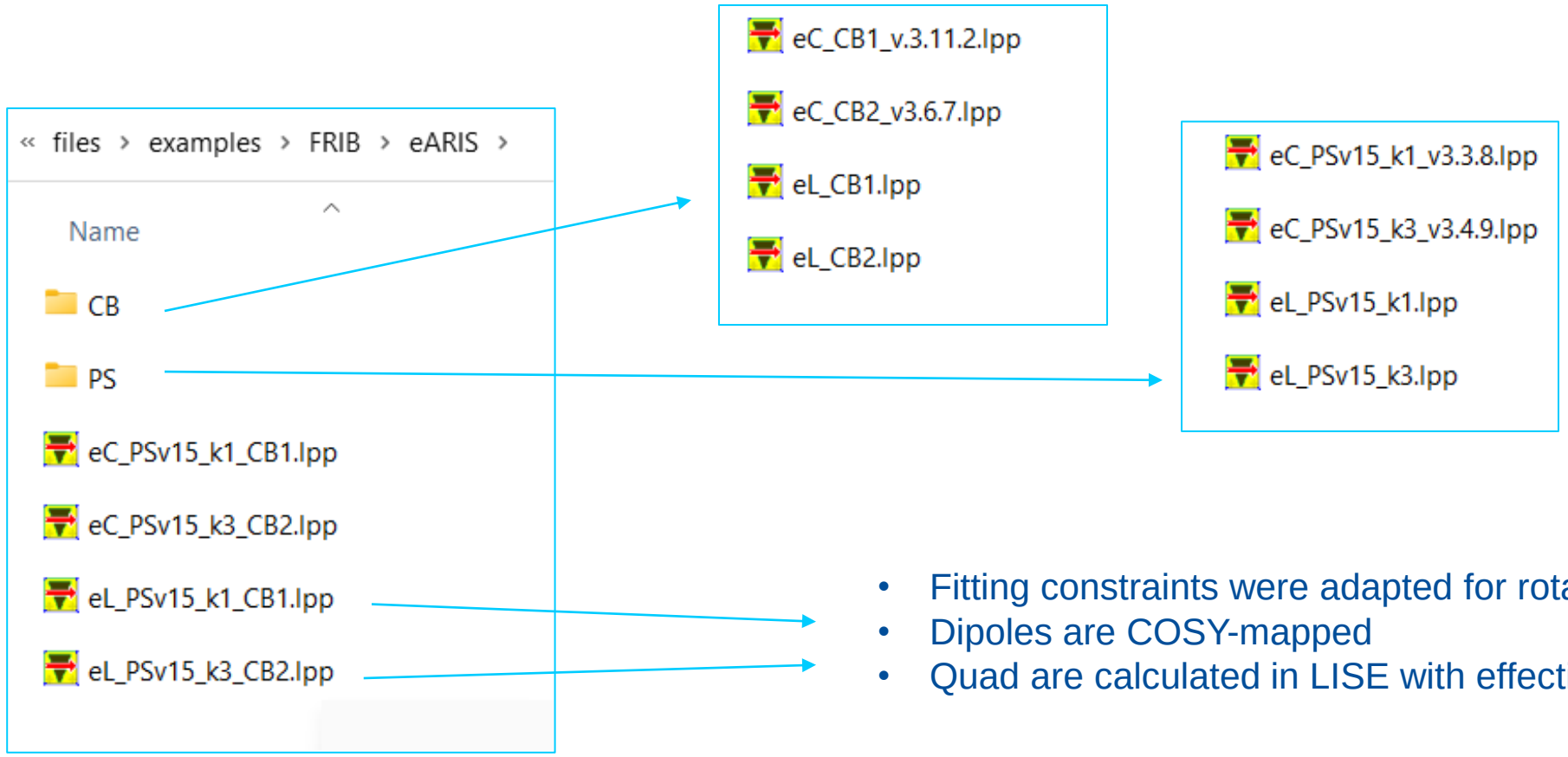
# eARIS configurations

**v.16.12.3**
03/21/23

[See v.16.11.13 “ARIS configurations update”]

