

News from the TUNNEL

Jelentes az Alagutból

Extracts from Lyn Evans RRB plenary talk

G. Vesztergombi

Zimanyi School
Budapest, 25 November 2008

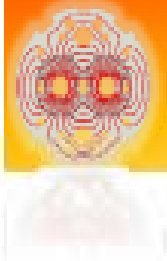
LHC Status

Lyn Evans



RRB 10th November 2008





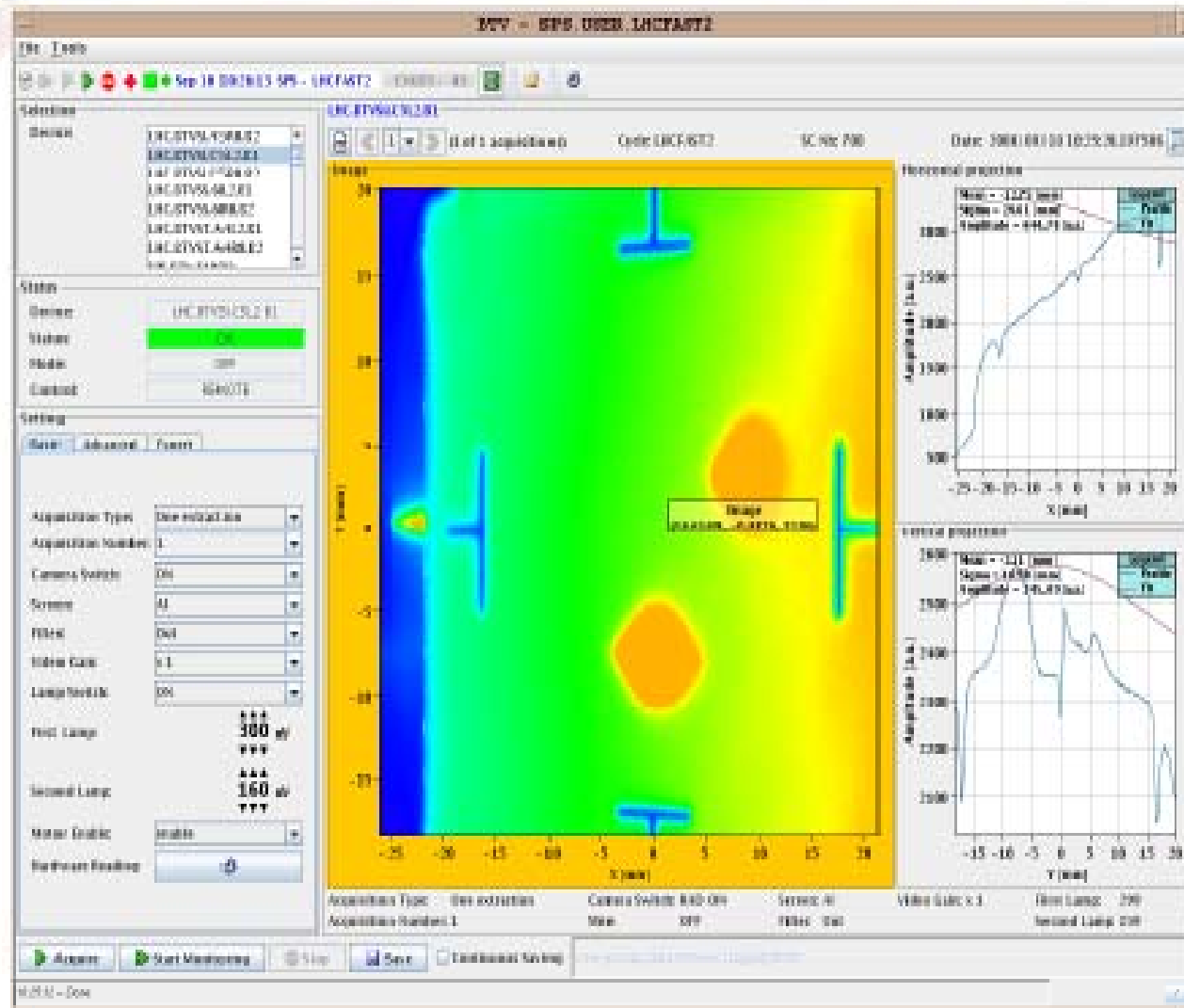
Situation on 10th September



- 7 out of 8 sectors fully commissioned for 5 TeV operation and 1 sector (3-4) commissioned up to 4 TeV.

