

Status of the Spanish Contribution to CTF3

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CIEMAT

0. Financial Request



TASKS	2004		2005					2006					2007				
	N	J	M	M	J	S	N	J	M	M	J	S	N	J	M	M	J
0.1 "COMPL. ACTION" REQUEST																	
0.2 "COMPL. ACTION" APPROVAL																	

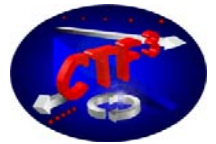
MAIN ACTIVITIES DURING THE PAST YEAR:

- Request Preparation & Presentation for ½ of the overall budget (December 05)
- Unofficial Request Approval (= T₀ for CIEMAT) (March 05)
- Official Request Approval (October 05)

SHORT TERM ACTIVITIES:

- Request Preparation & Presentation for the remaining ½ of the budget (March 06)
- Request Approval (?? . 06)

1. Orbit Corrector Magnets (I)



TASKS	2004		2005					2006					2007				
	N	J	M	M	J	S	N	J	M	M	J	S	N	J	M	M	J
CORRECTORS																	
1.1 DRAWINGS & TOOLING																	
1.2 FABRICATION																	

MAIN ACTIVITIES DURING THE PAST YEAR:

- Placement of the Order (December 04)
- Drawings for Approval (March 05)
- Drawings Approved by CERN (April 05)
- Tooling development (May 05)
- Laminations fabrication (June 05)
- Pre-Series delivery to CERN (2 Magnets) (September 05)
- Final Approval by CERN (Magnetic Measurements) (Pending)

PRESENT STATUS:

- All the magnet components are under fabrication
- Pole fabrication is almost finished (100% stacked & cured, 100% machined, 25% wound & tested)

SHORT TERM ACTIVITIES:

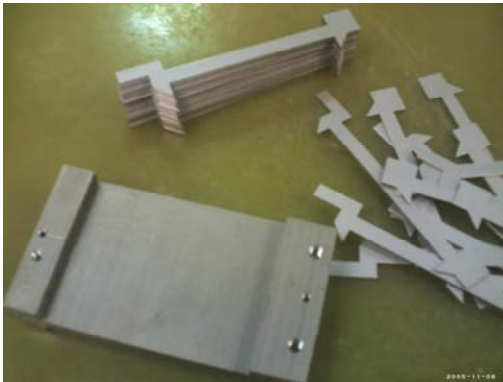
- All the coils will be wound in 3 weeks
- Magnets will be mounted 4 weeks later : **All the units should be finished by the end of the year**

CONCLUSION: An overall delay of 5 months, but still on time for CTF3

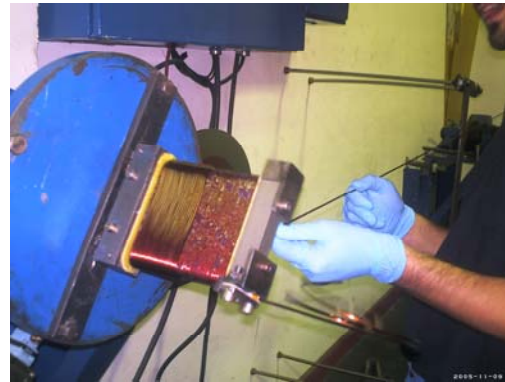
1. Orbit Corrector Magnets (II)



