# KEKB Shift Report　Date : 2007/12/2(Sun)

Day Shift : Ohnishi (K); Kawasumi, Yoshii, Nakamura, Kuzumi (M);  Watanabe(B)

## Storm of aborts in the first half

Plan

1. Downhill-simplex(Nelder-Mead) method

Peak $\mathcal{L}$ / G-Ratio : 13.346 $\times 10^{33}$ $cm^{-2}s^{-1}$ / 90 %

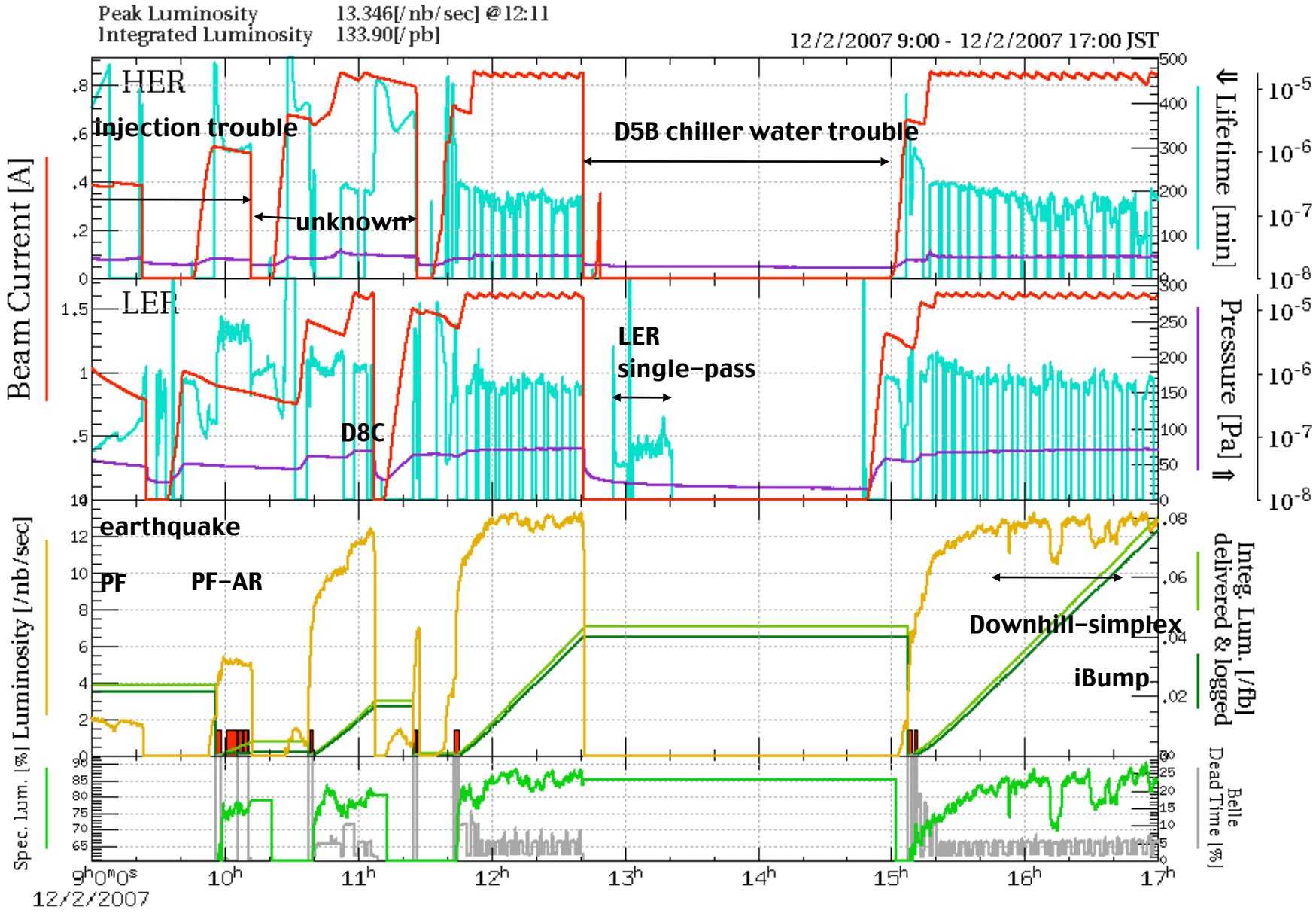
Shift $\mathcal{L}$ / Day $\mathcal{L}$ : 133.9 $pb^{-1}$ / – $pb^{-1}$

Beam Current : LER 1620 mA / HER 850 mA

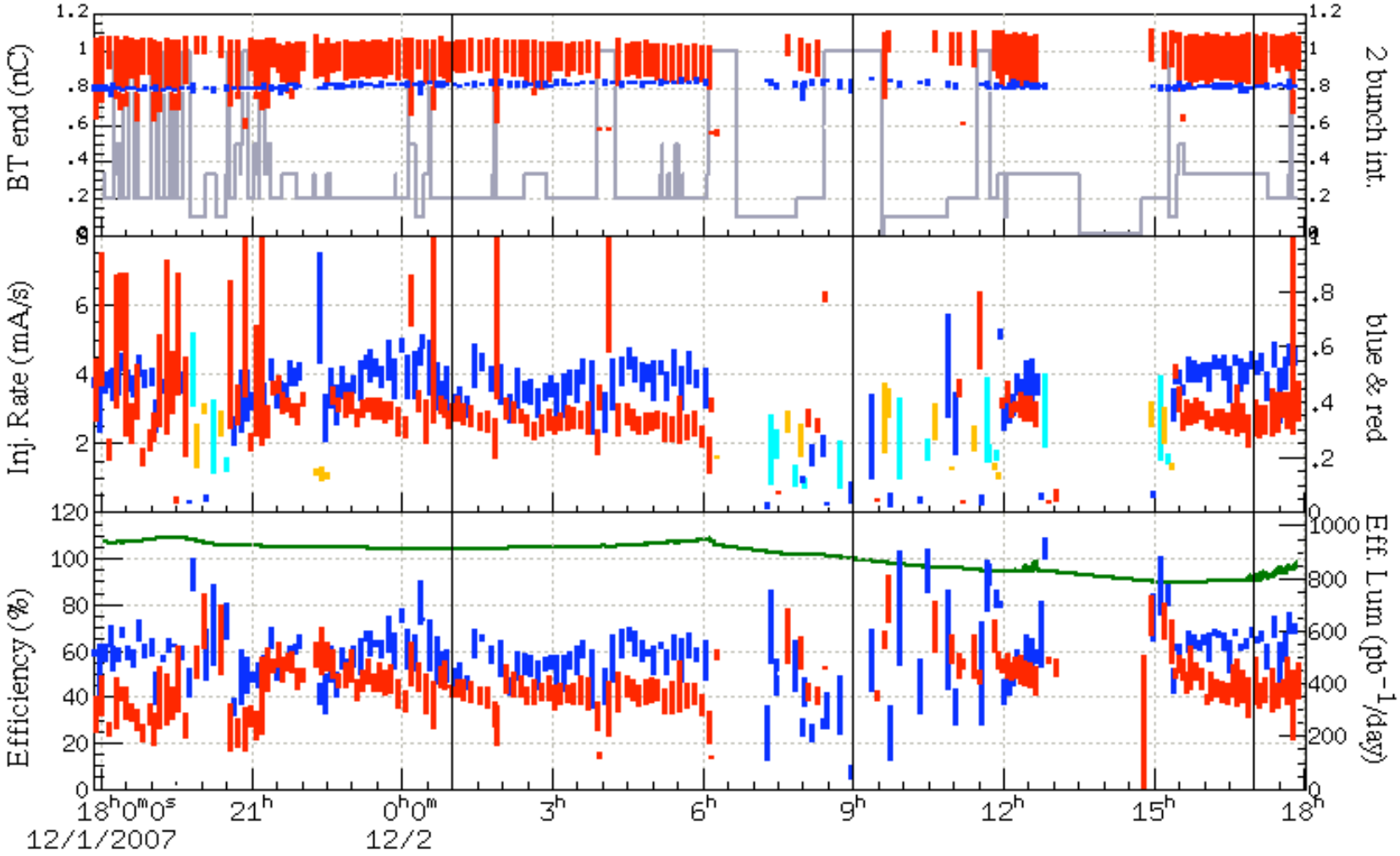
Fill pattern : 3.06 spacing, 1 trains, 1584+1 bunches

