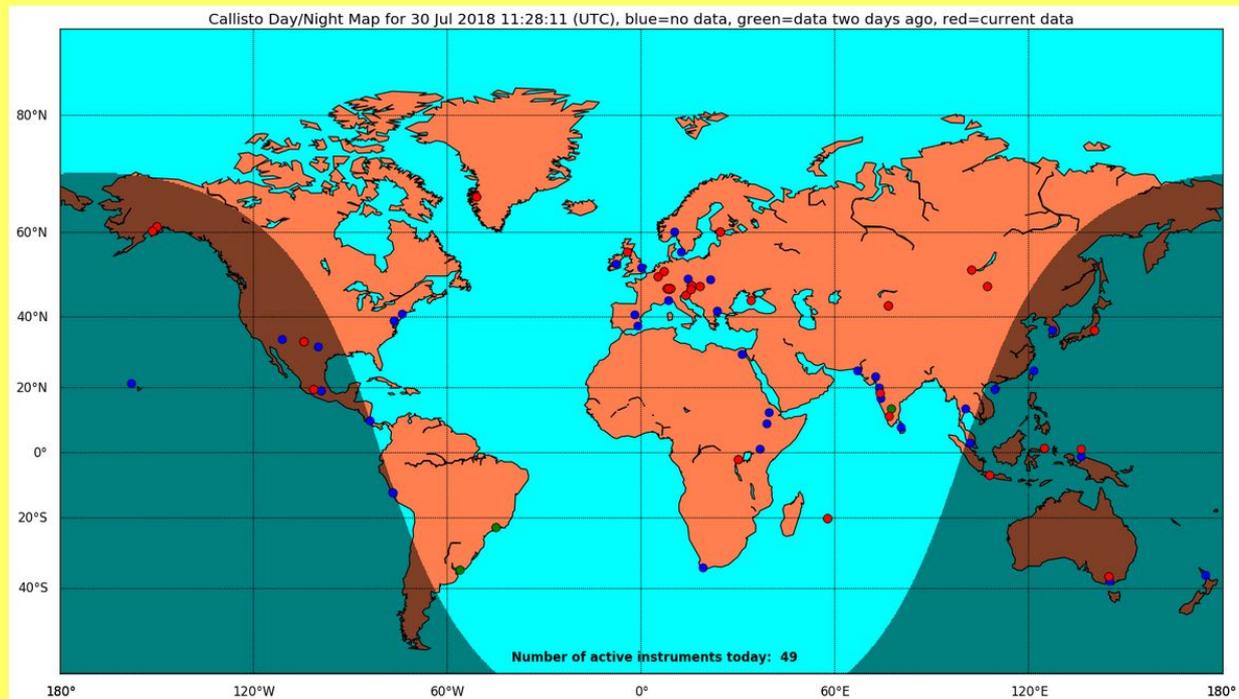


E-Callisto: Station SWISS-MUHEN

e-Callisto

International Network of Solar Radio Spectrometers, a Space Weather Instrument Array



Map of current [distribution](#) of Callisto instruments in July 2018. Update rate ~15 minutes, press reload to see latest status. One dot can represent up to 5 instruments.

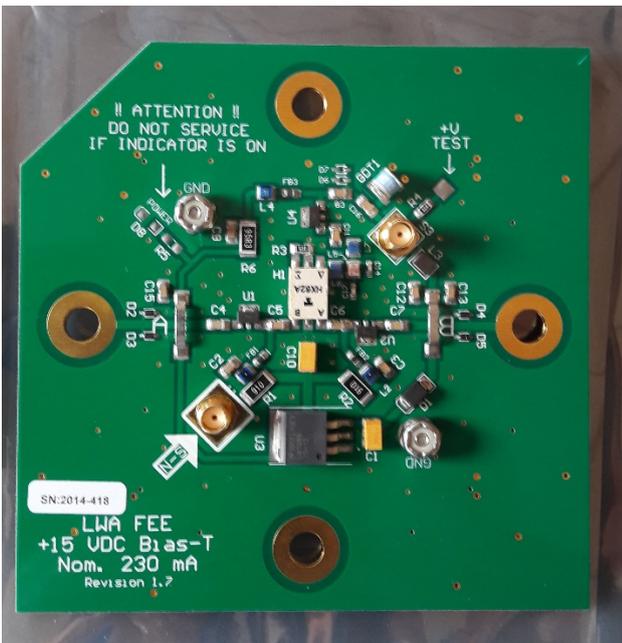
Statistics: more than 144 instruments at more than 80 locations worldwide.

Callisto stands for: Compound **A**stronomical **L**ow cost **L**ow frequency **I**nstrument for **S**pectroscopy and **T**ransportable **O**bservatory

Homepage des E-Callisto-Networks: <http://www.e-callisto.org/>

Technische Daten:

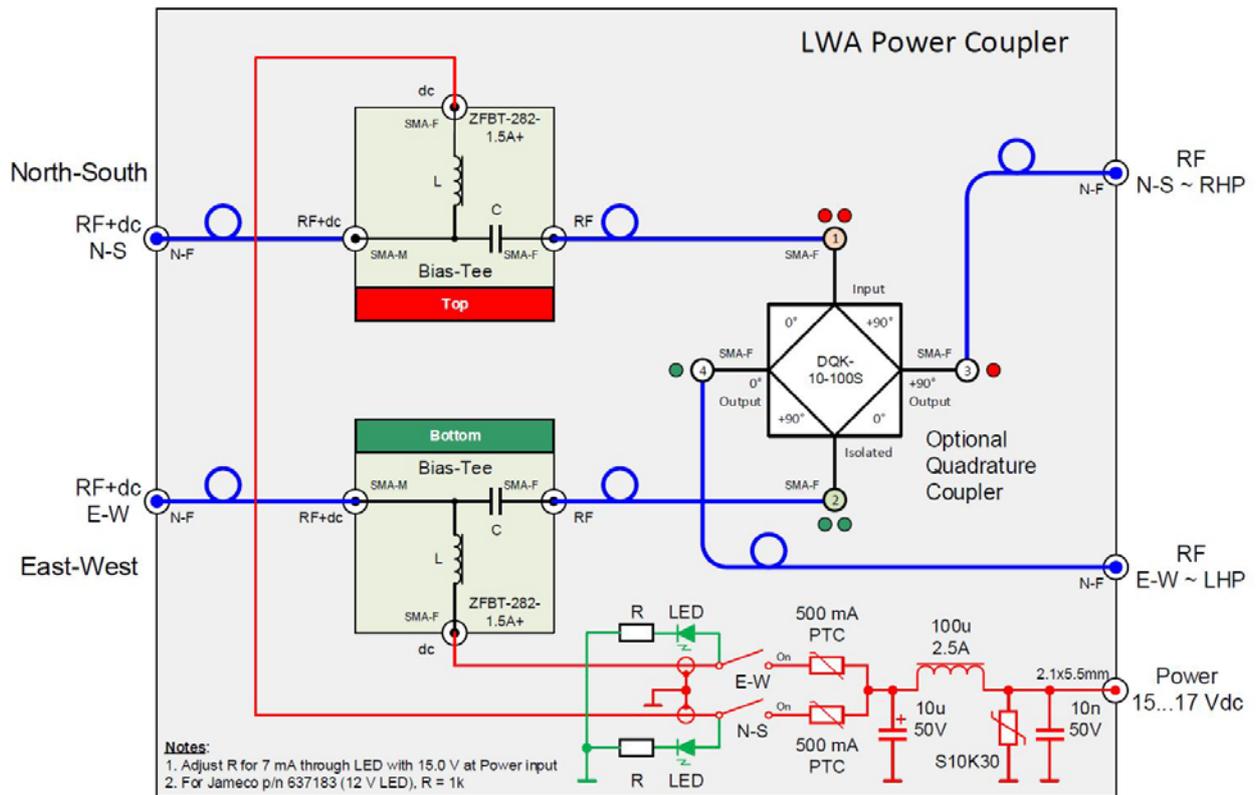
Stationsname:	SWISS-MUHEN
Frequenzbereich:	20-80 MHz (15-87 MHz)
Anzahl Polarisationen:	2 (Nord-Süd und Ost-West)
Aufgabe:	Überwachung der Sonne, Aufzeichnung von solaren Burst
Anlage besteht aus:	Front-End-Elektronik Long Wavelength Array Power with Quadrature Coupler Up-Converter (Heterodyne Receiver) Radio Spectrometer Callisto, 2 pieces
First Light:	17.7.2018
Betreiber:	P. Hirt



