



Status of Interface Control Documents



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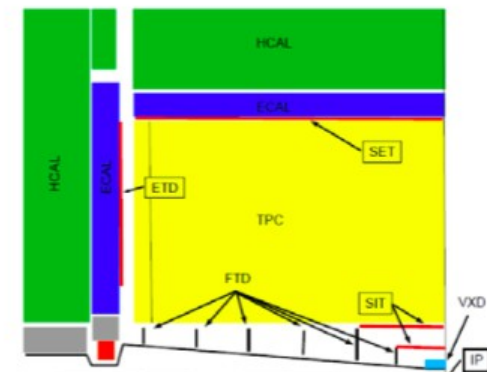
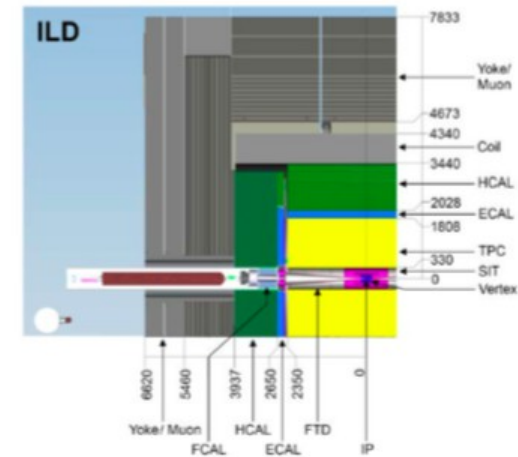
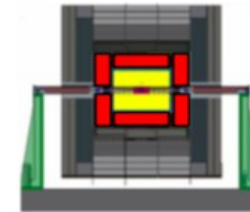


ILC Anti-DiD and Videau/TESLA Structure TF Meetings
LAL Orsay November 2016

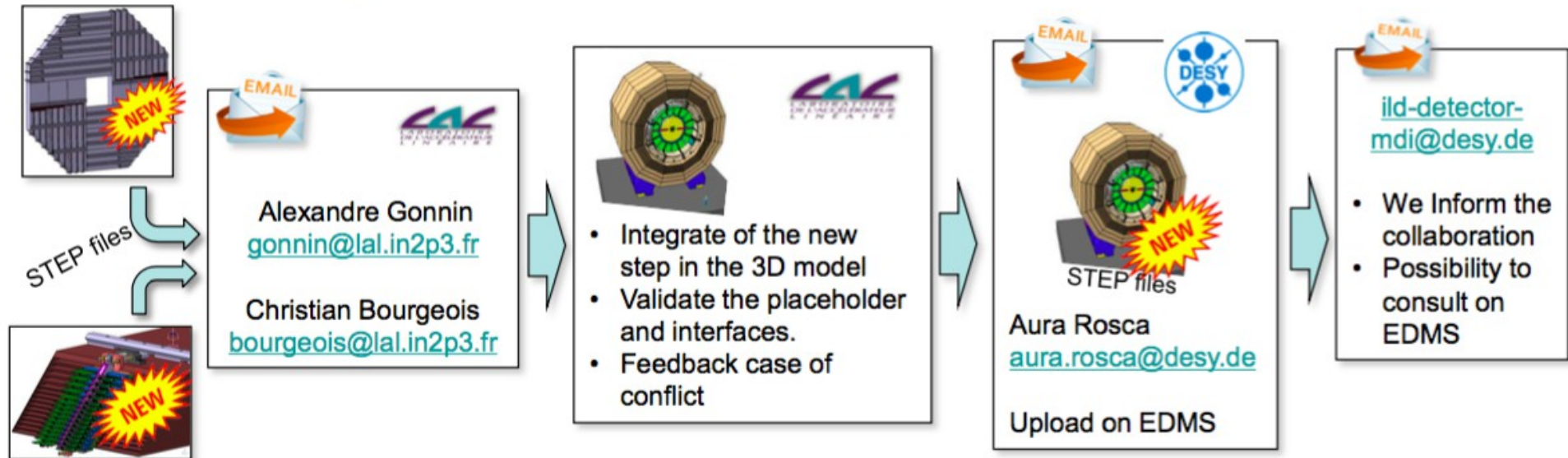
Maintained and validated by C. Bourgeois, A. Gonnin (LAL)

- Reminder : The **DBD 3D CAD model on CATIA is frozen**
- Starting a **new CAD version** with update
 - LAL still collecting all informations (3D model, services placeholders..)
 - for example: in june 2014 SDHCAL update design sent by LPNL*
- **Brainstorming group**, start to work on an update of the ILD detector model: Karsten Buesser (DESY) ; Henry Videau (LLR) ; Roman Poesch (LAL) ; Alexandre Gonnin (LAL) ; Christian Bourgeois (LAL),

The length and diameter of the experience could change.



