



Project Breakdown Structure

Carlo Rossi



Objectives of Compact Light

The key objective of the CompactLight Design Study is to demonstrate, through a conceptual design, the feasibility of an innovative, compact and cost effective FEL facility suited for user demands identified in the science case.

In order to achieve this, the high-level objectives are:

1. to specify the user demands and design parameters for a compact and cost effective FEL driven hard X-ray facility;
2. to advance innovative designs for X-band and undulator technology as new standards for accelerator based compact photon sources;
3. to present a flexible design that can be adapted to local implementation demands with photon source options for soft and hard X-rays as well as Compton light.



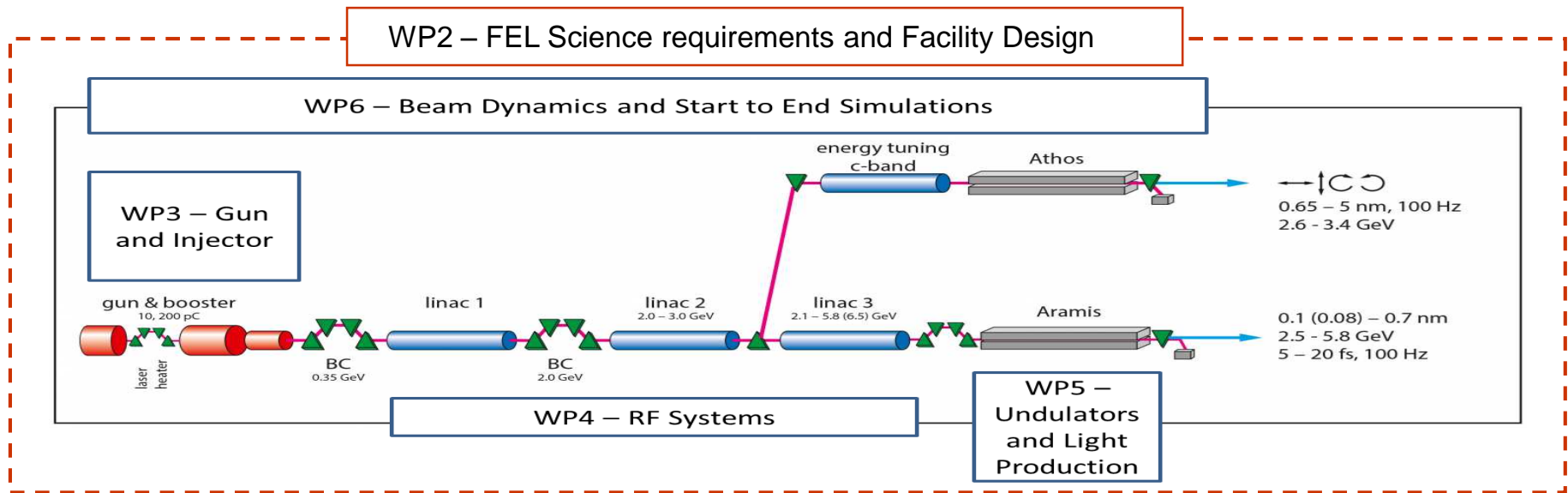
Documentation is the main deliverable

The documenting activity should be part of the project since the beginning:

- Share a common set of specifications at their latest release;
- Document intermediate steps and share results;
- Document the whole R&D process through versioning;
- Exchange information on interfaces;
- Produce documentation for costing;
- Progressively build the information for the final report.



The document organisation can be based on the XLS machine layout and arranged in a multi-level structure, in the form of a Project Breakdown Structure (PBS)





The document organisation is based on the XLS machine layout and arranged in a multi-level structure

XLS EDMS Structure					
		Level 1	Level 2	Level 3	Level 4
CODE	Responsibility	Name*	Name*	Name*	Name*
ROOT		XLS			
1	WP3	Electron Source			
2	WP3	Linac1			
3	WP4	Linac2 & Linac3			
3.1			RF System		
3.1.1				Klystron Modulator System	
3.1.1.1					Modulator
3.1.1.2					Klystron
3.1.1.3					Solenoid System
3.1.2				RF Power Distribution System	
3.1.2.1					RF Pulse Compression System
3.1.2.2					RF Waveguide System
3.1.2.3					RF Loads and Hybrids
3.1.3				Accelerating Structures	
3.1.4				Low Level RF & Timing	
3.1.4.1					RF Driver Amplifiers
3.1.4.2					RF Signal Acquisition and Control
3.1.4.3					Timing Generation and Distribution



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Navigator

CERN-00001 XLS - PBS an

No active tags.

