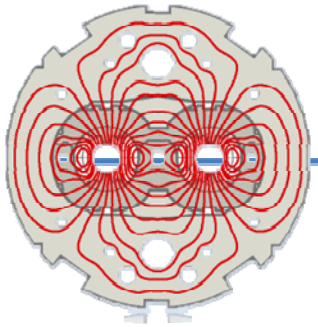
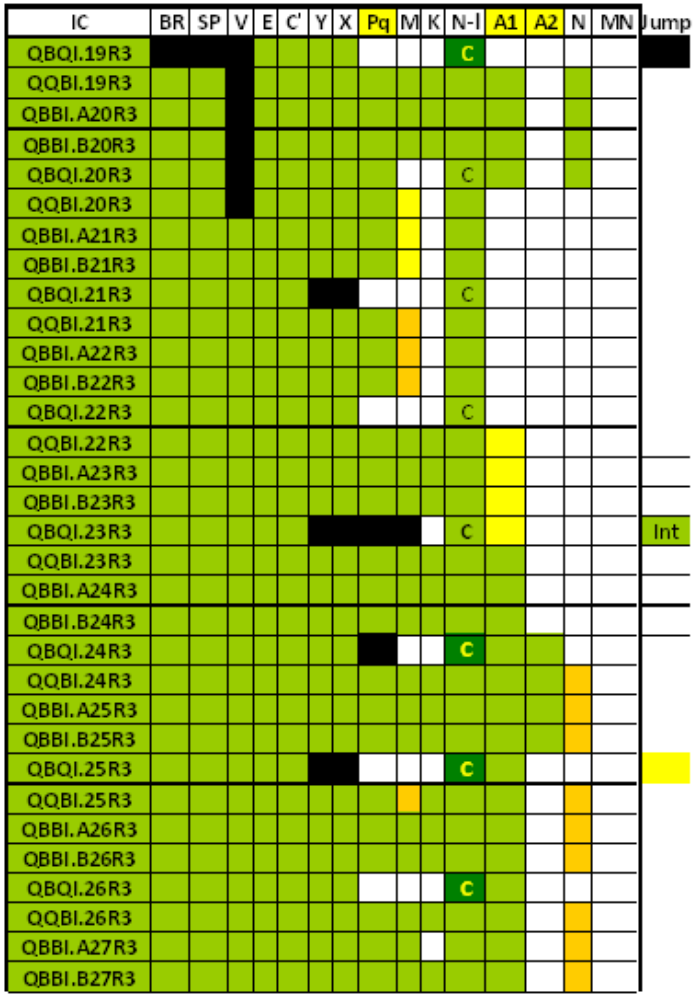


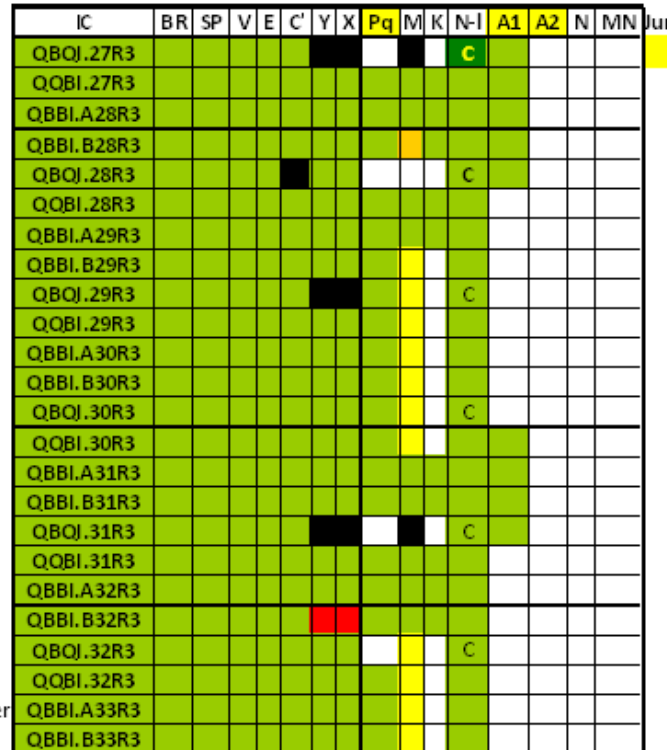
Status Report of Magnet Work Week 21 / 2009

Francesco Bertinelli – TE/MSC

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

Tunnel News 3-4 Week 21/2009





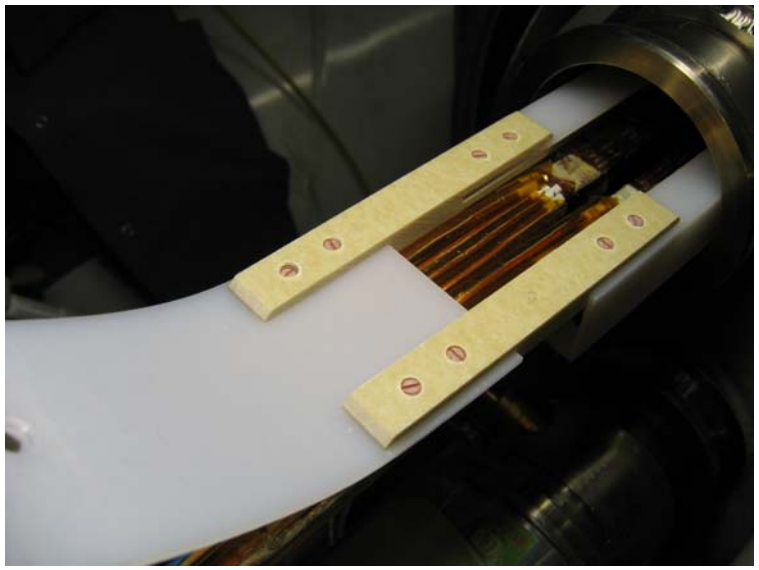
	Brazing	Spool	V	E	M	X	K
Week 13	8	6	7	8	0	0	
Week 14	9	7	10	11	3	0	
Week 15	5	4	2	1	0	0	
Week 16	5	1	7	7	0	0	
Week 17	5	14	6	8	3	15	
Week 18	4	6	2	0	11	7	
Week 19	4	4	7	0	7	19	16
Week 20	5	7	0	9	0	2	0

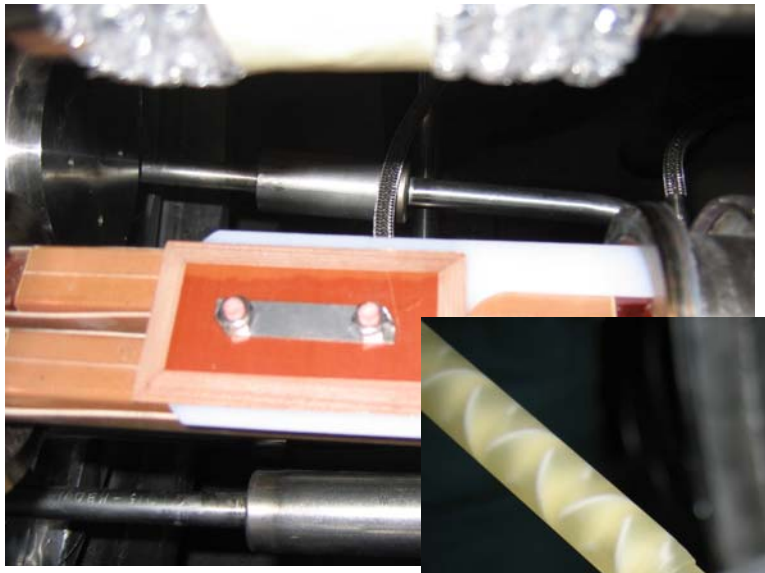
Courtesy J.P. Tock

Tunnel News 3-4 D-area

- Some milestones:
  - Finished welding first jumper lines Q23R3
  - All line-N cabling finished
  - MPAQ successful last Friday !!! ELQA OK to close 19R3
- Coactivity impact with cabling minimised: no IC work in D-area next Friday
- ELQA under pressure this week: AIV2 tests, L4 MPAQ (next Wednesday), MHVQN next Thursday possible depending on ELQA
- need to make progress with other jumpers (weld M3, then k, then vacuum testing before welding jumper lines can start).

