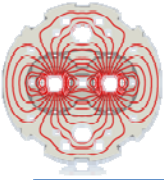


MMM and TEMB - 8 June, 2009

Status Report of Magnet Work Week 23 / 2009

Francesco Bertinelli - TE/MSC

On behalf of - and with several contributions from - surface and IC teams

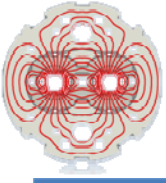


Tunnel News 3-4 D-area

IC	BR	SP	V	E	Vc	C'	Y	X	Pq	M	K	Ktest	N-I	A1	A2	N	MN	Th	J	VacSec	Pre-insp.	W	To do before to close	
QBOI 19R3			2								4	3		C	2	4	4			A15R3	5	8	BR, SP, M, K, AV2, N	
QBOI 19R3																						5	8	
QBBIA20R3																2						5	8	
QBBIB20R3																2						10	11	Th, Ktest
QBOI 20R3			12								4				3	2	5	5	10			11	12	V, M, Cabl, AV2, N, Th
QBOI 20R3			12													2						11	12	V
QBBIA21R3																2						3	4	
QBBIB21R3																2						9	10	Th
QBOI 21R3											8			C	2	8	8	9	4		A19R3	9	10	M, K, A2, N, MN, J, Th
QBOI 21R3																						3	4	
QBBIA22R3																						3	4	
QBBIB22R3																						10	11	Th
QBOI 22R3			12								4			C		5	5	10				11	12	V, M, N, M2N, Th
QBOI 22R3																						2	3	CLOSED
QBBIA23R3																						2	3	CLOSED
QBBIB23R3																						5	8	Th
QBOI 23R3											3			C		4	4	5				5	8	M, N, M2N, Th
QBOI 23R3																						2	3	CLOSED
QBBIA24R3																						2	3	CLOSED
QBBIB24R3																						5	8	Th
QBOI 24R3											3			C		4	4	5				8	9	M, N, M2N, Th
QBOI 24R3																						2	3	
QBBIA25R3																						2	3	
QBBIB25R3																						10	11	Th
QBOI 25R3			12								3			C		5	5	10			A25R3	11	12	V, M, N, M2N, Th
QBOI 25R3																						2	3	
QBBIA26R3																						2	3	
QBBIB26R3																						5	8	Th
QBOI 26R3											3			C		4	4	5				8	9	N, M2N, Th
QBOI 26R3																						2	3	
QBBIA27R3																						2	3	
QBBIB27R3																						8	9	Th
QBOI 27R3											4			C		5	5	8	3			8	9	M, N, M2N, J, Th

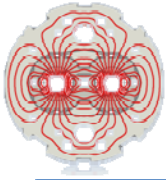
IC	BR	SP	V	E	Vc	C'	Y	X	Pq	M	K	Ktest	N-I	A1	A2	N	MN	Th	J	VacSec	Pre-insp.	W	To do before to close	
QBOI 27R3																						2	3	
QBBIA28R3																						11	12	V
QBBIB28R3																						5	8	Th
QBOI 28R3																						8	9	M, M2N, Th
QBOI 28R3																						8	9	
QBBIA29R3																						8	9	
QBBIB29R3																						10	11	Th
QBOI 29R3																						10	11	M, N, M2N, J, Th
QBOI 29R3																						10	11	Th
QBBIA30R3																						8	9	
QBBIB30R3																						10	11	Th
QBOI 30R3																						11	12	V, M, N, M2N, Th
QBOI 30R3																						11	12	V
QBBIA31R3																						4	5	
QBBIB31R3																						11	12	Th
QBOI 31R3																						11	12	M, N, M2N, J, Th
QBOI 31R3																						4	5	
QBBIA32R3																						4	5	
QBBIB32R3																						10	11	Th
QBOI 32R3																						11	12	V, M, AV2, N, M2N, Th
QBOI 32R3																						11	12	V, Ktest, AV2
QBBIA33R3																						11	12	V, Ktest, AV2
QBBIB33R3																						12	15	V, Ktest, AV2, Th
QBOI 33R3																						12	15	Br, Sp, V, M, K, Cab, A2, N, MN, J, Th
QBOI 33R3																						11	12	V, Ktest, AV2, N

Courtesy A. Musso



Tunnel News Sector 3-4

- Some milestones:
 - First W closures in D area
- Plan to close last W bellows W25
- Attention this week to:
 - Leak testing of beam lines
 - First closures of Z bellows
 - thermometers



Cf Sector 3-4 March plan

Microsoft Excel - 3-4 planning 26 March F Bertinelli.xls

Type a question for help

File Edit View Insert Format Tools Data Window Help

Reply with Changes... End Review...