STATUS OF THE FABRICATION PROCESS

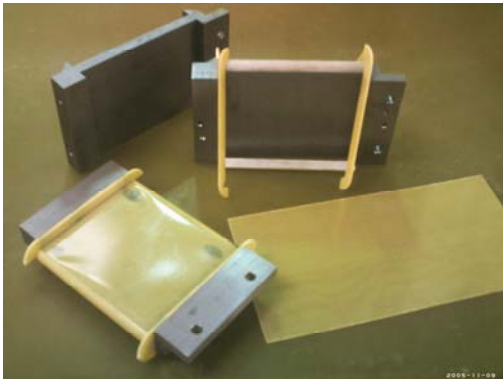


1.- POLE STACKING

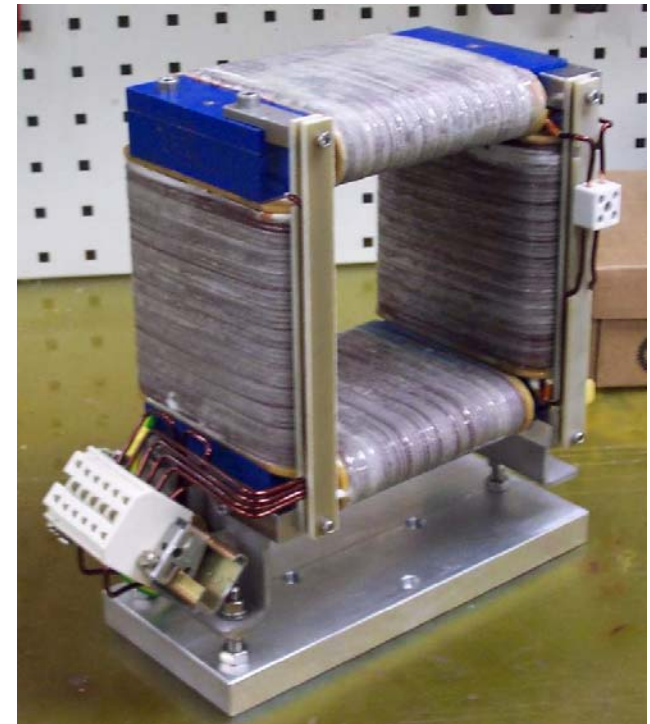


3.- WINDING

2.- POLE INSULATION

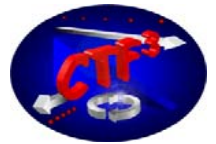


4.- COIL ELEC. TESTS



5.- FINAL ASSEMBLY (PRE-SERIES)

2.- Septa Magnets (I)



TASKS	2004		2005					2006					2007				
	N	J	M	M	J	S	N	J	M	M	J	S	N	J	M	M	J
SEPTA																	
2.1 DESIGN																	
2.2 DRAWINGS & TOOLING																	
2.3 FABRICATION																	

MAIN ACTIVITIES DURING THE PAST YEAR:

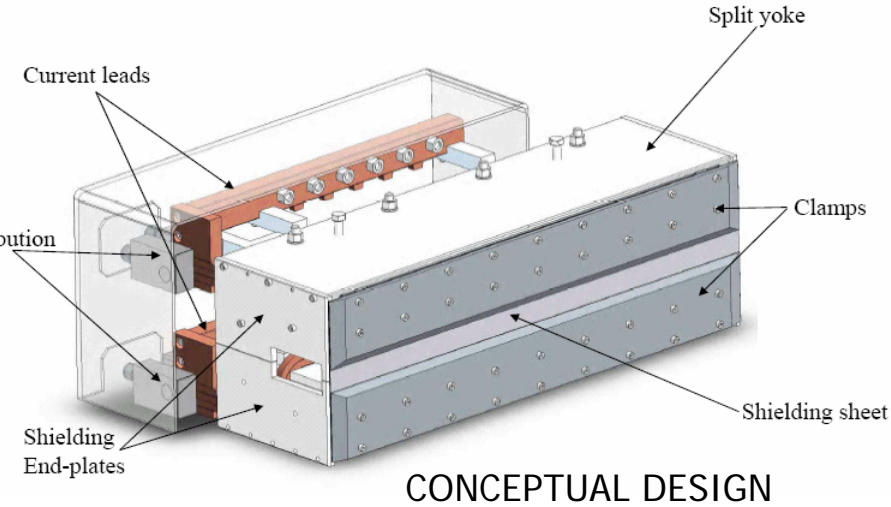
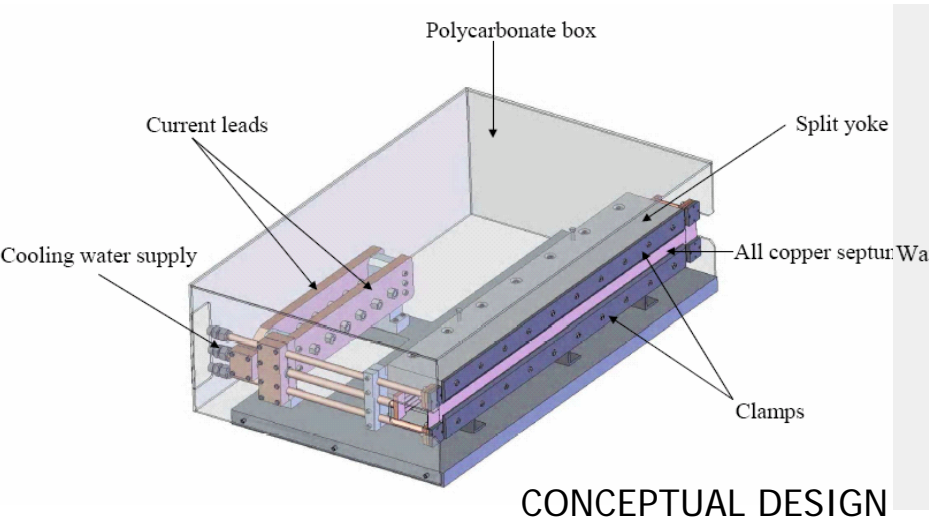
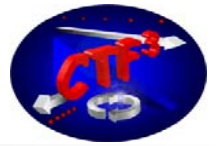
- Start of the Conceptual design (March 05)
- Placement of the Order for the Conceptual Design (June 05)
- Technical Design Review of the Conceptual Design at CERN (July 05).
- Final Report on the Conceptual Design (July 05)
- Placement of the Order for the Fabrication (October 05)