Connection Cryostats

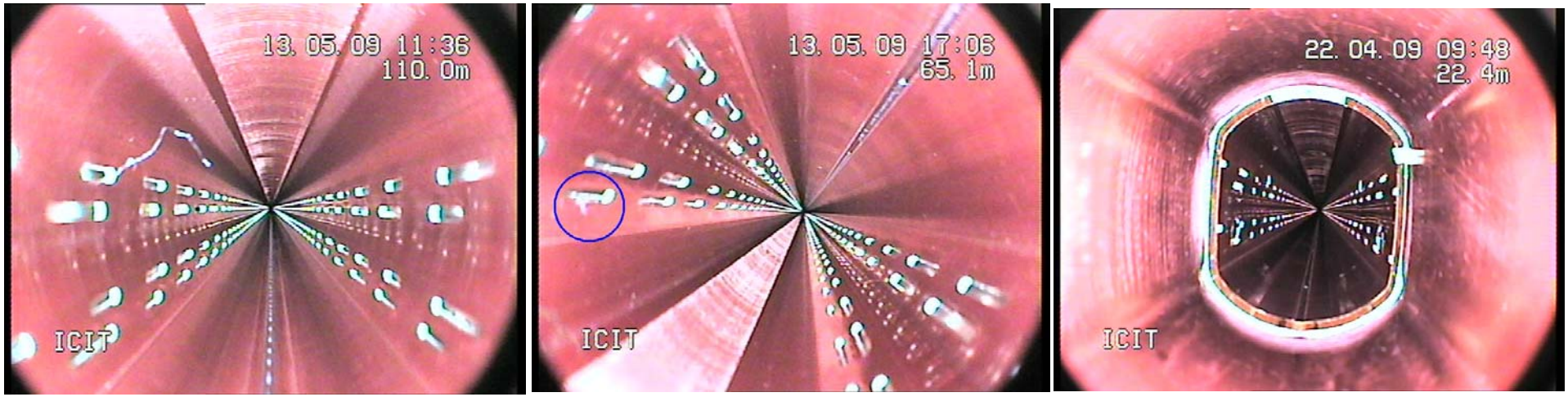




- Good progress
- Insulation fixed points successfully mounted
- 5-6: ready to perform ELQA before starting rewelding (a further 10 days to W closing)
- but will need to reperform ELQA after R16 interventions

Courtesy A. Vande Craen, J.P. Tock

6-7 endoscopy



- Long and short plastic shimmings, RF fingers, coloured areas ...
- sometimes removal is successful, sometimes not ...
- V1: 1321m, 47.1% of total arc length
  V2: 968m, 34.5% of total arc length
  ... and continues (until reach limit of endoscopy from a hole)
- 21 PIMs cut so far !

Courtesy P. Borowiec

80K radiation/thermal screens

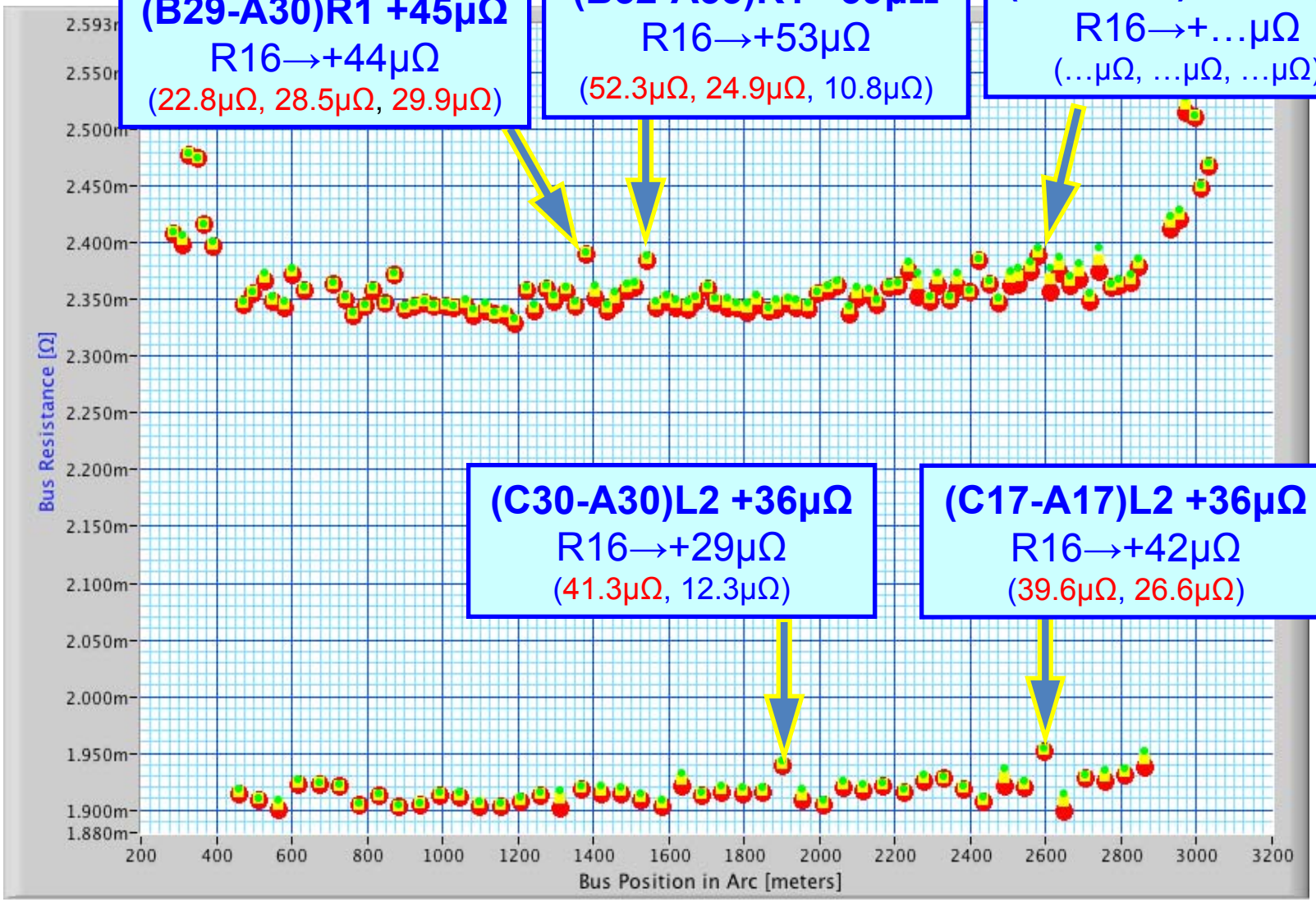
- Damage occured at both cool-down and warm-up

➢ Improve assembly procedure of screens

➢ Improve uniformity of temperature during cool-down operation, impact +1 day

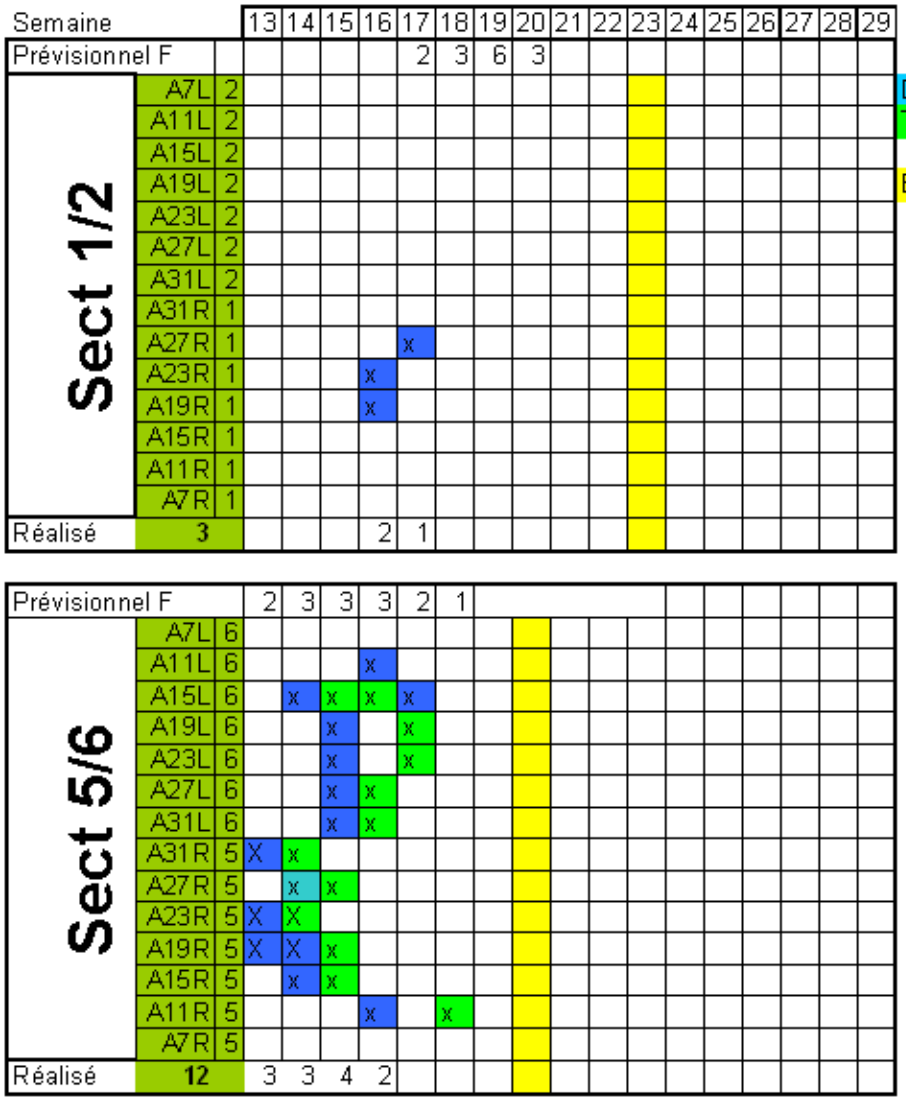
Courtesy G. Ferlin, S. Claudet, J.P. Tock