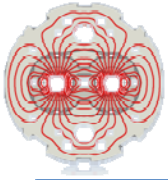
Arial 7

SEC

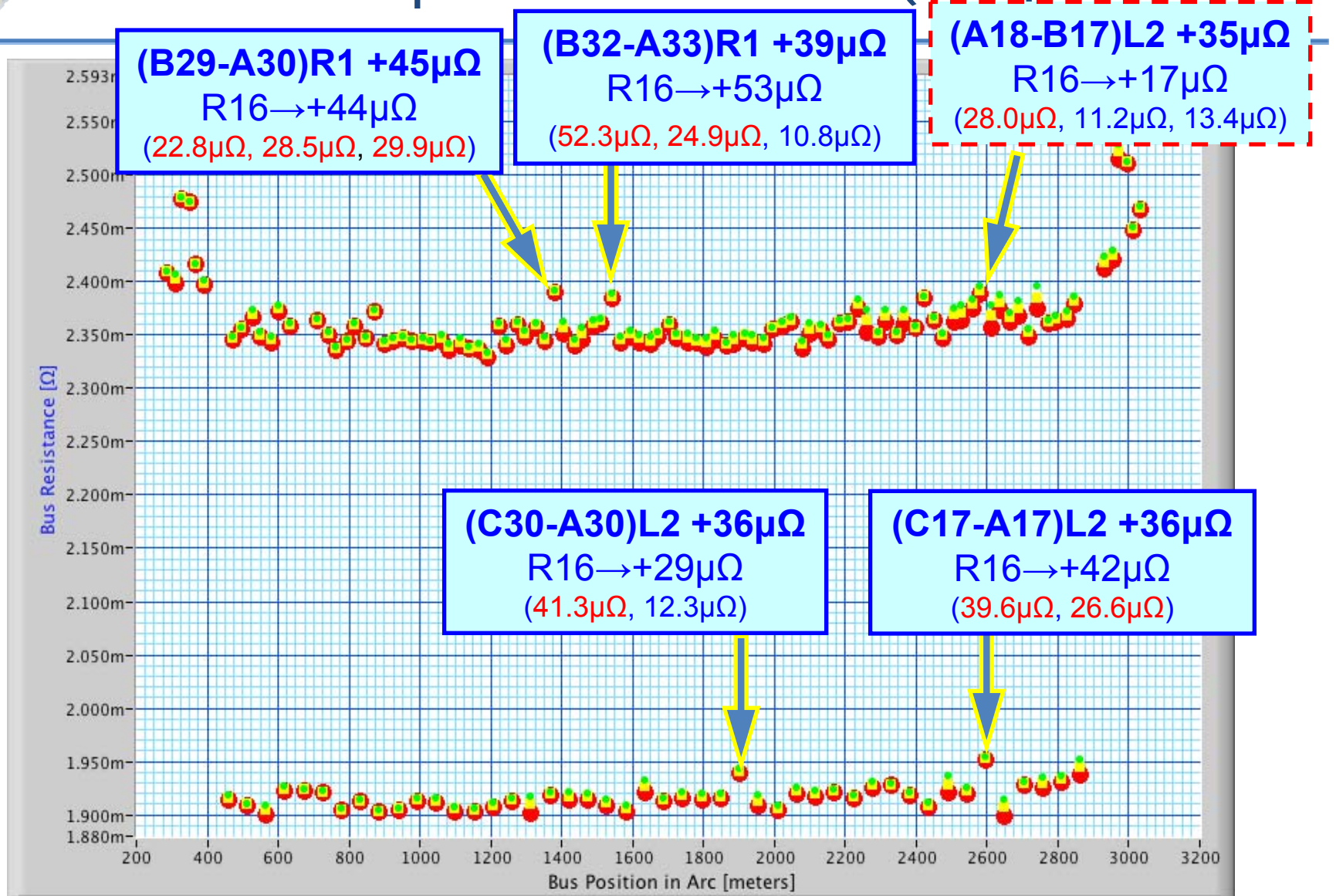
	A	E	H	AP	AQ	AS	AU	AV	AY	AZ	BA	BB	BC	BE	BG	BH	BJ	BL	BN	BO	BP	BQ	BR
	Inter. number	IC from magnet installation	VAC test K1, K2, C' line	weld M1,M2	weld M3	insert N line	cabling N line	HYGN	AIV 1	MPAQ	MHYGN	Veld N line sleeve	US weld N line	AIV 2	M to N weld	Insul. N line	Veld N sleeve	Wire N line Thermometer	IL certification and inspection	Place MLI	Close V	Cross-check VA	
72	QBBL25B3	V15iii	V20	V19i	V19	V19i		V19iii	V20i	V20iii	V21iii	V20ii		V21i									incomplet
73	QBBLA26B3	V14ii	V20	V19i	V19	V19i		V19iii	V20i	V20iii	V21iii	V20ii		V21i									incomplet
74	QBBLB26B3	V14ii	V20	V19i	V19	V19i		V19iii	V20i	V20iii	V21iii	V20ii		V21i				V22ii	V23	V24	V24		incomplet
75	QBQL26B3	V15i		V22			V19ii						V20ii			V22i	V22ii	V22ii	V23	V24	V24		incomplet
76	QBBL26B3	V15i	V20	V17	V17	V17i		V19iii	V20i	V20iii	V21iii	V20ii		V21i									incomplet
77	QBBLA27B3	V12iii	V20	V17	V17	V17i		V19iii	V20i	V20iii	V21iii	V20ii		V21i									incomplet
78	QBBLB27B3	V12iii	V20	V17	V17	V17i		V19iii	V20i	V20iii	V21iii	V20ii		V21i				V22ii	V23	V24	V24		incomplet
79	QBQL27B3	V16i	V20	V23	V19		V19ii						V20ii			V22i	V22ii	V23	V23	V24	V24		incomplet
80	QBBL27B3	V16i	V20	V19i	V19	V19i		V19iii	V20i	V20iii	V21iii	V20ii		V21i									incomplet
81	QBBLA28B3	V16i	V20	V19i	V19	V19i		V19iii	V20i	V20iii	V21iii	V20ii		V21i									incomplet
82	QBBLB28B3	V16i	V20	V19i	V19	V19i		V19iii	V20i	V20iii	V21iii	V20ii		V21i				V22ii	V23	V24	V24		incomplet
83	QBQL28B3		V22				V19ii						V20ii			V22i	V22ii	V23	V24	V24			incomplet
84	QBBL28B3		V17	V15	V15	V14i		V19iii	V20i	V20iii	V21iii	V20ii		V21i									incomplet
85	QBBLA29B3		V17	V15	V15	V14i		V19iii	V20i	V20iii	V21iii	V20ii		V21i									incomplet
86	QBBLB29B3		V17	V15	V15	V14i		V19iii	V20i	V20iii	V21iii	V20ii		V21i				V22ii	V23	V24	V24		incomplet
87	QBQL29B3		V17	V22	V15		V14ii						V20ii			V22i	V22ii	V23	V24	V24			incomplet
88	QBBL29B3		V17	V15	V15	V14i		V17iii	V18i	V20iii	V21iii	V20ii		V21i									incomplet
89	QBBLA30B3	V12i	V17	V15	V15	V14i		V17iii	V18i	V20iii	V21iii	V20ii		V21i									incomplet
90	QBBLB30B3	V12i	V17	V15	V15	V14i		V17iii	V18i	V20iii	V21iii	V20ii		V21i				V22ii	V23	V24	V24		incomplet
91	QBQL30B3	V15iii	V22				V17ii						V20ii			V22i	V22ii	V23	V24	V24			incomplet
92	QBBL30B3	V15iii	V19	V18	V18i	V17i		V17iii	V20i	V20iii	V21iii	V20ii		V21i									incomplet
93	QBBLA31B3		V19	V18	V18i	V17i		V17iii	V20i	V20iii	V21iii	V20ii		V21i									incomplet
94	QBBLB31B3		V19	V18	V18i	V17i		V17iii	V20i	V20iii	V21iii	V20ii		V21i				V22ii	V23	V24	V24		incomplet
95	QBQL31B3	V13iii	V19	V22	V18i		V17ii						V20ii			V22i	V22ii	V23	V24	V24			incomplet
96	QBBL31B3	V13iii	V19	V17	V17i	V17i		V19iii	V20i	V20iii	V21iii	V20ii		V21i									incomplet
97	QBBLA32B3		V19	V17	V17i	V17i		V19iii	V20i	V20iii	V21iii	V20ii		V21i									incomplet
98	QBBLB32B3	V14i	V19	V17	V17i	V17i		V19iii	V20i	V20iii	V21iii	V20ii		V21i				V22ii	V23	V24	V24		incomplet
99	QBQL32B3	V16ii	V22				V19ii						V20ii			V22i	V22ii	V23	V24	V24			incomplet
100	QBBL32B3	V16ii	V20	V19i	V19	V19i		V19iii	V20i	V20iii	V21iii	V20ii		V21i									incomplet
101	QBBLA33B3	V16i	V20	V19i	V19	V19i		V19iii	V20i	V20iii	V21iii	V20ii		V21i									incomplet
102	QBBLB33B3	V14i	V20	V19i	V19	V19i		V19iii	V20i	V20iii	V21iii	V20ii		V21i				V22ii	V23	V24	V24		incomplet
103	QBQL33B3	V15i	V20	V22			V19ii						V20ii			V22i	V22ii	V23	V24	V24			incomplet
104	QBBL33B3	V15i	V20				V17ii							V21i									incomplet
105	QBBLA34B3		17/01/2007	07/12/2006	07/12/2006	V17ii		V19iii	V20i	V20iii	V21iii			V21i									incomplet

general Jumper

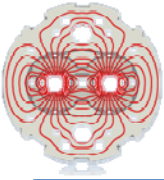
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1-2 M3 splice resistance (copper)



