

7mm secondary focus receiver (41600-44400 MHz)

This is a 2-channel system for VLBI observations. The whole receiver was reconditioned in late 2012. A new double-horn system is under construction. It should become operational in 2014.

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
42.0	A	LCP	13.8	108	0.53	196	19	1.5	36	19.8	Mar 2009
42.0	B	RCP	12.2	131	0.53	248	19	1.5	35	19.8	Mar 2009
normalized Gain curve (G = A0 + A1·Elv + A2·Elv2)							Observed in	confirmed			
A0 = 0.8806		A1 = 5.8673E-3		A2 = -7.1243E-05		Dec 2007					
A0 = 0.8800		A1 = 6.9970E-3		A2 = -1.0210E-04		Mar 2009					

Comments:

- The new gain curves were corrected for opacity.
- Opacity correction was done with a zenith opacity of 0.08. Typical zenith opacities under good weather conditions are around 0.07 to 0.1 at 42 GHz.
- For informations about the old parameters please contact Uwe Bach (ubach_at_mpifr.de).

Version description for OBSINP

RX Name	Wavelength [cm]	Frequency (center) [GHz]	Nr. of Horns
S7mm Multifrequency RX	0.7	41.6-44.4 (42.9)	1
Version:	Comment		
1. Continuum (BW: 2 GHz)	Broad Band Continuum		
2. Line (BW: 500 MHz)	Spectroscopy/Continuum using VLBA IF + VLBA IF Polarimeter		
3. Pulsar (BW: 500 MHz)	Pulsar 500 MHz BW Version		
Horn offsets [arcsec]	-466.2,58.6		

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 "OnlPlot 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

7mm SFK single horn receiver

Channel	IF	Pol.	Comment
1	SB	LCP	TP A
2	SB	RCP	TP B
3	SB	cross	cos AB
4	SB	cross	sin AB
5	VLBA	LCP	TP A
6	VLBA	RCP	TP B
7	VLBA	cross	cos AB
8	VLBA	cross	sin AB
9	BB	LCP	TP A
10	BB	RCP	TP B

Tcal and Tsys measurements

TODO

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