CALICE @ CERN 2007

Installation and Run Plan

http://calice-cam1/

Erika Garutti & Fabrizio Salvatore

Outline

- CALICE @ CERN 2007
- CERN Installation plan
  - Detectors
  - Additional hardware
  - Computer

- About the shifts
  - Shift rules
  - Shift schedule

- About the physics
  - Run plans
  - Energies and angles

12-MARCH-2007

2007 SPS Fixed Target Programme

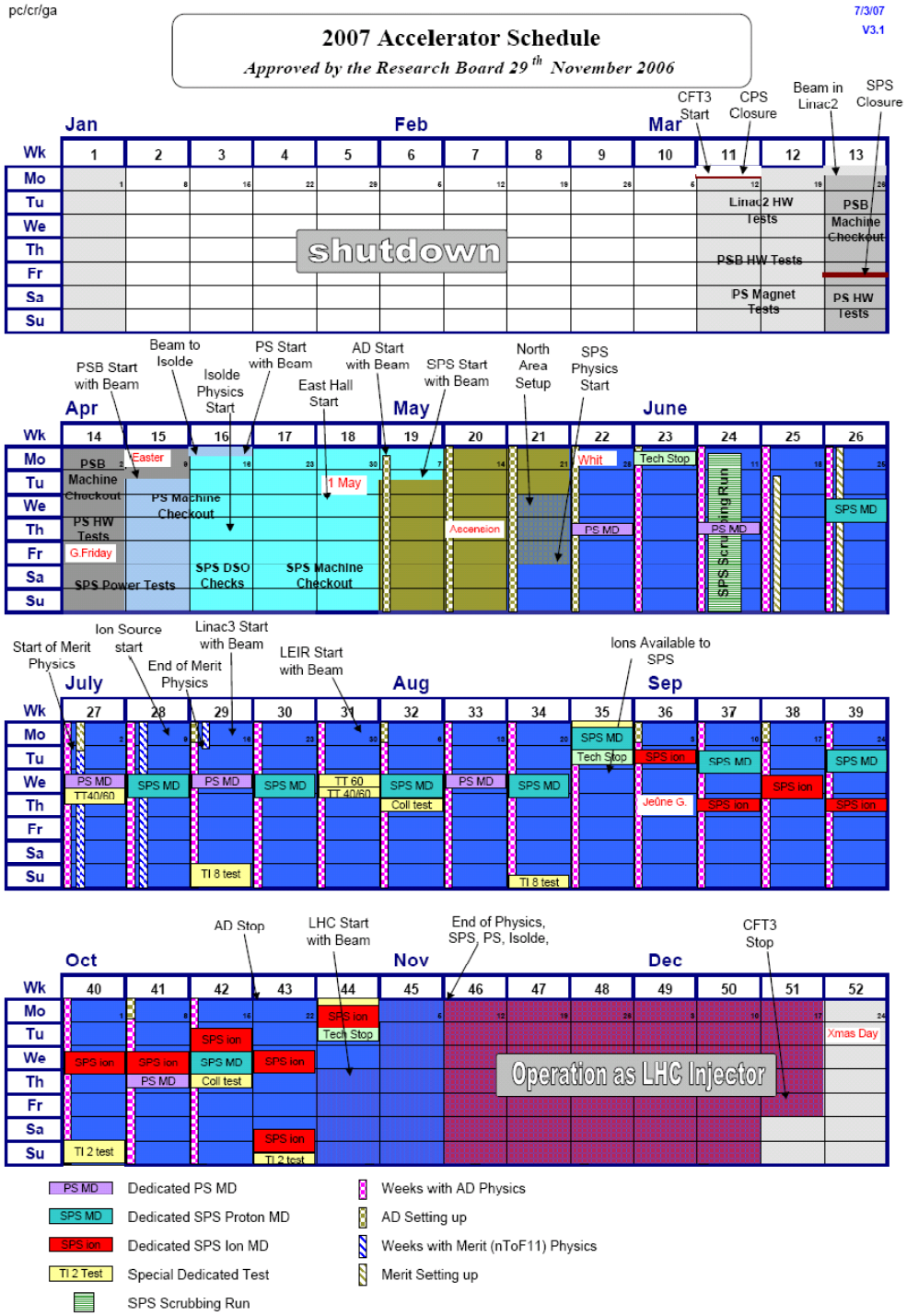
Version 2.1

Colour code: blue (dark shading) = not yet allocated ; yellow (light shading) = not allocatable or Machine Development

