

# Schedule, Budget and Conclusions

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# Schedule (1/4)

Tasks			2013							2014									
Title		Location	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	
Mother Boards	Mechanics for MBs	IPNO	█																
	MB Design	INFN		█															
	MB Construction	INFN							█	█									
	MB Test	INFN							█	█									
	Ship to IPN Orsay	INFN									█								
			█																
Preamplifiers	PA tests	IPNO		█															
	Procurement PA parts	IPNO						█	█										
	PA Production	IPNO								█	█								
	PA Tests	IPNO									█	█							
	Ship to JLab	IPNO										█		█					

- **Mechanics for MB have been extended following a change in concept (from 8 to 4 boards)**
  - **Mechanical design now finished**
  - **Project in good shape, no R&D or development needed**
  - **Will be delivered to Orsay in January for assembly to the rest of the ECal boxes**
- **Preamplifiers change of plan shortened significantly the procurement time and production time**
  - **Will be shipped to JLab together with the ECal boxes**

Tasks		2013								2014								
Title	Location	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	
LMS	LED LMS Design		█															
	LED holder design					█												
	LED holder production							█	█									
	Mechanic design								█	█								
	Connec. Boards design								█	█								
	Connec. boards prod.									█	█							
	Procurements LED								█									
	LED tests									█	█	█						
Assembly											█	█	█	█				
		█																
New APDs	Tooling for assembly					█												
	Tooling for APD tests								█	█	█	█						
	Procurement APDs								█	█	█	█						
	Test of APDs										█	█	█					
	APD replacement											█	█	█	█	█		
	Tests of crystal-APD												█	█	█	█	█	

- **LED system design is underway**
  - **Most production carried in early 2014**
- **APD change**
  - **Internal paperwork for procurement have already began in both INFN and IPNO**

Tasks		2013								2014							
Title	Location	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.
Mechanics	Dismounting ECal																
	Ship to IPN Orsay																
	Thermal box work																
	Structure parts																
	Mounting system design																
	Preamps rails																
	MS construction																
	Ship to Jlab																
Assembly	Assemble ECal																
	ECal commissioning																
	ECal installation																

- **Mechanics will be modified mainly in Orsay in early 2014**
  - **Work begin 12th of November with the complete dismounting of the calorimeter**
- **Reassembly of the calorimeter could begin in May if all parts are ready in time**
  - **One month contingency is inserted at that point**

# Schedule (4/4)

jeudi 17 octobre 2013

- **Schedule build for installation in September**
- **Schedule is tight in some places, but...**
- **Schedule allows for one month of contingency for each independent parts**

Tasks	Location	2013						2014									
		June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.
<b>Mother Boards</b>	Mechanics for MBs	IPNC															
	MB Design	INFN															
	MB Construction	INFN															
	MB Test	INFN															
	Ship to IPN Orsay	INFN															
<b>Preamplifiers</b>	PA tests	IPNC															
	Procurement PA parts	IPNC															
	PA Production	IPNC															
	PA Tests	IPNC															
	Ship to JLab	IPNC															
<b>LMS</b>	LED LMS Design	INFN															
	LED holder design	INFN															
	LED holder production	INFN															
	Mechanic design	IPNC															
	Convec. Boards design	INFN															
	Convec. boards prod.	INFN															
	Procurements LED	IPNC															
	LED tests	IPNC															
Assembly	IPNC																
<b>New APDs</b>	Tooling for assembly	INFN															
	Tooling for APD tests	INFN															
	Procurement APDs	INFN															
	Test of APDs	INFN															
	APD replacement	INFN															
	Tests of crystal-APD	INFN															
<b>Mechanics</b>	Dismounting ECal	IPNC															
	Ship to IPN Orsay	IPNC															
	Thermal box work	IPNC															
	Structure parts	IPNC															
	Mounting system design	IPNC															
	Preamps rails	IPNC															
	MS construction	IPNC															
	Ship to Jlab	IPNC															
<b>Assembly</b>	Assemble ECal	JLab															
	ECal commissioning	JLab															
	ECal installation	JLab															

- **Not accounting for manpower and travels**
- **Mother boards (INFN)**
  - **Construction 12k€**
  - **Tools for tests 3k€**
- **Preamplifiers (IPNO)**
  - **Electronics 1.5k€**
  - **Shipping 0.5k€**
- **Light monitoring system (INFN)**
  - **LED holder 10k€**
  - **Boards production 16k€**
  - **LEDs and wires 3k€**
  - **Tools for tests 3k€**

- **APD replacement (shared)**
  - **APDs 215k€**
  - **Tooling for assembly and tests 30k€**
  - **Shipping of the tools 5k€**
- **Mechanics (IPNO)**
  - **4.5k€ of equipment**
  - **1.5k€ shipping**
- **Installation and Commissioning**
  - **Mostly travels**

- **Totals (no salaries included)**
  - **IPNO → 133k€ (+ 45k€ travels)**
  - **INFN → 172k€ (+ 60k€ travels)**
  - **Total is 410k€**
  - **Contingency funds available in IPNO up to 100k€**
- **All money accounted here is secured, both for IPNO and INFN**
- **The success with grants in both France and Italy allows us to go with all best options identified at the beginning of the project**



- **The goals for each part of the project are now clear**
- **Design is already well advanced and meets all our requirements**
- **The interfaces with the rest of the HPS project are identified**
- **We have a full schedule with 1 month contingency for each part of the project**
- **We are already exploring several calibration techniques for the ECal**
- **No R&D is necessary anymore at this stage**
- **We have all necessary funds secured with contingency**
- **No formal quality insurance, but cross checks between INFN and Orsay engineers**
- **The groups of INFN and Orsay collaborate closely to develop the design and share the construction work**