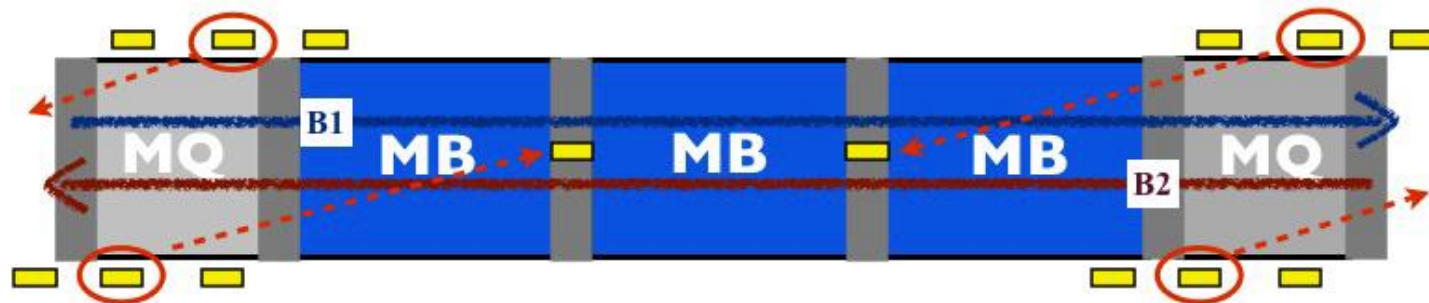


# Proposal for LHC BLM Disabling Rules after LS1



*Re-location of 2<sup>nd</sup> position quadrupole BLM to the close-by dipole-dipole interconnection*

## Pre-LS1:

- A maximum of one IC per beam and quadrupole magnet allowed to be disabled. If one arc IC is disabled in the half cell  $n$ , the corresponding monitor of the same family in the half cells  $n-2$ ,  $n+2$  and  $n+4$  (counted in beam direction) shall remain operational.

## After LS1:

- A maximum of one IC per beam and quadrupole magnet allowed to be disabled. If one arc IC is disabled in the half cell  $n$ , the corresponding monitor of the same family in the half cells  $n-2$ ,  $n+2$  ~~and  $n+4$  (counted in beam direction)~~ shall remain operational.
- In addition, one dipole-dipole interconnect IC per half-cell can be disabled, but only if no neighboring quadrupole monitor is disabled.

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## Pre-LS1:

- In the LHC **dispersion suppressor** no monitor shall be disabled.
- In the LHC **LSS** all monitors shall remain operational on the triplet magnets (Q1, Q2 and Q3).
- All monitors at collimators and absorbers, and all monitors in **IR3** and **IR7** shall remain operational.
- At least 2 monitors per beam shall remain operational on each LSS quadrupole.
- Disabling of any other LSS monitor or another special monitor will have to be decided by the MPP representative and the BLM representative on a case-by-case basis.

## After LS1:

All stays the same with the exception of:

→ At least **one monitor** per beam shall remain operational on each quadrupole.

# Text Changes to the Document LHC-OP-MPS-0012

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## **Monitors not allowed to be disabled or removed (criticality of monitors):**

In the LHC **arc**, ~~four~~~~six~~ ICs are installed around each quadrupole magnet ~~(they belong to the six standard arc monitor families)~~, ~~two~~ ~~three~~ for each beam. At each dipole-dipole interconnect, one IC is installed on to of the interconnect. It reads losses from both beams equally. In case it becomes necessary to disable faulty BLM IC monitors, a maximum number of one IC per beam and quadrupole magnet will be allowed to be disabled. If one arc IC was disabled in the half cell  $n$ , the corresponding monitor of the same family in the half cells  $n-2$ ,  $n+2$  ~~and  $n+4$  (counted in beam direction)~~ shall remain operational. In addition, one dipole-dipole interconnect IC per half-cell can be disabled, but only if no neighboring quadrupole monitor is disabled.

In the LHC **dispersion suppressor** no monitor shall be disabled.

In the LHC **LSS** all monitors shall remain operational on the triplet magnets (Q1, Q2 and Q3). All monitors at collimators and absorbers, and all monitors in **IR3** and **IR7** shall remain operational. At least ~~2~~~~one~~ monitors per beam shall remain operational on each quadrupole. Disabling of any other LSS monitor or another special monitor will have to be decided by the MPP representative and the BLM representative on a case-by-case basis.