Aborts : $LER_{only}$ : $3_{+1(m)}$ / $HER_{only}$ : 5 / Both : 0

# Shift Summary



# Injection Summary




**HER injection efficiency ~ 60–70 %**

**LER injection efficiency ~ 40–50 %**

# Tuning Items

- iBump (collision orbit adjustments, vertical offset/angle)

| | LER | HER |
|---|---|---|
| $R_1$ | | |
| $R_2$ | | |
| $R_3$ | | |
| $R_4$ | | |
| $\eta_y^*$ | | |
| $\eta_y^{*'}$ | | |
| $\eta_x^*$ | | |
| $\eta_x^{*'}$ | | |

# Knob 1 (parameter set #1)

**iBump**

## LER

**Room Phase**
-19.87 -> -20.2

**$\Delta f_{RF}$**
-5.44 -> -6.22

**Waist**
-.4 -> -.4

**$\eta y$**
.27 -> .3

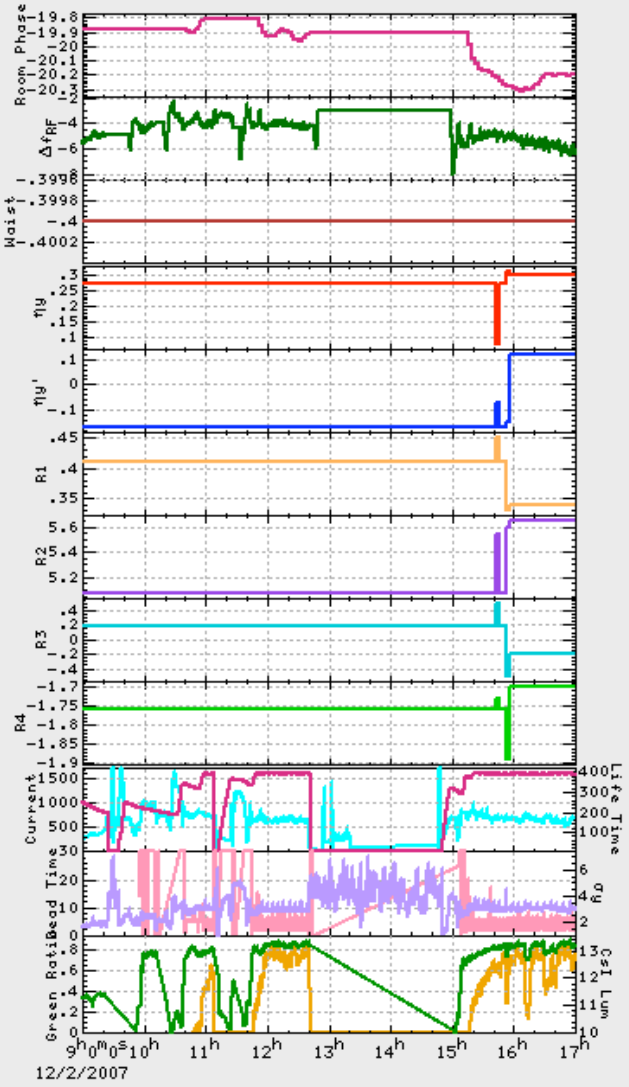
**$\eta y'$**
-.17 -> .12

**R1**
.41 -> .34

**R2**
5.07 -> 5.65

**R3**
.18 -> -.19

**R4**
-1.76 -> -1.7




## HER

**Voffset**
-1.74 -> -1.73

**Vangle**
-.56 -> -.56

**Waist**
-.6 -> -.6

**$\eta y$**
.6 -> .63

**$\eta y'$**
-.77 -> -.96

**R1**
5.17 -> 5

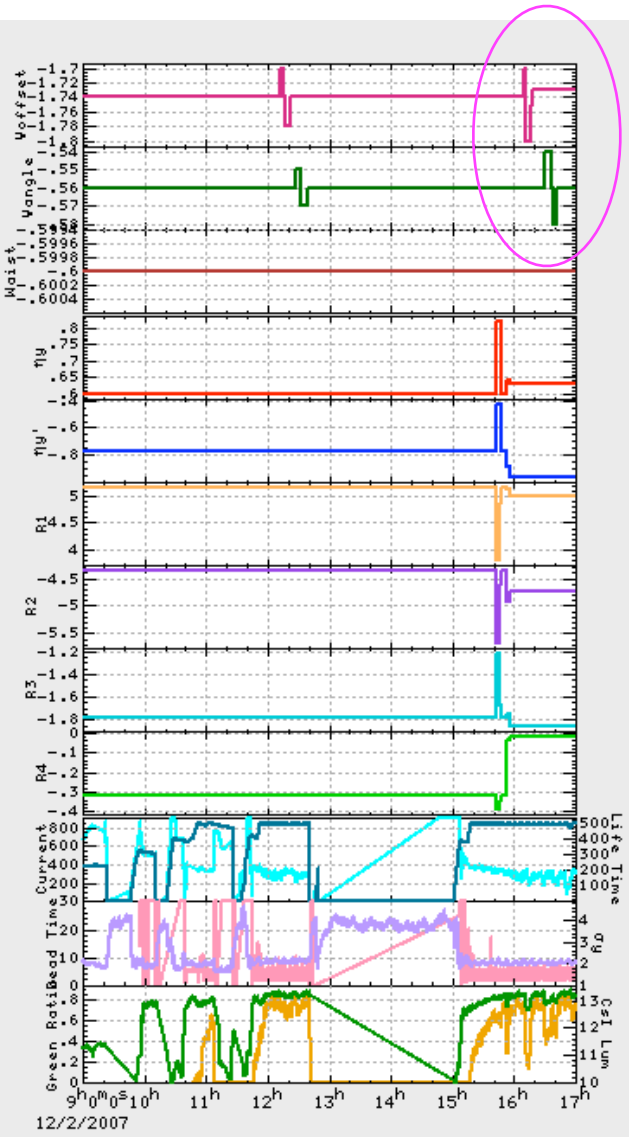
**R2**
-4.36 -> -4.75

**R3**
-1.78 -> -1.86

**R4**
-.32 -> -.02

$Lum_{Max}$:13.346

$GR_{Max}$:90.2%



# Knob 2 (parameter set #2)

**LER**

LER Size@Inj

0 -> 0@0A

$\nu x$ @0A

.5091 -> .5091

$\nu y$ @0A

.5774 -> .5774

$\xi x$

-.684 -> -.684

$\xi y$

4.243 -> 4.243

$d_\delta \alpha^*_x$

15.76 -> 15.76