	P1A	P1B	P2	P3	P4	P5
	21 2 May 23 May	26 23 May 18 Jun	37 18 Jun 25 Jul	41 25 Jul 4 Sep	36 4 Sep 10 Oct	33 10 Oct 12 Nov
T2 -H2		EA Test 2; CMS ZDC 5; SILC R&D 11	CMS SI R&D 9; CMS Combined 28	CMS Combined 14; CMS HCAL R&D 12; CMS CASTOR 14; 1	PHENIX 9; CREAM 6; CHERCAM 8; NA49 FUTURE 13	NA49 FUTURE 19; PAMELA 7; NUCLEON 7
T2 -H4		EA Test 2; CMS EACL 16	DREAM 7; DREAM 8; ECC 7; AMS RE1 7; SITRD 7	CMS ECAL 21; GLAST 8; 1; LHCf 11	LHCf 7; BRAN 8; CMS ECAL 21	CRYSTAL 26; EA Test 4; 3
T4 -H6		EA Test 2; 6; MIDIPIX 3; CFRF 7	ALICE ZDC 9; RD42 7; CALICE 14; ALICE ECAL 7	ALICE ECAL 11; CALICE 14; MIDIPIX 5; RD42 8	MONOPIX 7; DEPFET 6; 1; CFRF 8; MOROMA 6; DESY TELESCOPE 7	SILC R&D 14; RD42 12; MONOPIX 7
T4 -H8		EA Test 2; RD22 16	EA Test 2; LHCb 14; ATLAS LUCID 7; ATLAS BCM 7; ATLAS ZDC 7	LHCb 14; TOTEM 14; LHCb 13	ATLAS 3DSI 9; EA Test 6; RD22 14; ATLAS RP 7	ATLAS RP 19; RD22 14
T4 -P0		EA Test 2	P326 37	P326 41	P326 36	P326 33
T6 -M2		EA Test 2; COMPASS 16	COMPASS 37	COMPASS 41	COMPASS 36	COMPASS 33
CNGS						

