
Refurbishing the Effelsberg Timing System

Or how to deal with the new Maser

Dr. Reinhard Keller

Max-Planck-Institute for Radioastronomy
Bonn, GERMANY

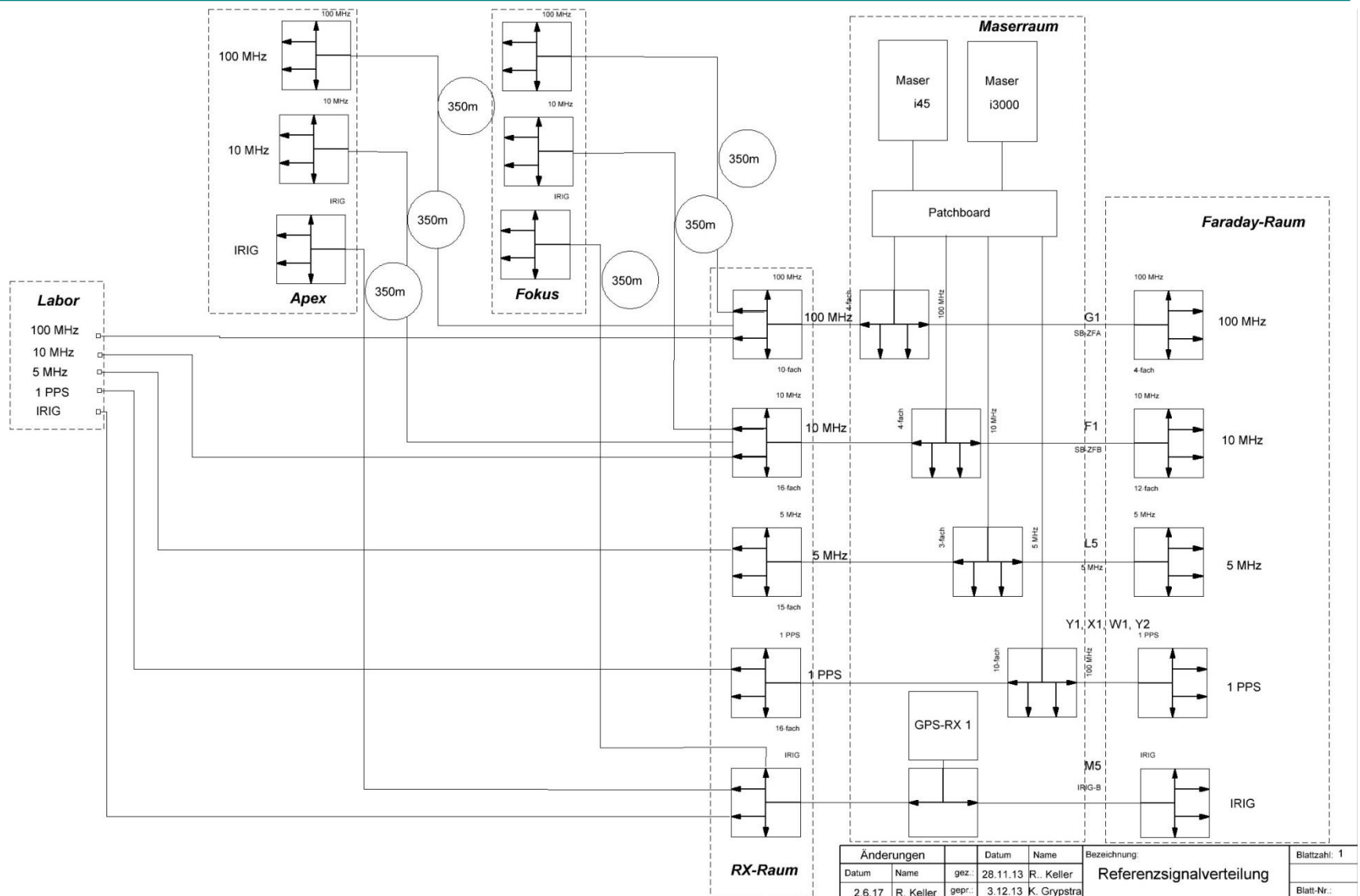


Agenda

- 12:00 Welcome and Introduction (A. Kraus, R. Keller)
- 12:45 Lunch Snack
- 13:15 Tour through the observatory
- 14:00 Timing for ESA (R. Holzwarth)
- 14:20 Boundary conditions of the Pulsar Group
- 14:40 Boundary conditions of the VLBI (U. Bach)
- 15:00 Coffee break
- 15:30 Discussion and Decision finding (All)
- 17:00 Conclusion (R. Keller)

