LAr Data Quality inefficiency in 2011 – revised version

Irrecoverable			Recoverable at a future reprocessing		Total
High voltage trip	Data corruption	Large inefficient areas	Noise bursts	Noisy channel	
1.00%	0.19%	0.71%	1.21%	0.16%	3.27%

Luminosity weighted fraction of data loss in the liquid argon calorimeter during 2011 stable beams in proton-proton collision at $\sqrt{s}$=7TeV between March 13th and October 30th

Irrecoverable			Recoverable at a future reprocessing		Total
High voltage trip	Data corruption	Large inefficient areas	Noise bursts	Noisy channel	
0.03%	0.16%	0%	0%	0%	0.19%

Luminosity weighted fraction of data loss in the liquid argon calorimeter during 2011 stable beams in lead-lead collision at $\sqrt{s_{NN}}$=2.76TeV between November 11th and December 11th

- 2 modifications with respect to 16/1 presentation:
  - Minor bug found in python script: instantaneous luminosity taken for previous LB + last LB missing. Very marginal impact.
  - SEVCOVERAGE defect was missing : new column "Large inefficient areas":

LAr Data Quality inefficiency in 2011

- The numbers quoted here are derived from the intolerable LAr defects for the whole 2011 statistics (proton-proton and lead-lead). It is in agreement with the approved ATLAS table (only proton-proton available so far):

Inner Tracking Detectors			Calorimeters				Muon Detectors				Magnets	
Pixel	SCT	TRT	LAr EM	LAr HAD	LAr FWD	Tile	MDT	RPC	CSC	TGC	Solenoid	Toroid
99.8	99.6	99.2	97.5	99.2	99.5	99.2	99.4	98.8	99.4	99.1	99.8	99.3

Luminosity weighted relative detector uptime and good quality data delivery during 2011 stable beams in pp collisions at $\sqrt{s}$=7 TeV between March 13th and October 30th (in %), after the summer 2011 reprocessing campaign

- **HV trip** : The HV power supplies may trip, inducing a data loss. In 2012, the installation of new models of power supply should allow to further reduce the yield of rejected data.
- **Data corruption** : desynchronisation of a large part of detector.
- **Large inefficient areas** : HV sector off (2 sides) following a trip or ROS crate off.
- **Noise bursts** : the noise bursts are usually treated by vetoing a 2 seconds data taking period; the inefficiency associated to this procedure is not included here but taken into account in luminosity computation (as an additional source of data taking inefficiency); it is estimated to be below 0.2%. The inefficiency quoted in this table corresponds to the noise bursts for which the veto procedure was not properly applied: in these cases, the whole luminosity blocks had to be rejected.
- **Noisy channel** : the noisy channels are identified before the processing of the bulk in order to allow an appropriate treatment (masking usually) of the offending channel; if the flagging is not properly done, the data must be rejected until the next reprocessing campaign.

- The largest DQ efficiency observed in heavy ions collisions is due to the reduced instantaneous luminosity, where the detector is less affected by HV trips and noise bursts.