Scrubbing & MD/ CALICE Installation

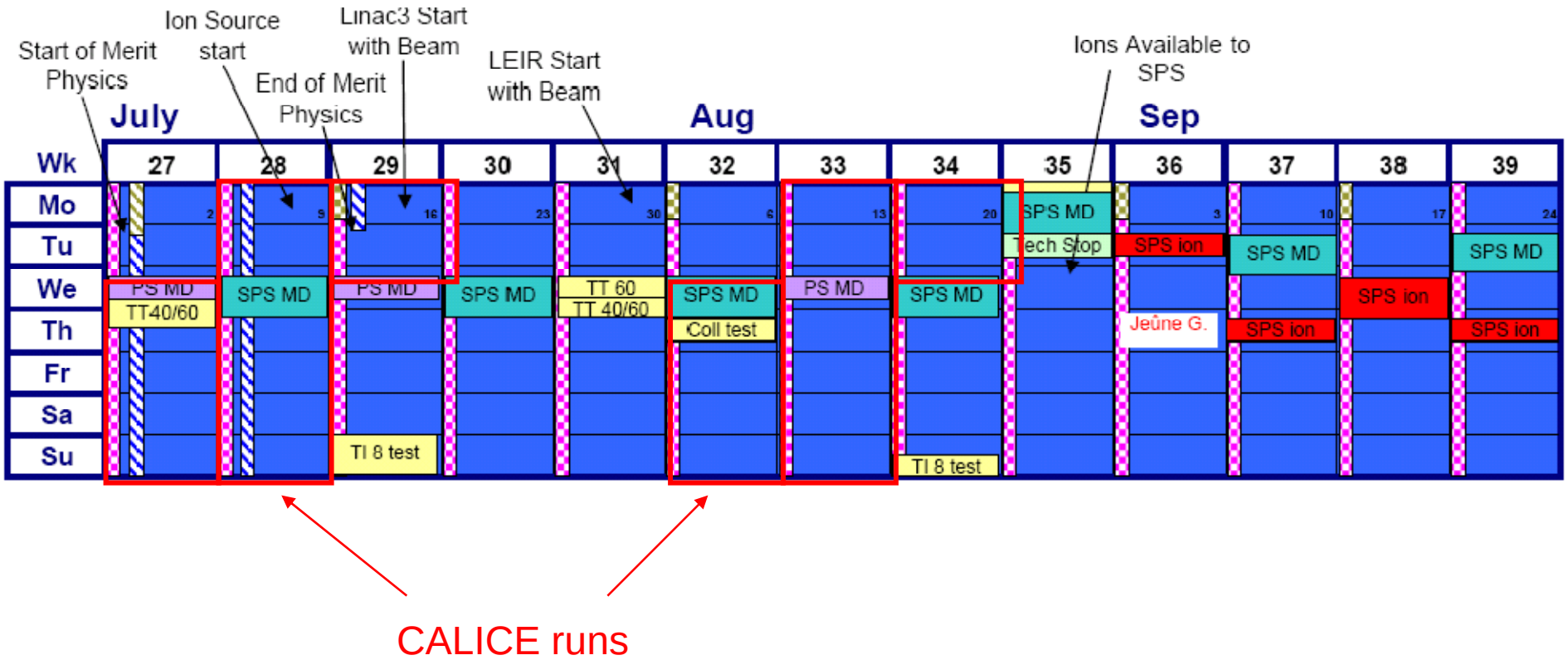
Possibility to get extended



Official Accellerator schedule:

-MD marked
-No super cycle specified yet

Accellerator schedule



CALICE runs

Installation plans: the detectors

Mon	Tue	Wed	Thu	Fri	Sat	Sun
11. Jun	12. Jun	13. Jun	14. Jun	15. Jun	16. Jun	17. Jun
1	2	3	4	5		
		INSTALLATION				

➔ Installation week: 11th - 17th June

Work needed before installation:

- Removal of concrete blocks
- Pion/proton separation ??
- Provide additional 32 A plug to the area

Installation steps:

Day 1) Positioning and alignment on movable stage / unpacking
Day 2-3) Insertion of HCAL modules with crane (!) ➔ 38 modules !!!
Day 2-3) ECAL installation in parallel
Day 2-3) Cable connection (cables will remain in place from DESY)
Day 4-5) Installation of trigger system
Day 4-5) Bridge from stage to TCMT (!)
Day 4-5) Bridge from stage to trigger/MWPC (!)

Installation of TCMT modules can only start on the 25th of June

Any additional detector?

WARNING!!!

Due to the movable stage hazard
access to the experimental area will not be allowed
during scans

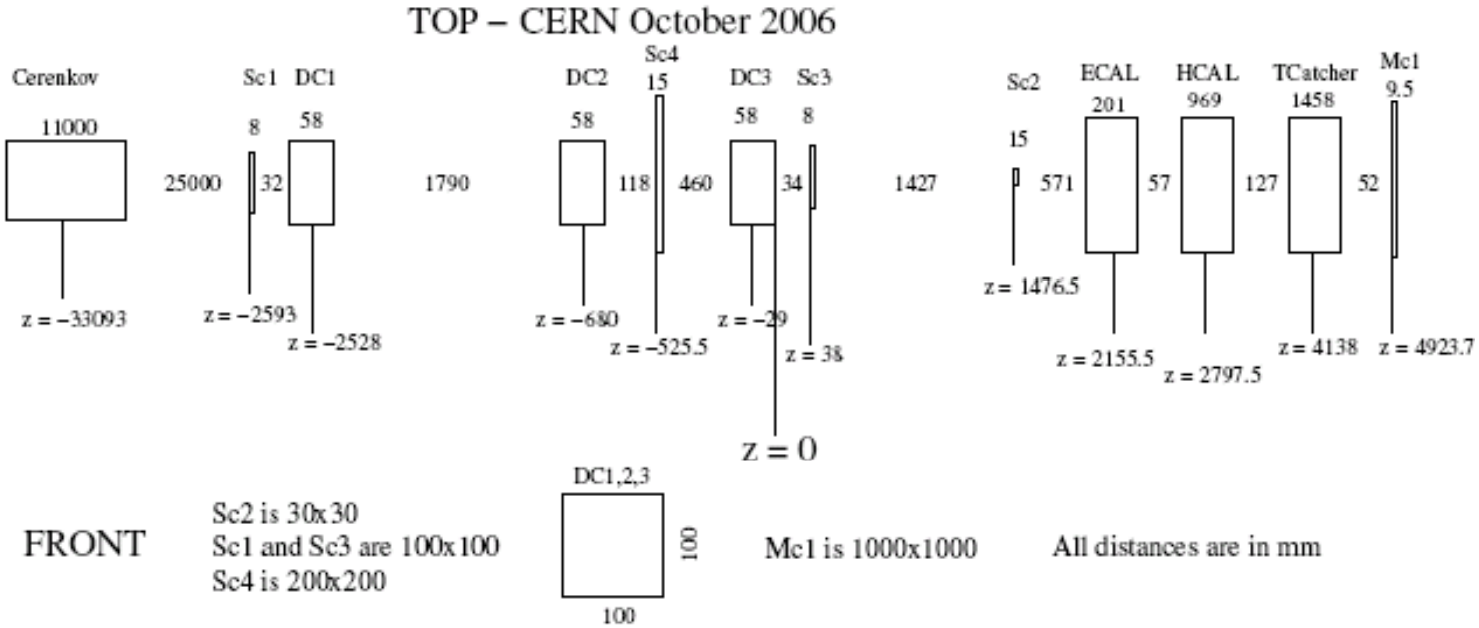
i.e. muon runs !!!

