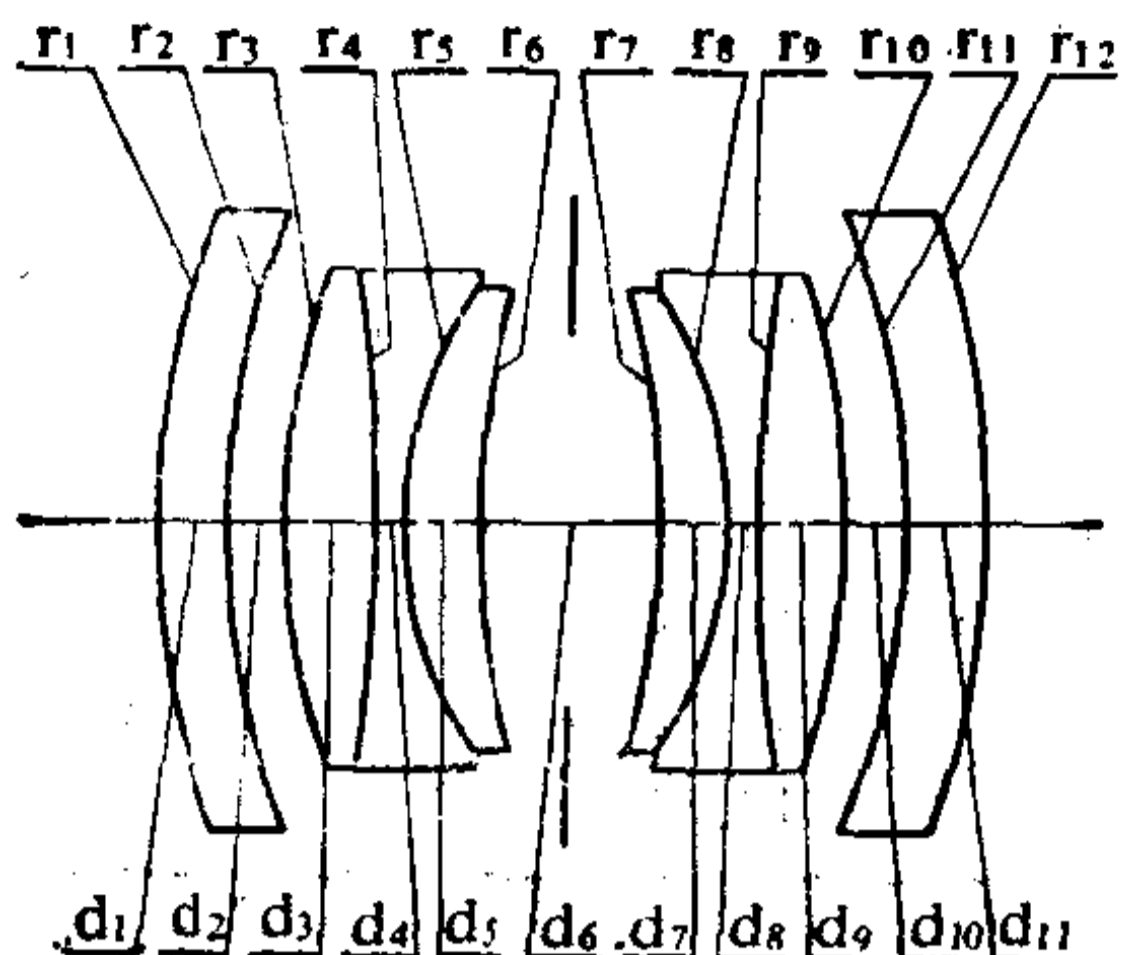
复消色差的对称广角物镜

E.F.L = 95.82

B.F.L = 88.29

FNo. = 14.4

F.A. = ±22.5°

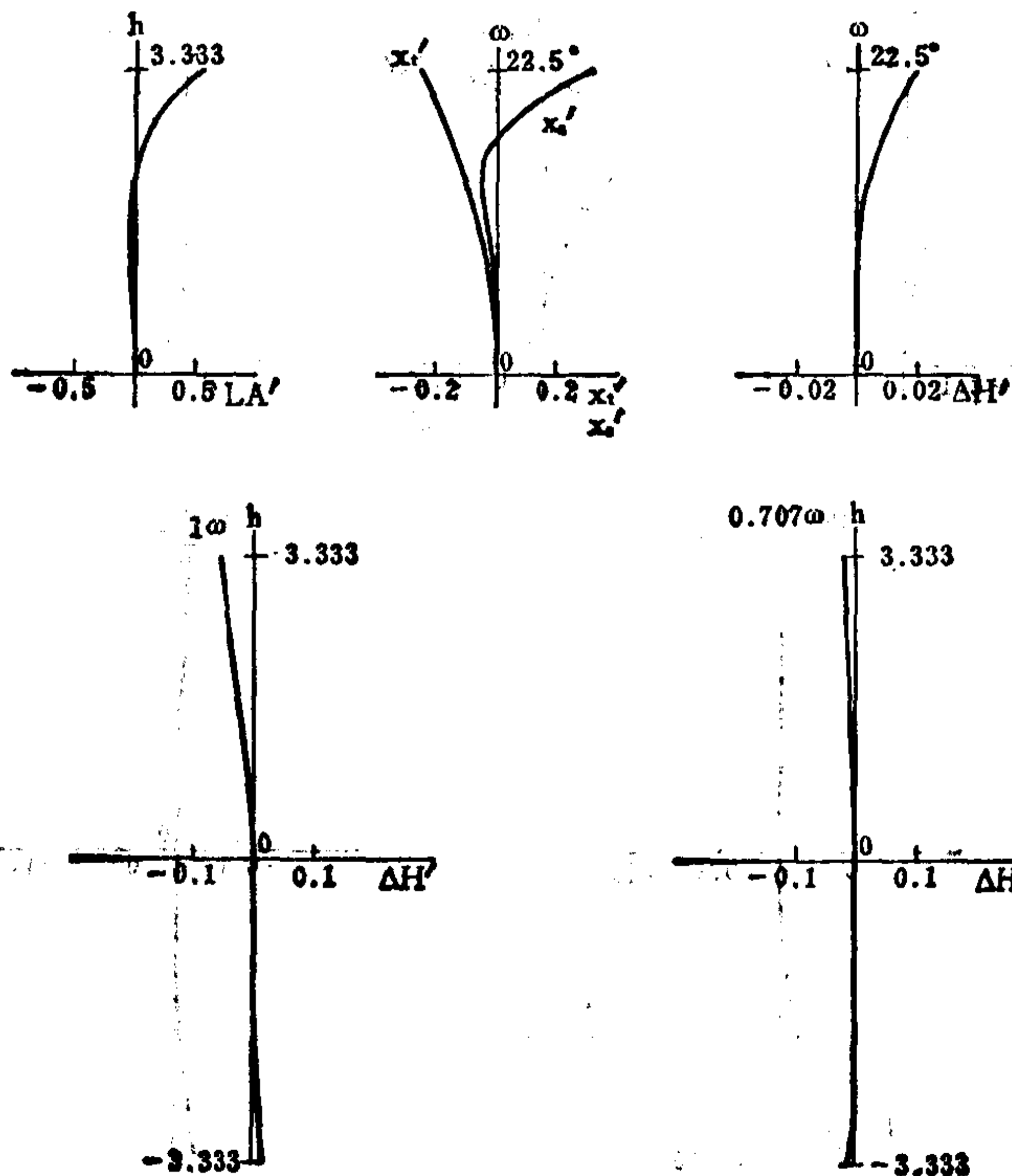


序号	r	d	n_e	v_e	序号	r	d	n_e	v_e
1	24.01	1.35	1.520	65.0	7	-15.26	1.43	1.517	54.5
2	21.28	1.22			8	-5.96	0.79	1.560	53.7
3	14.51	1.67	1.623	60.1	9	21.73	1.67	1.623	60.1
4	-21.73	0.79	1.560	53.7	10	-14.51	1.22		
5	5.96	1.43	1.517	54.5	11	-21.28	1.35	1.520	65.0
6	15.26	3.90*			12	-24.01			

3.90* = 1.95 + 1.95

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP (1 ω)
	-0.00072	-0.00072	0.00009	-0.00127	0.00085	39.7	0.05%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_e	$x'_i - x'_e$	K'_{T1}	$K'_{T0.7}$
100	0.5727	0.0205	-0.2565	0.3381	-0.5946	-0.0216	-0.0126
70	0.0420	0.0058	-0.1184	-0.0558	-0.0626	-0.0197	-0.0105

注: 以上象差值是按 $l = -\infty$ 计算的。



编号: 05-04-072

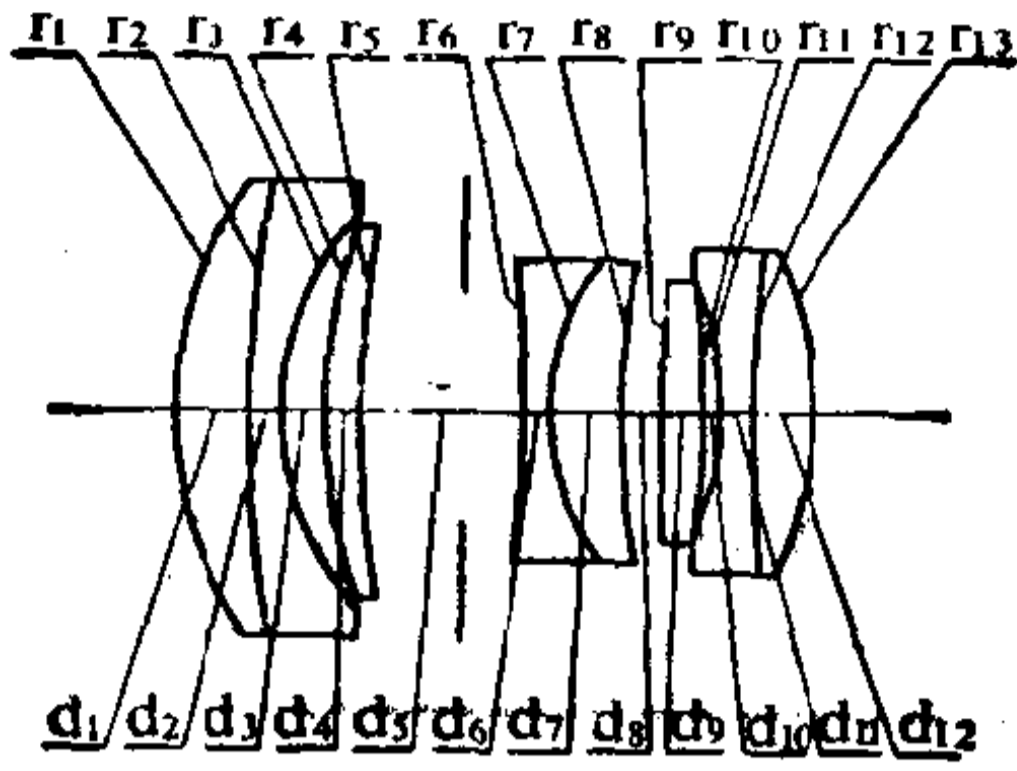
五组元摄影物镜

E.F.L=1.0

B.F.L=0.8317

FNo.=5.6

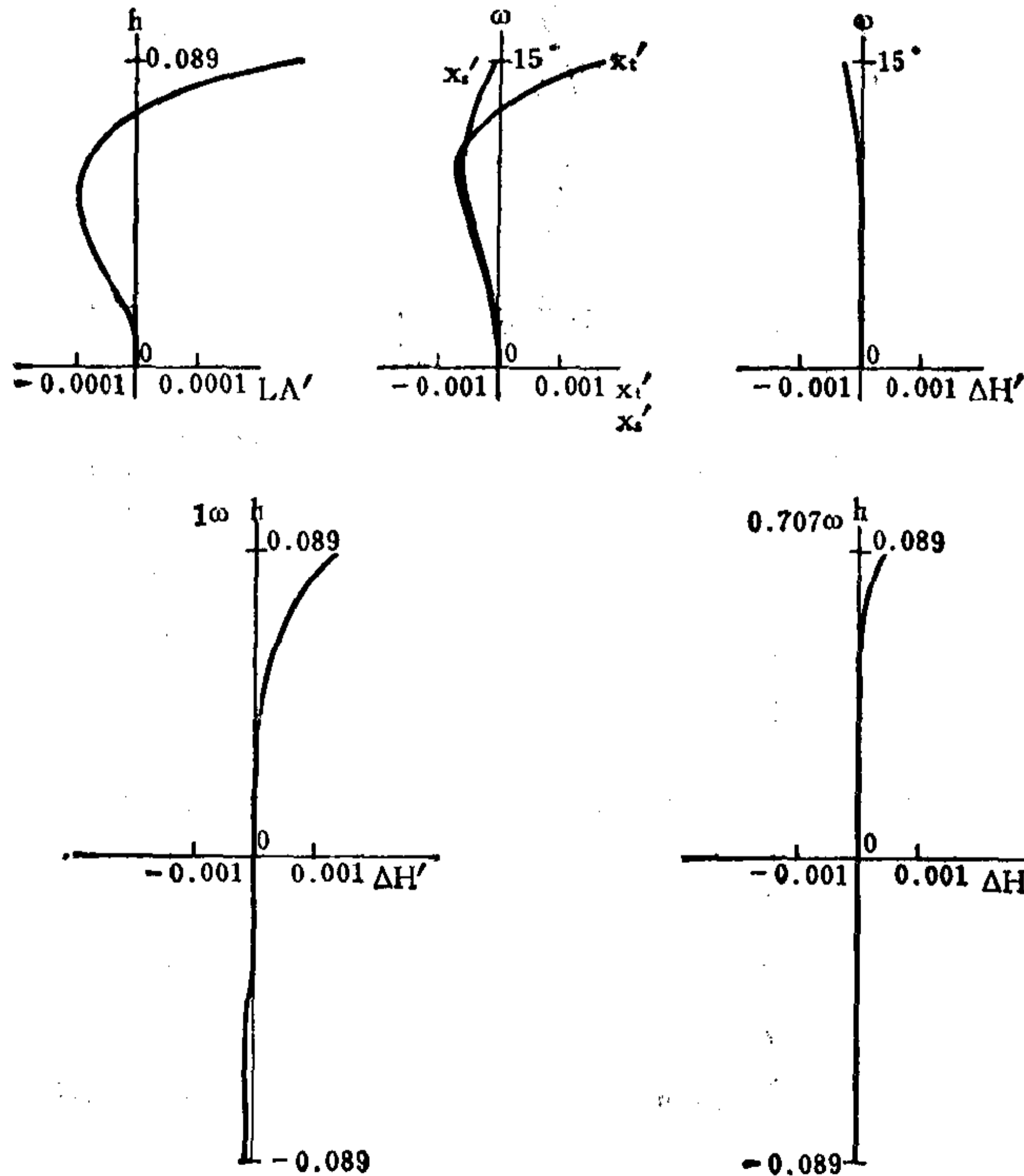
F.A.=±15°



序号	r	d	n _d	v _d	序号	r	d	n _d	v _d
1	0.2534	0.0500	1.6968	55.6	8	0.6164	0.0224		
2	1.1473	0.0200	1.5814	40.8	9	5.7274	0.0250	1.6968	55.6
3	0.1904	0.0250			10	-0.4841	0.0120		
4	0.3650	0.0250	1.6968	55.6	11	-0.2043	0.0200	1.5814	40.8
5	0.7042	0.1039*			12	0.6874	0.0400	1.6968	55.6
6	-1.1127	0.0150	1.6228	56.9	13	-0.2432			
7	-0.1656	0.0500	1.5920	48.5					

0.1039* = 0.0639 + 0.0400

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.0000105	-0.0000078	-0.0000133	-0.0000242	-0.0000569	0.268	-0.12%
h 或 ω %	LA'	ΔH'	x _t '	x _s '	x _t - x _s	K _{T1} '	K _{T0.7} '
100	0.000272	-0.000325	0.001755	-0.000077	0.001833	0.000659	0.000156
70	-0.000084	-0.000116	-0.000695	-0.000656	-0.000039	0.000234	0.000039



编号: 05-04-073

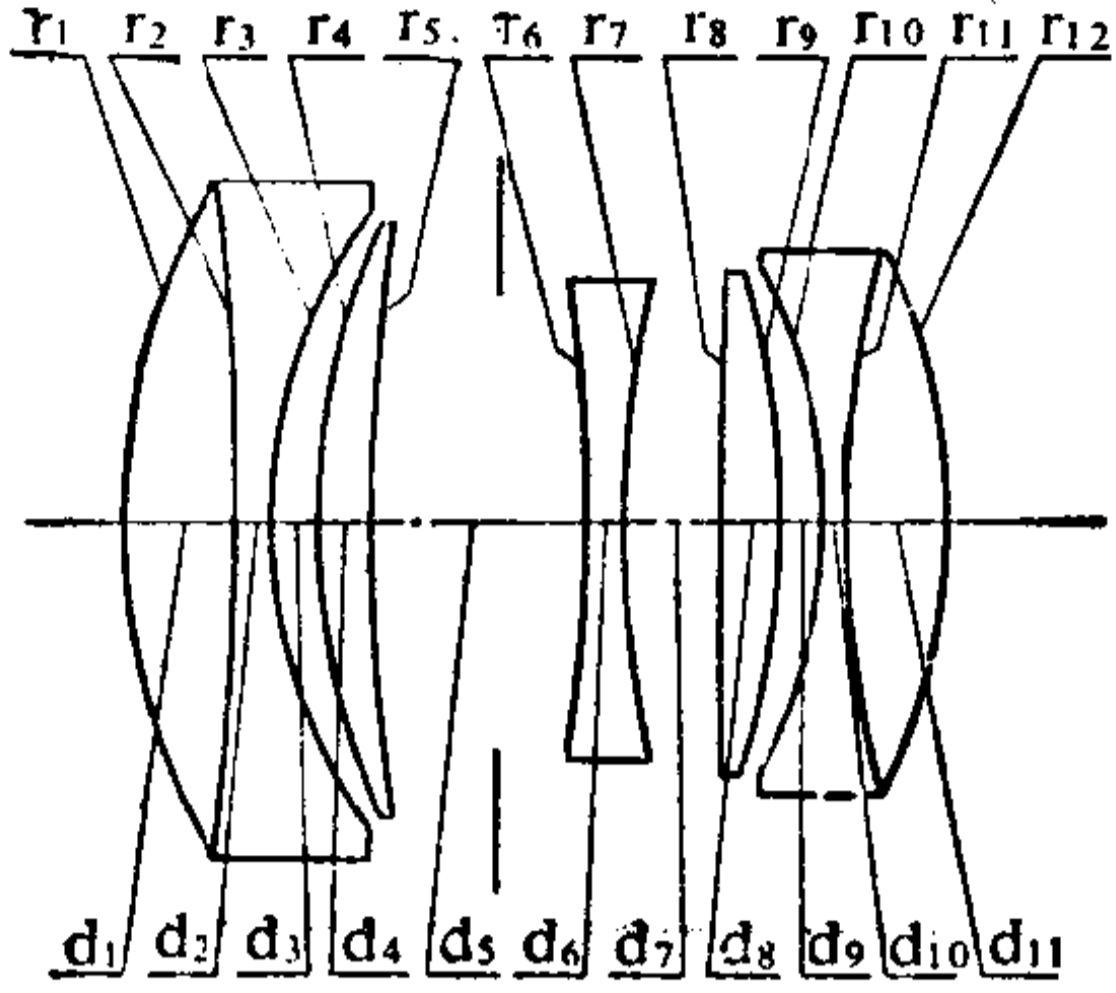
五组元摄影物镜

E.F.L=1.035

B.F.L=0.8946

FNo.=5.8

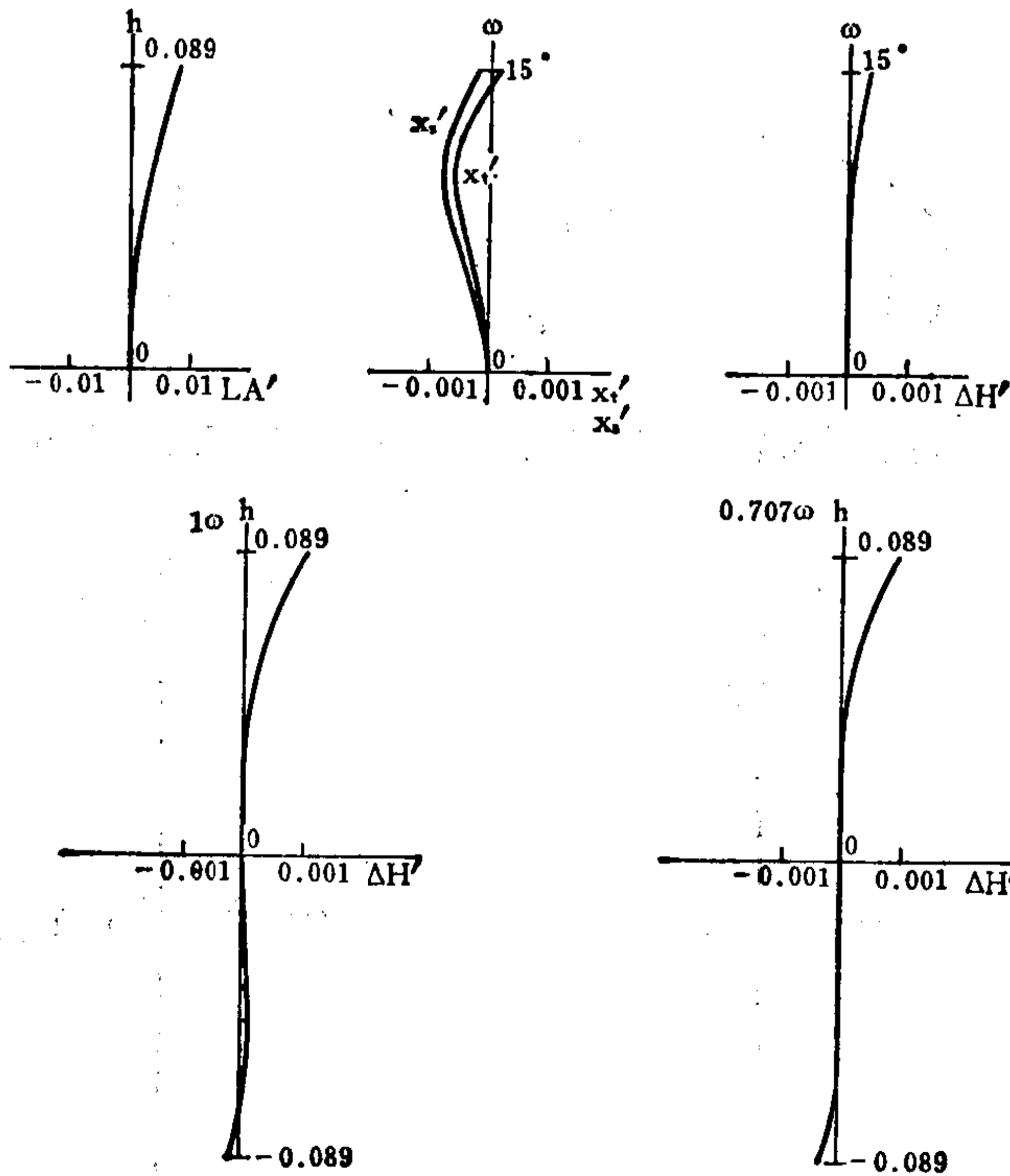
F.A.=±15°



序号	r	d	n _d	v _d	序号	r	d	n _d	v _d
1	0.2583	0.0400	1.6204	60.3	7	0.3960	0.0335		
2	-0.9211	0.0120	1.5294	51.8	8	4.8054	0.0200	1.6204	60.3
3	0.1953	0.0180			9	-0.3152	0.0160		
4	0.2743	0.0200	1.6204	60.3	10	-0.1915	0.0100	1.5294	51.8
5	0.7614	0.0745*			11	0.4248	0.0350	1.6204	60.3
6	-0.5011	0.0150	1.6584	50.9	12	-0.2308			

*0.0745 = 0.0445 + 0.0300

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP (1ω)
	0.0000925	0.0000175	0.0000012	-0.0000425	0.0000542	0.277	0.12%
h 或 ω %	LA'	ΔH'	x _t	x _s	x _t - x _s	K _{T1}	K _{T0.7}
100	0.00826	0.00034	0.00014	-0.00016	0.00030	0.000462	0.000200
70	0.00370	0.00012	-0.00059	-0.00078	0.00019	0.000325	0.000142



编号: 05-04-074

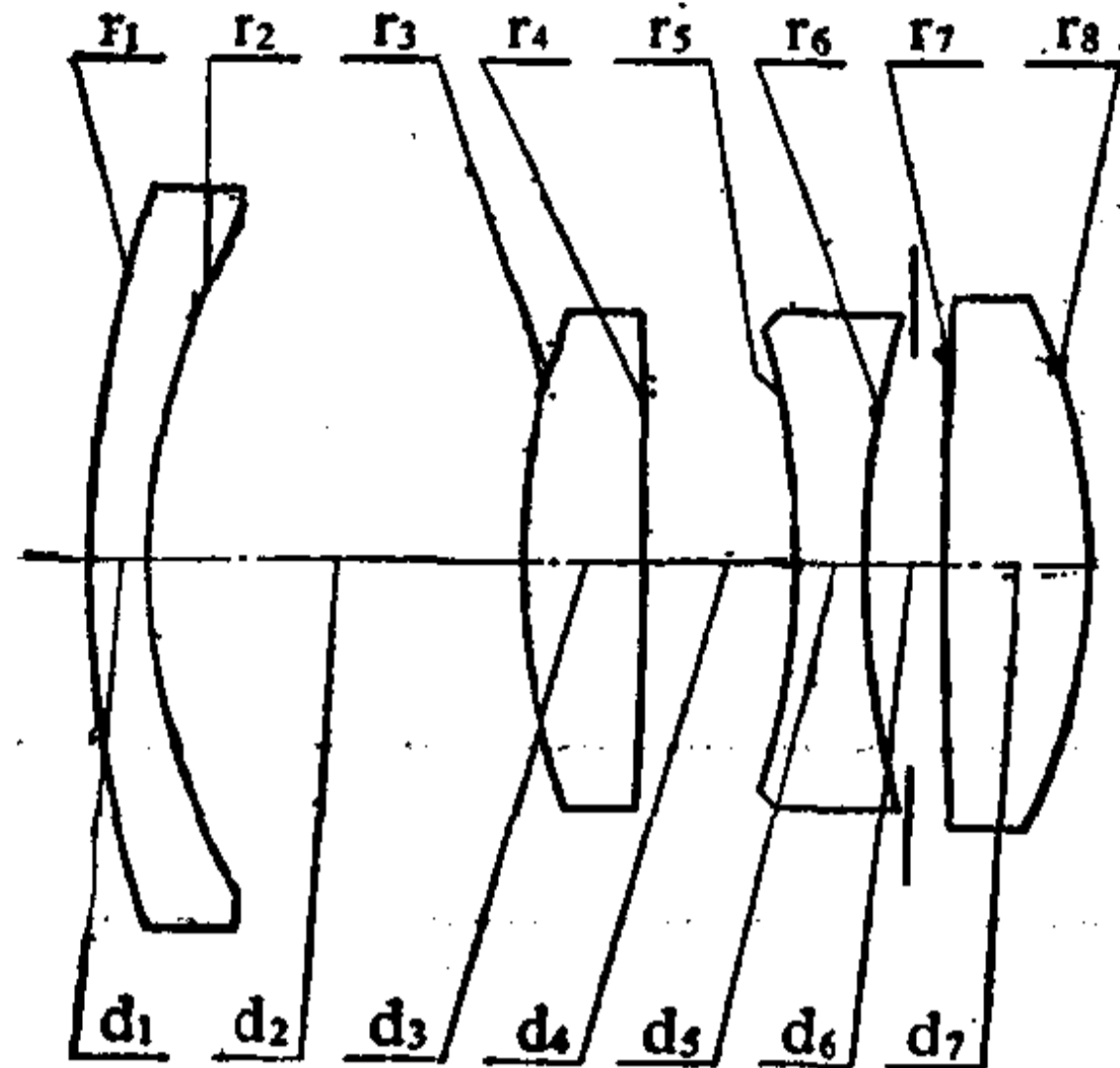
四组元照相物镜

E.F.L.=1.0

B.F.L.=1.017

FNo.=3.5

F.A.=±30°

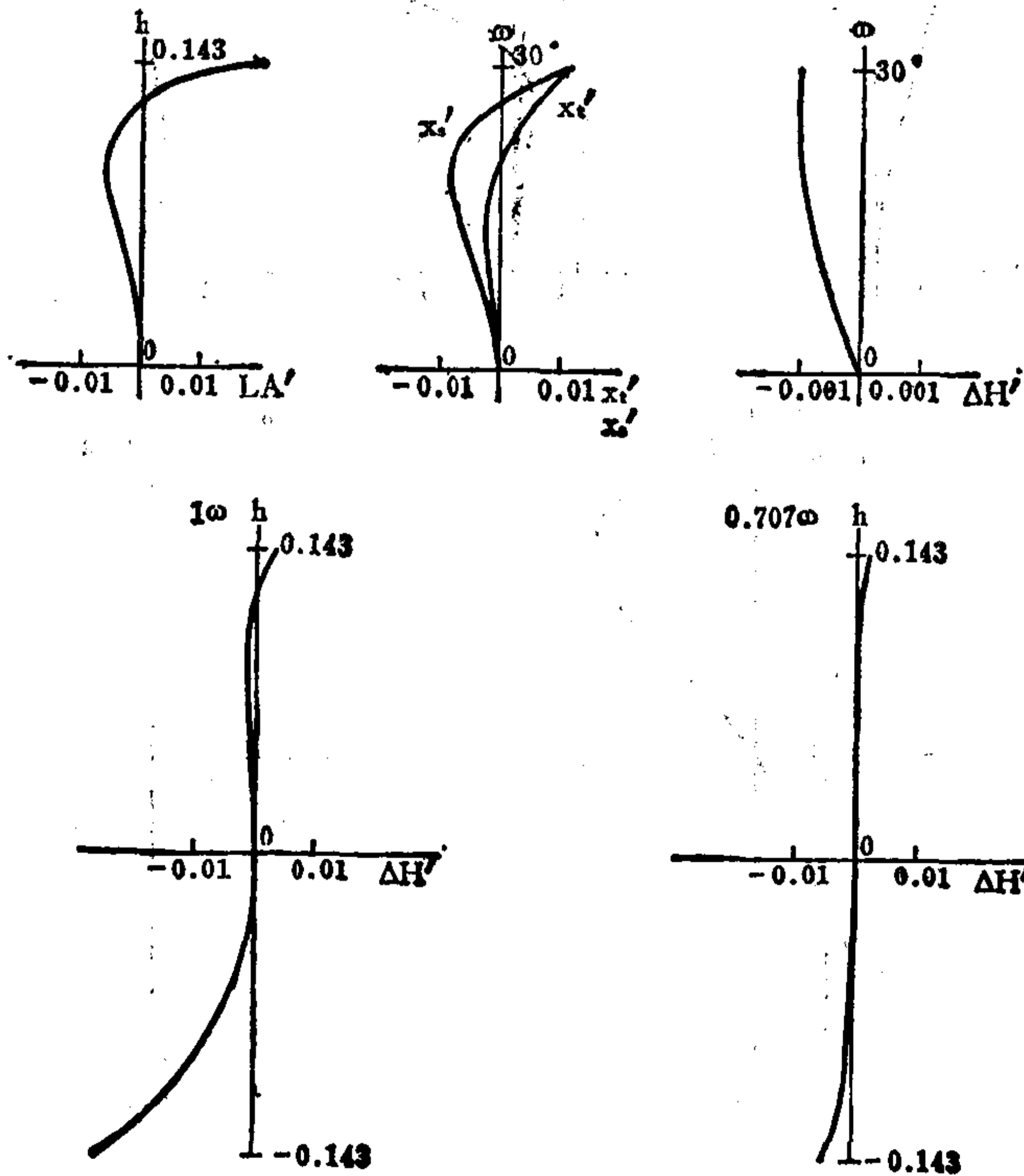


序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	0.6845	0.0295	1.52011	64.9	5	-0.4438	0.0398	1.66886	35.2
2	0.3700	0.2051			6	0.4567	0.0427*		
3	0.3939	0.0671	1.72340	50.2	7	2.0819	0.0795	1.62286	60.0
4	-4.8516	0.0828			8	-0.3366			

0.0427* = 0.0227 + 0.0200

注: 前部两个透镜可移动聚焦。

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP (1ω)
	-0.001048	-0.000008	0.000162	-0.001388	-0.000766	0.578	-0.18%
h 或 ω %	LA'	ΔH'	x _t '	x _s '	x _t ' - x _s '	K _{T1}	K _{T0.7}
100	0.02045	-0.00105	0.01196	0.01205	-0.00009	-0.01161	-0.00532
70	-0.00631	-0.00101	0.00045	-0.00785	0.00830	-0.00127	-0.00105



编号: 05-04-075

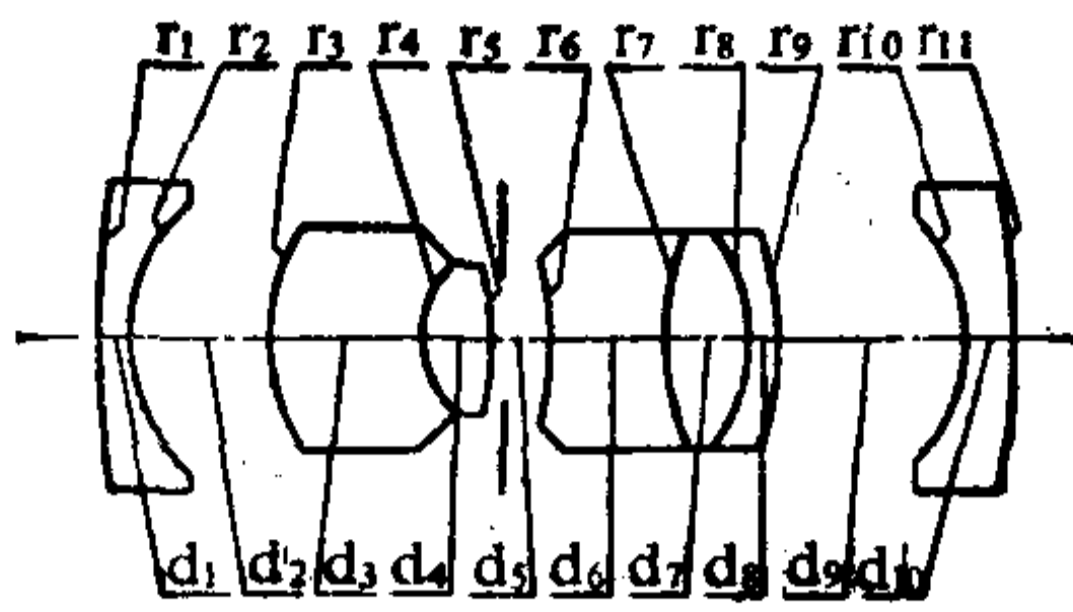
四组元物镜

E.F.L=99.91

B.F.L=18.04

FNo.=6.5

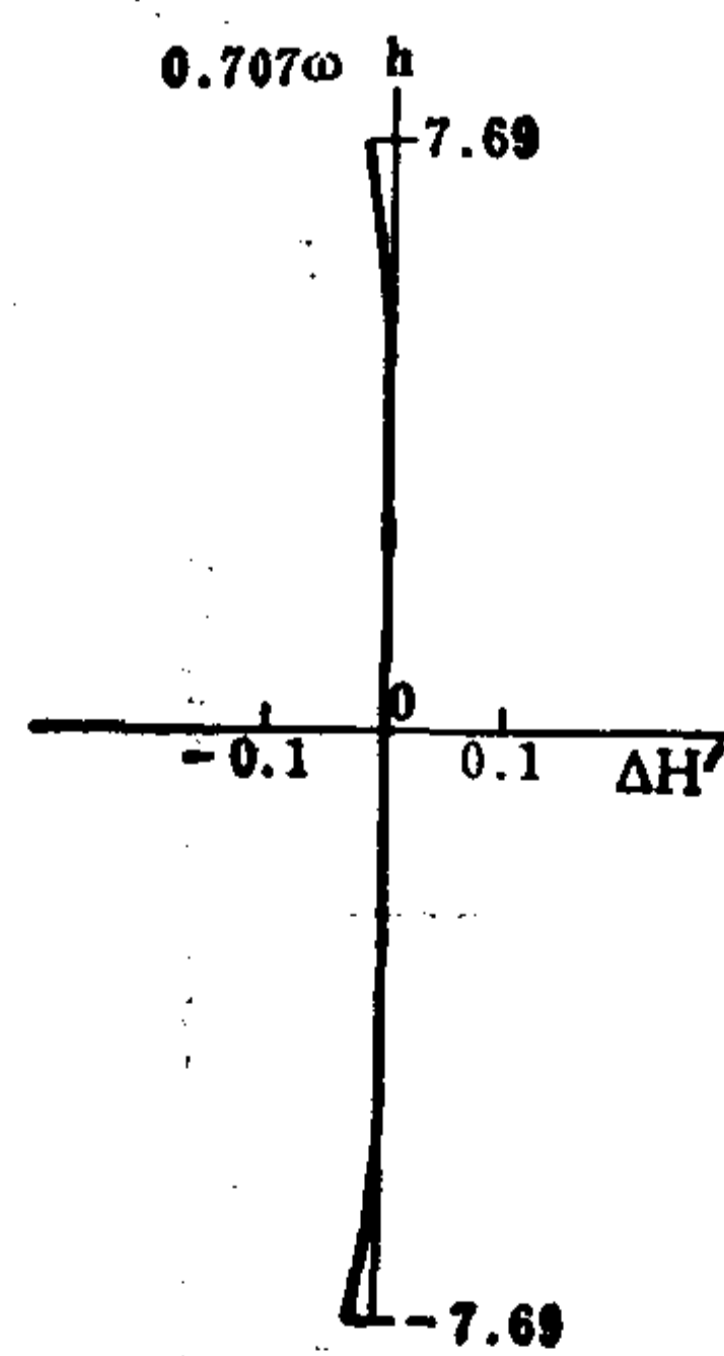
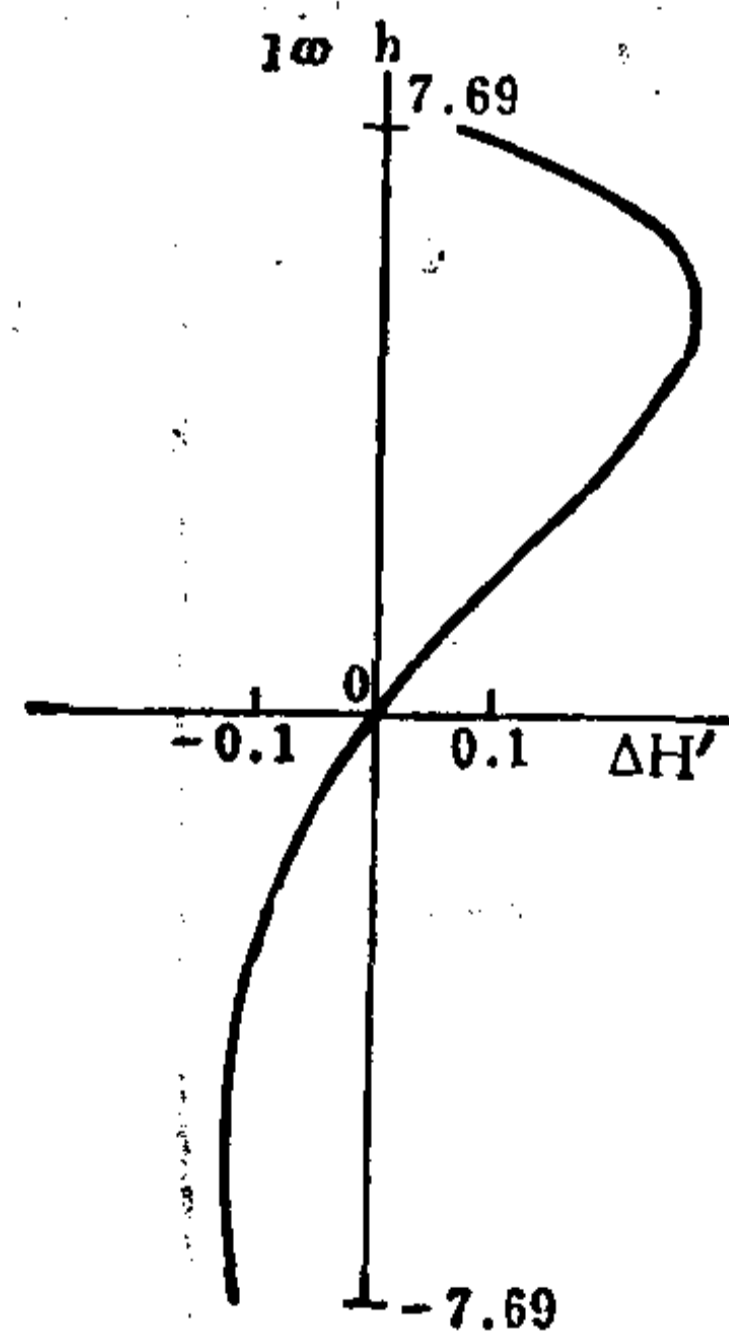
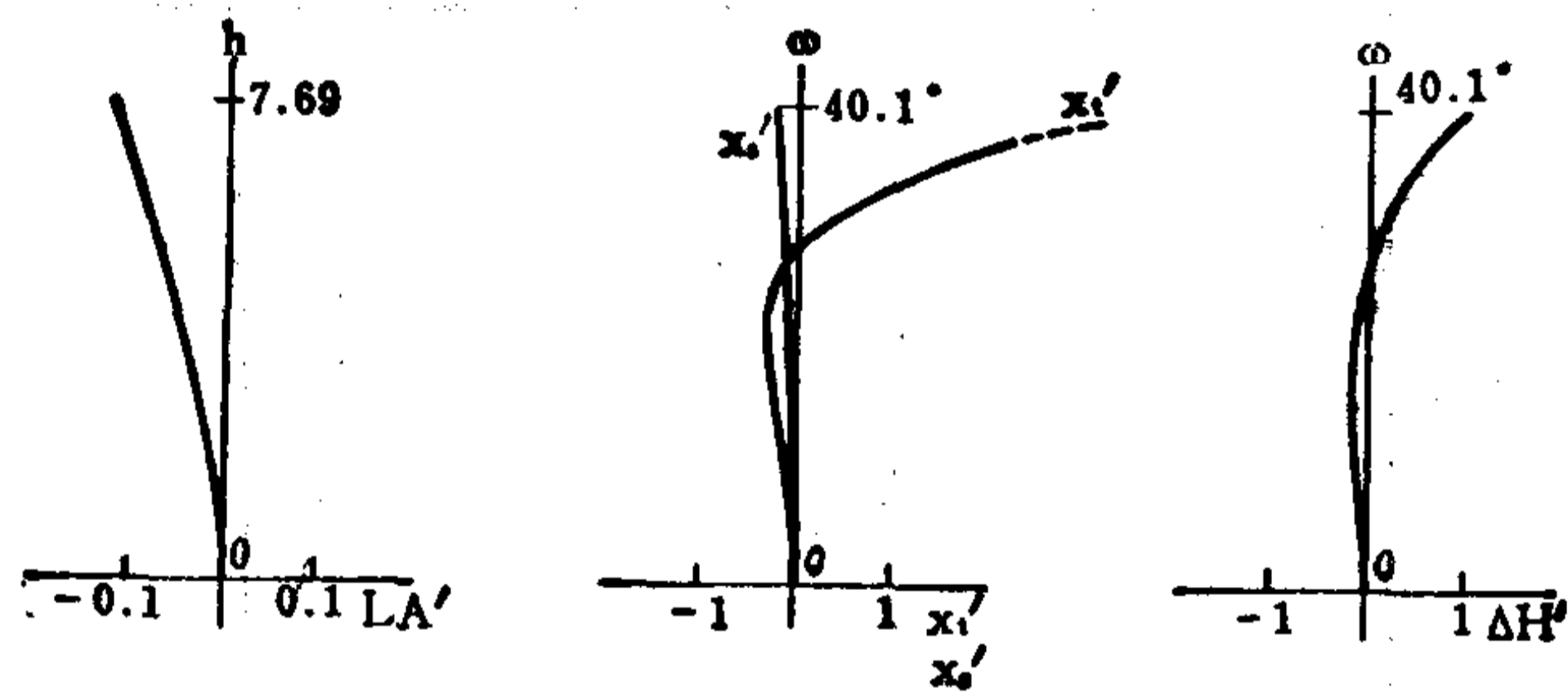
F.A.=±40.1' **



