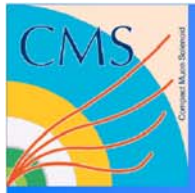

ISR workflow
Tests status

CMS week December 05, DT session

Jesús Puerta-Pelayo, CERN-CMM

06-Dec-05

Status

- **Chambers@ISR = 128 chambers (out of 168 still to be installed)**
- **Problems with the RPC pads for feet chambers fixed. First couple of feet chambers were installed last week (YB+2) after cabling, these have been the only chambers installed since last report.**
- **Only a few MB2 chambers left for HVB replacement. Rest has been completed since September.**
- **Currently testing and preparing installation in YB0, sectors 10 & 11 and some MB4s for negative wheels**
- **Shipments received since September:**
  - 5 MB2 CIEMAT
  - 5 MB3 Legnaro
  - 8 MB4 Turin (2 shipments)
- Shipments expected before the end of the year:
  - 13/12/05: 4 MB4s Turin
  - 14/12/05: 8 MB1s Aachen
  - 15/12/05: 5 MB2s Madrid

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Chambers status

Type	@ISR	HVB5 (HVBI)	Under test / Tested	HV/Cosm OK	RTI (MC)
MB1	29 (40)	29	14	11	11
MB2	34 (40)	25	14	8	4
MB3	34 (40)	34	14	9	8
MB4/1-7	6 (22)	6	6	3	3
MB4/9-11	8 (8)	8	2	2	
MB4/10	6 (6)	6	6	5	2
MB4/4	6 (6)	6	2		
MB4/8-12	5 (6)	5	5	2	2
Total	128 (168)	119	63	40	30

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Status of chambers under test

• Installation will resume in January with positive chambers for **YB0** (5 sectors, 20 chambers), continuing with the 3 negative bottom sectors of **YB0** (11 chambers), sectors 10 and 11 of **negative wheels** (16 chambers).

• Also feet chambers for **YB+1** and 5 more big MB4 chambers already at the ISR will be installed before the magnet test.

• All these chambers are currently under test. Certification is quite advanced (most of them are ready to install), the most urgent ones will be ready before Christmas… if no more bad surprises show up (HV problems are unpredictable). This (as usual) has been the main source of delays.

• Rest of chambers for **YB0** are already under HV in order to train them before getting into the tests loop.