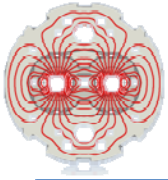
Courtesy R. Flora, C. Scheuerlein



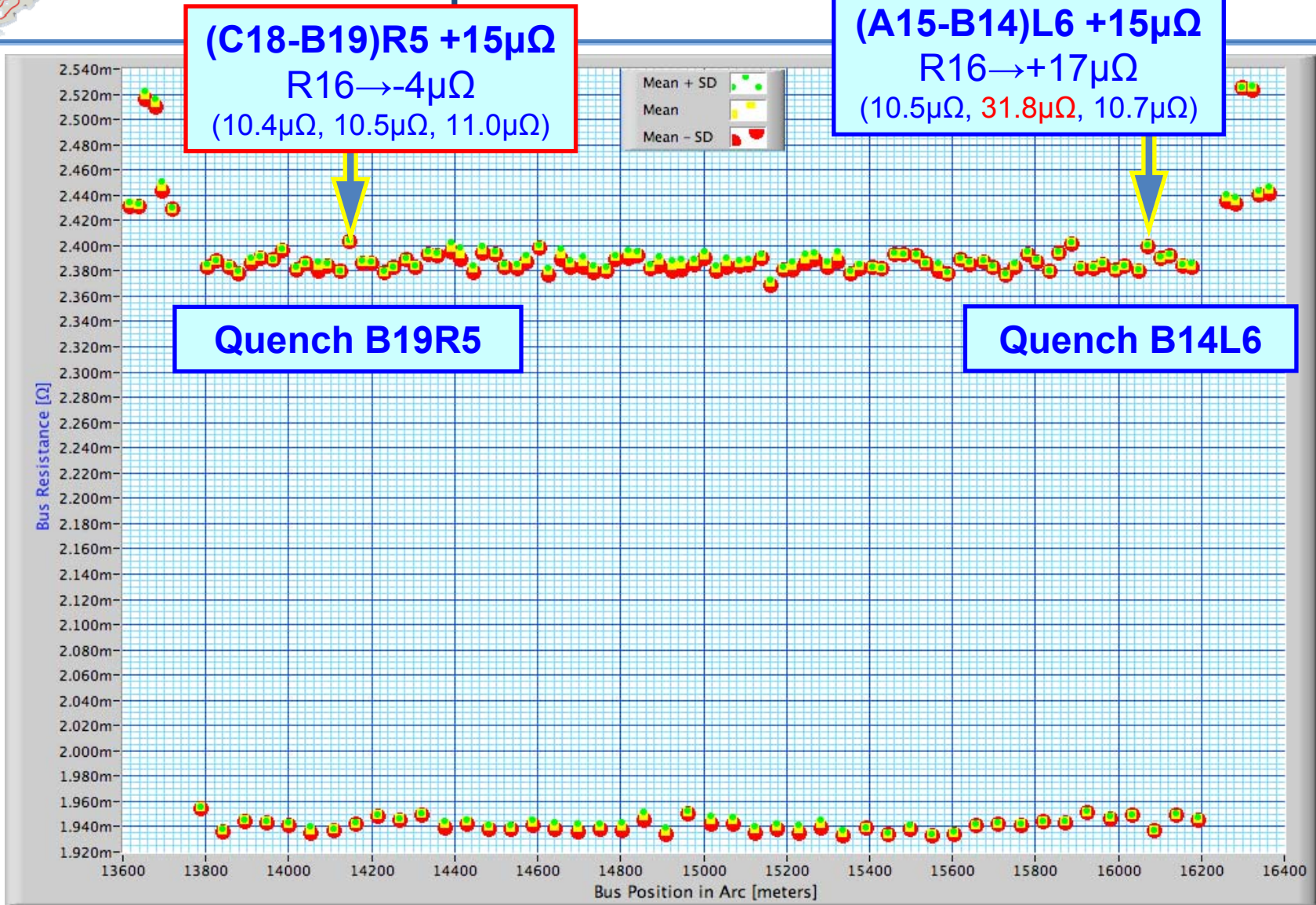
1-2 M3 splice repair

Inter. number	Main busbars	Photos (before unsoldering)	US-test (before unsoldering)	R-16 before unsoldering	Gamma ray control (before unsoldering)	Visual inspection and photos after repair	US-test after repair	R-16 after repair	Gamma ray control after repair	QC insulation main bus bars	QC insulation spools
1-2											
QBBI.E29R1	M3-corridor	done	4 out of 4 OK	11.7	done 8.5.09, J.D.					OK, 2.6.09, C.S.	
	M3-cryoline	done	4 out of 4 OK	22.8	done 8.5.09, J.D.	OK, 28.5.09, G.T.	4 out of 4 OK	10.0	done, 2.6.06, J.D.	OK, 2.6.09, C.S.	
QBQI.29R1	M3-corridor	done	4 out of 4 OK	12.2	done 8.5.09, J.D.					OK, 2.6.09, C.S.	
	M3-cryoline	done	4 out of 4 OK	28.5	done 8.5.09, J.D.	OK, 28.5.09, G.T.	4 out of 4 OK	11.5	done, 2.6.06, J.D.	OK, 2.6.09, C.S.	
QQBI.29R1	M3-corridor	done	3 out of 4 OK	25.2	done 8.5.09, J.D.	OK, 29.5.09, C.S.	OK, 2.6.09, G.T.	10.7	done, 2.6.06, J.D.	OK, 2.6.09, C.S.	
	M3-cryoline	done	4 out of 4 OK	29.9	done 8.5.09, J.D.	OK, 29.5.09, C.S.	OK, 2.6.09, G.T.	10.4	done 2.6.06, J.D.	OK, 2.6.09, C.S.	
QBBI.E32R1	M3-corridor	done	4 out of 4 OK	24.9	done 14.5.09, J.D.	OK, 29.5.09, C.S.	OK, 2.6.09, G.T.	10.2	done 2.6.06, J.D.	OK, 2.6.09, C.S.	
	M3-cryoline	done	4 out of 4 OK	11.2	done 14.5.09, J.D.					OK, 2.6.09, C.S.	
QBQI.32R1	M3-corridor	done	3 out of 4 OK	52.3	done 14.5.09, J.D.	OK, 29.5.09, C.S.	OK, 2.6.09, G.T.	10.2	done 2.6.06, J.D.	OK, 2.6.09, C.S.	
	M3-cryoline	done	4 out of 4 OK	12.5	done 14.5.09, J.D.	OK, 29.5.09, C.S.	OK, 2.6.09, G.T.		done 2.6.06, J.D.	OK, 2.6.09, C.S.	
QQBI.32R1	M3-corridor	done	4 out of 4 OK	10.8	done 19.5.09, J.D.	OK, 29.5.09, C.S.	OK, 2.6.09, G.T.	10.3	done, 2.6.06, J.D.	OK, 3.6.09, C.S.	
	M3-cryoline	done	4 out of 4 OK	10.8	done 19.5.09, J.D.	OK, 29.5.09, C.S.	OK, 2.6.09, G.T.	10.5	done 2.6.06, J.D.	OK, 3.6.09, C.S.	
QBBI.B30L2	M3-corridor	done	4 out of 4 OK	12.3	done 14.5.09, J.D.					OK, 2.6.09, C.S.	
	M3-cryoline	done	4 out of 4 OK	12.7	done 14.5.09, J.D.					OK, 2.6.09, C.S.	
QBBI.A30L2	M3-corridor										
	M3-cryoline										
QBQI.18L2	M3-corridor										
	M3-cryoline										
QQBI.17L2	M3-corridor										
	M3-cryoline										
QBBI.B17L2	M3-corridor										
	M3-cryoline										
QBBI.A17L2	M3-corridor										
	M3-cryoline										

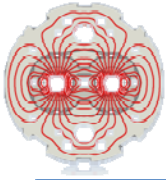
- All M3 splices repaired, big QC effort
- Rewelding sleeves finished
- Several Vacuum sectors under leak test
- Close last W bellows 9 June



5-6 M3 splice resistance (copper)



Courtesy R. Flora, G. Trachez



5-6 splice repair

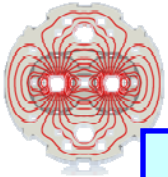
Intr. number	Main busbars	Photos (before unsoldering)	US-test (before unsoldering)	R-16 (before unsoldering)	Gamma ray control (before unsoldering)	Visual inspection after repair	US-test after repair	R-16 after repair	Gamma ray control after repair	QC insulation main bus bars
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5-6