序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	232.61	7.89	1.498	67.0	7	71.16	21.16	1.753	50.6
2	47.19	36.40			8	-45.53	6.70	1.720	29.3
3	52.37	39.23	1.784	26.1	9	-86.18	49.39		
4	26.32	17.35	1.498	67.0	10	-44.90	12.07	1.498	67.0
5	-84.80	14.31*			11	-205.38			
6	-102.53	31.07	1.498	67.0					

14.31* = 2.00 + 12.31

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP (1ω)
	-0.00251	-0.00191	-0.00107	-0.00158	-0.05456	84.1	1.2%
h 或 ω %	LA'	ΔH'	x _i '	x _s '	x _i ' - x _s '	K _{i1}	K _{T0.7}
100	-0.123	1.008	5.224	-0.223	5.447	-0.0276	0.0696
70	-0.085	-0.034	0.042	-0.172	0.214	-0.0206	-0.0047



编号: 05-04-076

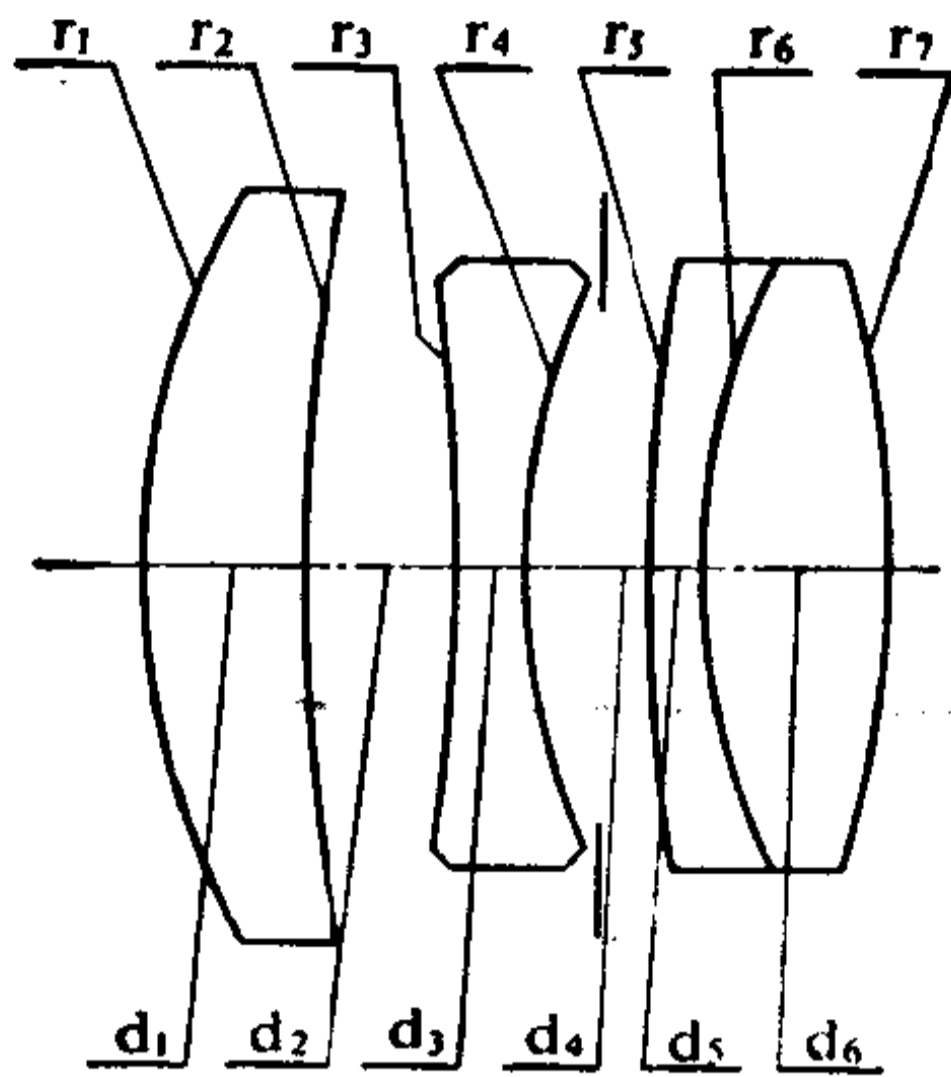
三组四片投影透镜系统

E.F.L=101.9

B.F.L=85.13

FN₀ = 3.57

F.A. = ± 17.7°



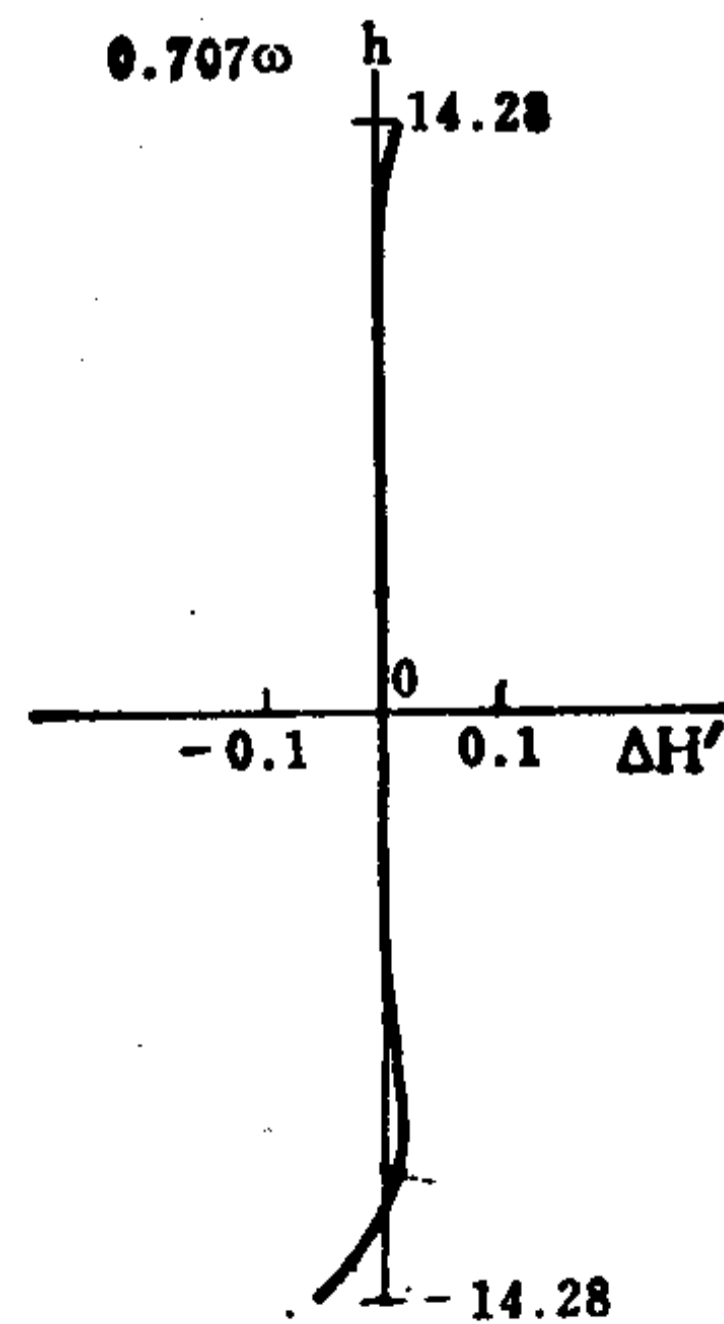
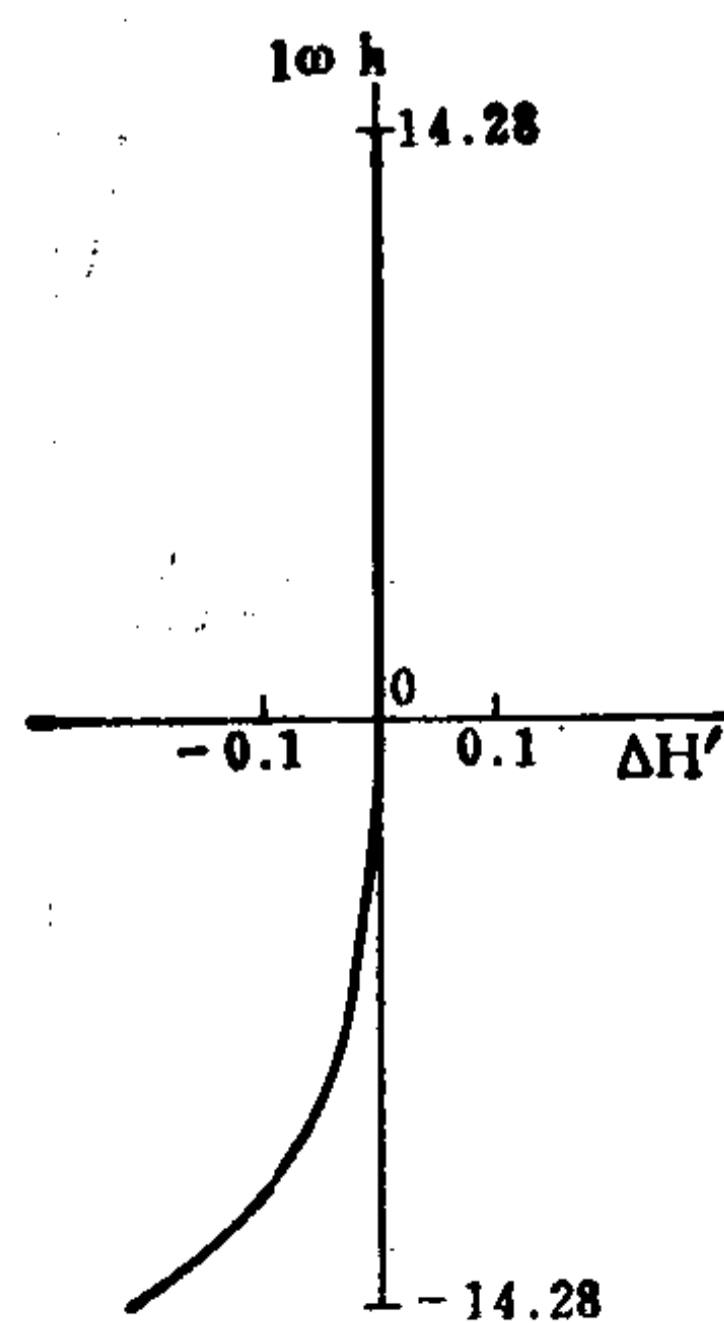
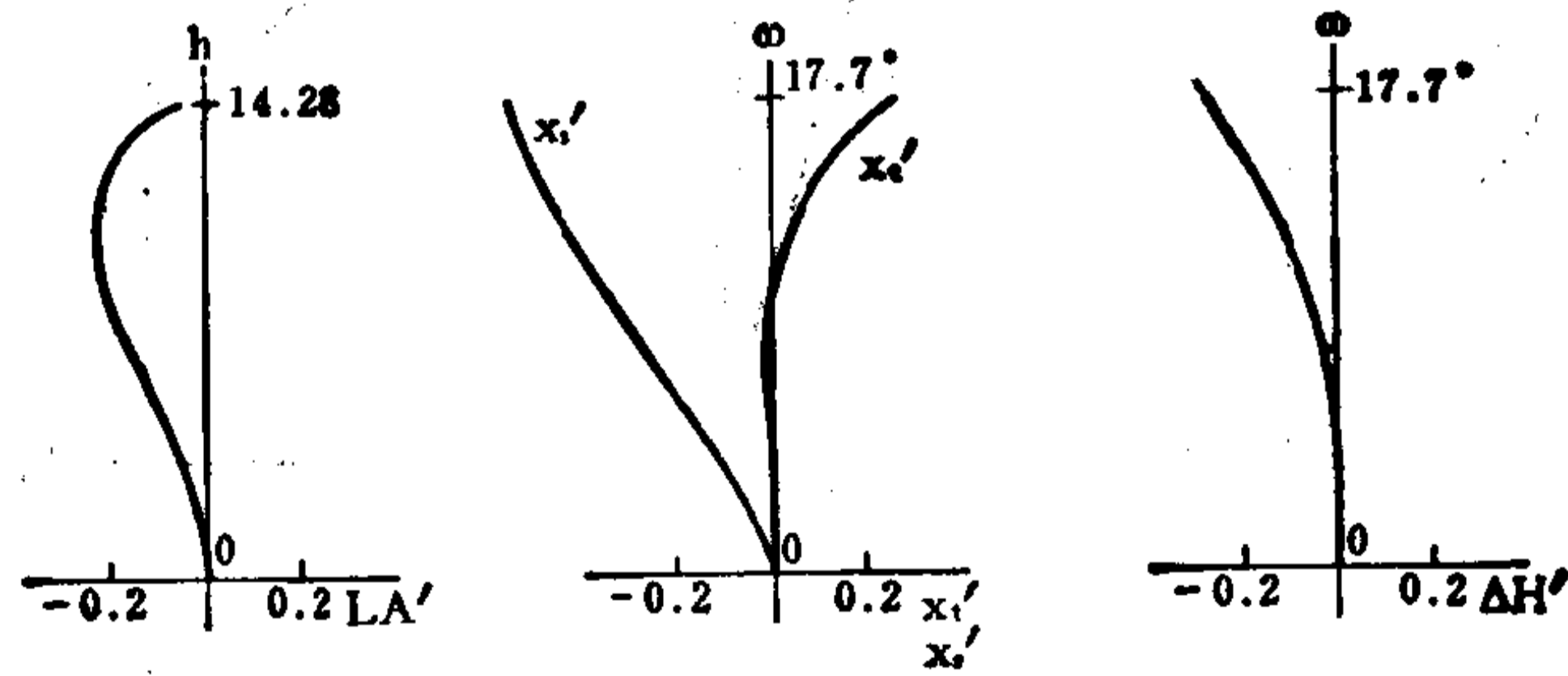
序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	41.6	8.73	1.73	51.3	5	192.8	2.96	1.62	36.6
2	190.0	7.99			6	37.3	9.74	1.74	44.9
3	-86.7	3.55	1.67	32.2	7	-57.9			
4	37.3	6.72*							

6.72* = 3.76 + 2.96

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1 ω)
	- 0.03103	0.00712	0.01684	- 0.05677	- 0.06028	32.5	- 0.9%
h 或 ω %	LA'	ΔH'	x _t	x _s	x _t - x _s	K' _{T1}	K' _{T0.7}
100	- 0.032	- 0.300	0.274	- 0.562	0.836	- 0.1133	- 0.0290
70	- 0.234	- 0.092	0.045	- 0.408	0.453	- 0.0192	0.0055

注: 1. M = 21.5*;

2. 以上象差值是按 l = -∞ 计算的。



编号: 05-04-077

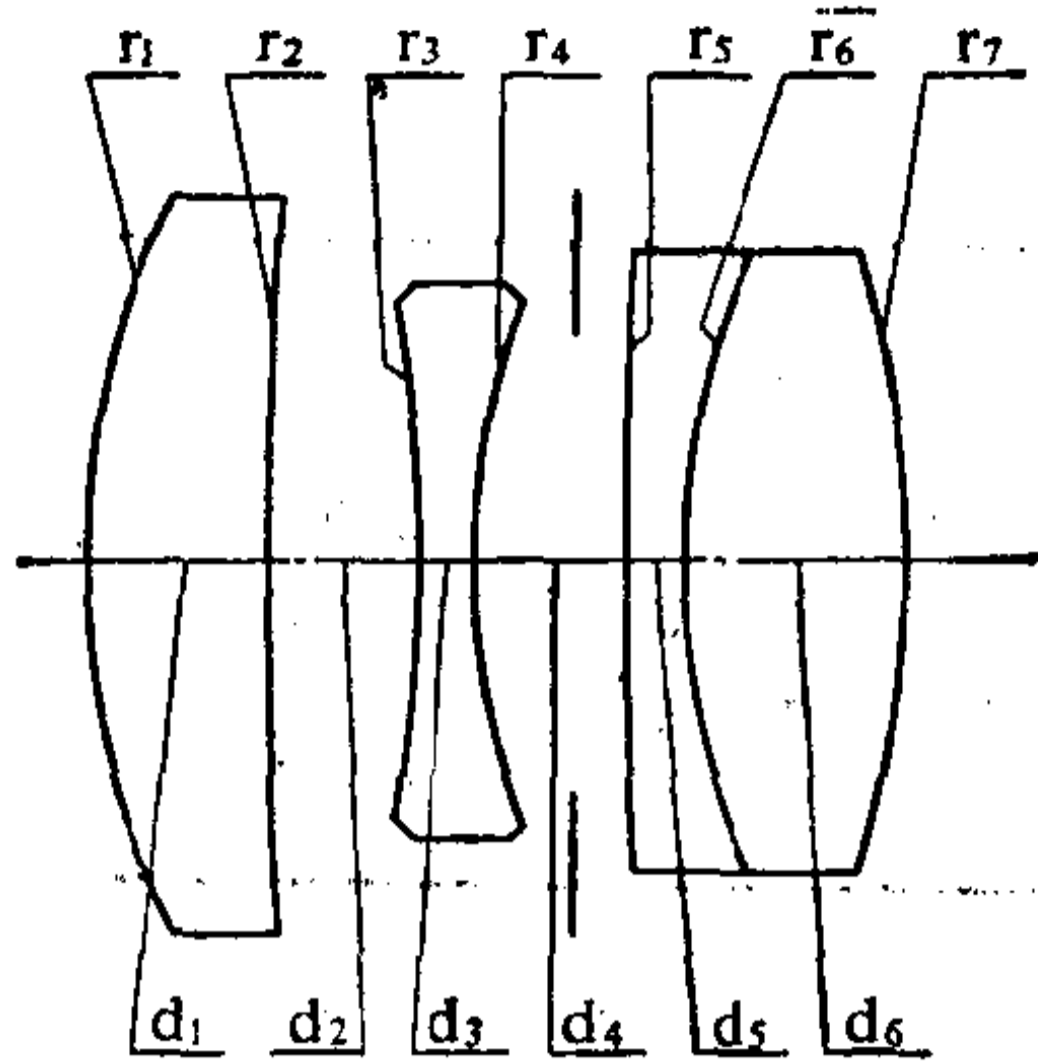
三组四片投影透镜系统

E. F. L = 101.77

B. F. L = 84.52

FNo. = 3.05

F. A. = ± 17.7°



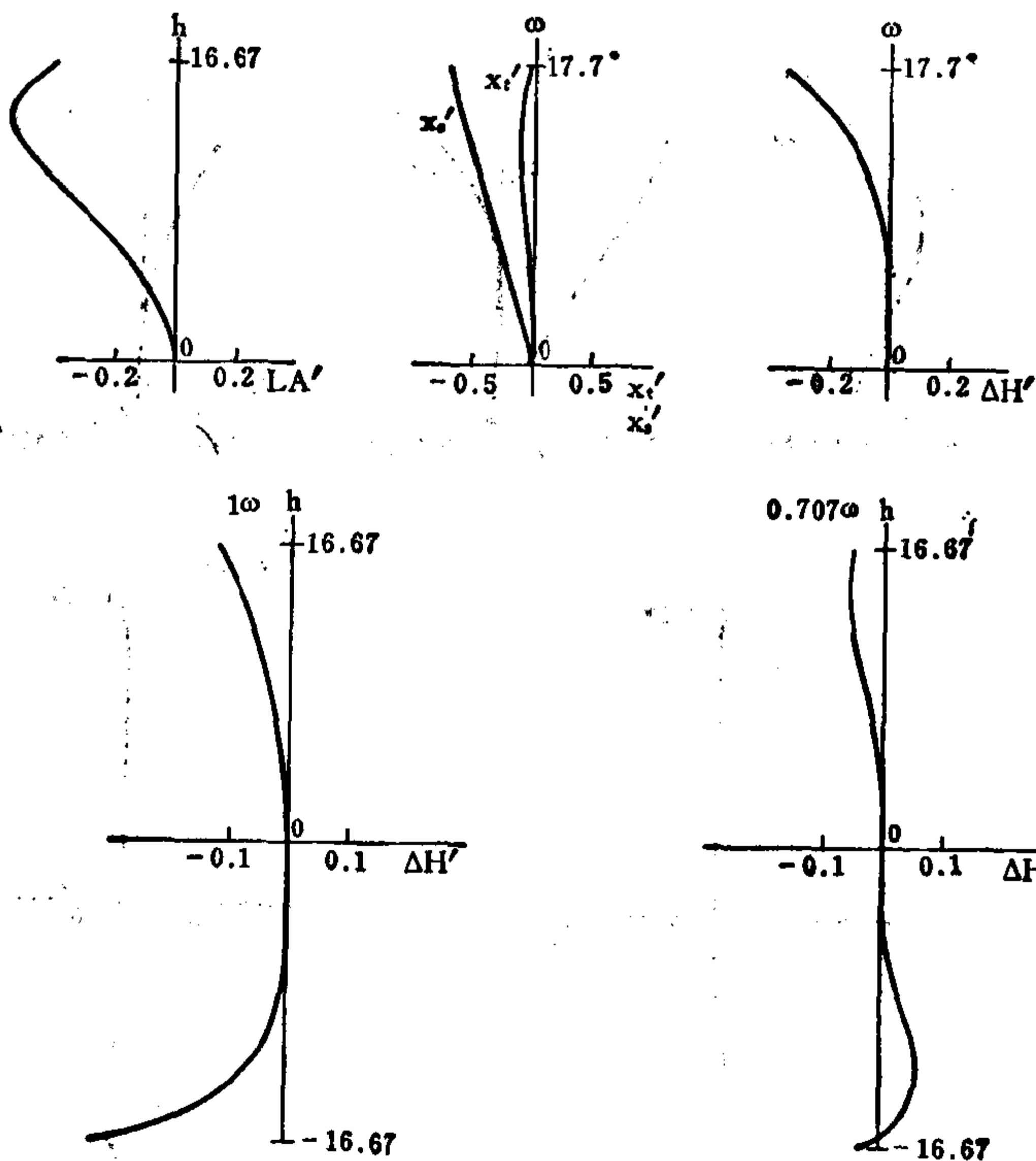
序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	44.2	9.80	1.73	51.3	5	229.2	3.29	1.62	36.6
2	280.1	7.79			6	40.4	11.77	1.74	44.9
3	-89.9	3.29	1.67	32.2	7	-59.5			
4	39.0	7.93*							

$7.93^* = 5.16 + 2.77$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1ω)
	- 0.07736	0.01476	0.01910	- 0.08125	- 0.08504	32.5	- 1.1%
h 或 ω %	LA'	ΔH'	x _t	x _s	x _t - x _s	K' _{T1}	K' _{T0.7}
100	- 0.390	- 0.346	- 0.044	- 0.716	0.672	- 0.2193	- 0.0509
70	- 0.508	- 0.108	- 0.108	- 0.482	0.374	- 0.0448	0.0081

注: 1. M = 25.5*

2. 以上象差值是按 l = -∞ 计算的。



编号: 05-04-078

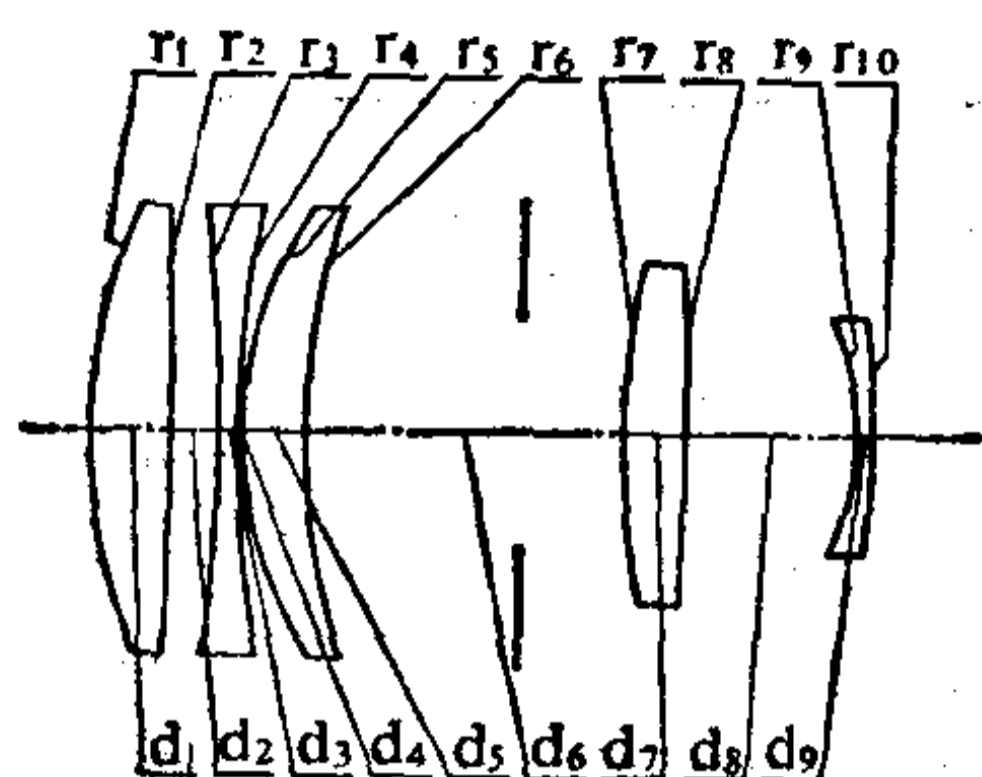
低色差透镜系统

E. F. L = 100°

B. F. L = 40.17

FN₀ = 4

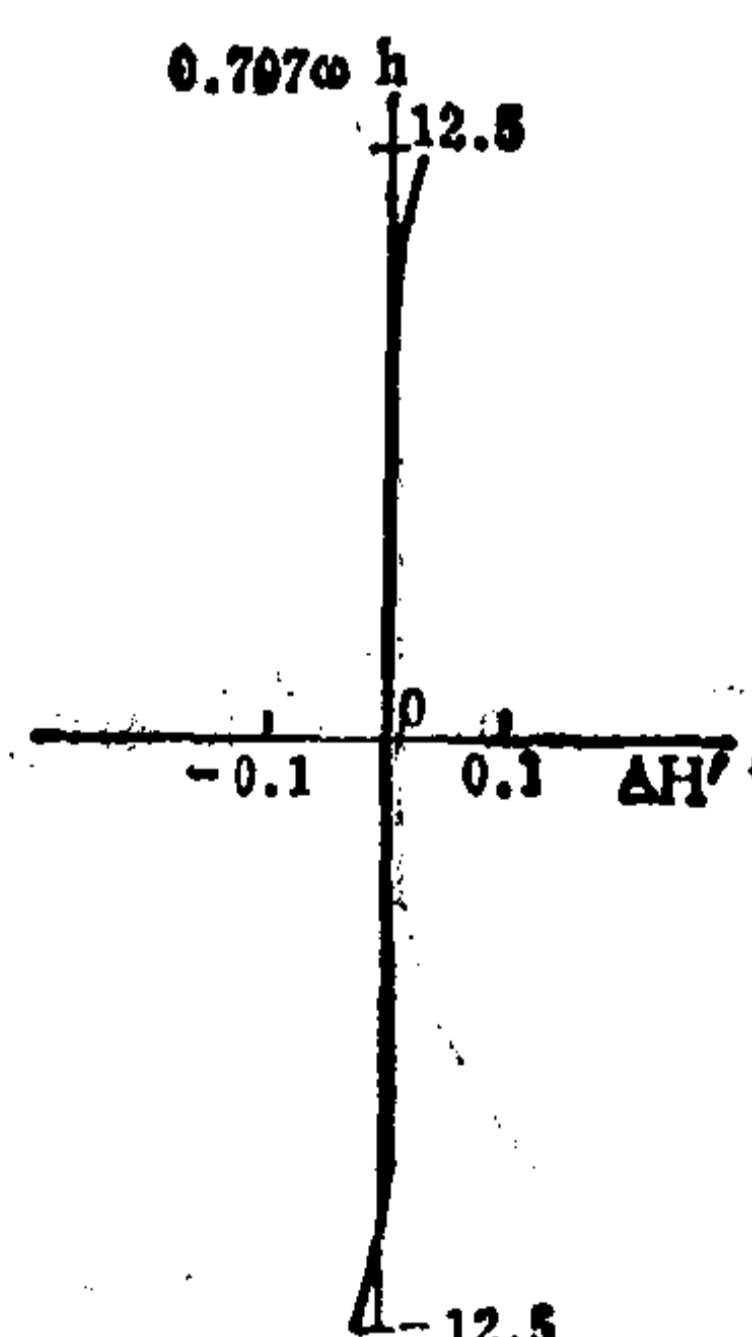
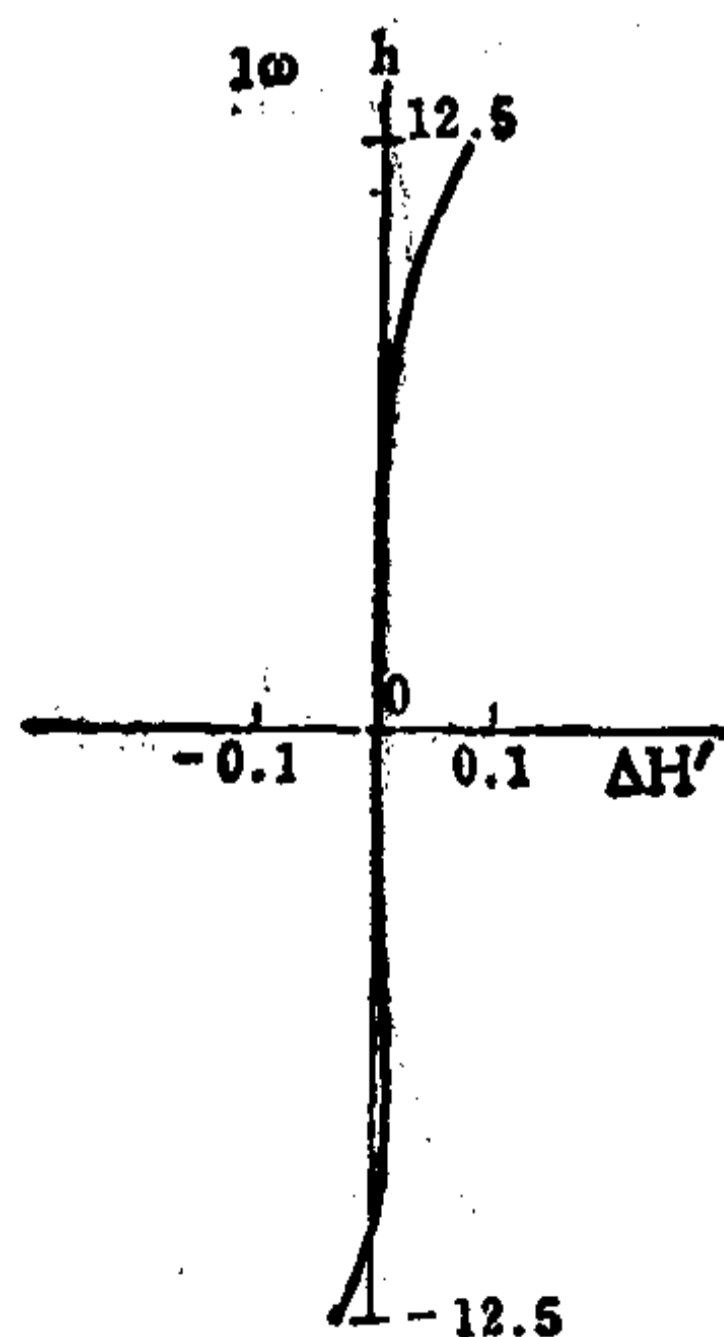
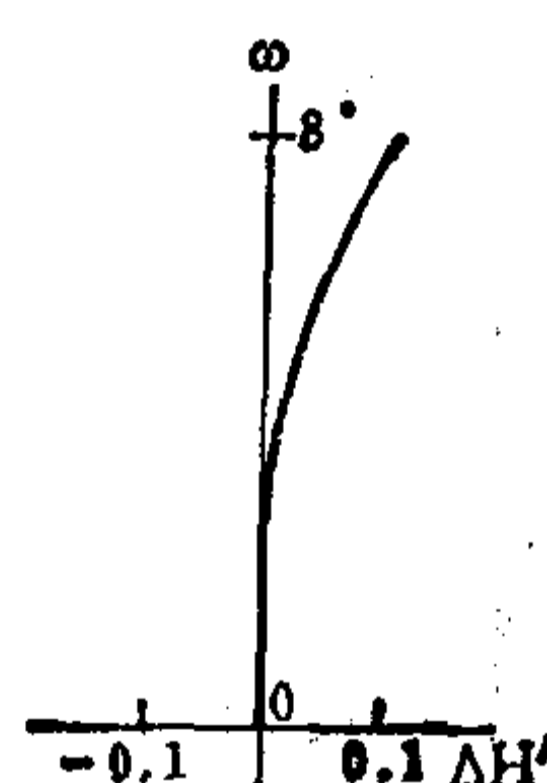
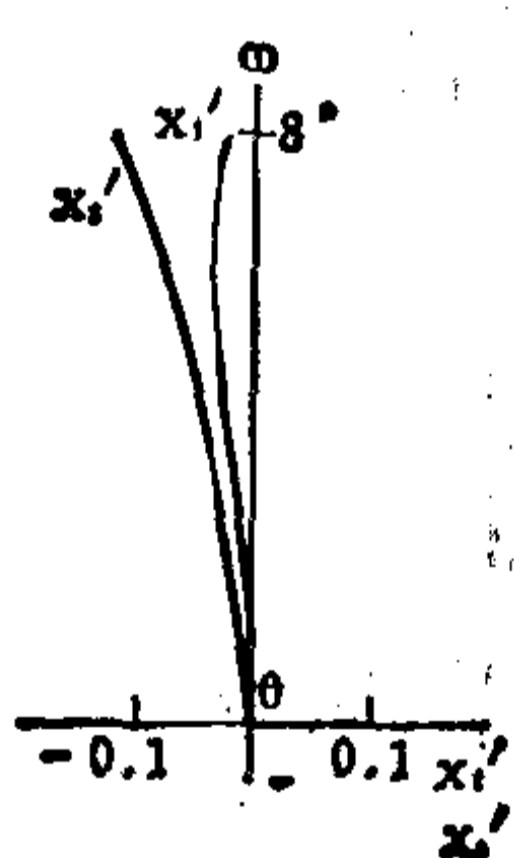
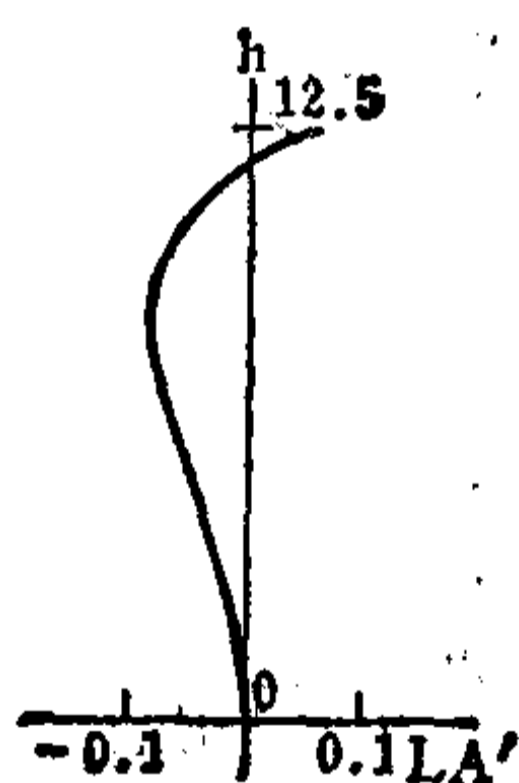
F. A. = ± 8°



序号	r	d	n	v	序号	r	d	n	v
1	35.90	5.0	1.5163	64.0	6	46.32	20.0*		
2	-796.43	3.0			7	52.00	4.0	1.6034	38.0
3	-117.00	1.5	1.7174	29.5	8	-751.74	11.0		
4	86.77	0.2			9	-18.00	1.0	1.5111	60.5
5	26.60	4.0	1.5163	64.0	10	-58.21			

20.0* = 14.0 + 6.0

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.01098	0.00118	0.00080	-0.00528	0.02806	14.1	0.79%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_s	$x'_i - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.0631	0.1121	-0.0185	-0.1266	0.1081	0.0194	0.0106
70	-0.0858	0.0398	-0.0275	-0.0678	0.0403	0.0111	0.0059



