

Measurements of WHT M1 before and after CO2 cleaning

Taken by Neil O'Mahony using SMS micro-Scan reflectometer, through M1 portholes

Last CO2 cleaning was on 8 June. Strong calima, max 500ug/m3, between 25-28 June

Successive measurements with similar scattering measurements are in same location

%R exceeding specification repeatability of 0.5% are marked "skip" & omitted from average

Ref are measurements of MG reference mirror, typically 91-93% using SMS

Lambda	0.67 micron	
Incident Angle	25 deg	<--SMS Summary characteristics
BW Limits	1 0.01	

Measurements on M1 the day before before cleaning

datum #	Scattering at angles Θ, Φ			Reflectivity	user comment	Roughness RMS(Å)	TIME	DATE
	$\Theta_s \rightarrow$	0	50					
1	location	1.20E-02	1.07E-03	0.001		>1177	11:28:30	07/02/1912
2	1	9.99E-03	3.07E-03	0.834		76.9	11:29:02	07/02/1912
3		9.98E-03	3.07E-03	0.834		76.9	11:29:10	07/02/1912
4	3	6.10E-03	2.45E-03	0.84		58	11:29:22	07/02/1912
5		6.10E-03	2.45E-03	0.841		58	11:29:27	07/02/1912
6	4	6.27E-03	2.91E-03	0.828		58.6	11:29:39	07/02/1912
7		6.27E-03	2.92E-03	0.829		58.6	11:29:44	07/02/1912
8		5.41E-03	2.18E-03	0.832	solo	54.9	11:29:55	07/02/1912
9		6.82E-03	2.82E-03	0.821	solo?	61.9	11:31:52	07/02/1912
10	5	6.11E-03	3.08E-03	0.834		57.4	13:33:33	07/02/1912
11		6.11E-03	3.08E-03	0.834		57.4	13:33:38	07/02/1912
12	6	5.98E-03	2.51E-03	0.837		57.3	13:33:46	07/02/1912
13		5.98E-03	2.51E-03	0.839		57.3	13:33:51	07/02/1912
14	7	7.38E-03	2.95E-03	0.831		64.2	13:34:05	07/02/1912
15		7.38E-03	2.95E-03	0.831		64.2	13:34:10	07/02/1912
16	8	6.21E-03	2.44E-03	0.843		58.6	13:35:05	07/02/1912
17		6.21E-03	2.43E-03	0.843		58.6	13:35:09	07/02/1912
18	9	5.79E-03	2.57E-03	0.821		56.7	13:35:19	07/02/1912
19		5.80E-03	2.57E-03	0.823		56.7	13:35:23	07/02/1912
20	10	5.15E-03	2.19E-03	0.824		53.6	13:35:34	07/02/1912
21		5.15E-03	2.19E-03	0.823		53.6	13:35:39	07/02/1912
22	11	6.17E-03	2.64E-03	0.809		59.2	13:35:49	07/02/1912
23		6.18E-03	2.65E-03	0.811		59.1	13:35:53	07/02/1912
24	12	6.13E-03	2.90E-03	0.816		58.3	13:36:07	07/02/1912
25		6.14E-03	2.90E-03	0.818		58.3	13:36:12	07/02/1912
26		4.16E-03	1.28E-03	0.843	solo	49.3	13:36:23	07/02/1912
27	13	5.83E-03	3.47E-03	0.837		55.6	13:45:17	07/02/1912
28		5.83E-03	3.47E-03	0.837		55.6	13:45:21	07/02/1912
29	14	5.83E-03	2.58E-03	0.843		56.2	13:45:30	07/02/1912
30		5.83E-03	2.58E-03	0.843		56.2	13:45:36	07/02/1912
31	15	5.25E-03	2.64E-03	0.833		53.2	13:45:47	07/02/1912
32		5.25E-03	2.64E-03	0.834		53.2	13:45:53	07/02/1912
Mean values		6.40E-03	2.63E-03	0.831		58.5		
std deviations				0.00971				

