

50cm prime focus receiver (300-900 MHz)

This is a wide band 2-channel system covering a range from 300 to 900 MHz. The system can be used for continuum, pulsar and VLBI observations.

Be aware that there is also a lot of RFI in this band. Therefore, some frequency ranges have been blanked out by filters. Available frequencies are 300 - 505 MHz, 608 - 685 MHz, and 790 - 915 MHz.

Overview

| RX Name | Band | Frequency range [GHz] | Polarisation | Nr. of Horns | Horn position relativ to center of focus cabin |
|---------|------|-----------------------|---------------|--------------|--|
| P500mm | P | 0.3-0.9 | dual-circular | 1 | Az: 0 arcsec, Elv: 0 arcsec |

Calibration Information

| Frequency [GHz] | Channel | Polarisation | Tcal [K] | Tsys [K] | Sensitivity [K/Jy] | SEFD [Jy] | Aperture Eff. [%] | TMB/S [K/Jy] | Main Beam Eff. [%] | FWHM [arcsec] | Last update |
|--|---------|--------------|----------|----------|--------------------|-----------|------------------------------|--------------|--------------------|---------------|-------------|
| 0.611 | A | LCP | 12.8 | 495 | 1.1 | 450 | 39 | 1.5 | 72 | 1482 | Sep 2021 |
| normalized Gain curve ($G = A0 + A1 \cdot Elv + A2 \cdot Elv^2$) | | | | | | | Observed in confirmed | | | | |
| A0 = 1.0 | | A1 = 0.0 | | A2 = 0.0 | | May 2011 | | | | | |

Comments: There is a lot of RFI in this band. Narrow bandwidths should be used for observations. Please contact staff, if interested.

Version description for OBSINP

| RX Name | Wavelength [cm] | Frequency (center) [GHz] | Nr. of Horns |
|------------------------------|---------------------------|--------------------------|--------------|
| P500mm (300-900 MHz) | 92.0-32.0 | 0.3-0.9 (0.6) | 1 |
| Version: | Comment | | |
| 1. Continuum (BW: 80 MHz) | Narrow Band Continuum | | |
| 2. Pulsar (BW: 600 MHz) | Pulsar 600 MHz BW Version | | |
| Horn offsets [arcsec] | 0.0, 0.0 | | |

Channel assignment in the MBFITS data files

Note that the narrow line and VLBA IF channels are usually only available when the specific line version of the receiver was selected. In addition for most receivers with narrow line channels the cables at the patch board need to be connected by the receiver group.

To select different channel numbers in OBSINP, the online plot, or the toolbox the numbers have to be specified like c(1)+c(2) to add channel 1 and 2. E.g. channel 1 and 2 contain the LCP and RCP broadband channels, then "OnPlot pen='c(1)+c(2)'" or "toolbox use='c(1)+c(2)'" will select these channels. In OBSINP the pen can be directly specified in the receiver selection menu.

Abbreviations:

SB: narrow band channel (Schmalband-Kanal), 100 MHz band width

BB: digital broad band channel (Breitband-Kanal), band width varies for different receivers

VLBA: VLBA IF, 500 MHz band width

BW: band width

TP: total power

| 50cm PFK (300-900MHz) | | | |
|-----------------------|----|------|---------|
| Channel | IF | Pol. | Comment |
| 1 | SB | LCP | TP A |
| 2 | SB | RCP | TP B |

Tcal and Tsys measurements

TODO

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