Process to update 3D model (already the same):



- Updates of the engineering model have to be communicated to Christian Bourgeois and Alexandre Gonnin

Otherwise they don't exist!!!!

- Fill the interface control document

Proposal of an Interface Control Document (ICD):

Purpose of this document is:

- To know and record technical details of each subdetector
- To understand the consequences at the interfaces (gap, fixations, weight,)
- Follow up of different progress
-

One document by sub detector

Enter all technical details you know today (dimensions, weight, attachment points, center of gravity, positioning constraints, services, power consumption, thermal dissipation, integration specifications,)

Items may be missing (Please help actively to improve the document)

Each ICD will evolve during the phase of study.

They are not casted in stone yet

- ICD will become backbone of ILD Engineering Design study!!!
- Status will be monitored at ILD (Integration) meetings



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Interface Control Document Template

XXXXXXXX (Sub detector name)

Prepared by	Signature	Accepted by	Signature

Approved by	Function	Date	Signature

Summary	
Annexes	

Document Change Record				
Edition	Revision	Date	Modified pages	Observations
1	0			

Distribution	See Distribution list at the end of this document
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Template V1.0

Starting version June 2016 (ECFA Workshop)

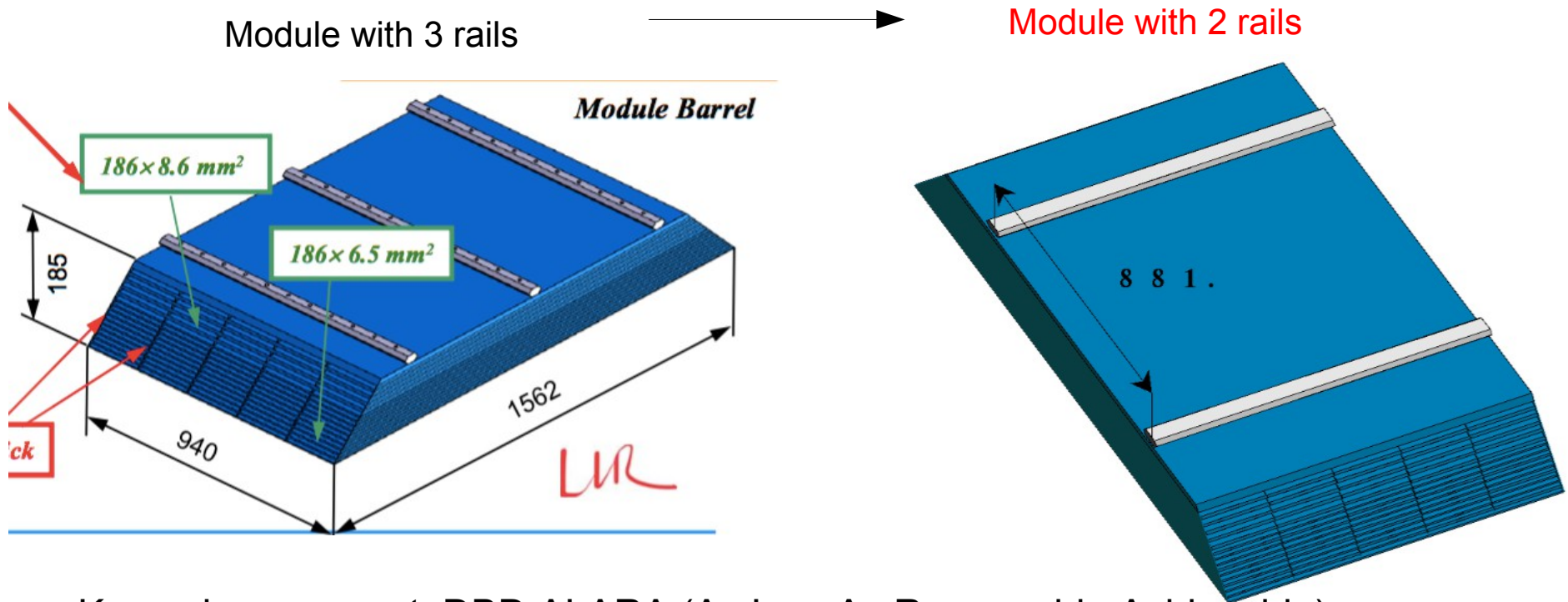
- Plan to distribute ICD to ILD by end of July 2016 , i.e. Before the summer break
- R.P. Preferred to went through the excercise for Si Ecal
Effort was joined and then lead by Henri Videau
- Regular Meetings and discussions since
- It turned out that a lot of conventions have to be reviewed (or being reminded)
=> e.g. creation of a table on nomenclatures

