Risk Register & Control Report v2.0
Doc # CMS-FED-008

Project Name: CMS-FED	Progress Date: 25.09.06

Risk No	Description	Probability	Impact	Mitigation Strategy	Previous status	Current status	Date closed	Risk Owner
1	Delay in completing design for batch 0 manufacture schedule.	Possible	Moderate	Hold weekly progress meetings with design team.			06.12.02	Project Manager
2	Late delivery of OptoRx for prototype batch 0.	Possible	Major	Design FEDs to be testable as far as possible without OptoRx. Ensure OptoRx can be post assembled on FEDs. Stay informed of OptoRx schedule.			28.01.03	PM
3	(Non-Opto) Component delivery / availability for FED prototype batch 0.	Possible	Major	Buy sufficient parts for batch 0 as soon as parts identified. Identify second sources where possible.			06.11.02	PM
4	Changes to DAQ interface.	Possible	Major	DAQ link has been put on Transition module. Final transition cards have been manufactured. Successful interface tests with final DAQ SLINK and FMM cards.			25.09.06	PM
5	Controlled loss of design personnel within 18 months.	Possible	Major	Identify personnel change ahead of time. Maintain documentation of existing work and manage smooth hand over to new personnel.	Amber	Amber		PM

6	Uncontrolled loss of design personnel within next 18 months.	Possible	Major	Maintain up to date documentation of existing work. Where feasible ensure that more than one team member has knowledge of each system part.	Amber	Amber		PM
7	Problems with specification of OptoRx interface.	Possible	Major	Confirm specification with OptoRx design team.			21.07.03	PM
8	Exceed LHC crate power specs.	Possible	Major	Use single stage op-amp design. Operate analogue components on reduced power rails. Obtain accurate estimates of FPGA power consumption.			01.04.04	PM
9	Changes to baseline cluster finding algorithms exceed FPGA resources.	Possible	Major	Replace XC2V1500 with larger XC2V2000 parts for FE FPGAs. Simulations of more sophisticated algorithms have been carried out. Synthesis evaluations show they would fit in XC2V2000.	Amber	Amber		PM
10	Exceed operating temperatures of OptoRx and analogue components.	Possible	Major	Optimise crate cooling. Add heat sinks. Heat deflectors added to board. Hardware OverTemp shutdown added to board.	Amber	Amber		PM
11	Mistakes made in FEDv2 design requiring additional iterations.	Possible	Major	Hold formal reviews of changes for FEDv2 design. Ensure thorough checking of schematics and layout before tape out. V2 design used (with only one trivial non functional mod) for FED production boards.			01.03.05	PM

12	Large scale failure in manufacture of production boards.	Possible	Catastrophic	Use "one stop shop" contract for pcb manufacture and assembly. Inspect Assembly companies. Ensure thorough Quality Controls during manufacture. Carry out continuous acceptance testing e.g. Boundary Scan and Crate tests at Assembly plant during production batches. Board quality from manufacture very good. Yield at RAL before intervention exceeds 95%.	Amber	Amber		PM
14	Exceed FED target cost due to changes in exchange rates.	Possible	Major	Negotiate preferential pricing for major components, e.g. FPGAs, ADCs. If possible purchase production quantities when dollar rate is favourable. Fixed sterling price (one stop shop including procurement) agreed with manufacturer. Sterling account agreed with CERN.			01.05.05	PM
15	Delay of large scale FED production due to Tender process.	Possible	Moderate	Ensure necessary technical documents are ready. Purchased components for first 2 months production in advance of contract agreement to avoid delay.			01.05.05	PM
16	Delay of large scale FED production due to CMS Finance.	Possible	Moderate	Ensure necessary information is available for CERN Finance committee.			01.05.05	G. Hall

17	Unable to obtain components due to obsolescence.	Likely	Major	Purchase production quantities of components most at risk. Identify alternatives for other obsolete components before final design changes. Maintain supply of spares for board repairs.	Amber	Amber		PM
18	Loss or damage of FEDs in transit to CERN.	Rare	Major	Ship in small batches. Ship by reliable courier. 90% of boards delivered successfully.	Amber	Amber		PM
19	FEDs do not work in final CMS system.	Rare	Major	Ensure acceptance tests of all FEDs at CERN with other final CMS electronics.	Amber	Amber		PM

Ratings: Low Medium High VHigh
Probability: rare possible likely almost certain
Impact: minor moderate major problem catastrophe
Risk status: Red = Active & impacting project; Amber = Active but contained without impact to cost & schedule; Green = not yet active.