13cm secondary focus receiver (2200-2300 MHz)

This receiver was constructed for S/X VLBI observations together with the 3.6cm system. It is a single channel system (RCP) illuminated by a paraboloid mirror (with a central opening) which is built around the 3.6cm horn. There is no S130mm receiver version, but the S-band signal is available as a 5th channel of the S36mm X-band receiver (see this picture).

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
2.250	A	RCP	13.6	150	0.49	306	17			354	Dez 2004

normalized Gain curve (G = A0 + A1·Elv + A2·Elv2)			Observed in	confirmed
A0 = 1.0	A1 = 0.0	A2 = 0.0	Feb 2007	

Comments:

- The special configuration (tertiary mirror) leads to an additional loss of sensitivity.

Version description for OBSINP

RX Name	Wavelength [cm]	Frequency (center) [GHz]	Nr. of Horns
S36mm + 13cm	3.6/13	7.9-9.0 (8.35)/2.4	1
Version:	**Comment**		
1. Continuum (BW: 1.1 GHz)	Broad Band Continuum + Polarimeter		
2. Line (BW: 100 MHz)	Spectroscopy/Continuum using narrow band IF + VLBI IF Polarimeter		
3. Line (BW: 500 MHz)	Spectroscopy/Continuum using VLBA IF + VLBA IF Polarimeter		
4. Pulsar (BW: 1.1 GHz)	Pulsar 1.1 GHz BW Version		
5. Pulsar (BW: 500 MHz)	Pulsar 500 MHz BW Version		
6. Pulsar (BW: 100 MHz)	Pulsar 100 MHz BW Version		

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

3.6cm SFK single horn receiver with polarimeter (+13cm offset horn for Geo-VLBI)			
Channel	**IF**	**Pol.**	**Comment**
1	SB	RCP	TP A
2	SB	LCP	TP B
3	SB	cross	cos AB
4	SB	cross	sin AB
5	**SB**	**RCP**	**13cm, TP A**
6	BB	LCP	TP A
7	BB	RCP	TP B
8	BB	cross	cos AB
9	BB	cross	sin AB
10	VLBA	LCP	TP A
11	VLBA	RCP	TP B
12	VLBA	cross	cos AB
13	VLBA	cross	sin AB

Spectroscopy modes and resolution

BW	**nchan**	**nu**	**Df**	**Dv**	**dv**
MHz		**MHz**	**kHz**	**km/s**	**km/s**
100	32768	2200	3.1	0.416	0.482
100	32768	2250	3.1	0.407	0.472
100	32768	2300	3.1	0.398	0.461
500	32768	2200	15.3	2.079	2.412
500	32768	2250	15.3	2.033	2.358
500	32768	2300	15.3	1.989	2.307

BW ... band width
nchan ... number of spectral channels
nu ... center frequency
Df ... Channel separation (in frequency)
Dv ... Channel separation (in velocity)
dv ... Velocity resolution (dv=1.16*Dv)

Tcal and Tsys measurements