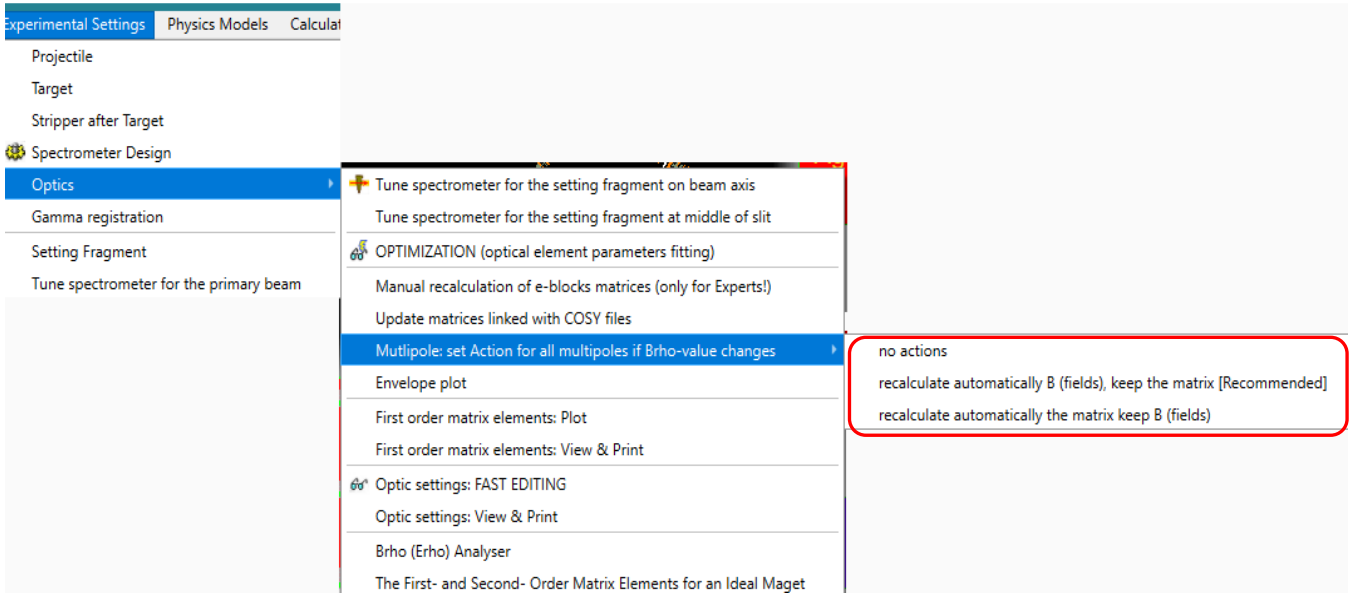



- Fitting constraints were adapted for rotation blocks
- Dipoles are COSY-mapped
- Quad are calculated in LISE with effective length from calibration files

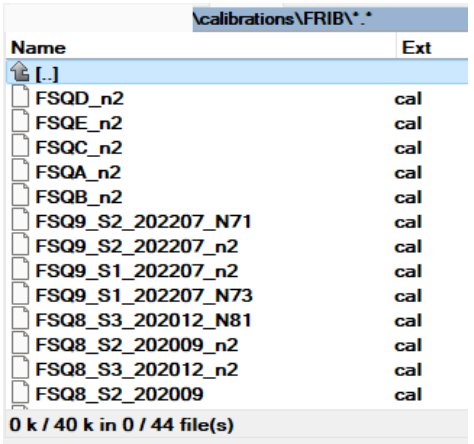
“eL” – extended LISE minimization
“eC” – extended COSY (5$^{th}$ order)