28.06 - 18.07
possible extension
in between
01.08 - 22.08

the area is interlocked
only restricted access
(which will interrupt the run)

The trigger system

- New veto wall:
  - 1x1 m^2 counter with 20x20 cm^2 hole for beam (real veto)
  - 1 X_0 lead in from as pre-shower (outside the 20x20 cm^2)
  - 20x20 cm^2 old counter will be installed in the hole
- Muon trigger from NIU repaired + faster PM
- Main trigger unchanged
  - 10x10 cm^2 and 3x3 cm^2 coincidence



Computers and DAQ

- Installation of computers and DAQ has to start on June 11th
  - ➔ First data transfer expected end of the week
- Main DAQ: no changes
- Slow control: movable stage integration
  - Modification of DAQ
  - Modification of converter / LCIO
  - Can be tested already before CERN (?)
- Analysis PC:
  - New caliceana (online monitor), to be tested
  - Extra PC for LCIO-based analysis in control room (?)

- Redundant power supply ??
- New wish list for online monitor ➔ comes later

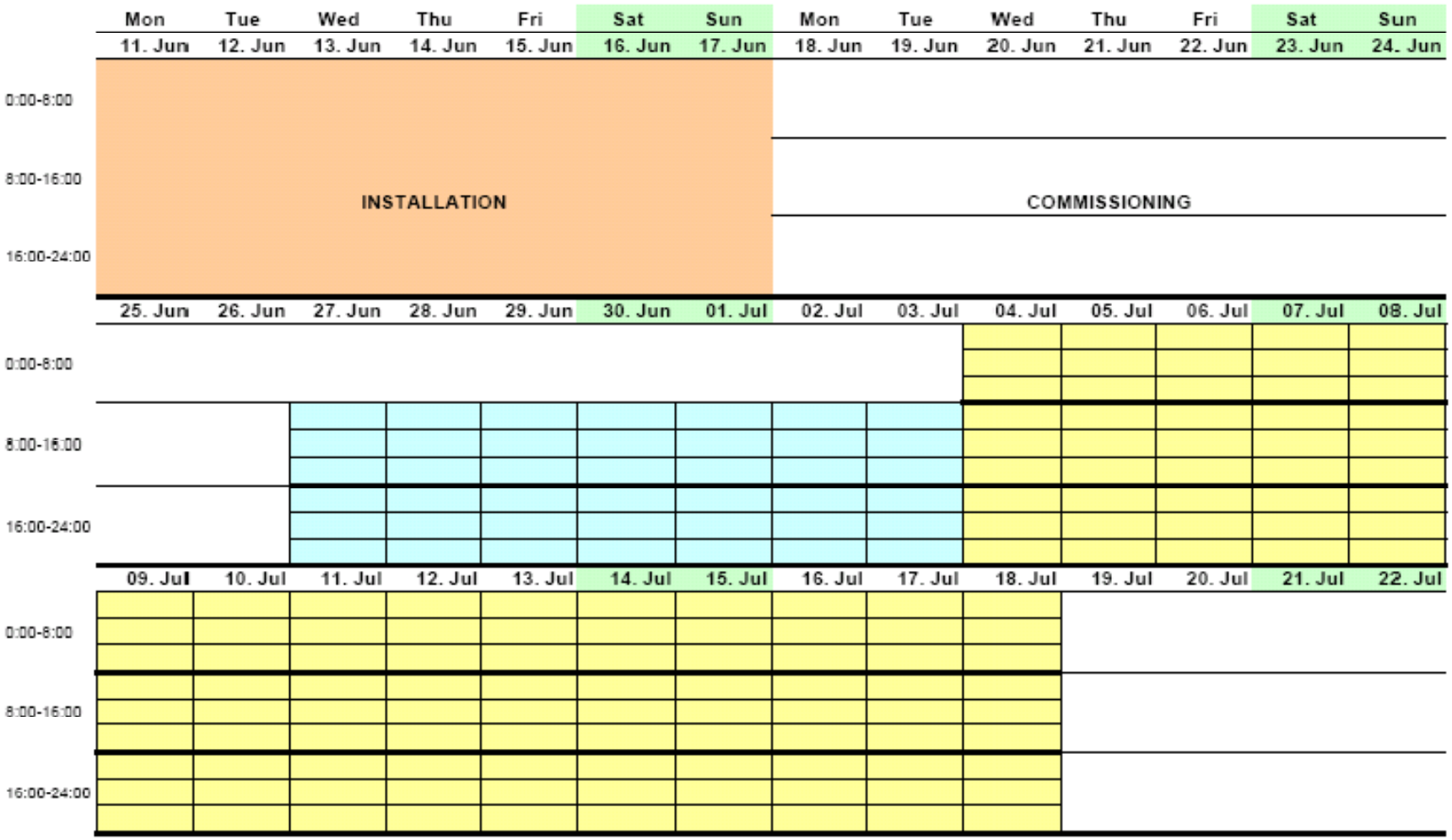
	Mon 11. Jun	Tue 12. Jun	Wed 13. Jun	Thu 14. Jun	Fri 15. Jun	Sat 16. Jun	Sun 17. Jun	Mon 18. Jun	Tue 19. Jun	Wed 20. Jun	Thu 21. Jun	Fri 22. Jun	Sat 23. Jun	Sun 24. Jun
0:00-8:00	1	2	3	4	5									
8:00-16:00	INSTALLATION							COMMISSIONING						
16:00-24:00														