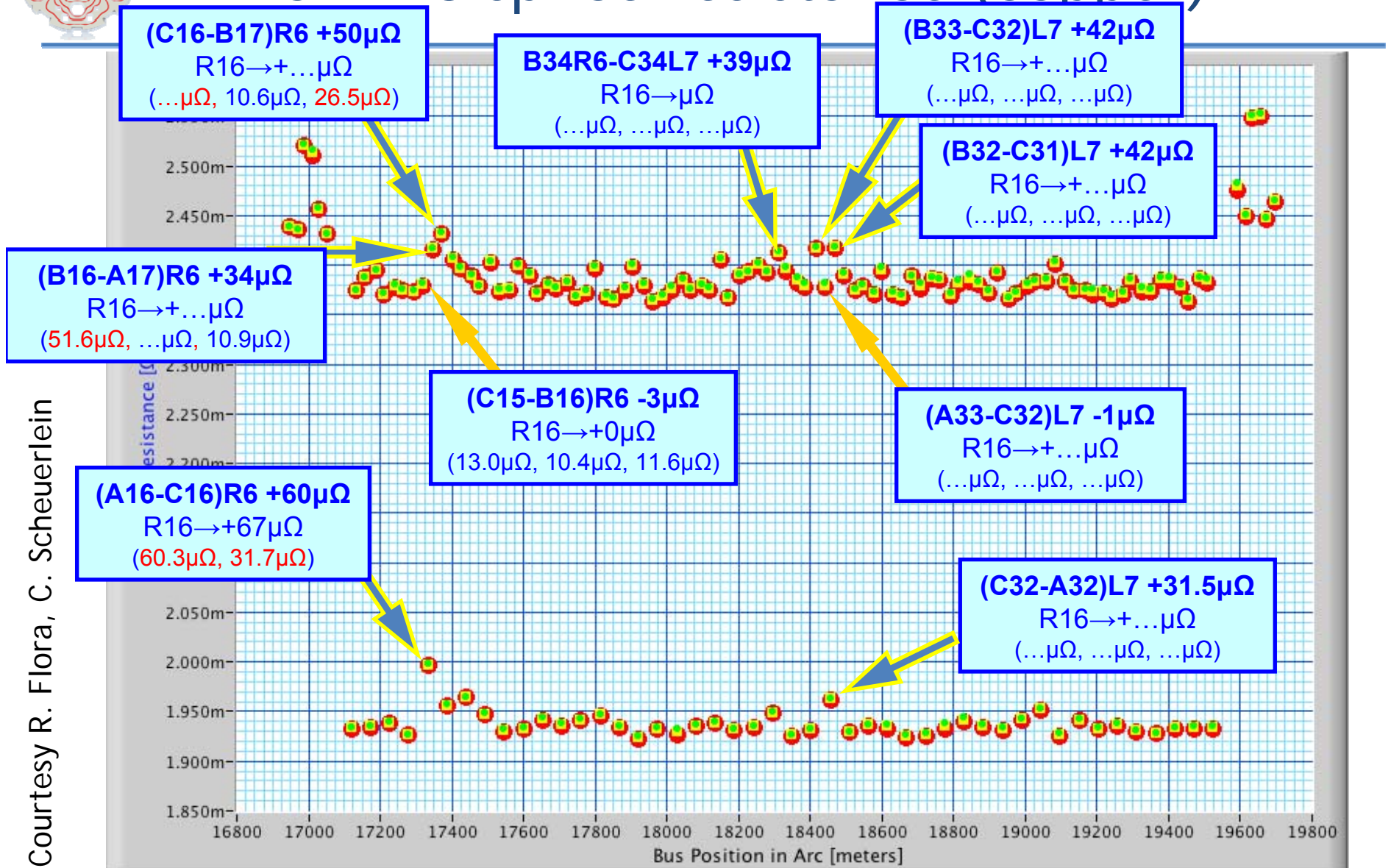
Intr. number	Main busbars	Photos (before unsoldering)	US-test (before unsoldering)	R-16 (before unsoldering)	Gamma ray control (before unsoldering)	Visual inspection after repair	US-test after repair	R-16 after repair	Gamma ray control after repair	QC insulation main bus bars
QBEL11RS	M-sleeves closed									
QEGL11RS	M3-corridor	done	planned 4.6.09	planned 4.6.09	planned 4.6.09					
	M3-cryoline	done	planned 4.6.09							
QBEL18RS	M3-corridor	done	planned 4.6.09							
	M3-cryoline	done	planned 4.6.09							
QBEL18RS	M3-corridor	to be repaired	planned 4.6.09							
	M3-cryoline	done	planned 4.6.09							
QBEL18RS	M3-corridor	done	planned 4.6.09							
	M3-cryoline	done	planned 4.6.09							
QBELA19RS	M3-corridor	done	planned 4.6.09							
	M3-cryoline	to be repaired	planned 4.6.09							
QBEL19RS	M3-corridor	done	planned 4.6.09							
	M3-cryoline	done	planned 4.6.09							
QBEL19RS	M3-corridor	to be repaired	planned 4.6.09							
	M3-cryoline	to be repaired	planned 4.6.09							
QBEL23RS	M3-corridor	done	planned 4.6.09							
	M3-cryoline	done	planned 4.6.09							
QBEL23RS	M3-corridor	done	planned 4.6.09							
	M3-cryoline	done	planned 4.6.09							
QBEL15LS	M3-corridor	to be repaired	planned 4.6.09							
	M3-cryoline	done	planned 4.6.09							
QBEL14LS	M3-corridor	to be repaired	planned 4.6.09	10.5	26.5.09, J.-M.D.					
	M3-cryoline	to be repaired	planned 4.6.09	13.0	26.5.09, J.-M.D.					
QBEL14LS	M3-corridor	done	planned 4.6.09	10.5	26.5.09, J.-M.D.					
	M3-cryoline	to be repaired	planned 4.6.09	10.7	26.5.09, J.-M.D.					
QBEL14LS	M3-corridor	done	planned 4.6.09	11.6	26.5.09, J.-M.D.					
	M3-cryoline	to be repaired	planned 4.6.09	11.0	26.5.09, J.-M.D.					
QBEL14LS	M3-corridor	to be repaired	planned 4.6.09	10.6	26.5.09, J.-M.D.					
	M3-cryoline	to be repaired	planned 4.6.09	10.8	26.5.09, J.-M.D.					
QEEL11LS	M1-corridor	done	planned 4.6.09	planned 4.6.09	planned 4.6.09					
	M1-cryoline	done	planned 4.6.09	planned 4.6.09	planned 4.6.09					
QEEL11LS	M1-corridor	done	planned 4.6.09	planned 4.6.09	planned 4.6.09					
	M1-cryoline	done	planned 4.6.09	planned 4.6.09	planned 4.6.09					
	M2-corridor	done	planned 4.6.09	planned 4.6.09	planned 4.6.09					
	M2-cryoline	done	planned 4.6.09	planned 4.6.09	planned 4.6.09					
	M3-corridor	done	planned 4.6.09	10.4	planned 4.6.09					
	M3-cryoline	done	planned 4.6.09	10.5	planned 4.6.09					
QEEL5LS	M3-corridor	done	planned 4.6.09	11.6	planned 4.6.09					
	M3-cryoline	done	planned 4.6.09	11.9	planned 4.6.09					



