

# Receivers for the Effelsberg 100-m Telescope

The receiver list below is separated by prime and secondary focus receivers ordered by wavelengths. With the installation of the new subreflector receiver changes in the prime focus became more flexible. Receiver changes from prime focus to secondary focus and vice versa are now possible within 30 minutes. In addition also multi frequency receiver boxes are installed at the prime focus, yielding again a higher flexibility. At the moment, two multi-receiver boxes are available. The first contains the 18/21 cm (single pixel), the 1.9 cm and the 1.0 cm receivers; the second one includes the 30 cm, 5 cm, 2.2 cm and 0.3 cm systems. Changes within a multi-box are done by rotating the box and shifting the subreflector, which takes about a minute.

In the secondary focus of the telescope the receivers are permanently mounted on their positions described in the receiver description. In secondary focus observations, these receivers can be used "quasi-parallel", ie one can easily change by software from one receiver to another in a timescale of ~ 30 sec without manual interventions.

Look [here](#) for a table of noise values for continuum observations.

## Receiver List

| Prime focus receivers <a href="#">Picture</a> |                 |                                     |              |                  |                                       |                              |                                      |
|-----------------------------------------------|-----------------|-------------------------------------|--------------|------------------|---------------------------------------|------------------------------|--------------------------------------|
| RX Name                                       | Wavelength [cm] | Frequency range (center) [GHz]      | Nr. of Horns | Polarization     | Comment                               | Calibration information      | Technical information                |
| <b>P740mm</b>                                 | 74              | 0.400-0.405 (0.402)                 | 1            | RCP              | contact staff, if interested          | NA                           | <a href="#">tech. data</a>           |
| <b>P500mm</b>                                 | 100-33          | 0.3-0.9 (0.6)                       | 1            | LCP/RCP          | contact staff, if interested          | <a href="#">more details</a> | <a href="#">tech. data</a>           |
| <b>P300mm (4-Box)</b>                         | 37-23           | 0.8-1.3 (1.05)                      | 1            | LCP/RCP          | multi-box II, currently not available | <a href="#">more details</a> | <a href="#">tech. data</a>           |
| <b>P217mm 7-Beam</b>                          | 21              | 1.27-1.45 (1.36)                    | 7            | 1xLCP/RCP, 6xX/Y |                                       | <a href="#">more details</a> | <a href="#">tech. data</a>           |
| <b>P200mm (4-Box)</b>                         | 18/21           | 1.29-1.43 (1.36) / 1.57-1.72 (1.65) | 1            | LCP/RCP          | multi-box I, polarimeter              | <a href="#">more details</a> | <a href="#">tech. data</a>           |
| <b>P170mm UBB</b>                             | 23-5            | 1.3-6.0 (2.1)                       | 1            | 2x linear        | under commissioning                   | <a href="#">more details</a> | please contact the receiver division |
| <b>P10mm (4-Box)</b>                          | 1.0             | 27.0-38.5 (32.0)                    | 1            | 1xlinear         | multi-box I                           | <a href="#">more details</a> | <a href="#">tech. data</a>           |
| <b>P3mm (4-Box)</b>                           | 0.3             | 84.0-95.5 (89.0)                    | 2            | LCP/RCP          | multi-box I                           | <a href="#">more details</a> | <a href="#">tech. data</a>           |