1-2 M3 splice resistance (copper)



Courtesy R. Flora, C. Scheuerlein

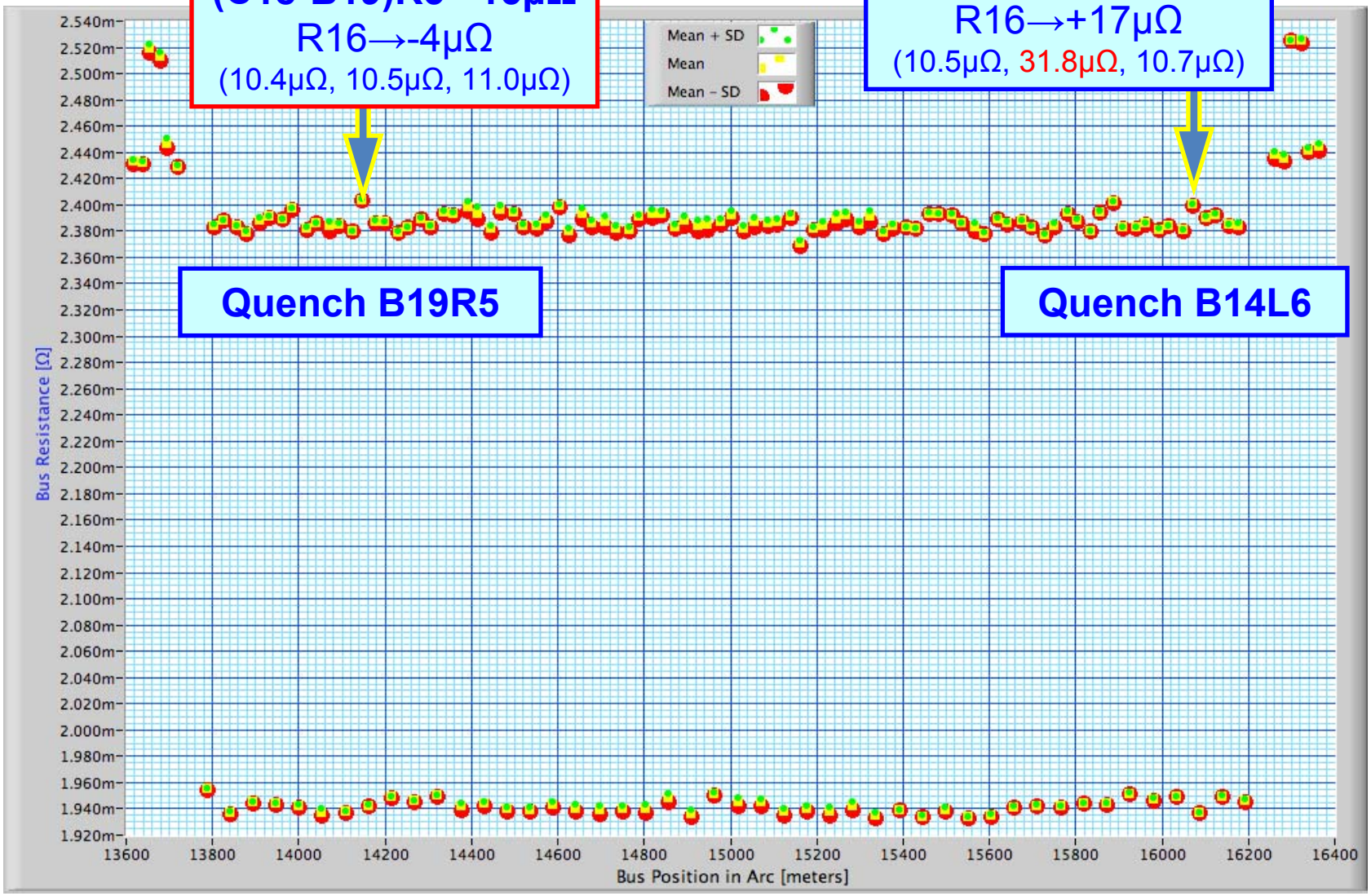
Impact on W closing and VACSEC testing



- 1-2: IC closed >90%, 3/14 VACSECs testing
- 5-6: IC closed >90%, 12/14 VACSECs tested but some reopened
- 6-7: IC closed >75%, 2/14 VACSECs tested
- 3-4: IC closed >15%, now closing in L4, no VACSECs tested
- W Teams working on reopenings (for R16 and for plastic shimmings in 6-7) and thermal screen repairs

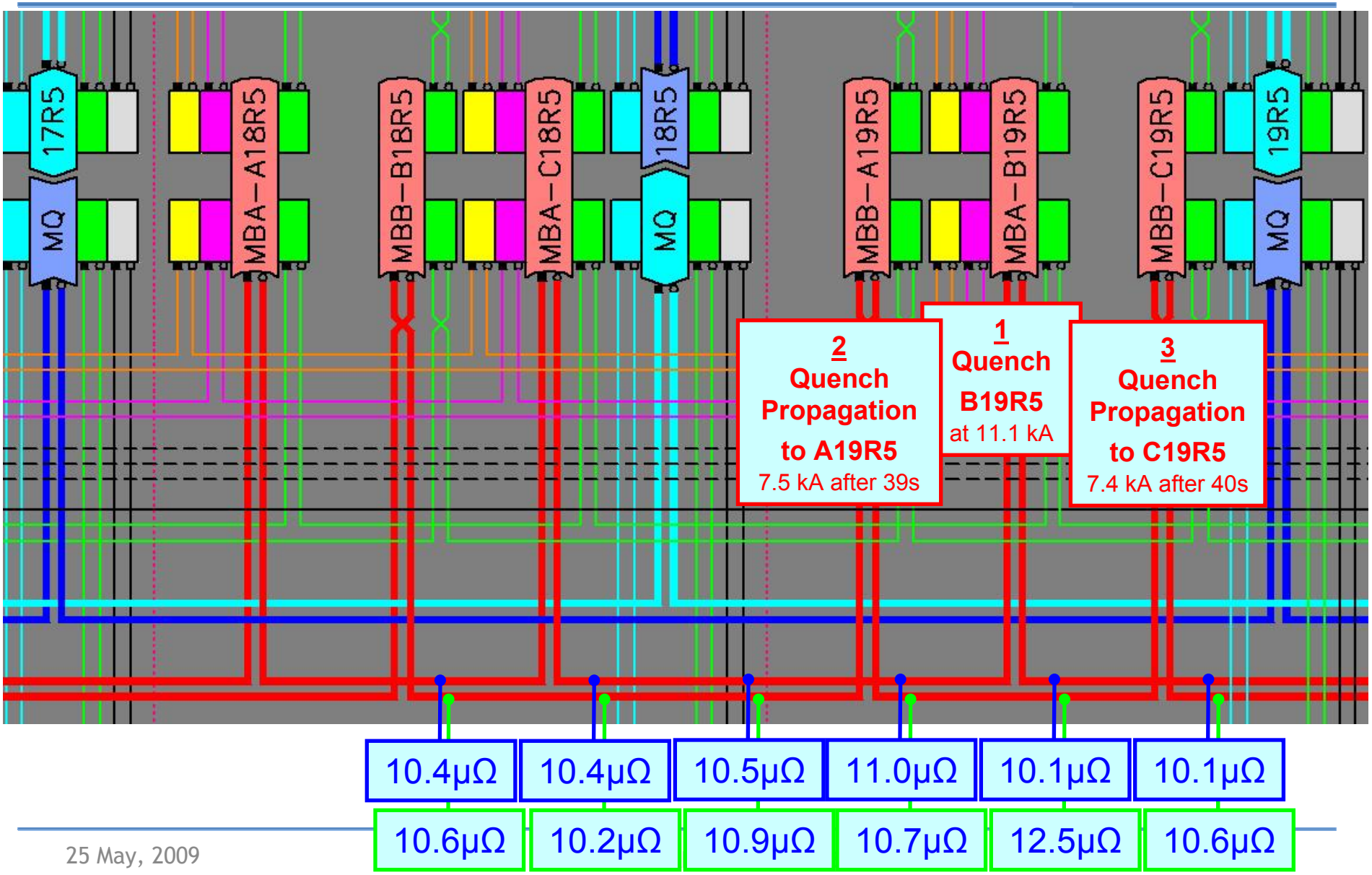
Courtesy A. Grimaud, P. Cruikshank, J.P. Tock

5-6 M3 splice resistance (copper)