$d_\delta \alpha^*_y$

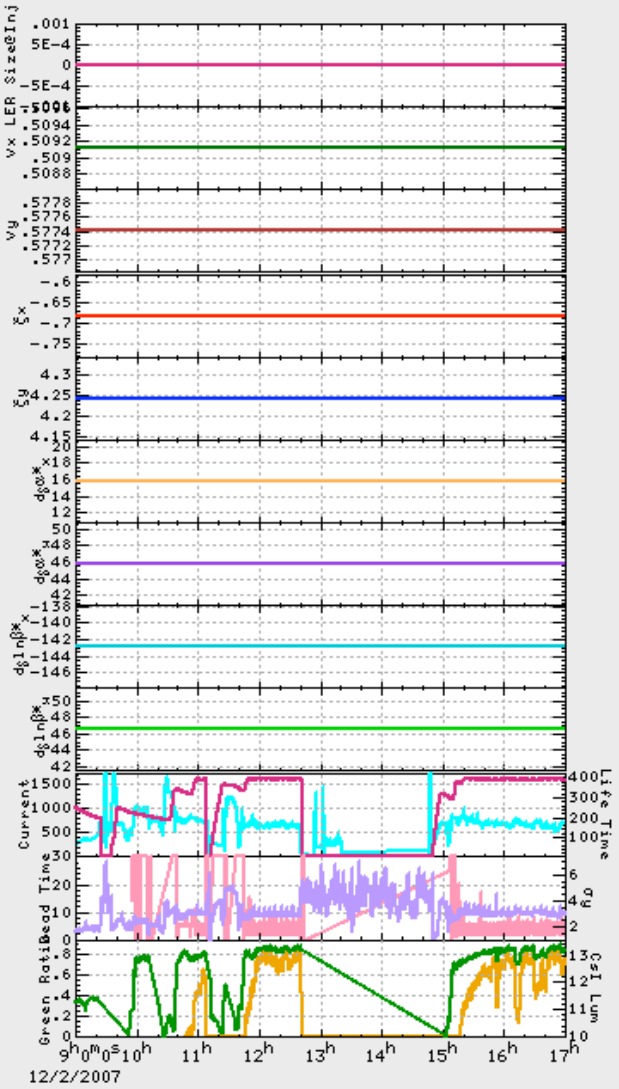
45.75 -> 45.75

$d_\delta \ln\beta^*_x$

-142.84 -> -142.84

$d_\delta \ln\beta^*_y$

46.56 -> 46.56




**HER**

LER Size@Col

0 -> 0@0A

$\nu x$ @0A

.5122 -> .5122

$\nu y$ @0A

.592 -> .592

$\xi x$

-1.208 -> -1.208

$\xi y$

.88 -> .88

$d_\delta \alpha^*_x$

-1 -> -1

$d_\delta \alpha^*_y$

-40.49 -> -40.49

$d_\delta \ln\beta^*_x$

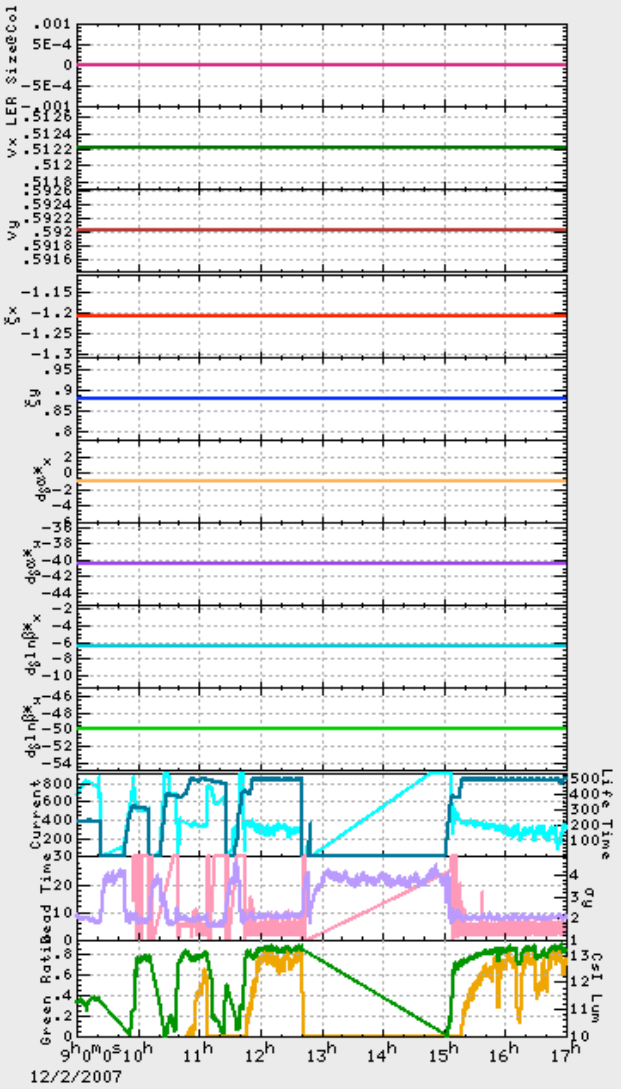
-6.55 -> -6.55

$d_\delta \ln\beta^*_y$

-49.97 -> -49.97

$Lum_{Max}$:13.346

$GR_{Max}$:90.2%



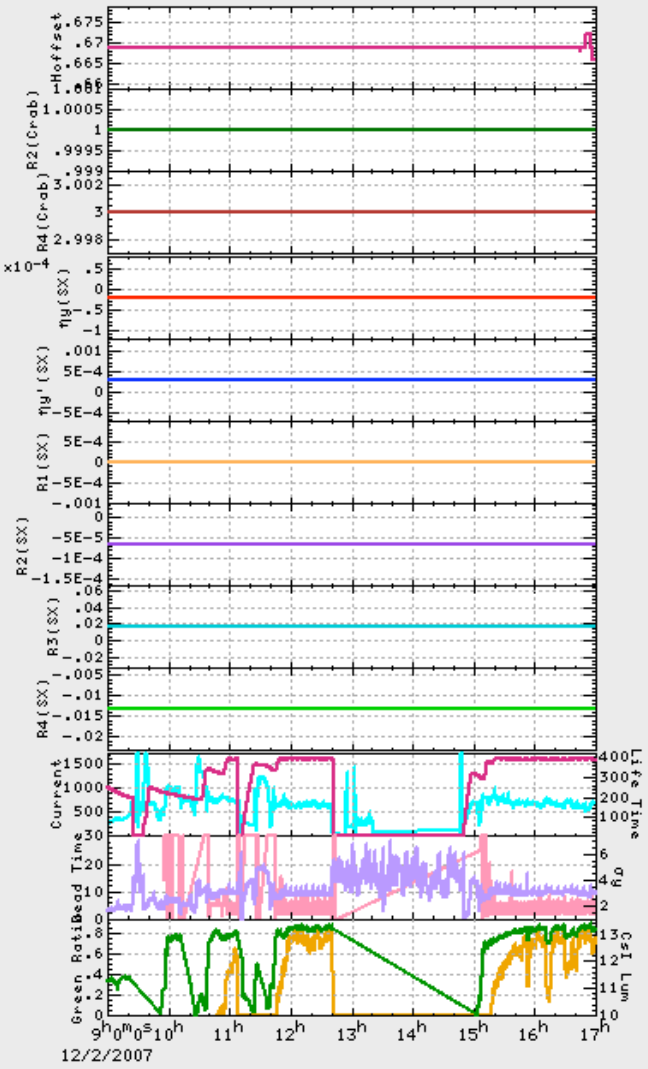
# Knob 3 (parameter set #3)

**LER**

Hoffset
.669 -> .666
R2(Crab)
1 -> 1
R4(Crab)
3 -> 3

ηy(SX)
-2.2E-5 -> -2.2E-5
ηy'(SX)
2.73E-4 -> 2.73E-4

R1(SX)
-1.1E-5 -> -1.1E-5
R2(SX)
-6.6E-5 -> -6.6E-5
R3(SX)
.016 -> .016
R4(SX)
-.013 -> -.013



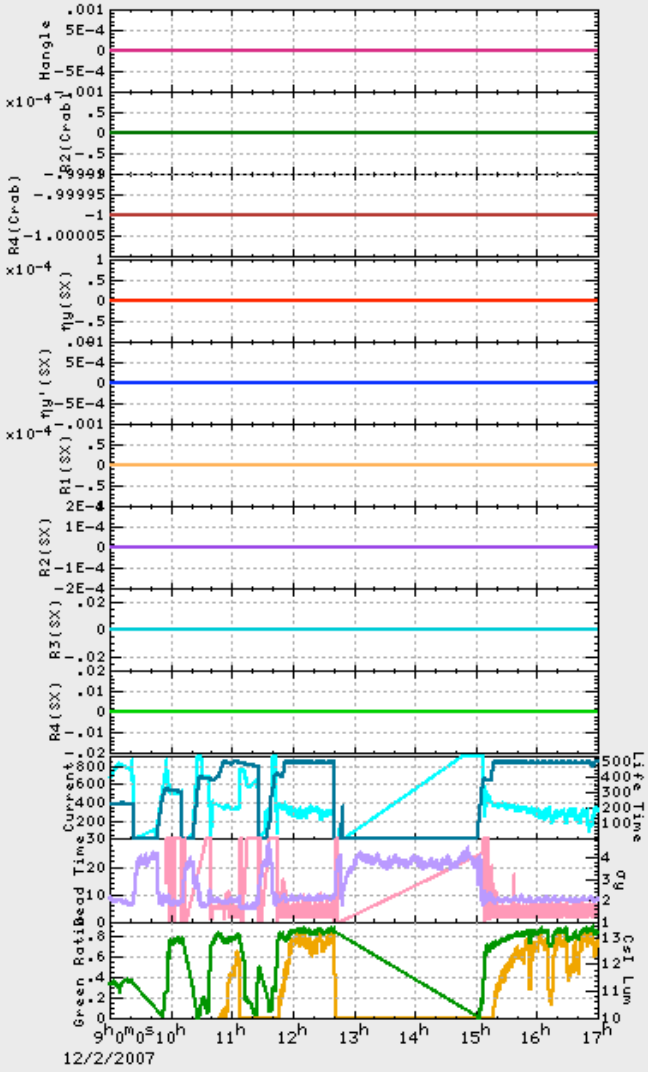

**HER**

Hangle
0 -> 0
R2(Crab)
0 -> 0
R4(Crab)
-1 -> -1

ηy(SX)
0 -> 0
ηy'(SX)
0 -> 0

R1(SX)
0 -> 0
R2(SX)
0 -> 0
R3(SX)
0 -> 0
R4(SX)
0 -> 0

$Lum_{Max}$:13.346
$GR_{Max}$:90.2%



# Troubles

1. HER fake abort due to IOC(D08) reboot. Temp. abort from the HER abort kicker(AKH1_2_3) is disabled by Mimashi_san to fix the problem(see morning shift report,(12/2), the connection line has been damaged,).