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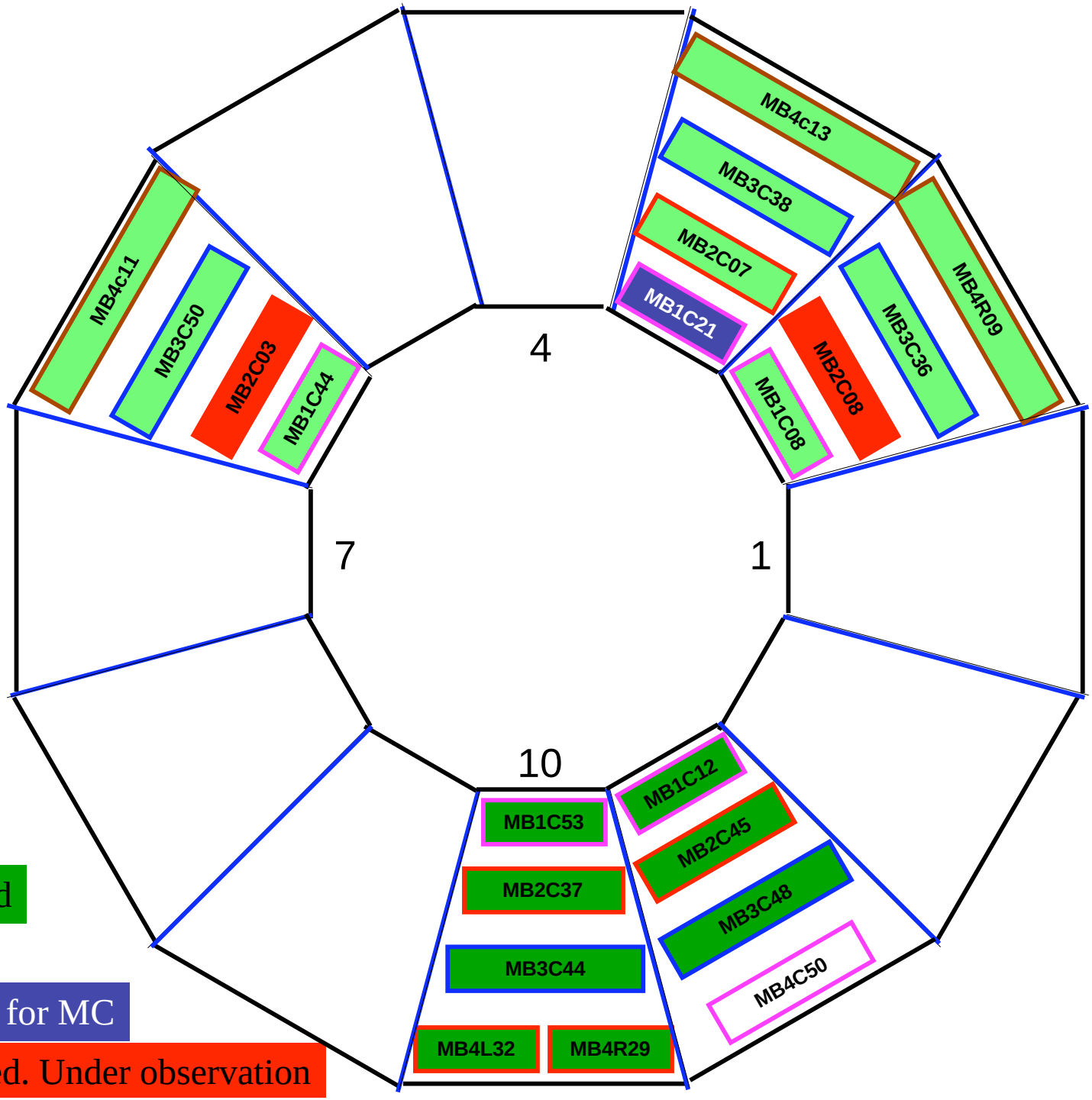
YB0, positive sectors



