|        | PARTICLE PHYSICS PROJE   | CTS RISK PROFORMA  |          |         |         |   |  |        |         |       |         |                 |
|--------|--|--|----------|---------|---------|---|--|--------|---------|-------|---------|-----------------|
| Ref    | Risk Description   | Potential impact on project                                    | Inhore   | nt Dick | k Score | Existing Controls   | Mitigating factors   | Posido | al riek | ecoro | Comment | Proposed Action |
| Kei    | RISK Description   | Potential impact on project                                    | IIIIIere |         | LxI     | Existing Controls   | willigating factors  | residu |         | LxI   | Comment | Proposed Action |
| WP1.1  | Failure of ECAL wafer fabrication  | Loss of some ECAL layers leading to less useful data           | 2        |         |         | Non-UK: Sourcing wafers from four manufacturers   | Perform studies of layer arrangement to minimise impact of missing layers  | 2      | 2       |       |         |                 |
| WP1.2a | Failure of AHCAL system  | Loss of data for simulation comparisions                       | 2        | 2       | 4       | Non-UK: Technical Board reviews every six months  | System already running and test beam data taken  | 1      | 2       | 2     |         |                 |
| WP1.2b | Failure of DHCAL systems   | Loss of data for simulation comparisions                       | 3        | 1       | 3       | Non-UK: Technical Board reviews every six months  |  | 3      | 1       | 3     |         |                 |
| WP1.3  | Extended beam test period required due to problems with calorimeters, beams or DAQ | Higher travel costs  | 2        | 1       | 2       | Thorough testing of<br>equipment before shipping.<br>Visit beam areas and<br>understand environment<br>before beam test | We have budgetted for<br>around £1k/week for the<br>beam test. DESY data<br>taking completed, 60% of<br>CERN data taken. | 2      | 1       | 2     |         |                 |
| WP2.1  | Failure of VFE ASIC production so no chips available for PCB test                  | Non-verification of ASIC by time of TDR                        | 1        | 2       |         | Non-UK: Review ASIC design before each fabrication round  |  | 1      | 2       | 2     |         |                 |
| WP2.2  | Not able to find manufacturer for 1.5m PCBs  | Study not completed in time for TDR                            | 2        | 2       | 4       | Investigate several PCB manufacturers   | Rely on smaller PCB<br>stitching techniques, which<br>may become the baseline<br>in any case                             | 2      | 2       | 4     |         |                 |
| WP2.3  | Delays in sourcing off-<br>detector receiver components                            | Delays in tests  | 1        | 2       | 2       | Consider alternative components and/or suppliers  | Continue work with<br>partially completed<br>engineering version of<br>boards  | 1      | 2       | 2     |         |                 |
| WP3.1  | Failure of sensor fabrication round  | Three to four month delay in schedule and extra cost to remake | 2        | 2       | 4       | Regular design reviews according to ISO9000 specifications  | Prepare tests before<br>fabrication complete so<br>major errors can be<br>identified immediately                         | 2      | 2       | 4     |         |                 |
| WP5.1  | No significant use of UK algorithms outside UK                                     | Loss of influence/leadership in medium term                    | 2        | 2       | 4       | Ensure algorithms widely used by UK groups, increases exposure  | UK groups work well<br>together and collaborate<br>with groups around world  | 2      | 2       | 4     |         |                 |
| WP5.2  | UK studies make no<br>significant impact on overall<br>detector design             | Loss of influence/leadership in medium term                    | 2        | 2       | 4       | Ensure studies performed<br>are written up and included<br>in detector concept reports                                  | Process already started, e.g. for LDC  | 2      | 2       | 4     |         |                 |
| All.1  | Delays/problems with RA appointments   | Less impact on projects  | 2        | 1       | 2       | Schedule recruitment period well in advance   | Three of the five new project RAs are now in post  | 2      | 1       | 2     |         |                 |
| All.2  | Loss of staff with required skills   | Loss of expertise mid-way, causing delays                      | 3        | 2       | 6       | Ensure personnel work closely with other UK colleagues so no one individual alone has critical knowledge                |  | 3      | 2       | 6     |         |                 |
| All.3  | Illness of staff in critical positions   | Reallocation of effort causing delays                          | 2        | 2       | 4       | As above  |  | 2      | 2       | 4     |         |                 |
|        | L = Likelihood on scale of 1, 2  | .3 4 where 1 is low  |          |         |         |   |  |        |         |       |         |                 |
|        | I = Impact on scale of 1, 2, 3,  |  |          |         |         |   |  |        |         |       |         |                 |
|        |  |  |          |         |         |   |  |        |         |       |         |                 |
| l      | High risk is a score greater that  | an 8   | 1        |         |         |   |  |        |         |       |         |                 |