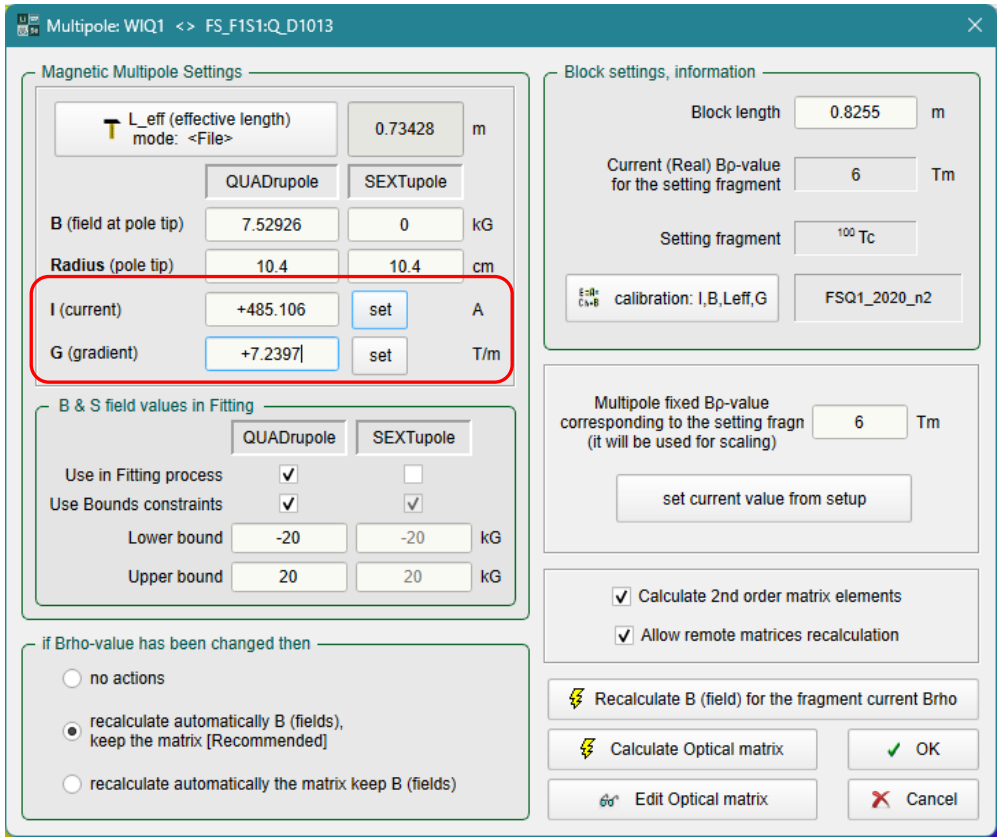
“k1” & “k3” – compression mode (factor 3) & no
“CB1” & “CB2” – high resolution & large acceptance