Shift organization

- 2 main physics periods + 2 muon calibrations !!!
- No strong distinction between ECAL and HCAL
  ➔ We work all for the same CALICE project
- 1 shift schedule

- Applications for shifts should be sent to me and Fabrizio
  ➔ within May 15
- Schedule will be made according to shift rules

CERN shift schedule 2007



Muon calibration, only day shifts, 6 people/day

Phys. data taking, full shift, 9 people/day

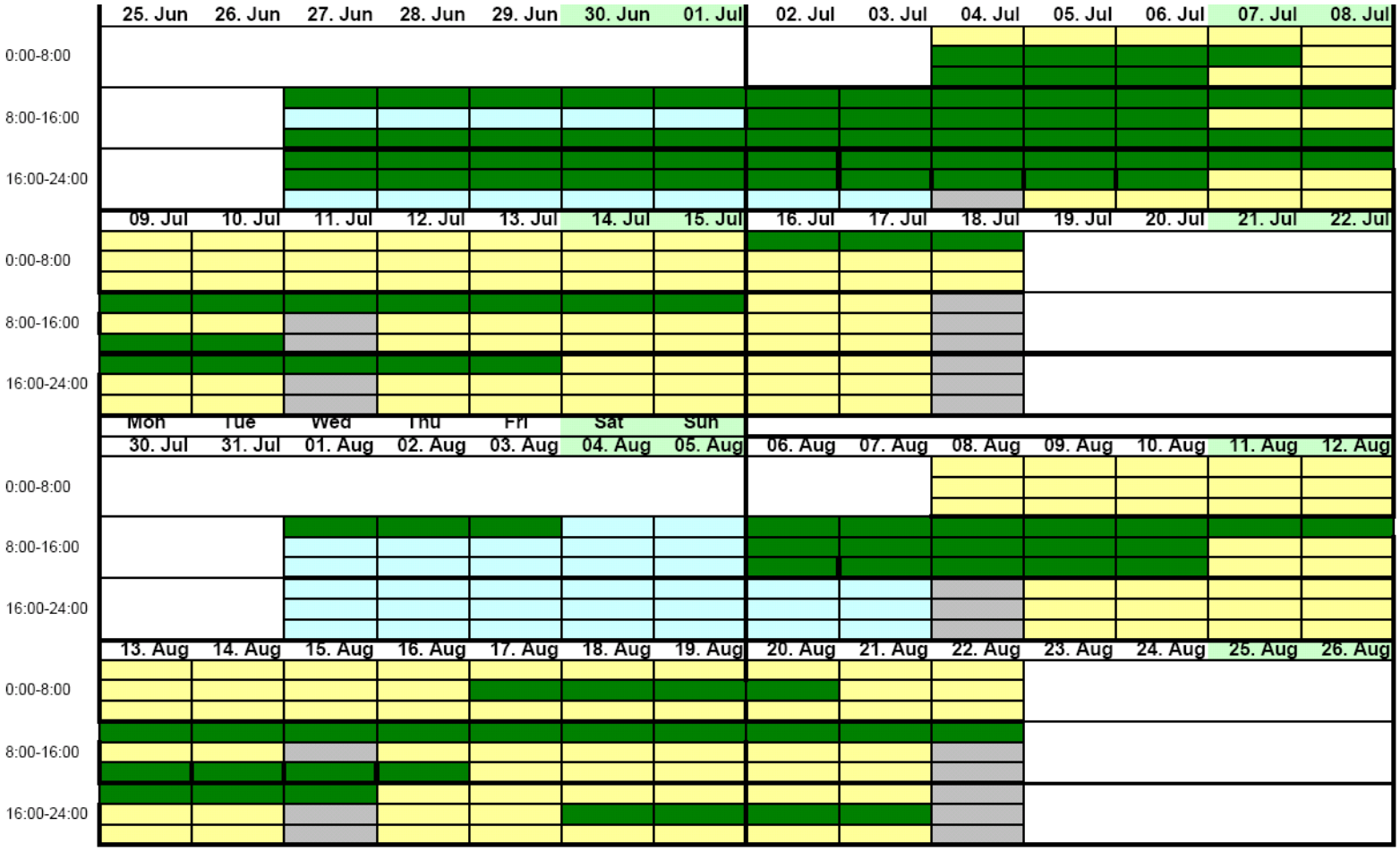
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
	23. Jul	24. Jul	25. Jul	26. Jul	27. Jul	28. Jul	29. Jul	30. Jul	31. Jul	01. Aug	02. Aug	03. Aug	04. Aug	05. Aug
0:00-8:00														
8:00-16:00					LONG BREAK									
16:00-24:00														

	06. Aug	07. Aug	08. Aug	09. Aug	10. Aug	11. Aug	12. Aug	13. Aug	14. Aug	15. Aug	16. Aug	17. Aug	18. Aug	19. Aug
0:00-8:00														
8:00-16:00														
16:00-24:00														

	20. Aug	21. Aug	22. Aug	23. Aug	24. Aug	25. Aug	26. Aug	27. Aug	28. Aug	29. Aug	30. Aug	31. Aug	01. Sep	02. Sep
0:00-8:00														
8:00-16:00														
16:00-24:00														

Group leaders: please send list of shifters within 15th of May !!!

“shifters” received so far



The modular run plan

- Based on last year experience the run plan has to be flexible!
- The run plan will evolve depending on beam conditions / agreements with other users / other unpredicted constraints
- The run plan is defined in packages
- We identified two class of priorities for energies and angles:
  - Priority I
    - Low E: 6, 10, 15, 20 GeV
    - High E: 20, 30, 50, 80 GeV
    - Angles: 0, 20, 30 deg
  - Priority II
    - Low E: 8, 12, 18 GeV
    - High E: 25, 40, 60, 120 GeV
    - Angles: 10, 15 deg
  - If more time available at one given angle, high statistic has priority over more energy points
  - Note: beam tuning has not been taken into account in the time estimate

Low and high refer to the energy of the secondary beam required to cover the points (<120 or >120 GeV)

Low energy packages

- LE1) – Combined physics package (Pr I)
  - π, 1M evts, 6/10/15/20 GeV, 0 deg
  - π, 500k evts, 6/10/15/20 GeV, 20, 30 deg
    - Duration: ~5 days
  - Minimum required for combined physics run
- LE2) – ECAL physics package (Pr I)
  - e, 1M evts, 6/10/15(/20) GeV, 0 deg
    - Duration: ~1.5 days
  - Alignment; repeats last year's conditions
- LE3) – PCB irradiation (Pr I)
  - e, 1M evts, 10/50 GeV, 0 deg
    - Duration: ~1 day
  - Beam positioned on ASIC chip; position scanning