1.5. Nomenclature

Nomenclature			
Module	Module	Overlap	Distance in z between barrel and end cap
Stave	Set of 5 modules covering an octant of the barrel	Overshoot	Amount by which the end cap outer radius exceeds the barrel outer radius.
Slab	Tungsten slab sandwiched between two detecting structures, to be slit in the stave.	Alveoli layers	
Alveolus	Hole in the module structure to contain a slab	Alveoli columns	

Looks trivial but is very useful

- **Until further notice reference for ICD is DBD**
- However, unavoidable changes can be taken into account e.g. SiECal Barrel Module



- Keep changes w.r.t. DBD ALARA (As Low As Reasonable Achievable)
 - Document them clearly
- **How to deal with modified L***

Drawings by
M. Anduze

Document on ILD Conventions and rules

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ILD conventions and rules

ILD

Prepared by	Signature	Accepted by	Signature
Roman Pöschl			

Approved by	Function	Date	Signature

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Annexes	

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Template V1.0

Actual ICD

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Interface Control Document Template

XXXXXXXX (Sub detector name)

Prepared by	Signature	Accepted by	Signature

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Template V1.0

Technical Design Document of subdetector

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Technical Design Document

SiEcal

Prepared by	Signature	Accepted by	Signature
Marc Anduze Henri Videau			

Approved by	Function	Date	Signature

Summary	
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Template V1.0

Obligatory document:
Author: Central Integration Group

Obligatory document
Author: Subdetector group

Optional document
(Highly recommended)
Author: Subdetector group

Document on ILD Conventions and rules

	ILD conventions and rules Template	Ref. : 77777
		Ed. : 0 Rev. : 3 Date: 21/10/16
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Obligatory document:
Author: Central Integration Group

ILD conventions and rules

ILD

Prepared by	Signature	Accepted by	Signature
Roman Pöschl			

Approved by	Function	Date	Signature

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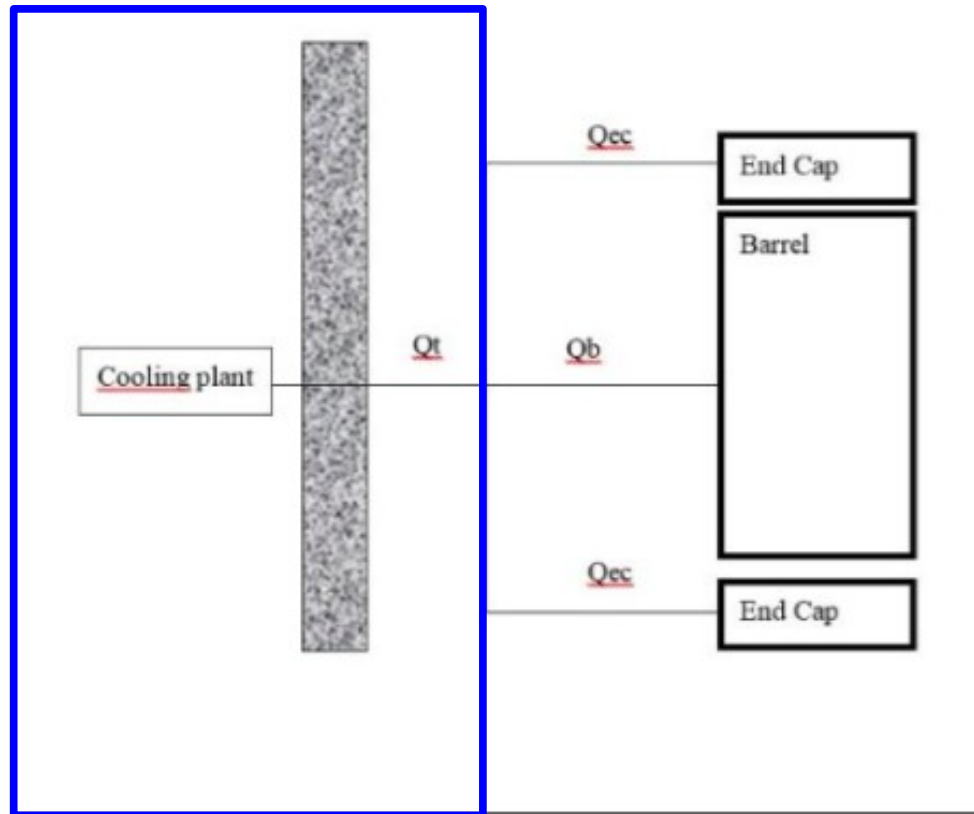
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Template V1.0