2. Earthquake abort in LER(9:24)

3. HER injection touble(8:43-10:20) C6 klystron down. Beam gate was opened during ramp up, then the feedback was driven crazy. Trouble was fixed by setting the parameter set of 6:00 am again.

4. LER abort due to D8C cavity voltage(11:07)

5. Unknown HER aborts(10:11, 11:26)
   - We disabled “Abort Not Ready” at D8 building to check the abort system.

# Comments or opinions on operations

1. Various #trials for the reflection can be made. (default is 1)
   - Secondarily bad-parameter set will be evaluated before going to a shrink mode in the following panel.

END

# KEKB Shift Report Date : 2007/12/02(Sun)

Evening Shift :Funakoshi, Sugimura(K); Ma. Tanaka, Ohkubo (M);

**Calm Shift.**

Tuning Plan

1. knob scanning. (not in the simplex scan panel)

Peak $\mathcal{L}$ / G-Ratio : 13.654 $\times 10^{33}$ $cm^{-2}s^{-1}$ / 91.5 %

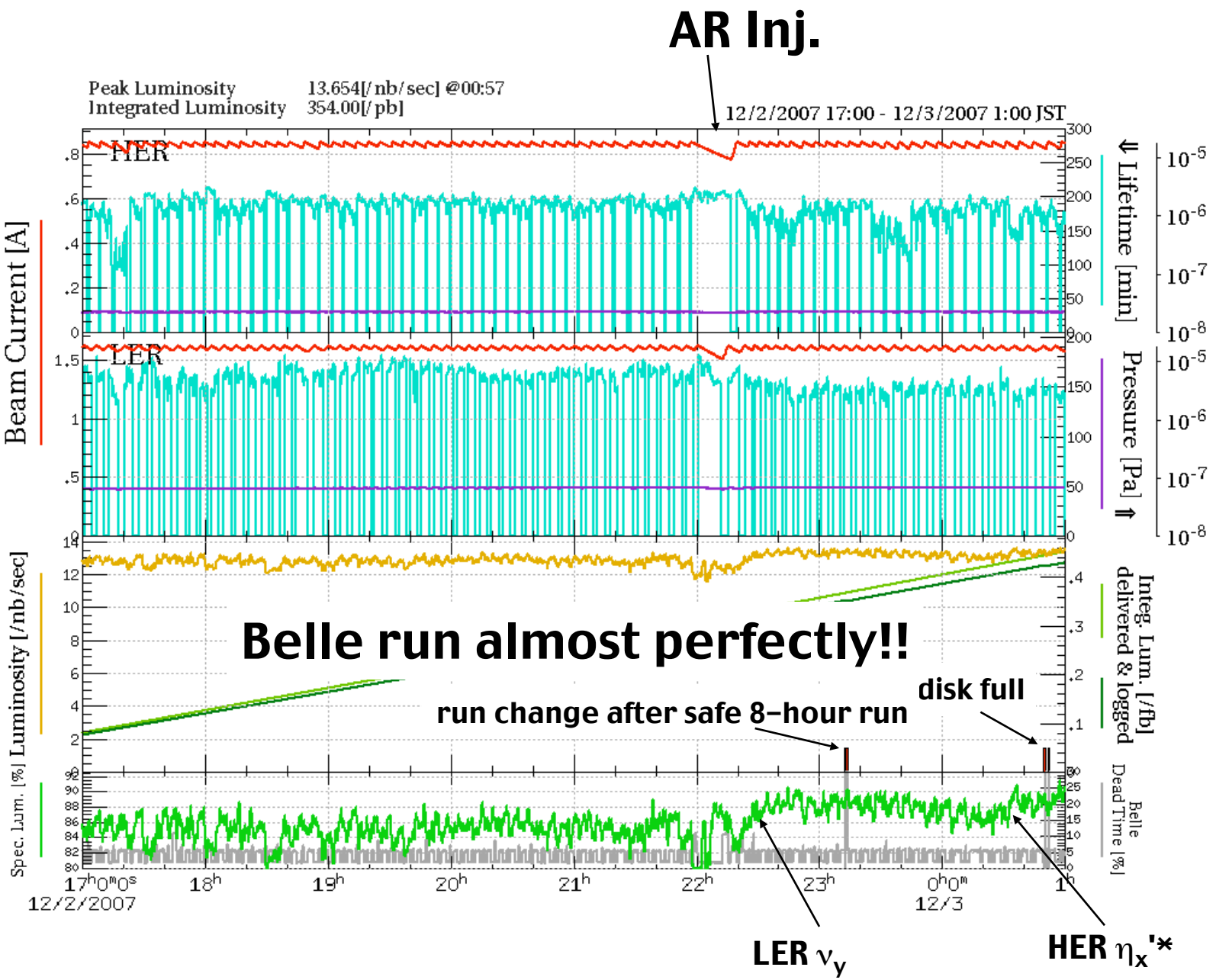
Shift $\mathcal{L}$ / Day $\mathcal{L}$ : 354.0 $pb^{-1}$ / 729.5 $pb^{-1}$

Beam Current : LER 1620 mA / HER 850 mA

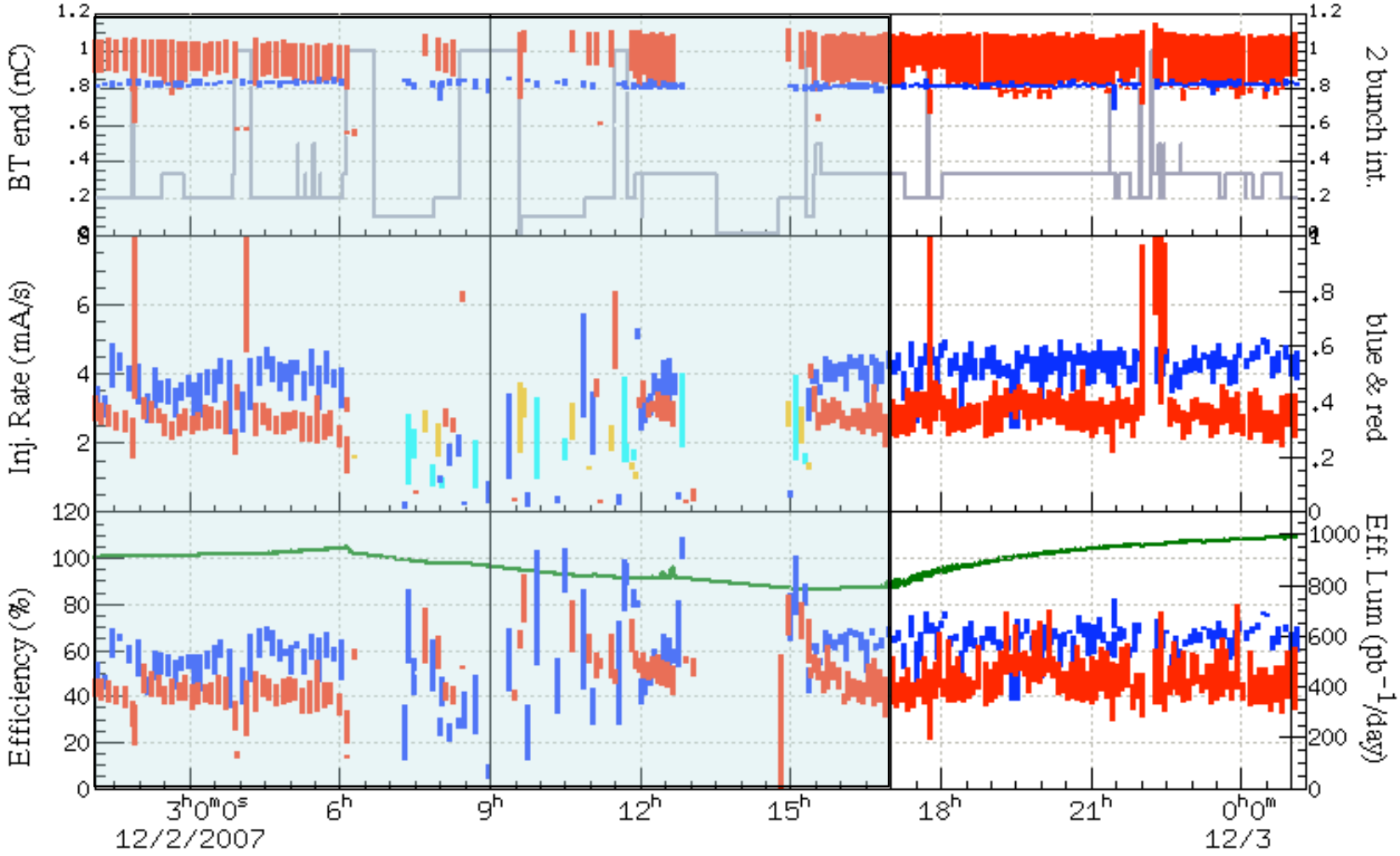
Fill pattern : 3.06 spacing, 1 trains, 1584+1 bunches