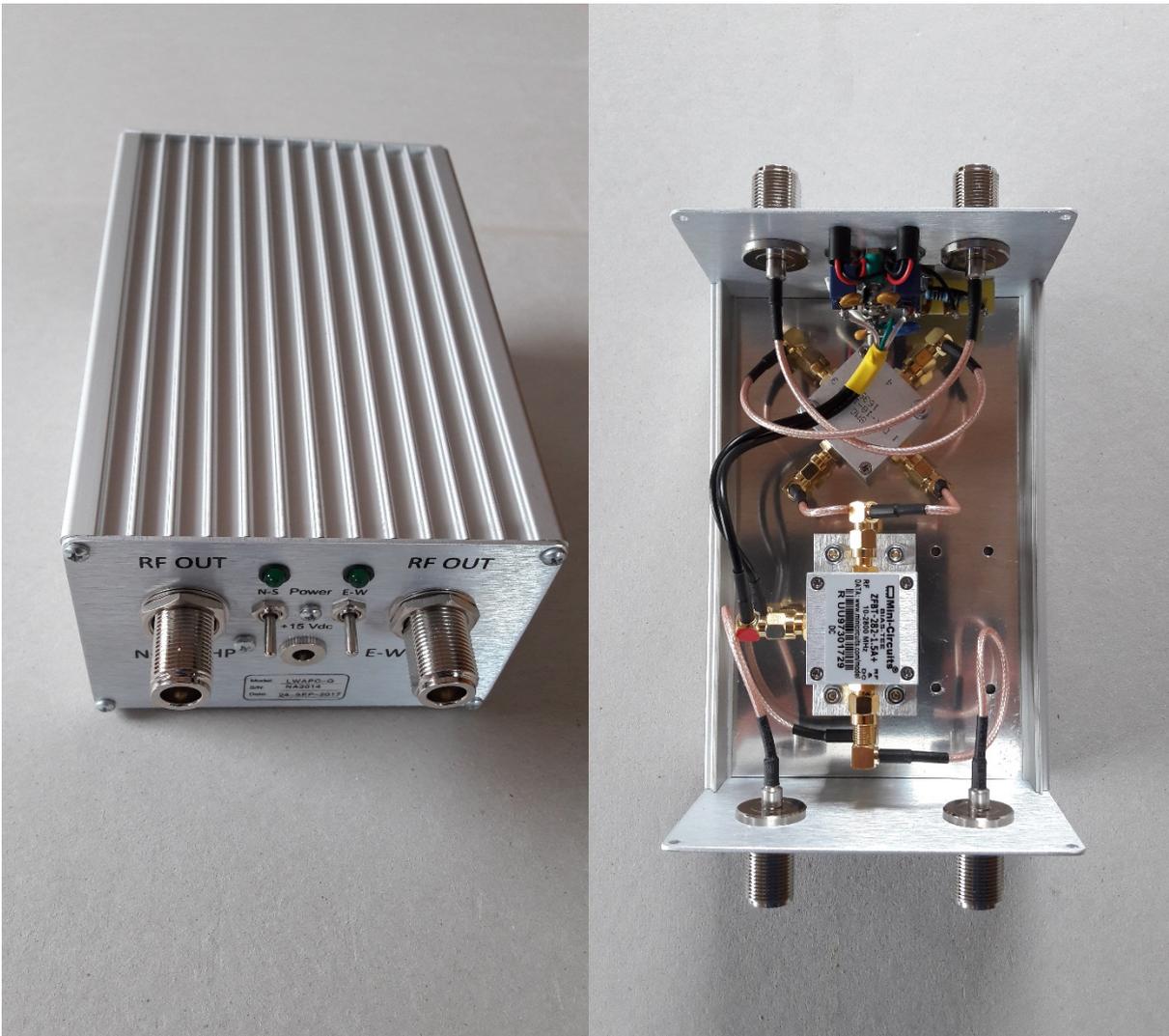
Frontend-Verstärker, 2 kanalig



Frontend-Verstärker direkt bei der Antenne



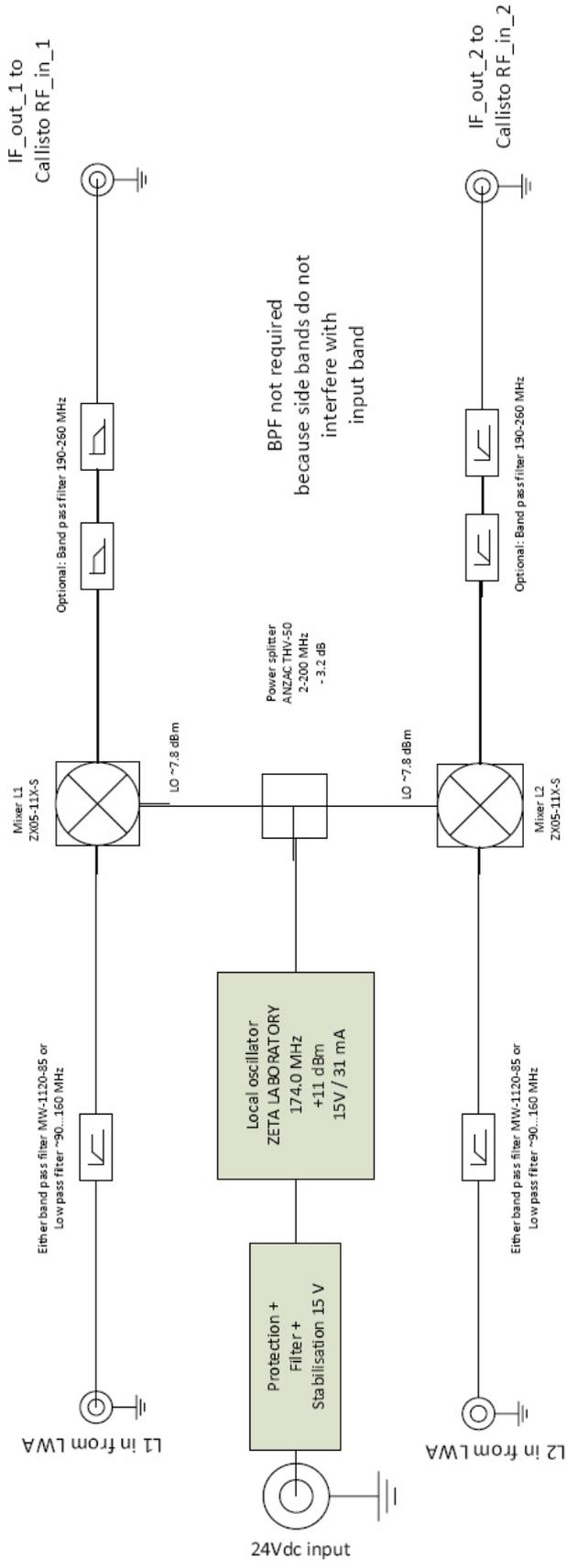
Blockschaltbild des Long Wavelength Array Power Kopplers mit Quadratur-Koppler



Long Wavelength Array Power Koppler mit Quadratur-Koppler

Specification:

RF input and output frequency range:	10 – 100 MHz
Insertion loss:	3.0 + 2.5/-0.5 dB
Isolation, bias-tee dc port + RF ports:	>50 dB
Isolation, RF IN N-S to RF IN E-W:	Provisional >20 dB
Return loss, RF IN:	Provisional >20 dB
Return loss, RF OUT:	Provisional > 20 dB
Phase shift, RF OUT N-S to RF OUT E-W:	Provisional 90 +/- 3 Grad



Converts two polarizations from an LWA-antenna 20 MHz - 80 MHz into the native frequency band of Callisto.