[...]

- XLS - PBS and Specifications
 - 01 - Electron Source
 - 02 - Linac1
 - 03 - Linac2 and Linac3
 - 04 - Bunch Compressors 1 and 2
 - 05 - Kicker and Spreader
 - 06 - FEL1 and FEL2
 - 07 - Beam Dumps
 - 08 - Machine Control and Protection
 - 09 - Infrastructure and Services
 - 10 - Access Control and Safety

Info

More info

Documents

Create new document

#	Id
No documents	

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Engineering & Equipment Data Management Service (EDMS)

XLS - PBS and Specifications

- 01 - Electron Source
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As document repository we propose
CERN's Engineering Data Management



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Navigator

CERN-0000196918 Public access
XLS - PBS and Specifications

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Info

More info

Documents Structure Used in Access rights

Create new document Attach document Detach

#	Id	Title
No documents		

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Engineering & Equipment Data Management Service (EDMS)

CERN's Engineering Data Management System

A formal approval procedure can be made available within the tool.

Compact CompactLight project

EDMS NO. 0000000	REV. 0.0	VALIDITY DRAFT
REFERENCE XXXX		

Date: 201x-xx-xx

[DOCUMENT TYPE]
[Ref. WP xxxx]

[TITLE]

ABSTRACT

[Text of the abstract]

DOCUMENT PREPARED BY: [Authors] [Division/Institute] [electronic.mail]	DOCUMENT CHECKED BY: [Engineers List]	DOCUMENT APPROVED BY: Gerardo D'Auria [Approvers]
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Distribution list:

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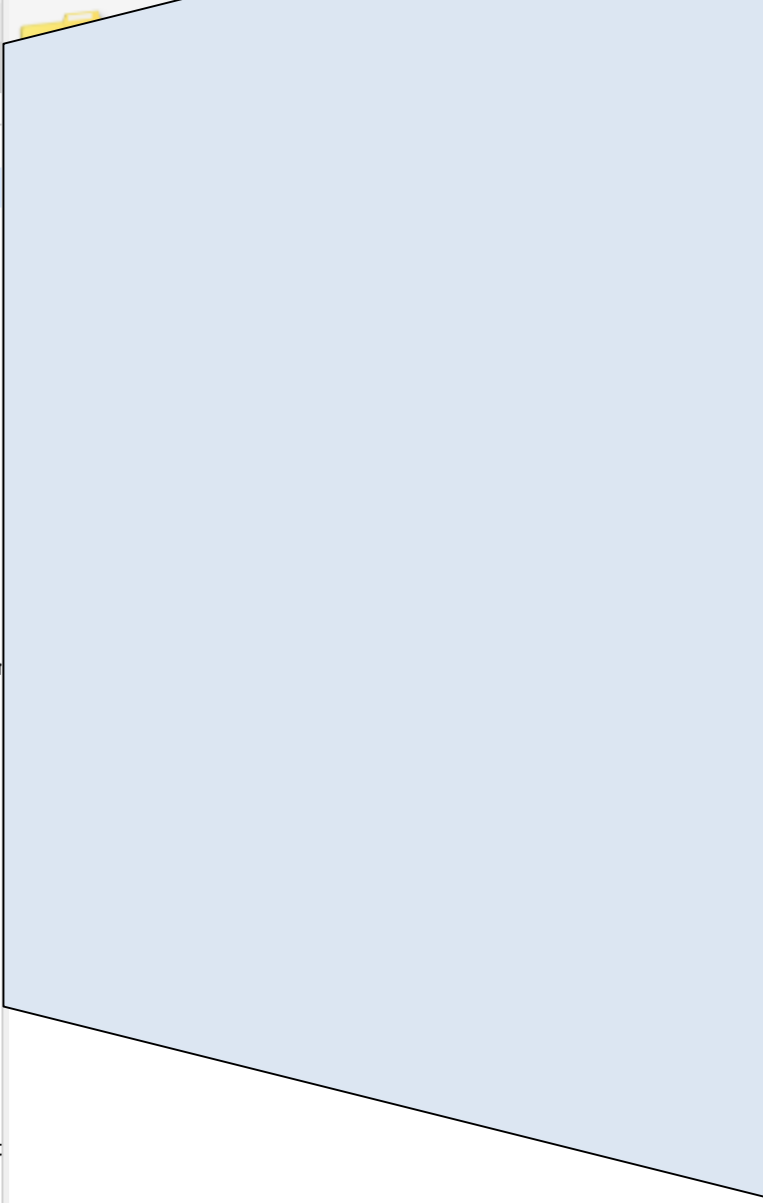
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Navigator