编号: 05-04-079

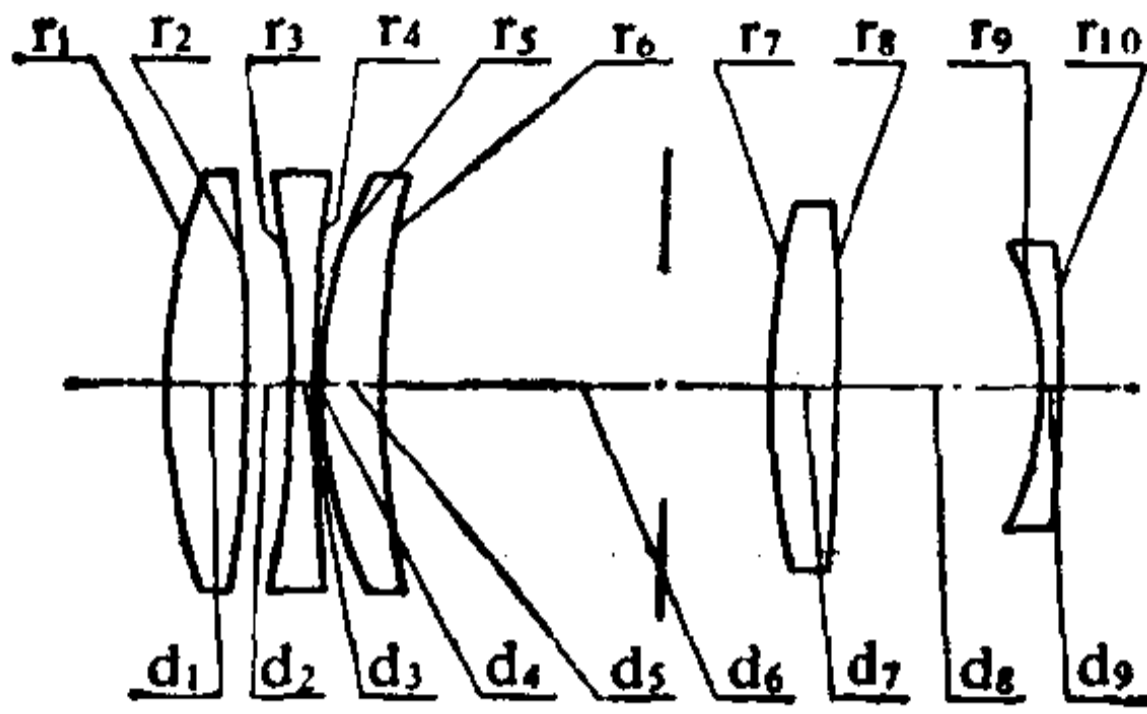
低色差透镜系统

E. F. L = 99.98

B. F. L = 33.51

FNo. = 4.5

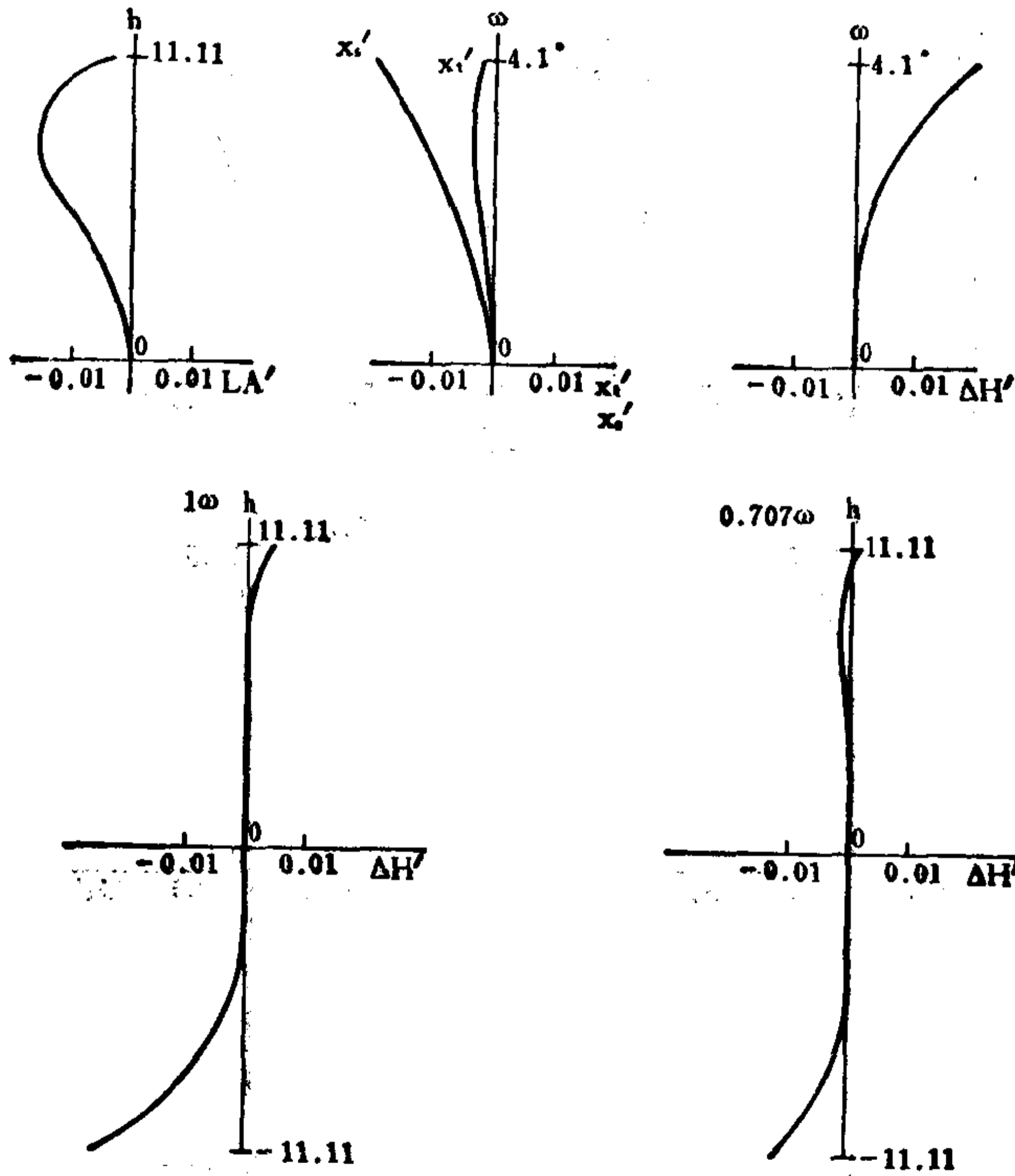
F. A. = ± 4.1°



序号	r	d	n	v	序号	r	d	n	v
1	40.000	5.0	1.4339	94.7	6	60.389	25.0*		
2	-193.927	3.0			7	49.400	4.0	1.5601	47.0
3	-82.000	1.5	1.6200	36.3	8	-340.211	13.2		
4	188.429	0.2			9	-20.28	1.0	1.5891	61.2
5	30.000	4.0	1.4339	94.7	10	-104.691			

25.0* = 18.0 + 7.0

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.00154	-0.00014	0.00013	-0.00069	0.00482	7.2	0.3%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_s	$x'_i - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-0.0020	0.0217	-0.0017	-0.0206	0.0189	-0.00999	-0.00347
70	-0.0165	0.0076	-0.0033	-0.0108	0.0075	-0.00597	-0.00201



编号: 05-04-080

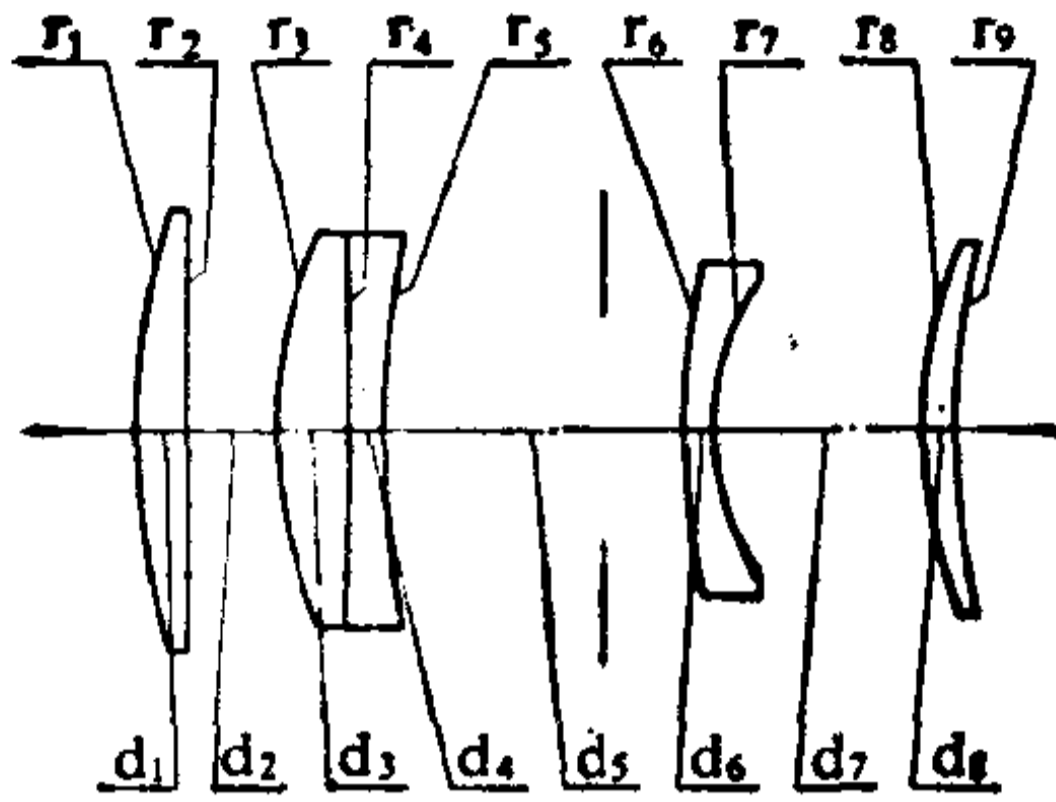
远距离照相镜头

E. F. L = 100.02

B. F. L = 31.99

FNo. = 4

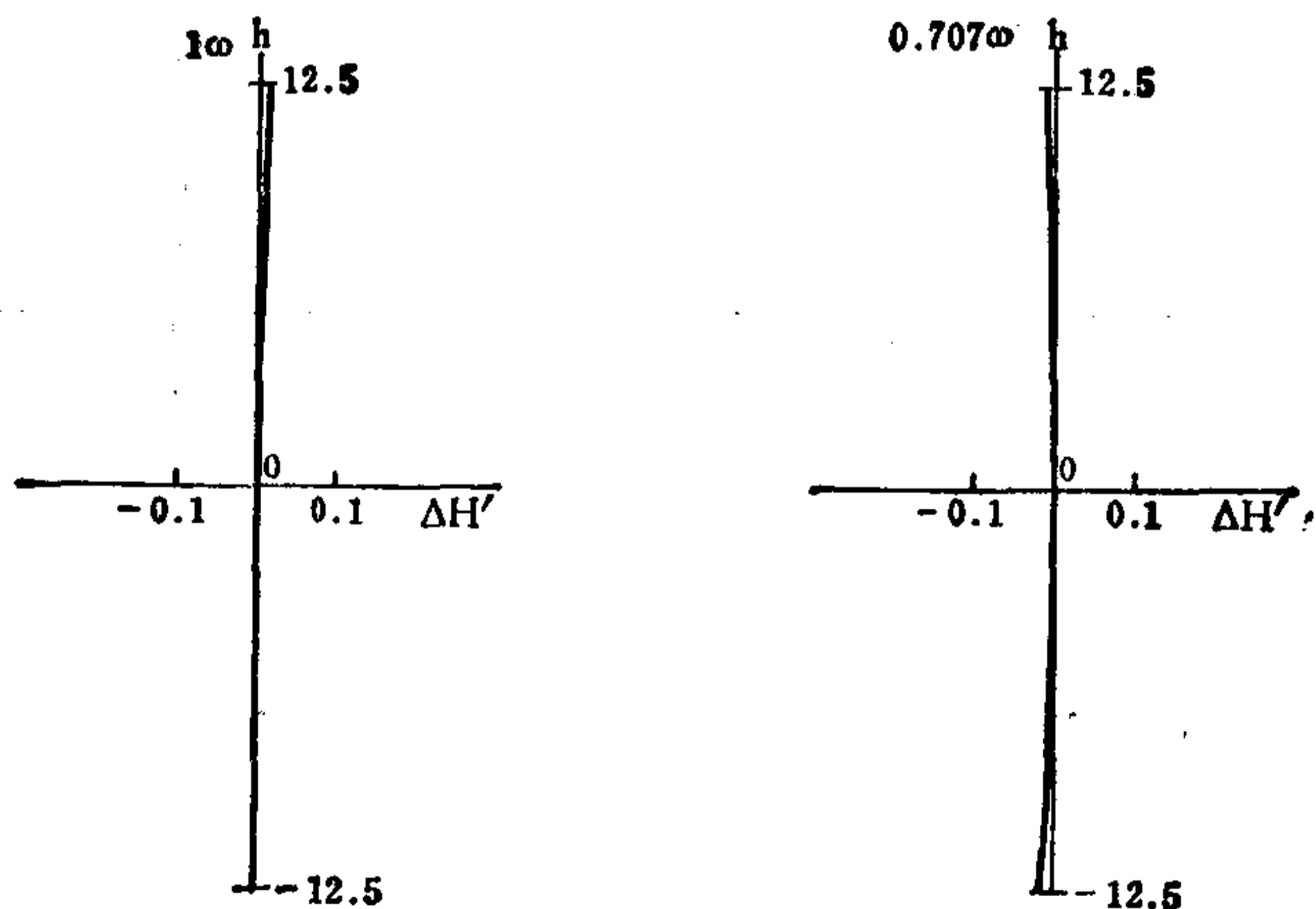
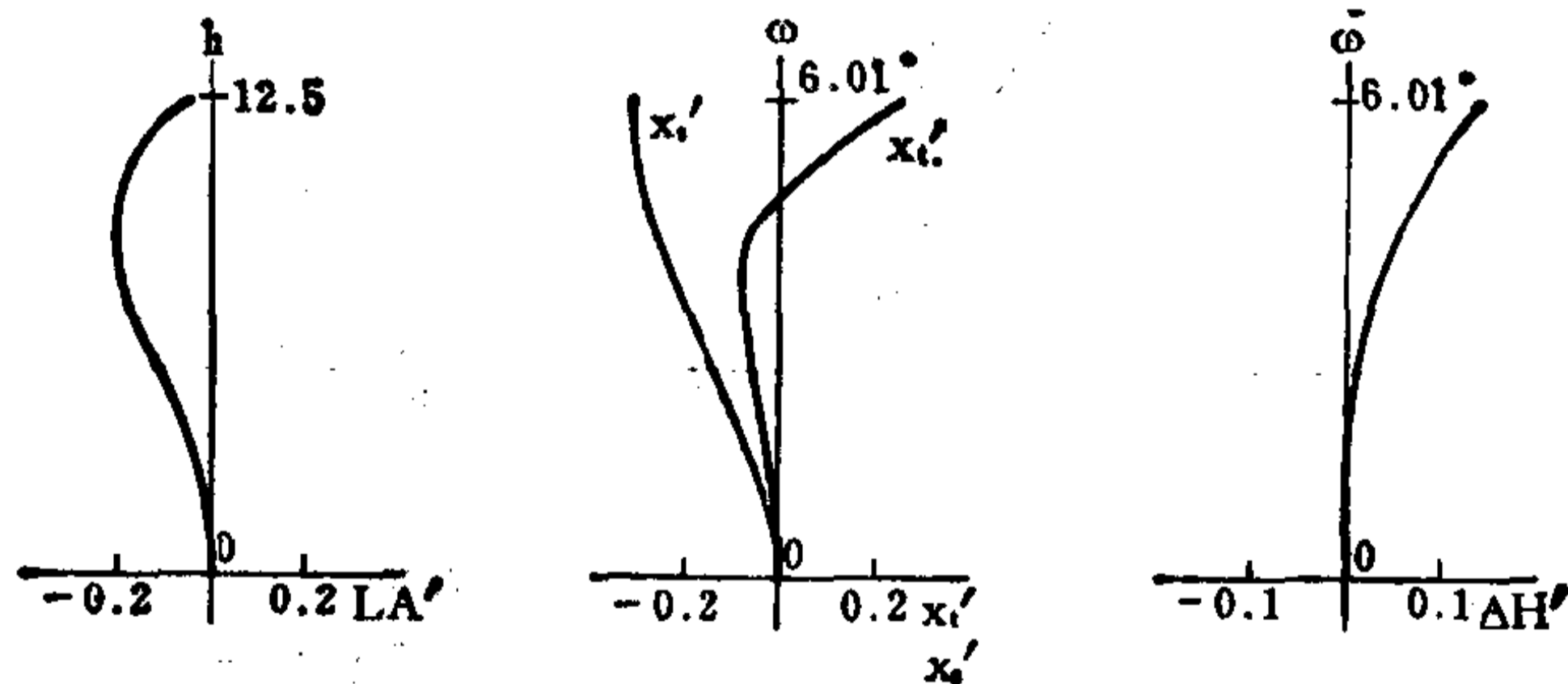
F. A. = ± 6.01°



序号	r	d	n	v	序号	r	d	n	v
1	50.727	3.18	1.62041	60.2	6	51.530	1.84	1.67790	55.3
2	∞	5.81			7	17.371	13.42		
3	30.358	4.84	1.48749	69.8	8	32.302	2.12	1.78472	25.6
4	-551.360	2.26	1.76182	26.5	9	52.335			
5	65.822	19.25*							

19.25* = 14.00 + 5.25

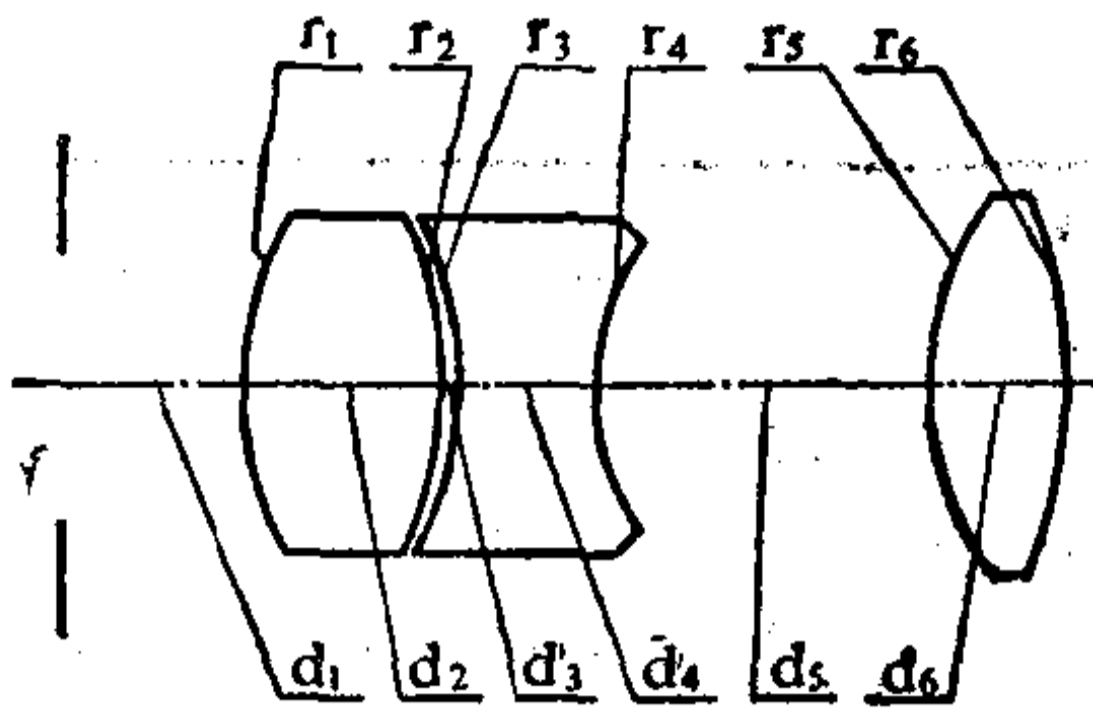
	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1ω)
	-0.00236	-0.00136	0.00022	-0.00236	0.03687	10.54	1.37%
h 或 ω %	LA'	ΔH'	x _t '	x _s '	x _t ' - x _s '	K _{T1} '	K _{T0.7} '
100	-0.00335	0.1445	0.0263	-0.0319	0.0582	0.00281	0.00325
70	-0.02041	0.0519	-0.0070	-0.0257	0.0187	-0.00888	-0.00293



编号: 05-04-081

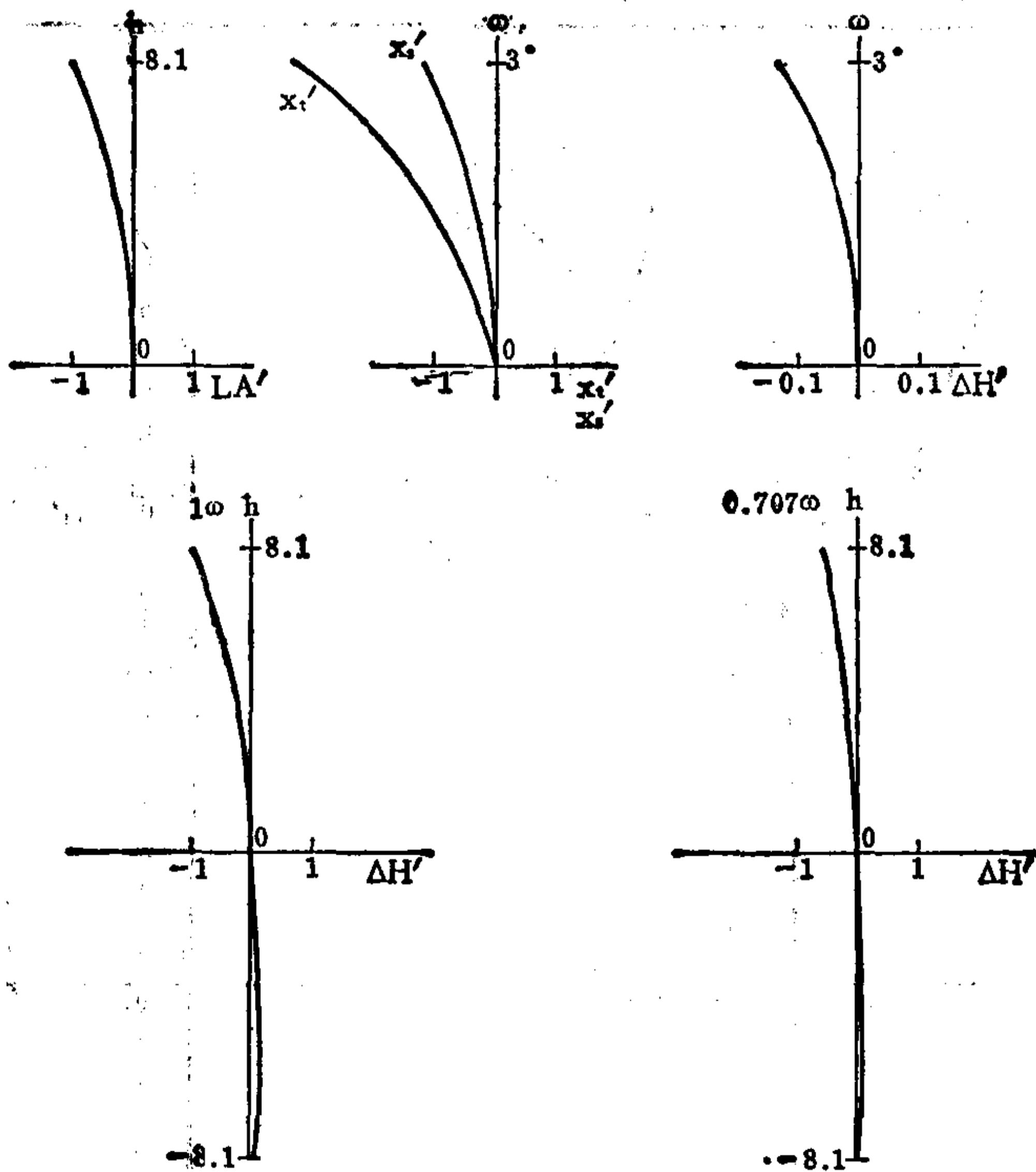
三组元物镜

E.F.L=81.15 B.F.L=61.68 FNo. = 5 F.A. = ±3°** L'p1 = -24.4



序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
		24.40*			4	31.4	43.00		
1	44.1	24.90	1.49	57.4	5	41.5	16.80	1.49	57.4
2	-52.4	1.41			6	-62.5			
3	-45.9	18.40	1.57	36.6					

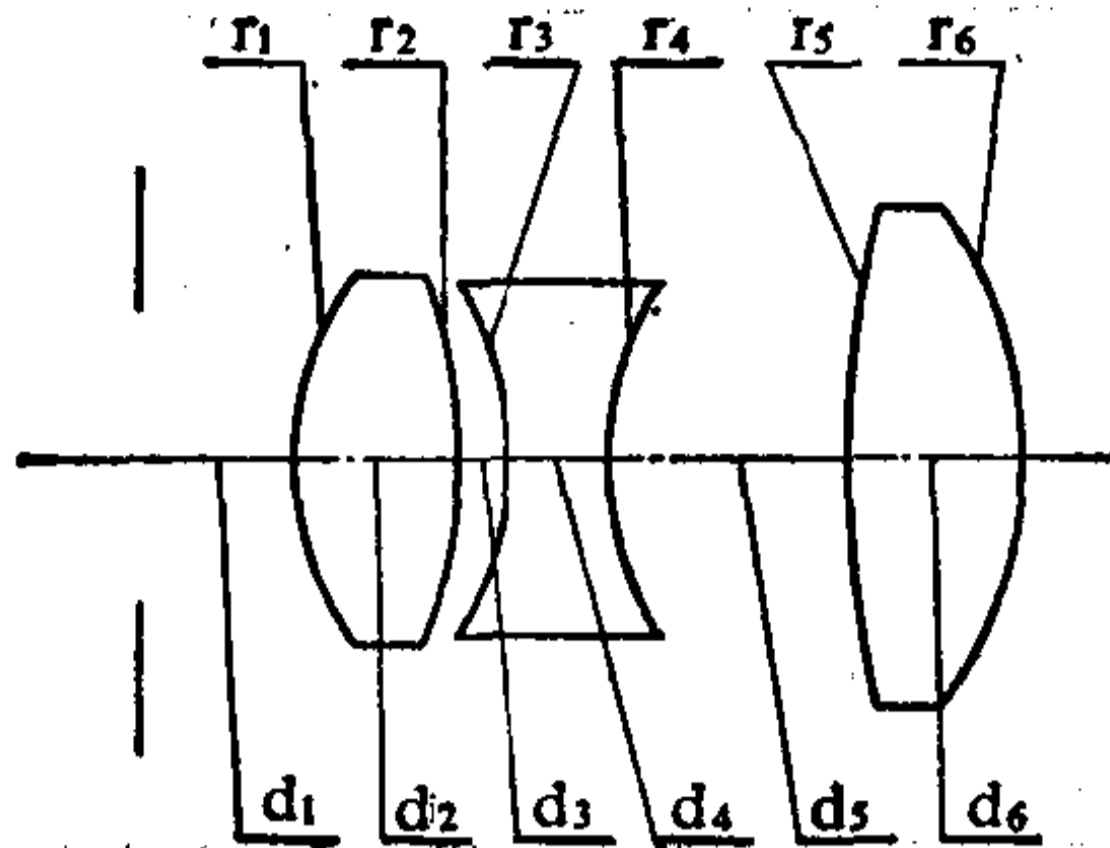
	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1 ω)
	-0.0194	-0.0210	-0.0219	-0.0013	-0.0261	4.2	-3.2%
h 或 ω %	LA'	ΔH'	x _t	x _s	x _t - x _s	K' _{T1}	K' _{T0.7}
100	-0.997	-0.137	-3.441	-1.203	-2.238	-0.4172	-0.1973
70	-0.492	-0.047	-1.702	-0.592	-1.110	-0.2675	-0.1273



编号: 05-04-082

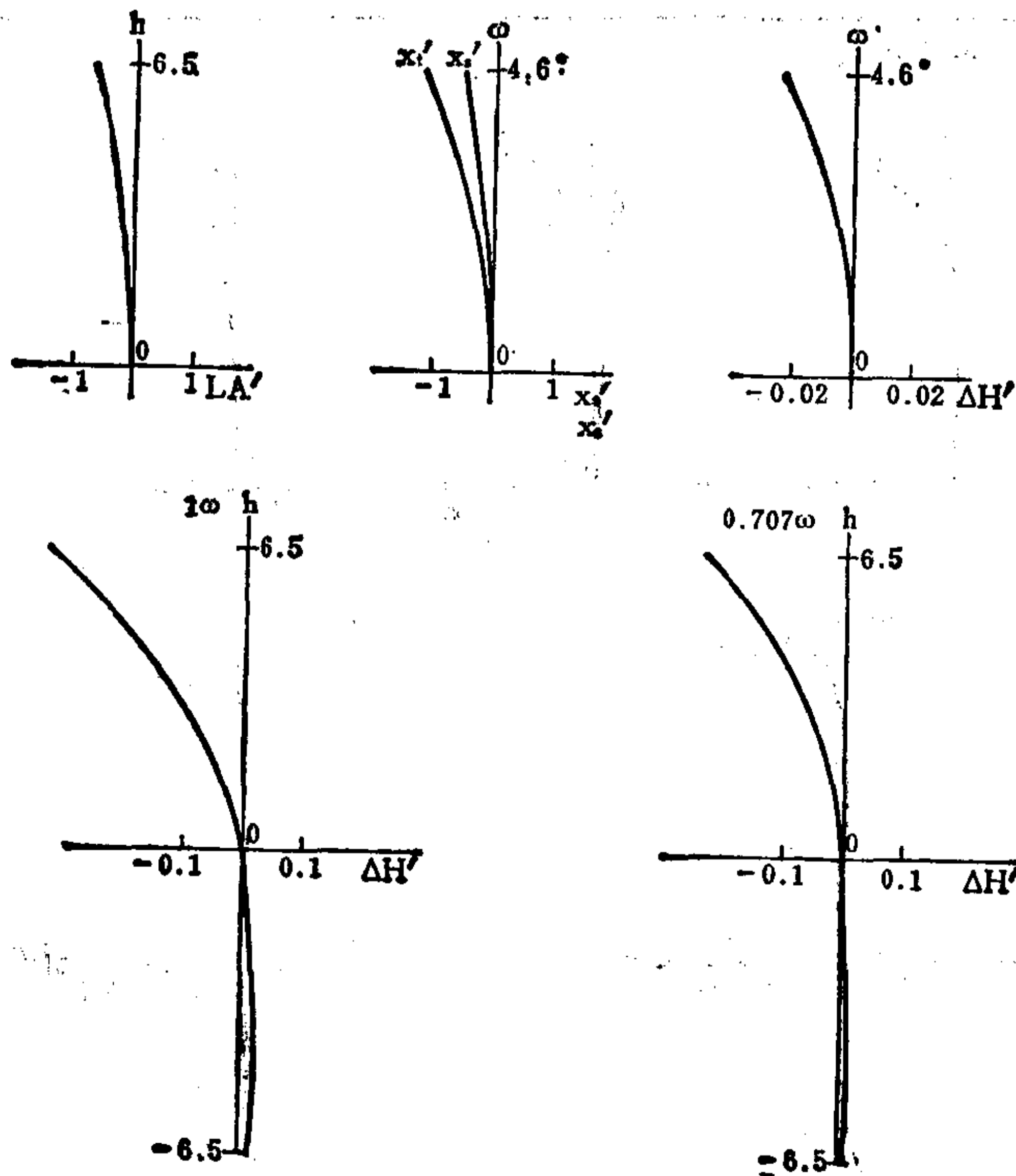
三组元物镜

E.F.L=73.0 B.F.L=45.62 FNo.=5.6 F.A.=±4.6°** L'PI=-11.5



序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	23.0	11.7	1.49	57.4	4	24.4	16.8		
2	-37.4	3.2			5	84.2	12.3	1.49	57.4
3	-24.5	7.7	1.57	36.6	6	-30.8			

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1 ω)
	-0.01217	-0.00943	-0.00549	-0.00215	-0.00444	5.8	-0.4%
h 或 ω %	LA'	ΔH'	x _t	x _s	x _t - x _s	K _{T1}	K _{T0.7}
100	-0.694	-0.025	-1.179	-0.484	-0.695	-0.1584	-0.0806
70	-0.366	-0.009	-0.589	-0.242	-0.347	-0.1105	-0.0563



编号: 05-04-083

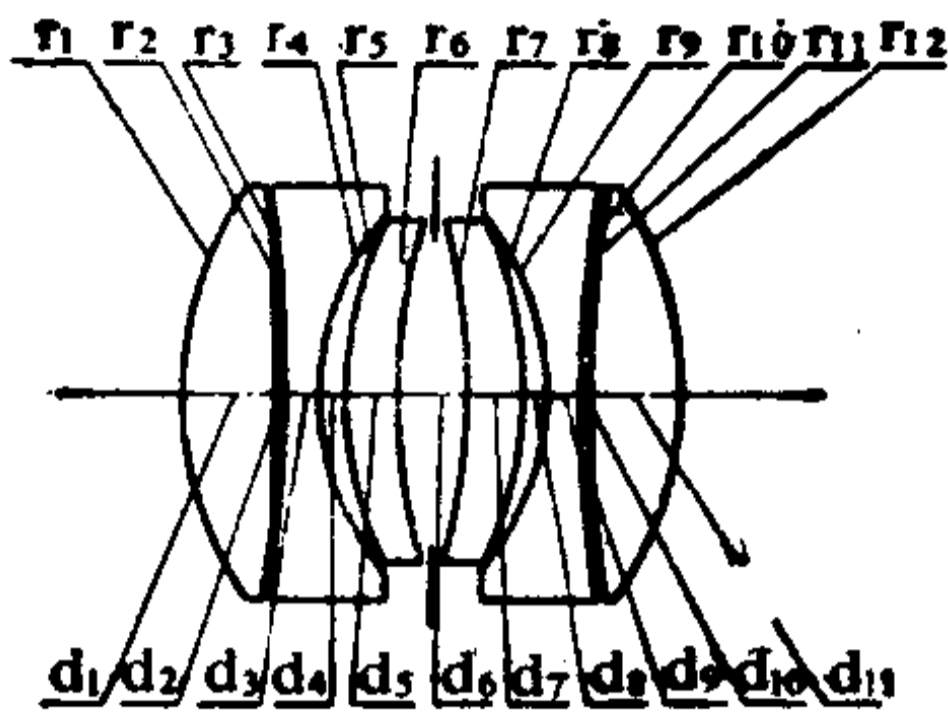
倒置的高斯型对称复印透镜系统

E. F. L = 100

B. F. L = 85.182

FNo. = 4.5

F. A. = $\pm 20^{\circ}$ **

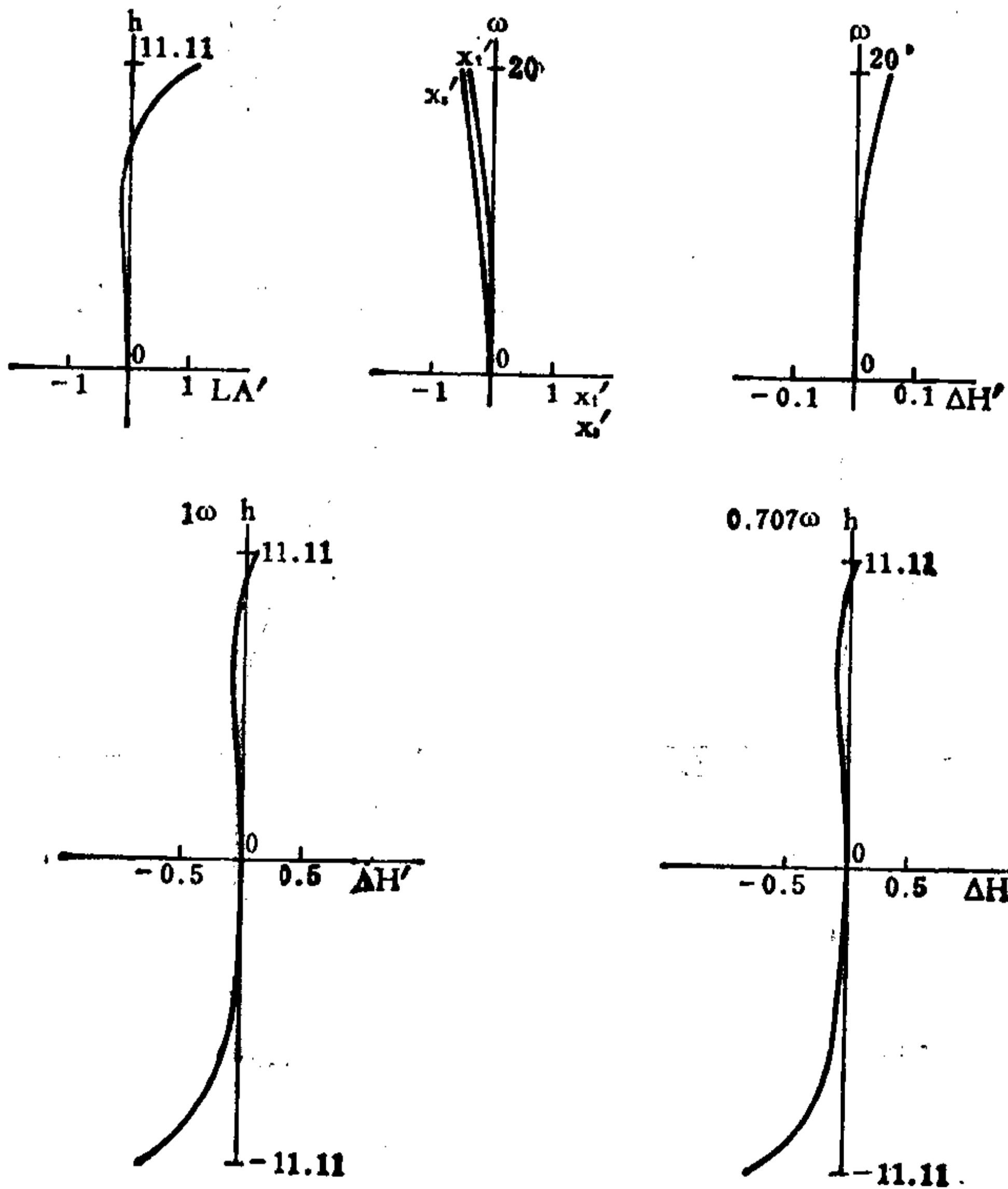


序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	23.893	6.020	1.6110	57.2	7	-40.717	3.540	1.5230	50.5
2	-94.764	0.048			8	-26.007	1.470		
3	-94.764	2.600	1.5497	45.8	9	-17.670	2.600	1.5497	45.8
4	17.670	1.470			10	94.764	0.048		
5	26.007	3.540	1.5230	50.5	11	94.764	6.020	1.6110	57.2
6	40.717	4.220*			12	-23.893			

4.220* = 2.110 + 2.110

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.0243	-0.0217	0.0037	-0.0240	0.0091	36.5	0.15%
h 或 ω %	LA'	$\Delta H'$	x_t	x'_t	$x_t - x'_t$	K'_{f1}	$K'_{f0.7}$
100	1.1534	0.0549	-0.395	-0.479	0.084	-0.3635	-0.1557
70	-0.0546	0.0172	-0.233	-0.342	0.109	-0.3861	-0.1265

