Table S1. Optical prescription data for the rectangular, 360 ring and full spherical FoV MMS lenses

Surf. #	Comment	Rad of Curv. (mm)	Thick. (mm)	Material	Diam. (mm)
1	Ball lens	21.110	9.775	S-NBH8	23.111
2		11.335	11.335	F_SILICA	16.760
3		Infinity	11.335	F_SILICA	13.661
4		-11.335	9.775	S-NBH8	9.480
5		-21.110	6.381		7.502
6	IR cut Stop	Infinity	0.981		3.326
7	Microcamera	4.675	2.286	N-SK5	3.756
8		3.613	1.837		3.443
9		7.211	1.479	N-LAF21	4.230
10		-6.387	0.611	N-SF57	4.207
11		-145.017	0.387		4.201
12		7.366	0.786	N-SF57	4.176
13		6.803	0.393		3.953
14		4.572	0.689	N-SF6HT	3.941
15		3.247	1.905		3.606
16	Image	Infinity	-		3.988

Table S2. Optical prescription data for the multifocal MMS lens

surf. #	Comment	Rad of Curv. (mm)	Thick. (mm)	Material	Diam. (mm)
1	Shared Ball lens	32.554	14.378	S-NBH8	65.200
2		18.176	18.176	F-SILICA	36.400
3		Infinity	18.176	F-SILICA	36.400
4		-18.176	14.378	S-NBH8	36.400
5		-32.554	-		65.200

5	Channel 1 EFL=15.00mm	-32.554	2.495		
6	Stop	Infinity	1.987		2.505
7		-3.681	1.184	ZF4	2.973
8		-4.932	0.500		3.587
9		-18.911	2.105	H-LAF10LA	3.846
10		-7.344	0.485		4.378
11		6.473	1.901	H-K9L	4.401
12		-4.343	0.780	H-ZF1	4.179
13		-13.640	0.461		4.042
14		16.302	1.839	H-ZF52A	3.756
15		5.959	3.954		3.133
16		Infinity	-		2.627

5	Channel 2 EFL=16.38mm	-32.554	3.000		65.200
6	Stop	Infinity	1.926		2.696
7		-3.494	1.668	ZF4	3.129
8		-4.510	0.583		4.028
9		-293.457	1.215	H-LAF10LA	4.322
10		-11.618	0.498		4.484
11		8.099	1.695	H-K9L	4.464
12		-4.328	0.742	H-ZF1	4.300
13		-11.470	0.357		4.196
14		28.353	2.769	H-ZF52A	3.945
15		5.964	3.892		3.122
16		Infinity	-		2.874

5	Channel 3 EFL=18.48mm	-32.554	6.191		65.200
6	Stop	Infinity	1.983		3.015
7		-3.238	1.024	ZF4	3.421
8		-4.042	0.705		4.061
9		-25.096	1.266	H-LAF10LA	4.434
10		-7.961	0.492		4.695
11		10.680	1.822	H-K9L	4.671
12		-4.697	0.797	H-ZF1	4.511
13		-14.615	0.473		4.438
14		11.317	2.922	H-ZF52A	4.184
15		4.339	3.992		3.165
16		Infinity	-		3.269

5	Channel 4 EFL=21.71mm	-32.554	10.000		65.200
6	Stop	Infinity	2.000		2.852
7		-2.889	0.800	ZF4	3.355
8		-3.752	0.500		3.953
9		-20.792	0.852	H-LAF10LA	4.386
10		-5.784	1.045		4.559
11		11.226	1.294	H-K9L	4.484
12		-4.551	1.812	H-ZF1	4.402
13		-57.227	1.171		4.259
14		6.444	1.569	H-ZF52A	4.031

15		3.665	2.998		3.404
16		Infinity	-		3.842

5	Channel 5 EFL=27.00mm	-32.554	10.000		65.200
6	Stop	Infinity	1.997		3.753
7		-4.206	1.070	ZF4	4.177
8		-4.856	1.856		4.807
9		-109.317	1.279	H-LAF10LA	5.536
10		-13.201	0.713		5.723
11		14.713	1.957	H-K9L	5.707
12		-6.382	1.055	H-ZF1	5.561
13		-30.441	0.500		5.480
14		13.416	3.754	H-ZF52A	5.299
15		5.245	3.996		4.150
16		Infinity	-		4.779

5	Channel 6 EFL=36.73mm	-32.554	10.000		65.200
6	Stop	Infinity	1.993		4.567
7		-8.946	0.960	ZF4	5.051
8		-11.706	0.493		5.471
9		-53.236	1.278	H-K9L	5.749
10		-12.718	6.759		6.029
11		38.788	2.002	H-ZLAF55C	7.316
12		-485.135	0.541		7.332
13		9.271	1.787	H-LAK1	7.340
14		-210.496	0.502		7.010
15		-20.822	0.906	H-K9L	6.865
16		-28.049	0.499		6.613
17		68.234	0.796	H-ZF52A	6.210
18		6.042	2.488		5.742
19		Infinity	-		6.286

5	Channel 7 EFL=40mm	-32.554	10.000		65.200
6	Stop	Infinity	1.996		4.592
7		-12.217	1.918	ZF4	5.012
8		-15.731	0.500		5.622
9		-27.583	1.154	H-K9L	5.792
10		-15.102	7.325		6.050

11		37.942	1.468	H-ZLAF55C	7.459
12		-128.962	0.500		7.467
13		8.448	1.778	H-LAK1	7.421
14		79.899	0.496		7.026
15		-35.051	0.847	H-K9L	6.873
16		-289.197	0.493		6.554
17		20.475	0.798	H-ZF52A	6.177
18		5.565	3.986		5.628
19		Infinity	-		6.271

Table S3. Design data for 360 horizontal FoV MMS lens

Surf. #	Comment	Rad of Curv. (mm)	Thick. (mm)	Material	Diam. (mm)
1	Ball lens	30.217	14.661	S-NBH8	23.111
2		15.556	15.556	F-SILICA	16.760
3		Infinity	15.556	F-SILICA	13.661
4		-15.556	14.661	S-NBH8	9.480
5		-30.217	5.865		7.502
6	IR cut Stop	Infinity	2.012		3.229
7	Microcamera	-3.639	1.080	N-SK5	3.086
8		-4.288	0.500		3.458
9		24.379	1.267	N-LAF21	3.434
10		-16.968	0.568	N-SF57	3.352
11		9.795	1.842		3.126
12		-5.173	0.815	N-SF57	2.677
13		-20.882	0.517		2.473
14		12.233	1.962	N-SF6HT	2.216
15		3.957	4.003		1.627
16	Image	Infinity	-		3.018