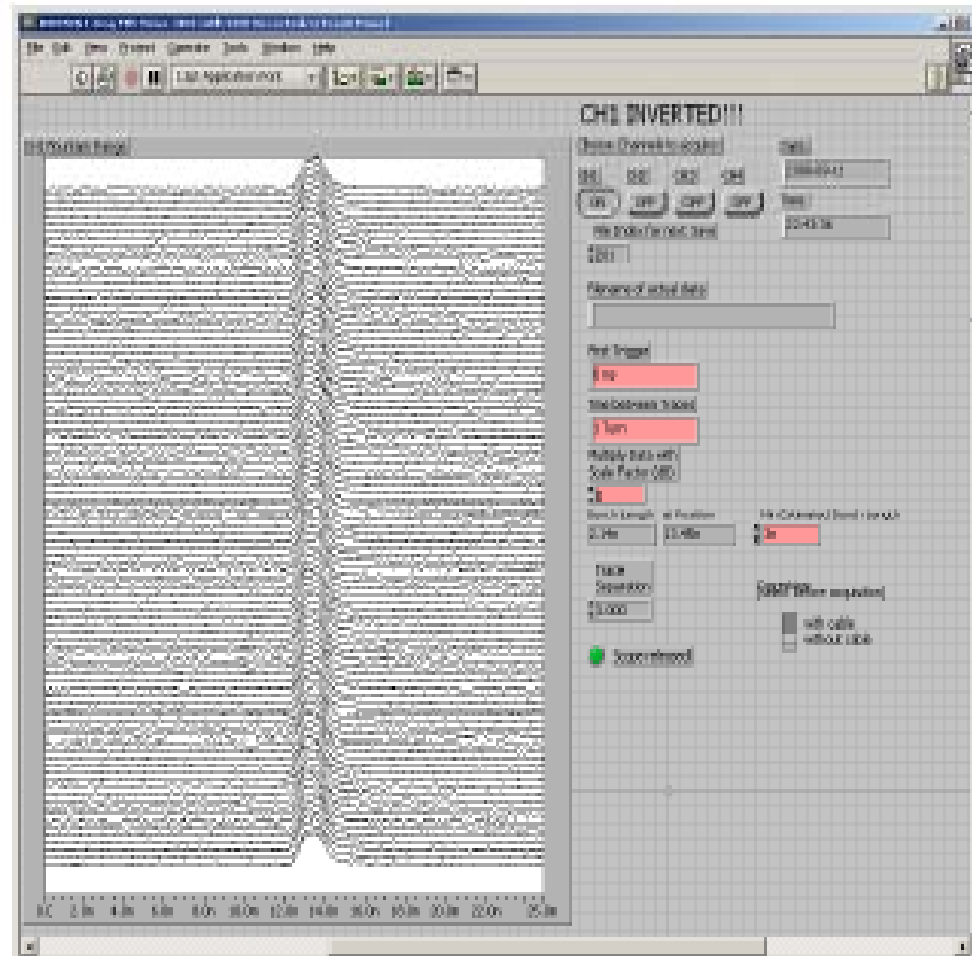


Beam on turns 1 and 2



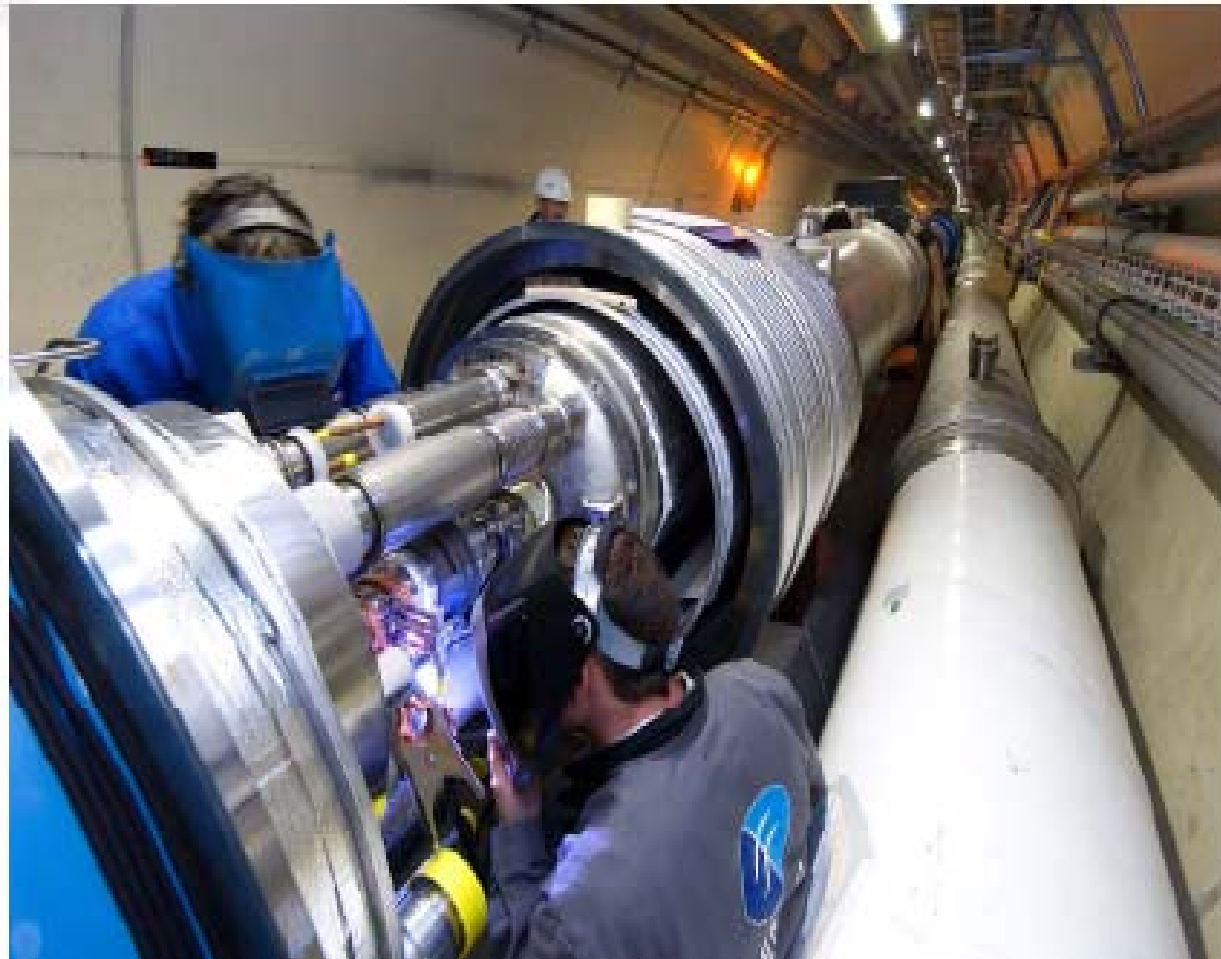


Capture with optimum injection phasing, correct reference



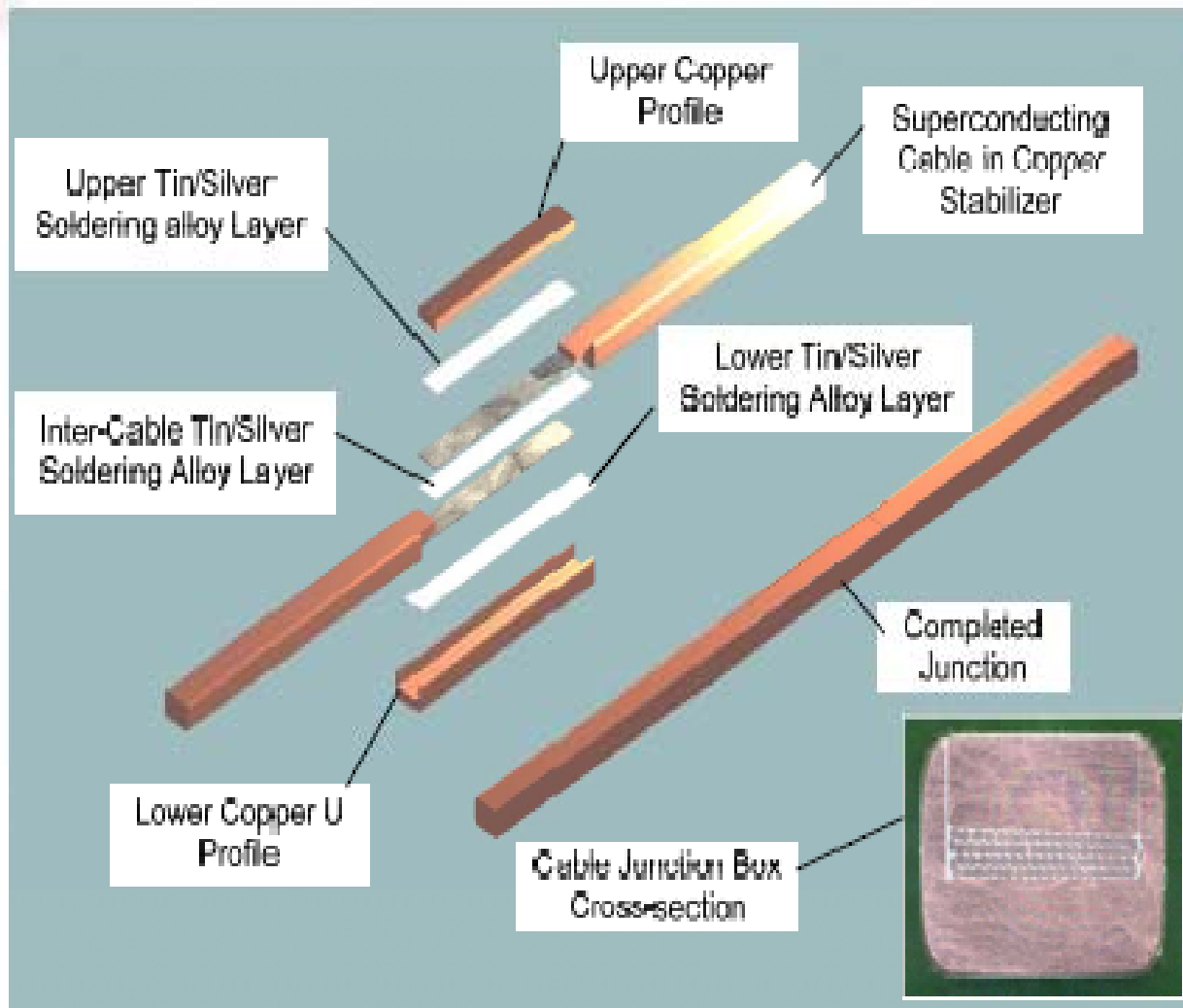


Interconnects



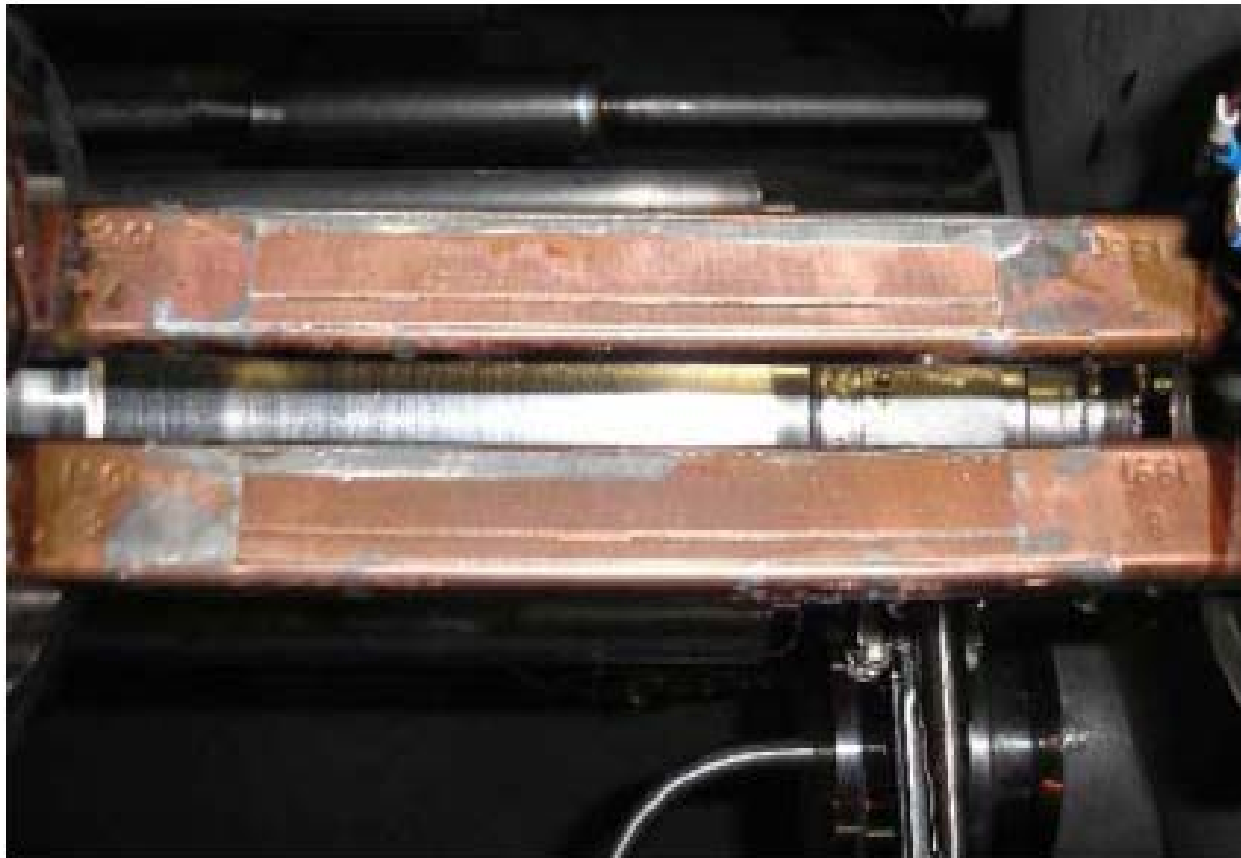


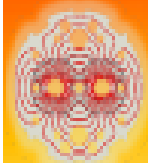
Busbar splice





Busbar splice





Cryostat and cold masses longitudinal displacements



Displacements status in sector 3-4 (From Q17R3 to Q33R3) : P3 side

Based on measurements by TS-SU, TS-MME and AT-WCS

	Q17	A18	B18	C18	Q18	A19	B19	C19	Q19	A20	B20	C20	Q20	A21	321	C21	Q21
Cryostat	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cold mass	?	?	?	?	?	?	?	?	?	?	<5	<5	<5	<5	<5	<5	<5

	Q21	A22	B22	C22	Q22	A23	B23	C23	Q23	A24	B24	C24	Q24	A25	325	C25	Q25