SHORT TERM ACTIVITIES:

- Fabrication Drawings (December 05)
- Tooling and Components Fabrication (excl. Coils) (January 06).
- Coil Fabrication (February 06)
- Magnet Assembly: Septa Finished (15-March-2006).

CONCLUSION: An overall delay of 2 ^{1/2} months, but still on time for CTF3 (IN THE LIMIT)

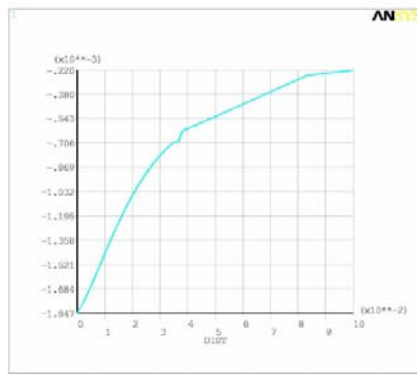
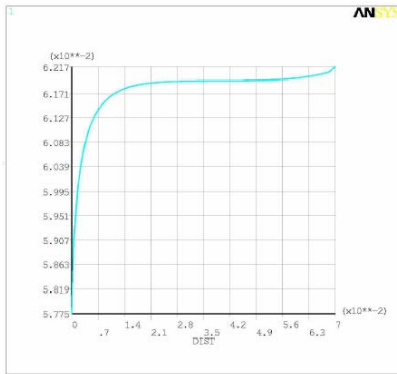
2.- Septa Magnets (II)



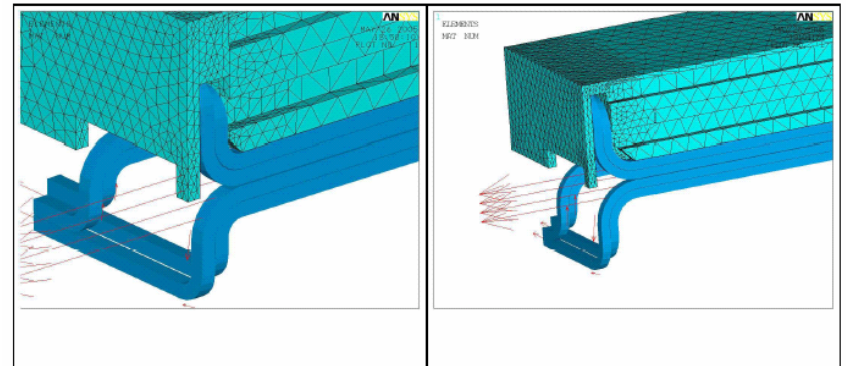
Thin Septum

Thick Septum

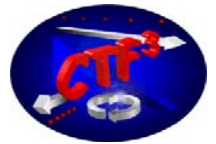
MAGNETIC CALCULATIONS



MAGNETIC MODELLING



3.- Kicker Magnet (I)



TASKS	2004		2005						2006						2007		
	N	J	M	M	J	S	N	J	M	M	J	S	N	J	M	M	J
<i>KICKER</i>																	
3.1 CALCULATION																	
3.2 DESIGN																	
3.3 DRAWINGS & TOOLING																	
3.4 FABRICATION & TESTS																	

MAIN ACTIVITIES DURING THE PAST YEAR:

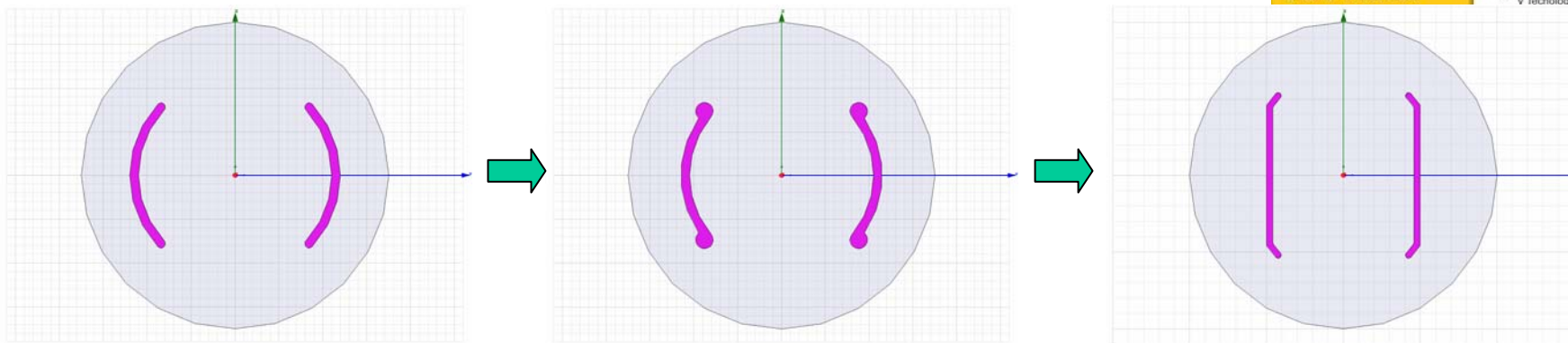
- Visit to Frascati to start contacts with INFN about the kicker design. (February 05)
- Placement of the order to purchase HFSS (April 2005)
- A new engineer joins the team, devoted specifically for this development (August 05)
- Arrival of the HFSS license to CIEMAT & Installation on a specific PC (3GHz,2Gb RAM) (August 05)
- First simulation of a Stripline Kicker based on INFN previous designs (September 05)
- New visit to Frascati. Discussion about specifications, model geometries and kicker optimization parameters. (October 05).
- Starting of calculations & simulations of a real magnet (November 05)

SHORT TERM ACTIVITIES:

- Conceptual Design of the Kicker Magnet (March 05)
- Drawings for Fabrication (April 05)

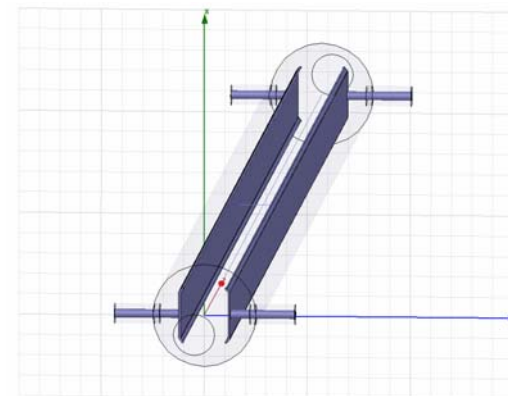
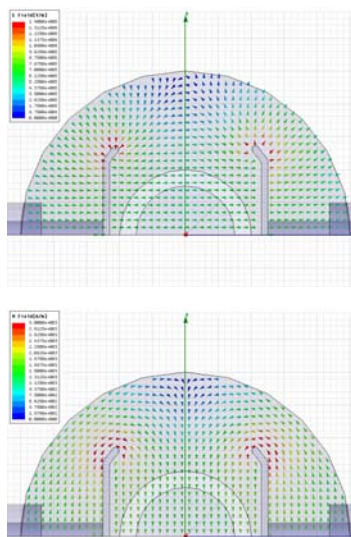
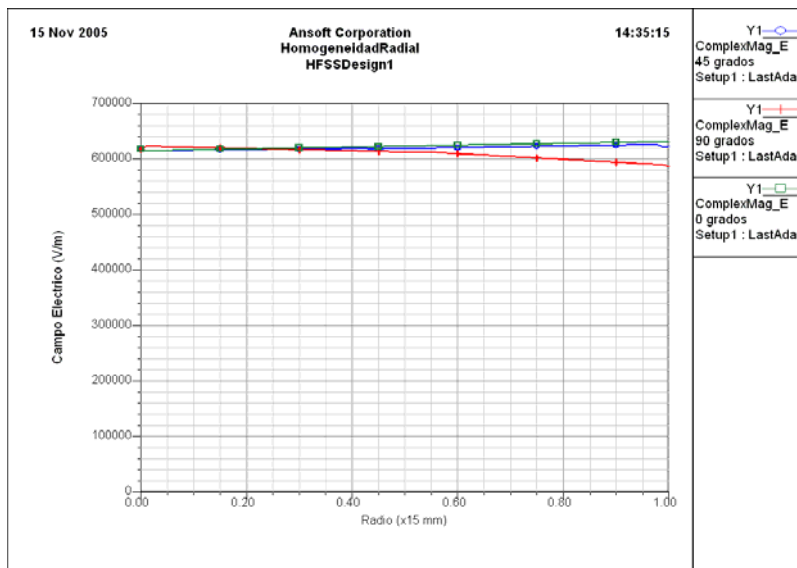
CONCLUSION: An overall delay of about 4 months, but correction actions can be taken to have the magnet finished by the end of 2006