# New LISE features



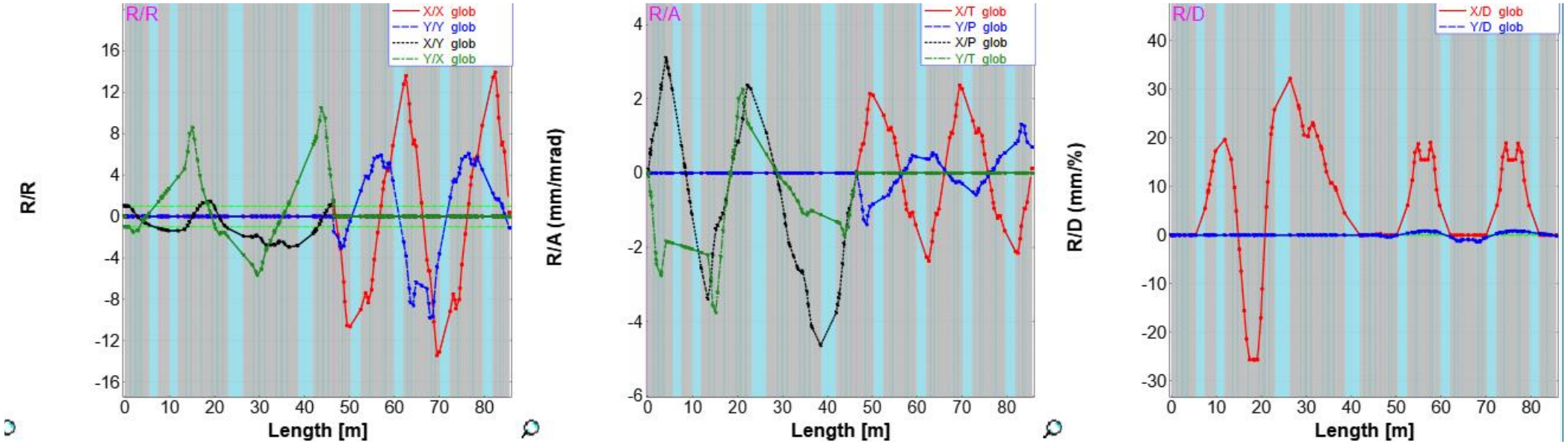

Shane Watters:
44 calibration files



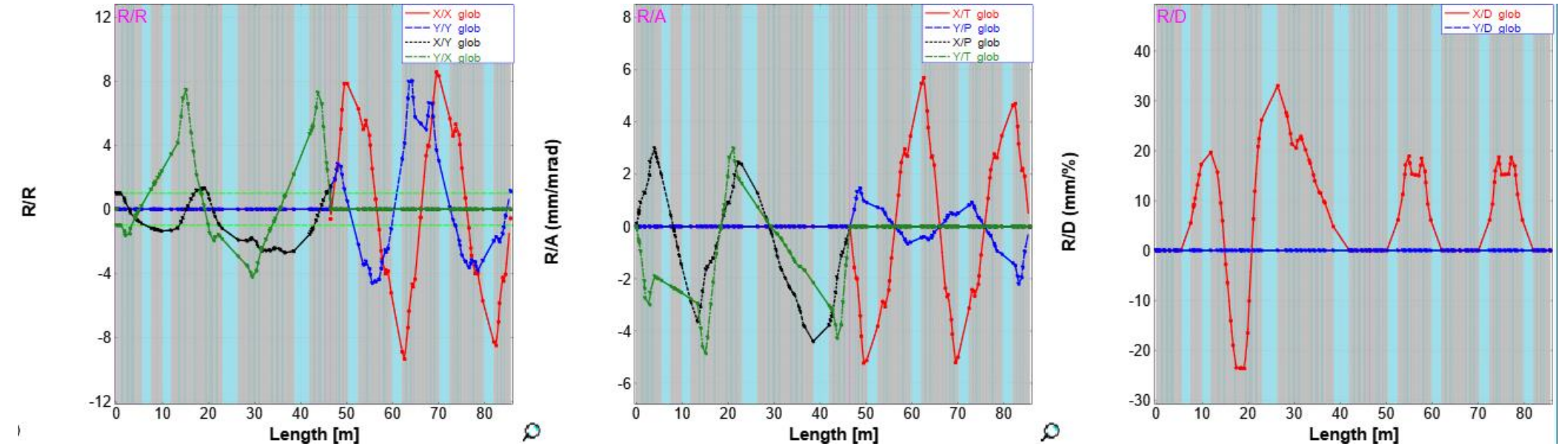



# K3_CB2 : COSY vs. LISE → maps

COSY




LISE



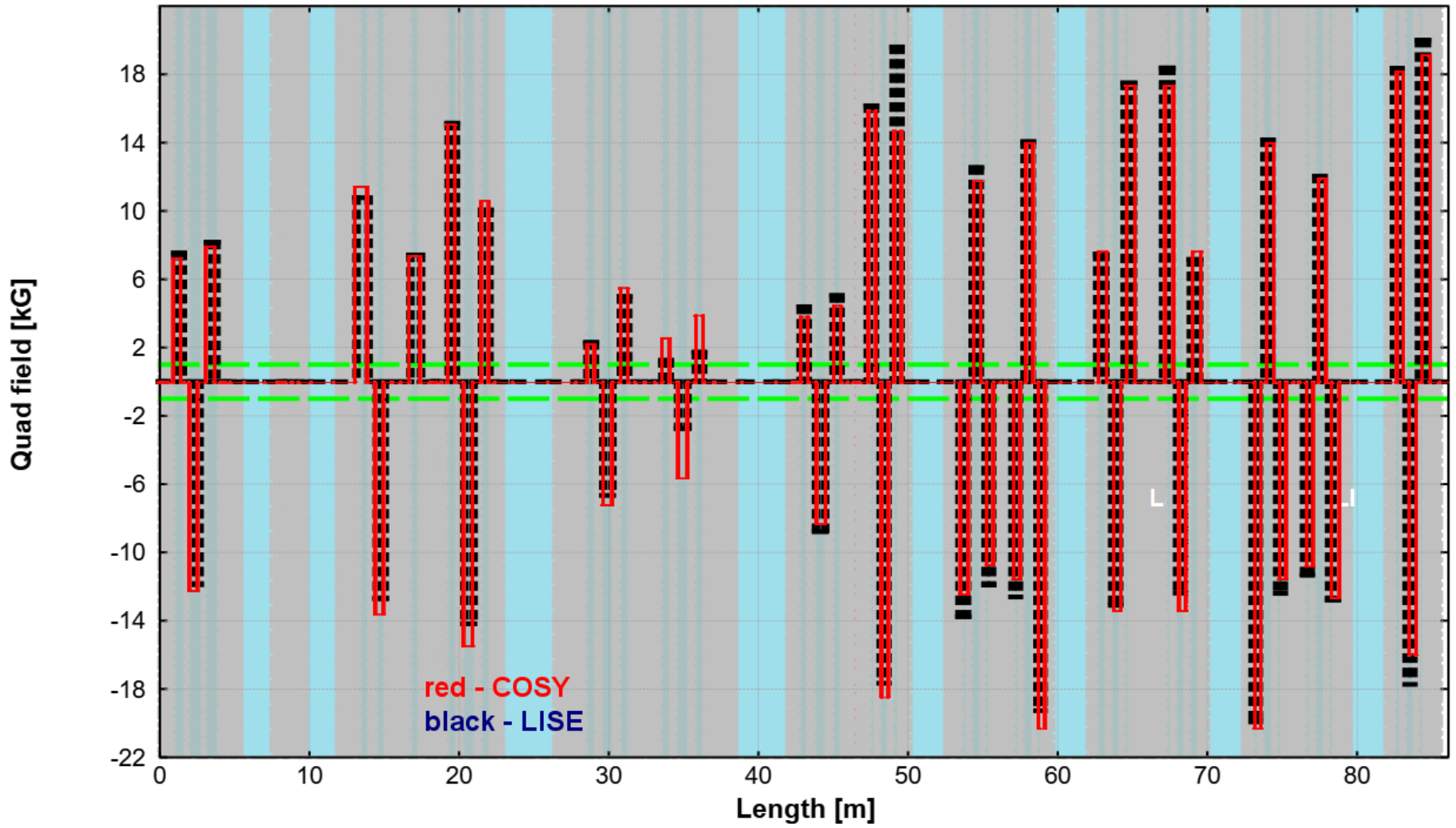
# K3_CB2 : COSY vs. LISE → quads

## Quadrupole field strengths

$^{100}$Tc (279.83 MeV/u); Settings on $^{100}$Tc; Config: Do$^{ddddddqddqdqdd|_{w}ddqdqdqddD}$$^{ddqdqdqdddqdqdqddD}$$^{dddqdqdqdd|oD}$$^{dqdqdqdD}$$^{dqdqdqd|_{w}...}$

