

## Reflectivity measurement

|                          |  |     |
|--------------------------|--|-----|
| Equipment:               | uscan reflectometer                              |     |
| Mirror:                  | WHT Primary mirror - right side as seen from AP3 |     |
| Person:                  | Juerg Rey, Tibor Agocs                           |     |
| Date:                    | 30/11/2006                                       |     |
| Lambda (micron):         | 0.67   |     |
| Incident angle (degree): | 25   |     |
| BW (Bandwidth) limits:   | 1  | 0.1 |

### RIGHT HALF OF THE MIRROR - BEFORE

| No#                 | BPDF -<br>0°,0°<br>detector<br>position | BPDF -<br>50°,180°<br>detector<br>position | reflectivity | rms<br>(Ångstrom) | time     | date       |
|---------------------|---|--|--------------|-------------------|----------|------------|
| 4                   | 6.64E-03                                | 1.69E-03                                   | 0.762        | 67.8              | 10:44:47 | 11-30-1906 |
| 5                   | 5.31E-03                                | 1.16E-03                                   | 0.749        | 63.3              | 10:44:56 | 11-30-1906 |
| 6                   | 7.00E-03                                | 1.72E-03                                   | 0.739        | 71.2              | 10:45:05 | 11-30-1906 |
| 7                   | 4.14E-03                                | 7.89E-04                                   | 0.753        | 57.9              | 10:45:12 | 11-30-1906 |
| 8                   | 6.02E-03                                | 1.31E-03                                   | 0.77         | 66.6              | 10:45:19 | 11-30-1906 |
| 9                   | 5.44E-03                                | 1.25E-03                                   | 0.766        | 62.6              | 10:45:58 | 11-30-1906 |
| 10                  | 8.19E-03                                | 1.97E-03                                   | 0.818        | 73.5              | 10:46:59 | 11-30-1906 |
| 11                  | 1.18E-02                                | 3.09E-03                                   | 0.77         | 89.6              | 10:47:07 | 11-30-1906 |
| 12                  | 4.21E-03                                | 9.12E-04                                   | 0.763        | 56                | 10:47:20 | 11-30-1906 |
| 13                  | 2.97E-03                                | 5.53E-04                                   | 0.745        | 49.7              | 10:47:29 | 11-30-1906 |
| 14                  | 1.03E-02                                | 2.84E-03                                   | 0.72         | 85.6              | 10:48:45 | 11-30-1906 |
| 15                  | 6.65E-03                                | 1.42E-03                                   | 0.762        | 70.6              | 10:49:01 | 11-30-1906 |
| 16                  | 9.45E-03                                | 2.34E-03                                   | 0.749        | 82                | 10:49:10 | 11-30-1906 |
| 17                  | 2.14E-02                                | 7.00E-03                                   | 0.717        | 120.2             | 10:49:21 | 11-30-1906 |
| <b>average</b>      | <b>7.824E-03</b>                        | <b>2.002E-03</b>                           | <b>0.756</b> | <b>72.614</b>     |          |            |
| <b>standard dev</b> | <b>4.618E-03</b>                        | <b>1.617E-03</b>                           | <b>0.024</b> | <b>17.717</b>     |          |            |