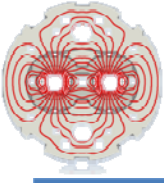
Courtesy C. Scheuerlein



6-7 M3 splice resistance (copper)



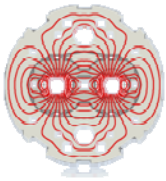
Courtesy R. Flora, C. Scheuerlein



Sector 6-7

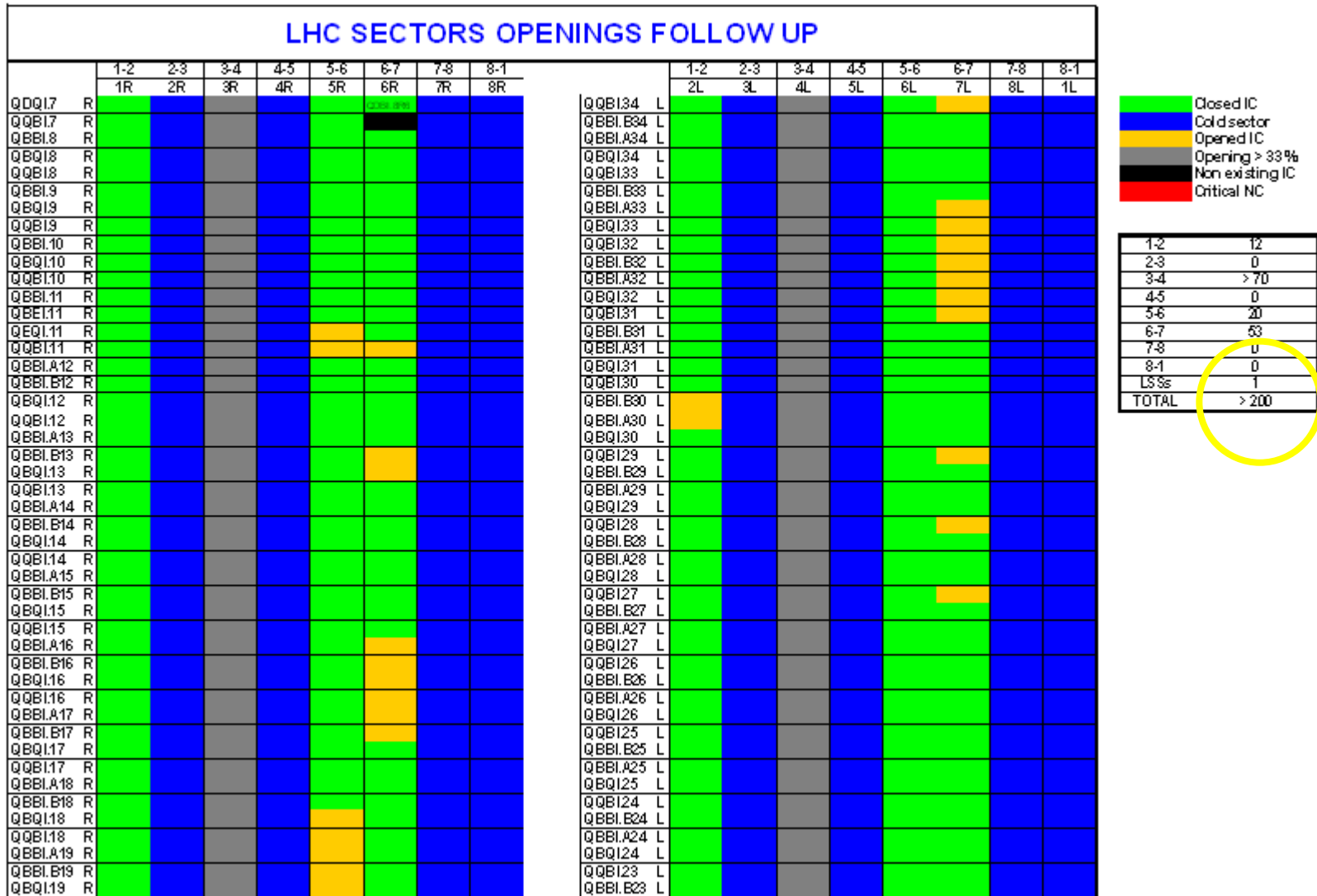
Wt. number	Main numbers	P-factor (before uncol diving)	LS-test (before uncol diving)	R-16 (before uncol diving)
6-7				
OB0119R	M 1-corrtd or M 1-cryoline	C: 3, 3, 6, 0, 9		32, 0
		C: 3, 3, 6, 0, 9		26, 2
	M 2-corrtd or	C: 3, 3, 6, 0, 9		20, 8
	M 2-cryoline	C: 3, 3, 6, 0, 9		19, 7
	M 3-corrtd or	C: 3, 3, 6, 0, 9		10, 8
	M 3-cryoline	C: 3, 3, 6, 0, 9		19, 6
QB0115R	M 3-corrtd or	C: 3, 3, 6, 0, 9		18, 0
	M 3-cryoline	C: 3, 3, 6, 0, 9		12, 1
QB0115R	M 3-corrtd or	C: 3, 3, 6, 0, 9		10, 4
	M 3-cryoline	C: 3, 3, 6, 0, 9		10, 6
QB01A15R	M 3-corrtd or	C: 3, 4, 6, 0, 9		11, 6
	M 3-cryoline	C: 3, 4, 6, 0, 9		80, 3
QB0115R	M 3-corrtd or	C: 3, 4, 6, 0, 9		61, 6
	M 3-cryoline	C: 3, 4, 6, 0, 9		31, 7
QB0115R	M 3-corrtd or	C: 3, 4, 6, 0, 9		
	M 3-cryoline	C: 3, 4, 6, 0, 9		
QB0115R	M 3-corrtd or	C: 3, 4, 6, 0, 9		10, 9
	M 3-cryoline	C: 3, 4, 6, 0, 9		10, 6
QB01A17R	M 3-corrtd or	C: 3, 4, 6, 0, 9		10, 8
	M 3-cryoline	C: 3, 4, 6, 0, 9		26, 6
QB01A16R	M 3-corrtd or			
	M 3-cryoline			
QB01A16R	M 3-corrtd or			
	M 3-cryoline			
QB01A17	M 3-corrtd or			
	M 3-cryoline			
QB01A02.7	M 3-corrtd or			
	M 3-cryoline			
QB0130.7	M 3-corrtd or			
	M 3-cryoline			
QB01A02.7	M 3-corrtd or			
	M 3-cryoline			
QB0130.7	M 3-corrtd or			
	M 3-cryoline			
QB01A11.7	M 3-corrtd or			
	M 3-cryoline			
QB0117.7	M 1-corrtd or	C: 3, 4, 6, 0, 9		
	M 1-cryoline	C: 3, 4, 6, 0, 9		
QB01A17.7	M 1-corrtd or	C: 3, 4, 6, 0, 9		
	M 1-cryoline	C: 3, 4, 6, 0, 9		
QB01A17.7	M 1-corrtd or	C: 3, 4, 6, 0, 9		
	M 1-cryoline	C: 3, 4, 6, 0, 9		
QB0117.7	M 1-corrtd or	C: 3, 4, 6, 0, 9		
	M 1-cryoline	C: 3, 4, 6, 0, 9		
QB0116.7	M 1-corrtd or	C: 3, 4, 6, 0, 9		
	M 1-cryoline	C: 3, 4, 6, 0, 9		
QB01A16.7	M 1-corrtd or	C: 3, 4, 6, 0, 9		
	M 1-cryoline	C: 3, 4, 6, 0, 9		
QB01A16.7	M 1-corrtd or	C: 3, 4, 6, 0, 9		
	M 1-cryoline	C: 3, 4, 6, 0, 9		
QB0116.7	M 1-corrtd or			
	M 1-cryoline			
QB0117.7	M 3-corrtd or			11, 8
	M 3-cryoline			18, 7

- Last PIMs welded
- RF Ball test successfully passed

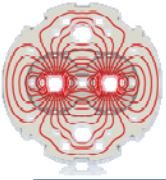


W to be closed: equivalent to 1 sector!