注: 以上象差值是按 $l = -\infty$ 计算的。



编号: 05-04-084

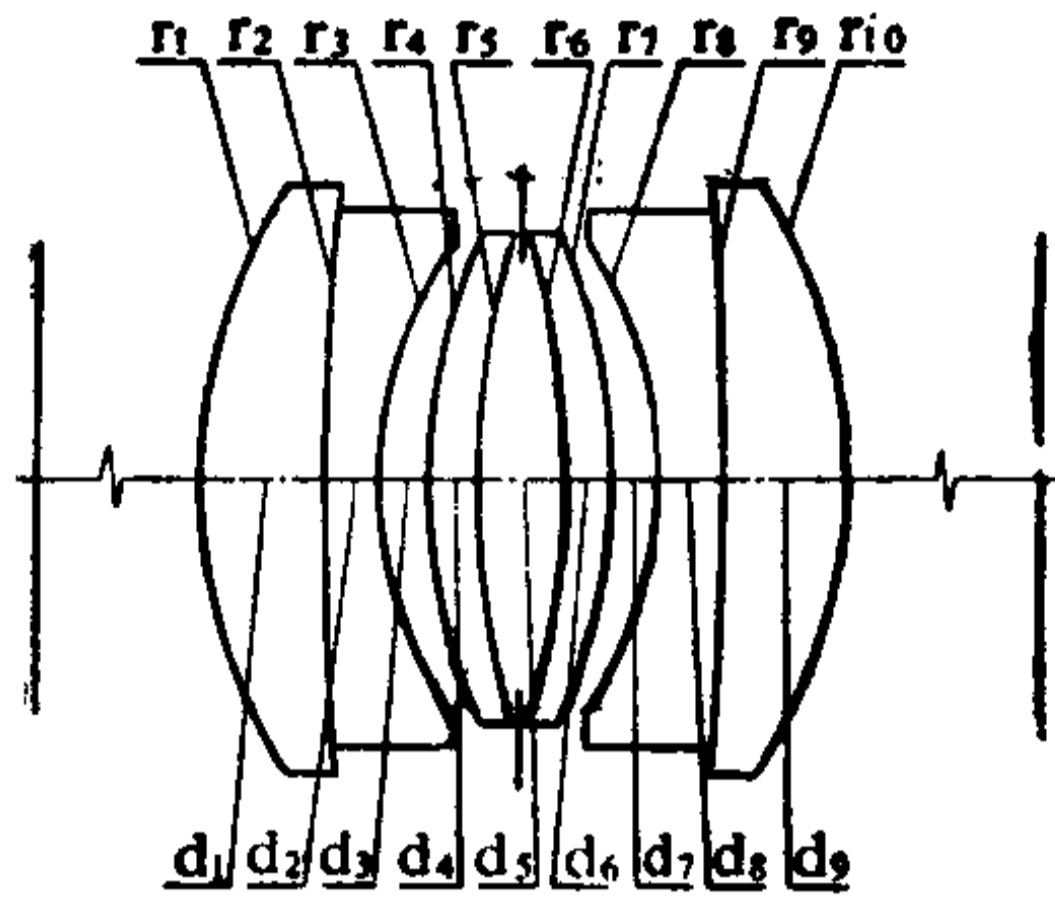
四组元对称投影物镜

E. F. L = 148.56

B. F. L = 129.56

FNo. = 5.6

F. A. = $\pm 20^{\circ}$ **



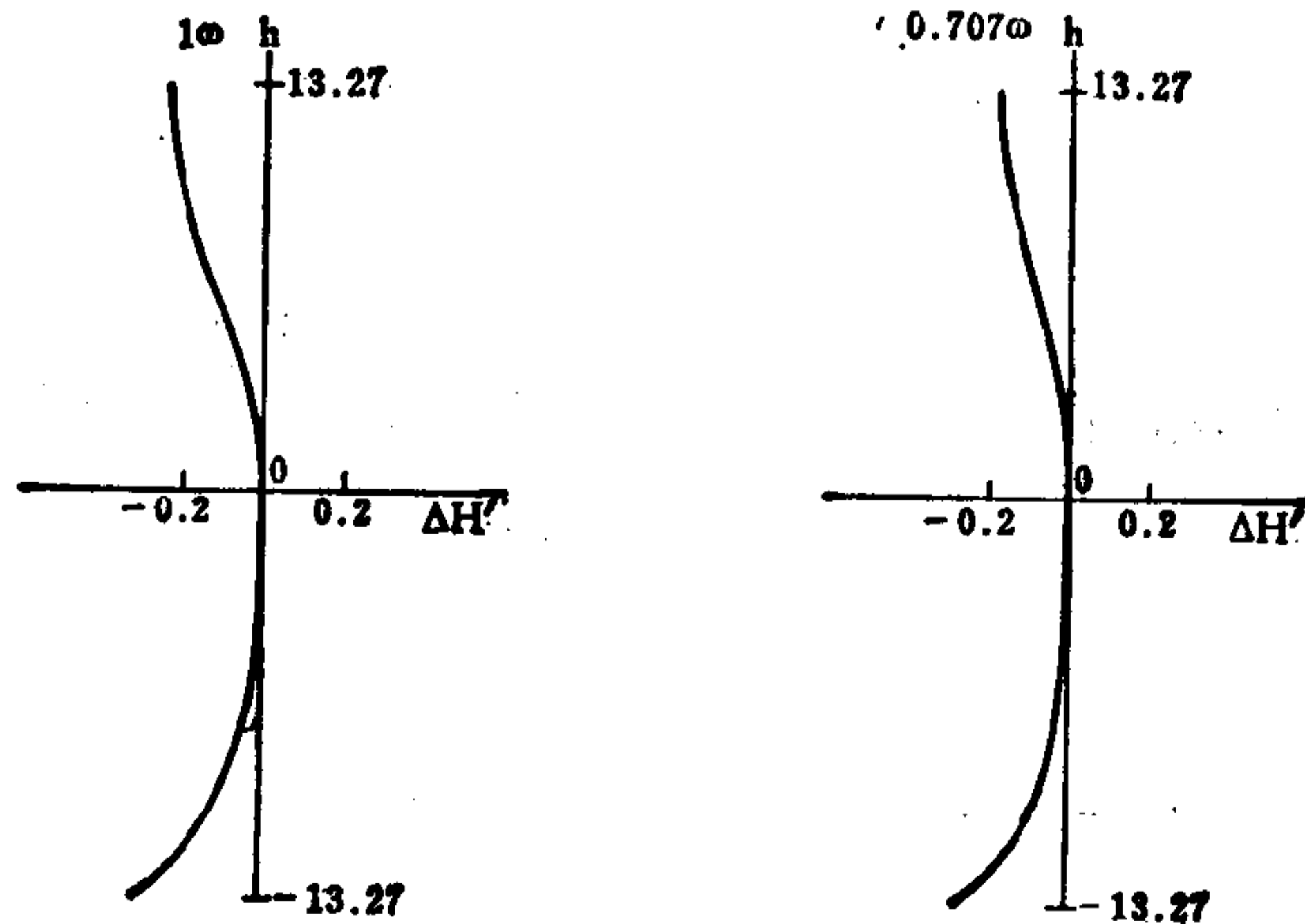
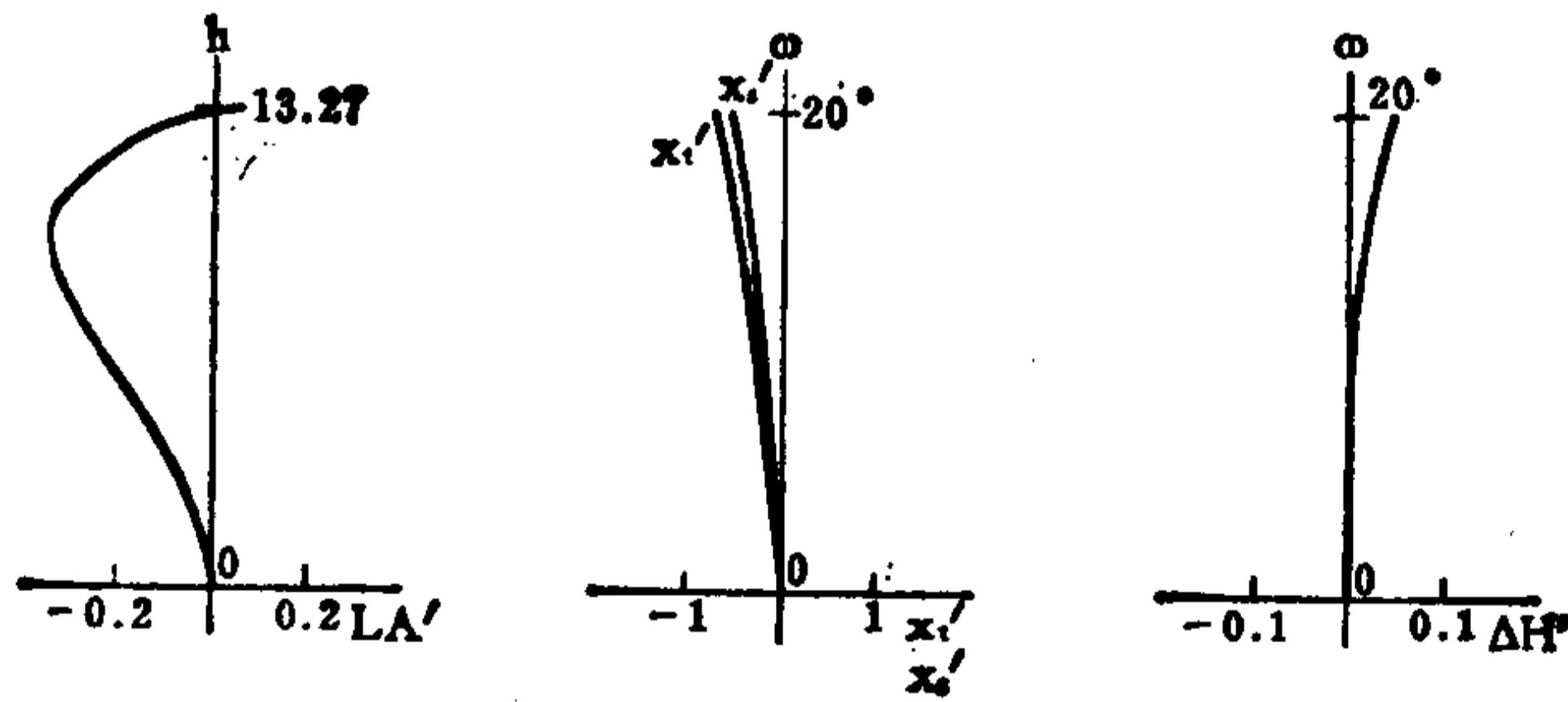
序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	35.98	7.81	1.670	47.2	6	-58.73	3.14	1.638	55.5
2	313.33	4.11	1.605	38.0	7	-39.50	3.19		
3	27.20	3.19			8	-27.20	4.11	1.605	38.0
4	39.50	3.14	1.638	55.5	9	-313.33	7.81	1.670	47.2
5	58.73	5.30*			10	-35.98			

5.30* = 2.65 + 2.65

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.02043	-0.01567	-0.00047	-0.01837	0.00594	54.2	0.08%
h 或 ω %	LA'	$\Delta H'$	x'_t	x_s	$x'_t - x'_s$	K'_{T1}	$K_{T0.7}$
100	0.035	0.044	-0.718	-0.634	-0.084	-0.2769	-0.1379
70	-0.352	0.014	-0.516	-0.476	-0.040	-0.2320	-0.1018

注: 1. 物点 = 278.16, 象点 = 278.16;

2. 以上象差值是按 $l = -\infty$ 计算的。



编号: 05-04-085

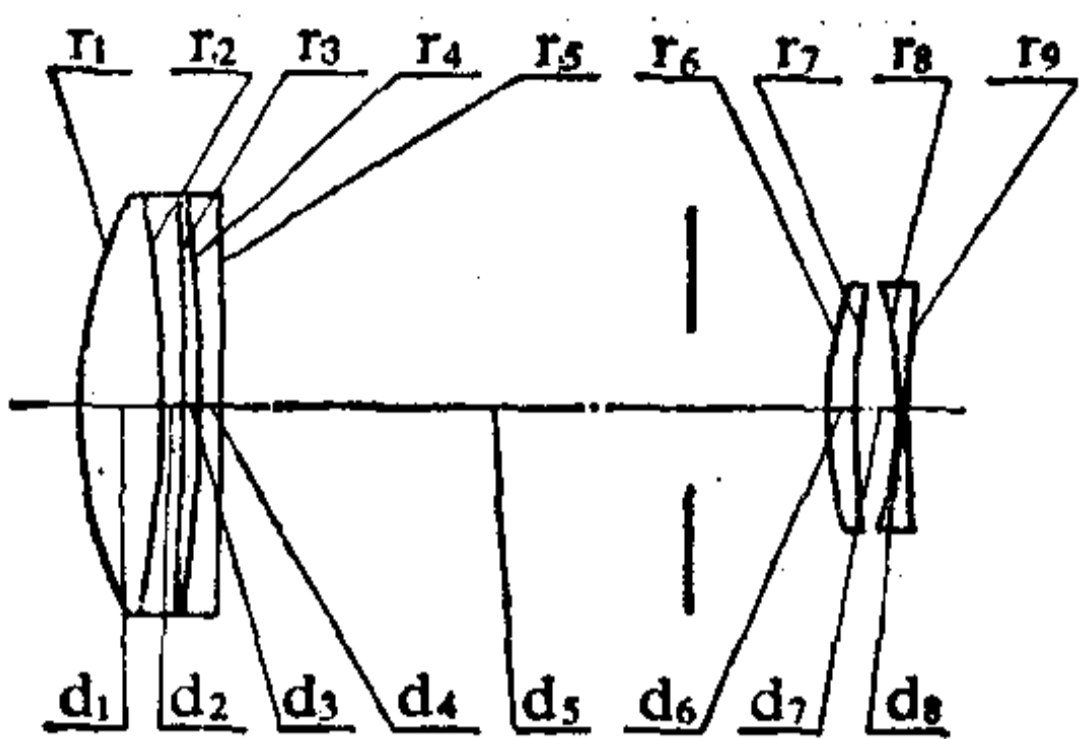
大倍率远摄照相镜头

E. F. L = 0.9993

B. F. L = 0.2031

FNo. = 4

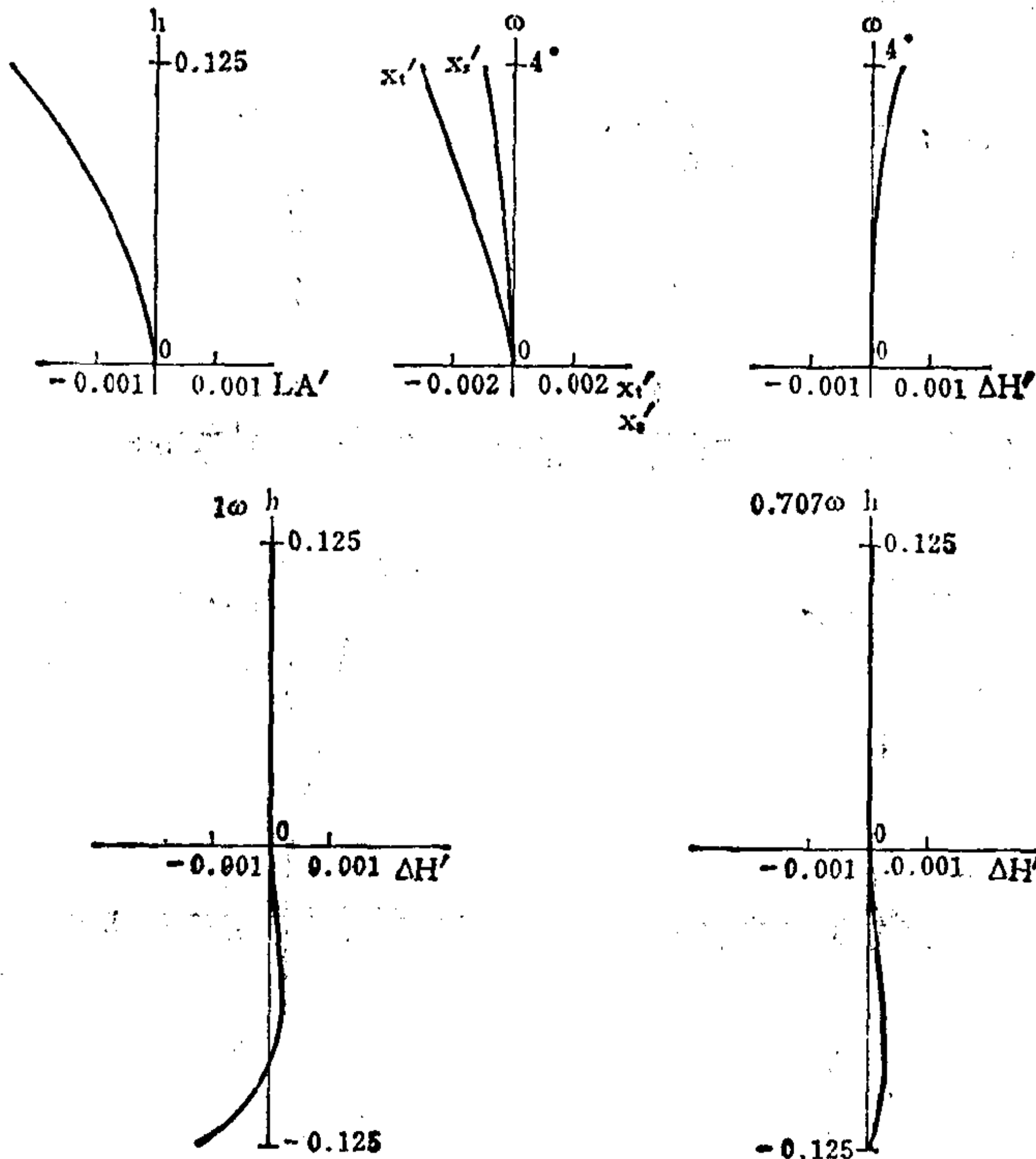
F. A. = $\pm 4'^{**}$



序号	r	d	n_d	v_d	序号	r	d	n_d	v_d
1	0.42156	0.06676	1.64250	58.09	5	0.34202	0.02234	1.75787	31.56
2	-0.88214	0.01945	1.72830	28.66	7	1.17496	0.03859		
3	-18.00073	0.01183			8	-0.31069	0.00529	1.65016	39.31
4	-1.37288	0.01945	1.65446	33.79	9	0.69782			
5	-5.30649	0.52203*							

$0.52203^* = 0.40290 + 0.11913$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.000112	0.000083	-0.000061	0.000018	0.000139	0.07	0.75%
h 或 ω %	LA'	$\Delta H'$	x'_t	x_s	$x'_t - x_s$	K'_{T1}	$K'_{T0.7}$
100	-0.00254	0.00053	-0.00327	-0.00098	-0.00229	-0.00061	-0.00002
70	-0.00155	-0.00019	-0.00215	-0.00059	-0.00156	-0.00004	0.00013



编号: 05-04-086

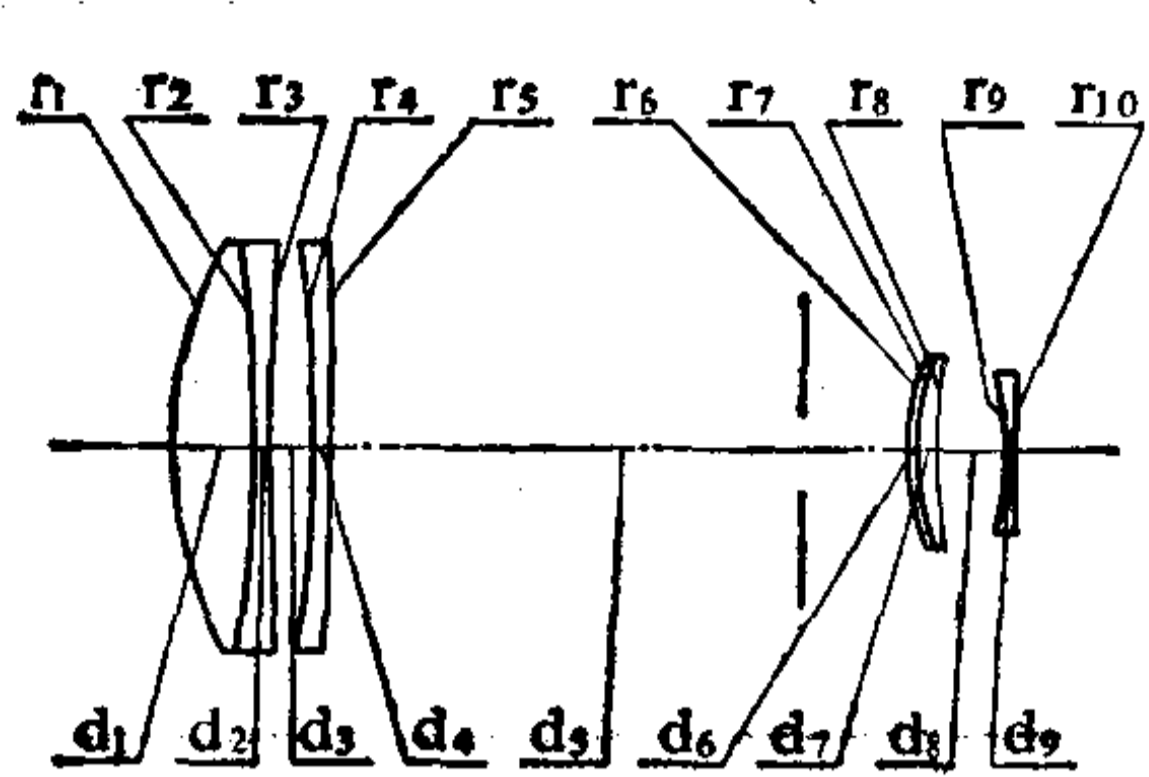
大倍率远摄照相镜头

E.F.L=1.0

B.F.L=0.2048

FNo. = 4

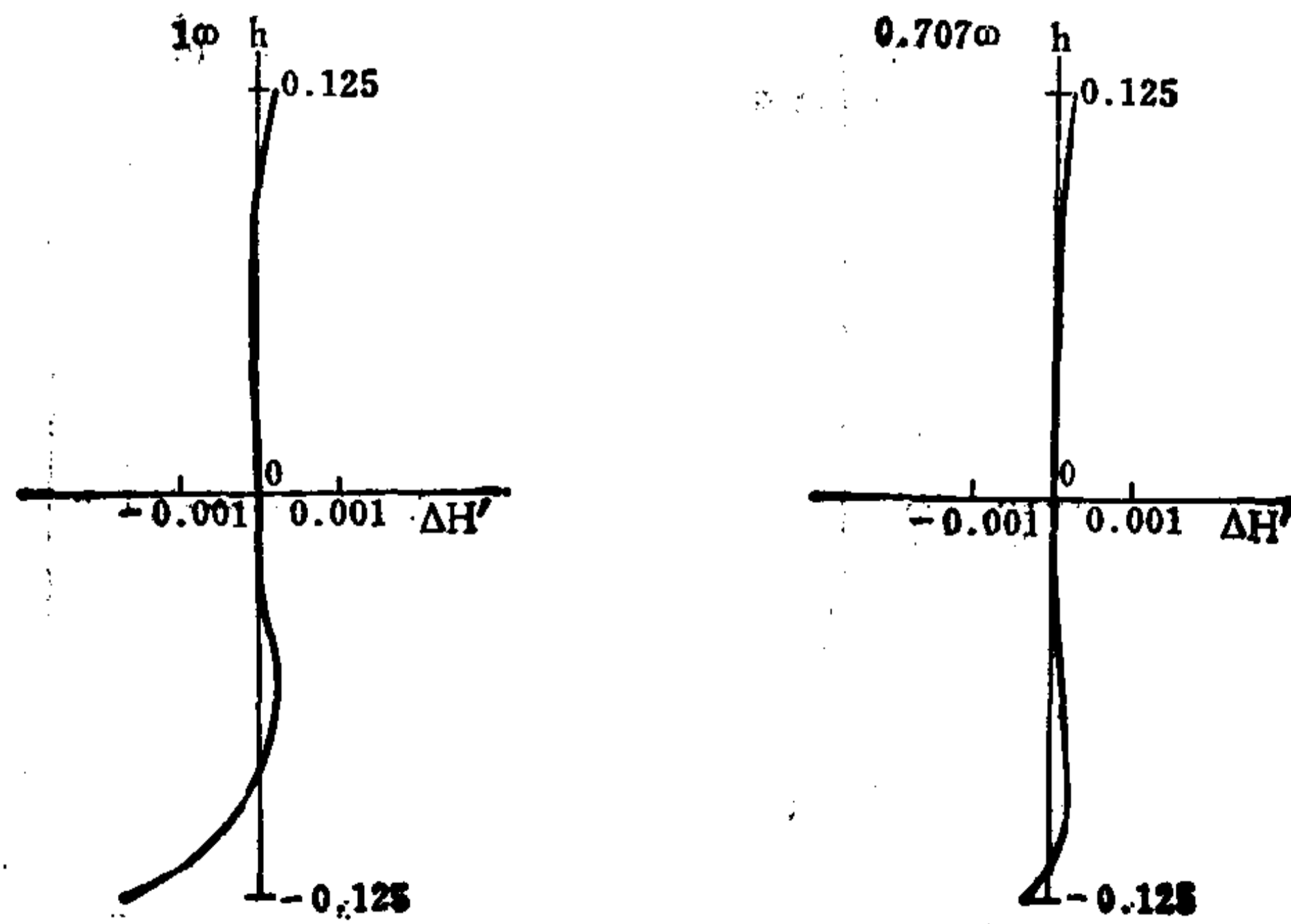
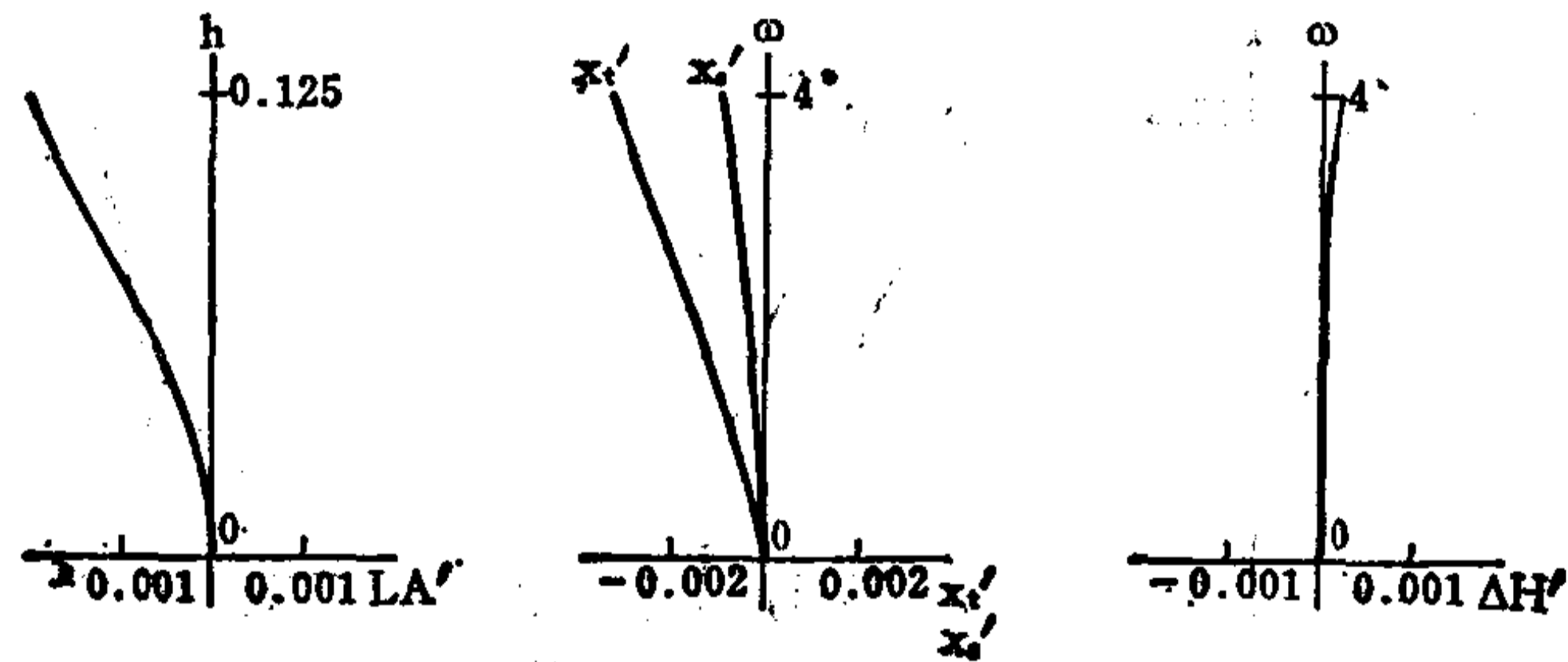
F.A. = ± 4°**



序号	r	d	n_d	ν_d	序号	r	d	n_d	ν_d
1	0.38711	0.06631	1.62041	60.29	6	0.23592	0.00631	1.85820	23.40
2	-1.12833	0.01263	1.72151	29.28	7	0.23592	0.01578	1.72372	38.09
3	14.40868	0.03789			8	0.46853	0.05962		
4	-1.33509	0.01579	1.65446	33.79	9	-0.27275	0.00579	1.65016	39.31
5	-31.54790	0.49388*			10	1.11156			

$0.49388^* = 0.40000 + 0.09388$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.0000936	0.0000954	-0.0000648	0.0000207	0.0000639	0.07	0.3%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-0.00201	0.00021	-0.00348	-0.00097	-0.00251	-0.00074	-0.00002
70	-0.00128	0.00008	-0.00228	-0.00060	-0.00168	-0.00004	0.000115



编号: 05-04-087

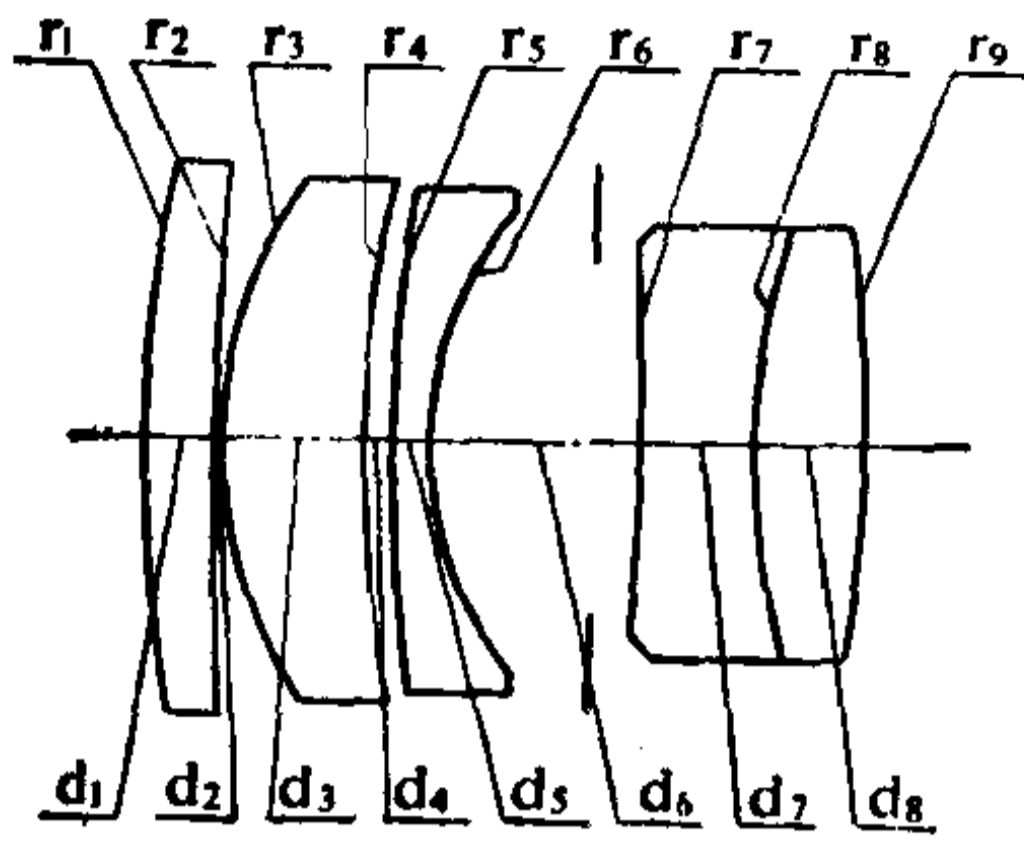
四组元摄影物镜

E. F. L = 100.65

B. F. L = 67.07

FNo. = 4

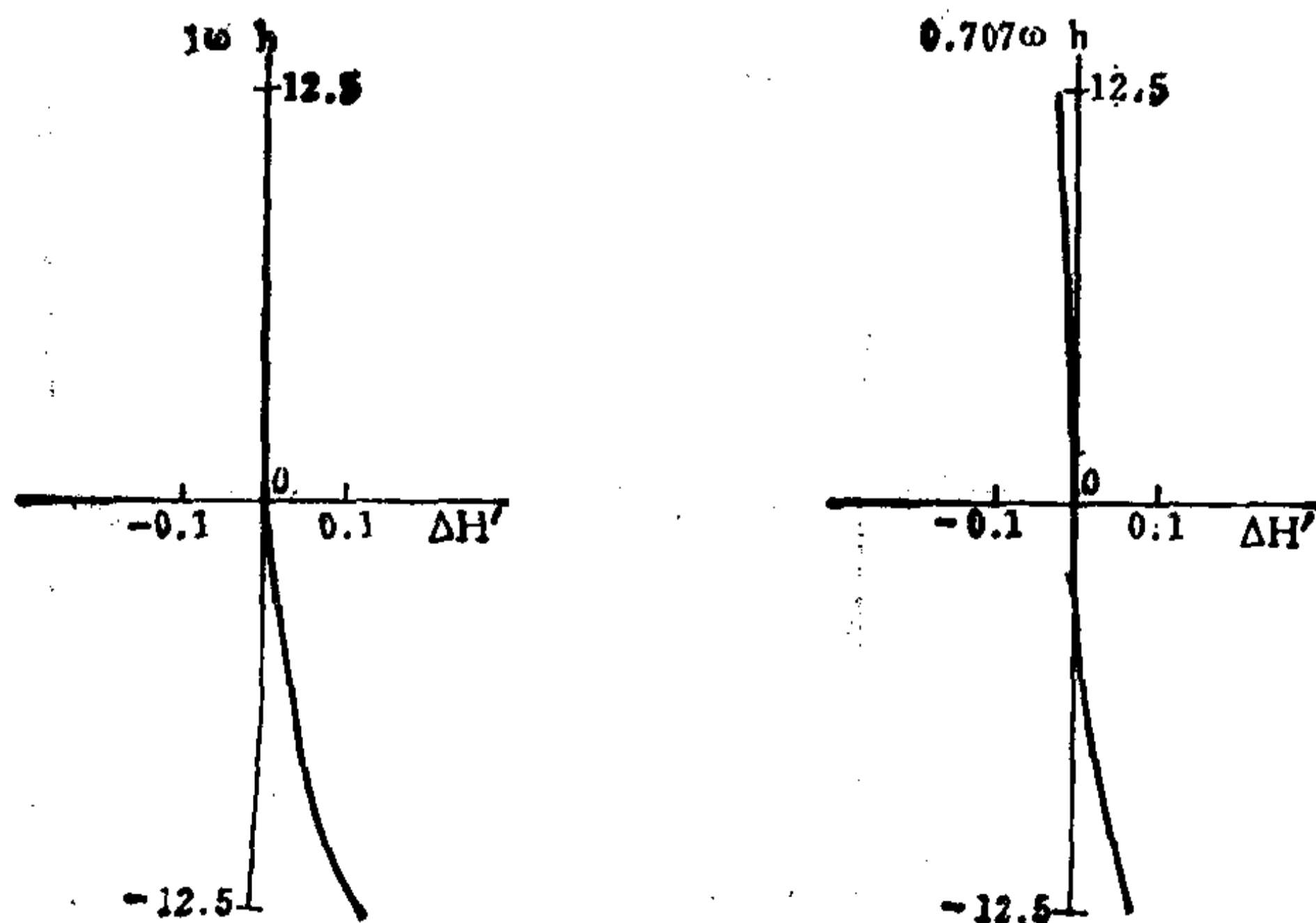
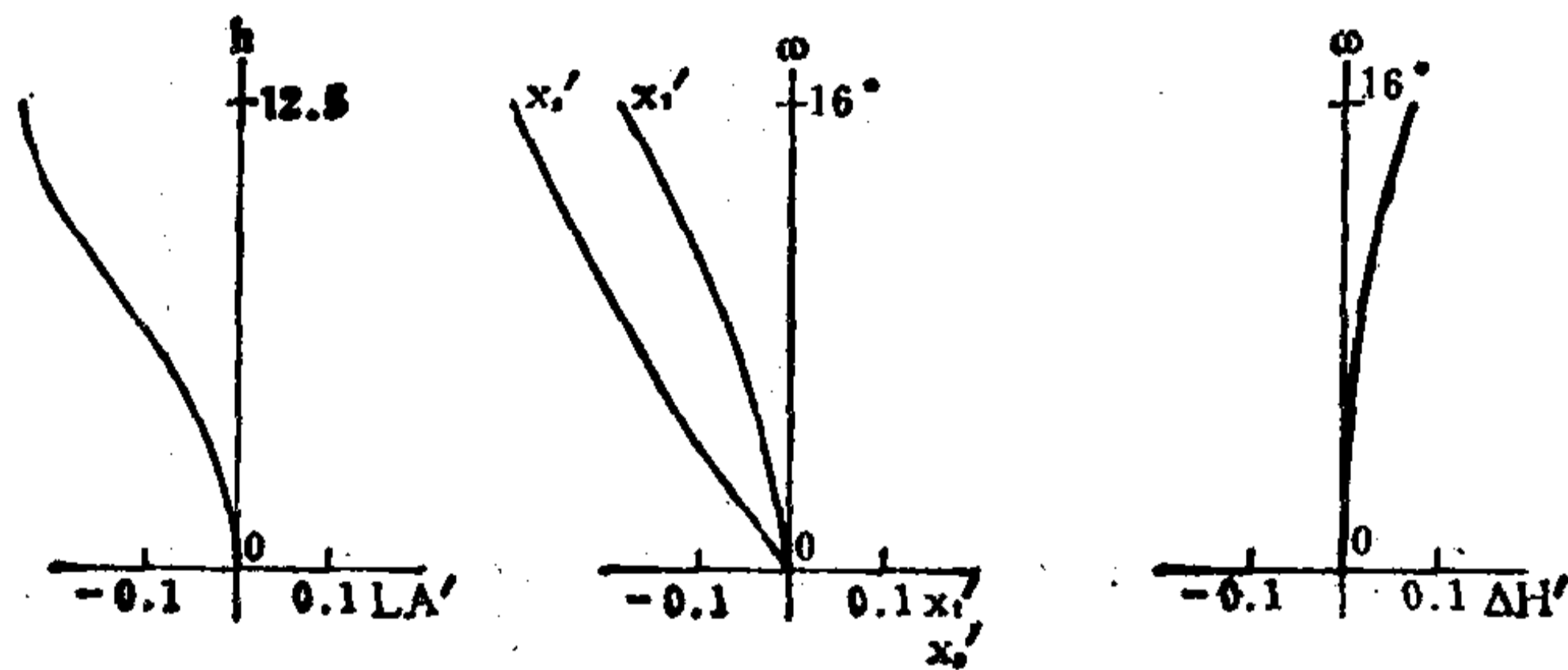
F. A. = ± 16°**



序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	86.3	4.4	1.745	46.4	6	23.5	13.2*		
2	268.0	0.2			7	-214.0	7.5	1.513	60.5
3	29.4	9.3	1.734	51.0	8	47.8	6.9	1.697	56.2
4	71.5	2.0			9	-81.5			
5	145.0	2.4	1.720	29.3					

13.2* = 10.0 + 3.2

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1∞)
	-0.01316	0.00178	0.00437	-0.02219	0.02817	28.9	0.23%
h 或 ω %	LA'	ΔH'	x _t	x _s	x _t - x _s	K _{T1}	K _{T0.7}
100	-0.244	0.067	-0.188	-0.307	0.119	0.0648	0.0234
70	-0.172	0.033	-0.114	-0.229	0.115	0.0279	0.0129