| Secondary focus receivers <a href="#">Picture</a> |                 |                                    |              |              |                            |                              |                            |
|---------------------------------------------------|-----------------|------------------------------------|--------------|--------------|----------------------------|------------------------------|----------------------------|
| RX Name                                           | Wavelength [cm] | Frequency (center) [GHz]           | Nr. of Horns | Polarization | Comment                    | Calibration information      | Technical information      |
| <b>S130mm</b>                                     | 13              | 2.2-2.3 (2.25)                     | 1            | RCP          | geo-VLBI                   | <a href="#">more details</a> | <a href="#">tech. data</a> |
| <b>S110mm</b>                                     | 11              | 2.4-2.7 (2.55)                     | 1            | LCP/RCP      | polarimeter                | <a href="#">more details</a> | <a href="#">tech. data</a> |
| <b>S60mm Double Beam</b>                          | 6               | 4.6-5.1 (4.85)                     | 2            | LCP/RCP      | polarimeter                | <a href="#">more details</a> | <a href="#">tech. data</a> |
| <b>S45mm</b>                                      | 4.5             | 4.0-9.3 (6.65)                     | 1            | 2xlinear     |                            | <a href="#">more details</a> | <a href="#">tech. data</a> |
| <b>S36mm</b>                                      | 3.6             | 7.9-9.0 (8.35)                     | 1            | LCP/RCP      | polarimeter                | <a href="#">more details</a> | <a href="#">tech. data</a> |
| <b>S28mm Double Beam</b>                          | 2.8             | 10.3-10.6 (10.45)                  | 2            | LCP/RCP      | polarimeter                | <a href="#">more details</a> | <a href="#">tech. data</a> |
| <b>S20mm Double Beam RX</b>                       | 2               | 12.0-18.0 (15.0)                   | 2            | LCP/RCP      |                            | <a href="#">more details</a> | <a href="#">tech. data</a> |
| <b>S14mm Double Beam RX</b>                       | 1.3             | 18.0-26.0 (22.0)                   | 2            | LCP/RCP      |                            | <a href="#">more details</a> | <a href="#">tech. data</a> |
| <b>S9mm 7-beam</b>                                | 0.9             | 30.0-34.0 (32.0)                   | 7 (2 usable) | LCP, H/V     | currently not available    | <a href="#">more details</a> | <a href="#">tech. data</a> |
| <b>S7mm Double Beam RX</b>                        | 0.7             | 33.5-50.0 (41.5)                   | 2            | LCP/RCP      |                            | <a href="#">more details</a> | <a href="#">tech. data</a> |
| Receivers not operational any more                |                 |                                    |              |              |                            |                              |                            |
| RX Name                                           | Wavelength [cm] | Frequency range (center) [GHz]     | Nr. of Horns | Polarization | Comment                    | Calibration information      | Technical information      |
| P170mm UBB (old)                                  | 25-10           | 1.2-3.0 (2.1)                      | 1            | 2x linear    | was 0.6-3.0                | <a href="#">more details</a> | <a href="#">tech. data</a> |
| P90mm                                             | 9.0             | 2.9-3.1 (3.0) / 3.3-3.6 (3.45)     | 1            | 1xlinear     |                            | <a href="#">more details</a> | <a href="#">tech. data</a> |
| P50mm (4-Box)                                     | 5.0             | 5.75-6.75 (6.25)                   | 1            | LCP/RCP      | multi-box II               | <a href="#">more details</a> | <a href="#">tech. data</a> |
| P26mm (4-Box)                                     | 2.6             | 11.7                               | 1            | 1xlinear     | holography RX, multi-box I | <a href="#">more details</a> | <a href="#">tech. data</a> |
| P22mm (4-Box)                                     | 2.2             | 12.1-12.2 (12.1)/ 12.9-13.6 (13.2) | 1            | LCP/RCP      | multi-box II               | <a href="#">more details</a> | <a href="#">tech. data</a> |

| Receivers not operational any more |                 |                                |              |              |                        |                              |                            |
|------------------------------------|-----------------|--------------------------------|--------------|--------------|------------------------|------------------------------|----------------------------|
| RX Name                            | Wavelength [cm] | Frequency range (center) [GHz] | Nr. of Horns | Polarization | Comment                | Calibration information      | Technical information      |
| P19mm (4-Box)                      | 1.9             | 13.5-18.7 (16.0)               | 1            | 1xlinear     | not available any more | <a href="#">more details</a> | <a href="#">tech. data</a> |
| P13mm                              | 1.3             | 18-26 (22)                     | 1            | linear       | not available any more | <a href="#">more details</a> | <a href="#">tech. data</a> |
| P6mm                               | 0.65            | 41.0-49.7 (45.0)               | 2            | linear       |                        | <a href="#">more details</a> | <a href="#">tech. data</a> |
| S20mm Multifrequency RX            | 2.0             | 13.6-15.6 (14.60)              | 1            | LCP/RCP      |                        | <a href="#">more details</a> | <a href="#">tech. data</a> |
| S13mm Multifrequency RX            | 1.3             | 21.7-24.4 (23.05)              | 1            | LCP/RCP      | not available any more | <a href="#">more details</a> | <a href="#">tech. data</a> |
| S7mm Multifrequency RX             | 0.7             | 41.6-44.4 (42.9)               | 1            | LCP/RCP      |                        | <a href="#">more details</a> | <a href="#">tech. data</a> |

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