3.- Kicker Magnet (II)



STUDY OF DIFFERENT CROSS-SECTIONS: IMPEDANCE CALCULATION

MAGNETIC & ELECTRIC FIELD CALCULATIONS FROM THE COMPLETE GEOMETRY



3.bis.- Kicker Power Supply



MAIN ACTIVITIES DURING THE PAST YEAR:

- First meeting with SLAC to discuss a possible collaboration with LLNL for the development of the kicker pulser. (Very Unlikely). (May 05)
- Contact with Spanish Industry to develop this pulser which has other potential applications (Feb-Nov 2005)

SHORT TERM ACTIVITIES:

- To be defined

CONCLUSION: A decision must be taken on how to continue with this development. Spanish participation on her own seems very difficult



4.- TBL Quads (I)



TASKS	2004		2005					2006					2007				
	N	J	M	M	J	S	N	J	M	M	J	S	N	J	M	M	J
TBL QUADS.																	
4.1 MAGNET DESIGN																	
4.2 STRUCTURE DESIGN																	
4.3 MAGNET DRAWINGS																	
4.4 STRUCTURE DRAWINGS																	
4.5 MAGNET FABRICATION																	
4.6 STRUCTURE FABRICATION																	
4.7 ASSEMBLY & TESTS																	

MAIN ACTIVITIES DURING THE PAST YEAR:

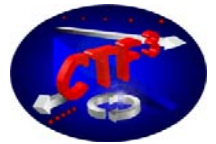
- Analysis of solutions for the Moving Table (March 05)
- Moving Table Conceptual Design (October 05)
- Moving Table Component Selection (October 05)
- Moving Table Technical Design presentation at CERN (November 05)

SHORT TERM ACTIVITIES:

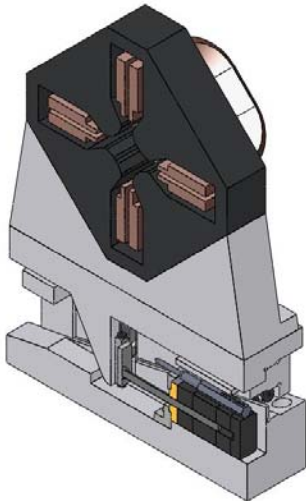
- Validation of Design and Components (December 05)
- Drawings of the MT Prototype (February 05)
- Fabrication of the MT Prototype (June 05)

CONCLUSION: Initial planning has been changed significantly to stress the work on the Moving Table as Magnet Design and Fabrication seems a more conventional activity.

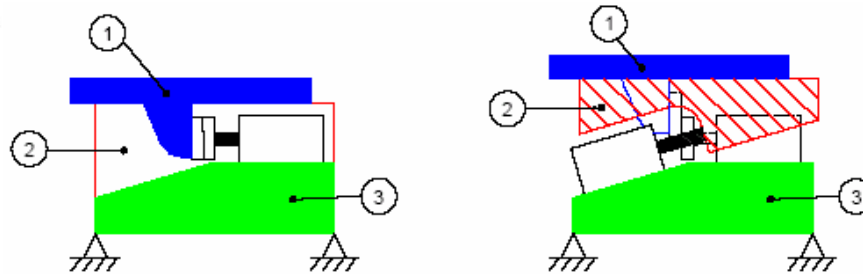
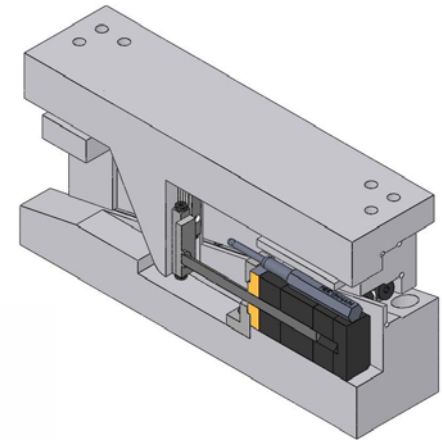
4.- TBL Quads (II)



