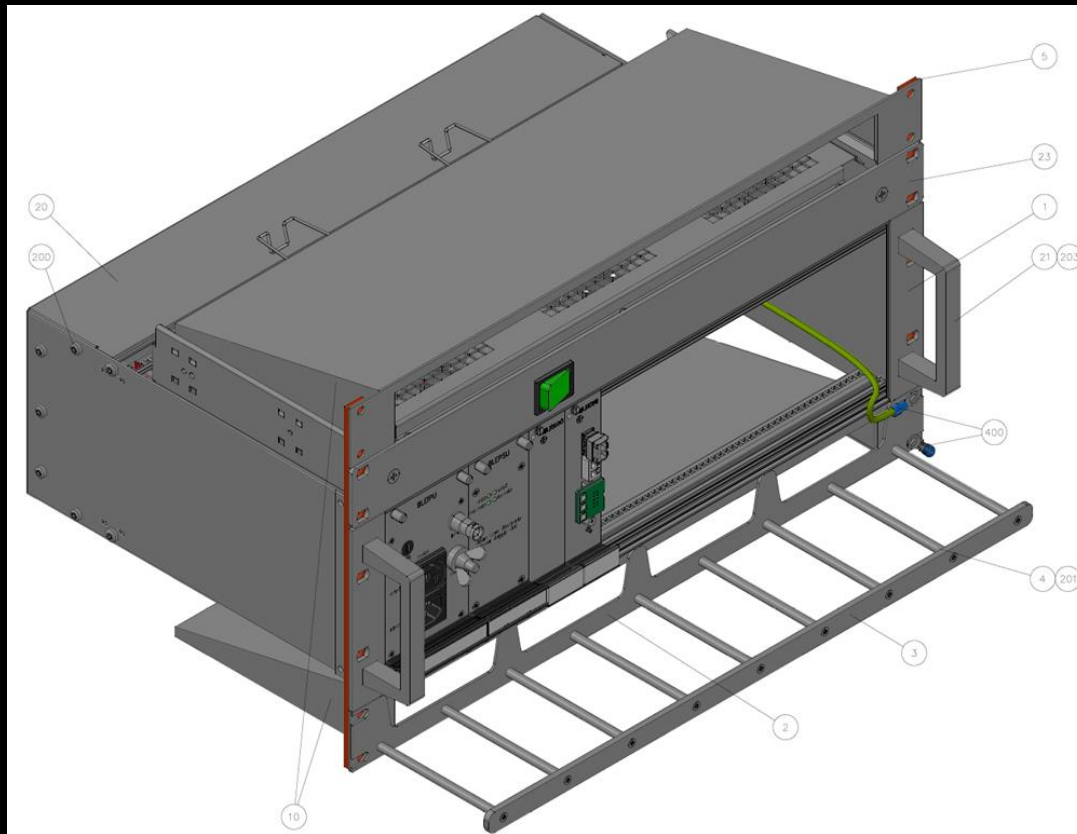


# Proposal for developing a new radhard linear regulator with EP-ESE

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# Tunnel crate for BLM & BPM



We have started the design of a new tunnel crate for the BLM & BPM systems.

Several linear voltage regulators are required to power the analog front end of both systems.

The original design was done with the use of LHC4913PDU and the LHC7913PDU linear voltage regulators developed from CERN in collaboration with ST.

# Positive LVR requirement



- Input voltage range from 6.5V to 14V
- Adjustable output voltage from 2V to 5V
- Maximum output current 3A
- Low drop voltage:
  - 0.5V @  $I_o=1A$
  - 1.5V @  $I_o=3A$
- Over-temperature protection
- Overcurrent protection
- ON/OFF external control by means of CMOS compatible output
- Adjustable current limitation to protect the output from damaging short circuits
- TID resistance up to 1 kGy in 20 years

# Negative LVR requirement



- Input voltage range from -6.5V to -12V
- Adjustable output voltage from -2V to -5V
- Maximum output current 3A
- Low drop voltage:
  - 0.5V @  $I_o=1A$
  - 1.5V @  $I_o=3A$
- Over-temperature protection
- Overcurrent protection
- ON/OFF external control by means of CMOS compatible output
- Adjustable current limitation to protect the output from damaging short circuits
- TID resistance up to 1 kGy in 20 years

# Required quantity



| System     | Machine | Crates       | Positive LVR | Negative LVR |
|------------|---------|--------------|--------------|--------------|
| <b>BLM</b> | SPS     | 150          | 450          | 150          |
|            | LHC     | 800          | 2400         | 800          |
|            | Spare   | 285          | 855          | 285          |
| <b>BPM</b> | LHC     | 1000         | 3000         | 1000         |
|            | Spare   | 300          | 900          | 300          |
|            |         | <b>Total</b> | <b>7605</b>  | <b>2535</b>  |

Several other groups are searching for the same device set.

# Conclusions



- Requirements for the LVRs are defined.
- We need about 8000pcs of a positive LVR and about 3000pcs of a negative LVR.
- We are open to use qualified cots, but for the long term maintenance and future development strategies we would prefer to use devices developed at CERN.