18cm/21cm prime focus receiver (1270-1730 MHz)

This system is used for sensitive continuum, VLBI (especially 18cm), spectroscopy, and pulsar observations. Be aware, that this band may be influenced by RFI. It can be used in combination with a multi channel polarimeter of 8x4 MHz band width, and a total 40 MHz wide channel.

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
1.400	A	LCP	1.2	21	1.55	14	54	2.0	75	553	June 2008
1.400	B	RCP	1.3	27	1.55	18	53	2.0	74	553	June 2008
1.660	A	LCP	1.2	26	1.55	17	53	2.0	76	473	June 2008
1.660	B	RCP	1.4	27	1.55	18	52	2.0	75	473	June 2008

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

Comments:

- Strong interferences can occur in this frequency regime, eg. between 1.50 and 1.64 GHz!

Version description for OBSINP

RX Name	Wavelength [cm]	Frequency (center) [GHz]	Nr. of Horns
P200mm 4-Box (1.29-1.73 GHz)	21.0-18.0	1.29-1.73	1
Version:	**Comment**		
1. Cont./Line: 1,29-1,43 GHz (BW: 100 MHz)	21cm, 2 channel continuum/line version		
2. Cont./Line: 1,59-1.725 GHz (BW: 100 MHz)	18cm, 2 channel continuum/line version		
3. Pulsar 1,29-1,43 GHz (BW: 100 MHz)	21cm, Pulsar version		
4. Pulsar: 1,59-1.725 GHz (BW: 100 MHz)	18cm, Pulsar version		
5. VLBI: 1,29-1,43 GHz (BW: 100 MHz)	21cm VLBI version		
6. VLBI: 1,59-1.725 GHz (BW: 100 MHz)	18cm VLBI version		
7. Polarimeter: 1,29-1,43 GHz (BW: 100 MHz)	21cm, 8 channel polarimeter		
8. Polarimeter: 1,59-1.725 GHz (BW: 100 MHz)	18cm, 8 channel polarimeter		
Horn offsets [arcsec]	-874.4,971.1		

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

18/21cm PFK (Multi-RX-Box I, 2 channel cont/line, Pulsar and VLBI versions)			
Channel	**IF**	**Pol.**	**Comment**
1	SB	LCP	TP A
2	SB	RCP	TP B
3	SB	cross	cos AB
4	SB	cross	sin AB

18/21cm PFK (Multi-RX-Box I, multi channel polarimeter version)			
Channel	**IF**	**Pol.**	**Comment**
1	SB	LCP	center=freq-14MHz, BW=4MHz, TP A
2	SB	RCP	center=freq-14MHz, BW=4MHz, TP B
3	SB	cross	center=freq-14MHz, BW=4MHz, cos AB
4	SB	cross	center=freq-14MHz, BW=4MHz, sin AB
5	SB	LCP	center=freq-10MHz, BW=4MHz, TP A
6	SB	RCP	center=freq-10MHz, BW=4MHz, TP B
7	SB	cross	center=freq-10MHz, BW=4MHz, cos AB
8	SB	cross	center=freq-10MHz, BW=4MHz, sin AB
9–28	…	…	continues in 4MHz steps until
29	SB	LCP	center=freq+14MHz, BW=4MHz, TP A
30	SB	RCP	center=freq+14MHz, BW=4MHz, TP B
31	SB	cross	center=freq+14MHz, BW=4MHz, cos AB
32	SB	cross	center=freq+14MHz, BW=4MHz, sin AB
			last 4 channels contain the total IF
33	SB	LCP	BW=40MHz, TP A
34	SB	RCP	BW=40MHz, TP B
35	SB	cross	BW=40MHz, cos AB
36	SB	cross	BW=40MHz, sin AB

Tcal measurements

Note that although the lines continue it is not possible to observe at frequencies between 1425 MHz and 1560 MHz.