LHC SECTORS OPENINGS FOLLOW UP



Courtesy J.P. Tock

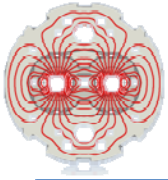


M1&M2 Hit List 300K 3 sectors

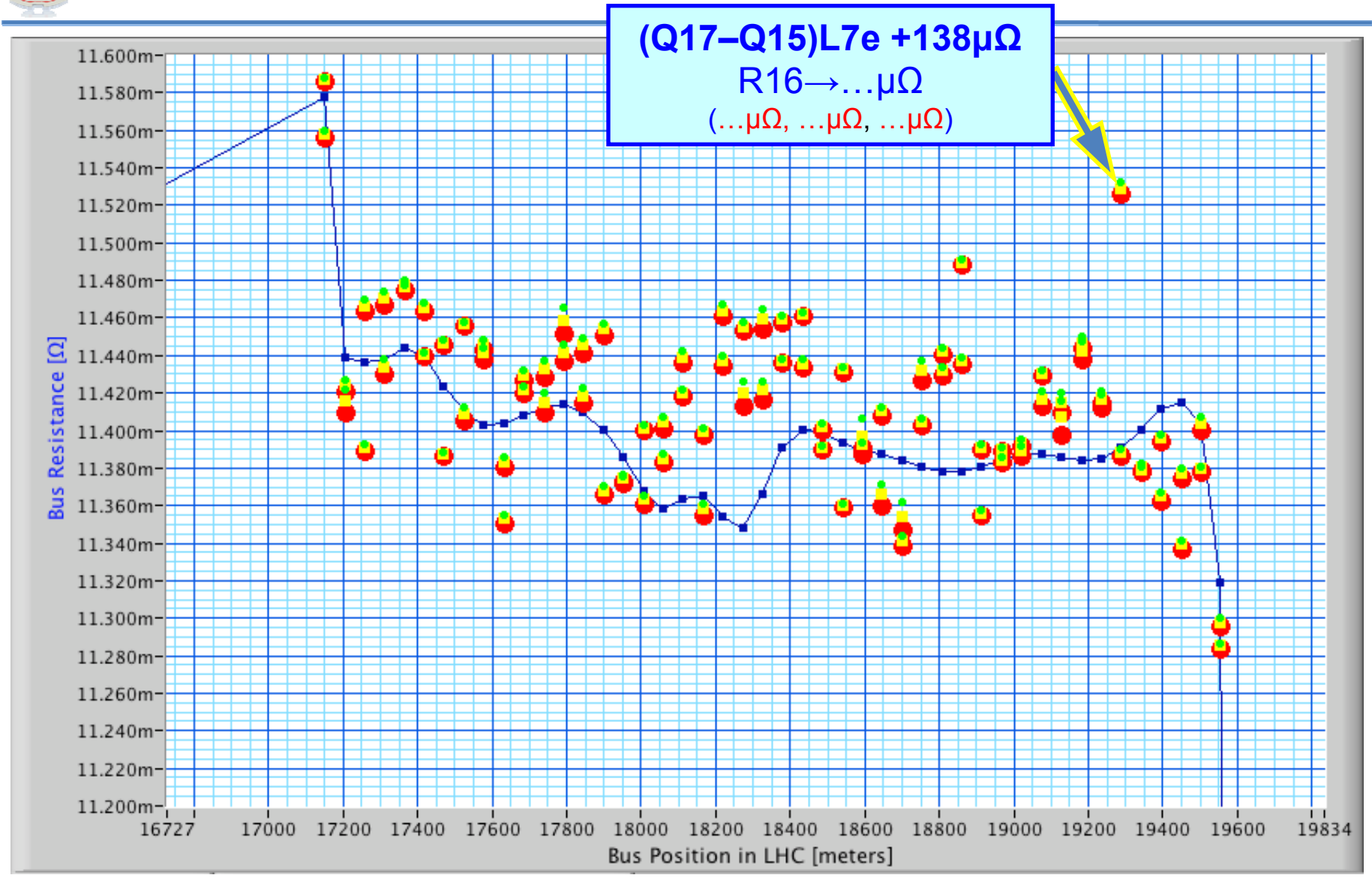
Hit List		
∂R [Ω]	x [m]	Bus Segment Span
138.1u	19287	RQAT.[Q17L7<->Q15L7]e
111.6u	18859	RQOA.[Q25L7<->Q23L7]e
110.2u	18218	RQOA.[Q31R6<->Q33R6]e
107.6u	18271	RQOB.[Q32R6<->Q34R6]e
93.5u	18325	RQOA.[Q33R6<->Q33L7]e
89.9u	13977	RQAT.[Q14R5<->Q16R5]e
89.1u	14084	RQAT.[Q16R5<->Q18R5]e
85.4u	1824	RQOA.[Q32L2<->Q30L2]e
83.7u	18218	RQOA.[Q31R6<->Q33R6]i
83.4u	14832	RQOA.[Q30R5<->Q32R5]e
79.2u	13870	RQAT.[Q12R5<->Q14R5]e
75.3u	18111	RQOA.[Q29R6<->Q31R6]e
71.9u	18271	RQOB.[Q32R6<->Q34R6]i
69.0u	18378	RQOB.[Q34R6<->Q32L7]e
66.3u	15687	RQOA.[Q22L6<->Q20L6]e
65.0u	1824	RQOA.[Q32L2<->Q30L2]i
64.6u	968	RQAT.[Q20R1<->Q22R1]e
64.2u	18806	RQOB.[Q26L7<->Q24L7]e

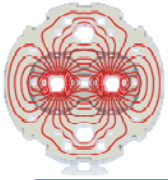
- 3-4 came later, but no significant change to list