编号: 05-04-088

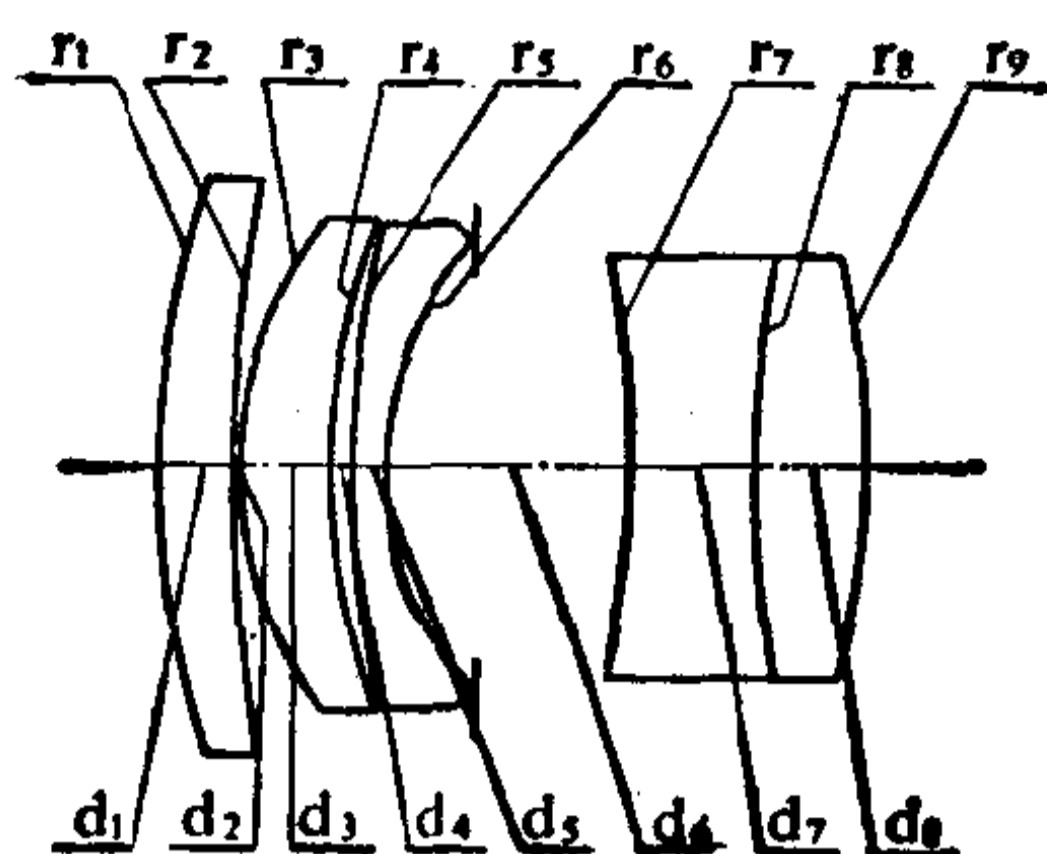
四组元摄影物镜

E. F. L = 99.5

B. F. L = 69.1

FNo. = 4**

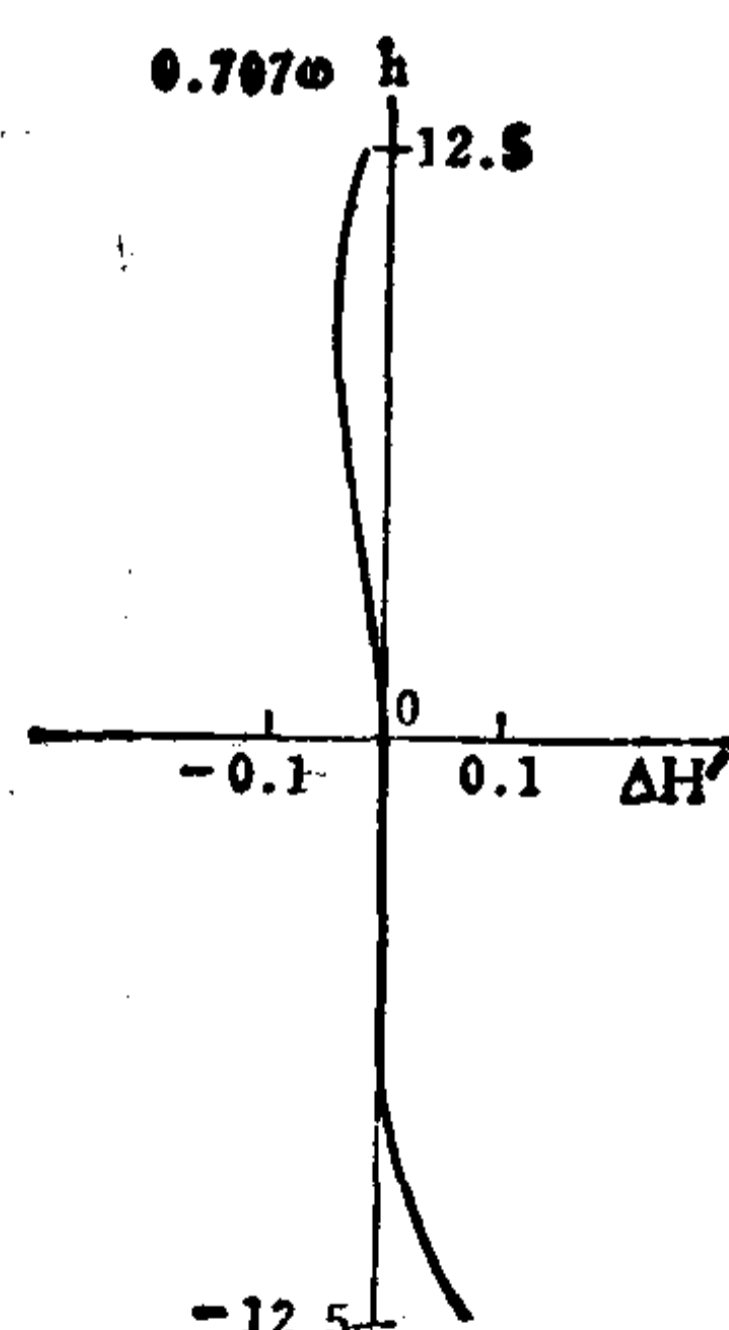
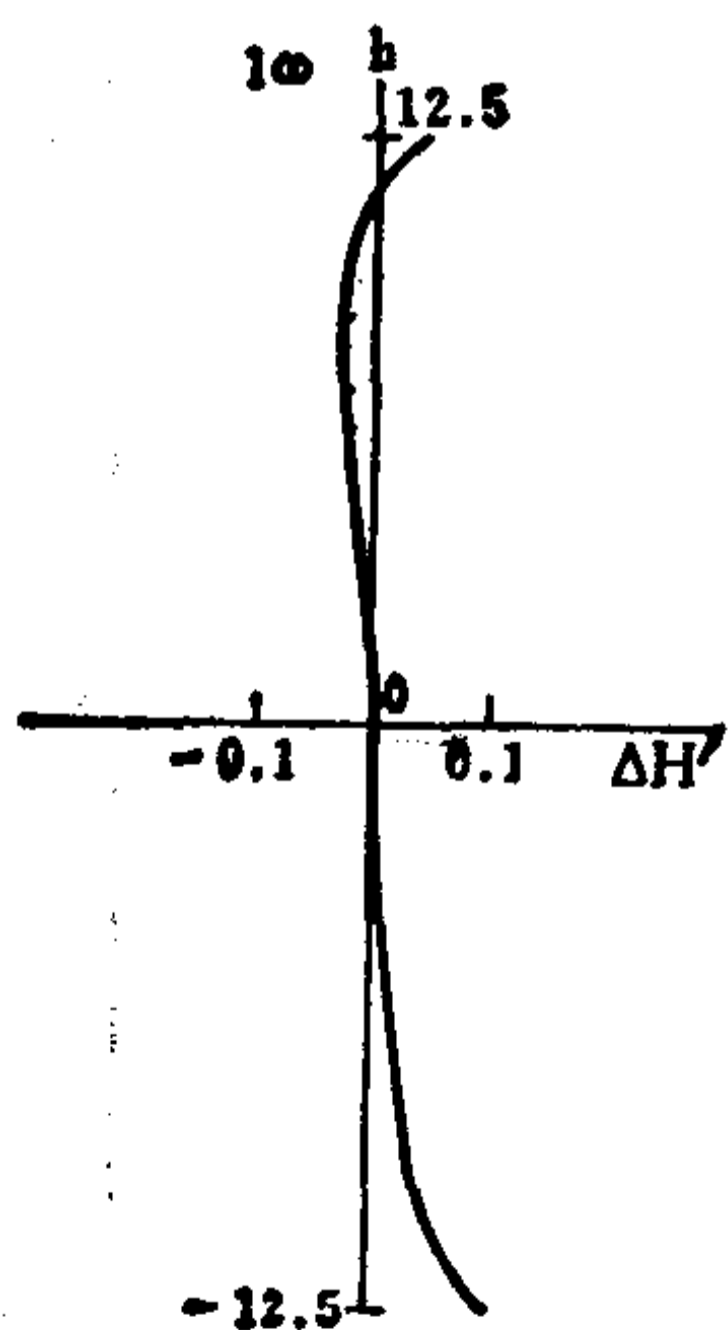
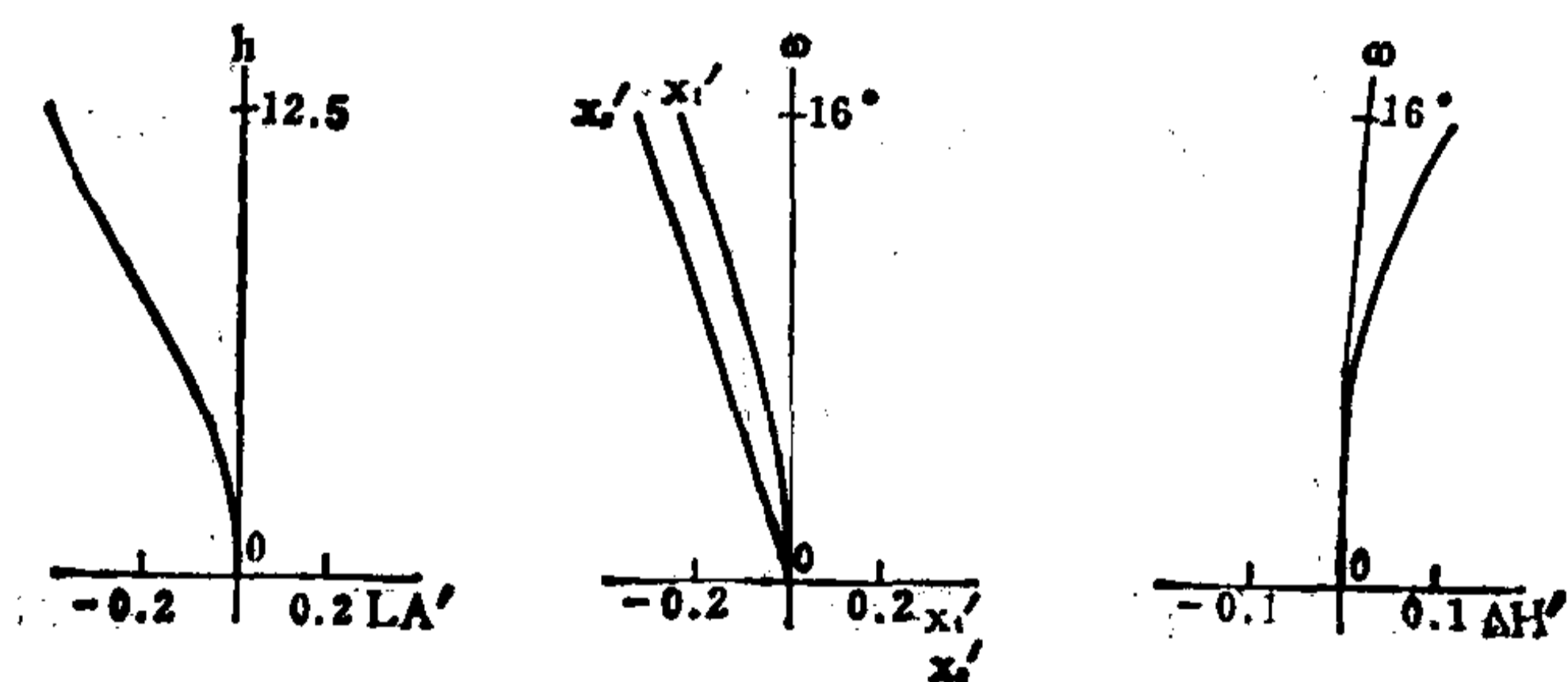
F. A. = ± 16°**



序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	57.5	4.9	1.745	46.4	6	21.5	15.2*		
2	206.0	0.2			7	-67.8	8.2	1.528	51.6
3	26.6	5.7	1.734	51.0	8	63.5	7.2	1.697	56.2
4	44.7	1.1			9	-56.0			
5	67.5	2.5	1.720	29.3					

15.2° = 5.2 + 10.0

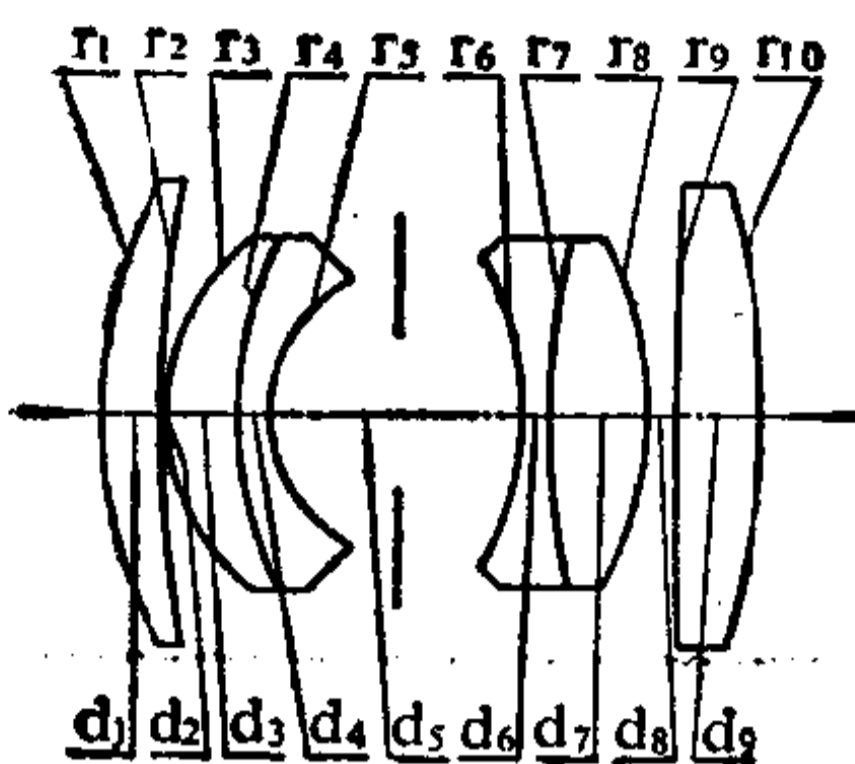
	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1 ω)
	- 0.02013	- 0.00729	0.00324	- 0.02138	0.02458	28.6	0.3%
h 或 ω %	LA'	ΔH'	x _i '	x _s '	x _i ' - x _s '	K _{T1}	K _{T0.7}
100	- 0.432	0.087	- 0.251	- 0.343	0.092	0.0682	- 0.0042
70	- 0.273	0.034	- 0.155	- 0.237	0.082	0.0379	- 0.0071



编号: 05-04-089

四组元高斯型摄影物镜

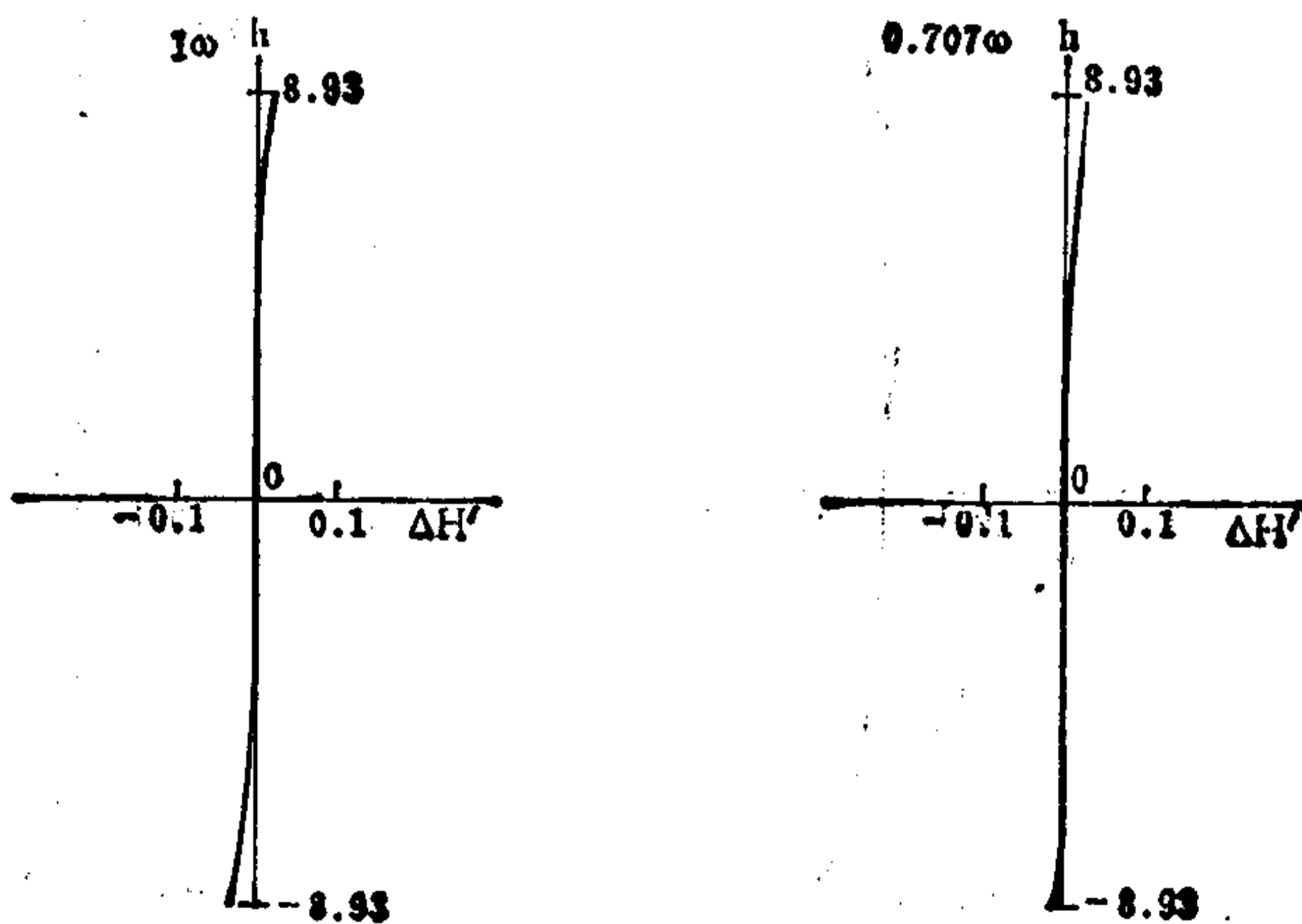
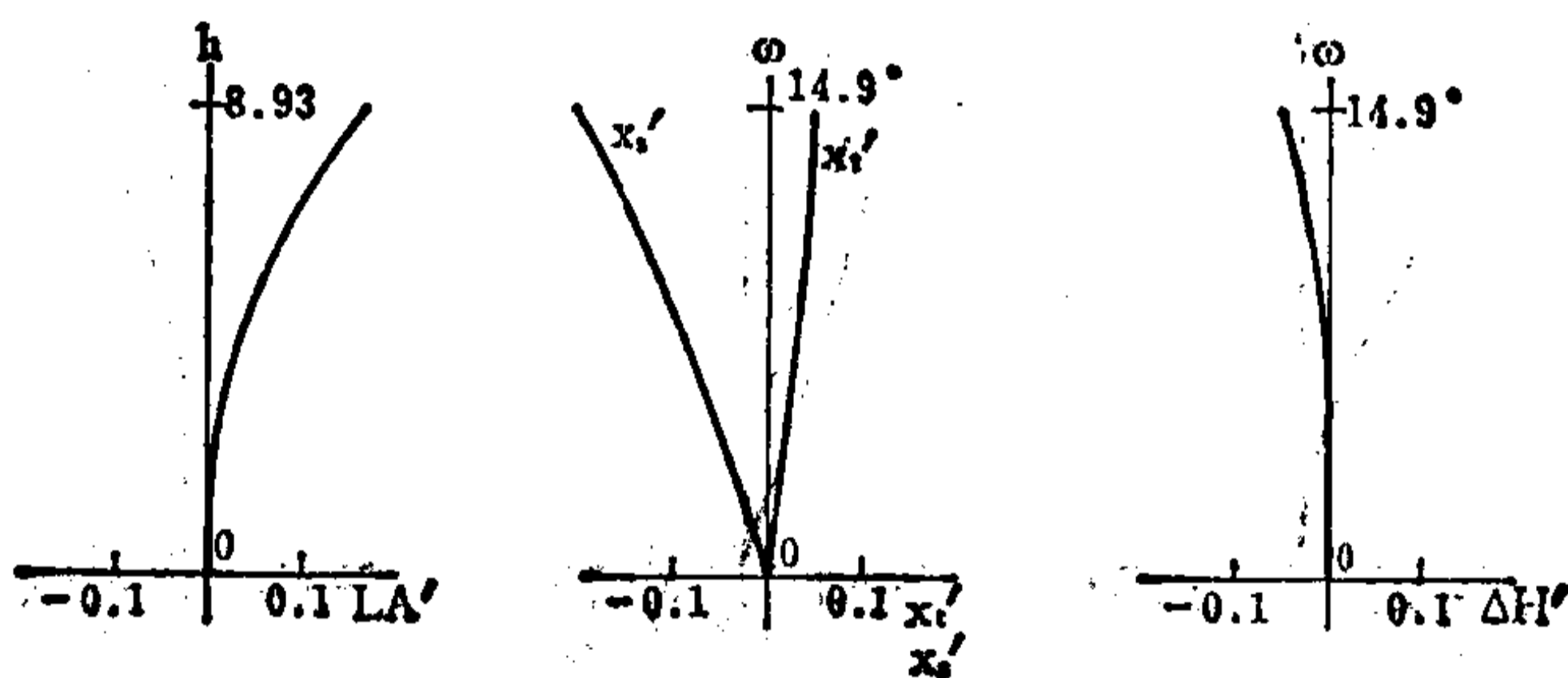
E.F.L=101.9 B.F.L=52.9 FNo.=5.7 F.A.=±14.9°**



序号	r	d	nd	vd	序号	r	d	nd	vd
1	62.5	7.9	1.744	45.6	6	-41.5	3.5	1.672	32.2
2	164.0	0.4			7	99.5	12.0	1.744	43.9
3	28.7	9.4	1.697	56.2	8	-47.6	4.0		
4	51.2	3.5	1.689	30.9	9	807.0	11.0	1.734	51.0
5	19.3	32.4*			10	-103.0			

32.4* = 16.2 + 16.2

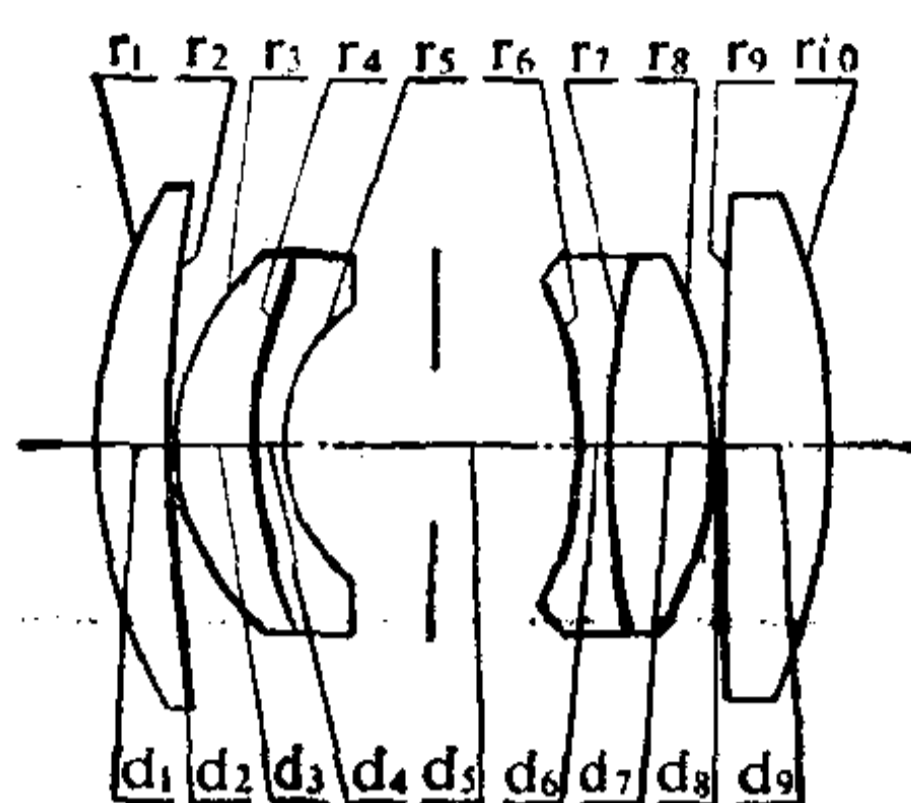
	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	0.00199	0.00094	0.00304	-0.00793	-0.00712	27.1	-0.18%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.169	-0.050	0.043	-0.208	0.251	-0.00481	-0.00429
70	0.074	-0.016	0.041	-0.132	0.173	0.00848	0.00258



编号: 05-04-090

四组元高斯型摄影物镜

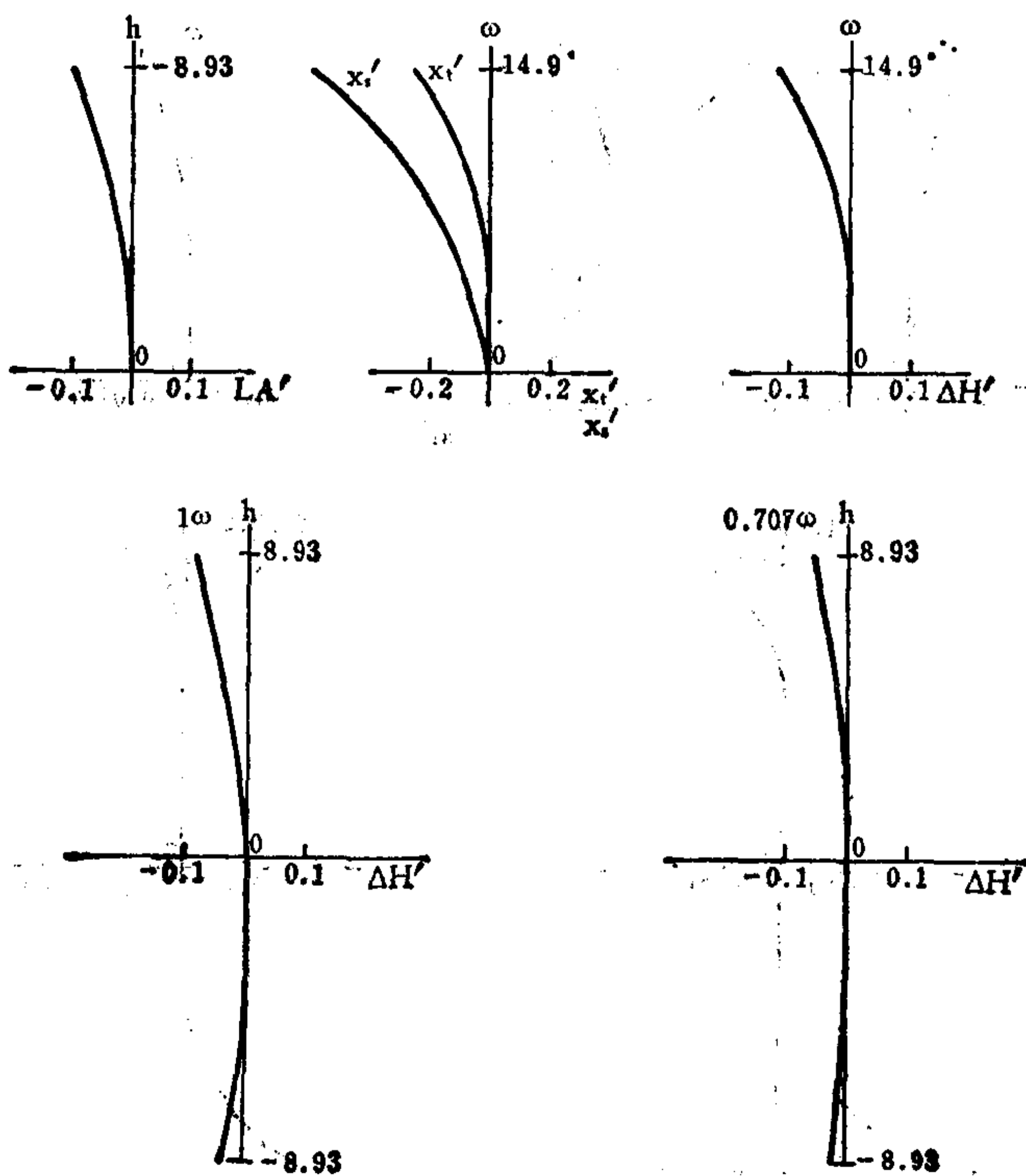
E.F.L.=99.3 B.F.L.=52.2 FNo. =5.56 F.A. = ±14.9°**



序号	r	d	n _d	v _d	序号	r	d	n _d	v _d
1	69.3	8.80	1.744	45.8	6	-46.2	3.90	1.672	32.3
2	182.0	0.47			7	110.0	13.60	1.734	51.0
3	31.8	10.40	1.697	56.2	8	-52.3	0.47		
4	56.8	3.90	1.689	30.9	9	897.0	13.50	1.734	51.0
5	21.4	37.60*			10	-84.0			

37.60* = 18.80 + 18.80

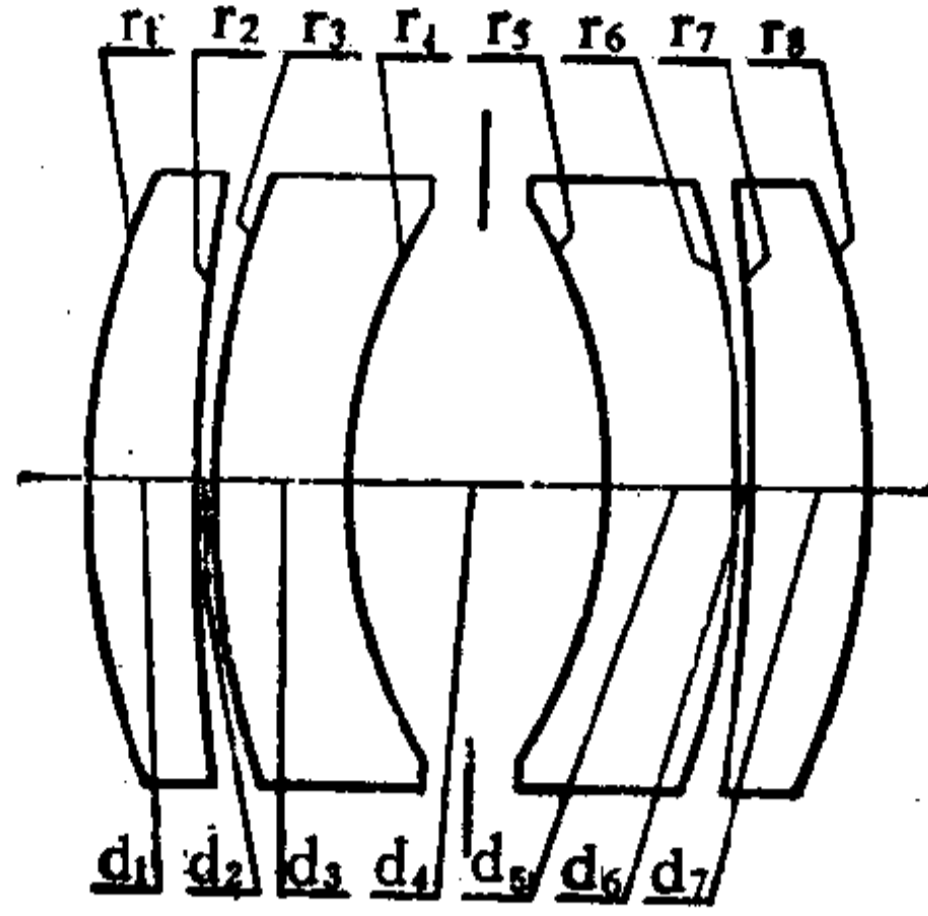
	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	Hf	QP(1ω)
	-0.00188	-0.00200	0.00458	-0.01432	-0.01876	26.4	-0.46%
h 或 ω%	LA'	ΔH'	x _t	x _s	x _t - x _s	K _{T1}	K _{T0.7}
100	-0.0987	-0.121	-0.273	-0.590	0.317	-0.05706	-0.02950
70	-0.0538	-0.040	-0.083	-0.305	0.222	-0.03082	-0.01632



编号: 05-04-091

四片型对称重显物镜

E. F. L = 1.0063 B. F. L = 0.8663 FNo. = 4.5 F. A. = ± 30°

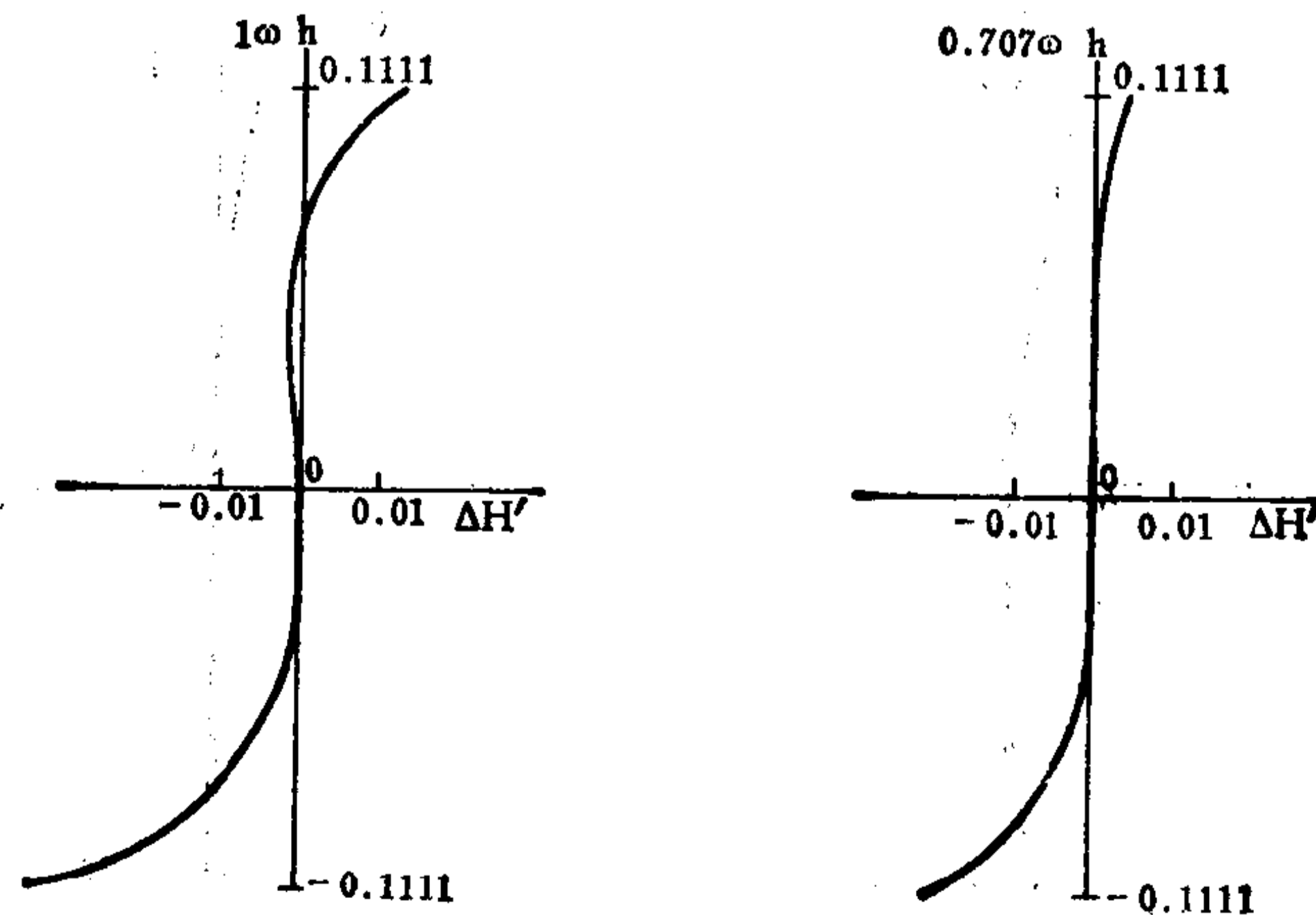
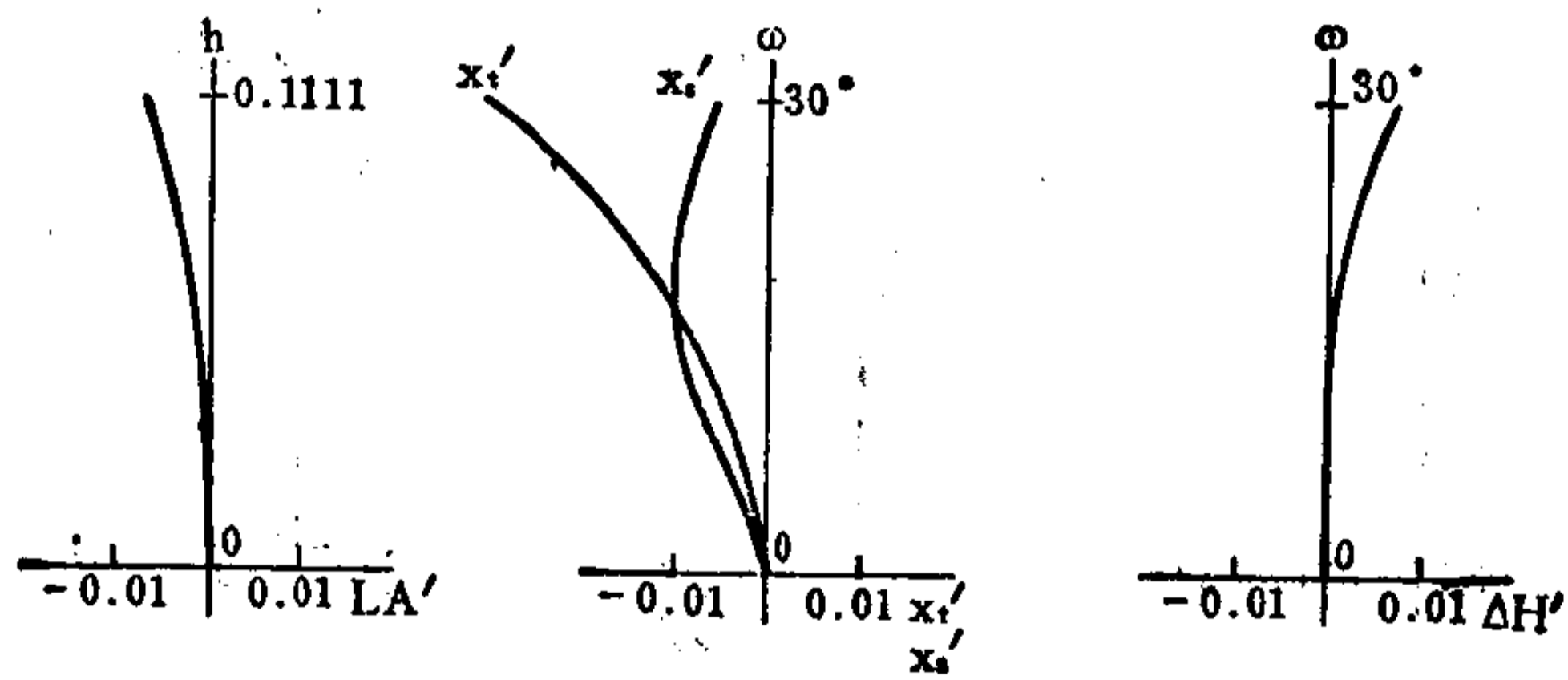


序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	0.2696	0.042	1.588	61.2	5	-0.1870	0.049	1.617	36.6
2	1.0270	0.005			6	-0.3347	0.005		
3	0.3347	0.049	1.617	36.6	7	-1.0270	0.042	1.588	61.2
4	0.1870	0.090*			8	-0.2696			

0.090* = 0.045 + 0.045

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1 ω)
	-0.000175	-0.000272	0.000030	-0.000692	0.000816	0.58	1.2%
h 或 ω %	LA'	ΔH'	x _t	x _s	x _t ' - x _s '	K _{T1}	K _{T0.7}
100	-0.00686	0.00683	-0.0324	-0.0065	-0.0259	-0.01045	-0.00294
70	-0.00346	0.00183	-0.0144	-0.0102	-0.0042	-0.00864	-0.00248

