

ALLEN TELESCOPE ARRAY

INTERFACE DOCUMENT

28.08.2020

VERSION:1.1

LOCATION

Name	Hat Creek Radio Observatory
Address	42231 Bidwell RD, Hat Creek, CA 96040
Altitude	1008 m
Latitude	40° 49' 03" N
Longitude	121° 28' 24" W

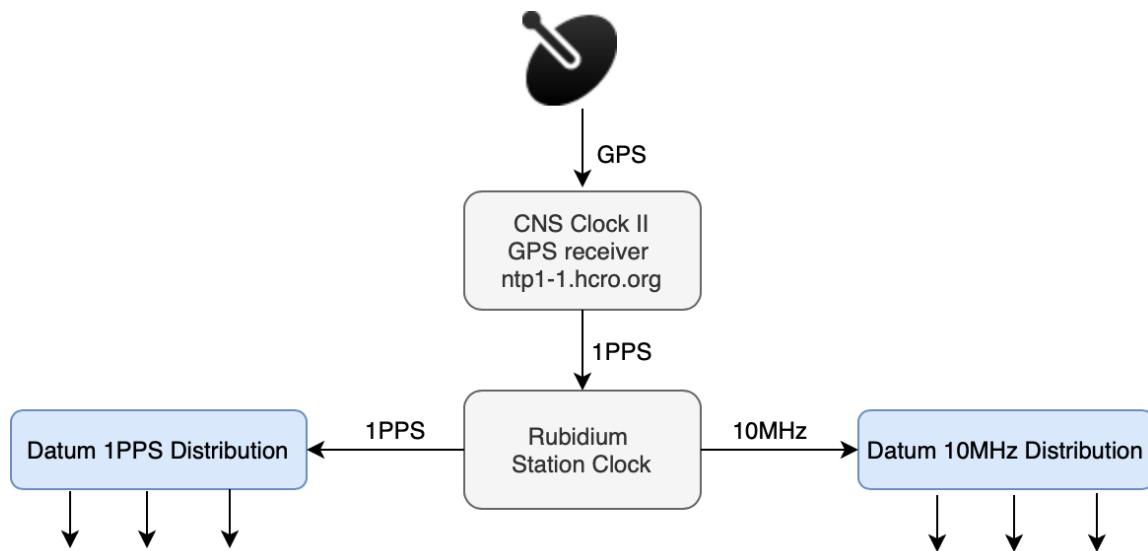


ANTENNAS

Architecture	42 dishes – 6.1 m offset Gregorian
Array maximum baseline	300 m
Elevation range	16 to 87 deg
Max elevation speed	1 deg/sec
Azimuth range	-90 to 450 deg
Max azimuth speed	3 deg/sec
Operating frequency	1 – 11.2 GHz
Feed design	Log-periodic
Polarization	Dual linear
Feed operating temperature	80 Kelvin
System temperature (T_{sys})	45 Kelvin @ 2 GHz; 60 Kelvin @ 8 GHz
HPBW	3.5° @ 1 GHz; 0.58° @ 6 GHz; 20.9' @ 10 GHz;

TIME STANDARD

Time sync	GPS (CNS Clock II)
Station clock	Rubidium
Available reference signals	10MHz; 1PPS
Local NTP server	ntp1-1.hcro.org; ntp2-1.hcro.org; ntp2-2.hcro.org

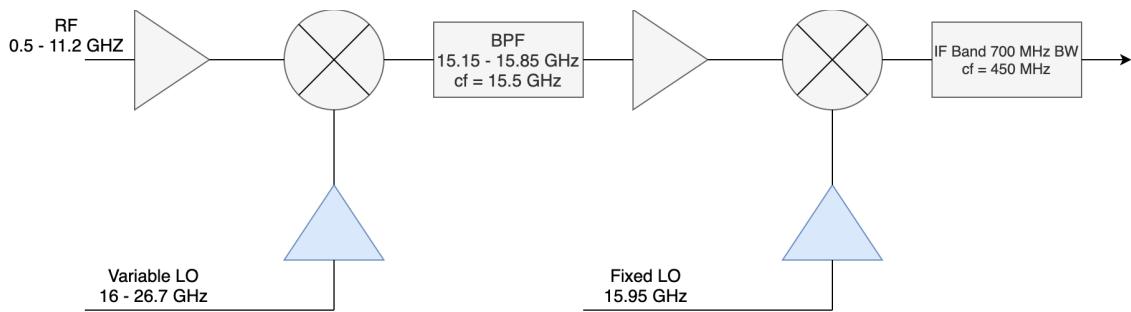


RADIO FREQUENCY (RF)

Cryogenic low noise amplifier	LNF-ABLNC1_15A; 35dB gain; 1 – 15 GHz
Post amplifier module (PAM)	60dB gain; 0 - 63 dB variable attenuator; 0.5 dB step
PAM 1 dB gain compression	+8 dBm
Analog fiberoptic link converter	Photonic Systems; PSI 1601
Fiber link noise figure	≤ 45 dB
Fiberoptic 1 dB gain compression	+11 dBm
Fiberoptic connectors	FC/APC
Optical wavelength	1550 nm

INTERMEDIATE FREQUENCY (IF)

Number of independent IF bands	4
IF bandwidth	700 MHz
Number of tunable LO	4
Number of fixed LO	1
Frequency range of tunable LO	16 – 26.7 GHz
Frequency of fixed LO	15.95 GHz
AAF center frequency	450 MHz
IF output power range	-10 dBm to -30 dBm
IF output connector	SMA



CONTROL INTERFACE

Telescope control software	Python 3.5 based library; ATATools.ata_control
GitHub location	https://github.com/SETIatHCRO/ATA-Utils
Software version	1.0.3
Requirements	'ephem'; 'astropy'; 'numpy'; 'ftplib'; 'pyuvdata'

NETWORK

Internet connection	100 Mbps full duplex
Site access	VPN; SSH
Available public IPs	64
VPN address	https://hcro.seti.org