Courtesy R. Flora

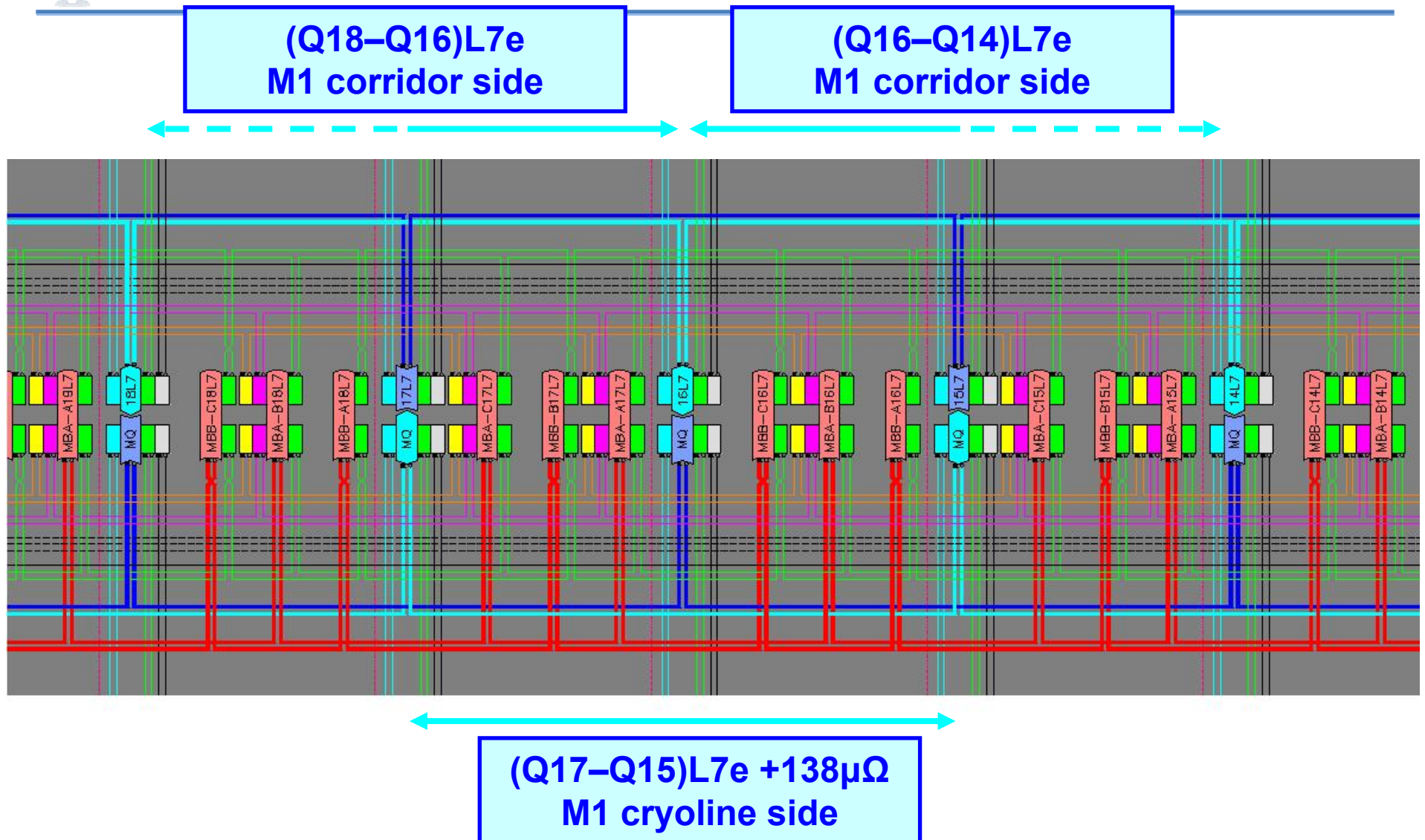


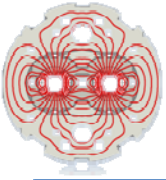
6-7 M1&M2 splice resistance (copper)



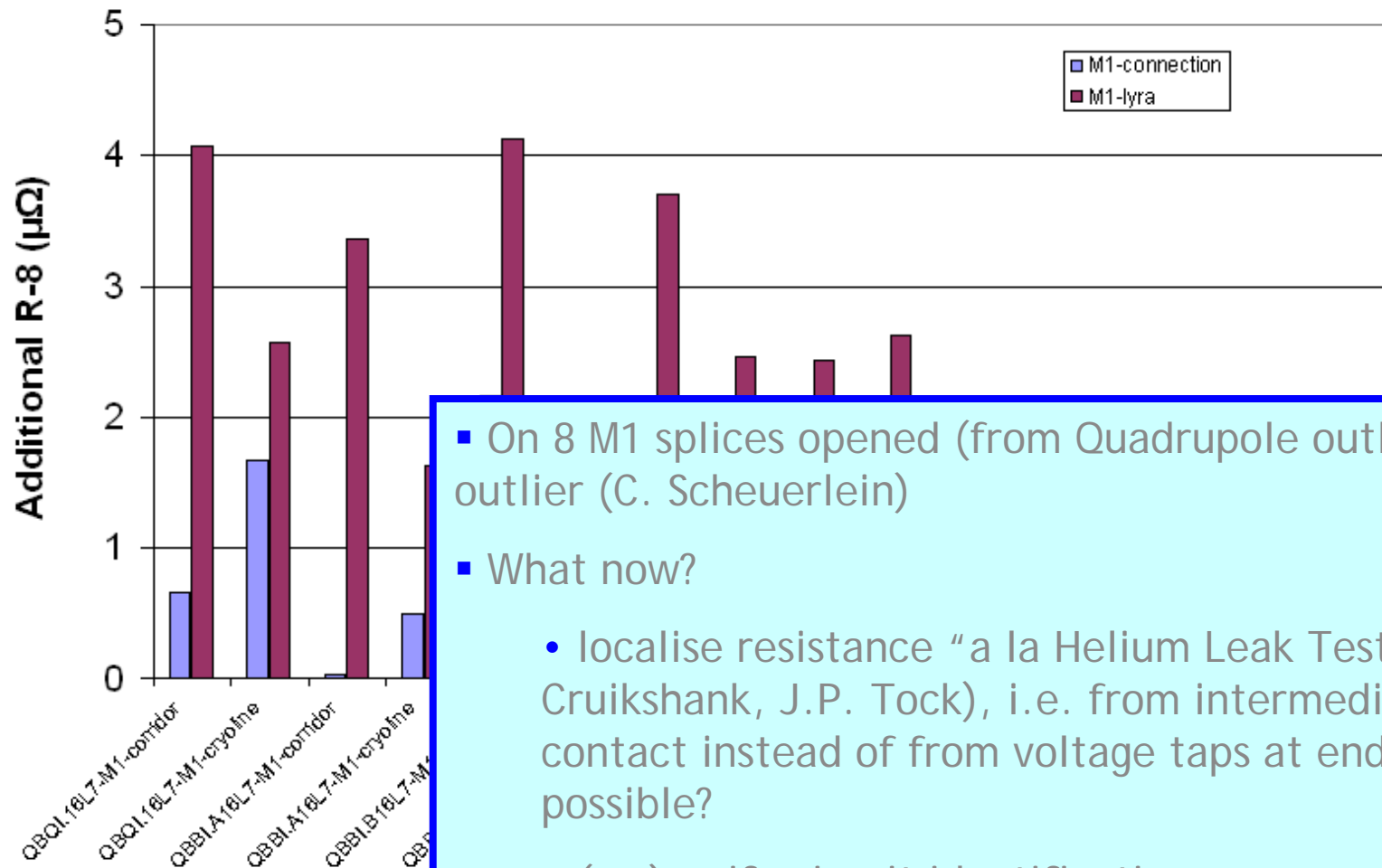


6-7 M1 splice resistance (copper)