dp/p=9.41%; Wedge(s): Al (2645.1 μm), 0, 0, 0; Bρ (Tm): 6.0000, 6.0000, 6.0000, 5.4931, 5.4931....

without charge states
all reactions separ.



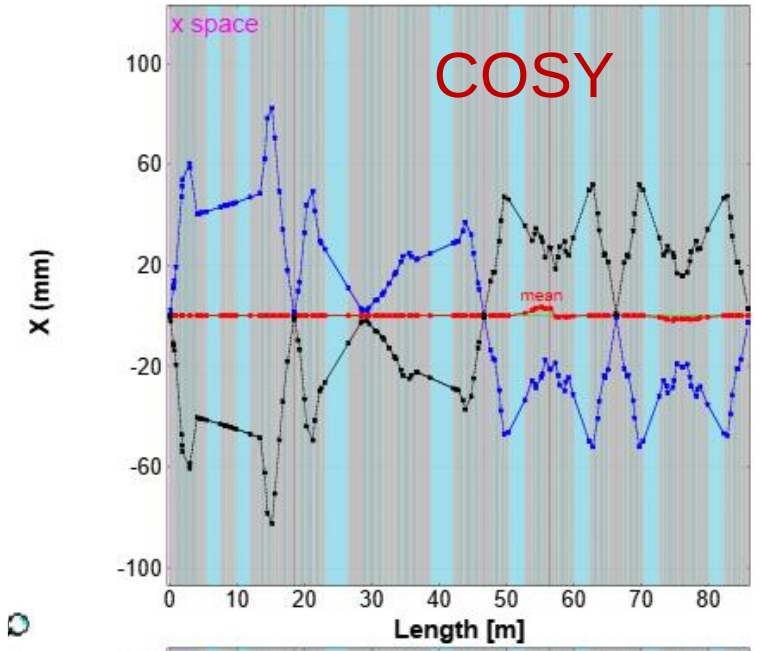
# K3_CB2 : COSY vs. LISE → transmission

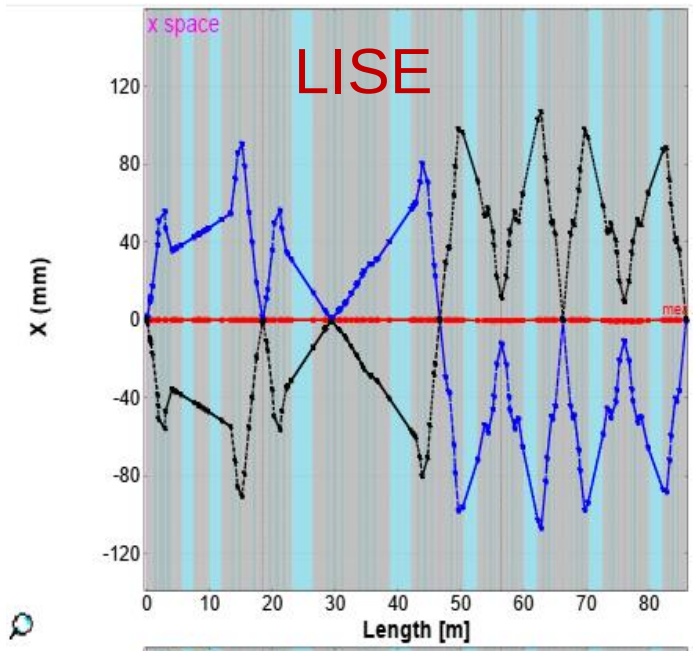
| | Distribution | MC |
|---|---|---|
| COSY: | 44.7%* | 70.5% |
| LISE: | 95.0% | 87.8% |