- Definition of ILD Coordinate Frame
- Definition of general constraints
e.g. location of electronic trailer (=> cabling)
- Space for other services

SiEcal Cooling System – Very schematic view



Where to locate such a cooling plant?

Other examples:

- Gas supply systems
- Electronic trailer

Concept by
 D. Grondin

Actual ICD of Subdetector

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Interface Control Document Template

XXXXXXXX (Sub detector name)

Prepared by	Signature	Accepted by	Signature

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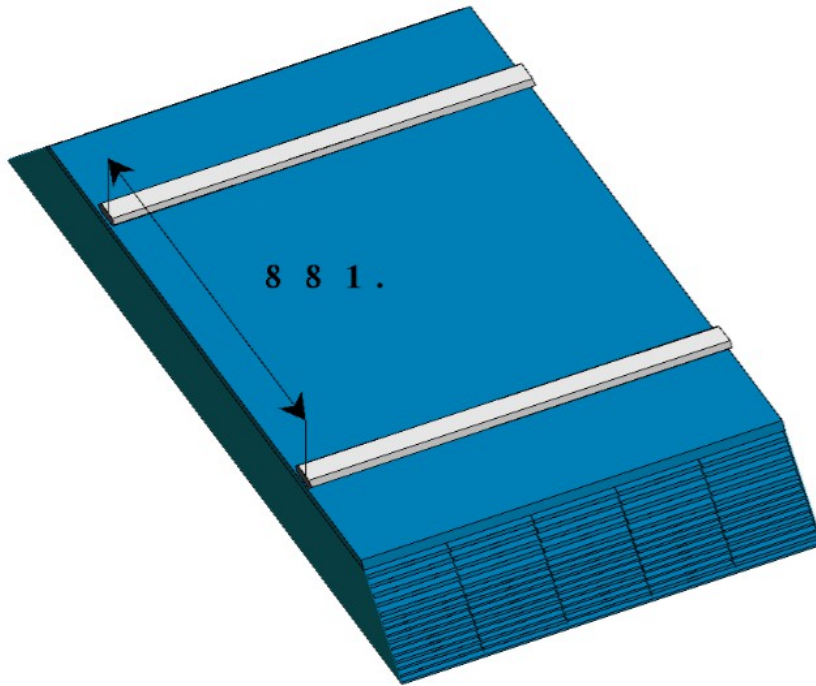
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Template P1.0

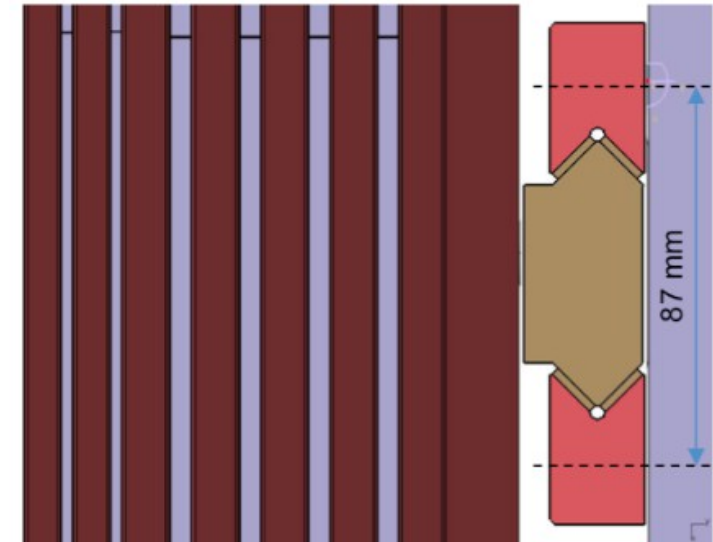
Obligatory document:
Author: Subdetector Group