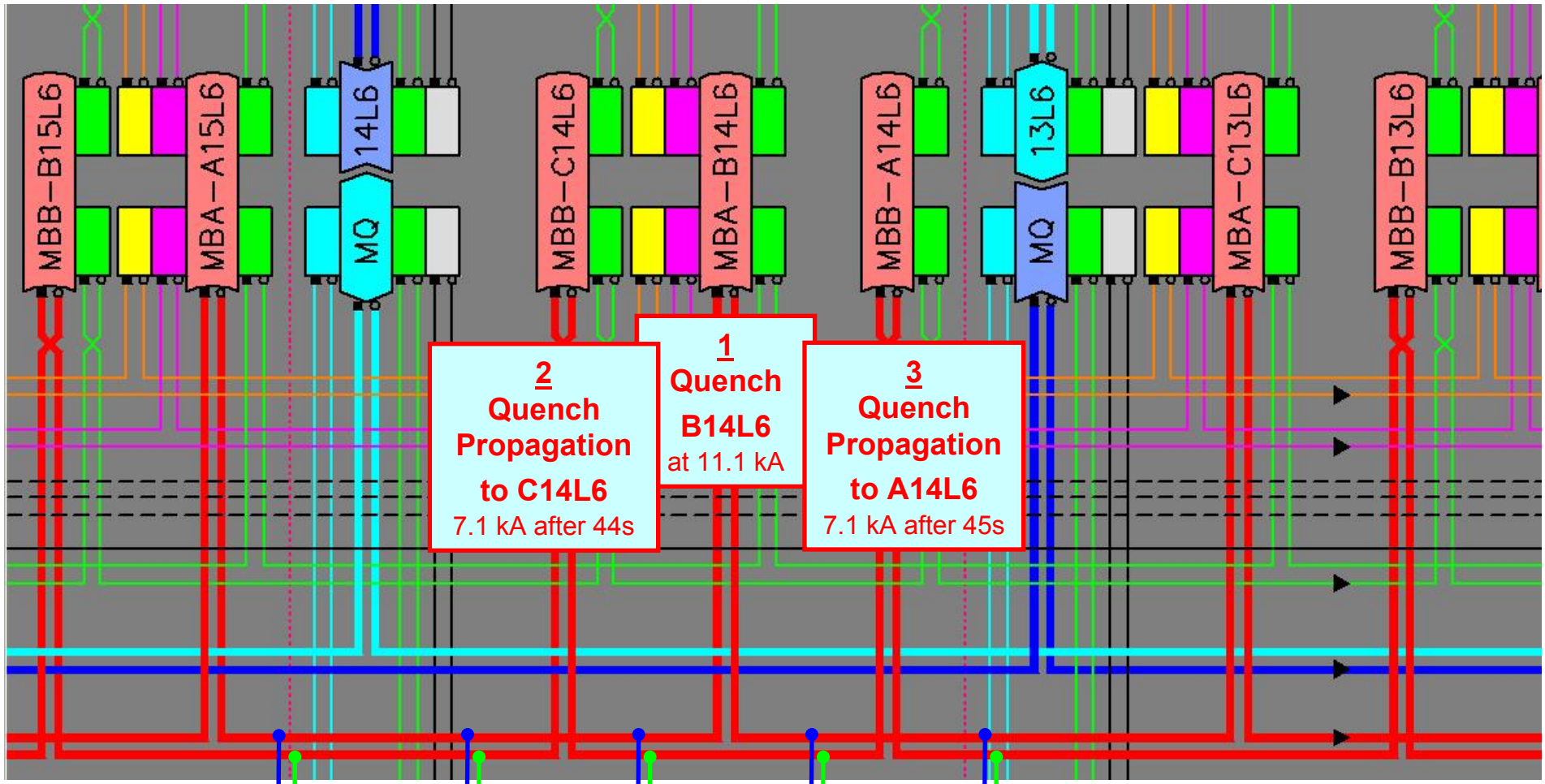


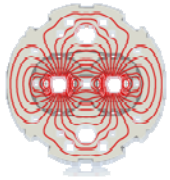
Courtesy R. Flora, G. Trachez

5-6 M3 R16 vs quench data



5-6 M3 R16 vs quench data





Pressure relief nozzles

- TE: need for a common approach to He deflection outside pressure relief nozzles (SAM, triplets, DFBs)

Where do we stop cutting?

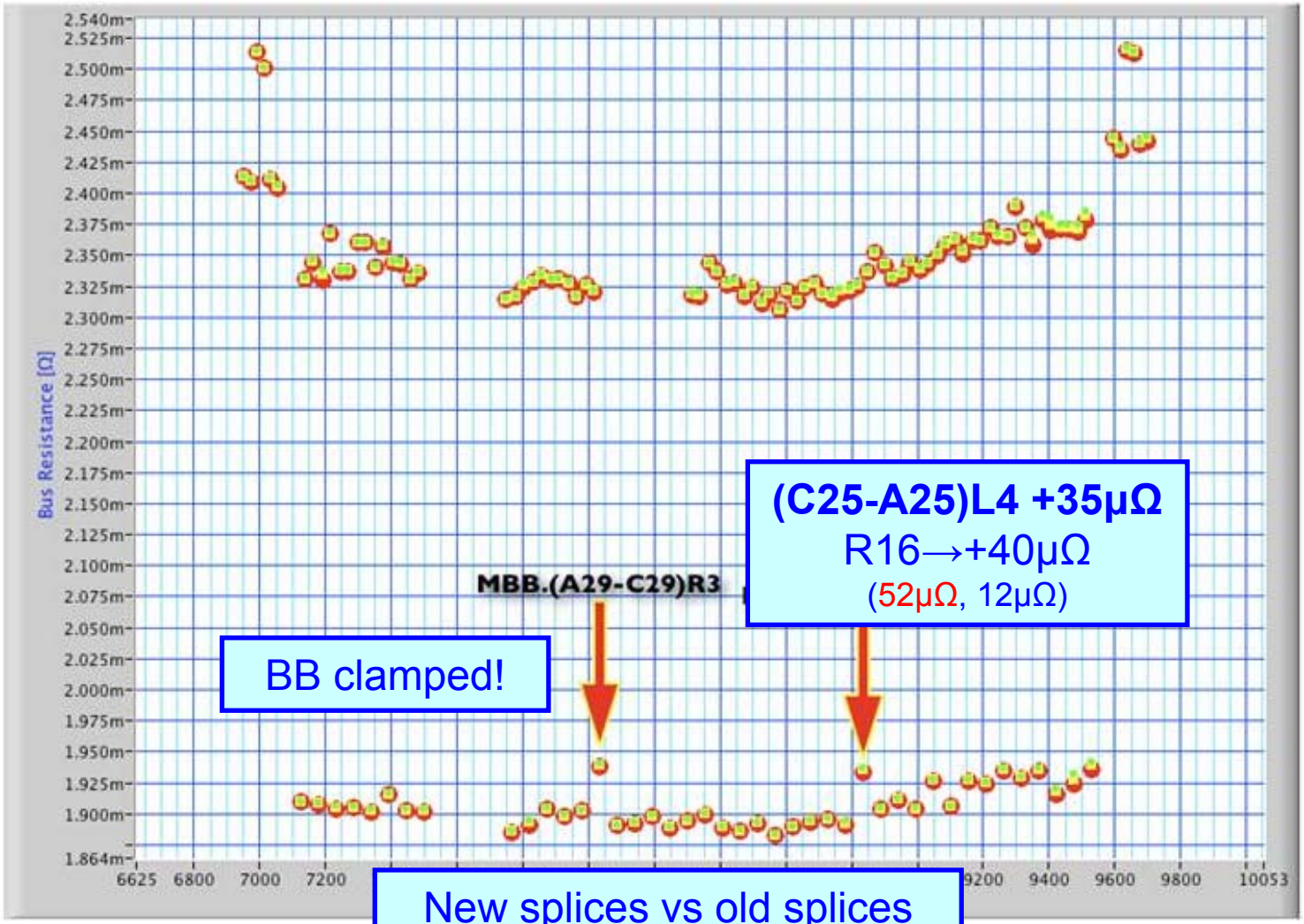
Courtesy R. Flora

Hit List

∂R [Ω]	x [m]	Bus Segment Span	
59.9u	17331	RBAR.[A16R6<->C16R6]	OK
49.7u	17369	RBAR.[C16R6<->B17R6]	OK
45.4u	1380	RBAR.[B29R1<->A30R1]	OK
44.9u	8029	RBBL.[A29R3<->C29R3]	False alarm
42.3u	18469	RBAR.[B32L7<->C31L7]	Open W
42.1u	18416	RBBR.[B33L7<->C32L7]	Open W
39.3u	1541	RBBR.[B32R1<->A33R1]	OK
38.8u	18309	RBBR.[B34R6<->C34L7]	Open W
35.7u	1899	RBBR.[C30L2<->A30L2]	OK
35.6u	2594	RBAR.[C17L2<->A17L2]	OK
35.3u	8831	RBAL.[C25L4<->A25L4]	OK
34.8u	2578	RBBR.[A18L2<->B17L2]	Open 2 additional IC (1 free)
33.8u	17347	RBBR.[B16R6<->A17R6]	OK, came free
33.7u	18149	RBAR.[B31R6<->A32R6]	3 additional IC?
31.5u	18454	RBBR.[C32L7<->A32L7]	Open W, comes free
30.9u	2418	RBAR.[A21L2<->B20L2]	3 additional IC?