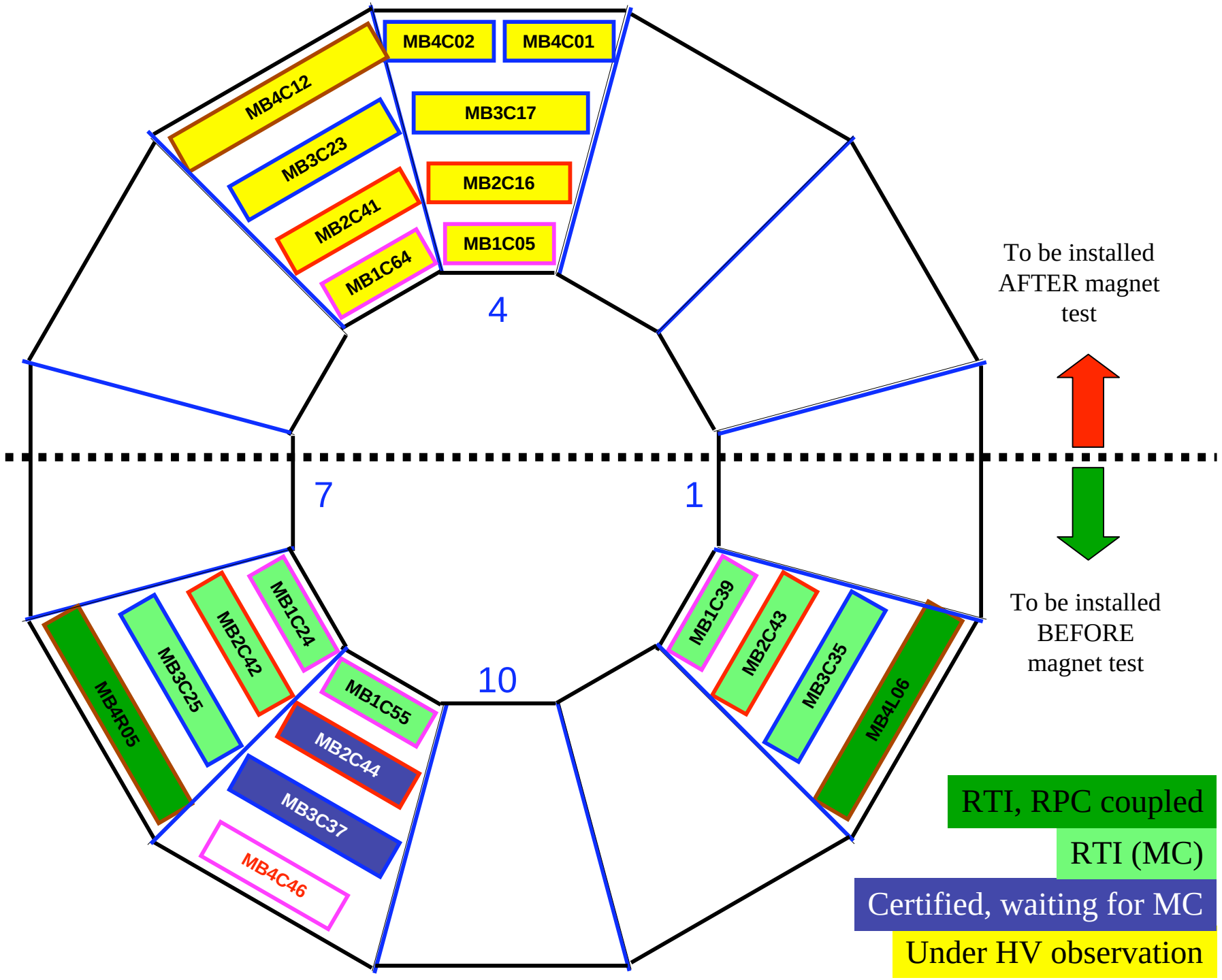
RTI, RPC coupled

RTI (MC)

Certified, waiting for MC

HV problems fixed. Under observation

YB0,negative sectors



Chambers for magnet test

Chambers for sectors 10 & 11 of negative wheels are the last batch to be installed before magnet test.

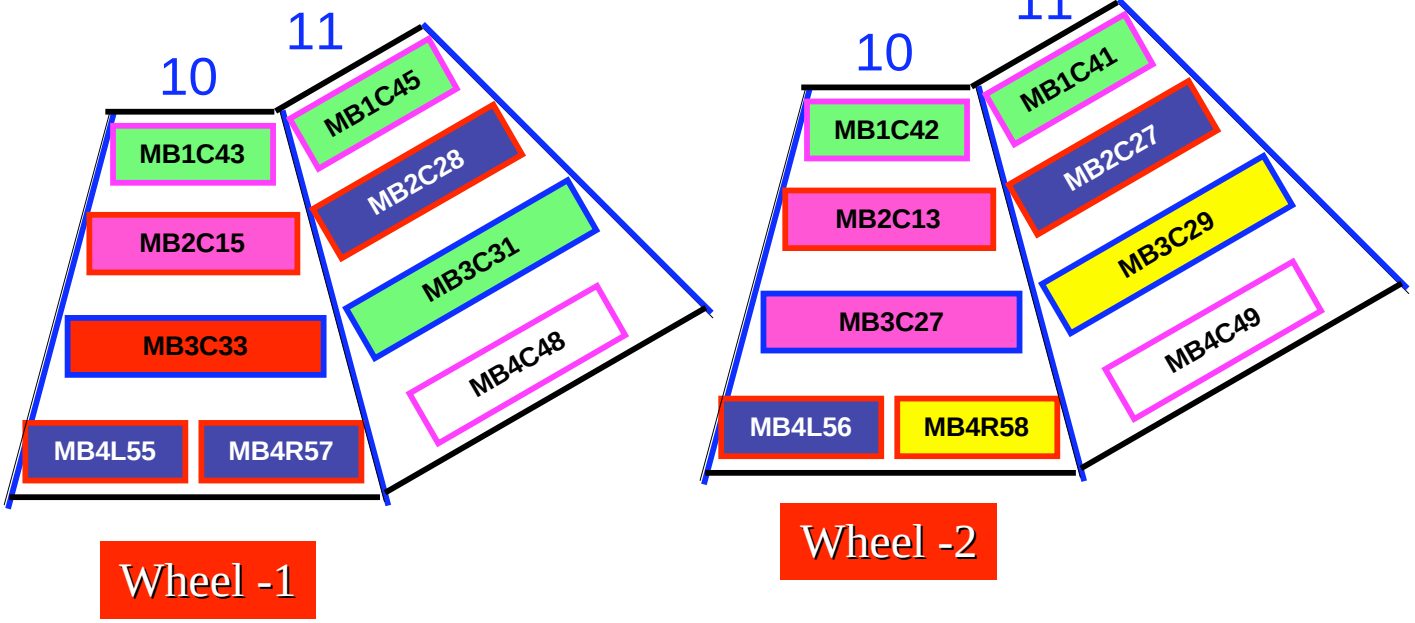
RTI (MC)