Converter loss: ~-6.5 dB

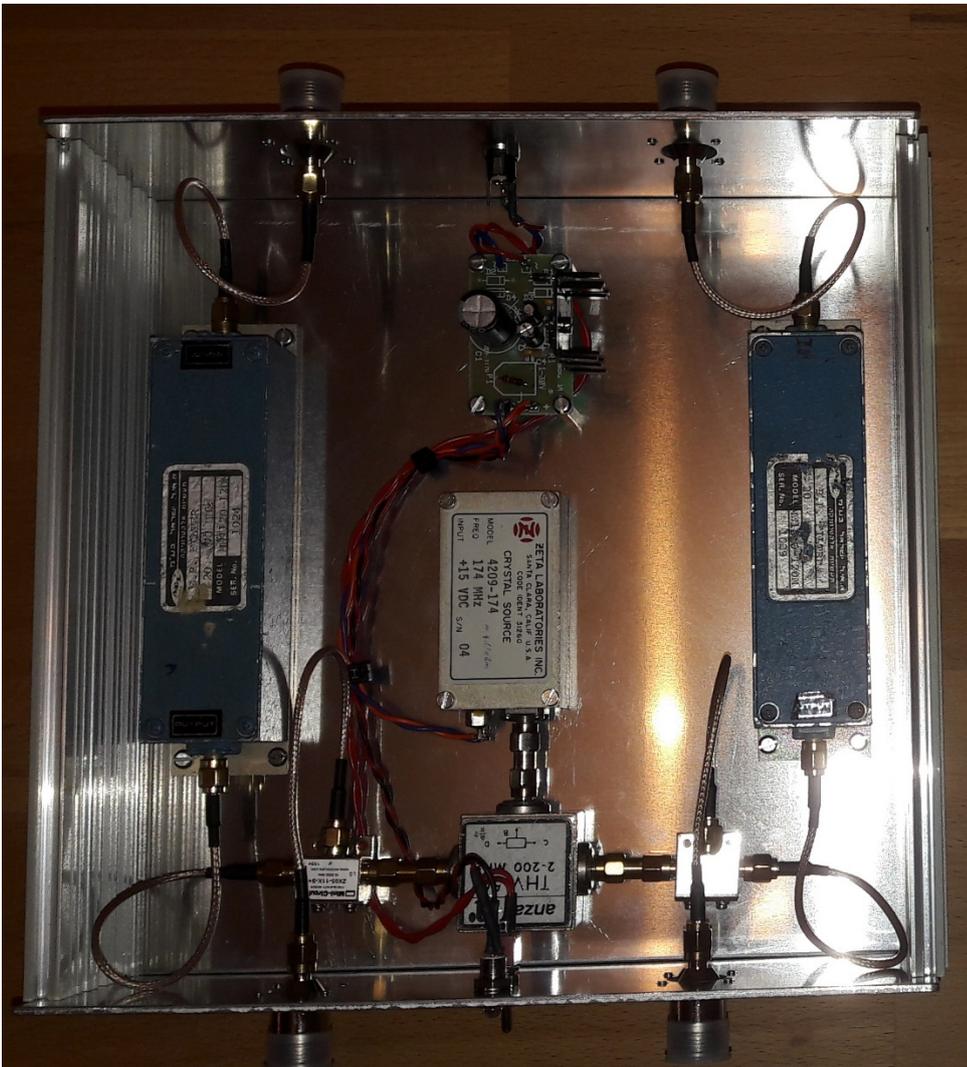
$$IF = RF + LO = (20 \text{ MHz} \dots 90 \text{ MHz}) + 174 \text{ MHz} = 194 \text{ MHz} \dots 264 \text{ MHz}$$

With reduced sensitivity observations can be performed 18 MHz 97 MHz (IF: 192 MHz 271 MHz)

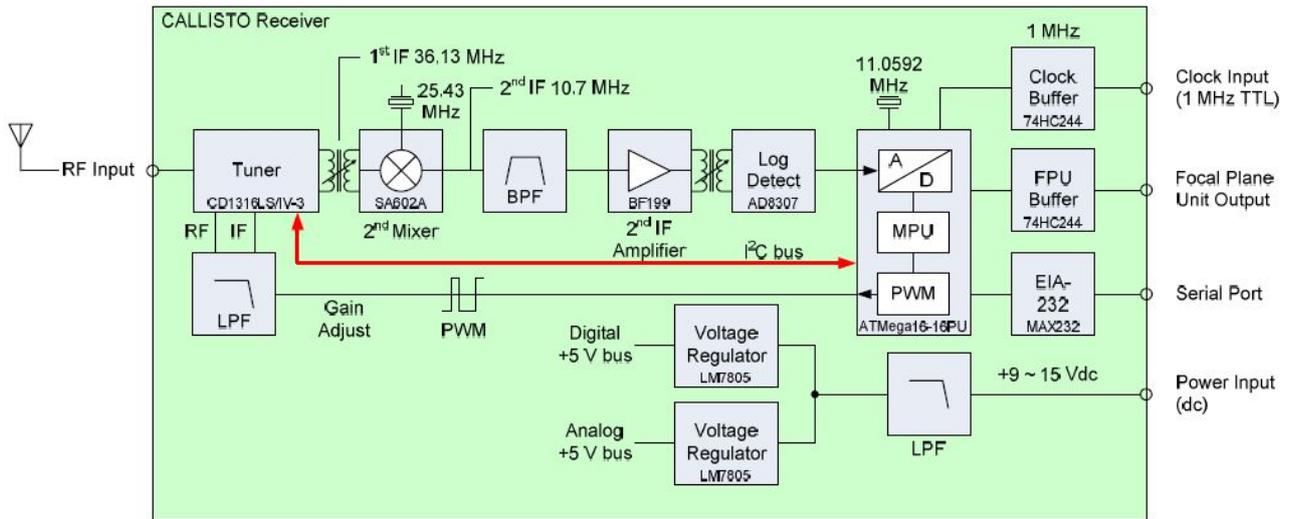
LWA 'Hirt'		Dual Channel Heterodyne Receiver	
Chr. Monstein, 11.04.2018 Updated: 12.04.2018		GRÖSSE	REV.
Updated: 12.04.2018		FAK-NR.	ZEICHN.NR.
MASSSTAB		1:1	BLATT
GCH1 VON 1		Dual_Heterodyne_Receiver_V02_vsdk	



Up-Converter (18-97 MHz hochgemixt auf 192-271 MHz)



