CMS Requirements after LS1

Online Luminosity Measurement:

- Extreme stability of full detector chain – LHC and CMS will look @ these numbers daily / On-call phone will ring day & night.
- 25ns bx spacing, 2800bx, 1.2E11, μ30
- Method to understand and correct for albedo and beamgas contributions with 25ns bx
- Dead time correction known (including instantaneous effects such as recovery from previous hits - incl. incoming hits)
- Bunch/Bunch Numbers published to cmsdaq and/or db every lumi section, 2.3 (?) sec
- Stable DAQ, running whenever beam in machine
- Ability to monitor/compensate efficiency due to radiation damage or temperature
- Programmable threshold to count 1, 2, 3 etc mips (dynamic range checked with simulation) (Or is this multi-mip measurement sensitivity?
- Aim for < 10% error on online measurement

Normalized Beam Induced background measurement

- Fewer non-colliding bunches in future need to use info from the incoming beam for every 25 ns bunch crossing
- Rate of ~8-9 kHz expected for beam background hit contribution
- Method to understand and correct for albedo contribution online
- Publish background for each of Beam 1 and Beam 2 to the LHC and cms daq every 1(?) sec
- Publish event/event bkgd to cms daq stream
- Bunch-by-bunch background measurement needed, as an input into beam background contribution in the lumi sample