Cryostat	<2	<2	<2	<2	-7	<2	<2	<2	-187	<2	<2	<2	<2	<2	<2	<2	<2
Cold mass	<5	<5	<5	<5	-25	-67	-102	-144	<5	-190	-130	-60	<5	<5	<5	<5	<5

	Q25	A26	B26	C26	Q26	A27	B27	C27	Q27	A28	B28	C28	Q28	A29	329	C29	Q29
Cryostat	<2	<2	<2	<2	<2	<2	<2	<2	174	-4	<2	<2	11	<2	<2	<2	<2
Cold mass	<5	<5	<5	<5	<5	57	114	150?	-45	230	189	144	92?	50	35	<5	<5

	Q28	A30	B30	C30	Q30	A31	B31	C31	Q31	A32	B32	C32	Q32	A33	333	C33	Q33
Cryostat	<2	<2	<2	<2	<2	<2	<2	<2	188	<2	<2	<2	5	<2	<2	<2	<2
Cold mass	<5	<5	<5	<5	<5	19	77	148	<5	140	105	82	18	<5	<5	<5	?

■ SSS with vacuum barrier
 >0 Towards P4
 (mm) Values are in mm
 ? Not measured yet
 Cold mass displacement
 Cryostat displacement
 Electrical interruptions
 Dipole in short circuit
 Electrically damaged IC
 Buffer zones
 Disconnected

Courtesy JP. Tock



Damages



- Aimants