Up-Converter



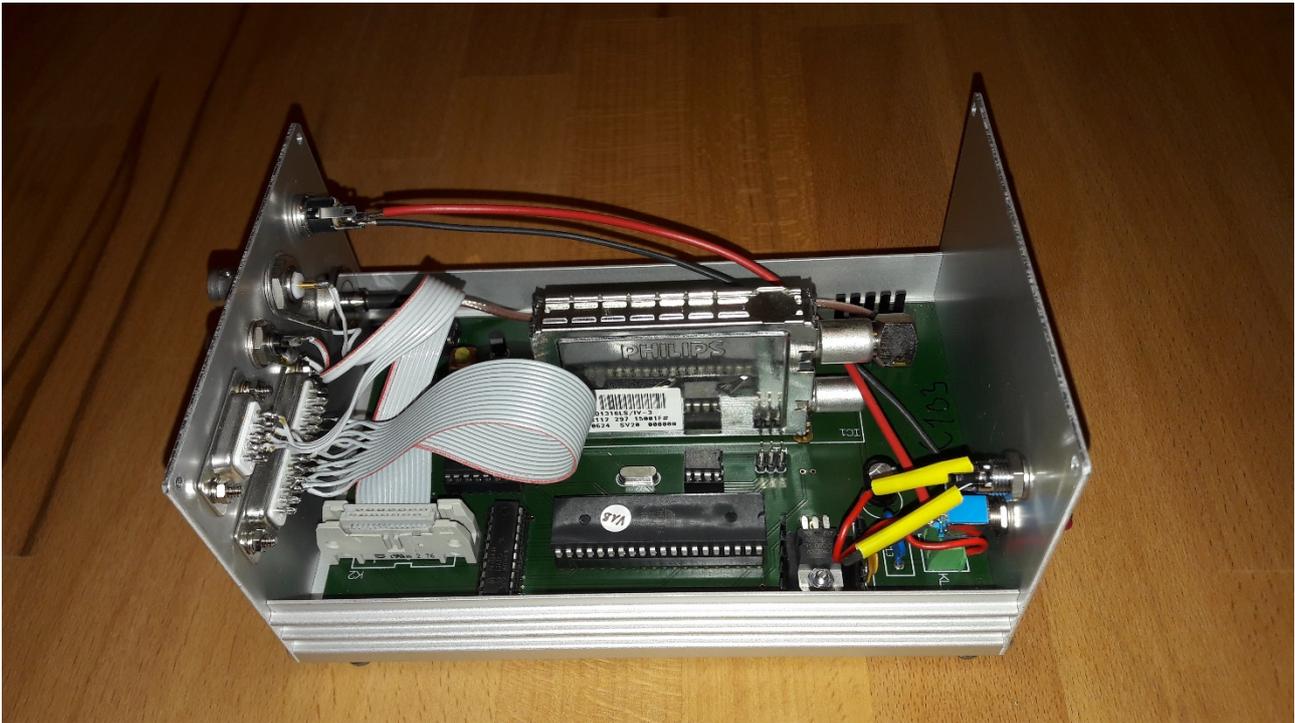
Blockschaltbild des E-Callisto



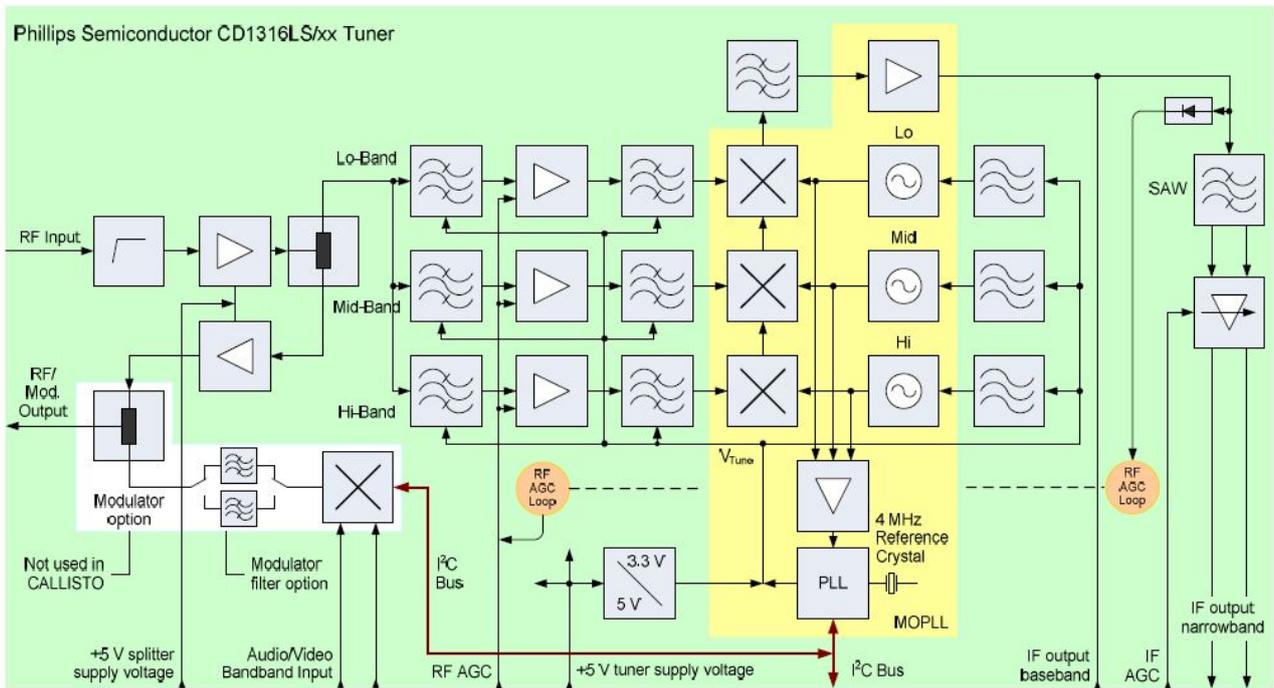
E-Callisto (pro Kanal wird ein Gerät benötigt)

Technische Daten:

Frequenzbereich:	45.0 – 870.0 MHz
Auflösung:	62.5 kHz
Beobachtungsbandbreite:	300 kHz @ -3dB / 375 kHz @ -10dB
Antennen-Impedanz:	50 Ohm
Dynamik-Bereich:	-120 ... -10 dBm



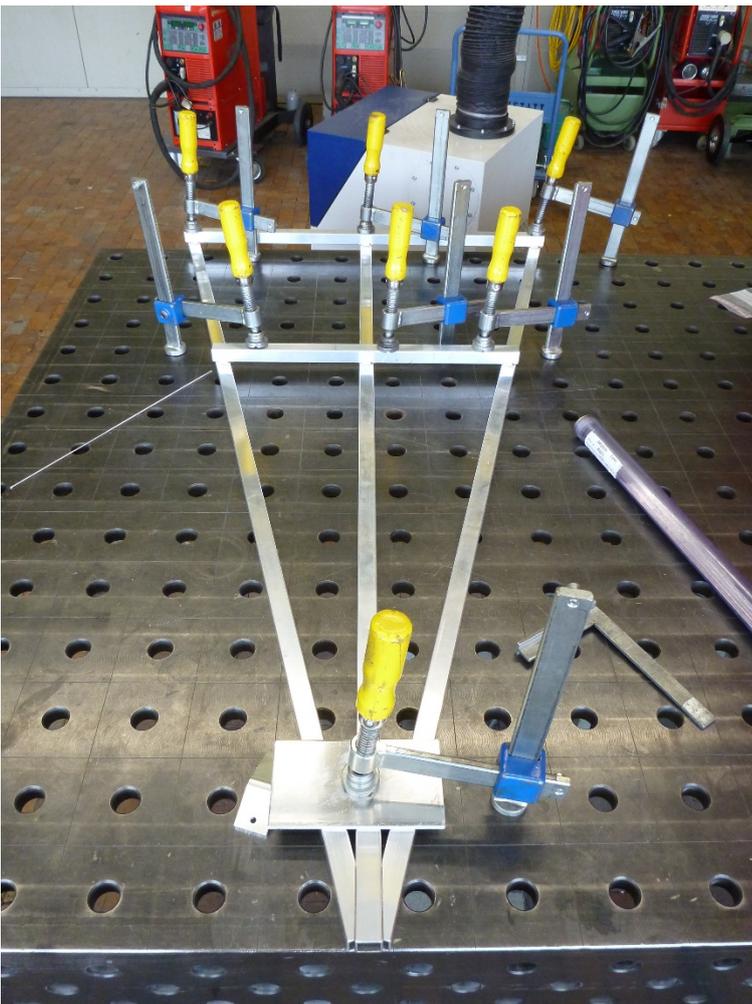
E-Callisto



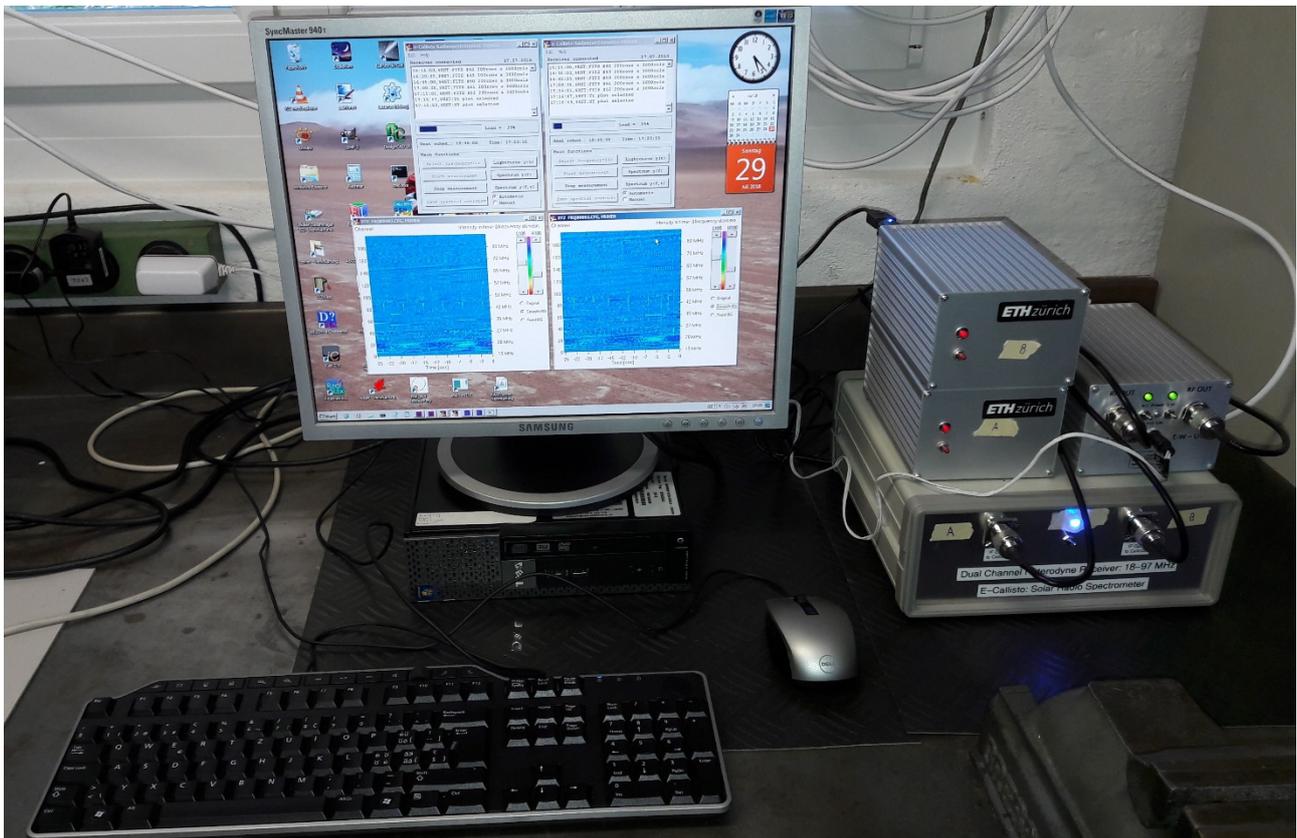
Blockschaltbild des Tuners des E-Callisto