Aborts : $LER_{only}$ : 0 / $HER_{only}$ : 0 / Both : 0

# Shift Summary

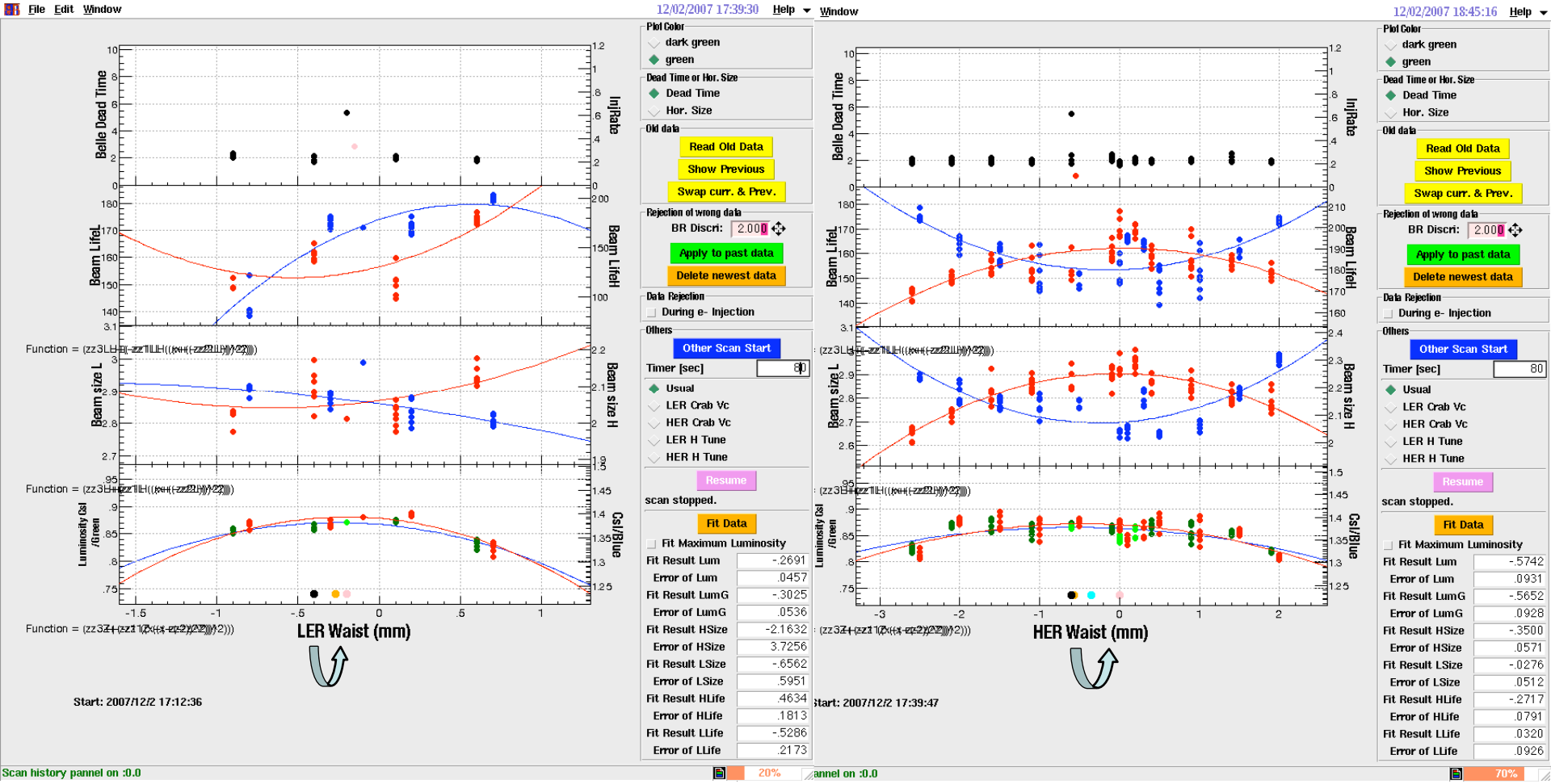


# Injection Summary



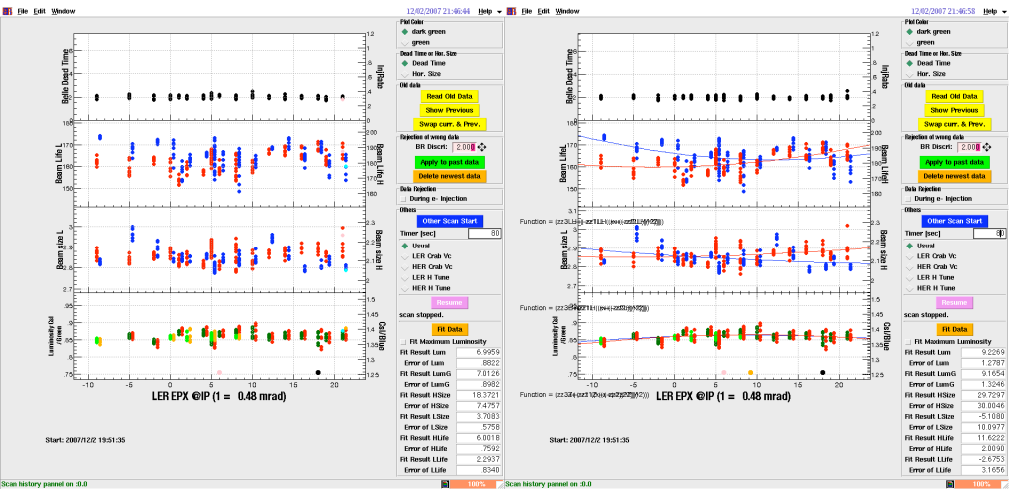
# Tuning Items

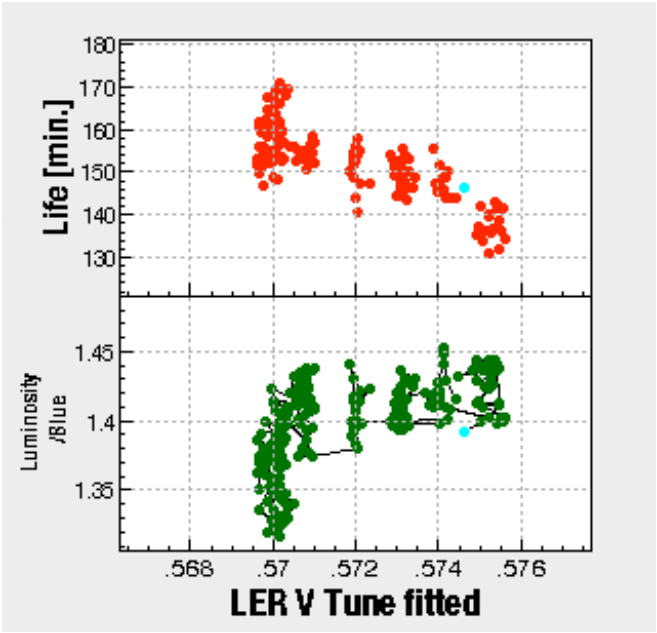
- Waist Scan



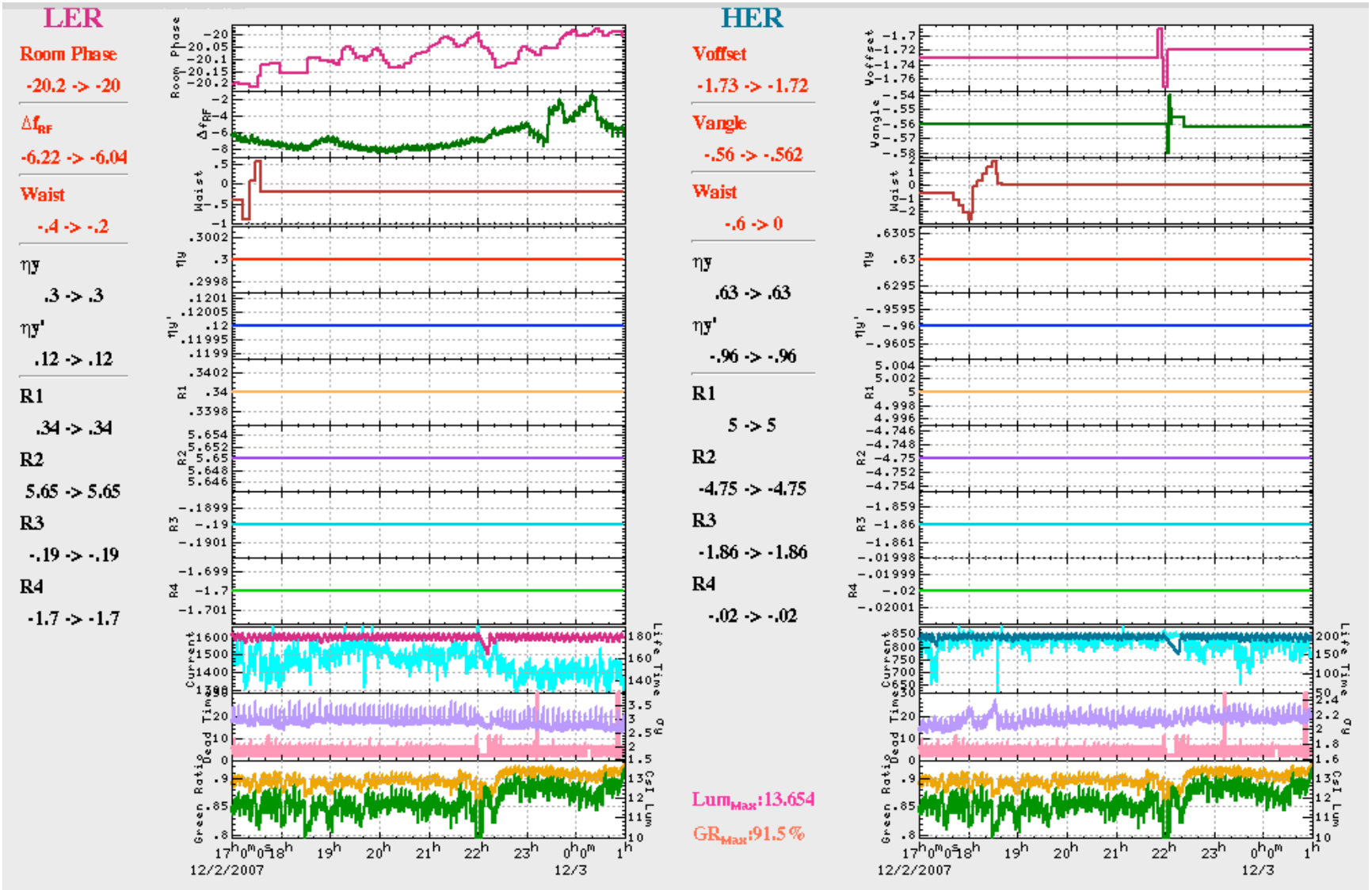
# Tuning Items 2

- Horizontal Dispersion LER & HER
- iBump
- LER $\nu_y$ +0.004

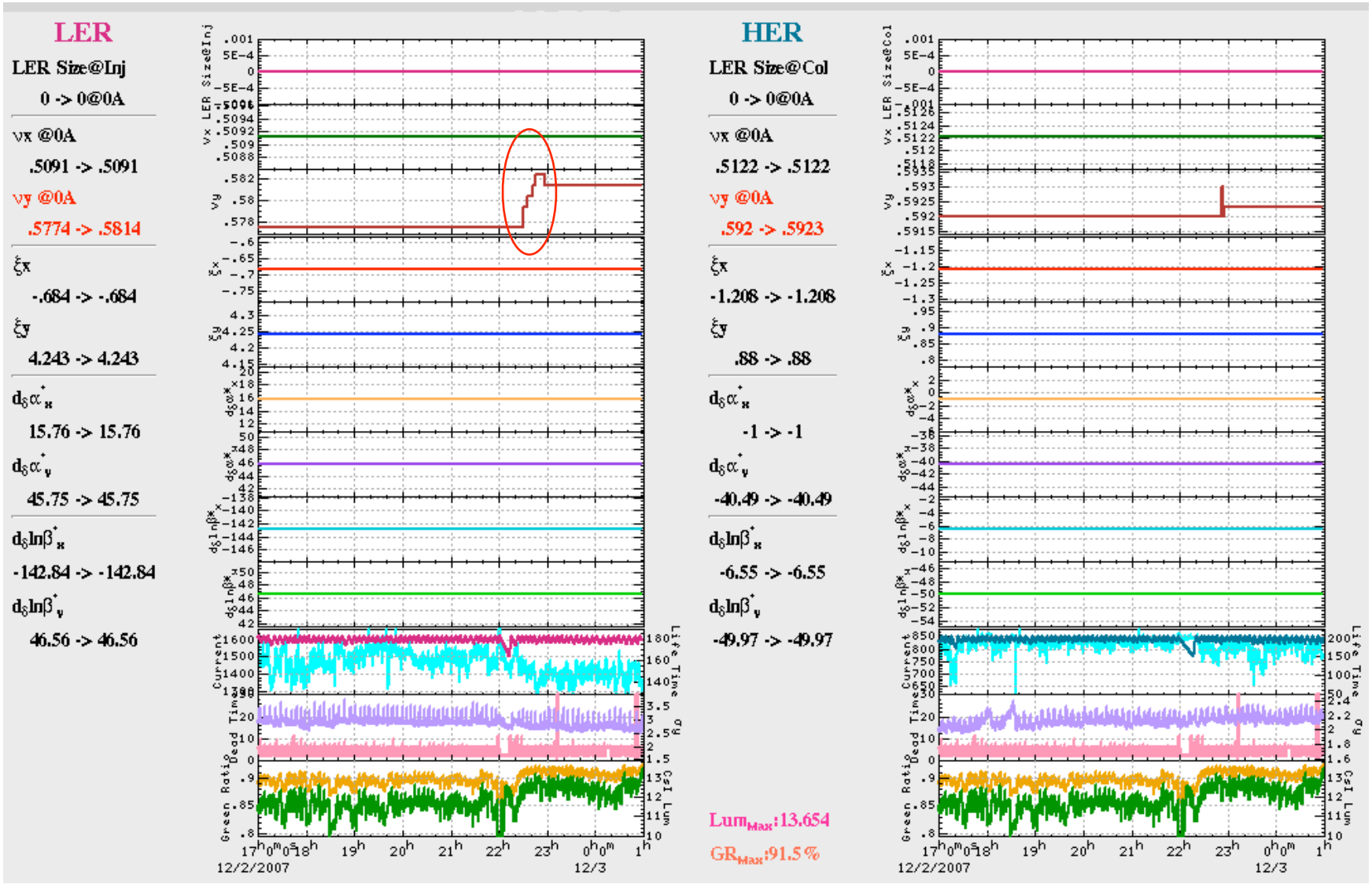


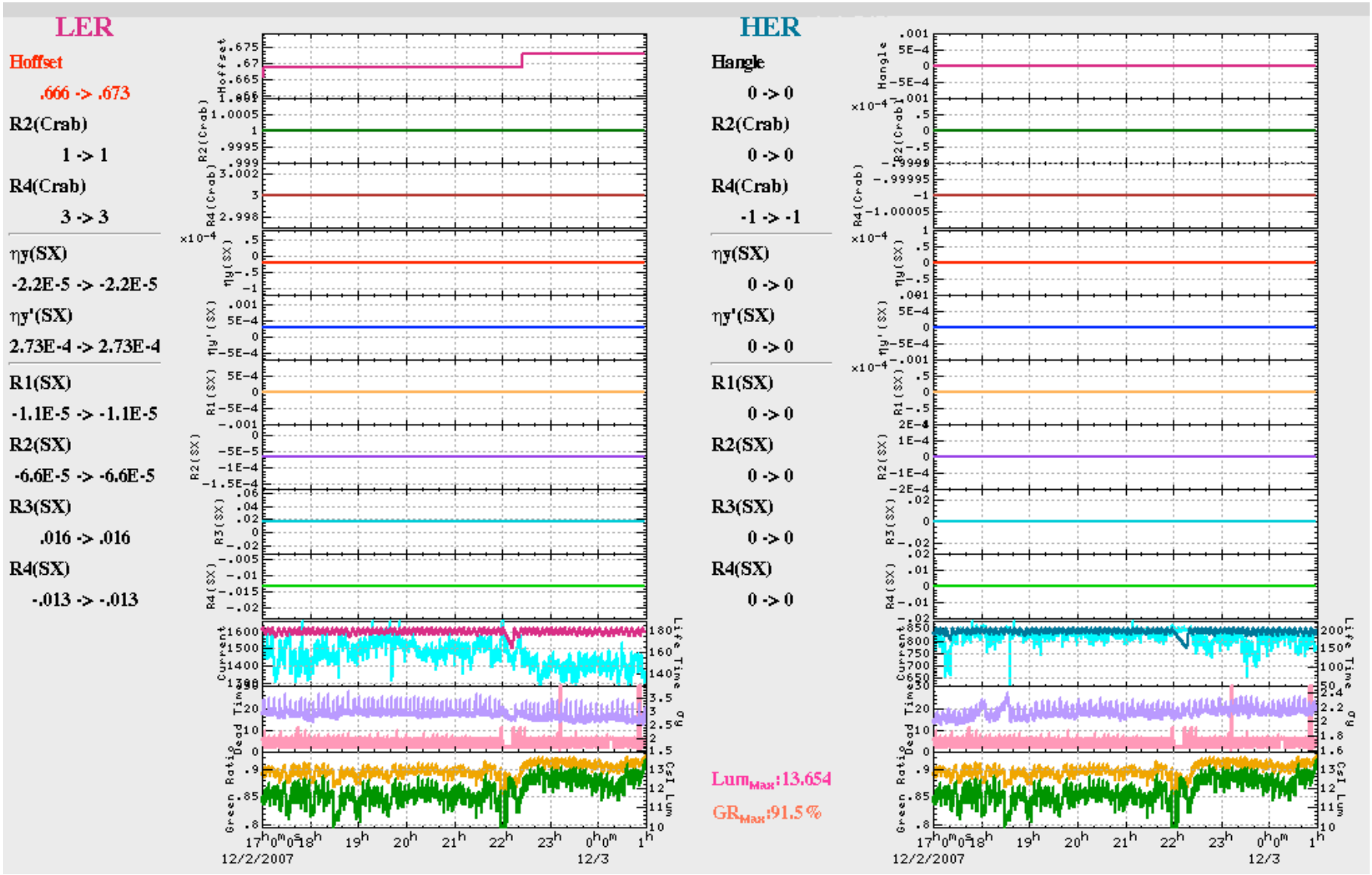
# Knob 1


LER
Room Phase
-20.2 -> -20
$\Delta f_{RF}$
-6.22 -> -6.04
Waist
-.4 -> -.2
ηy
.3 -> .3
ηy'
.12 -> .12
R1
.34 -> .34
R2
5.65 -> 5.65
R3
-.19 -> -.19
R4
-1.7 -> -1.7
HER
Voffset
-1.73 -> -1.72
Vangle
-.56 -> -.562
Waist
-.6 -> 0
ηy
.63 -> .63