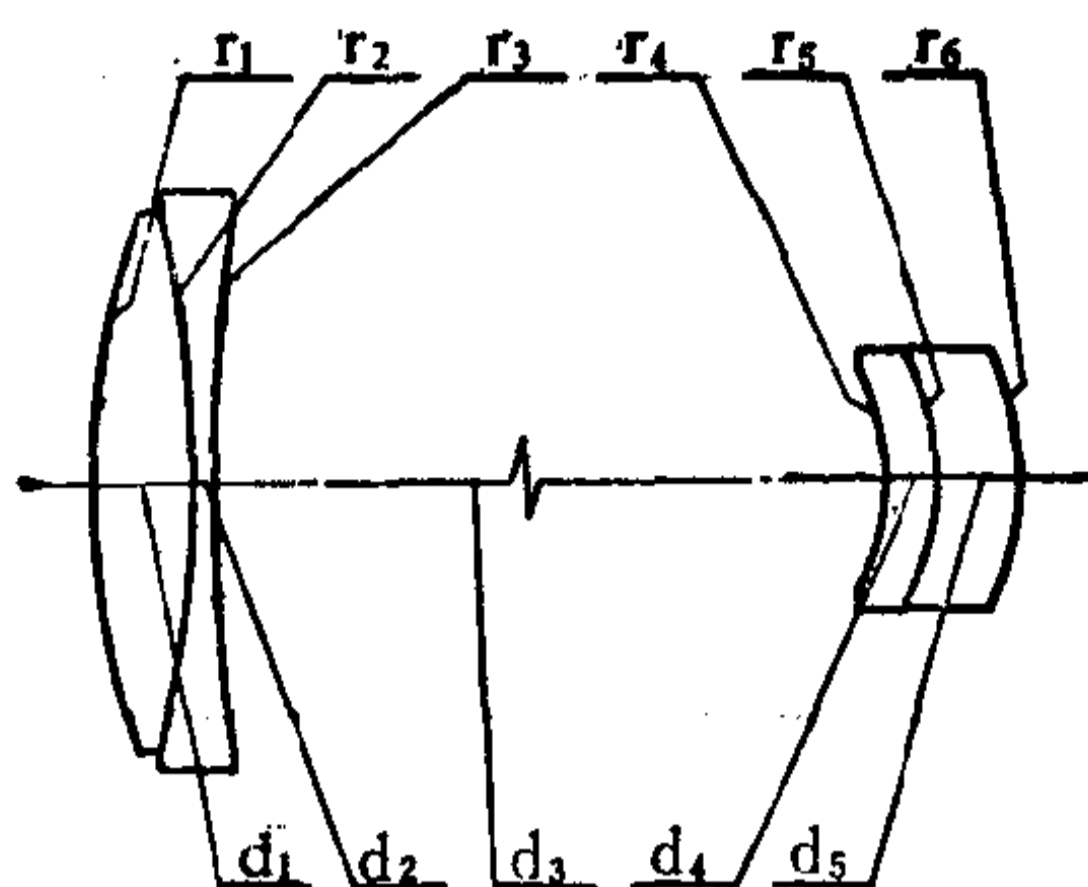
注: 以上象差值是按 l = -∞ 计算的。



编号: 05-04-092

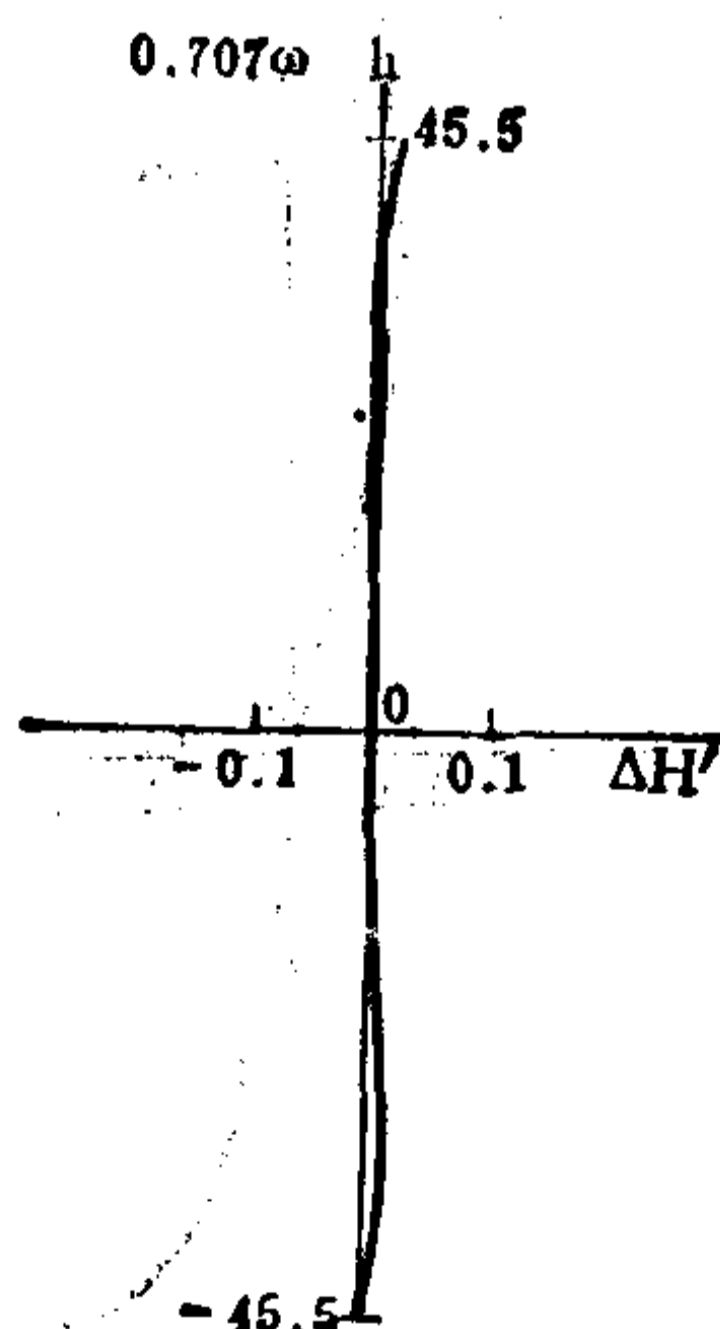
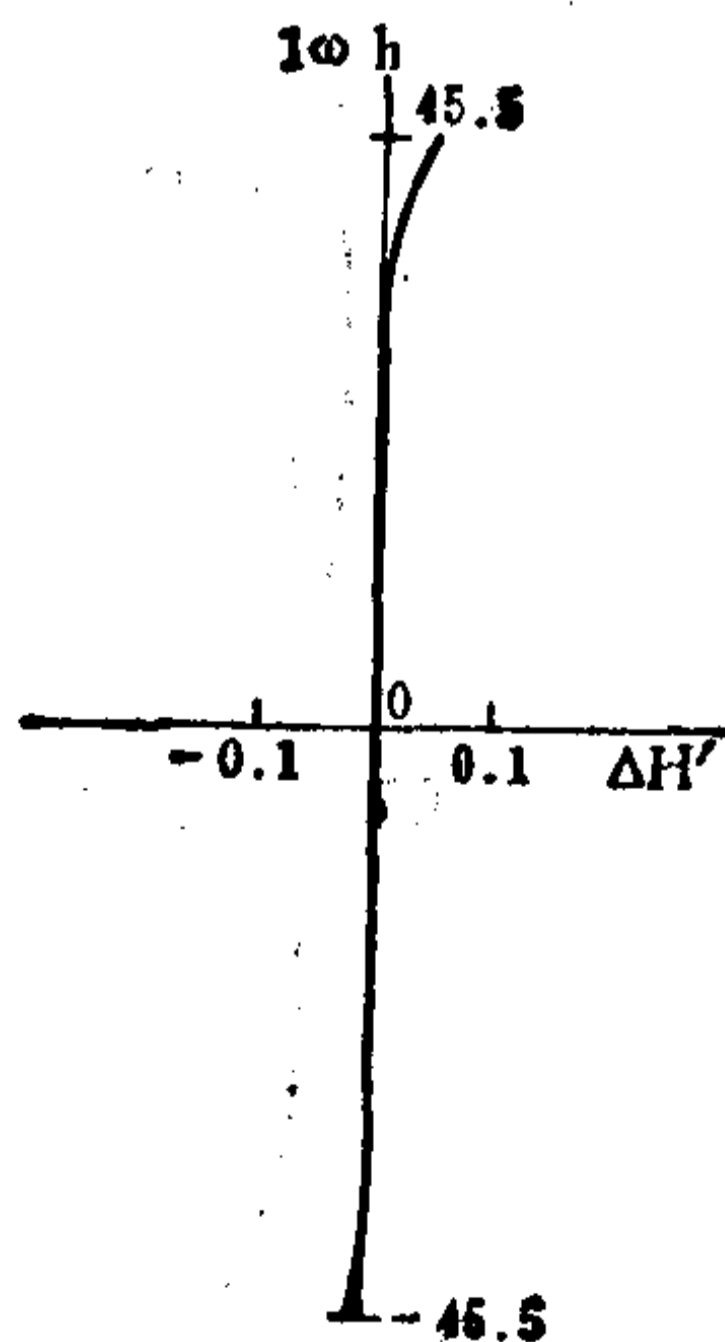
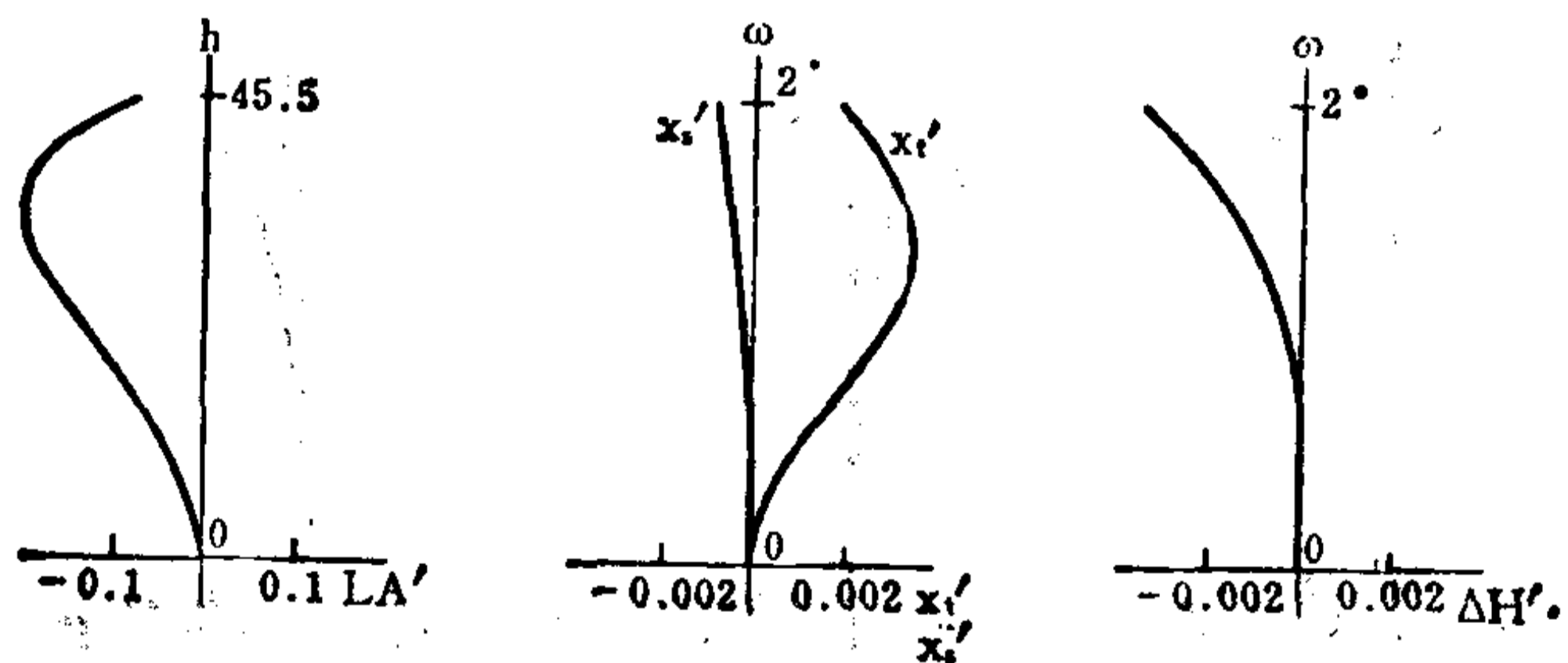
由两组相对复消色差透镜组成的远摄光学系统

E. F. L = 510.2 B. F. L = 126.16 FNo. = 5.6 F. A. = $\pm 2^{\circ}$ ** $L'_{p1} = 0$



序号	r	d	n_D	ν_D	序号	r	d	n_D	ν_D
1	177.010	20.5	1.620	60.3	4	-51.523	10.6	1.611	57.2
2	-232.900	5.0	1.720	36.2	5	-56.494	17.9	1.649	33.8
3	1180.300	281.1			6	-65.464			

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.01070	-0.00015	0.00010	-0.00013	-0.00054	17.8	-0.02%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_s	$x'_i - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-0.0751	-0.0035	0.0016	-0.0008	0.0024	0.01953	0.00566
70	-0.1985	-0.0011	0.0035	-0.0005	0.0040	0.01054	0.00259



编号: 05-04-093

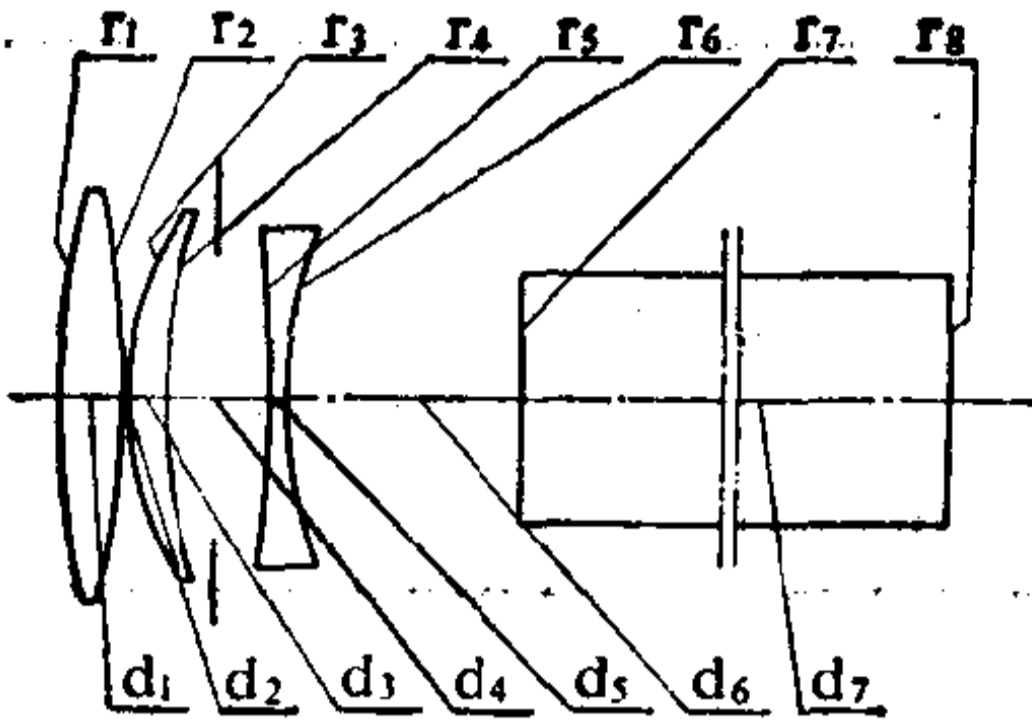
三片型望远物镜

E. F. L = 99.999

B. F. L = 12.606

FNo. = 3

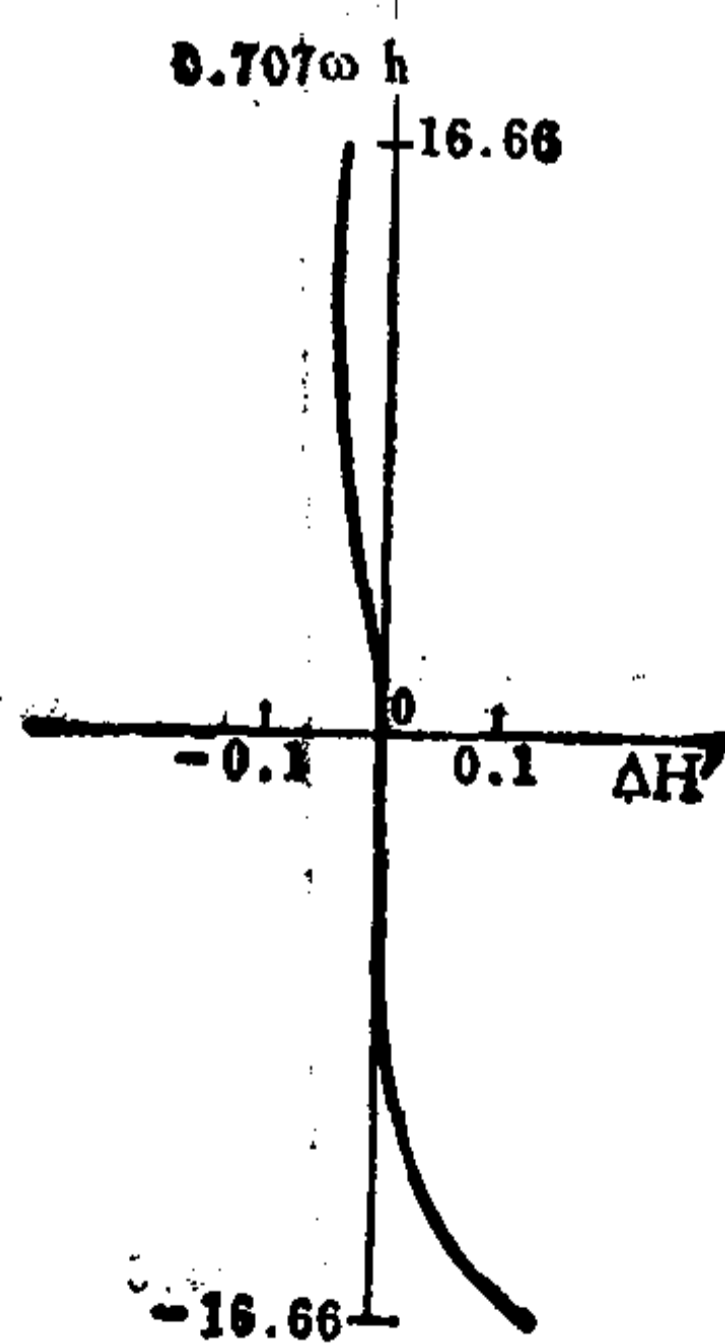
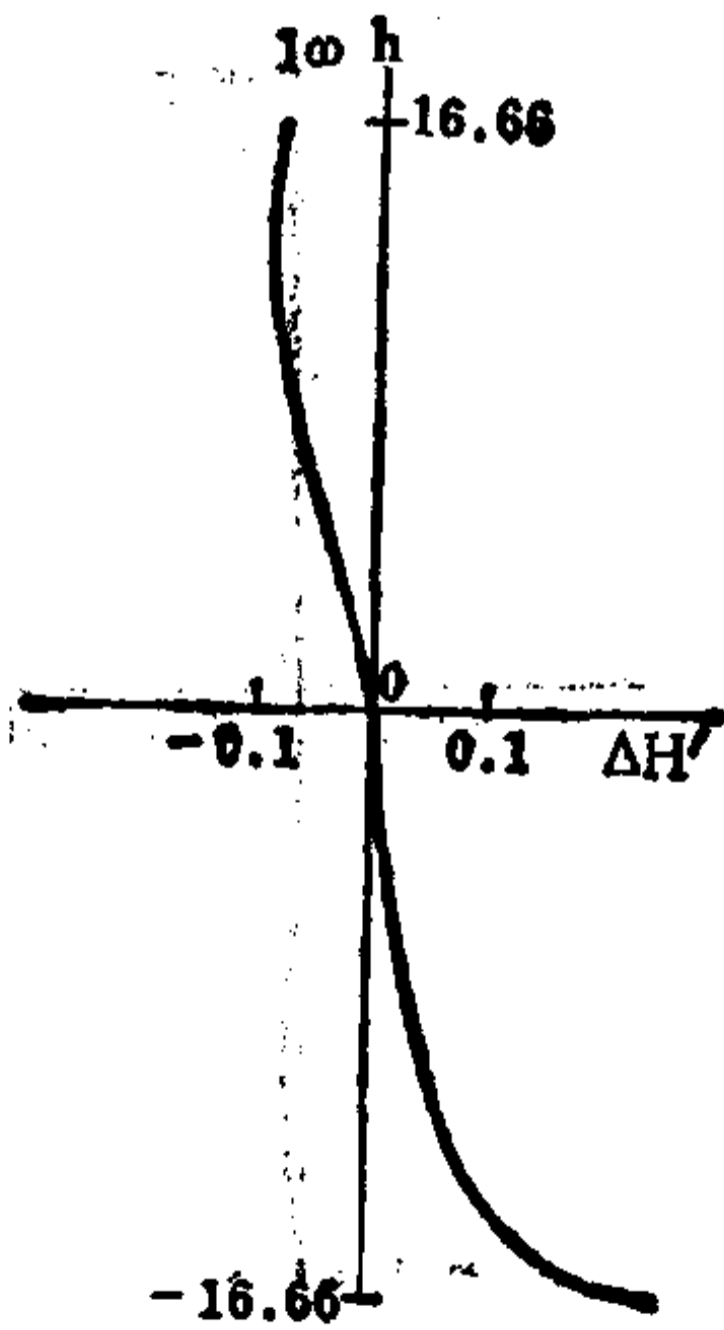
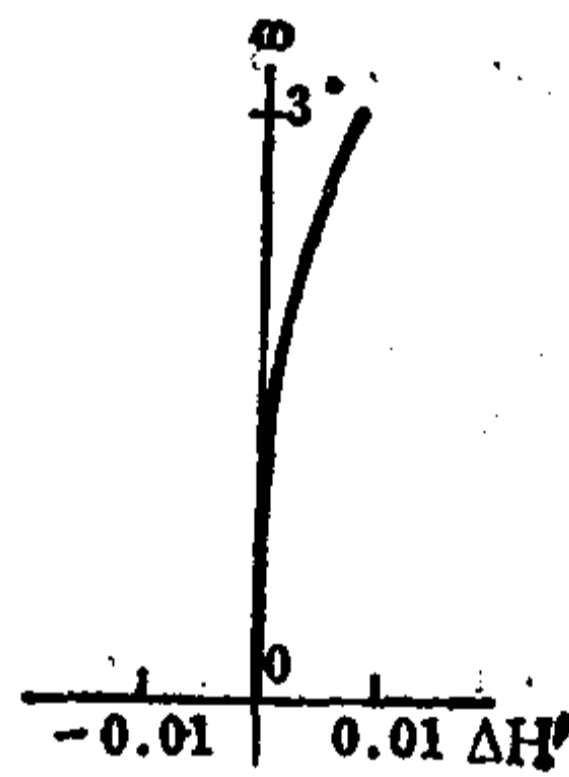
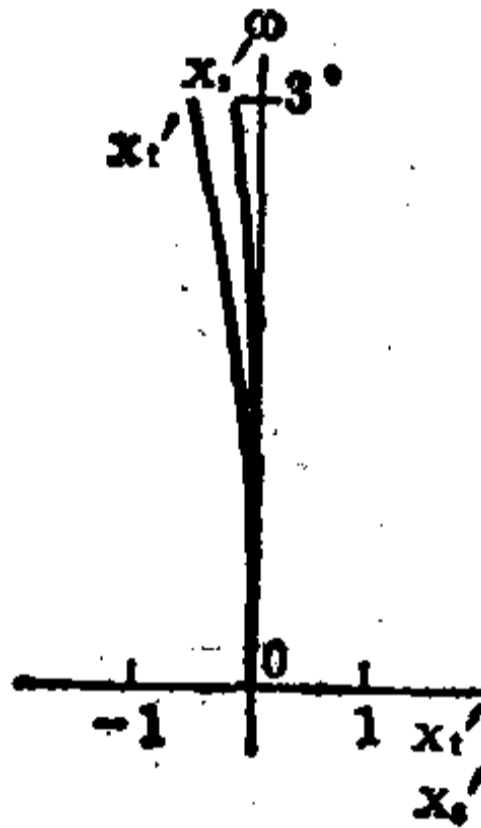
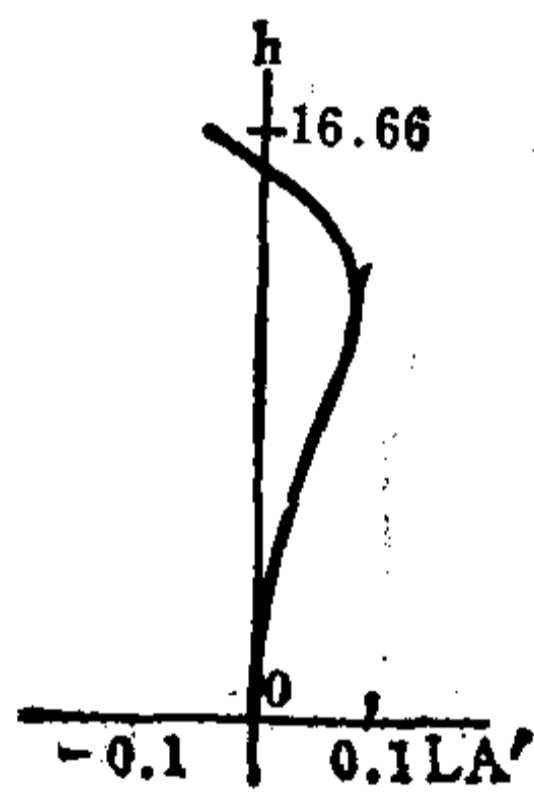
F. A. = $\pm 3''$ **



序号	r	d	n_d	v_d	序号	r	d	n_d	v_d
1	58.333	5.333	1.48631	81.87	5	-173.330	1.867	1.67270	32.23
2	-80.000	0.667			6	38.148	20.000		
3	28.000	3.667	1.51730	69.62	7	∞	53.000	1.62000	36.34
4	58.333	8.533*			8	∞			

$8.533^* = 4.000 + 4.533$

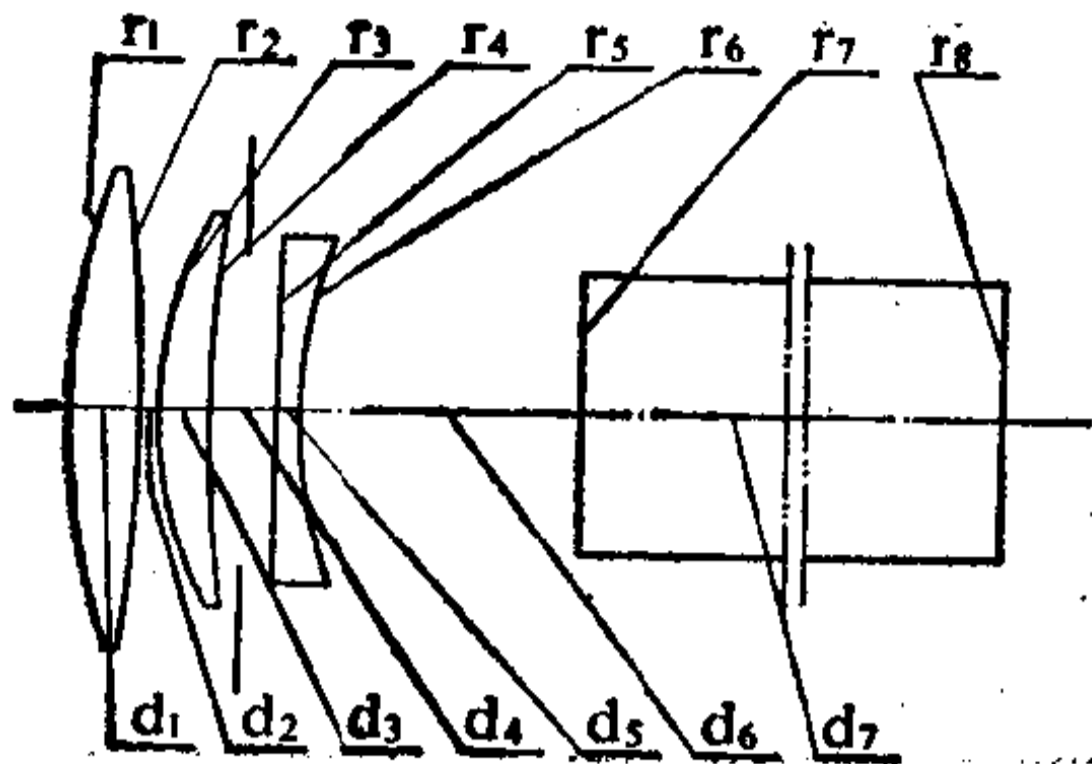
	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	0.01049	-0.00952	-0.01050	-0.00237	0.00255	5.2	0.15%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K_{T0.7}$
100	-0.0493	0.0077	-0.610	-0.232	-0.378	0.08211	-0.00744
70	0.0752	0.0027	-0.305	-0.116	-0.189	0.05493	-0.00636



编号: 05-04-094

三片型望远物镜

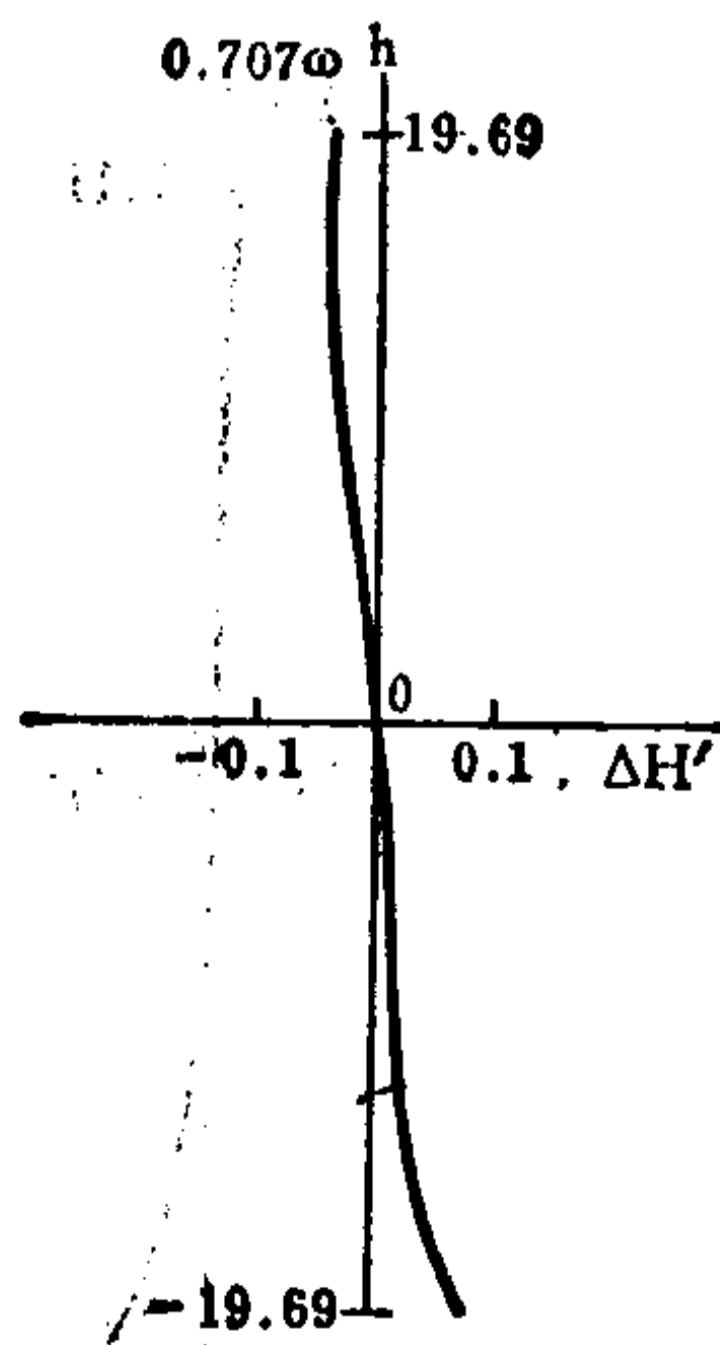
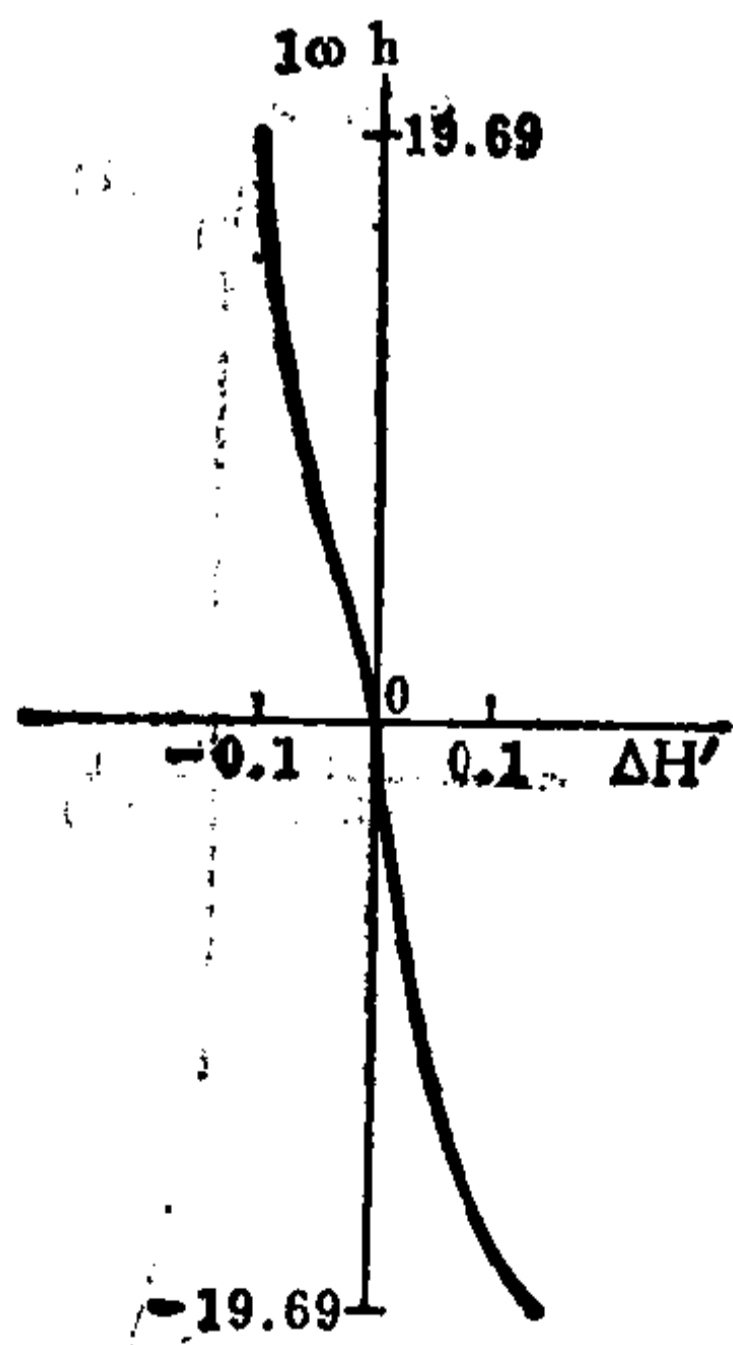
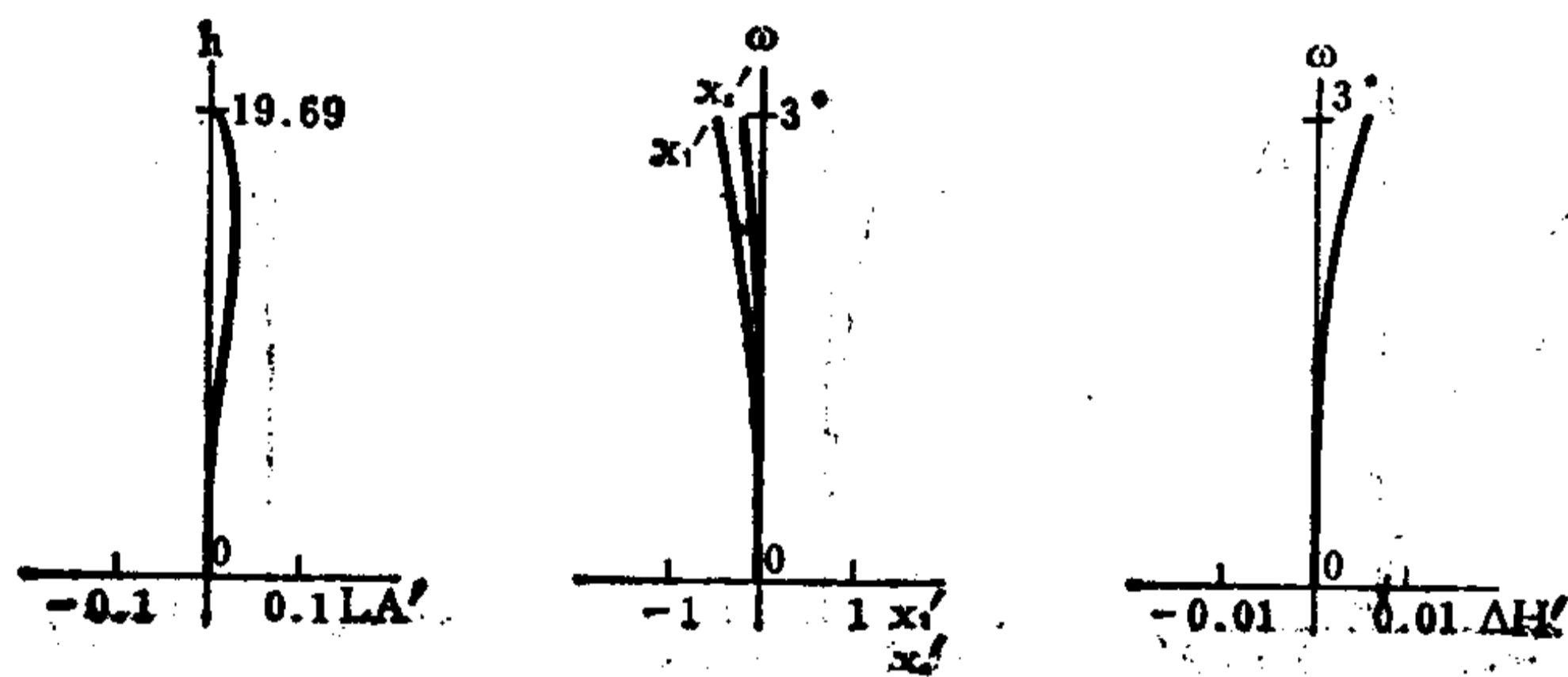
E. F. L = 99.999 B. F. L = 15.159 FNo. = 2.54 F. A. = $\pm 3^{\circ}$ **



序号	r	d	nd	vd	序号	r	d	nd	vd
1	63.715	5.900	1.5582	67.75	5	∞	1.966	1.7283	28.34
2	-157.320	1.966			6	40.693	23.598		
3	36.184	3.933	1.5687	63.12	7	∞	53.000	1.6200	36.34
4	117.990	5.900*			8	∞			

5.900* = 3.000 + 2.900

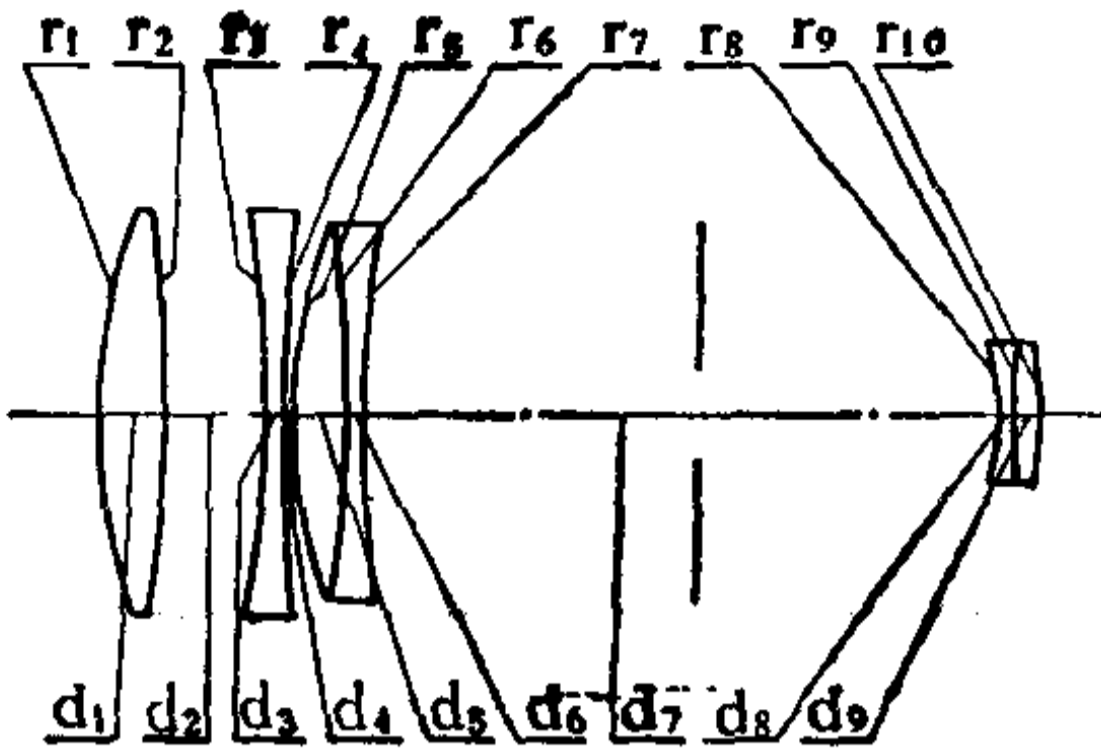
	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	0.00541	-0.00654	-0.01165	-0.00470	0.00210	5.2	0.1%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K'_{T1}	$K'_{T0.7}$
100	0.0043	0.0054	-0.511	-0.211	-0.300	0.02543	-0.00802
70	0.0309	0.0019	-0.256	-0.106	-0.150	0.01648	-0.00627



编号: 05-04-095

小倍率望远镜式远摄透镜系统

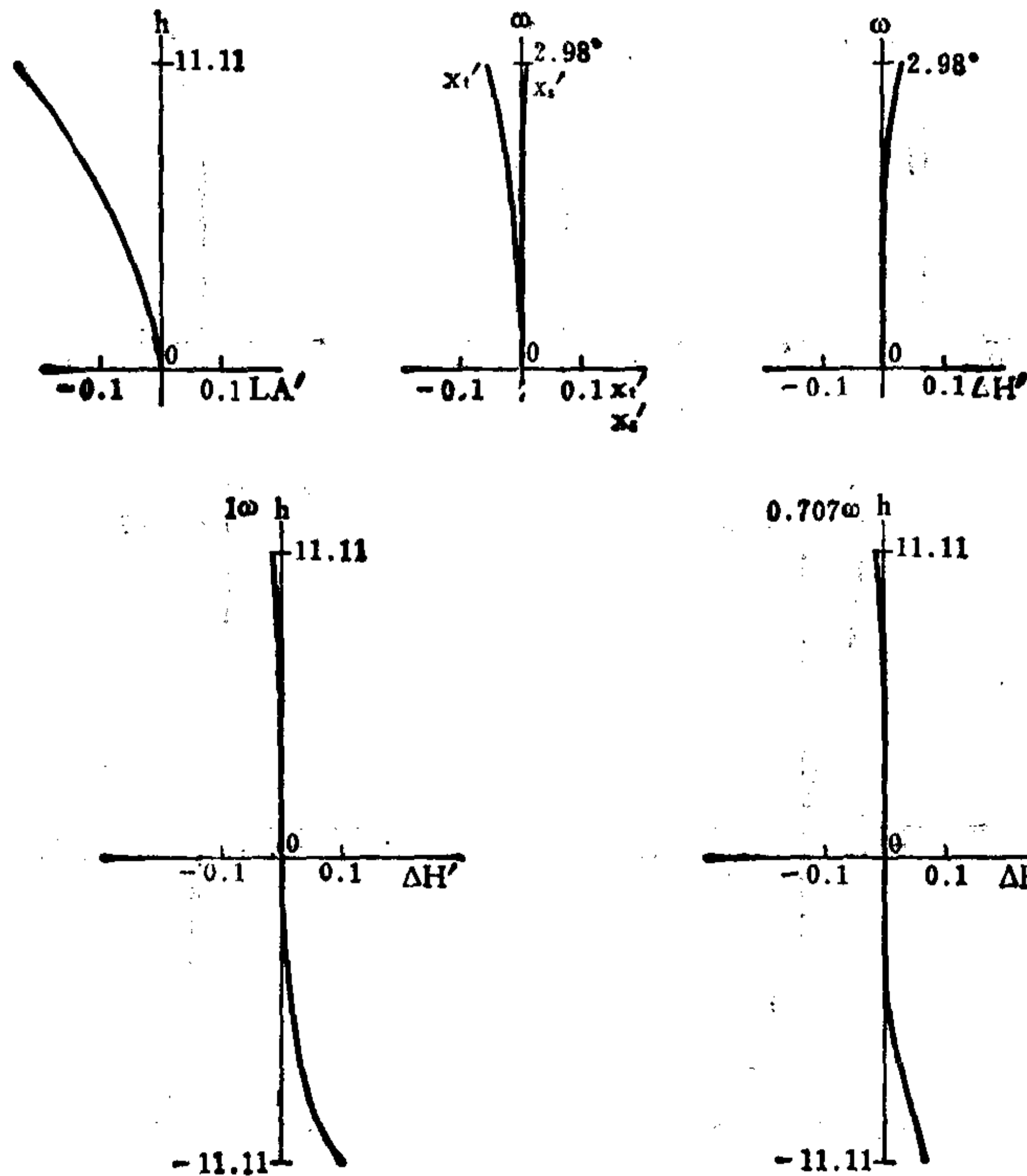
E.F.L = 97.79 B.F.L = 23.95 FNo. = 4.4 F.A. = ± 2.98°