 - à démonter et retirer du tunnel: 42 MB et 15 SSS, dont:
 - certainement à réparer: 21 MB et 5-15 SSS
 - à remesurer et réinstaller: 42 MB et 15 SSS
 - interconnexions à refaire: 58
 - cryostats et supportage à consolider pour les 8 secteurs
- Système de protection des aimants et barres électriques
 - à installer dans les 8 secteurs
- Cryogénie
 - réparation des connexions à la ligne cryogénique
 - fluides cryogéniques à remplacer (6 t He, 1260 t LIN)
- Vide
 - soufflets et éléments de connexion à remplacer
 - tubes à vide faisceaux à nettoyer



Interim Summary Report on the analysis of the 19th September 2008 incident at the LHC



Preliminary recommendations

Recommendations made by the task force aim at two different goals, namely to prevent any other occurrence of this type of initial event, and to mitigate its consequences should it however reproduce accidentally. Possible precursors of the incident in sector 3-4 are being scrutinized in the electrical and calorimetric data recorded on all sectors, in order to spot any other problem of the same nature in the machine. An improvement of the quench detection system is under way, to generate both early warnings and interlocks, and to encompass magnets, bus bars and interconnects. The relief devices on the cryostat vacuum vessels will be increased in discharge capacity and in number, so as to contain a possible pressure rise to below 0.15 MPa absolute even in presence of an electrical arc. The external anchoring of the cryostats at the locations of the vacuum barriers will be reinforced to guarantee mechanical stability.