ηy'
-.96 -> -.96
R1
5 -> 5
R2
-4.75 -> -4.75
R3
-1.86 -> -1.86
R4
-.02 -> -.02
$Lum_{Max}$:13.654
$GR_{Max}$:91.5 %
Room Phase
Vangle
Voffset
Waist
ηy
ηy'
R1
R2
R3
R4
Current
Time
Dead
Green Ratio
Life Time
σy
CsI Lum
12/2/2007
12/3

# Knob 2


LER
LER Size@Inj
0 -> 0@0A
νx @0A
.5091 -> .5091
νy @0A
.5774 -> .5814
ξx
-.684 -> -.684
ξy
4.243 -> 4.243
dδα*x
15.76 -> 15.76
dδα*y
45.75 -> 45.75
dδlnβ*x
-142.84 -> -142.84
dδlnβ*y
46.56 -> 46.56
HER
LER Size@Col
0 -> 0@0A
νx @0A
.5122 -> .5122
νy @0A
.592 -> .5923
ξx
-1.208 -> -1.208
ξy
.88 -> .88
dδα*x
-1 -> -1
dδα*y
-40.49 -> -40.49
dδlnβ*x
-6.55 -> -6.55
dδlnβ*y
-49.97 -> -49.97
Lum_Max:13.654
GR_Max:91.5 %
12/2/2007
12/3
12/2/2007
12/3