- Interplay of sub-detector with “environment” other detectors
- Should be restricted to information relevant for other subdetectors and/or to overall Design of ILD
- e.g. Where the different pieces of your detector are located within the ILD coordinate frame
=> Don't invent your own coordinate frame

SiEcal Barrel Module with rails

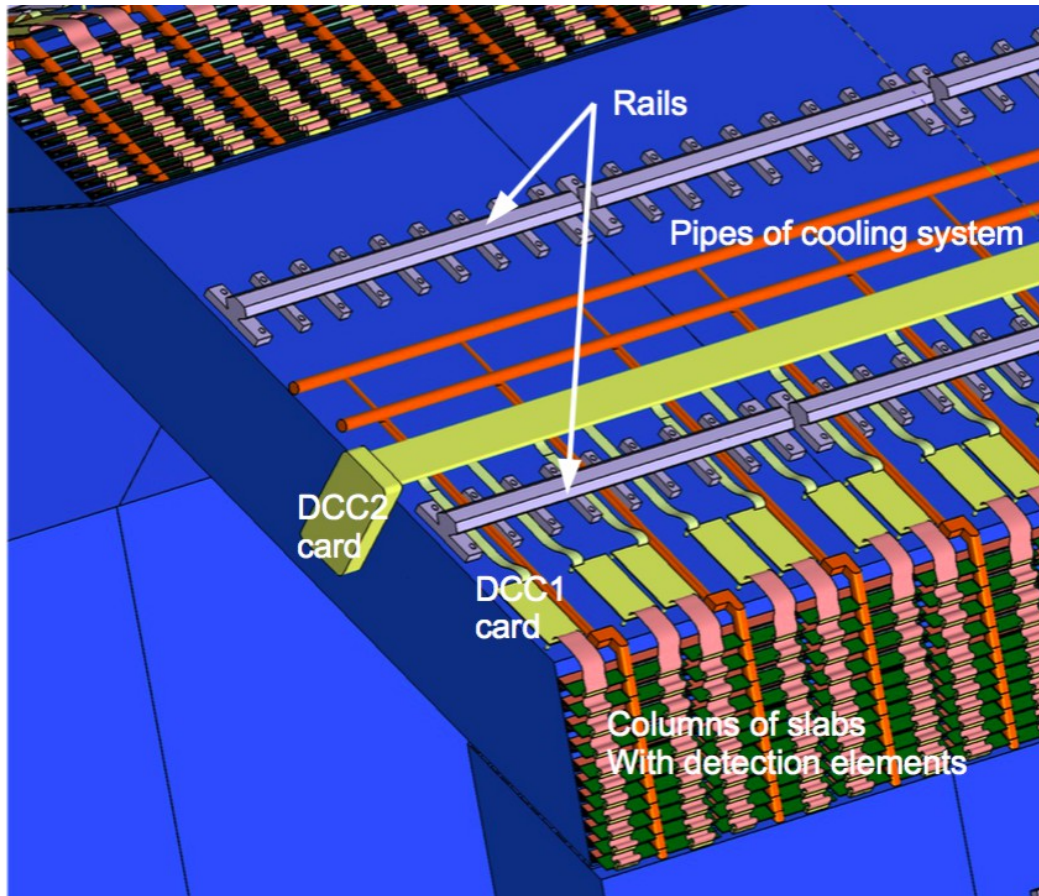


Fastening of SiEcal Module to Hcal



(Here) ICD should give information about

- distance between rails
- Size of rails (Hopefully Hcals foresee the corresponding female parts)
-
- Do not give information on e.g. the design of the alveolar layers



SiECal external components i.e. Relevant for ICD

- DCC2 card
(hub to external supplies and DAQ)
- Rails (connection to HCal)

SiECal internal components i.e. Relevant for TDD

- Cooling pipes,
- DCC1 card (internal hub)
- Slab columns

... as long as they don't exceed the
Space between ECal and HCal
Or influence detectors in another
Way (heat, interspersed noise, etc.)

