



Parkes Receiver Rationalisation Proposal May 2020

We propose to commence the rationalisation of the Parkes receiver fleet from the 2020OCT semester onward. This will facilitate the optimal installation timeline for the Cryo-PAF and mitigate growing Health and Safety issues with the older receivers. ‘Decommissioning’ means that the receivers will be permanently retired from the fleet and associated cabling removed. Parkes has two receiver ‘pan’s allowing for 2-3 receivers installed at any given point.

Receiver Timelines

RECEIVER	PROPOSAL	TIMELINE
10/50	Decommission from fleet. Replaced by UWL	2020OCT
Multibeam	Decommission from fleet subject to proposal pressure in 2020OCT	2020OCT or later
Cryo-PAF	Expedite development for 2022 commissioning	~2022APR for early science
UWL	Permanently installed and available (on pan 1)	NOW
H-OH	Decommission from fleet. Replaced by UWL	2020OCT
Galileo	Retain in fleet for potential spacecraft tracking	Ongoing until UWL circular pols.
‘Old Meth’	Retain in fleet for limited, offsite-staffed installations for VLBI. Potentially install on pan 2	Ongoing limited use until UWH
Mars	Install in place of Multibeam, pan 2, retain in fleet for potential spacecraft tracking and VLBI	Ongoing until UWH circular pols.
K/Ku Band	Decommission from fleet.	2020OCT
13-mm	Install in place of Multibeam for VLBI, pan 2, retain in fleet for VLBI	Ongoing until UWH
AT Multiband	Decommission from fleet.	2020OCT
UWH	Seeking partners For LIEF proposal	2021 funding round for 2022 construction and 2023 deployment for early science

Availability for 2020OCT semester

What does this mean for the upcoming 2020OCT semester currently accepting proposals:

- UWL
- Multibeam for the initial ~month
- A pair of high-frequency receivers, likely 2 out of ‘Old Meth’, Mars and 13-mm.

All are subject to proposal pressure (determined by Time Allocation Committee ranking of proposals received for 2020OCT) and cases can be made for the retention of receivers.

Receiver Characteristics

RECEIVER	FREQUENCY RANGE (GHZ)	BANDWIDTH (MHZ)	MID-BAND TSYS (K)	NATIVE POLARISATION
10/50	0.700-0.764/2.600-3.600	64/1000	35/40	linear
Multibeam	1.23-1.53	384	28	linear
Cryo-PAF	0.700-1.800*	384-1100*	20*	linear
UWL	0.70-4.20	3500	21	linear
H-OH	1.20-1.80	500	25	linear
Galileo	2.15-2.27/2.20-2.50/2.29-2.30	120/300/10	18	circular
'Old Meth'	5.90-6.80	300	55	circular
Mars	8.10-8.50	1000	25	circular
K/Ku Band	21.00-24.00/12.00-15.00	500	105/80	linear
13-mm	16.00-26.00/21.00-22.30	1000/1000	90	linear/circular
AT Multiband	2.20-2.50/4.50-5.10/8.10-8.70	300/500/500	80/50/120	linear/1 pol circular
UWH	4.00-15.00/15.00-27.00^	3500-12000*	21*	linear

*target values, still under design / construction

^could be 4.00-18.00/18.00-32.00 potentially, dependent on community discussion in preparation for funding proposal.