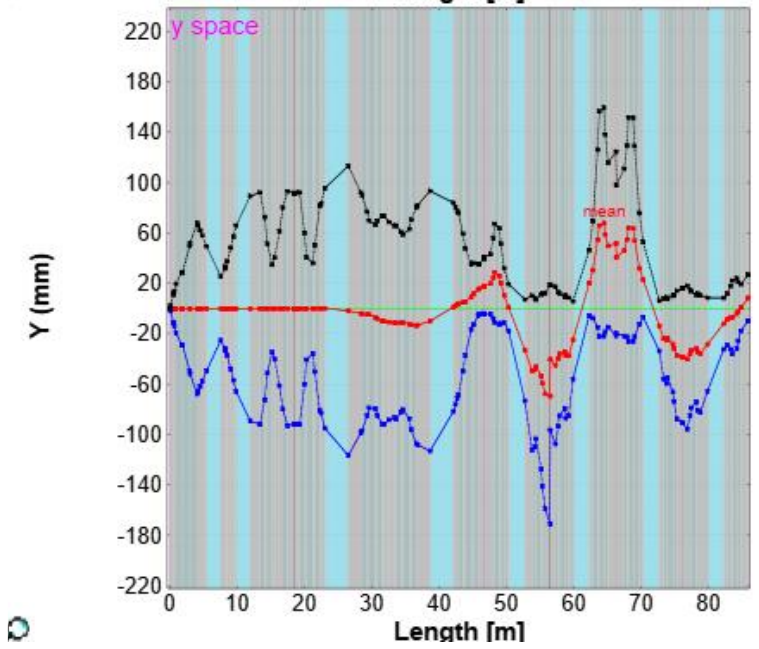
* - wedge “monochromatic” effect? (vertical)

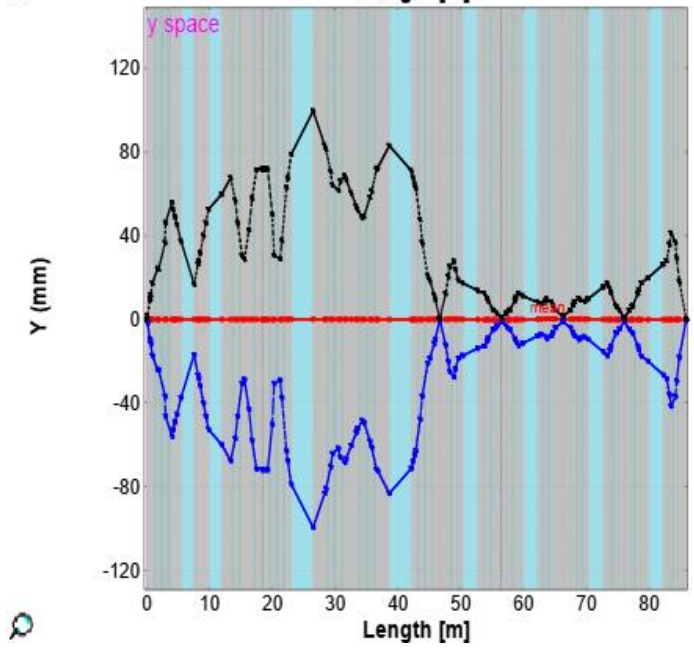
Emittance [#1]

| | | Beam CARD (sigma, semi-axis, half-width...) | 1D - shape (Distribution method) |
|---|---|---|---|
| 1. X | mm | 0.2326 | Gaussian |
| 2. T | mrad | 18.6047 | Gaussian |
| 3. Y | mm | 0.2326 | Gaussian |
| 4. P | mrad | 18.6047 | Gaussian |
| 5. L | mm | 99.0881 | Gaussian |
| 6. D | % | 3.0395 | Gaussian |