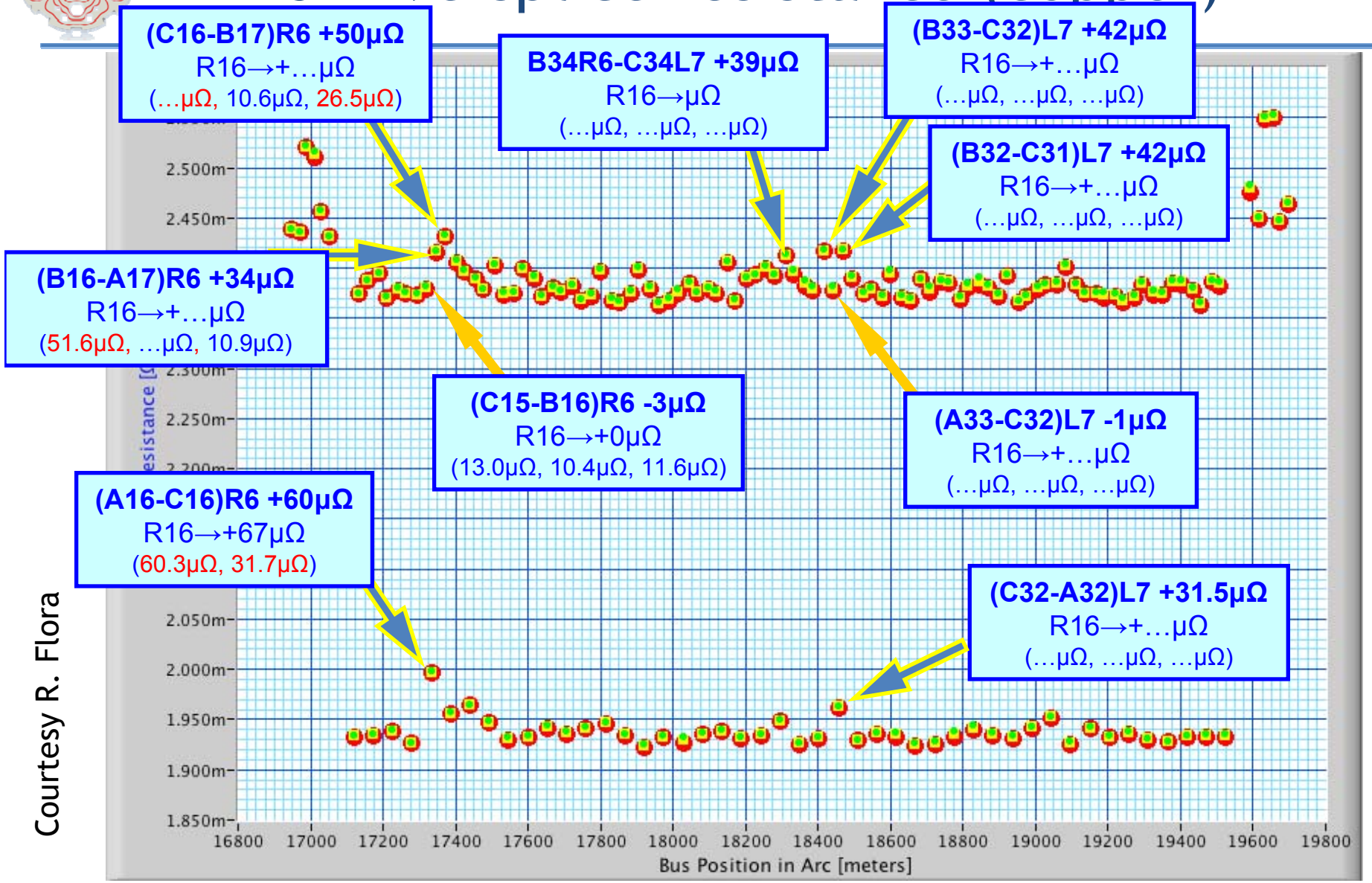
- Remember we are only dealing with warm M3 so far …
- need to start repairs now (after 3-4)
- for a proper job need portable milling machine, so work sequentially (1-2, 5-6, 6-7)
- Open&cut down to 35 μΩ (with some common sense exceptions below…), repair when R16>20μΩ

3-4 M3 splice resistance (copper)



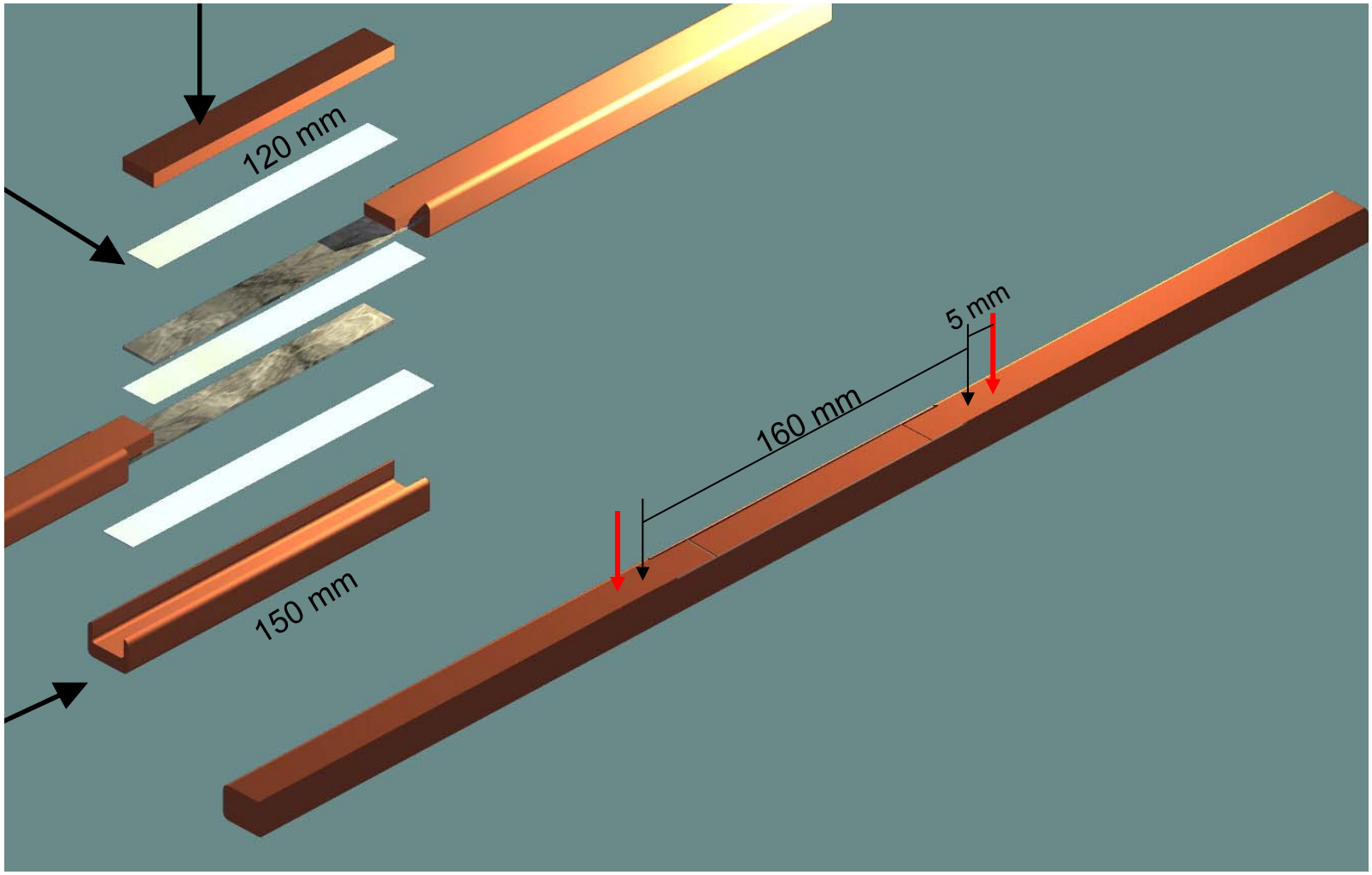
Courtesy R. Flora

6-7 M3 splice resistance (copper)

