

CMS ECAL Shifts 2010

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CMS is entering a phase of operation not experienced at CERN in its 55-year history: that of continuous 24/7 operation for almost a year, until the end of 2010 followed (most likely) by another equally long running period in 2011. The acquisition of high quality data and subsequent analysis relies upon the presence at Point 5 of personnel from ECAL, who monitor the detector safety, performance and recognize and help to solve problems as they occur. These ECAL shifters really are the “backbone” of the detector and require the participation of every ECAL institution in CMS.

In addition to being an invaluable service for the operation of the ECAL, taking part in shifts is also a privilege and an opportunity – to be on the frontline of operations of one of the most cutting-edge scientific instruments ever made. Understanding how the detector operates is a huge advantage when analyzing the data that it produces.

This document summarizes the obligations of ECAL collaborators with regards to shifts and attempts to answer most of the questions that are frequently asked about our shifts.

To get good data ECAL has to operate well and we need everyone from recent graduates to senior physicists to make sure that that happens consistently throughout the running period.

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Summary of shift obligations for CMS ECAL institutes

Each ECAL institute contributes to the day-to-day operation and maintenance of the detector, proportional to the number of members of the subsystem from that institution¹, in three ways, all covered under the Memorandum of Agreement (MoA):

- Central CMS shifts (central DQM, DCS, shift leaders etc.)
 - The requirements are documented at:
<http://cmsdoc.cern.ch/cms/performance/crc.html>
- Mandatory ECAL shifts (see below)
- Other ECAL tasks, e.g.
 - Experts on call
 - Prompt feedback group
 - Etc.

¹ An institutional member of ECAL for this purpose is a physicist, either with or without a PhD, or an engineer or other person who qualifies for, or is qualifying for authorship, declared by the team leader to be a member of ECAL. Retired personnel, undergraduates or personnel who have left the collaboration while they can continue to sign CMS papers are not included.

ECAL shift definitions

There are three types of shift that count towards the mandatory ECAL shifts:

- General EB+EE+ES shifters at P5: 3 shifts per day during global running; 2 persons per shift at the beginning of 2010; 1/shift from May 15th 2010; avg. ~1.5 shifters per shift.
- ECAL safety shifter at P5: 2 shifts/day outside of Global running; 1 person per 6-hour shift
- EB+EE+ES run field manager (RFM) at P5: person who takes care of day-to-day ECAL operation for an extended period of time (1-3 weeks at a time)

Shift Scheme

The scheme adopted by Central CMS is also used by ECAL.

The major points of this scheme are:

- Obey all CERN rules and regulations for shifts
 - No more than 5 night shifts in a row
 - At least one day rest in any 7 day period
 - Any two shifts must be separated by at least 16 hours
- Relatively short blocks
- Either 1, 3 or 4 shifts in a row
- No rotation (i.e. no switching between day-evening-owl)
- Possibility of doing two blocks with a minimum break
- Inclusion of weights
 - Week day and evening: 0.75
 - Week owl: 1.5
 - Weekend day and evening: 1.25
 - Weekend owl: 2.0
 - Week-long duties (Run Field Managers): 8.0 (5x1.0+2x1.5)
 - Safety Shifts (6 hours long): 0.5

Because of the weighting factors it is more straightforward to talk about “points” rather than “shifts”. Each institute must contribute to a certain number of “points” in 2010 (see below). The letters in the table below refer to “blocks”. For example, someone wishing to make some day shifts must either take 3 (block “A”) or 4 (block “B”) consecutively.

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Day (07:00-15:00)	A (0.75)	A (0.75)	A (0.75)	B (0.75)	B (0.75)	B (1.25)	B (1.25)
Evening (15:00-23:00)	C (0.75)	C (0.75)	C (0.75)	D ² (0.75)	E (0.75)	E (1.25)	E (1.25)
Owl (23:00-07:00)	F (1.5)	G (1.5)	G (1.5)	G (1.5)	H (2.0)	H (2.0)	H (1.5)

Estimate of the Number of Shifts

We are planning for 48 weeks of shifts in 2010 beginning in January. Each week comprises 7 working days and 3 shifts/day for a total of 24 points, not counting the RFMs. Currently there are 256 members of ECAL according to the definition mentioned previously. Thus the number of shifts or points required can be estimated from

- EB+EE+ES shifter: 24 points x 48 weeks x 1.5 shifters = 1728 points total
- Safety shifters: 20 days x 2 shifts = 40 points

² Single shift blocks (“D” and “F”) should only be taken if also taking blocks of 3 or 4 shifts in the previous/subsequent 2 weeks.

- Run Field Manager: 48 weeks x 8 = 384 points

Giving a total number of points in 2010: $1728 + 40 + 384 = 2152$

Number of points per person = $2152 / 256 =$ approximately 8.4

This value of **8 points per collaborator** is used to find the minimum contribution by every institution in ECAL.