序号	r	d	n	v	序号	r	d	n	v
1	32.2150	3.50	1.48749	70.2	6	- 54.0170	1.00	1.61340	43.8
2	- 79.5966	5.50			7	67.3400	33.75*		
3	- 57.7059	1.00	1.80610	40.8	8	- 12.9220	0.75	1.71300	54.0
4	153.2590	0.20			9	42.8340	1.25	1.74950	35.2
5	28.4860	3.00	1.61800	63.4	10	- 23.7076			

33.75* = 18.00 + 15.75

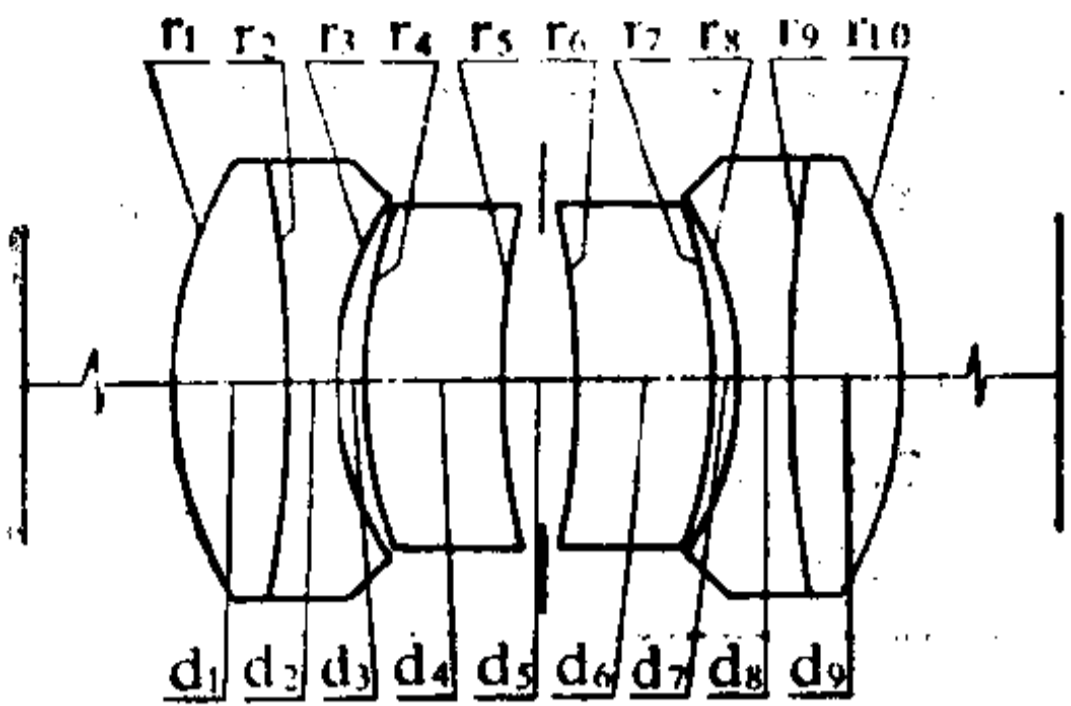
	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	- 0.00866	0.00141	- 0.00071	0.00080	0.00567	5.09	0.5%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_s	$x'_i - x'_s$	K'_{T1}	$K'_{T0.7}$
100	- 0.2422	0.0253	- 0.0600	0.0015	- 0.0615	0.04722	0.01545
70	- 0.1442	0.0028	- 0.0279	0.0012	- 0.0291	0.02820	0.00959



编号: 05-04-096

对 称 投 影 物 镜

E. F. L = 312 B. F. L = 252.9 FNo. = 16.06 F. A. = $\pm 10^\circ$ **

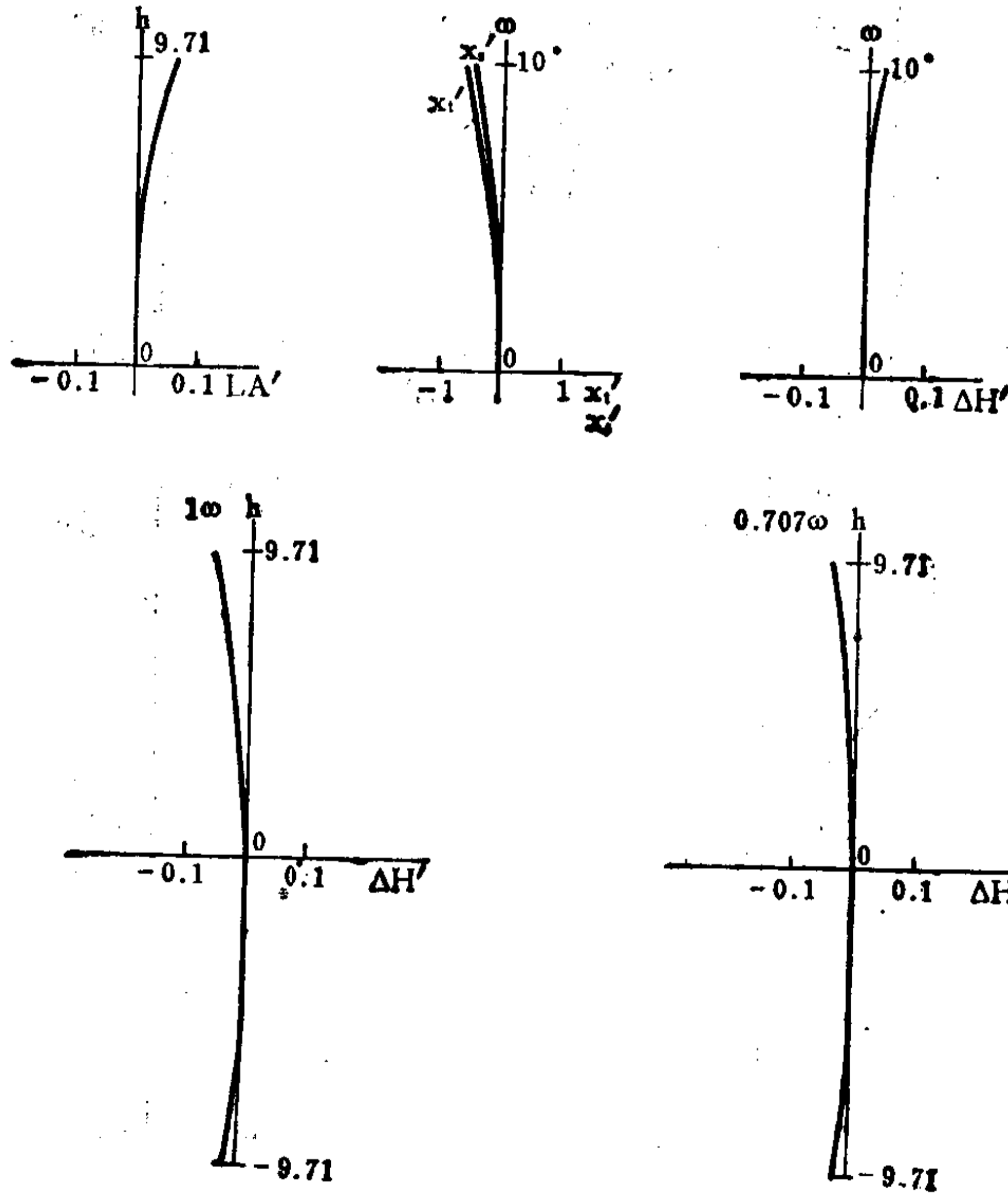


序号	r	d	n _D	v _D	序号	r	d	n _D	v _D
1	74.473	18.8	1.611	57.2	6	-136.770	23.6	1.566	53.8
2	-220.800	9.1	1.559	45.5	7	-87.902	4.3		
3	55.463	4.3			8	-55.463	9.1	1.559	45.5
4	87.902	23.6	1.566	53.8	9	220.800	18.8	1.611	57.2
5	-136.770	12.0*			10	74.473			

12.0* = 6.0 + 6.0

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	0.000059	-0.000719	-0.000080	-0.001089	0.001254	55.2	0.04%
h 或 ω %	LA'	$\Delta H'$	x'_t	x'_s	$x'_t - x'_s$	K_{T1}	$K'_{T0.7}$
100	0.055	0.022	-0.628	-0.526	-0.102	-0.0353	-0.0177
70	0.021	0.007	-0.332	-0.285	-0.047	-0.0248	-0.0124

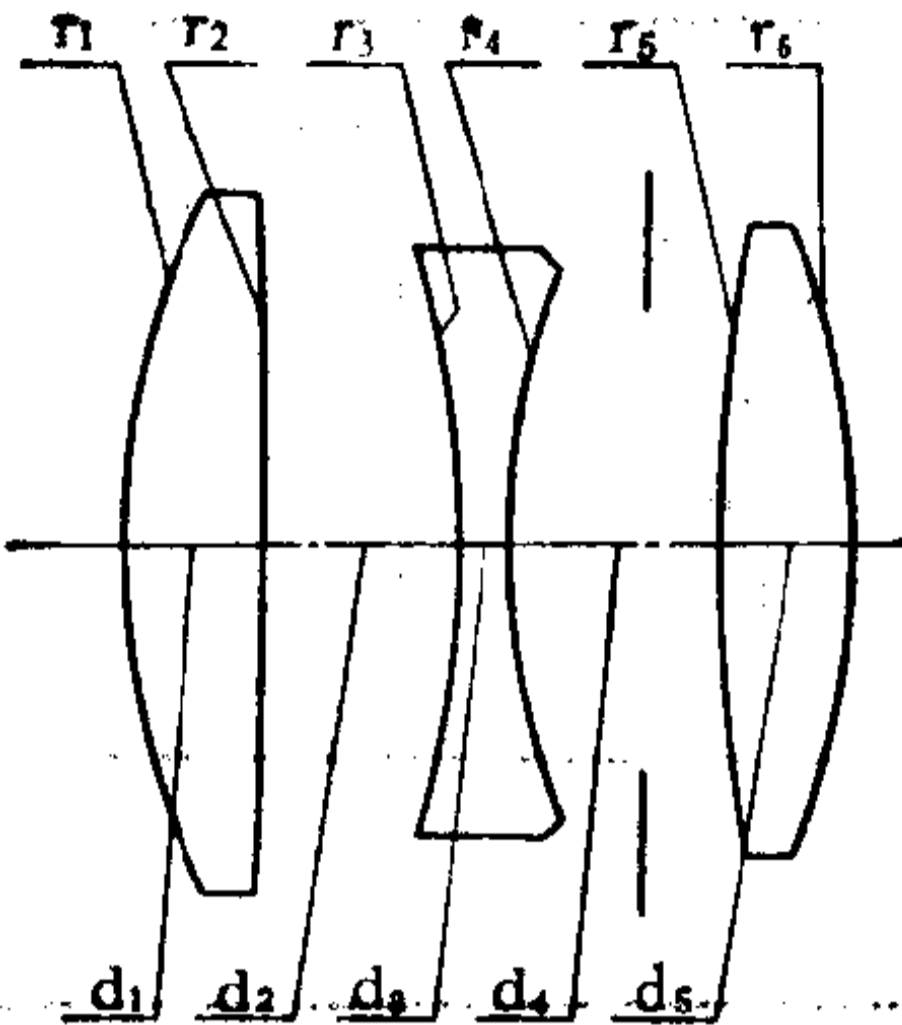
注: 1. $M = 0.5^\times \sim 1^\times \sim 1.5^\times$,
 物点 = 873.6 562.7 459.1,
 象点 = 407.2 562.7 718.1,
 2. 以上象差值是按 $l = -\infty$ 计算的。



编号: 05-04-097

三片型摄影物镜

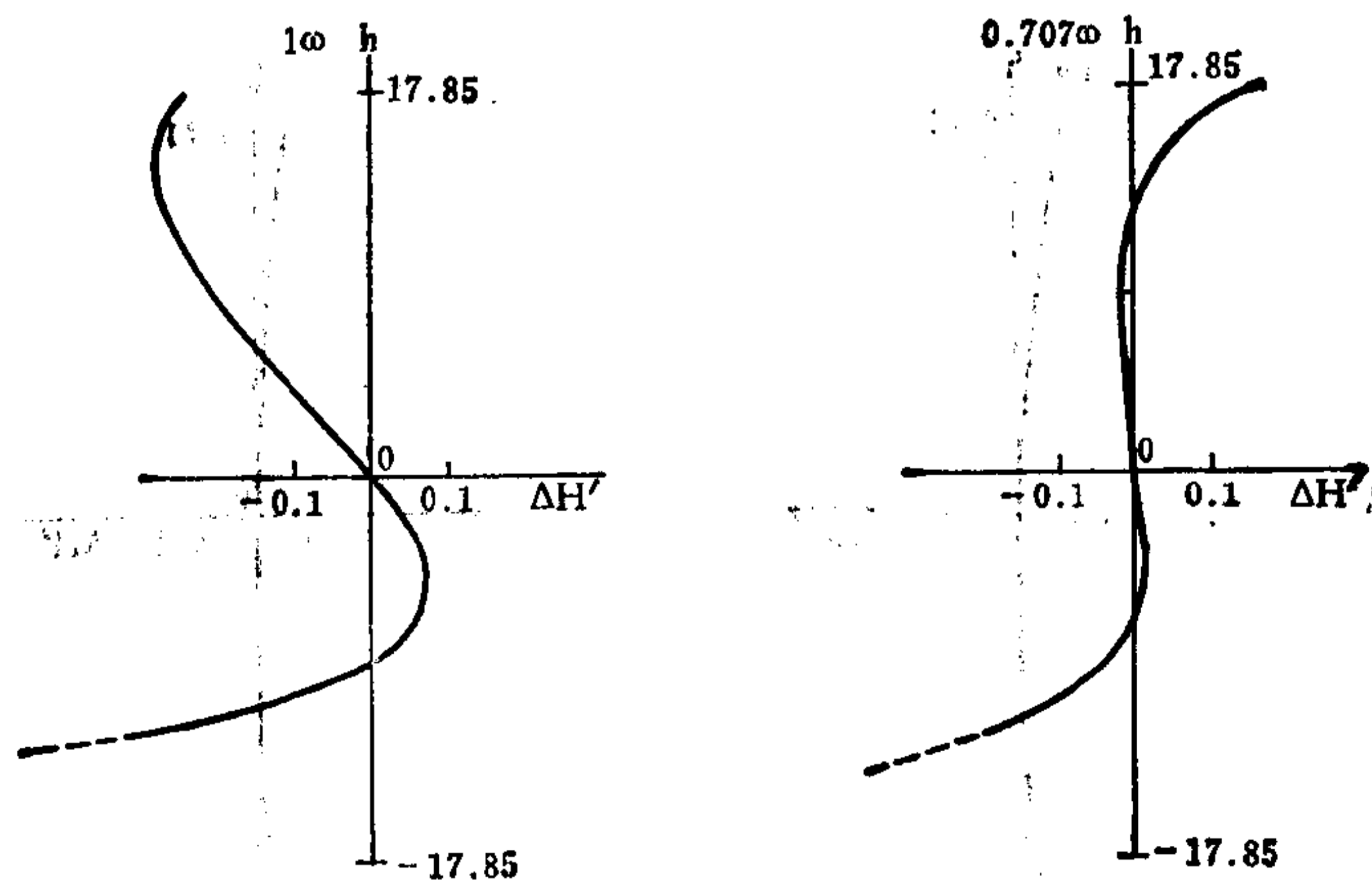
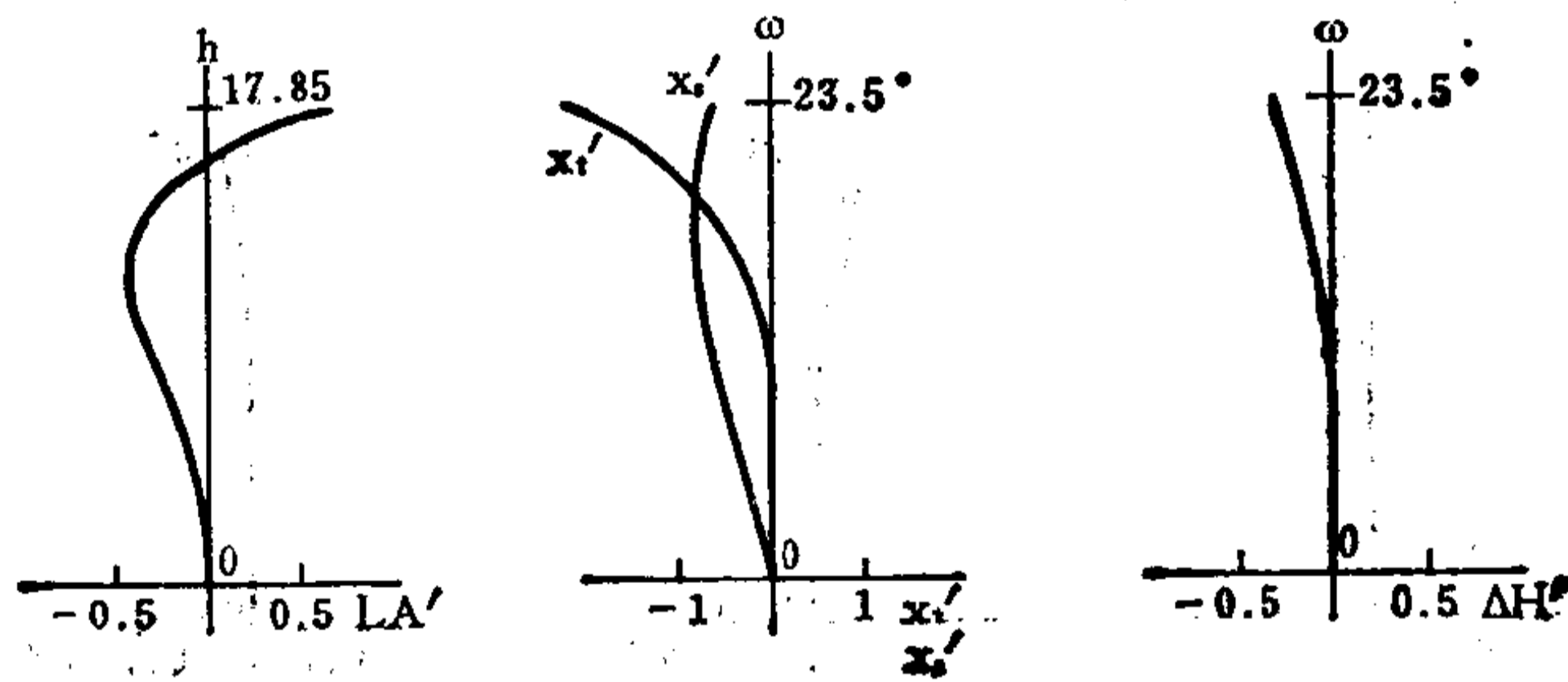
E.F.L.=100.01 B.F.L.=82.97 FNo.=2.8 F.A.=±23.5°



序号	r	d	n _d	v _d	序号	r	d	n _d	v _d
1	42.81	7.476	1.65844	50.84	4	41.27	11.265*		
2	-7013.04	10.241			5	167.23	6.799	1.69100	54.80
3	-60.91	2.969	1.67270	32.23	6	-47.56			

11.265* = 7.000 + 4.265

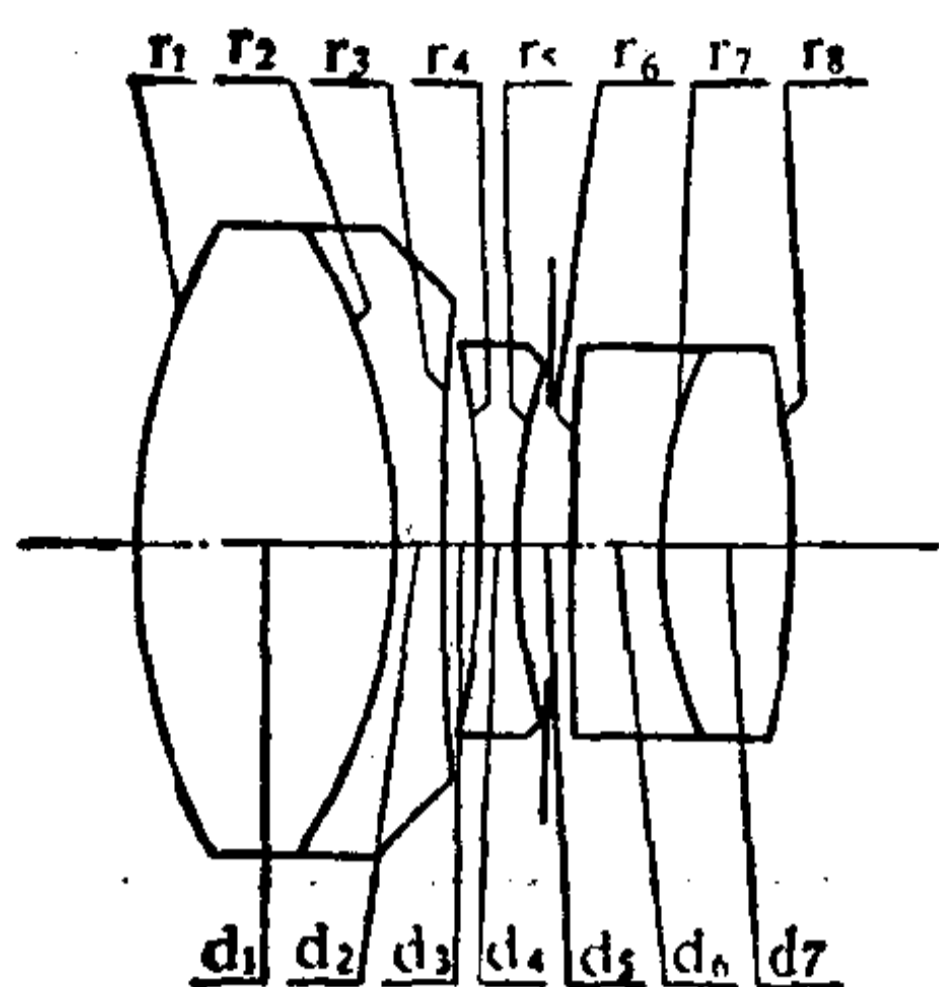
	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.1038	0.0516	0.0417	-0.2034	-0.0737	43.5	-0.6%
h 或 ω %	LA'	ΔH'	x ₁	x ₂	x ₁ ' - x ₂ '	K _{T1}	K _{T0.7}
100	0.723	-0.281	-2.175	-0.567	-1.608	-1.3352	-0.3487
70	-0.386	-0.108	-0.307	-0.838	0.531	-0.8771	-0.1197



编号: 05-04-098

二级光谱较小三组元透镜系统

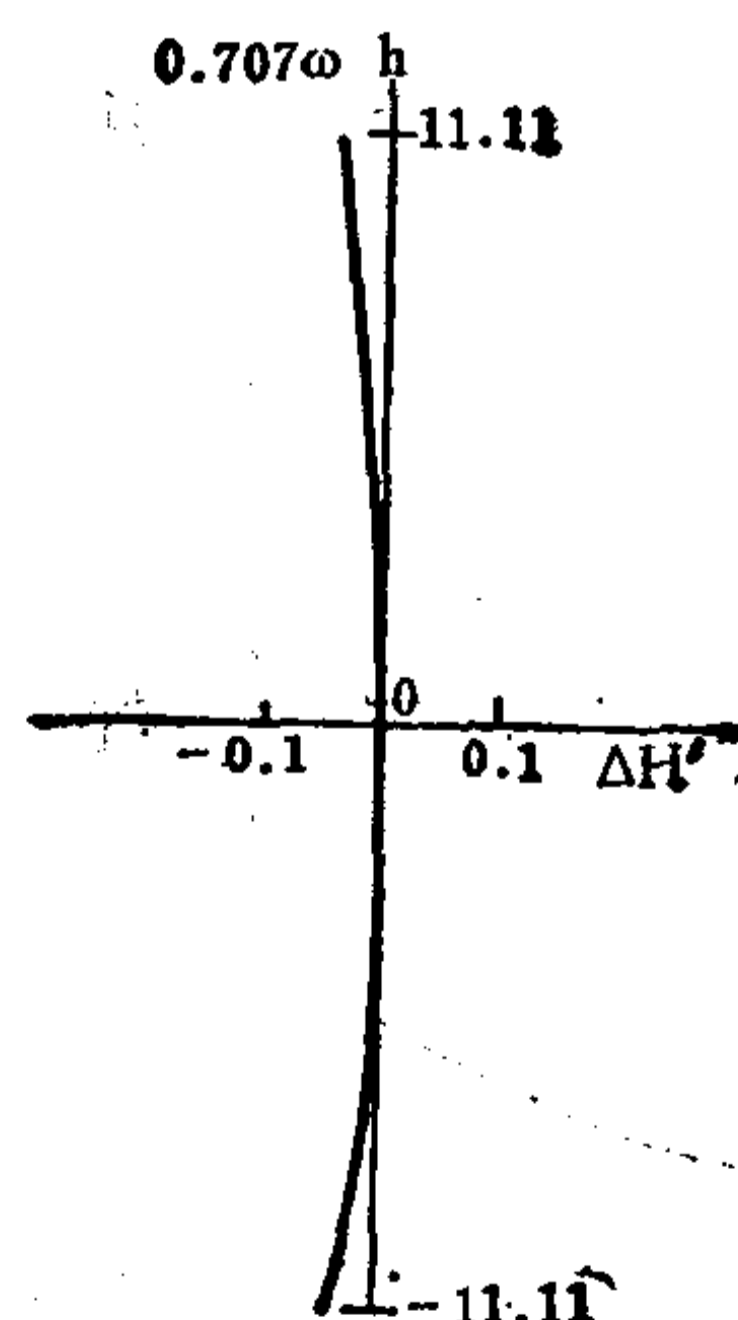
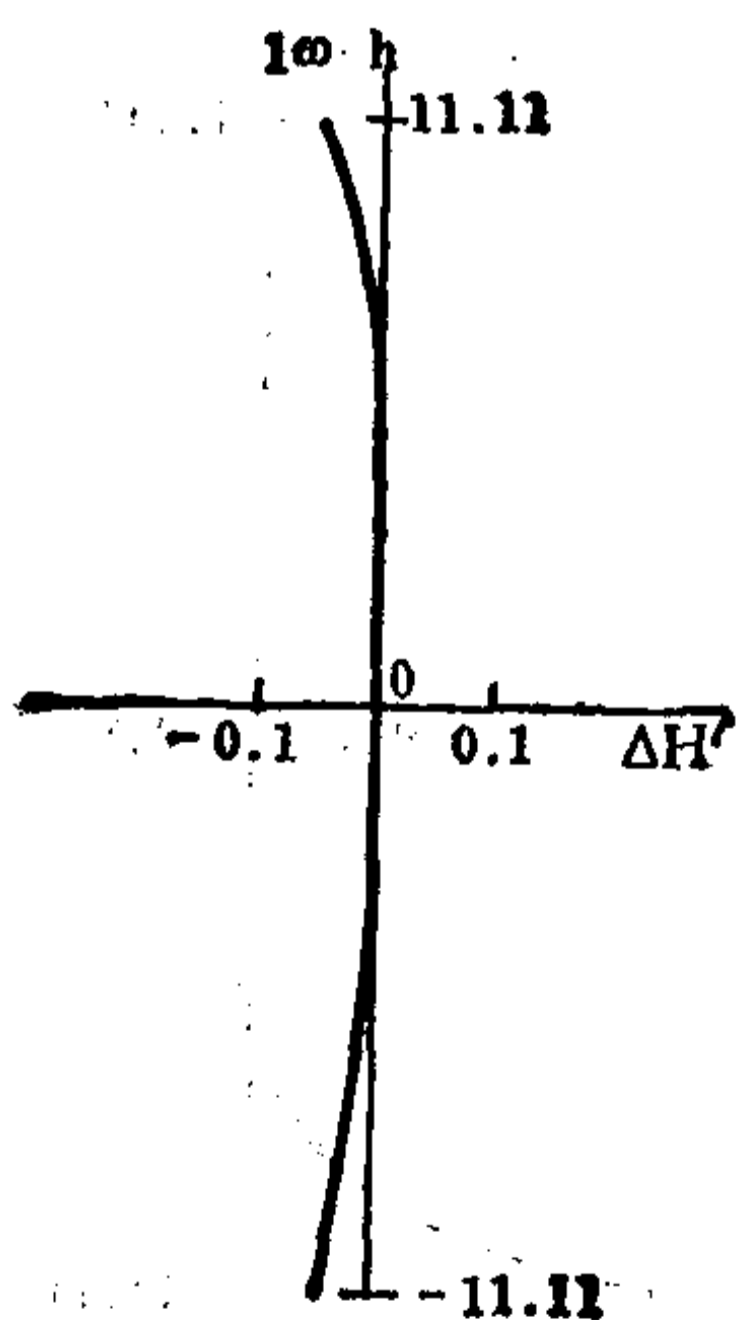
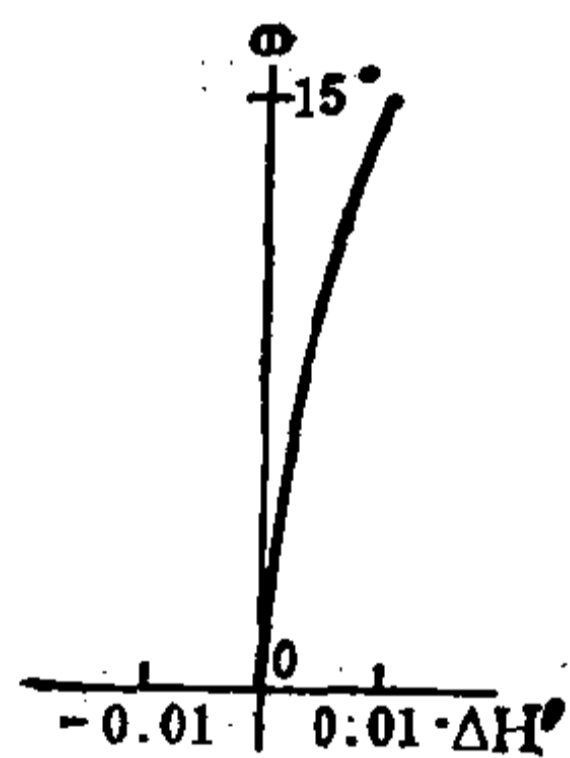
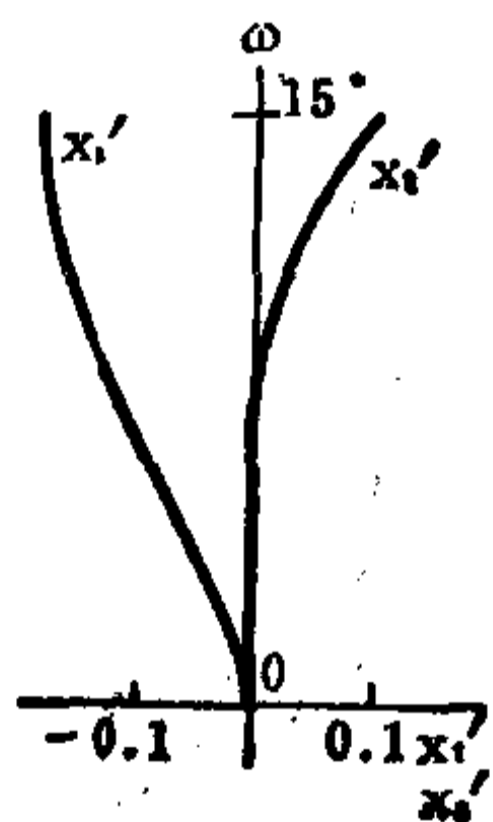
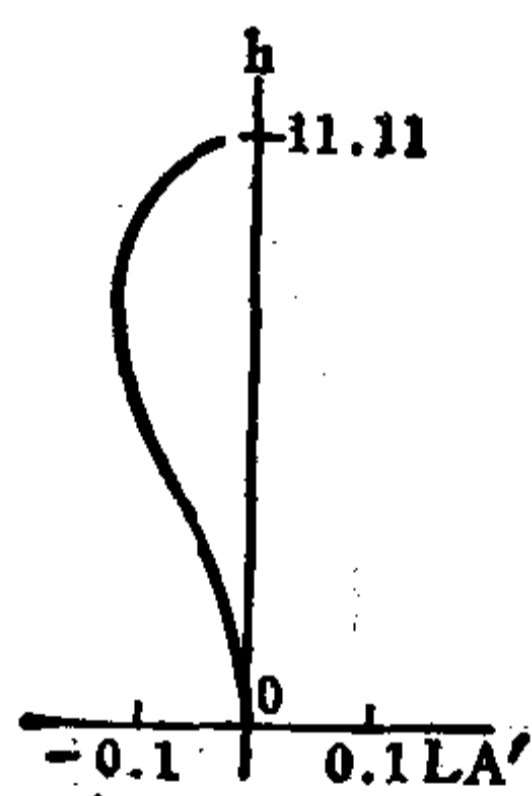
E. F. L = 100 B. F. L = 82.47 FNo. = 4.5 F. A. = ± 15°**



序号	r	d	n _D	v	序号	r	d	n _D	v
1	35.170	13.784	1.62005	63.5	5	33.670	3.035*		
2	-32.836	2.667	1.51700	64.5	6	314.750	4.840	1.65317	39.7
3	220.470	2.056			7	26.483	6.870	1.74500	46.4
4	-44.142	2.074	1.65317	39.7	8	-45.368			

3.035* = 1.500 + 1.535

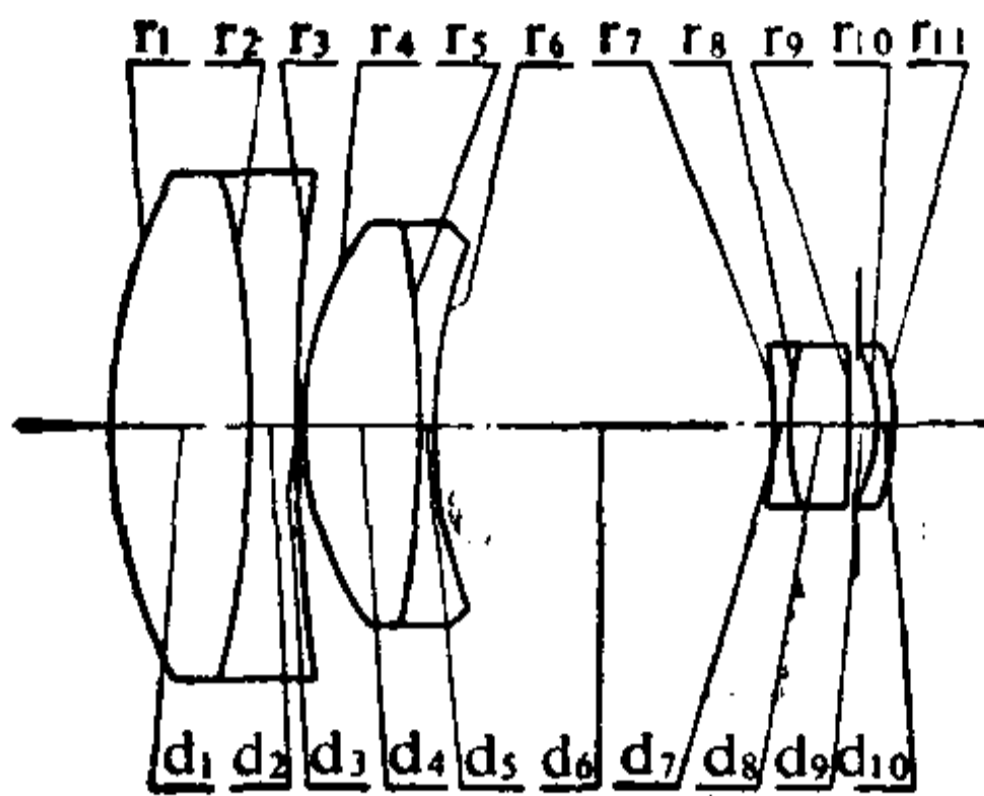
	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1 ω)
	- 0.01073	- 0.00103	0.00452	- 0.01487	0.00432	26.8	0.04%
h 或 ω %	LA'	ΔH'	x _t '	x _s '	x _t ' - x _s '	K _{T1}	K _{T0.7}
100	- 0.0259	0.0113	0.1034	- 0.1850	0.2884	- 0.04937	- 0.01833
70	- 0.1232	0.0056	0.0183	- 0.1564	0.1747	- 0.04135	- 0.01291



编号: 05-04-099

远 摄 物 镜

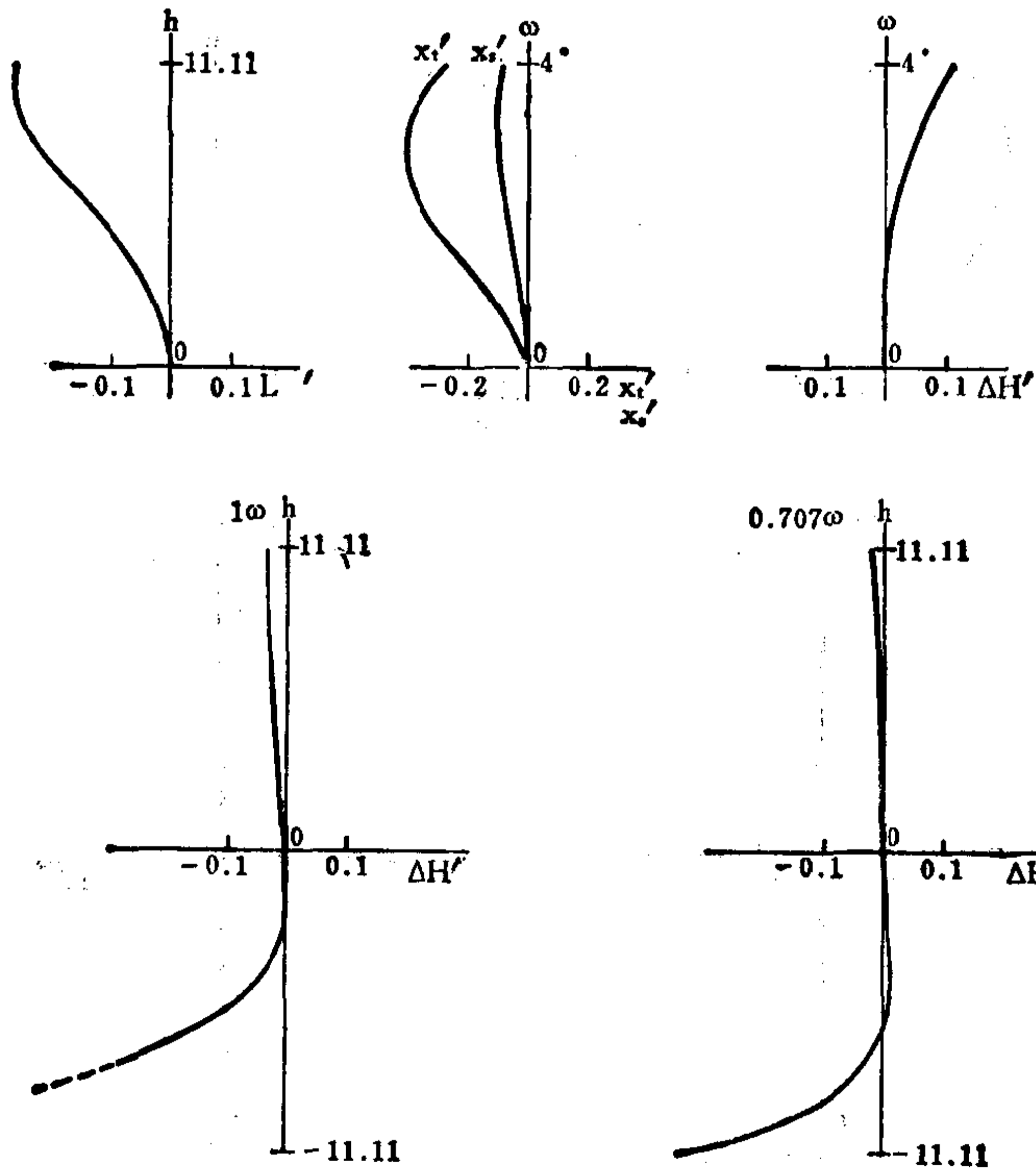
E. F. L = 100.2 B. F. L = 23.1 FNo. = 4.51 F. A. = ± 4°**