std error

0.002507

Measurements of M1 through portholes about 90 minutes after CO2 cleaning

1	location 1	6.20E-03	2.25E-03	0.837	59.2	13:00:50	07/03/1912
2		6.19E-03	2.25E-03	0.837	59.2	13:00:55	07/03/1912
3	2	6.97E-03	2.07E-03	0.84	64.3	13:01:06	07/03/1912
4		6.97E-03	2.07E-03	0.839	64.4	13:01:10	07/03/1912
5	3	2.62E-03	6.37E-04	0.854	40.6	13:01:22	07/03/1912
6		2.62E-03	6.36E-04	0.857	40.5	13:01:27	07/03/1912
7	4	3.70E-03	1.01E-03	0.851	47.2	13:01:43	07/03/1912
8		3.70E-03	1.01E-03	0.853	47.2	13:01:48	07/03/1912
9	5	3.14E-03	6.07E-04	0.854	47.2	13:02:50	07/03/1912
10		3.14E-03	6.05E-04	0.854	47.2	13:02:54	07/03/1912
11	6	3.94E-03	8.17E-04	0.843	52.1	13:03:06	07/03/1912
12		3.94E-03	8.18E-04	0.843	52.1	13:03:11	07/03/1912
13	7	2.97E-03	7.05E-04	0.856	43.4	13:03:24	07/03/1912
14		2.97E-03	7.05E-04	0.855	43.4	13:03:28	07/03/1912
15	8	2.51E-03	6.19E-04	0.864	39.4	13:04:26	07/03/1912
16		2.50E-03	6.20E-04	0.863	39.3	13:04:30	07/03/1912
17	9	2.84E-03	6.59E-04	0.859	42.6	13:04:46	07/03/1912
18		2.84E-03	6.59E-04	0.86	42.6	13:04:50	07/03/1912
19	10	2.82E-03	6.01E-04	0.843	43.7	13:05:01	07/03/1912
20		2.82E-03	6.00E-04	0.843	43.7	13:05:06	07/03/1912
21	11	2.20E-03	4.68E-04	0.85	38.5	13:05:16	07/03/1912
22		2.20E-03	4.68E-04	0.85	38.5	13:05:21	07/03/1912
23	12	3.15E-03	9.04E-04	0.85	43.2	13:05:32	07/03/1912
24		3.15E-03	9.04E-04	0.85	43.2	13:05:37	07/03/1912
25	13	3.13E-03	9.48E-04	0.85	42.8	13:06:26	07/03/1912
26		3.14E-03	9.49E-04	0.851	42.7	13:06:30	07/03/1912
27	14	2.67E-03	6.37E-04	0.851	41.2	13:06:43	07/03/1912
28		2.67E-03	6.35E-04	0.853	41.2	13:06:47	07/03/1912
29	solo	2.36E-03	5.38E-04	0.853	39.2	13:07:00	07/03/1912
Mean values		3.45E-03	9.10E-04	0.850	45.9		
std deviations				0.007278			
std err				0.001879			

Measurements on Reference mirror

30	15	5.75E-03	3.16E-03	0.923	52.7	13:32:12	07/03/1912
31		5.82E-03	3.17E-03	0.924	53	13:32:17	07/03/1912
32	16	2.92E-03	1.89E-03	0.933	37.2	13:32:26	07/03/1912
33		2.94E-03	1.89E-03	0.933	37.3	13:32:30	07/03/1912
34	17	9.29E-03	2.95E-03	0.919	70.3	13:32:39	07/03/1912
35		9.31E-03	2.96E-03	0.919	70.4	13:32:44	07/03/1912
36	18	3.72E-03	1.95E-03	0.935	42.2	13:32:55	07/03/1912
37		3.74E-03	1.95E-03	0.935	42.3	13:32:59	07/03/1912
38	19	2.62E-03	1.44E-03	0.932	35.4	13:33:07	07/03/1912
39		2.63E-03	1.43E-03	0.934	35.5	13:33:12	07/03/1912
40	19	8.13E-03	2.71E-03	0.932	64.9	13:33:20	07/03/1912
41		8.14E-03	2.71E-03	0.932	65	13:33:24	07/03/1912

42	20	6.74E-03	2.29E-03	0.928	59	13:33:31	07/03/1912
43		6.75E-03	2.29E-03	0.928	59.2	13:33:36	07/03/1912
44	solo	3.33E-03	1.88E-03	0.928	40	13:33:43	07/03/1912

	Scattering		%R	Roughness	
% Improvement	185.5	288.8	2.3	27.58261	final Result