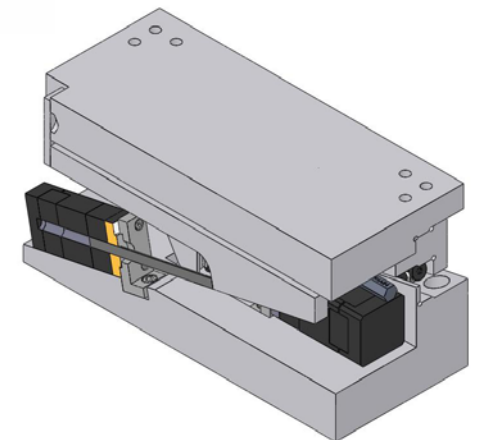
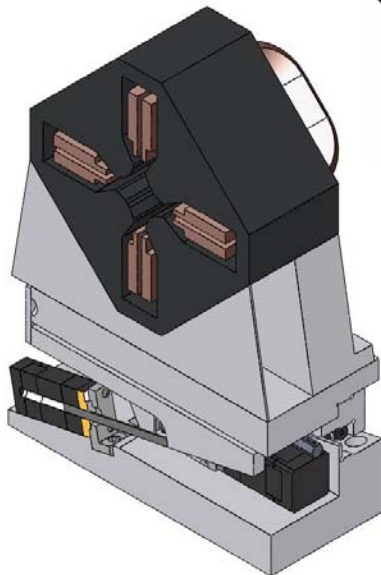
TBL QUADS MOVING TABLE



Section at the Horizontal Actuator



Section at the Vertical Actuator



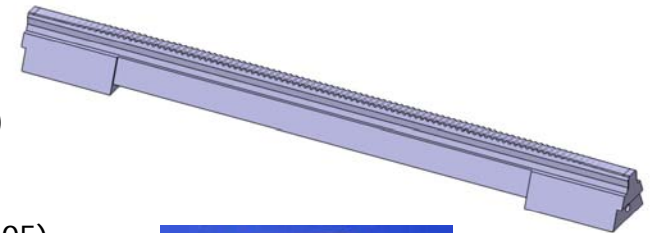
5.- PETS



TASKS	2004	2005						2006						2007			
	N	J	M	M	J	S	N	J	M	M	J	S	N	J	M	M	J
<i>PETS</i>																	
5.1 CALCULATION & DESIGN																	
5.2 DRAWINGS																	
5.3 FABRICATION OF ONE OCTANCT																	
5.4 FABRICATION OF A PROTOTY PE																	

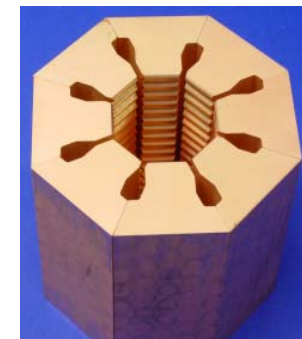
MAIN ACTIVITIES DURING THE PAST YEAR:

- Market survey for PETS fabrication in Spain (Jan-Sep 05)
- Purchasing of the HFSS software (August 05)
- A new engineer joints the team, devoted specifically for this development (Nov 05)
- First trials to machine one small PET octant at CIEMAT (Sep-Dec 05)
- Placement of the order to manufacture a 400 mm PET Octant at the Industry (Oct 05)



SHORT TERM ACTIVITIES:

- Reception of the first industrial prototype of PETS octant (January 06)
- Verification of CIEMAT PETS Octant (February 06)
- Stay at CERN of the CIEMAT engineer for the full PETS design (Nov-?? 06)



CONCLUSION: Relevant modifications have been made in the planning due to the delay in the starting of the new engineer (design has been substituted by fabrication)

OVERALL CONCLUSIONS



- There is an overall delay of the project due to the addition of administrative and technical problems. Nevertheless the final goals are still achievable.
- For the moment the most critical points are the delivery of the correctors (Dec-05) and the Septa (March-06)
- A final decision on the development of the kicker pulser should be taken a.s.a.p.
- Short term goals should be the fabrication of a kicker prototype, a TBL Moving Table and the design of a PETS along with the verification of its industrial fabrication process.