Low energy packages

- LE4a) – Combined physics package (Pr IIa)
  - π, 500k evts, 8/12/18 GeV, 0, 20, 30 deg
    - Duration: ~3 days
  - More energy points for data/MC comparison
- LE4b) – Combined physics package (Pr IIb)
  - π, 500k evts, 6/10/15/20 GeV, 10, 15 deg
    - Duration: ~2 days
  - Two more angular points (again for data/MC comparison)
- LE5) – Inter-alveola package (Pr I)
  - e, 300k evts, 20/50 GeV, 0 deg
    - Duration: ~2 shifts
  - Beam crossing carbon fibre structure between two alveola
- LE6) – HCAL em package (Pr I)
  - e, 300k evts, 6/10/15/20/30/40 GeV, 0 deg
    - Duration: ~1 day
  - ECAL has to be removed from beam line

High energy packages

- HE1) – Combined physics package (Pr I)
  - π, 1M evts, 25/30/50/80 GeV, 0 deg
  - π, 500k evts, 25/30/50/80 GeV, 20, 30 deg
    - Duration: ~5 days
  - Minimum required for combined physics run
- HE2) – Combined physics package (Pr II)
  - π, 500k evts, 25/30/50/80 GeV, 10, 15 deg
    - Duration: ~2 days
  - Two more angular points (data/MC comparison)
- HE3) – Hadronic package (Pr I)
  - π, 1M evts, 25/30/50/80 GeV, 0 deg
    - Duration: ~1.5 days
  - ECAL has to be removed from beam line

More monitoring / more analysis

Wish list for online monitor:

- Calibrated energy sum of 3 detectors ➔ cross check of beam E
- beam spot (integrated over run) ➔ check alignment, beam spread

More analysis during data taking:

- Local: more checks for beam quality, energy spread comparison between runs, …
- Remote: more support from people not on shift

  participation to daily meeting, preliminary results, check of detector stability / noise, check of log-book entries, feedback on calibrations monitoring system, …

proposal: test of “virtual control room”, i.e. remote shifts in support to local ones to check converted files with “virtual-online monitors”

Daily meeting during data taking

Every day @ 9:30 CEST (UTC+2h) 16:30 Tokyo time

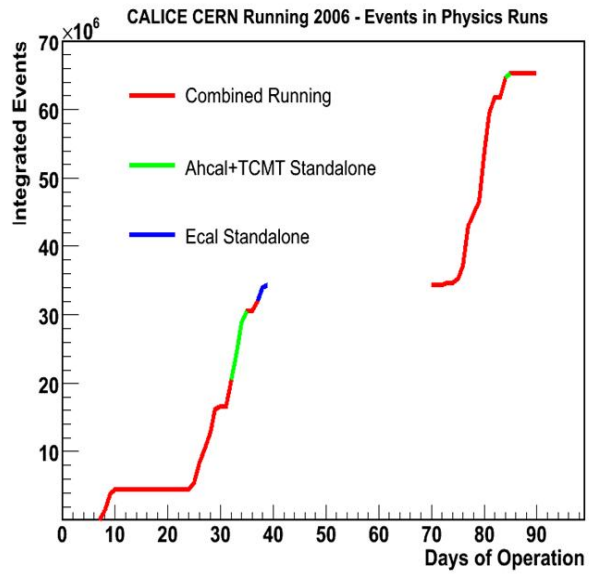
CALL IN to 0049-40-8998-1390
(ask for the code if not known: 8????#)

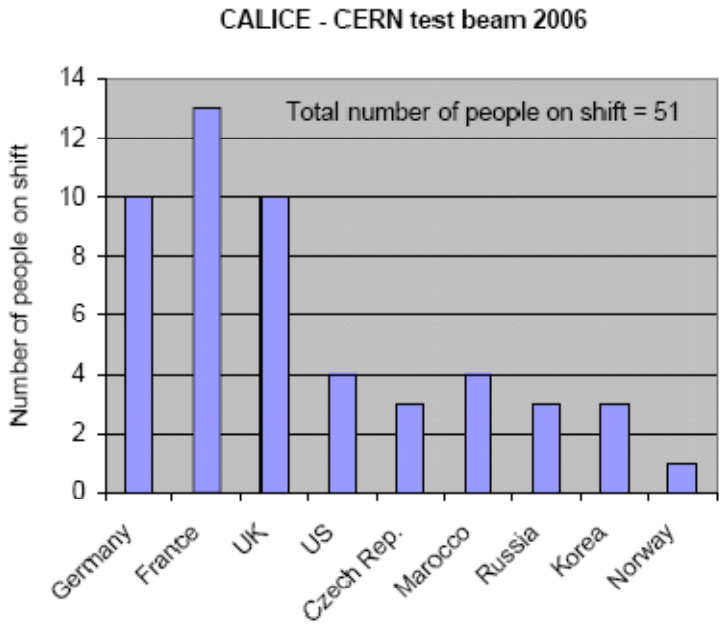
hear the run news,
report your observations and results,
ask the experts for advice,
notify bugs / missing info, …

Everybody is on shift !!!