序号	r	d	n _d	v _d	序号	r	d	n _d	v _d
1	36.32	8.84	1.56384	60.76	7	-31.22	1.04	1.62041	60.29
2	-78.05	3.12	1.67270	32.23	8	21.08	3.64	1.56732	42.82
3	105.89	0.26			9	-77.46	2.00*		
4	22.56	7.54	1.57444	56.43	10	-10.39	0.97	1.56873	63.12
5	-78.05	1.04	1.58144	40.80	11	-15.79			
6	34.70	21.81							

2.00* = 1.00 + 1.00

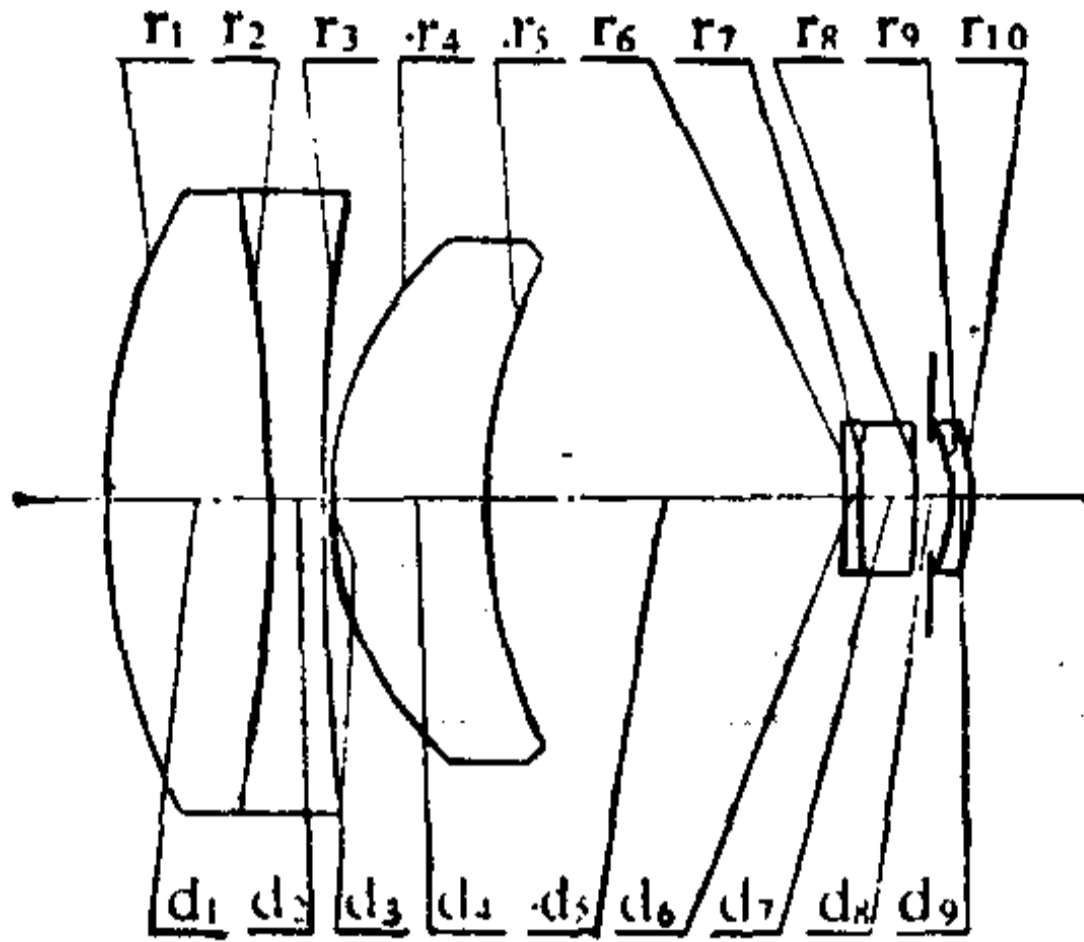
	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.0139	0.0113	-0.0122	0.0056	0.0280	7.0	1.5%
h 或 ω %	LA'	ΔH'	x _t	x _s	x _t - x _s	K _{T1}	K _{T0.7}
100	-0.263	0.108	-0.279	-0.089	-0.190	-0.7058	-0.1586
70	-0.214	0.042	-0.413	-0.096	-0.317	-0.1783	-0.0240



编号: 05-04-100

远 摄 物 镜

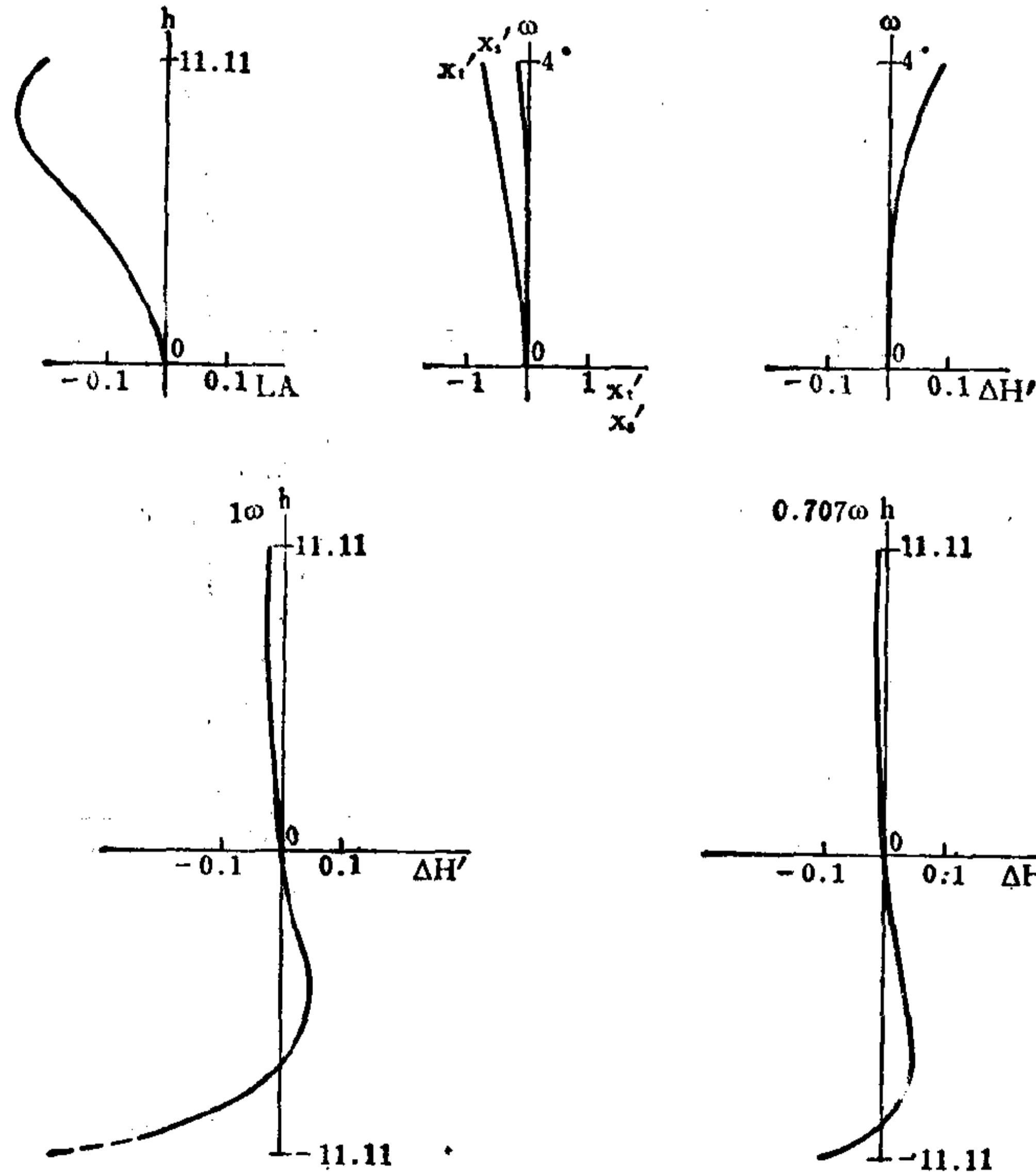
E. F. L = 96.56 B. F. L = 26.88 FNo. = 4.35 F. A. = ± 4°**



序号	r	d	n _d	v _d	序号	r	d	n _d	v _d
1	35.89	8.74	1.48749	70.04	6	-36.06	1.03	1.62041	60.29
2	-77.44	3.08	1.67270	32.23	7	30.85	2.70	1.56873	63.12
3	236.17	0.26			8	-77.14	1.96*		
4	19.09	8.48	1.48749	70.04	9	-9.60	0.96	1.56873	63.12
5	29.25	18.98			10	-14.18			

1.96* = 0.98 + 0.98

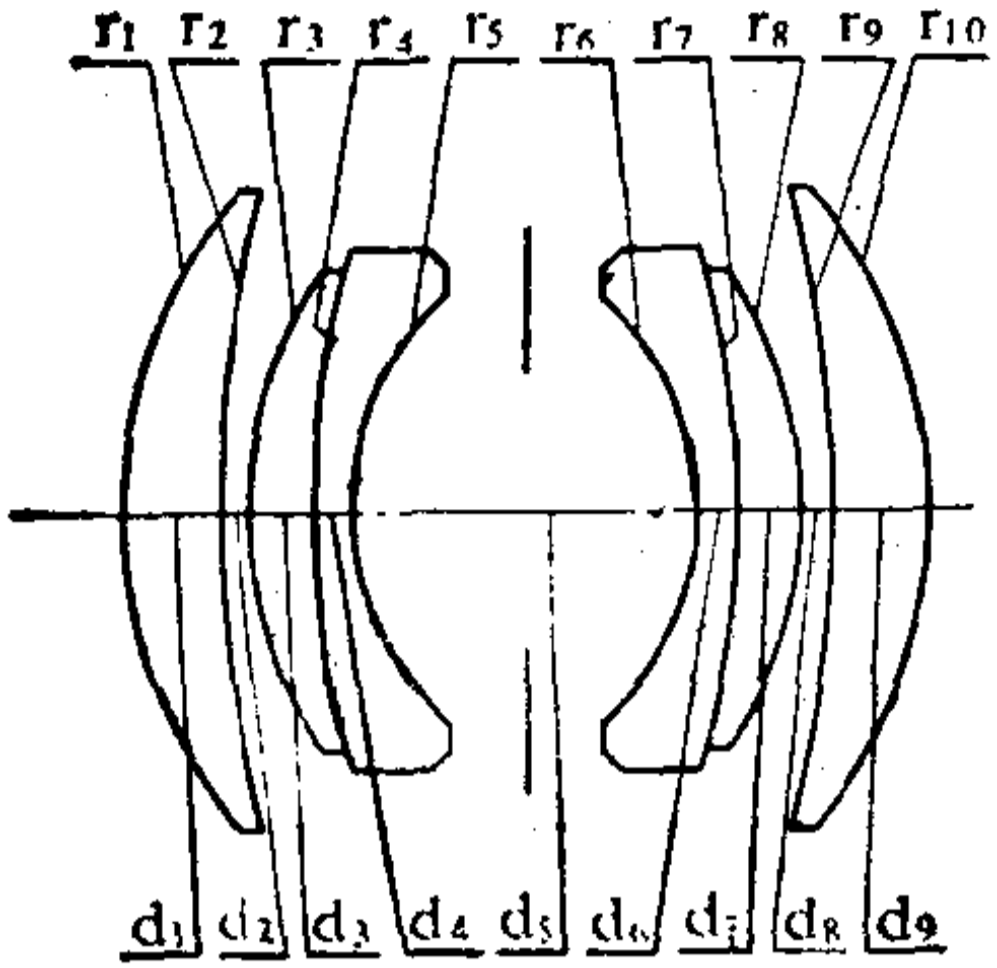
	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.0175	0.0129	-0.0105	0.0038	0.0204	6.8	1.3%
h 或 ω%	LA'	ΔH'	x _t	x _s '	x _t ' - x _s '	K _{T1}	K _{T0.7}
100	-0.196	0.086	-0.777	-0.207	-0.570	-0.2280	-0.0079
70	-0.230	0.031	-0.464	-0.117	-0.347	-0.0544	0.0207



编号: 05-04-101

高斯型对称物镜

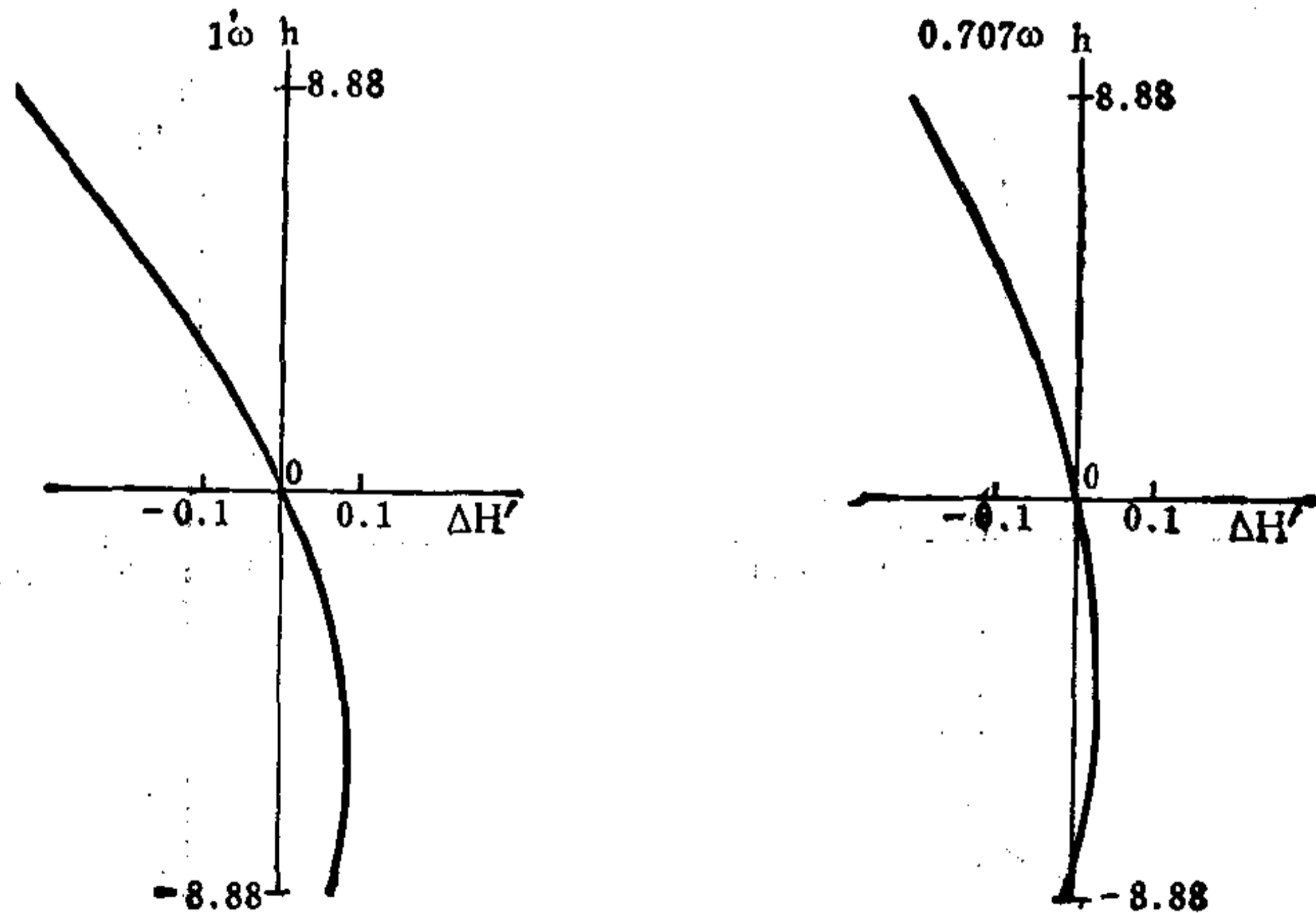
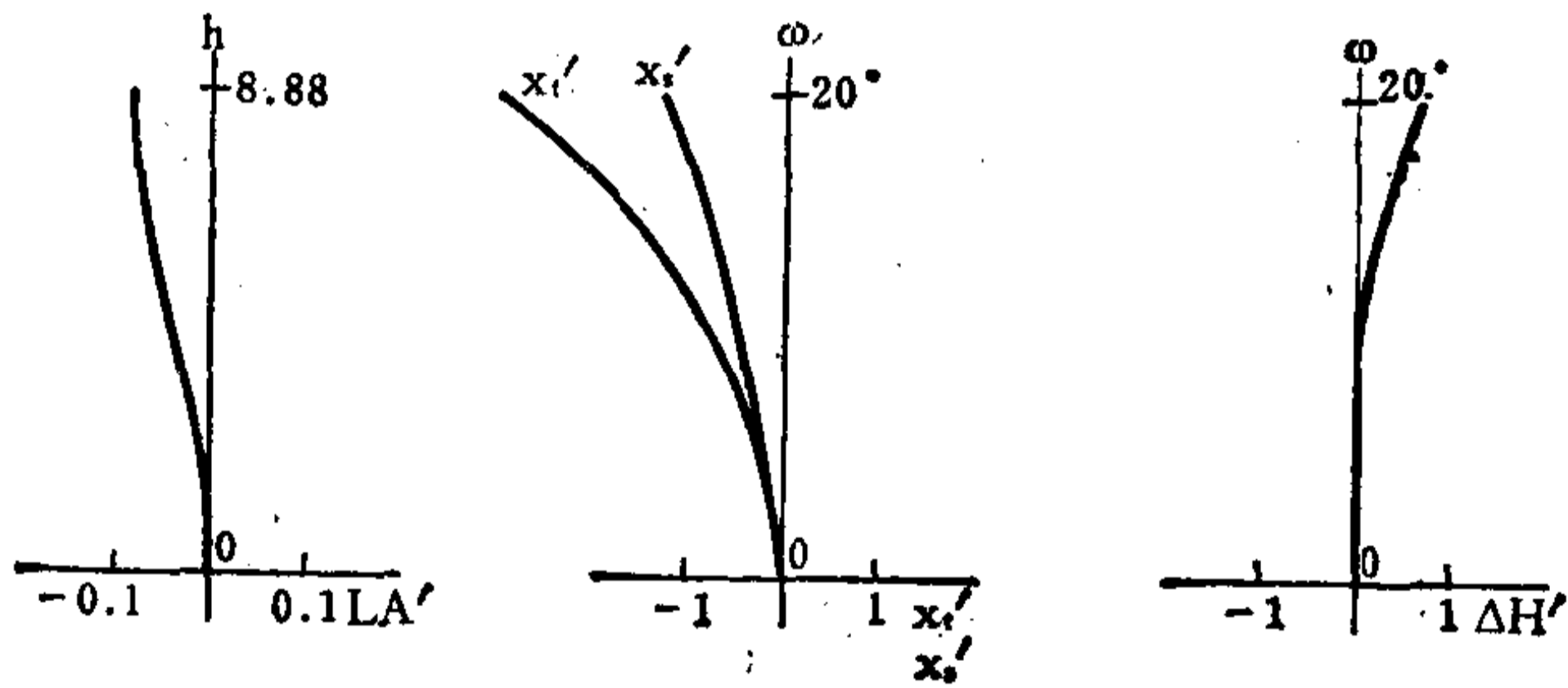
E. F. L = 112.48 B. F. L = 75.98 FNo. = 6.33 F. A. = $\pm 20'^{**}$



序号	r	d	n_D	v_D	序号	r	d	n_D	v_D
1	35.645	6.75	1.620	60.3	6	-20.800	2.75	1.596	39.7
2	89.536	2.20			7	-66.681	4.56	1.620	60.3
3	31.333	4.56	1.620	60.3	8	-31.333	2.20		
4	66.681	2.75	1.596	39.7	9	-89.536	6.75	1.620	60.3
5	20.800	24.56*			10	-35.645			

$24.56^* = 12.28 + 12.28$

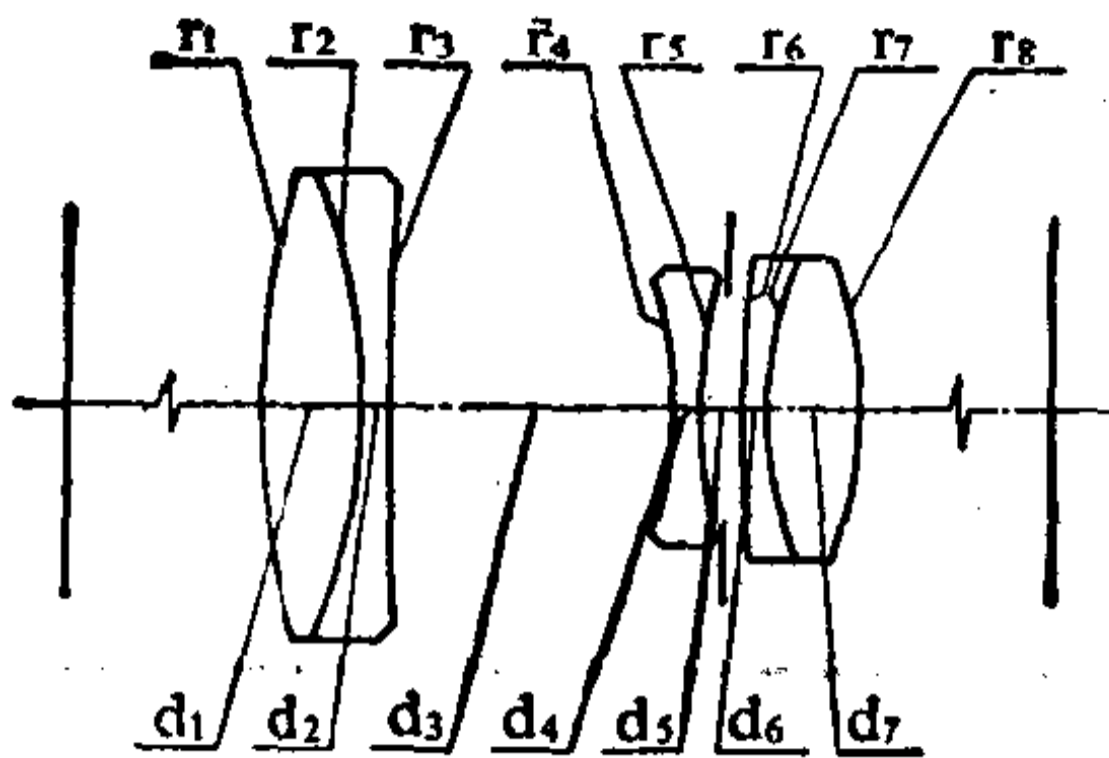
	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	- 0.00199	- 0.00784	- 0.00632	- 0.01083	0.09047	41.1	1.7%
h 或 ω %	LA'	$\Delta H'$	x_t'	x_s'	$x_t' - x_s'$	K_{T1}	$K_{T0.7}$
100	- 0.0817	0.698	- 3.011	- 1.324	- 1.687	- 0.1436	- 0.0701
70	- 0.0610	0.227	- 1.440	- 0.714	- 0.726	- 0.1110	- 0.0535



编号: 05-04-102

光学物镜

E.F.L.=1.0 B.F.L.=0.8089 FNo.=4.5 F.A.=±15°**

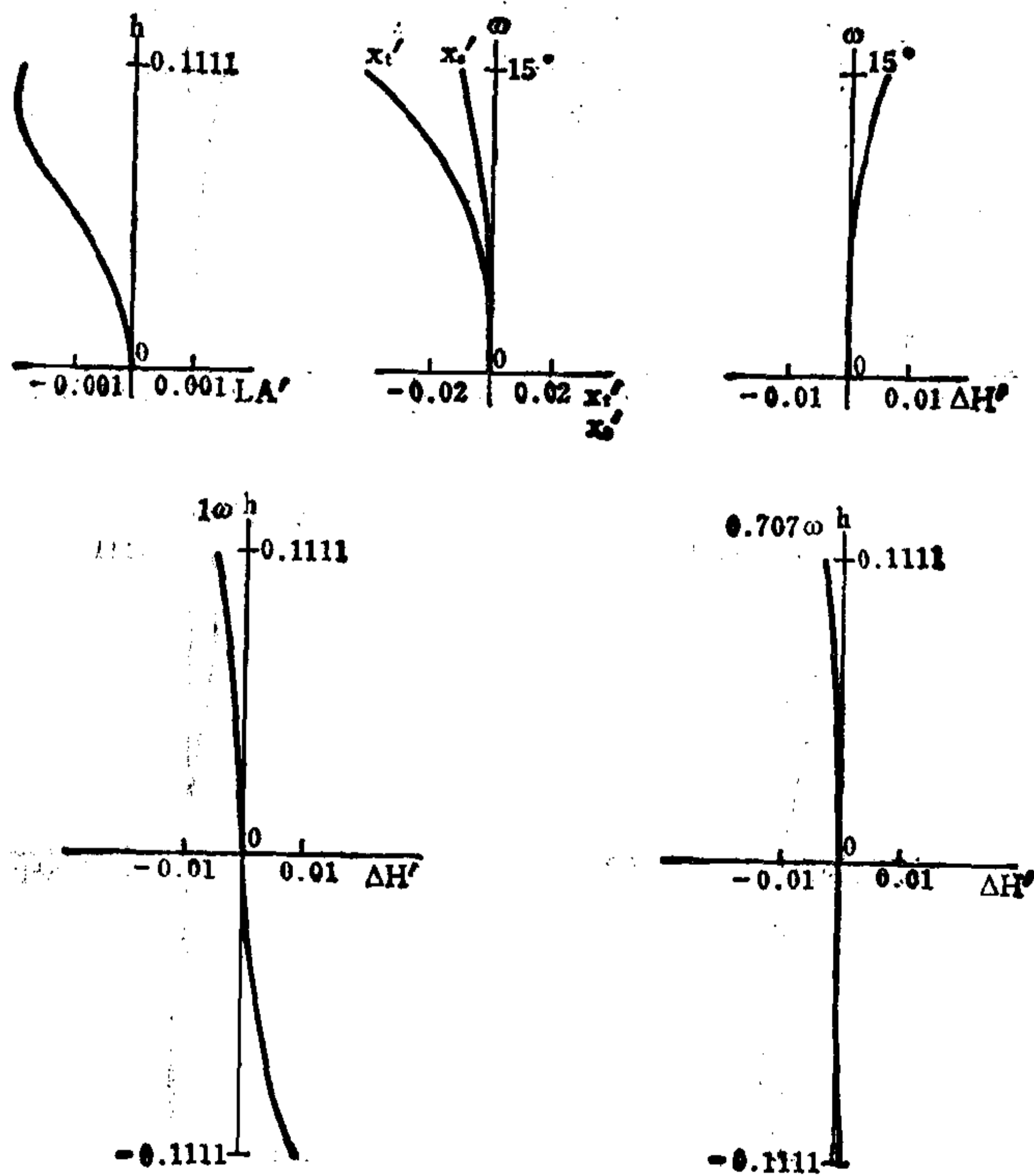


序号	r	d	n _d	v	序号	r	d	n _d	v
1	0.53758	0.06182	1.62041	60.29	5	0.35283	0.02487*		
2	-0.41462	0.02021	1.56138	45.27	6	1.29748	0.01494	1.51742	52.16
3	6.11841	0.18125			7	0.24949	0.08349	1.62041	60.29
4	-0.25703	0.02074	1.53172	48.87	8	-0.28523			

0.02487* = 0.01200 + 0.01287

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.00011	-0.00006	-0.00013	-0.00012	0.00094	0.27	2.1%
h 或 ω%	LA'	ΔH'	x' _i	x' _s	x' _i - x' _s	K _{T1}	K _{T0.7}
100	-0.00196	0.00568	-0.0442	-0.0112	-0.0330	0.00222	0.00052
70	-0.00168	0.00172	-0.0151	-0.0054	-0.0097	-0.00066	-0.00029

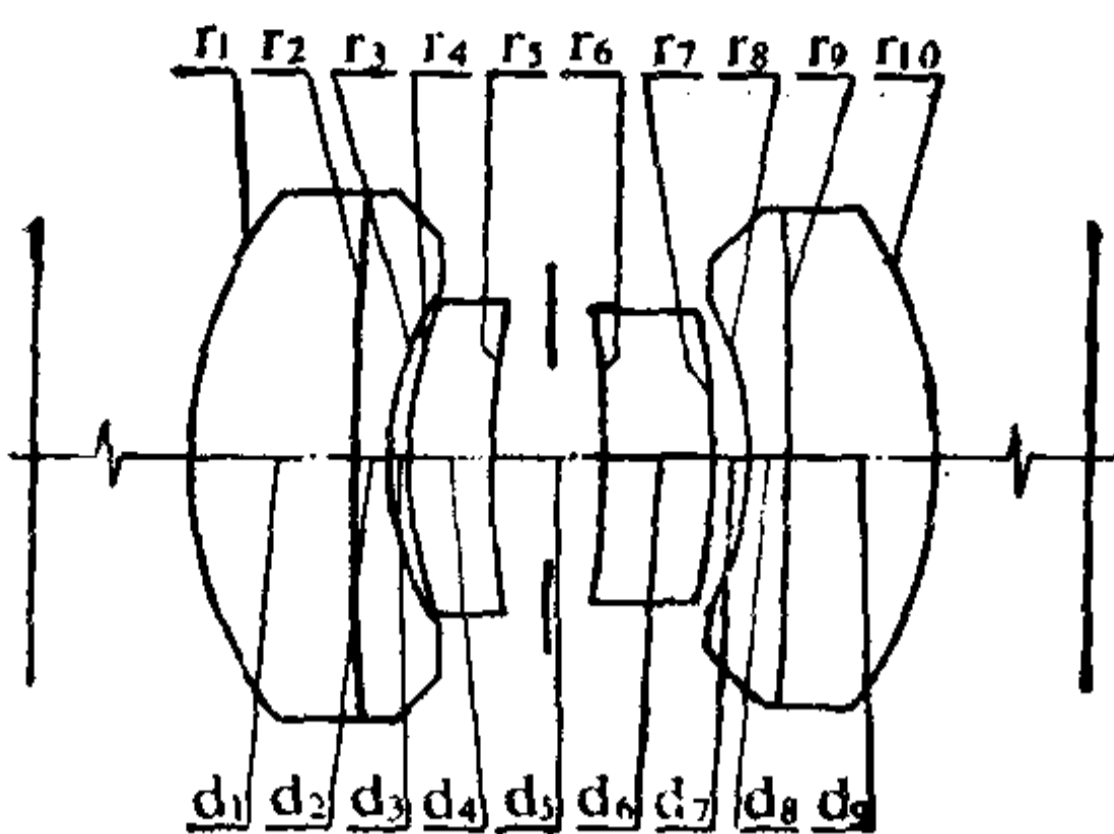
注: 1. M=1*~6*;
2. 以上象差值是按 l = -∞ 计算的。



编号: 05-04-103

摄影放大机物镜

E.F.L=1.0 B.F.L=0.8264 FNo.=4.5 F.A.=±15°**

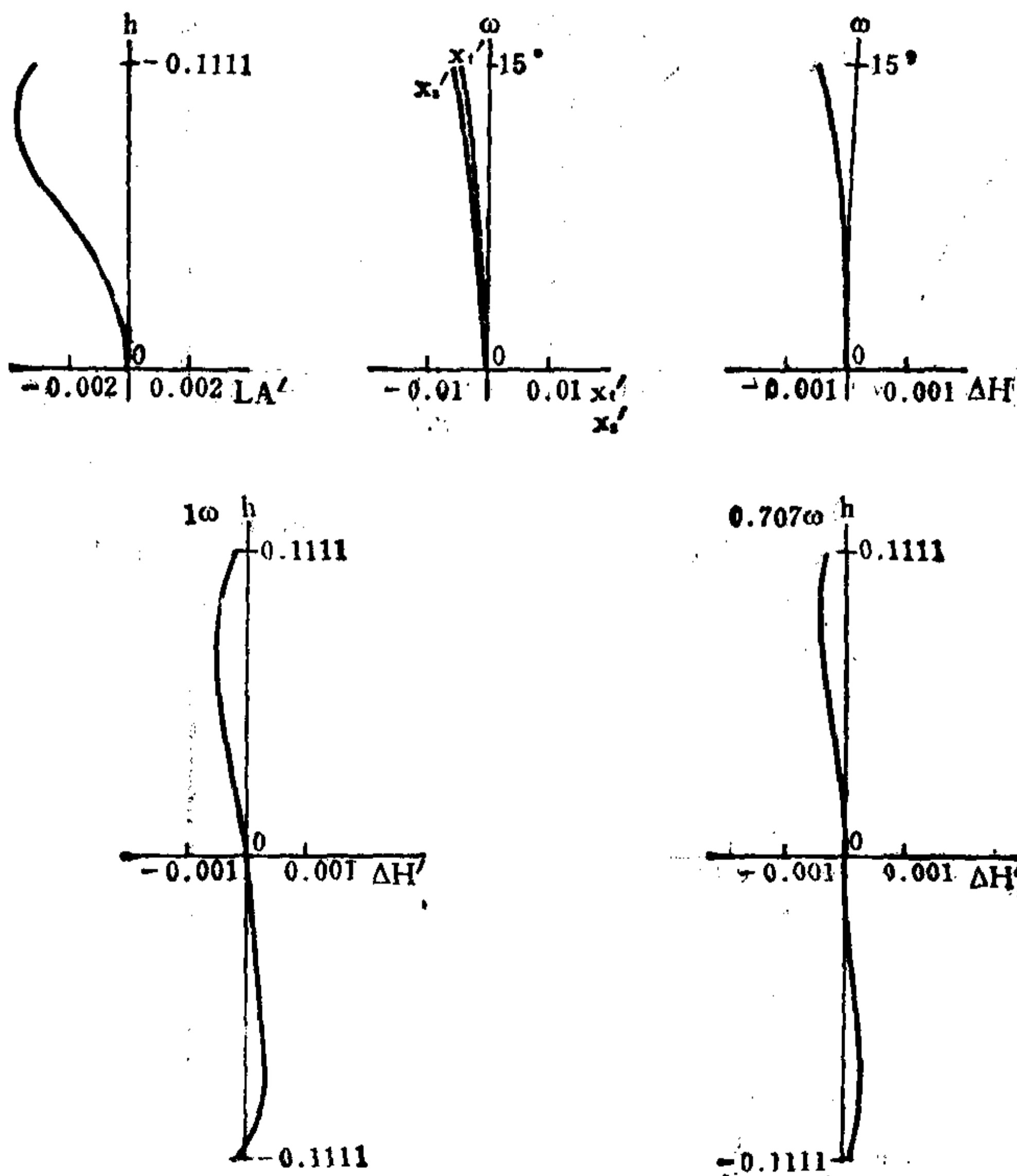


序号	r	d	n _d	v	序号	r	d	n _d	v
1	0.28255	0.09522	1.69100	54.80	6	-0.54639	0.05415	1.52310	50.93
2	10.30451	0.02683	1.62374	47.04	7	-0.26442	0.01259		
3	0.20152	0.02087			8	-0.19634	0.02368	1.64769	33.88
4	0.40912	0.06972	1.55361	51.36	9	-10.30451	0.10648	1.71700	47.90
5	0.81423	0.07187*			10	-0.27214			

0.071870* = 0.035935 + 0.035935

	ΣS ₁	ΣS ₂	ΣS ₃	ΣS ₄	ΣS ₅	HI	QP(1ω)
	-0.000235	-0.000017	0.000005	-0.000142	-0.000127	0.27	-0.22%
h 或 ω %	LA'	ΔH'	x' _t	x' _s	x' _t - x' _s	K' _{F1}	K' _{F0.7}
100	-0.00327	-0.00059	-0.00445	-0.00473	0.00028	-0.000174	-0.000146
70	-0.00339	-0.00021	-0.00243	-0.00260	0.00017	-0.000122	-0.000071

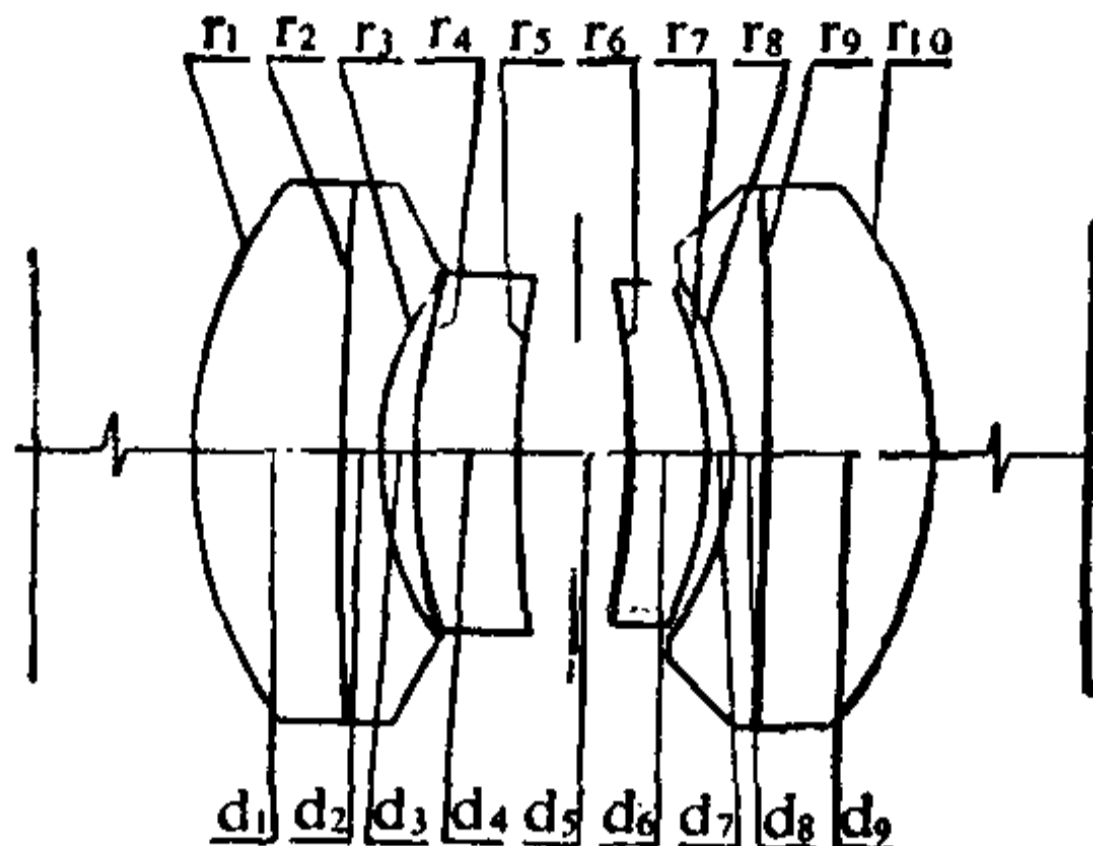
注: 1. M = 2~12*;
2. 以上象差值是按 l = -∞ 计算的。



编号: 05-04-104

摄影放大机物镜

E.F.L=1.0 B.F.L=0.8292 FNo.=4.5 F.A.=±15°**



序号	r	d	n_d	v	序号	r	d	n_d	v
1	0.28349	0.09554	1.69100	54.80	6	-0.55670	0.05018	1.53172	48.87
2	20.62918	0.02692	1.62374	47.04	7	-0.26973	0.01263		
3	0.20219	0.02094			8	-0.19699	0.02376	1.64769	33.88
4	0.40920	0.06580	1.55115	49.61	9	-20.62918	0.10684	1.71700	47.90
5	0.81470	0.07078*			10	-0.27304			

$0.07078^* = 0.03539 + 0.03539$

	ΣS_1	ΣS_2	ΣS_3	ΣS_4	ΣS_5	HI	QP(1 ω)
	-0.000199	-0.000007	0.000004	-0.000139	-0.000128	0.26	-0.22%
h 或 ω %	LA'	$\Delta H'$	x'_i	x'_s	$x'_i - x'_s$	K'_{T1}	$K'_{T0.7}$
100	-0.00151	-0.00060	-0.00467	-0.00470	0.00003	-0.000142	-0.000077
70	-0.00259	-0.00021	-0.00248	-0.00258	0.00010	-0.000120	-0.000033

注: 1. $M = 2' \sim 12'$;
2. 以上象差值是按 $l = -\infty$ 计算的。

