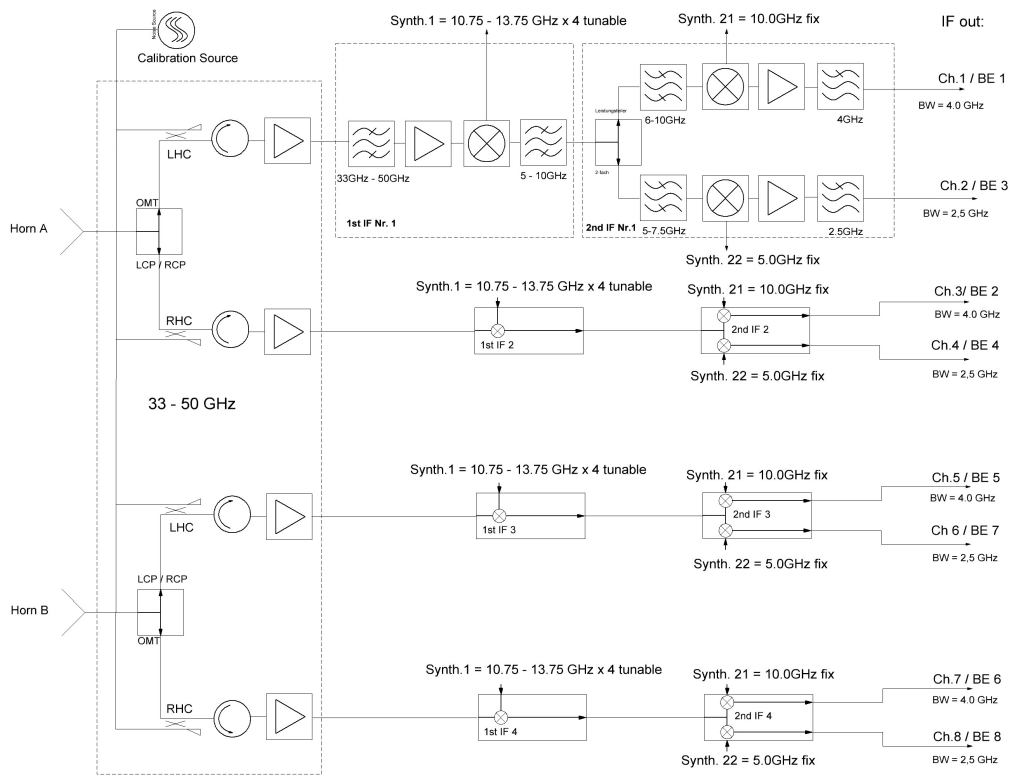


### Technical Documentation of the Q-Band Receiver 33 -50 GHz (S7mm)

Type	HEMT cooled			
Channels	8	(upper/lower band of 2 polarizations in 2 horns each)		
Receiver Noise	30-50K	depending on frequency band: <b>channels 1&amp;2</b> (horn A; offset horn) and <b>channels 3&amp;4</b> (horn B; main offset)		
Frequency range	33 GHz - 50 GHz (for details see <a href="#">conversion plan</a> )			
Polarization	LHC/RHC	2 horns		
Calibration	Noise diode	noise figures for <b>high channels</b> <b>low channels</b>		
1. IF	5 - 10 GHz	(Synthesizer 1 = 10.75 - 13.75 GHz x 4)		
2. IF	0 - 4 GHz	lower band (Synthesizer 21 = 10 GHz)		
	0 -2.5GHz	upper band (Synthesizer 22 = 5 GHz)		
<i>Synth.1 frequency for fsky at center of:</i>	4 GHz IF	2.5 GHz IF	300 MHz IF	0.5-1 GHz IF
Highband (Ch.1, 3, 5, 7): fsynth.1 =	(fsky + 8.0GHz)/4	(fsky + 8.75GHz)/4	(fsky + 9.85GHz)/4	(fsky + 9.25GHz)/4
Lowband (Ch.2, 4, 6, 8): fsynth.1 =		(fsky + 6.25GHz)/4	(fsky + 5.15GHz)/4	(fsky + 5.75GHz)/4



Synth. 1 frequency for fsky at center of: 4 GHz IF: 2.5GHz IF: 300MHz IF: VLBA (0.5-1GHz) IF:  
 Highband (Ch.1, 3, 5, 7): fsynth.1 = (fsky + 8.0GHz)/4 (fsky + 8.75GHz)/4 (fsky + 9.85GHz)/4 (fsky + 9.25GHz)/4  
 Lowband (Ch.2, 4, 6, 8): fsynth.1 = (fsky + 6.25GHz)/4 (fsky + 5.15GHz)/4 (fsky + 5.75GHz)/4

Änderungen		Datum	Name	Beschreibung	Erstellt
14.02.2019	RP	09.02.2019	R. Kaiser	Q-Band Empfänger S7	
11.02.2019	RP			Zielfrequenz:	
18.02.2019	RP			bsb q-band neu Web.spl	

Simplified [Block Diagram](#) of the complete receiver, (RK on 19.3.2019)

Detailed [Block Diagram](#) of the Frontend including 1st IF (RK on 23.10.2018)

### Manual

## of the HITTITE Synthesizer (SYNTH01) and programming manual

From: <https://eff100mwiki.mpifr-bonn.mpg.de/> - **Effelsberg 100m Teleskop**

Permanent link: [https://eff100mwiki.mpifr-bonn.mpg.de/doku.php?id=electronics:rx:techinfo:documentation\\_q-band\\_rx\\_s7mm](https://eff100mwiki.mpifr-bonn.mpg.de/doku.php?id=electronics:rx:techinfo:documentation_q-band_rx_s7mm) 

Last update: **2021/04/06 11:26**