

# PIP-II RFPI Preliminary Design Review Charge

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Document number: ED000xxxx

## Document Approval

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Name: Org: Contact: Role: Committee Member	Date:
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Name: Org: Contact: Role: Committee Chair	

## Revision History

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Revision	Date Release	Originator: Role:	Description of Change

*Revision control is managed via Fermilab Teamcenter Workflows.*

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## 1. Introduction

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- The review committee is charged with critically evaluating the preliminary design of the PIP-II Radio Frequency Protection Interlock [RFPI] to assess design, implementation, procurement, fabrication and installation activities' maturity. For the PIP-II project, preliminary design is defined as 60% complete.
- The PIP-II RFPI system is responsible to prohibit the LLRF system and the SSA operation in case of cavity and cryomodule failure or misbehavior. For this reason the RFPI is constantly monitoring predefined subset of the module and cavities signals and reacts instantaneously for any thresholds violation.
- The single PIP-II RFPI unit is dedicated for up to four cavities protection and monitoring.
- The review committee is requested to present an initial closeout at the conclusion of the RFPI review and within two weeks issue a formal review report.

## 2. Review Agenda

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Agenda:

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# LLRF Preliminary Design Review Agenda

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Location: *DMCS-LUT, Lodz, Poland and virtual via Teams*

Date: 6 and 7 December 2022

Time: 0200 PM CEST

Indico Site: <https://indico.fnal.gov/event/53183/>

## Participants:

No	Participant's Name	Contact Information	Organization	Role:
1	Curt Hovater	Hovater@jlab.org	Jefferson Lab	Reviewer/Chair
2	Gustavo Cancelo	cancelo@fnal.gov	Fermilab/SCD	Reviewer
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17	Paweł Marciniak	pmarciniak@dmcs.pl	TUL-DMCS	Presenter

## Agenda details:

**Table 1 – Preliminary Design Review Agenda**

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 Agenda

**DAY 1** Tuesday 12.06.2022

<b>Time</b>	<b>Presentation</b>	<b>Speaker</b>
1400	Executive Session	
1420	Welcome	Elvin Harms/ W. Cichalewski
1435	Introduction/Overview	Brian Chase/Niral Patel
1500	High level RFPI schedule and resources	E. Harms/W. Cichalewski
1515	RFPI requirements	N. Patel/ W. Cichalewski
1530	Proof of Concept prototype structure	W. Cichalewski
1550	Break	
1610	PoC hardware	W. Jalmuzna
1630	HW for the in/out signal conditioning	B. Pekoslawski / P. Marciniak
1650	Main logic realization/execution HW	P. Amrozik
1710	Questions & Answers session and Day 1 Closeout	

**DAY 2** Wednesday 12.07.2022

<b>Time</b>	<b>Presentation</b>	<b>Speaker</b>
1400	Announcements and Day 2 Introduction	W. Cichalewski
1410	PoC software preparation	G. Jablonski
1430	SW for the main functionality	R. Kielbik
1450	SW for the management and watchdog	W. Tylman
1510	Quality Control/ HW&SW Documentation	W. Jalmuzna
1530	Break	
1545	Project Controls & detailed Schedule and effort	M. Dinnon/E.Harms/ B. Chase
1605	Questions & Answers	
1620	Executive session	
1740	Closeout	

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### 3. Review Charge Statement

The purpose of the review is for the review committee to assess the preliminary design of the PIP-II RFPI system.

- Are the design requirements clearly stated and reasonable?
- Are the proposed system architectures and chosen technology sound and viable?
- Is the designs' maturity at the preliminary design level (60%)
- Are the available documentation consistent with this level of design maturity?
- Are risks and interfaces sufficiently identified?
- Has ESH, especially Prevention through Design, been properly addressed for this level of design? Are the procurement and quality control plans consistent with this level of design maturity?
- Is the cost and schedule presented reasonable? Are there sufficient staff resources and competence assigned to the team by Polish partner to allow to progress with work in accordance with activities, durations and milestone dates shown,
- In-kind partnership: Does the RFPI requires additional input from the Fermilab (PIP-II) or other partners to proceed to the RFPI detailed design?
- Are the strategy, policies and regulations for procurement, manufacture and assembly sufficiently identified, defined, documented and understood by the partner
- Does the committee recommend approval of the designs under review and endorse proceeding to Final Design?

### 4. Reference Documents

1	PIP-II Technical Review Plan – TC ED0008163
2	PIP-II Quality Assurance Plan DocDB # <a href="#">142</a>
3	PIP-II Systems Engineering Management Plan – TC ED0008164
4	PIP-II IESH Management Plan DocDB # <a href="#">141</a>
5	121.02 SRF and Cryo Systems Design Plan DocDB # <a href="#">2605</a>
6	121.03 Accelerator Systems Design Plan DocDB # <a href="#">2599</a>
7	121.04 Linac Installation and Commissioning Design Plan DocDB # <a href="#">2581</a>
8	121.05 Accelerator Complex Upgrades Design Plan DocDB # <a href="#">2593</a>
9	121.06 Conventional Facilities Design Plan DocDB # <a href="#">2587</a>
10	PIP-II Value Engineering Plan DocDB # <a href="#">2830</a>

**Table 1 - Document Deliverables for this review from the System Design Plan**

	Document Title	Status (preliminary, final, released)	Comments
1	FRS of the LLRF, including RFPI, system	released	ED0004194
2	TRS of RPI	preliminary	ED0013970
3	TRS of LLRF Control Chassis	released	ED0013969
4	QA/QC Plan	AccSys QA - released, LLRF system - draft	
5	Interface Control Document,	released	ED0016523
6	RFPI ISD	Preliminary	
7	Design Basis		Not a document per se but the basis for these designs should be presented, preferably embedded in each presentation