CALICE @ CERN 2007

Last year we did great !



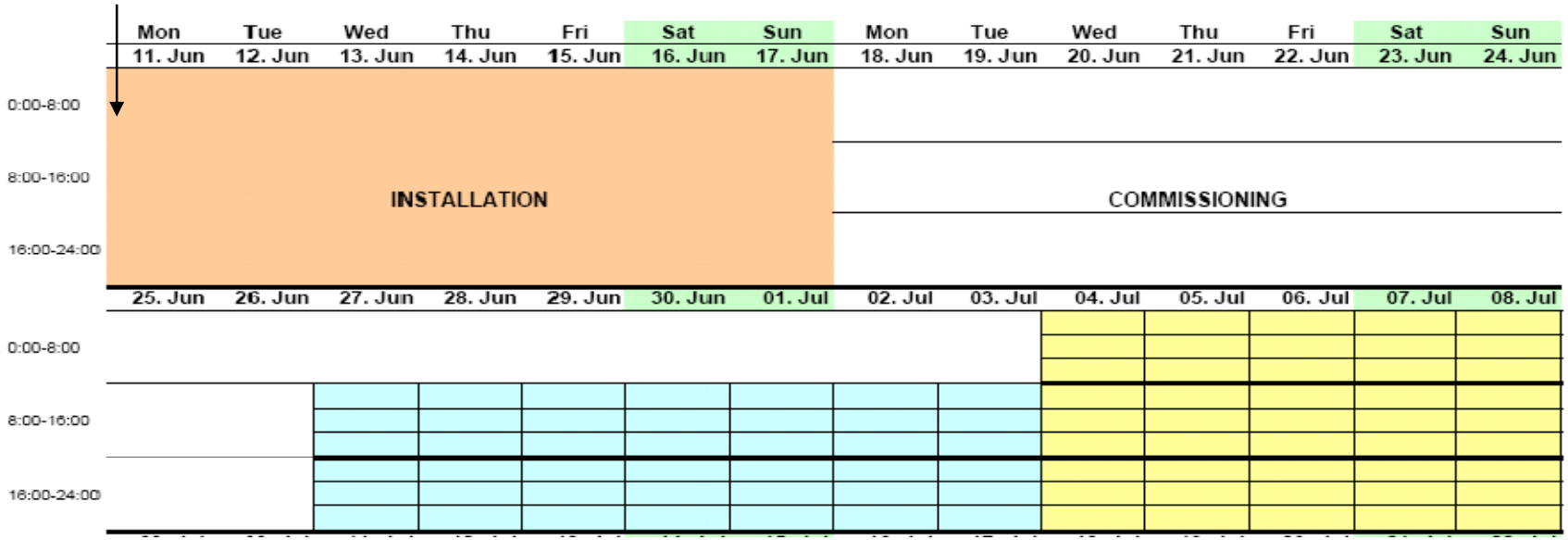


2007 has to be greater !!!

Shipping from DESY

- movable stage in special container (Gert)
- Active detector components separately in boxes
- Shipment week 4-8 June
- ~ 1 week needed for packing ➔ start already during LCWS (29 May)

Detector + installation team at CERN



Shift rules

- each shift consists of 3 people:

  ECAL person, HCAL person, analysis person (at least one experienced)
- Each shift team will be assembled according to duty sharing & experience
- A shift period has a minimum of 4 shifts
- The official language on shift is English
- Before starting of first shift everybody has to follow shift instruction
- Shift instruction is given 2-3 times a week: Mon/Wed/Fri morning 10:00
- People who have not attended shift instruction in ‘07 can’t take shifts
- No additional analysis / private work can be carried on during shift

➔ I relay on the group leaders to help organizing shifts in an efficient and responsible way

➔ Last year we did good, this year we need to do better!