# Knob 3

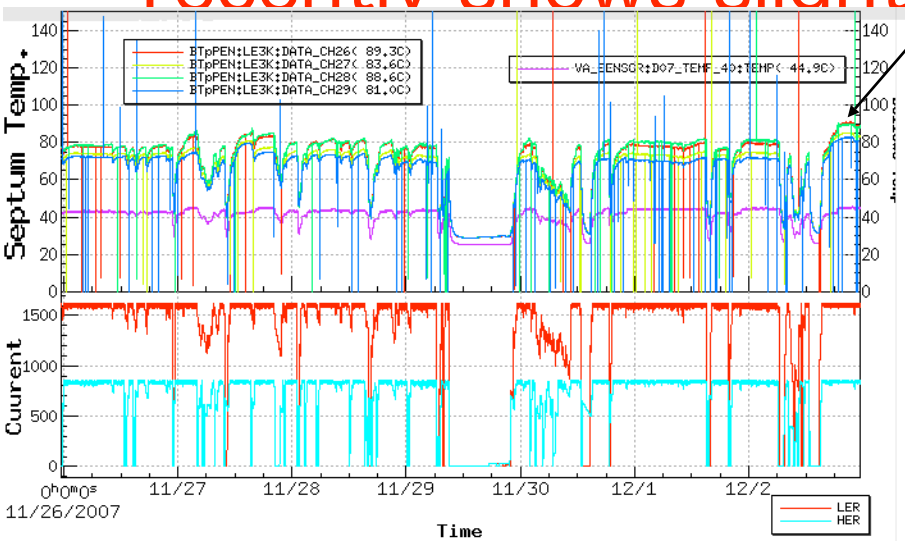

LER
Hoffset
.666 -> .673
R2(Crab)
1 -> 1
R4(Crab)
3 -> 3
ηy(SX)
-2.2E-5 -> -2.2E-5
ηy'(SX)
2.73E-4 -> 2.73E-4
R1(SX)
-1.1E-5 -> -1.1E-5
R2(SX)
-6.6E-5 -> -6.6E-5
R3(SX)
.016 -> .016
R4(SX)
-.013 -> -.013
HER
Hangle
0 -> 0
R2(Crab)
0 -> 0
R4(Crab)
-1 -> -1
ηy(SX)
0 -> 0
ηy'(SX)
0 -> 0
R1(SX)
0 -> 0
R2(SX)
0 -> 0
R3(SX)
0 -> 0
R4(SX)
0 -> 0
Lum_Max:13.654
GR_Max:91.5 %
12/2/2007
12/3
12/2/2007
12/3

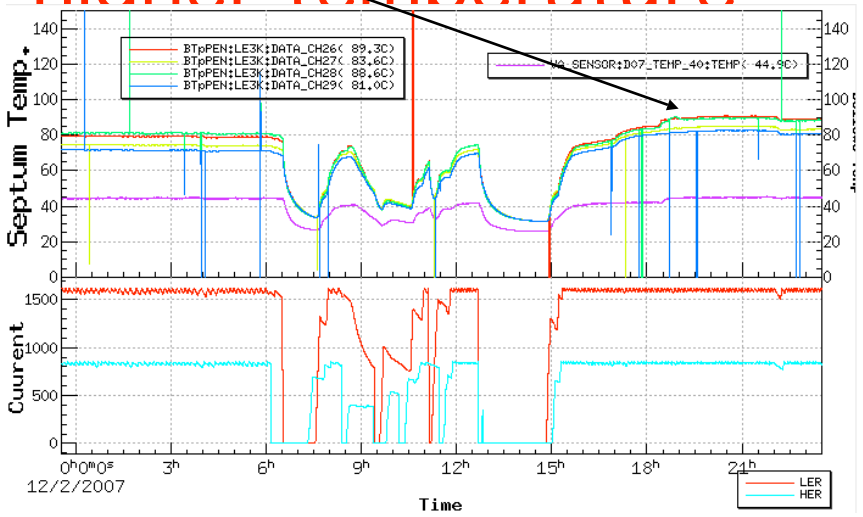
# Comments

1. PF-AR Injection @22:00

# Troubles

1. Alarm message
   "ZHQC5LP_1 Rejected(RangeOut)"
2. Alarm message
   "Septum left Temperature"
   This was fake, but one of thermometer recently shows slightly higher temperature