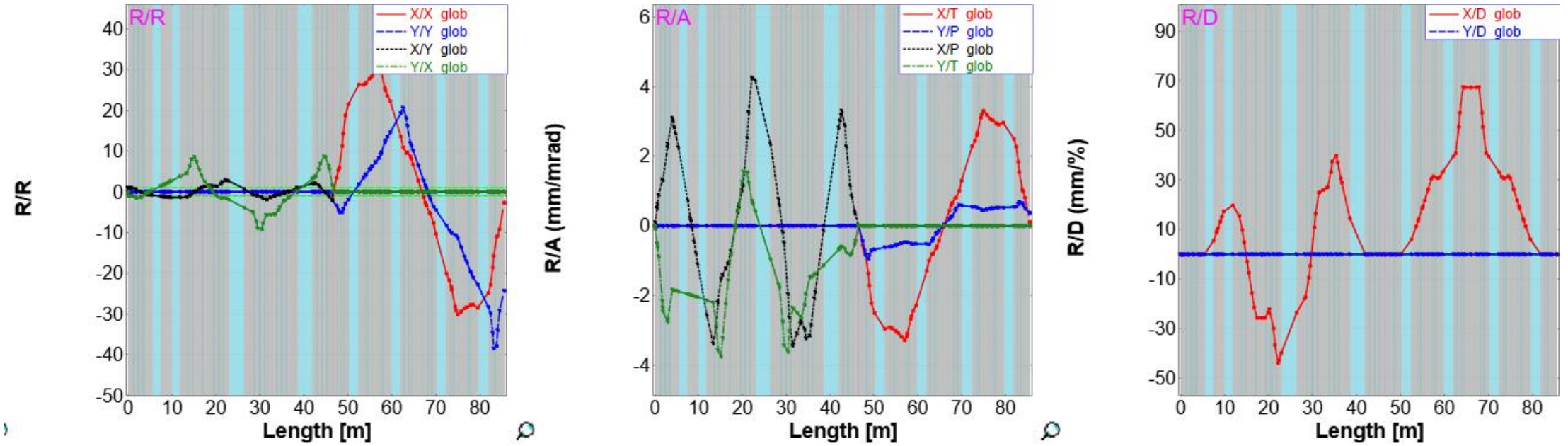



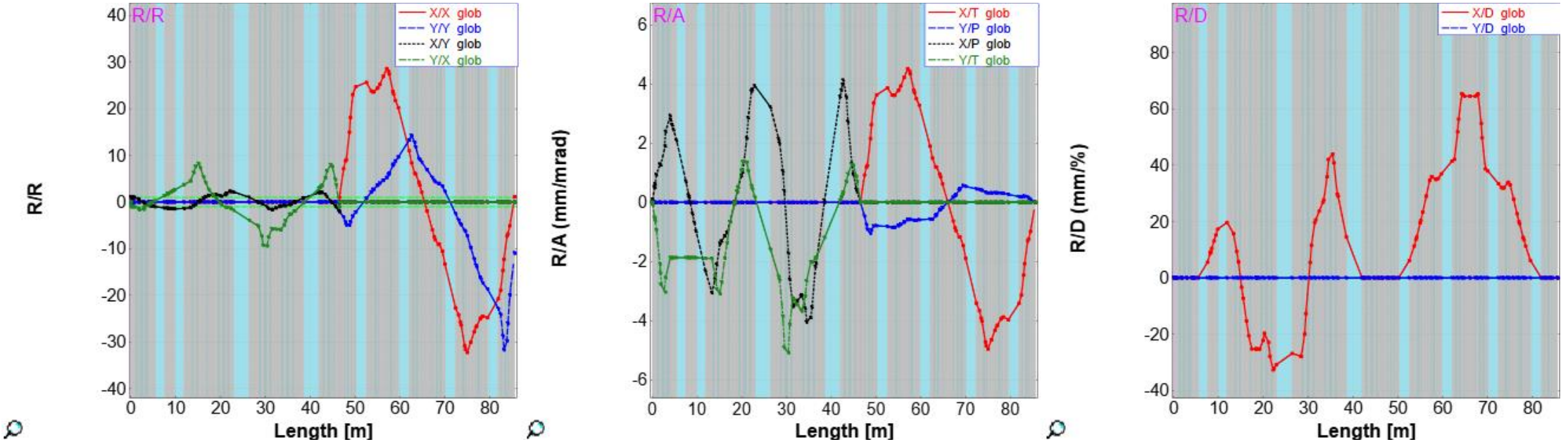
# K1_CB1

# K1_CB1 : COSY vs. LISE → maps

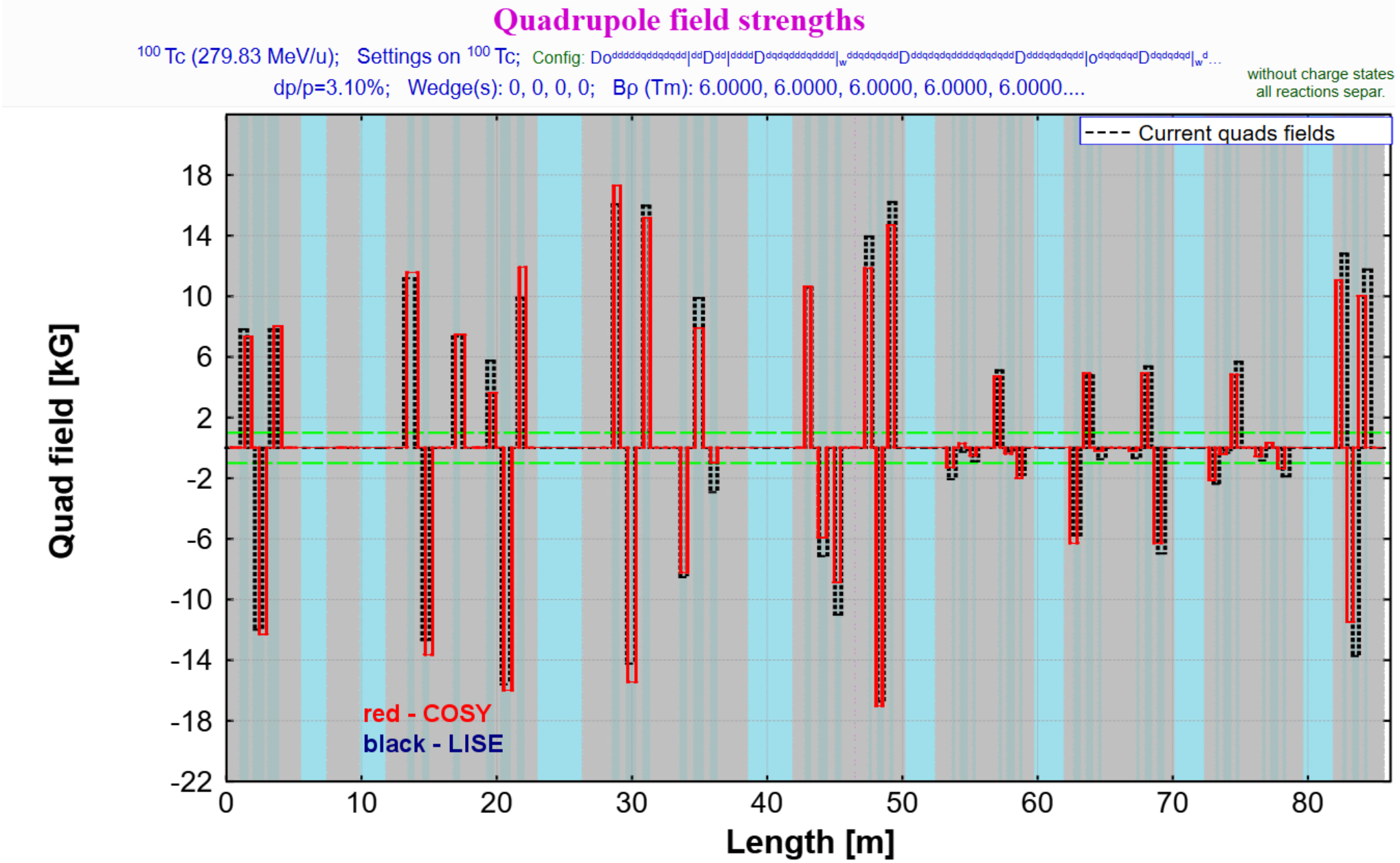
COSY




LISE



# K1_CB1 : COSY vs. LISE → quads



# K1_CB1 : COSY vs. LISE → transmission

| | Distribution | MC |
|---|---|---|
| COSY: | 67% | 63% |
| LISE: | 55% | 48% |

Emittance [#1]

| | | Beam CARD (sigma, semi-axis, half-width...) | 1D - shape (Distribution method) |
|---|---|---|---|
| 1. X | mm | 0.2326 | Gaussian |
| 2. T | mrad | 18.6047 | Gaussian |
| 3. Y | mm | 0.2326 | Gaussian |
| 4. P | mrad | 18.6047 | Gaussian |
| 5. L | mm | 99.0881 | Gaussian |
| 6. D | % | 1.03 | Gaussian |