Tags

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- XLS - PBS and Specifications
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 - 3.1.1 - Klystron Modulator System
 - 3.1.2 - RF Power Distribution System
 - 3.1.3 - Accelerating Structures
 - 3.1.4 - Low Level RF & Timing
 - 2171753 (v.1) Design parameters list
 - 3.2 - Support and Alignment System
 - 3.3 - Linac2 and Linac3 Vacuum System
 - 3.3.1 - Vacuum Pumps and Connecting Elements
 - 3.3.2 - Vacuum Power Supplies
 - 3.3.3 - Vacuum Instrumentation System
 - 3.4 - Magnets and Correctors
 - 3.4.1 - Beam Focusing
 - 3.4.2 - Beam Steering
 - 3.5 - Beam Instrumentation System
 - 3.5.1 - Beam Current Transformer
 - 3.5.2 - Beam Position Monitor
 - 3.5.3 - Transverse Profile Monitor
 - 3.5.4 - Longitudinal Profile Monitor
 - 3.5.5 - Emittance Monitor
 - 3.6 - Linac2 and Linac3 Interface to Infrastructure
 - 3.7 - Linac2 and Linac3 Commissioning



- 03 - Linac2 and Linac3
 - 3.1 - RF System
 - 3.1.1 - Klystron Modulator System
 - 3.1.1.1 - Modulator
 - 3.1.1.2 - Klystron
 - 2160627 (v.1) Proposal of specifications for X-band 6 MW klystron
 - 3.1.1.3 - Solenoid System
 - 3.1.2 - RF Power Distribution System
 - 3.1.2.1 - RF Pulse Compression System
 - 3.1.2.2 - RF Waveguide System
 - 3.1.2.3 - RF Loads and Hybrids
 - 3.1.3 - Accelerating Structures
 - 3.1.4 - Low Level RF & Timing
 - 3.1.4.1 - RF Driver Amplifiers
 - 3.1.4.2 - RF Signal Acquisition and Control
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 - 3.3.2 - Vacuum Power Supplies
 - 3.3.3 - Vacuum Instrumentation System
 - 3.4 - Magnets and Correctors
 - 3.4.1 - Beam Focusing
 - 3.4.1.1 - Quadrupole Magnets
 - 3.4.1.2 - Quadrupole Power Supplies and Cabling
 - 3.4.2 - Beam Steering
 - 3.4.2.1 - Corrector Magnets
 - 3.4.2.2 - Corrector Power Supplies and Cabling
 - 3.5 - Beam Instrumentation System
 - 3.5.1 - Beam Current Transformer
 - 3.5.2 - Beam Position Monitor
 - 3.5.3 - Transverse Profile Monitor
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First document uploads have started in the Linac2 and Linac3 node, by WP4.

Access is restricted to collaboration members

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 - 3.1.3 - Accelerating Structures
 - 2171749 (v.1) Design parameters list
 - 3.1.4 - Low Level RF & Timing
 - 2171753 (v.1) Design parameters list
 - 3.2 - Support and Alignment System
 - 3.3 - Linac2 and Linac3 Vacuum System

2160627 v.1 ● In Work 🔒 Restricted access

Proposal of specifications for X-band 6 MW klystron by MAREK JACEWICZ

Specification Technical
Created on 2019-06-05
Last Modified on 2019-06-05

Edit Status Share Visibility More

Info

Description: Proposal of specifications for X-band 6 MW klystron from Canon Electron Tubes & Devices Co., Ltd. External reference: KL19-0403-225A
Keywords: X-band, klystron