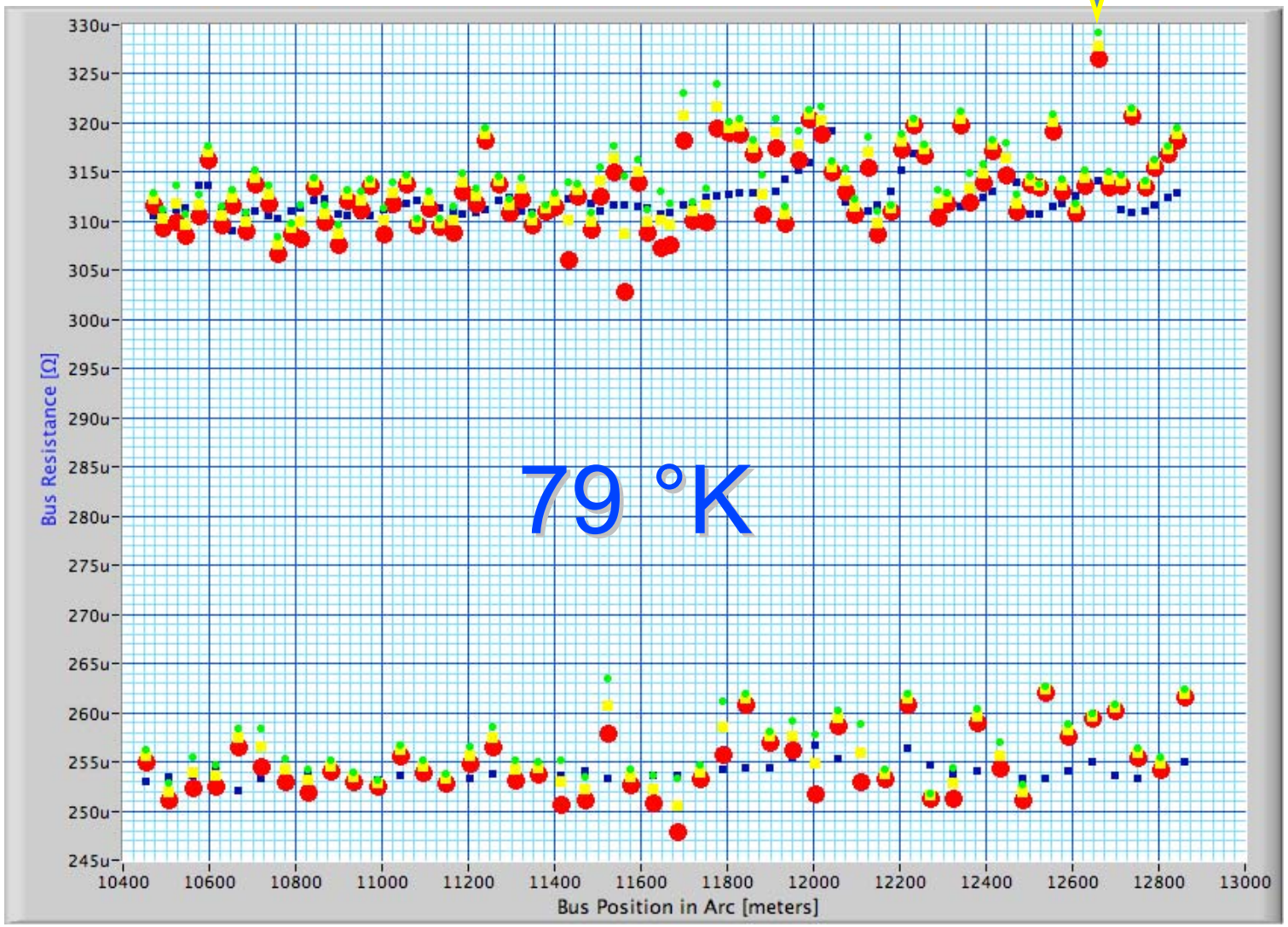


Courtesy R. Flora

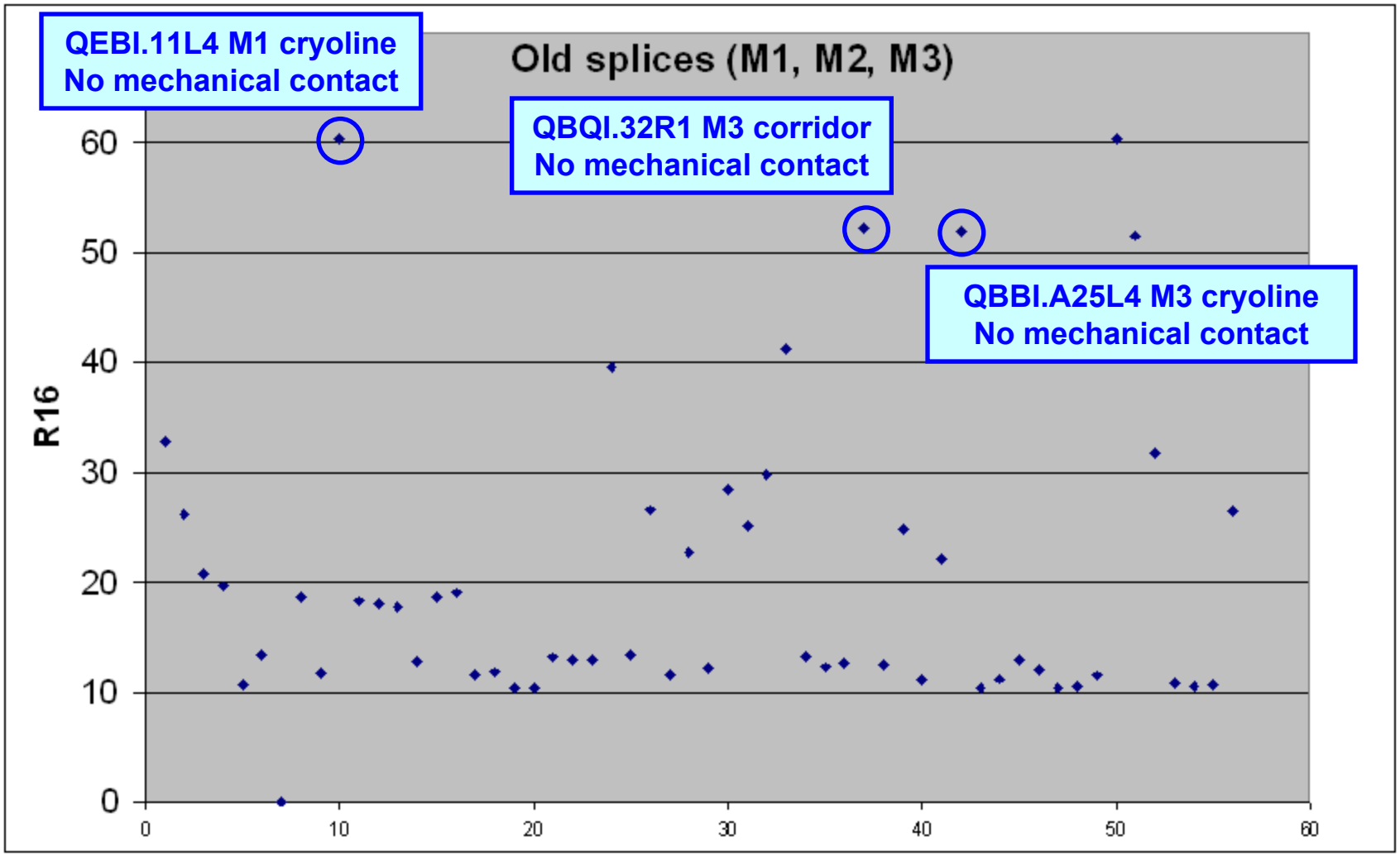
13kA splices



Sector 4-5


MBA (B16-C15)L5
79 °K
Bus Resistance [Ω]
330u
325u
320u
315u
310u
305u
300u
295u
290u
285u
280u
275u
270u
265u
260u
255u
250u
245u
10400
10600
10800
11000
11200
11400
11600
11800
12000
12200
12400
12600
12800
13000
Bus Position in Arc [meters]