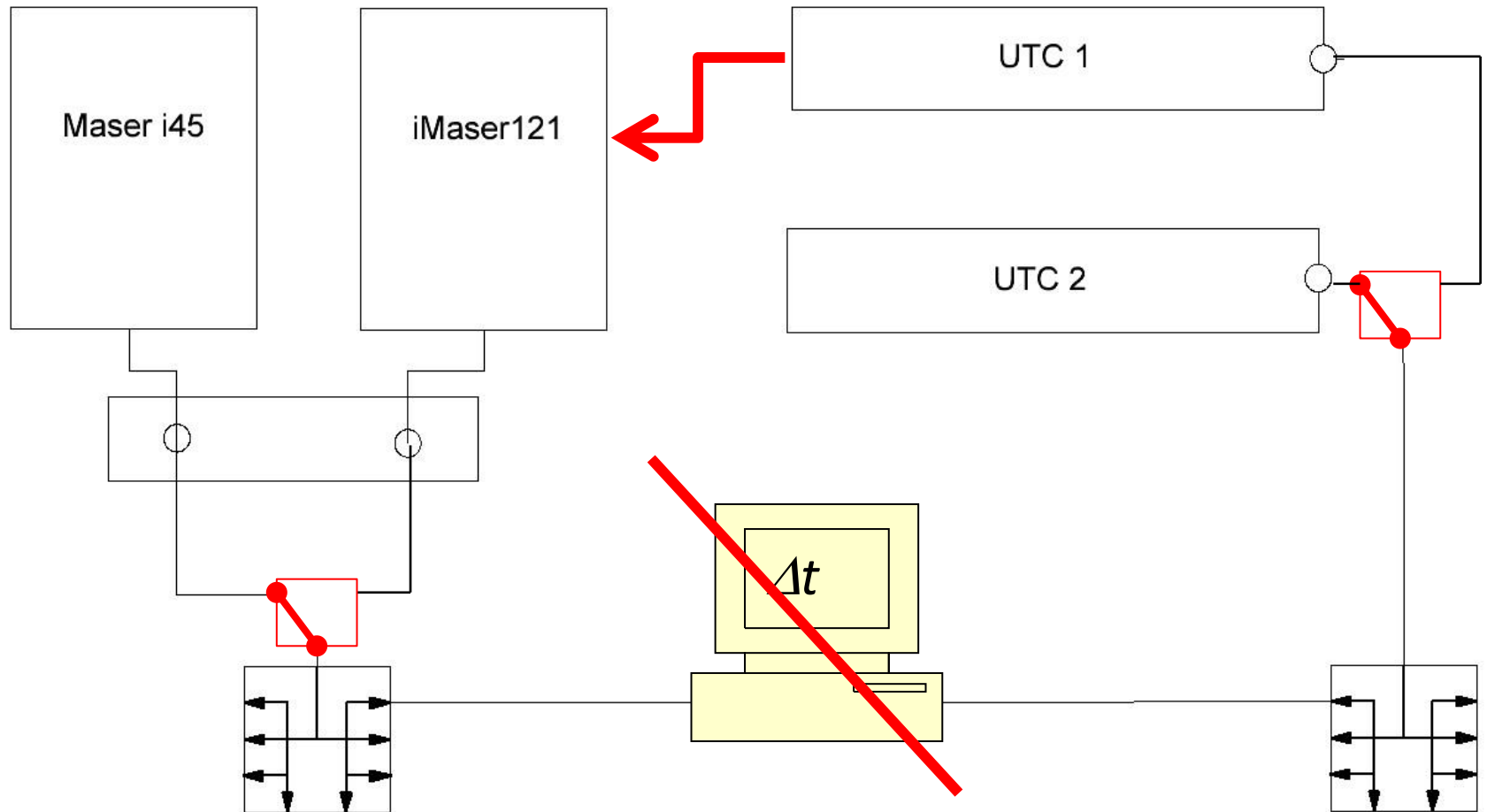


Introduction: Reference Distribution

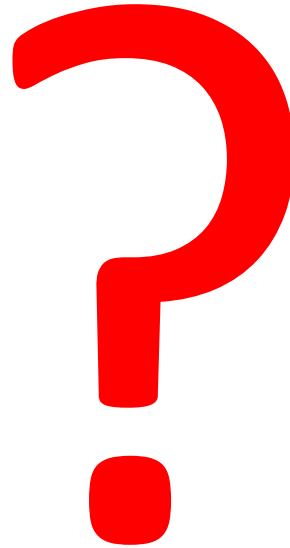


Änderungen		Datum	Name	Bezeichnung:	Blattzahl: 1
Datum	Name	gez.:	28.11.13	R. Keller	Referenzsignalverteilung
2.6.17	R. Keller	gepr.:	3.12.13	K. Grypstra	
5.9.17	R. Keller				
17.1.18	R. Keller				
				Zeichnungs-Nr.:	Blatt-Nr.:

Introduction: Maser vs. UTC



Introduction

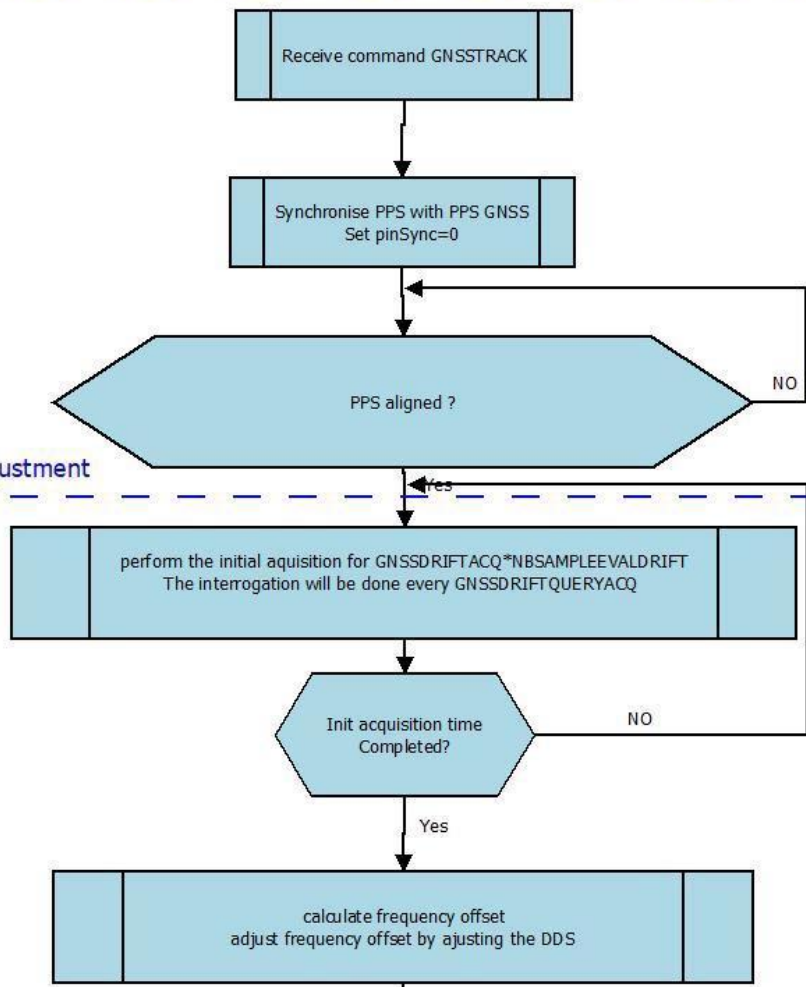


Maser Synchronisation

Phase1:
PPS synchronisation

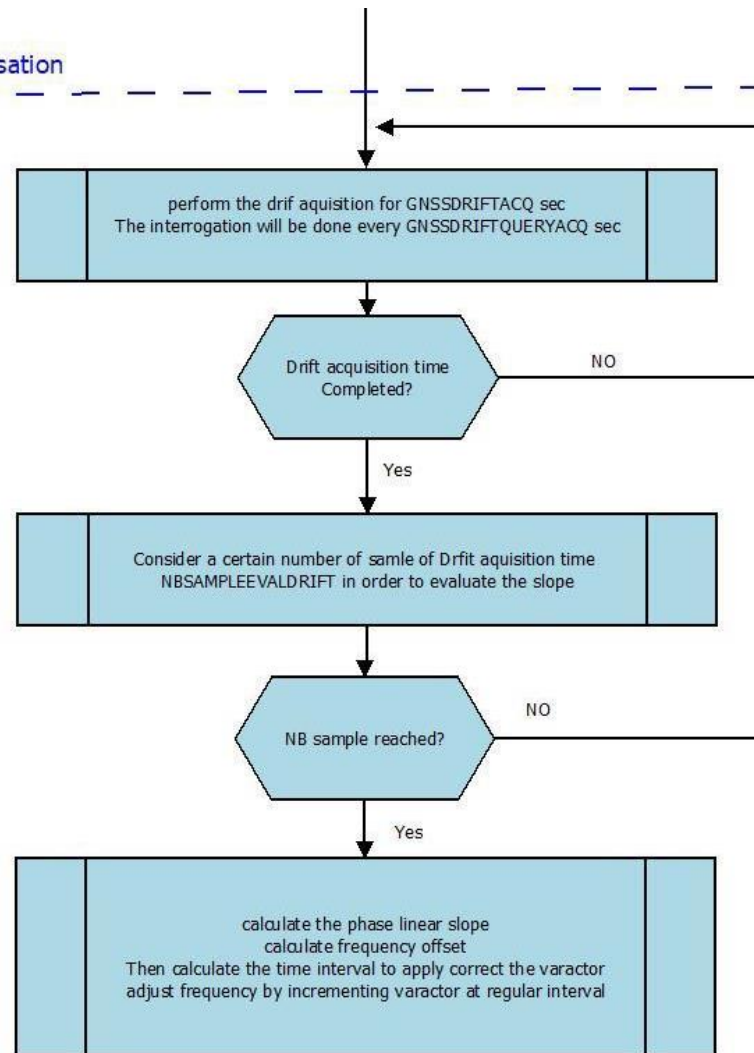
Phase2:
frequency offset adjustment

Phase3:
frequency compensation



Maser Synchronisation

Phase3:
frequency compensation



Open Questions:

- Minimum required time resolution?
- Should the maser be synchronized to GPS or not?
- Continue time difference logging?
- How to handle redundancy; automatic fallback or manual switch over?
- Relevance of changing cable length: $3\text{m} \approx 10\text{psec}$?
- ...?