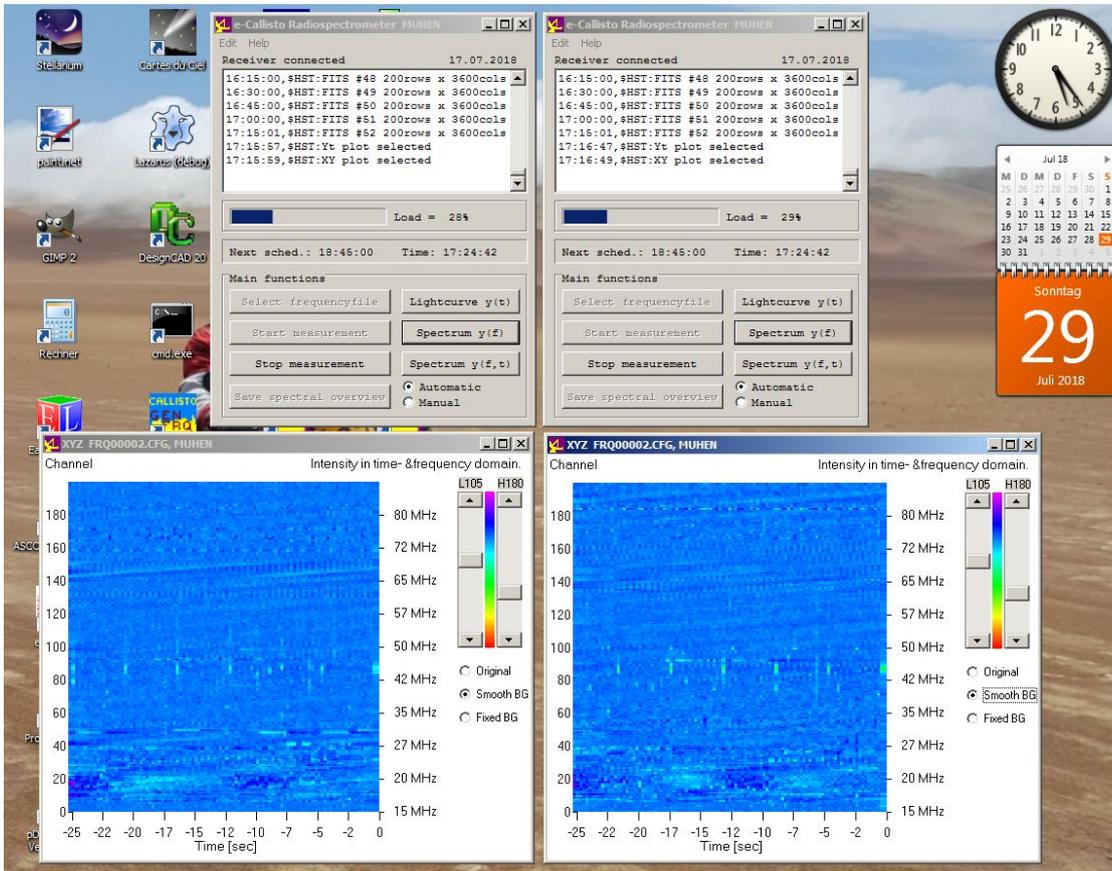
Antenne der Station SWISS-MUHEN



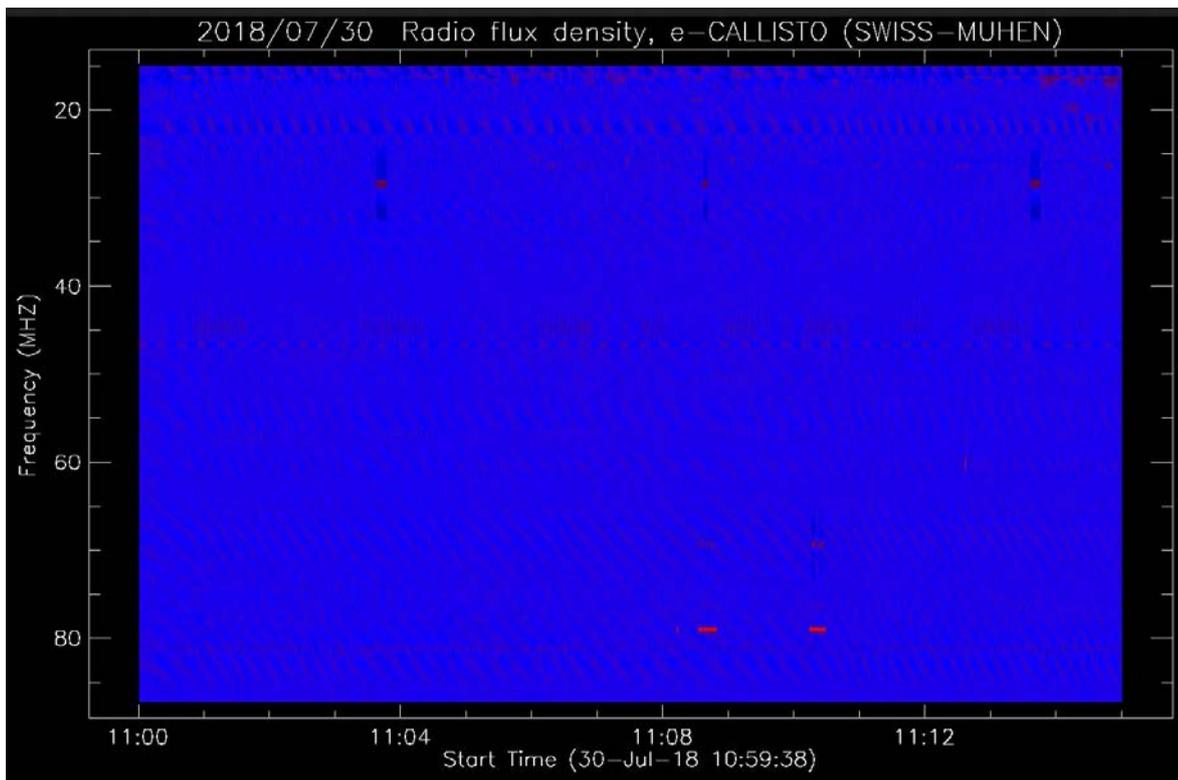
Herstellung eines Antennen-Panels (Aluminium) auf dem Schweisstisch