Table of ECAL points/institute

Points are assigned on an institute level, according to the number of eligible ECAL members (defined above) in the institutes, as in the table below (for 2010, rounded down).

Institute	Eligible ECAL members	Points required in 2010
Bristol	4	33
Brunel	5	42
Caltech	10	84
Carnegie Mellon	6	50
CERN	7	58
Chungli-NCU	9	75
Cornell	3	25
Delhi	3	25
Demokritos	8	67
Florida State	6	50
FNAL	1	8
Ioannina	4	33
Kansas State	2	16
Kyungpook	4	33
LAPP	1	8
LIP	6	50
London IC	9	75
Lyon	11	92
Milano	10	84
Minnesota	8	67
Moscow-INR	4	33
Moscow-Lebedev	1	8
Mumbai-BARC	5	42
Nicosia Uni	6	50
Northeastern	1	8
Notre-Dame	8	67
Princeton	1	8
Polytechnique	8	67
Protvino	6	50
RAL	5	42
Roma-1	12	100
Saclay	17	142
Split-FESB	3	25
Split-Uni	2	16
Taipei-NTU	10	84
Trieste	3	25
Torino	8	67
UC Davis	1	8
Vinca	5	42
Virginia Uni	11	92
Zurich ETH + PSI	22	193

Shift Training

It is your responsibility to learn and understand how to run the ECAL shift station so that you can be an effective shifter. We must minimize the amount of good data lost due to shifter errors, and every shifter is expected to know how to identify and correctly respond to problems as they occur. To this end, training is provided upon request by Cristina Biino (Cristina.Biino@cern.ch). Your training will involve spending about two hours at P5 to understand the tools at the shifter's disposal, the examinations that need to be done regularly, the forms that need to be completed for global runs, operation of local runs and, importantly, interactions between the ECAL shifters, the central shifters and ECAL experts on call. Work is ongoing to provide a full web-cast and web-based training, in addition to the on-site training. In addition, seminars introducing the ECAL system (crystals + preshower) are planned to take place at regular intervals.

Following the training session the shifter must take at least one full training shift, shadowing another shifter. This training shift does not count towards the institution's points count.

We encourage new shifters to take their first shifts during the day, when there are more experts easily available.

Furthermore, anyone who has not taken shifts in the previous 2 months must re-familiarize themselves with the operation of ECAL by retaking the training session and, exceptionally, taking a shadow shift.

FAQ

Q: How far in advance can I sign-up for shifts?

A: The shift tool will soon allow signing for the full 2010 year. We would suggest that people based at CERN sign-up only in the coming two months, to allow flexibility for people who have to travel to CERN to take their shifts.

Q: When should I sign-up for shifts?

A: As soon as possible! CMS started 24/7 operation on 8th February already! We encourage collaborators to sign before the end of February for the period February-June.

Q: What if my institute fails to sign up for sufficient shifts?

A: It is expected that all shifts will be filled voluntarily well in advance. However, if there are impending periods with vacancies we will have to assign them directly to those institutions that have not committed to their quota.

Q: Are PFG shifts counted as normal ECAL shifts?

A: No. Only shifts based totally (EB+EE+ES shifter or safety shifter) or mainly (RFM) at P5 are classed as normal ECAL shifts. PFG shifts are counted standard MoA task.

Q: My institute has several "experts on call". Can the number of points required for my institute therefore be reduced?

A: No. MoA tasks and standard ECAL shifts are counted separately.

Q: How do these mandatory ECAL shifts relate to the central CMS shifts?

A: They do not. Each person (and institute) has obligations for BOTH central CMS and ECAL.

Q: If I look at the shift block table it seems that I can make my full quota of about 8 points with only 5 shifts! Is this correct?

A: Yes! If they are still available, you can take 2 "F" blocks (2x1 shift, Monday owl) and an "H" block (3 shifts, Friday-Sunday owl), for example.

Q: Is the scheme outlined in this document likely to change during 2010?

A: We assume not. ECAL will switch to having one person on shift at any time after May 15th. By then DCS should be controlled by the central CMS shifter. Revisions in the light of experience are obviously not excluded.

Q: My Institute took a lot of shifts during 2008 and 2009. What happens to the carry-over?

A: This will be treated on a case-by-case basis. For years to come this will probably evolve.

Q: Do training shifts count towards my quota?

A: No.

Q: My graduate student is a member of ECAL, but he is still taking courses. Does he need to do shifts?

A: Any member of CMS declared by their team leader to be a member of ECAL counts towards the institute shift allocation. She or he should be encouraged to take shifts as a learning experience and a privilege.

Q: Some of my engineers/technicians/undergraduates wish to contribute to shifts, even though they do not sign the papers. Is this allowed?

A: The quota is for the whole institute. It is your decision who, from your institute, takes the shifts on your behalf. Members of CMS from other sub-groups (e.g. offline) are also encouraged to participate.

Q: What happens if my shift is cancelled?

A: It will still be counted towards your institute's quota.