Details

Local administrators: [List of Administrators](#) Equipment code:
Context: EU-PROJECTS Release procedure: DOC-OWNER
Generic context used for the EU projects structure Approval by Owner (show all files)

Associated Links:

This page <https://edms.cern.ch/document/2160627/1>

Files

Add Delete Download all Per page 10 View mode:

Name	Size	Last modified date	Last modified by
Proposal_specifications_X-band_6MW_Klystron.pdf	1019.9 KE	2019-06-05 13:16:37	MAREK JACEWICZ

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The same PBS structure can be adopted by a dedicated costing tool

1) Collaborative tool; 2) Centralize costing information

Uncertainty is defined as: 10% known technology, 20% extrapolation, 30% R&D required

Compact Costing Tool v 0.12.7

Open PBS Save Refresh Crosstab Report Activity Logs Report Data Quality Report Use estimates from: Highest level possible Lookup

CARLO ROSSI (BE-RF-IS) Support Logout

COMPACT_LIGHT **PBS Details** Upload

Name: Solenoid System

Domain: RF System
 Sub-Domain: Klystron Modulator System
 System type: [dropdown]
 System: Solenoid System
 Tech. expert: [text]
 Link (EDMS...): [text]
 Comments: [text]

Estimate date: [text]
 Last update: 30/05/2019
 Uncertainty: **known technology** [dropdown]
 Multiplicity: 1
 Unit: [text]
 Expected offers: 1

Property	Unit	Estimate	Technical Uncer...	Purchase Uncer...	Uncertainty	Comments / references
Industrialisation and tendering						
Start date (relative to project start)	years	0.00	-	-	-	
Duration	years	0.00	-	-	-	
Material cost	CHF	0.00	0.00	0.00	0.00	
Manpower - Tech.	man-years	0.00	0.00	0.00	0.00	
Manpower - Eng.	man-years	0.00	0.00	0.00	0.00	
Procurement						
Start date (relative to project start)	years	0.00	-	-	-	
Duration	years	0.00	-	-	-	
Fixed cost	CHF	0.00	0.00	0.00	0.00	
Proportional cost	CHF	60,000.00	6,000.00	30,000.00	30,594.12	
Manpower - Tech.	man-years	0.00	0.00	0.00	0.00	
Manpower - Eng.	man-years	0.00	0.00	0.00	0.00	



Summary reports with aggregated and detailed costs are available within the costing tool.

			Procurement	Grand Total	
RF System	Klystron Modulator System	Modulator	Cost (total)	500000	500000
			Cost (total) technical uncertainty	50000	50000
			Cost (total) purchase uncertainty	83333	83333
			Cost (total) uncertainty	97183	97183
		Klystron	Cost (total)	540000	540000
			Cost (total) technical uncertainty	54000	54000
			Cost (total) purchase uncertainty	270000	270000
			Cost (total) uncertainty	275347	275347
		Solenoid System	Cost (total)	60000	60000
			Cost (total) technical uncertainty	6000	6000
			Cost (total) purchase uncertainty	30000	30000
			Cost (total) uncertainty	30594	30594
		Klystron Modulator System Total	Cost (total)	1100000	1100000
			Cost (total) technical uncertainty	110000	110000
			Cost (total) purchase uncertainty	383333	383333
			Cost (total) uncertainty	403124	403124
		RF System Total	Cost (total)	1100000	1100000
			Cost (total) technical uncertainty	110000	110000
			Cost (total) purchase uncertainty	383333	383333
			Cost (total) uncertainty	403124	403124
Grand Total	Cost (total)	1100000	1100000		
	Cost (total) technical uncertainty	110000	110000		
	Cost (total) purchase uncertainty	383333	383333		
	Cost (total) uncertainty	403124	403124		



Conclusions

A PBS is proposed to CompactLight workpackage holders:

- Share project and cost documentation in a maintained database;
- Provide access to a collaborative costing tool;
- Work package holders should provide Level2 to Level4 details to the PBS, we can help you to develop your own structure;
- We are available for providing support on the costing tool access and data entry and for the document upload process into EDMS.

We can help you to develop your own structure;

We are available for providing support on the costing tool access and data entry and for the document upload process into EDMS.



Thank you!

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