Geräte mit Datenerfassung der Station SWISS-MUHEN für das Projekt E-Callisto (2-kanlig)

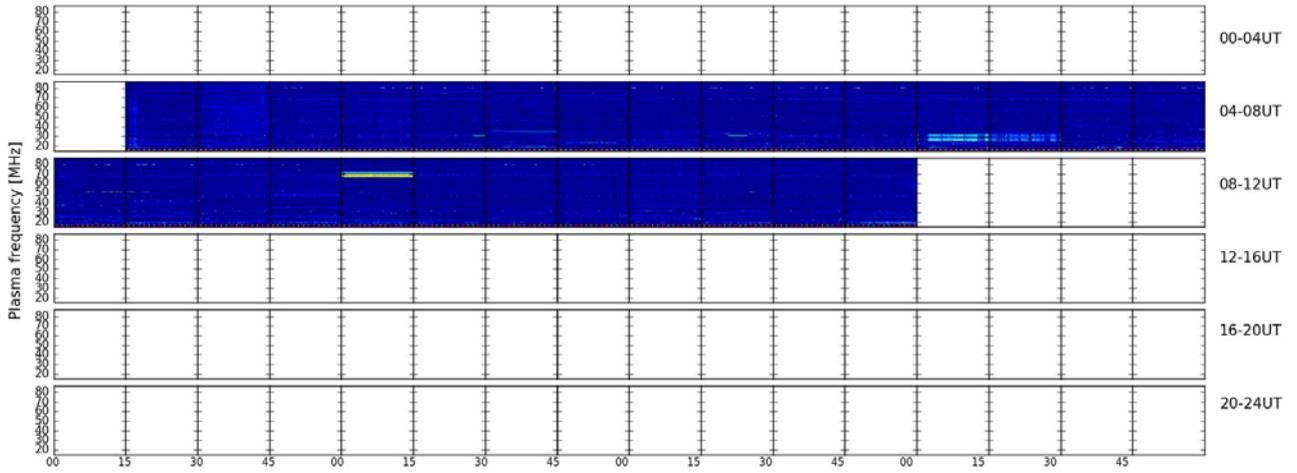


Desktop mit 2 Kanälen CALLISTO-01 (Polarisation: Nord-Süd) und CALLISTO-02 (Polarisation (Ost-West))

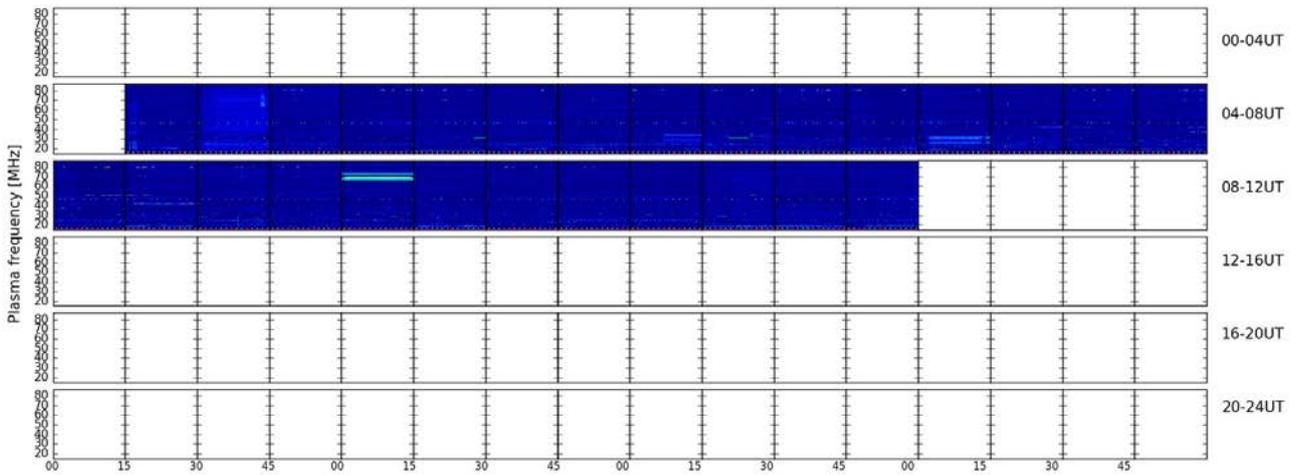


Aufzeichnung im Frequency Domain, jeweils 15 Minuten, 1 Kanal (zur Zeit ruhige Sonne, wenig Interferenzen)

Full day spectra 2018/07/30 station: SWISS-MUHEN with focus-code: 01



Full day spectra 2018/07/30 station: SWISS-MUHEN with focus-code: 02



Spektrale Frequenz-Aufzeichnung: Übersicht über einen ganzen Tag der 2 Kanäle