
DIVA

Development of a Low-noise wide-band integrated amplifier for VLBI antennas, RadioNet3/DIVA Task 1

Wettzell, TOG meeting 2014

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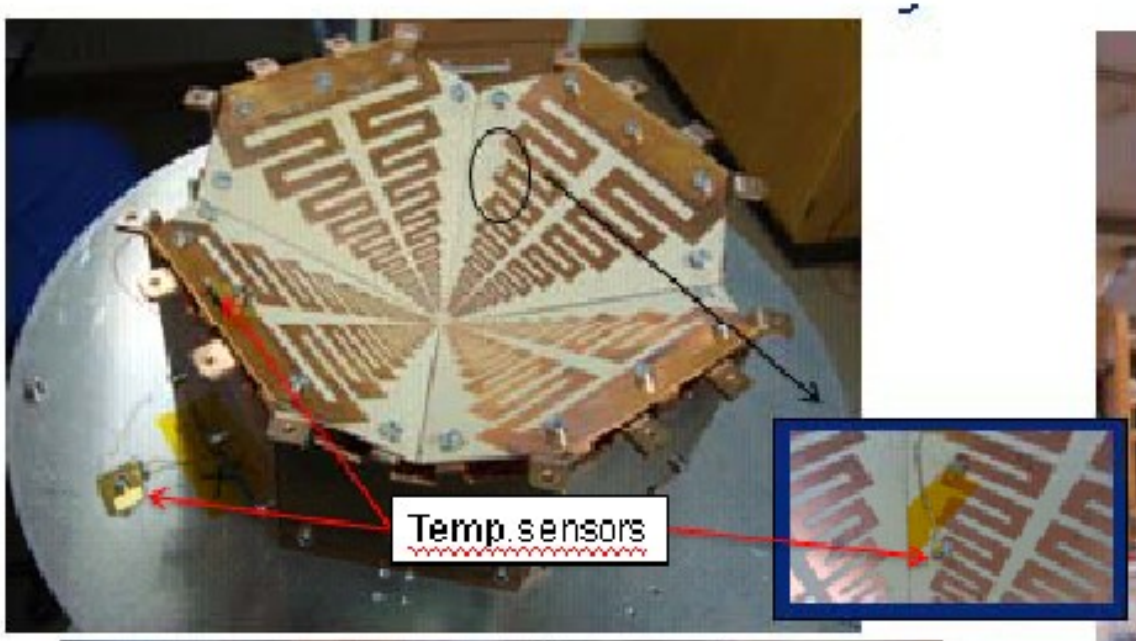
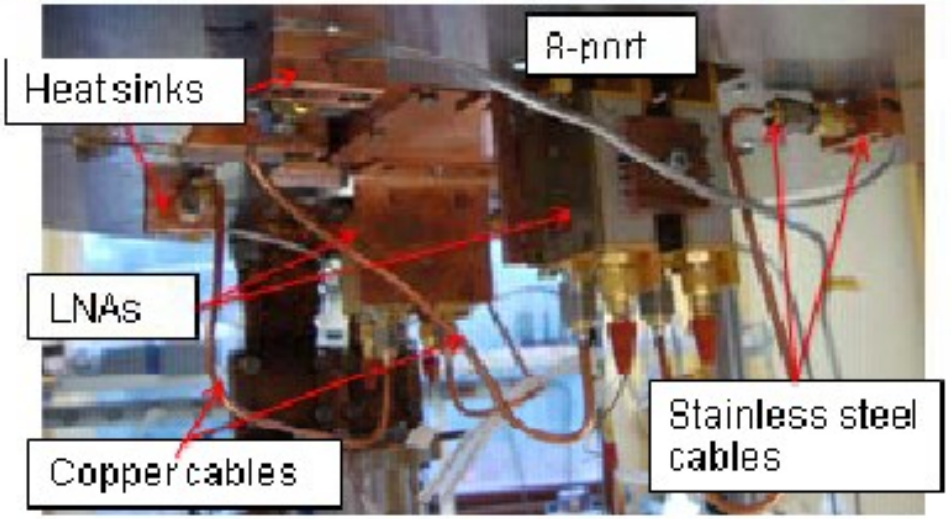
Objectives

- We will develop a high performance integrated LNA Monolithic MIC (MMIC) providing the wide bandwidth needed for highly sensitive VLBI astronomy in the dm/cm-range.
- Specifications:
  - Frontend: 1-4 GHz bandwidth (upgrade: 1-10 GHz)
  - 11-feed or Quad-Ridged feed (funded by OSO)
  - LNA 1-4 GHz (MMIC made by IAF,
  - Packaging, Integration
  - Testing in lab and possibly on antenna

Scope

- Partners: ASTRON, MPIfR, OSO
- Budget: 407 k€
  - EU contribution: 305 k€
- Timeline: 7/2012 – 6/2015
- 6 Deliverables; (7 milestones)
  - MIC LNA design report: 12 (month)
  - Cryogenic test report of MIC LNAs using advanced low noise processes: 24 (month)
  - MMIC LNAs design report: 27 (month)
  - Evaluated packaging solution: 30 (month)
  - MMIC LNA test report: 33 (month)
  - Test report of intergrated feed system





The LNA's will be integrated with an 11-feed and cryostat and system performance will be evaluated

1GHz – 4 GHz Frontend

- Usage for VLBI?
  - Together with DBBC3
  - But prime focus system
- SKA
  - Proposal has been submitted
  - Prepare for VLBI with SKA and 1-4 GHz receiver?

Upgrade of this RN3 task

- A 1GHz to 10 GHz frontend is being developed
- Usable for VLBI?
- DBBC3-H could be a suitable backend
  - 1GHz – 14 GHz