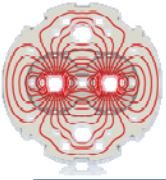




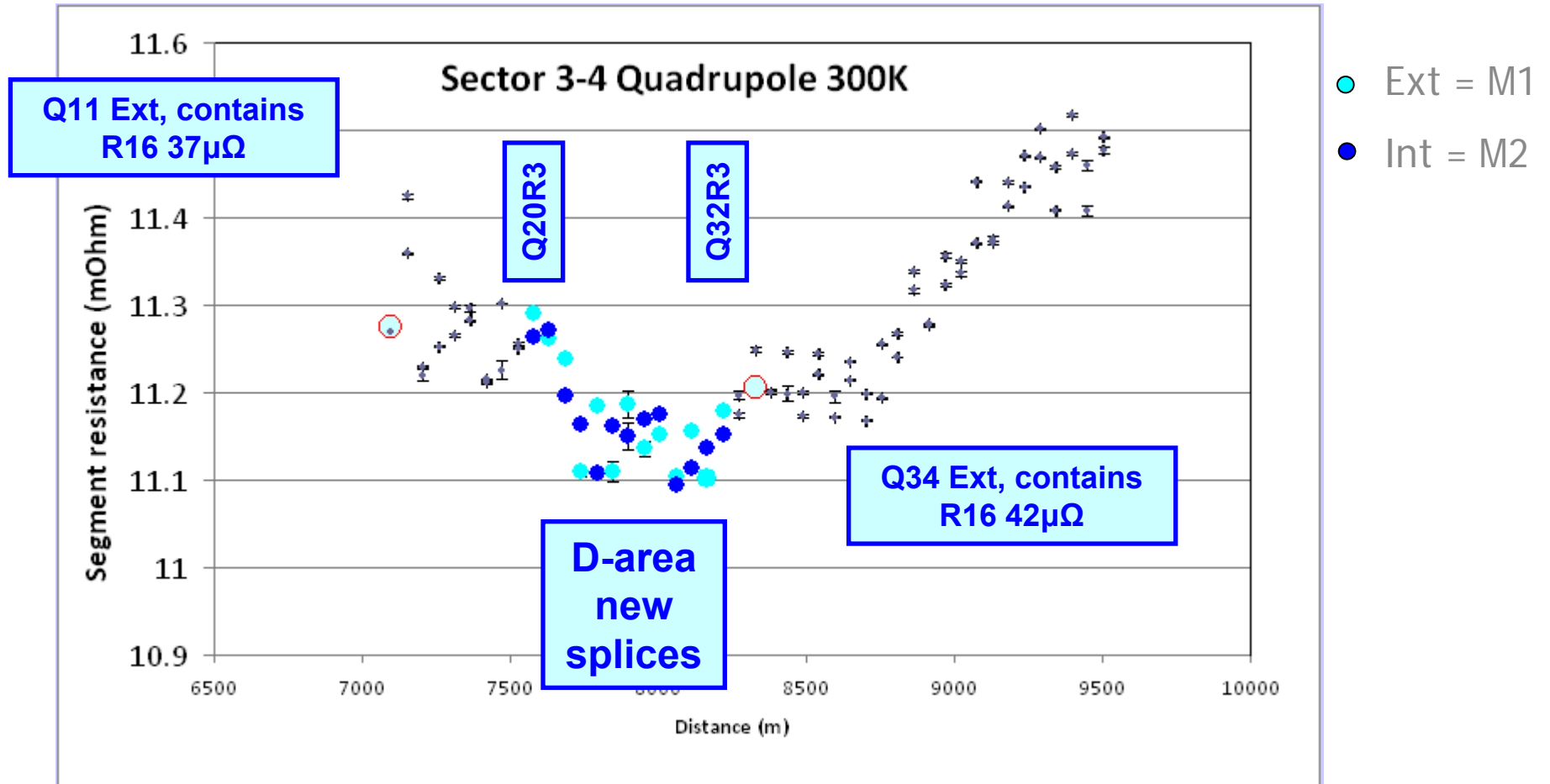
(Q17-Q15)L7 M1 R16 results

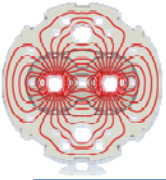


- On 8 M1 splices opened (from Quadrupole outlier), no R16 outlier (C. Scheuerlein)
- What now?
 - localise resistance “a la Helium Leak Testing” (P. Cruikshank, J.P. Tock), i.e. from intermediate busbar contact instead of from voltage taps at ends: should be possible?
 - (re-)verify circuit identification
 - open for 2 other Quad. outliers

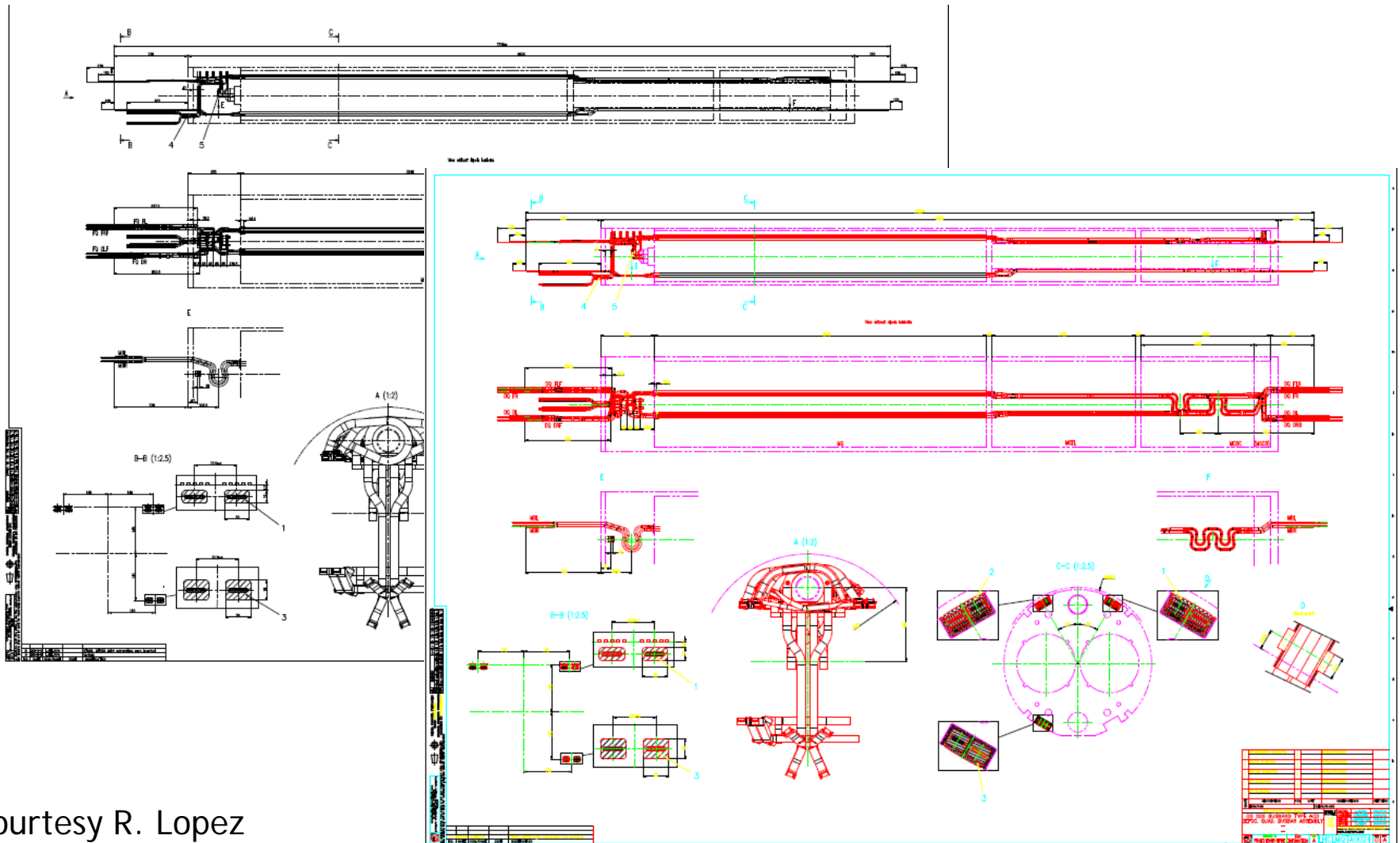


3-4 Quadrupoles: "R16 cf Bob"

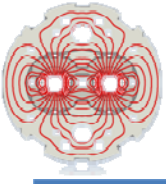


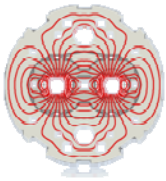


Details of M1&M2 geometry in SSS



Courtesy R. Lopez





Sector 4-5

MBA (B16-C15)L5

