

REPORT ON THE RADIONET3 NETWORKING ACTIVITY

TITLE: AALOW TECHNICAL PROGRESS MEETING

DATE:	22-23 OCTOBER 2012	TIME: (WHOLE DAY)
LOCATION:	VILLA FONTANA (BOLOGNA) ITALY	
MEETING WEBPAGE	HTTP://WWW.IRA.INAF.IT/MEETINGS/AAVP/INDEX.HTML	
HOST INSTITUTE:	INAF IRA RADIO ASTRONOMY INSTITUTE	
PARTICIPANTS NO:	37	

REPORT:

1. Agenda and/or programme of the meeting

Monday, 22 October

Morning: Travel

Afternoon, 2.00pm

1. Welcome	14.00	
2. Minutes of previous AA-low telecom	14.10	Jan Geralt (ASTRON)
3. AA-low action items (non-agenda items)	14.15	All
4. Coffee Break	15.00	
5. Progress/status reports:	15.30	
a. ICRAR		
b. INAF		
c. ASTRON		
d. UK		
6. AAVS0.5 – description, schedule, motivation (Cambridge/ICRAR)	16.30	Andy /Mark Waterson
7. End of session	17.30	
8. Dinner	19.00	

Tuesday, 23 October

1. AA System configuration options	09.00	Andy (Cambridge)
a. AA-low selection criteria		
b. Power consumption		
2. Element measurement reports (Cambridge, IEIIT, ICRAR)	9.30	Eloy/Giuseppe/Mark
3. Coffee Break	11.00	
4. Single-Dual element discussion	11.30	Peter H/Kris ZA (ICRAR, Oxford)
5. Pre-industrial Version SKALA/Vivaldi	12.00	Cambridge C. / COSPAL
6. Processing		
a. UNIBOARD implementation	12.30	Laurens (ASTRON)
b. Other implementations	12.50	Kris ZA (Oxford)
c. ADC implementation options	13.10	Jan Geralt (ASTRON)
7. Lunch	13.30	
8. Calibration issues	14.30	Keith G (Cambridge)
9. Analogue chain		
a. LNA implementation	15.00	Federico (INAF)
b. RFI evaluation	15.30	Laurens (ASTRON)
Small coffee break	16.00	
c. Gain, filters, phase switch, auto	16.30	Jader (INAF)
d. RF over Fibre	17.00	Federico (INAF)
10. Test Plan	17.30	Nima (Cambridge)
11. Deployment considerations	18.00	Mark (ICRAR)
12. Summary and close	18.30	Jan Geralt (ASTRON)

2. Scientific Summary

Review the engineering progress made on Aperture Arrays during 2021 as a precursor to the AA consortium formation. Consider the technical way forward.

The design of an SKA capable low frequency array is more demanding than existing instruments, including covering a wider frequency range (70-450MHz), instantaneous bandwidth and better dynamic range. This task will develop the electromagnetic systems required. INAF has designed a single wide-band element with the required element FoV. Further the possibility of integrating a solar power source with each dual polarisation element will be investigated. The preliminary step of 16 antennas is referred to as AAVS0 and the main aims and array specifications are listed below.

- 16 full size dual-polarized elements covering the SKA-AAlo band from 70 to 450 MHz. The elements would be tested separately as well.
- Elements will be fed with an AAlo LNA. Differential or single-ended.
- Sparse array configuration.
- To test and characterise real SKA-AAlo components as part of the front-end:
- Integration of elements and LNAs.
- Effect of chosen cables (interference, losses, etc.).
- Power delivery.
- Effect of the ground plane size in terms of sensitivity (size of grid cells and total size of ground plane around each element).
- Gain a better insight into coupling, beam pattern and noise issues for a small array

All these points have been fruitfully addressed during the presentations and open discussion. Each institution taking part in the meeting has been given a list of action items to develop and bring back to the community at the next AAVP community meeting.

3. Attendance list (incl. participant names, affiliation and country) signed by the participants and confirmed by the organizer

1	Bakker Laurens	ASTRON
2	Bianchi Germano	INAF - IRA
3	Bij de Vaate Jan Geralt	ASTRON
4	Cassels Robert	Selex Galileo Ltd.
5	Cimmino Rosario	Italian Industry Initiative for SKA
6	De Lera Acedo Eloy	University of Cambridge
7	Faulkner Andy	University of Cambridge
8	Fierro Davide	INAF
9	Fiorelli Benedetta	ASTRON
10	García Enrique	Universidad Carlos III de Madrid
11	Gauffre Stephane	University of Bordeaux I

12	Grainge Keith	Cambridge University
13	Grosso Pasquale	Marotta s.r.l.
14	Hall Peter	ICRAR/Curtin
15	Hargreaves Jonathan	JIVE
16	Jones Michael	University of Oxford
17	Mattana Andrea	INAF - IRA
18	Monari Jader	INAF - IRA
19	Montebugnoli Stelio	INAF-IRA
20	Naldi Giovanni	INAF - IRA
21	Perini Federico	INAF - IRA
22	Piras Marco	Politecnico di Torino
23	Prandoni Isabella	INAF - IRA
24	Quertier Benjamin	University of Bordeaux I
25	Razavi-Ghods Nima	University of Cambridge
26	Rivera Lavado Alejandro	Universidad Carlos III de Madrid
27	Rota Martir Loris	COSPAL Composites srl
28	Schiaffino Marco	INAF - IRA
29	Sinclair David	University of Oxford
30	Tartarini Giovanni	University of Bologna
31	Torchinsky Steve	Obs de Paris - Nancay
32	Valente Giuseppe	INAF-OAC
33	Virone Giuseppe	IEIIT-CNR
34	Waterson Mark	Curtin Institute of Radio Astronomy
35	Zarb-Adami Kristian	University of Oxford
36	lovati stefano	sguinzi pietro s.p.a.
37	van Bemmell Ilse	ASTRON

Sign of the responsible about the organization:



4. Financial Report / RadioNet3 contribution

1342€ is the financial support and RadioNet3 contribution spent to provide the transportation between Hotel to/from Visitor Centre and to Airport for both days.

5. Conference Proceedings and Web page

No proceeding will be issued for this conference. Only the presentations are available to be downloaded from the main web page of the congress :

[HTTP://WWW.IRA.INAF.IT/MEETINGS/AAVP/INDEX.HTML](http://www.ira.inaf.it/meetings/AAVP/index.html)