Disclaimer: Design and nomenclature are subject to change

Technical document of subdetector

Optional document:
Author: Subdetector Group

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Technical Design Document

SiEcal

Prepared by	Signature	Accepted by	Signature
Marc Anduze Henri Videau			

Approved by	Function	Date	Signature

Summary

Annexes

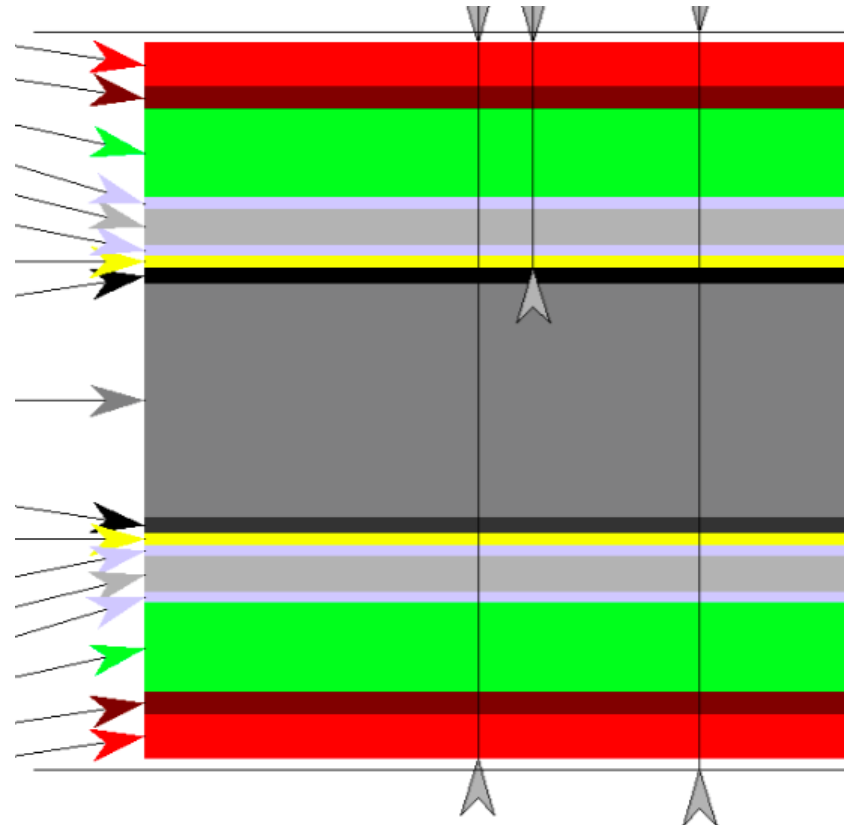
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Template V1.0

- Document of internal information of subdetectors
- The others don't need to know (in principle)
 - Will not be requested (unless decided otherwise)
- Keep in phase with 'your' ICD