HV problems

HV problems fixed, under observation

Under HV, to be tested

Certified, waiting for MC



News

- **Gerd has updated the gas system, including higher flux mixers and new high flux gas lines along the ISR tunnel. These lines are devoted to a fast cleaning of opened chambers for any reason.**
- **Previously unused HV modules have been set up under an additional HV system (Caen SY127) in order to advance HV supply in chambers for next installation rounds (most of them at the opposite side of the ISR). It will help reducing noise levels and identifying HV problems before bringing chambers into the usual tests loop.**
- **A new web-hosted tests database has been developed:**

http://isr-muon.web.cern.ch/isr-muon/

It includes:

1. **Online status reports of chambers under tests, modifiable via web browser**
2. **HV status e-logbook**
3. **Automatic link of information to the travellers**
4. **Possibility to extend it to commissioning (in progress)**

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Concerns about future

- Let's do some calculations:
  - During last CMS week (20/Sep) 18 chambers were ready to install.
  - 54 working days later, we achieved 40 chambers ready.
  - The resulting rate is around 2.5 days/chamber, **2 chambers per week…**
- The next installation after the magnet test is foreseen for June/July 2006. It'll include:
  - YB0 sectors 4 and 5 (9)
  - YB-1 sectors 2, 3, 4, 5, 6, 8, 9 and 12 (30/32)
  - YB+2, YB+1 sectors 1 and 7 (UX5) (8)

- This makes a total of **49 chambers**. Some of them are not at CERN, some have yet old HVBs or have never been tested after replacement… **Installation will be delayed if we don´t speed up the current certification rate.**

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Concerns about future

Some ideas to improve the procedure:

1. **The main source of uncertainties is the identification of HV problems. Some of them only appear after a long time under HV, some of them cannot be cured by simple replacement, some of them are due to a single cell and hence very difficult to localize from outside. Improvements:**
    1. **Some single-connector patch panels are being prepared at CIEMAT. They will have a special mapping that, profiting the granularity of SY1527 can spot in a few hours the HVB drawing problems.**
    2. **New high flux gas lines.**
    3. **The pre-training under HV at the opposite side of the ISR will be also helpful.**
2. **Whenever many chambers are waiting for cosmic rays tests we will arrange ourselves to test 2 chambers/day.**
3. **The new database will also easy the procedure and will allow an easier overview of the situation.**
4. **Document to establish minimum HV criteria (in progress)**

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CERN-CMM

Requirements

- What is required to keep the tests up-to-date:
  - **MATERIAL** for reparations: Please send all remaining material from the sites to ISR.
  - **MANPOWER**: one more person working at the ISR is required to help us taking care of several tasks:
    - *HV monitoring, reports*
    - *Cabling tests*
    - *Cosmic data checks*
    - *Overpressure measurements*
    - *Reparation (if expert)*

  For the future, only physicists working **fulltime** at the ISR will be Marcos & myself (Alberto, Maria, Franco…).
  Whoever can help us doesn't have to be an expert (although experience is required), and can be organized in weekly shifts.
  - **LUCK**…

Perspectives

• The few chambers missing for certification to be installed before the magnet test, unless additional HV problems are found. It's important to fix the HV criteria that chambers have to fulfill to be considered acceptable.

• The schedule after Christmas is considerably tight… As soon as possible after holidays we should better start thinking about organizing shifts at the ISR in the same way is being done for commissioning.

• Everybody seem to be quite focused on commissioning, cosmic challenge, etc. But do not forget the intermediate step before installation, cause otherwise there will be no chamber to be commissioned…

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