VLTI Memo

AMBER

Orig.	:	J.-B. Le Bouquin
Dest.	:	all AMBER
Copy to	:	
Date	:	02-12-2008
Version	:	1.0
Subject	:	**AMBER vis2 and closure-phase versus DIT and FINITO/OPDC setup.**
Presents	:	

Scope of this memo

This memo summarizes the test made the night 2008-11-05 in order to explore the dependency of the AMBER transfer function when using different modes of FINITO.

Data reduction and analysis

Data have been taken between 2008-11-06T04:13 and 2008-11-06T05:28, with AMBER in Low_JHK mode, with FINITO-H70 and with the baselines A0-D0-H0. I used the standart package `amdlib-2.2`. I average all frames. This report focus on the wavelength bin at 2.2μm only.

Observations have been made with FINITO/OPDC in mode: coherencer with 1ms, coherencer with 0.5ms and complete with 0.5ms. FINITO was always scanning 5 fringes. For each setup, 2 files have been obtained with the AMBER DITs= 0.026s, 0.05s, 0.1s, 0.2s and 0.5s. The number of frames for each DIT was standard.

Results and conclusions

The trends show only expected results: AMBER-TF decreases when AMBER-DIT increases. AMBER-TF reach asymptotically 0 for long AMBER-DIT when FINITO is not freezing the phase. Closure-phase is not dependent from DIT or fringe-tracking performances. Expected results lead to expected conclusions:

- We demonstrate **the dependency** of the AMBER+FINITO transfer function with the AMBER DIT whatever the FINITO/OPDC setup (Fig. 1).

- We demonstrate **the dependency** of the AMBER+FINITO transfer function with the FINITO/OPDC setup (Fig. 1).
- We demonstrate the **absence of correlation** of the AMBER closure-phase with the AMBER DIT (accuracy of the test 1deg, see Fig. 2, left).
- We demonstrate the **absence of correlation** of the AMBER closure-phase with the FINITO/OPDC mode (accuracy of the test 1deg, see Fig. 2, right).

This proves that:

- AMBER should use DIT as small as possible, even when using FINITO.
- AMBER should use the same DIT for SCI/CAL when looking for absolute visibilities.
- AMBER should use the same FINITO/OPDC setup for SCI/CAL when looking for absolute visibilities. **THIS IS CURRENTLY NOT GARANTEED BY THE OPERATIONS**.
- AMBER can use different DIT for SCI/CAL when looking for absolute closure-phase.
- AMBER can use different FINITO/OPDC setup for SCI/CAL when looking for absolute closure-phase.

Figure 1*: AMBER transfer function versus the AMBER-DIT for 3 different FINITO/OPDC configurations. Left: data have normalized by the contrast obtained for AMBER-DIT=25ms. Right: data are normalized by the contrast obtained with FINITO/OPDC in mode complete with 0.5ms.*

Figure 2*: Left: AMBER closure-phase versus the AMBER DIT, for FINITO/OPDC in mode complete with 0.5ms. Right: Closure-phase obtained with AMBER-DIT=50ms for 3 different modes of FINITO/OPDC.*