For example: Internal layer structure



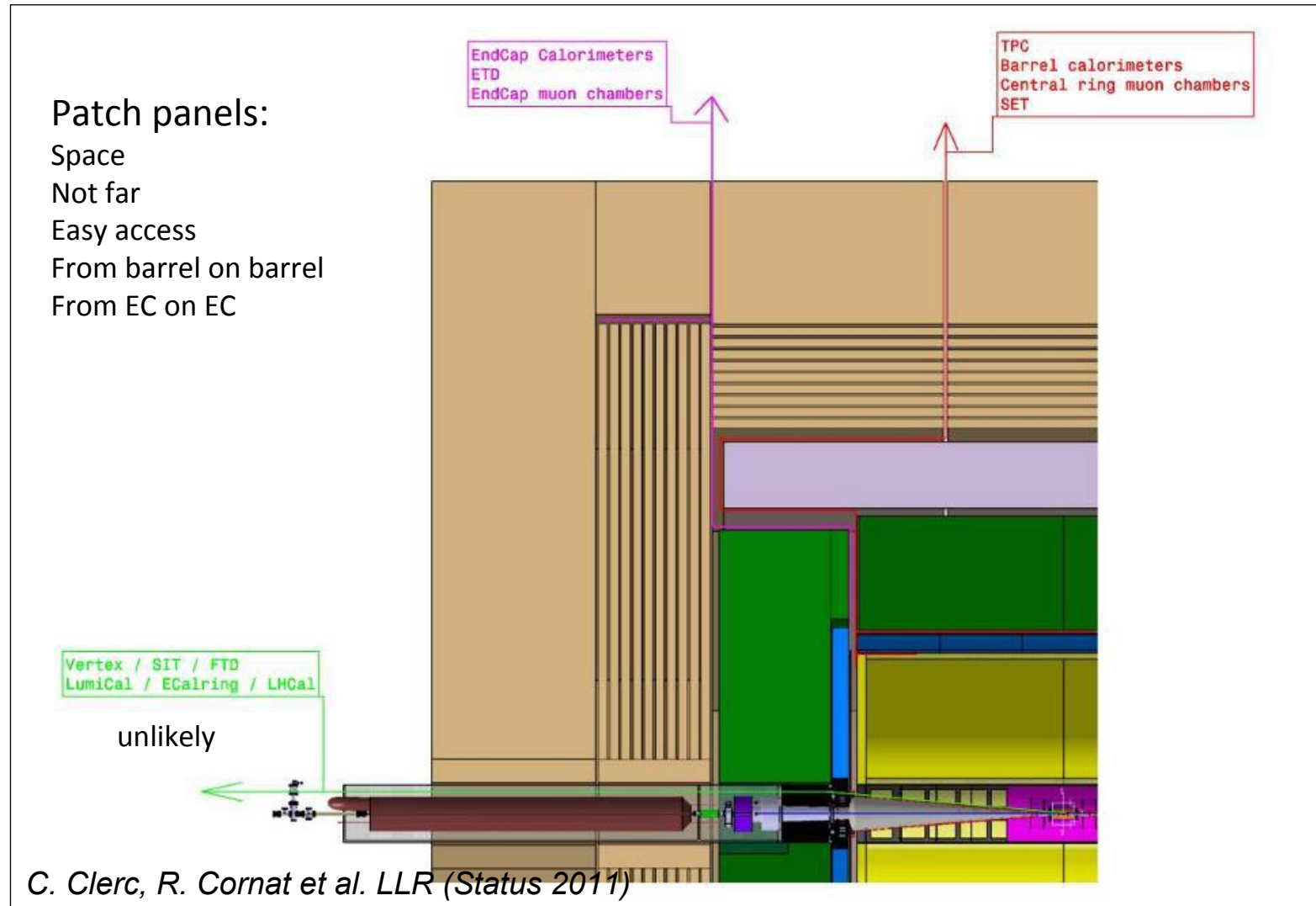
Doesn't concern other sub-detectors, but ...

- One should be interested to have it well documented at a well defined place
- May serve as source of information for interested parties (e.g. Simulation software)

- **Compilation of ICD is an extremely useful exercise**
 - However more work than anticipated
 - (I think) it was/is important that we go through the example for the SiECal
- **Current studies of R.P. And H.V. Have lead to a set of three documents**
 - a) a document of ILD convention and rules
 - b) the actual ICD
 - c) a technical design document for each sub-detector
- **b) is a priori ready (need some little further discussions)**
 - First instruction: Keep short and think well what is relevant for the “outside”
- **... but a) should be available before b)**

Backup

A reminder



Study for DBD needs regular update!!!!
 Use ICD

Subdetector	Interface document filled?	Contact person(s)	Comment
Vtx CMOS	No	(M. Winter)	No contact
Vtx FPCCD	No	?????	No contact
Vtx DEPFET	No	L. Andricek	No contact
FTD	No	D. Moya, M.A. Villarejo	Discussion started
SIT	No	??????	No contact
TPC	No	V. Prah, T. Schoerner	Some contact
CALO – SiW Ecal	No	M. Anduze, H. Videau	Discussion started
CALO - ScEcal	No	(T. Takeshita)	No contact
CALO - SDHCAL	No	J.C. Ianigro	Discussion started
CALO - AHCAL	No	K. Gadow	Discussion started
CALO - BeamCal	No	(S. Schuwalow)	No contact
CALO - LCAL	No	(S. Schuwalow)	No contact
Iron Yoke	No	(U. Schneekloth)	No contact
Iron Instrumentation	No	(V. Saveliev)	No contact
Solenoid	No	(Y. Sugimoto)	No contact
Beam pipe	No	???	???