13kA splices



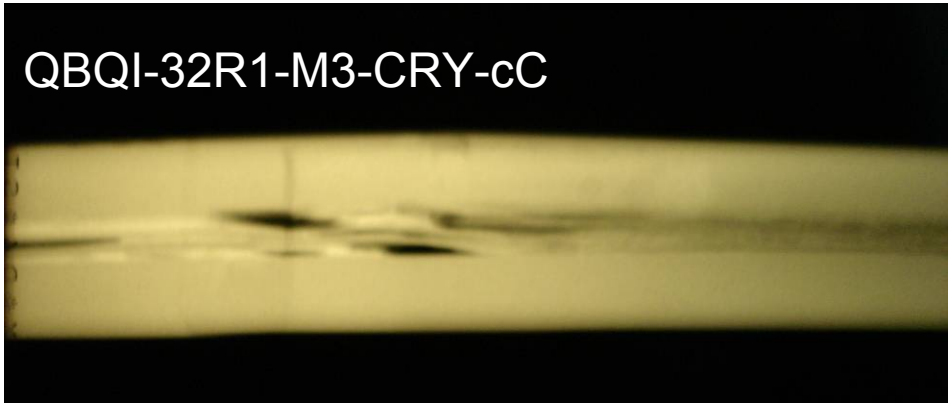
QBQI.32R1-M3

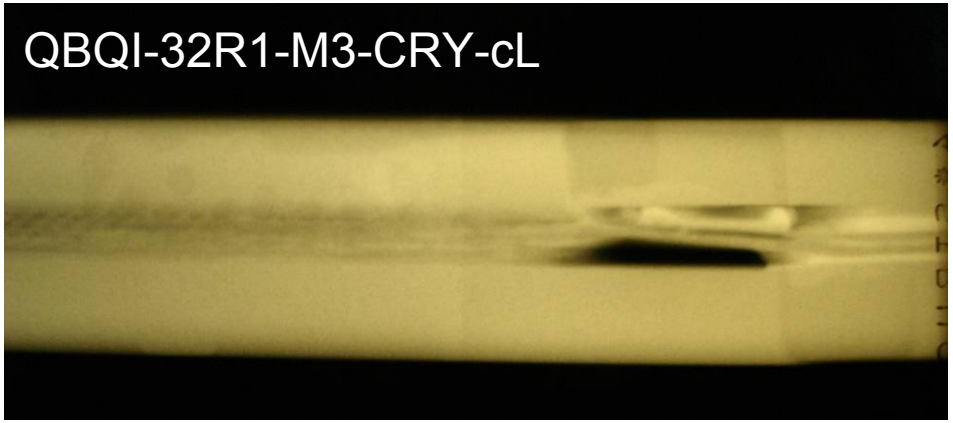
No mechanical contact at lyra side

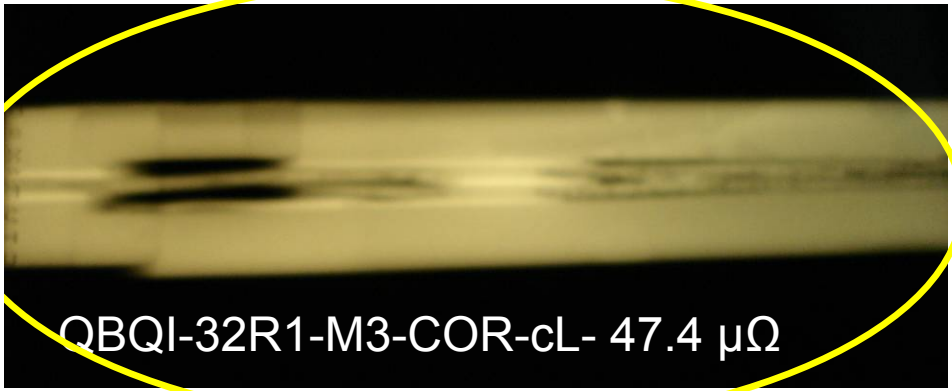
Brased by Soste, 24 May 2007

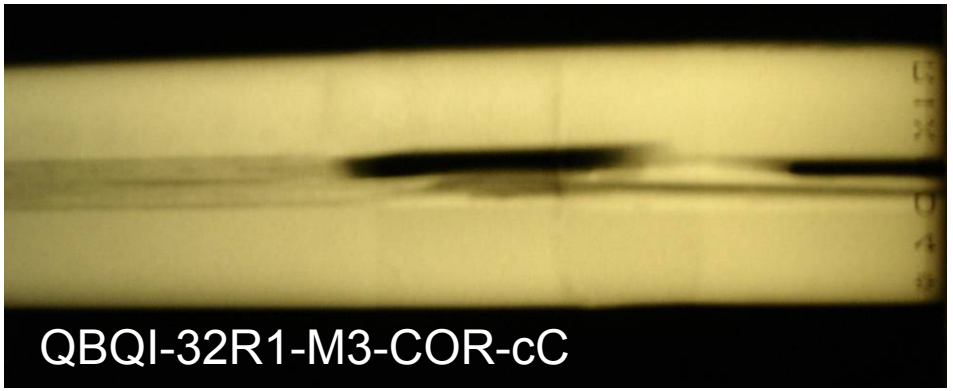
Courtesy C. Scheuerlein

Gamma rays QBQI.32R1-M3









Courtesy C. Scheuerlein

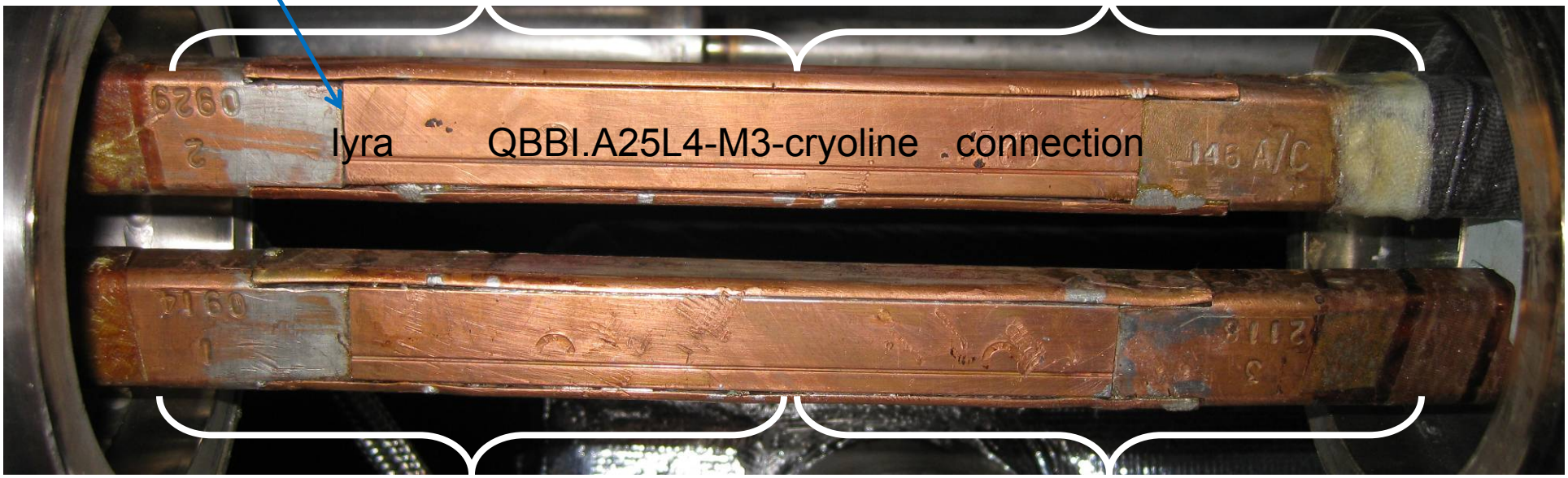
QBBI.A25L4-M3

No copper connection, can move up and down slightly

52.0 μΩ

36.1 μΩ

17.8 μΩ



16.4 μΩ

22.1 μΩ

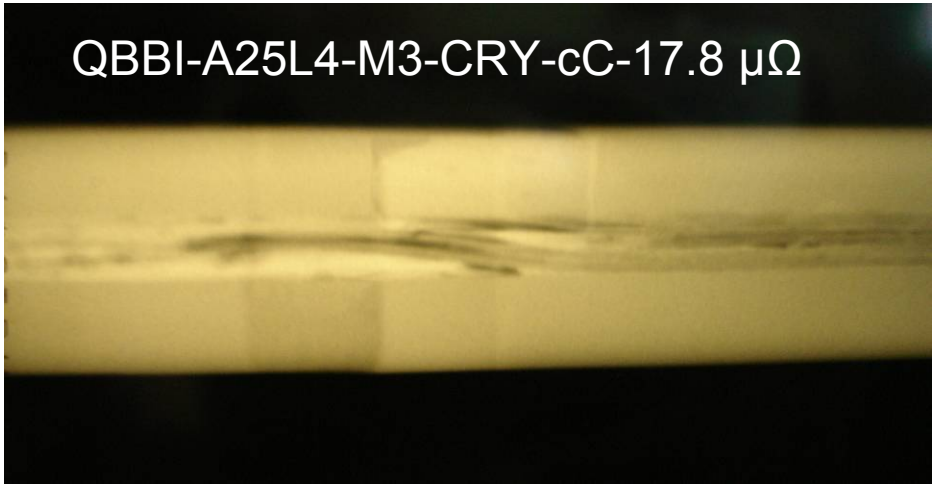
5.6 μΩ

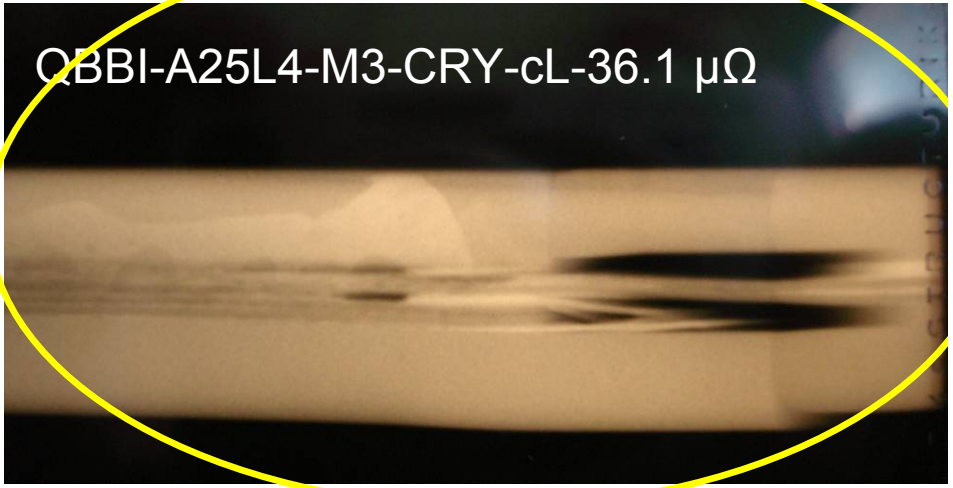
Brased by Cescutti/Lepaih on 25/10/2006 (total 3 IC for the day)

