6.5mm primary focus receiver (41050-49700 MHz)

This receiver was build for spectroscopic observations. Its frequency range is divided into two channels (41-45 GHz, 45-50 GHz), each with its own (linearly polarized) feed horn separate by 107 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
41.5	A	linear	11.0	170	0.61	280	36	1.3	47	23.4	Feb 2008
44.0	A	linear	9.0	153	0.43	358	25	1.3	33	22.0	Feb 2008
48.0	B	linear	7.0	135	0.28	498	17	1.3	22	20.5	Feb 2008
49.0	B	linear	5.0	127	0.25	508	13	1.4	17	19.0	Feb 2008

normalized Gain curve (G = A0 + A1·Elv + A2·Elv2)			Observed in	confirmed
A0=0.68500	A1=1.7763E-2	A2=-2.4878E-4	Feb 2008	

Comments:

- Gain curves are opacity corrected. Opacity was tau=0.12 during the observations. Values between 0.12 and 0.15 should be typical for good weather conditions at this frequency.

Version description for OBSINP

RX Name	Wavelength [cm]	Frequency (center) [GHz]	Nr. of Horns
P6mm (41,1-49.8 GHz,6.5mm)	0.65	41.05-49.8	2
Version:	**Comment**		
1. Cont./Line: 41,05-45,5 GHz (BW: 500 MHz)	Continuum and spectroscopy 1st freq. range, horn 1		
2. Cont./Line: 45,25-49,7 GHz (BW: 500 MHz)	Continuum and spectroscopy 2nd freq. range, horn 2		
Horn offsets [arcsec]	(0.0,0.0), (0.0,107.0)		

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 "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

6.5mm PFK			
Channel	**IF**	**Pol.**	**Comment**
1	BB	linear	Horn 1, TP A, 41.05-45.5 GHz
2	BB	linear	Horn 2, TP A, 45.25-49.7 GHz
3	VLBA	linear	Horn 1, TP A, 41.05-45.5 GHz
4	VLBA	linear	Horn 2, TP A, 45.25-49.7 GHz

Spectroscopy modes and resolution

BW	**nchan**	**nu**	**Df**	**Dv**	**dv**
MHz		**MHz**	**kHz**	**km/s**	**km/s**
100	32768	41000	3.1	0.022	0.026
100	32768	43000	3.1	0.021	0.025
100	32768	45000	3.1	0.020	0.024
100	32768	47000	3.1	0.019	0.023
100	32768	49000	3.1	0.019	0.022
500	32768	41000	15.3	0.112	0.129
500	32768	43000	15.3	0.106	0.123
500	32768	45000	15.3	0.102	0.118
500	32768	47000	15.3	0.097	0.113
500	32768	49000	15.3	0.093	0.108

Tcal and Tsys measurements