### RIGHT HALF OF THE MIRROR - AFTER

| No# | BPDF -<br>0°,0°<br>detector<br>position | BPDF -<br>50°,180°<br>detector<br>position | reflectivity | rms<br>(Ångstrom) | time     | date       |
|-----|---|--|--------------|-------------------|----------|------------|
| 1   | 2.02E-03                                | 4.03E-04                                   | 0.764        | 39.6              | 12:08:00 | 11-30-1906 |
| 2   | 2.82E-03                                | 5.15E-04                                   | 0.758        | 48.3              | 12:08:10 | 11-30-1906 |
| 3   | 1.79E-03                                | 3.39E-04                                   | 0.719        | 39.1              | 12:08:24 | 11-30-1906 |
| 4   | 3.36E-03                                | 5.90E-04                                   | 0.77         | 53.1              | 12:08:38 | 11-30-1906 |
| 5   | 2.97E-03                                | 4.14E-04                                   | 0.788        | 54.2              | 12:08:46 | 11-30-1906 |
| 6   | 4.43E-03                                | 9.18E-04                                   | 0.83         | 55.7              | 12:09:13 | 11-30-1906 |
| 7   | 2.63E-03                                | 4.14E-04                                   | 0.822        | 47.3              | 12:09:21 | 11-30-1906 |
| 8   | 3.09E-03                                | 5.45E-04                                   | 0.769        | 50.7              | 12:09:30 | 11-30-1906 |
| 9   | 4.06E-03                                | 7.37E-04                                   | 0.767        | 57.7              | 12:09:39 | 11-30-1906 |
| 10  | 2.54E-03                                | 3.90E-04                                   | 0.759        | 48.9              | 12:09:47 | 11-30-1906 |
| 11  | 1.49E-03                                | 1.94E-04                                   | 0.834        | 38.6              | 12:10:30 | 11-30-1906 |
| 12  | 2.31E-03                                | 2.78E-04                                   | 0.803        | 51.2              | 12:10:39 | 11-30-1906 |
| 13  | 6.09E-03                                | 1.11E-03                                   | 0.851        | 67.1              | 12:10:48 | 11-30-1906 |
| 14  | 2.01E-03                                | 3.02E-04                                   | 0.823        | 42.2              | 12:10:57 | 11-30-1906 |
| 15  | 7.64E-03                                | 1.38E-03                                   | 0.75         | 80.2              | 12:15:56 | 11-30-1906 |
| 16  | 5.25E-03                                | 6.61E-04                                   | 0.696        | 80.7              | 12:16:03 | 11-30-1906 |

| No#                 | BSDF -<br>0°,0°<br>detector<br>position | BSDF -<br>50°,180°<br>detector<br>position | reflectivity | rms<br>(Ångstrom) | time     | date       |
|---------------------|---|--|--------------|-------------------|----------|------------|
| 17                  | 3.97E-03                                | 9.12E-04                                   | 0.723        | 55                | 12:16:10 | 11-30-1906 |
| 18                  | 3.17E-03                                | 6.01E-04                                   | 0.762        | 50.5              | 12:16:18 | 11-30-1906 |
| 19                  | 2.19E-03                                | 4.07E-04                                   | 0.764        | 42.2              | 12:16:25 | 11-30-1906 |
| 20                  | 2.62E-03                                | 4.18E-04                                   | 0.775        | 48.4              | 12:16:33 | 11-30-1906 |
| 21                  | 3.85E-03                                | 9.00E-04                                   | 0.763        | 52.5              | 12:16:42 | 11-30-1906 |
| 22                  | 1.56E-03                                | 2.28E-04                                   | 0.767        | 39                | 12:16:49 | 11-30-1906 |
| 23                  | 4.86E-03                                | 9.92E-04                                   | 0.779        | 60.4              | 12:16:56 | 11-30-1906 |
| 24                  | 2.78E-03                                | 4.68E-04                                   | 0.813        | 47.6              | 12:17:03 | 11-30-1906 |
| 25                  | 2.12E-03                                | 3.31E-04                                   | 0.846        | 42                | 12:17:10 | 11-30-1906 |
| 26                  | 3.92E-03                                | 6.48E-04                                   | 0.838        | 56.2              | 12:17:16 | 11-30-1906 |
| 27                  | 5.12E-03                                | 9.84E-04                                   | 0.806        | 62.1              | 12:17:27 | 11-30-1906 |
| 28                  | 4.00E-03                                | 7.71E-04                                   | 0.758        | 56.5              | 12:17:33 | 11-30-1906 |
| 29                  | 3.65E-03                                | 7.32E-04                                   | 0.791        | 52.3              | 12:17:40 | 11-30-1906 |
| 30                  | 8.15E-03                                | 1.59E-03                                   | 0.784        | 79                | 12:17:48 | 11-30-1906 |
| 31                  | 1.97E-03                                | 2.44E-04                                   | 0.809        | 46.4              | 12:17:56 | 11-30-1906 |
| <b>average</b>      | <b>3.497E-03</b>                        | <b>6.261E-04</b>                           | <b>0.783</b> | <b>53.055</b>     |          |            |
| <b>standard dev</b> | <b>1.648E-03</b>                        | <b>3.417E-04</b>                           | <b>0.038</b> | <b>11.384</b>     |          |            |

Notes:

RMS - Root Mean Square surface roughness in Angstrom,

BSDF - Bidirectional scatter distribution function, it is equal to the scattered power per unit solid angle normalized by the incident power and  $\cos\theta$