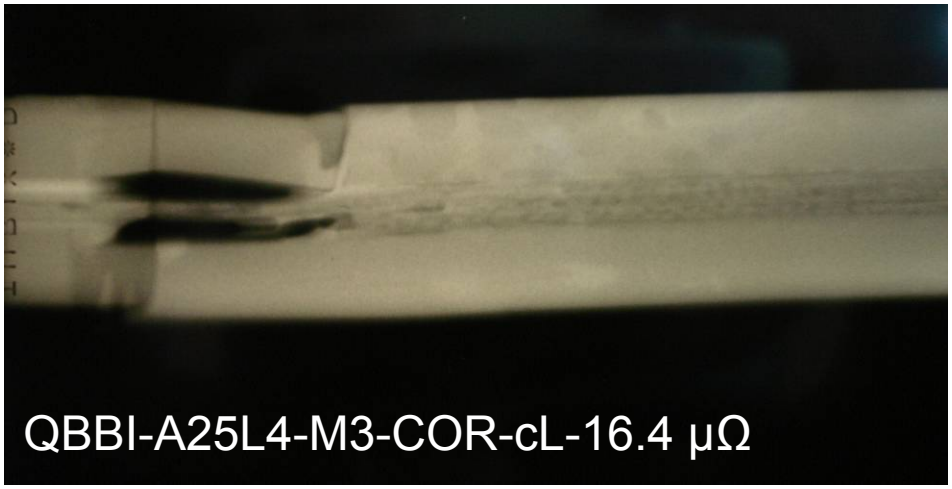
C.S., 20.5.09

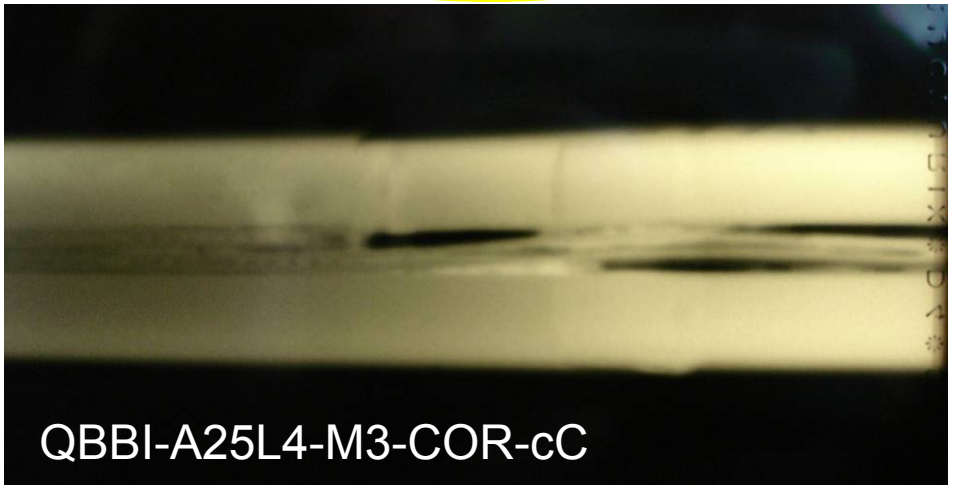
Courtesy C. Scheuerlein

Gamma rays QBBI.A25L4-M3





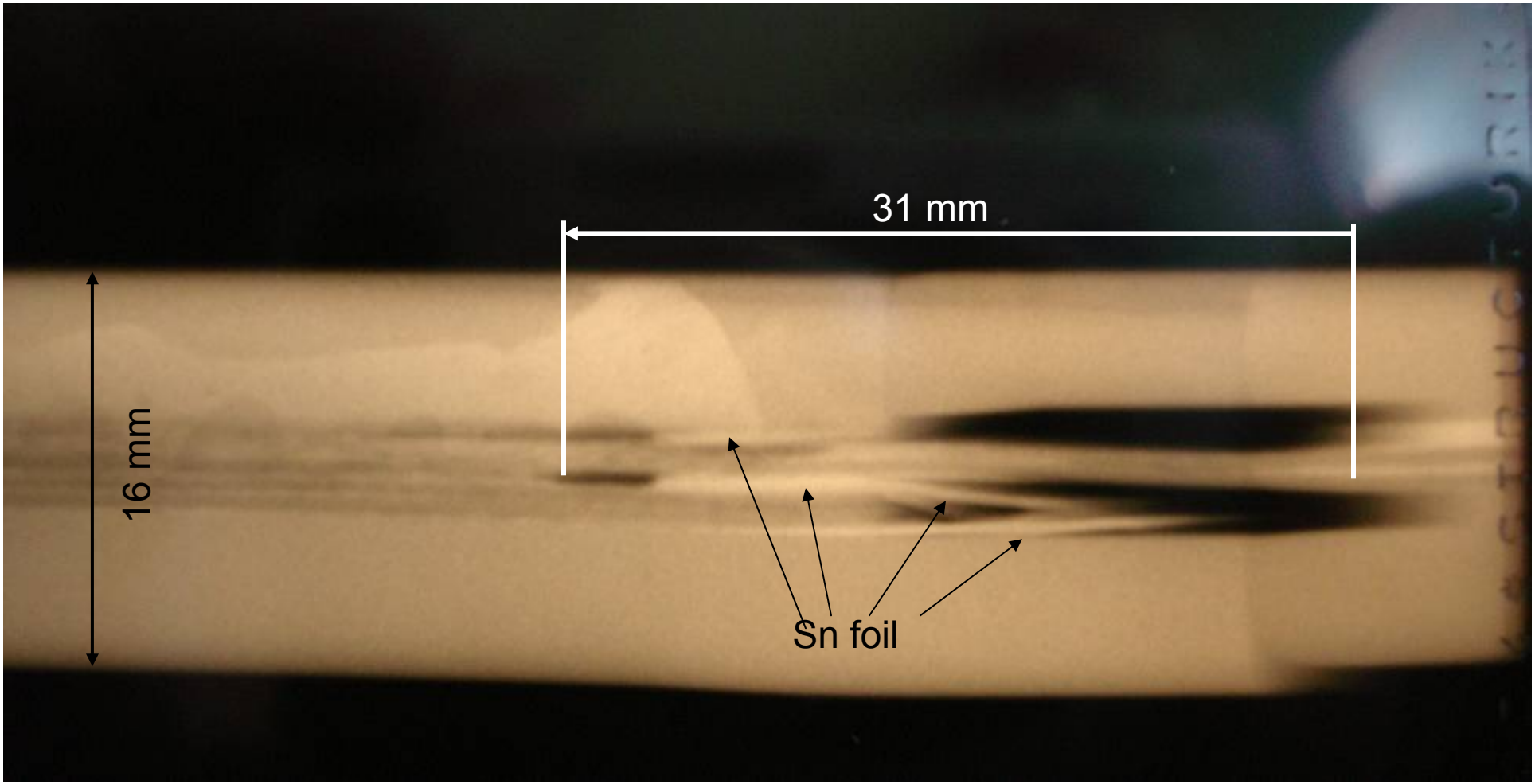




Courtesy C. Scheuerlein

C.S., 20.5.09

Estimation of isolated cable length in QBBI.A25L4-M3-cryoline-lyra side (+30 μΩ)

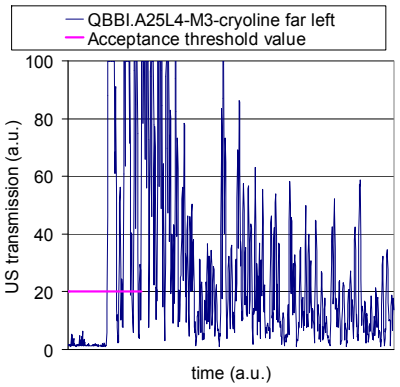


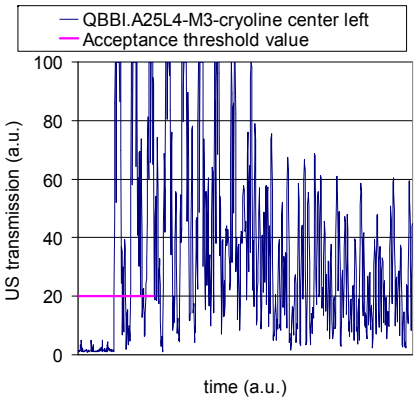
Courtesy C. Scheuerlein

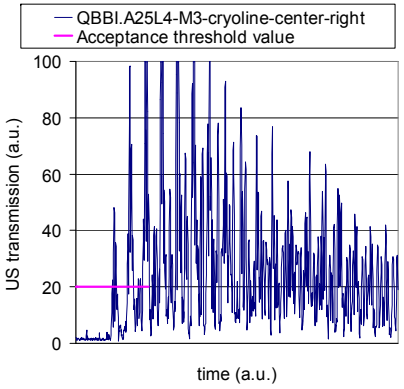
QBBI.A25L4-M3-cryoline Cu profiles

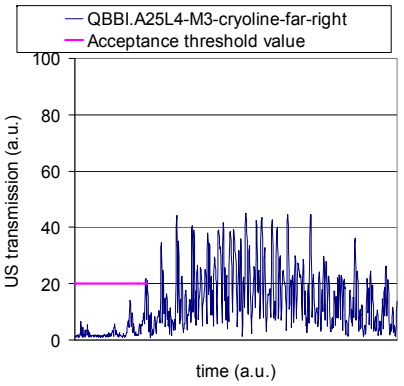
C.S., 20.5.09

US test QBBI.A25L4-M3-cryoline









C.S., 20.5.09