# Operationに関する感想、提案など

# 終わり

# KEKB Shift Report Date : 2007/12/03(Mon.)

Morning Shift : Nakamura(K); Shimodoumae, Aoyama, Suzuki,

**Almost stable except HER Crab Abort**

To do list

1. Crab R2,R4 knob scan
2. Downhill Simplex knob scan

Peak $\mathcal{L}$ / G-Ratio : 13.830 $\times 10^{33}$ $cm^{-2}s^{-1}$ / 89 %

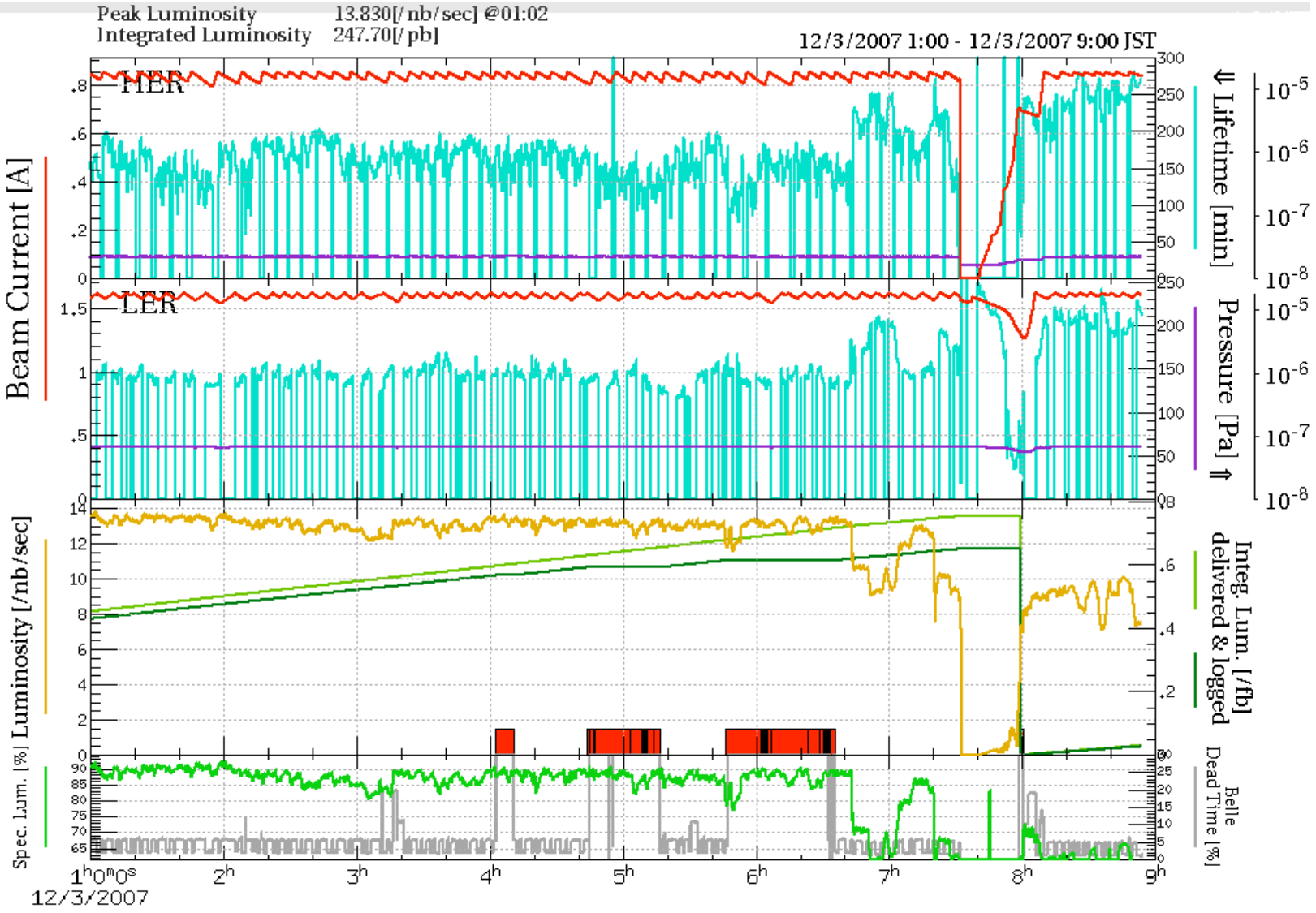
Shift $\mathcal{L}$ / Day $\mathcal{L}$ : 247+$\alpha$ $pb^{-1}$ / ---.- $pb^{-1}$

Beam Current : LER 1620 mA / HER 850 mA

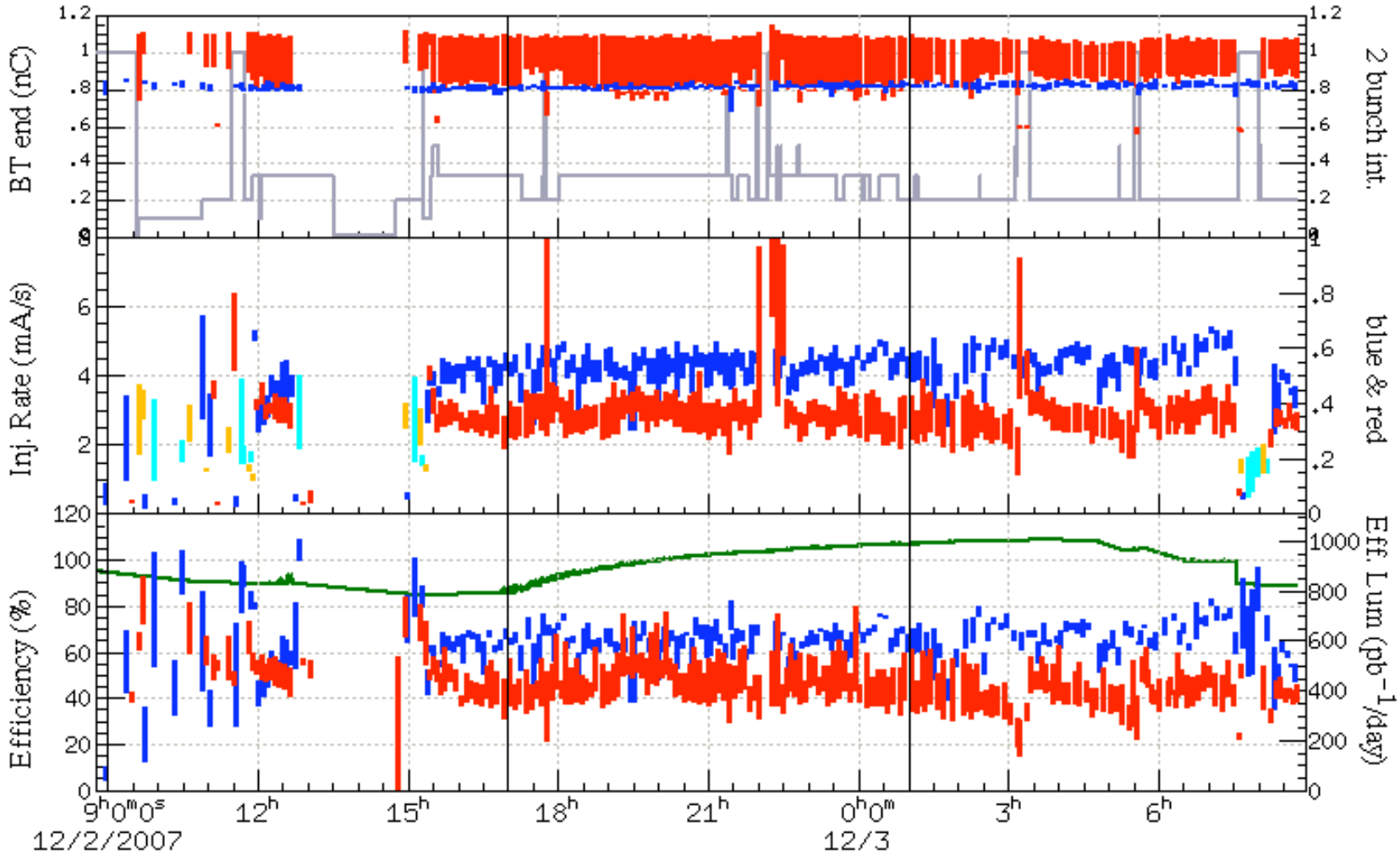
Fill pattern : 3.06 spacing, 1 trains, 1584+1 bunches

Aborts : $LER_{only}$ : 0 / $HER_{only}$ : 1 / Both : 0

# Shift Summary



# Injection Summary

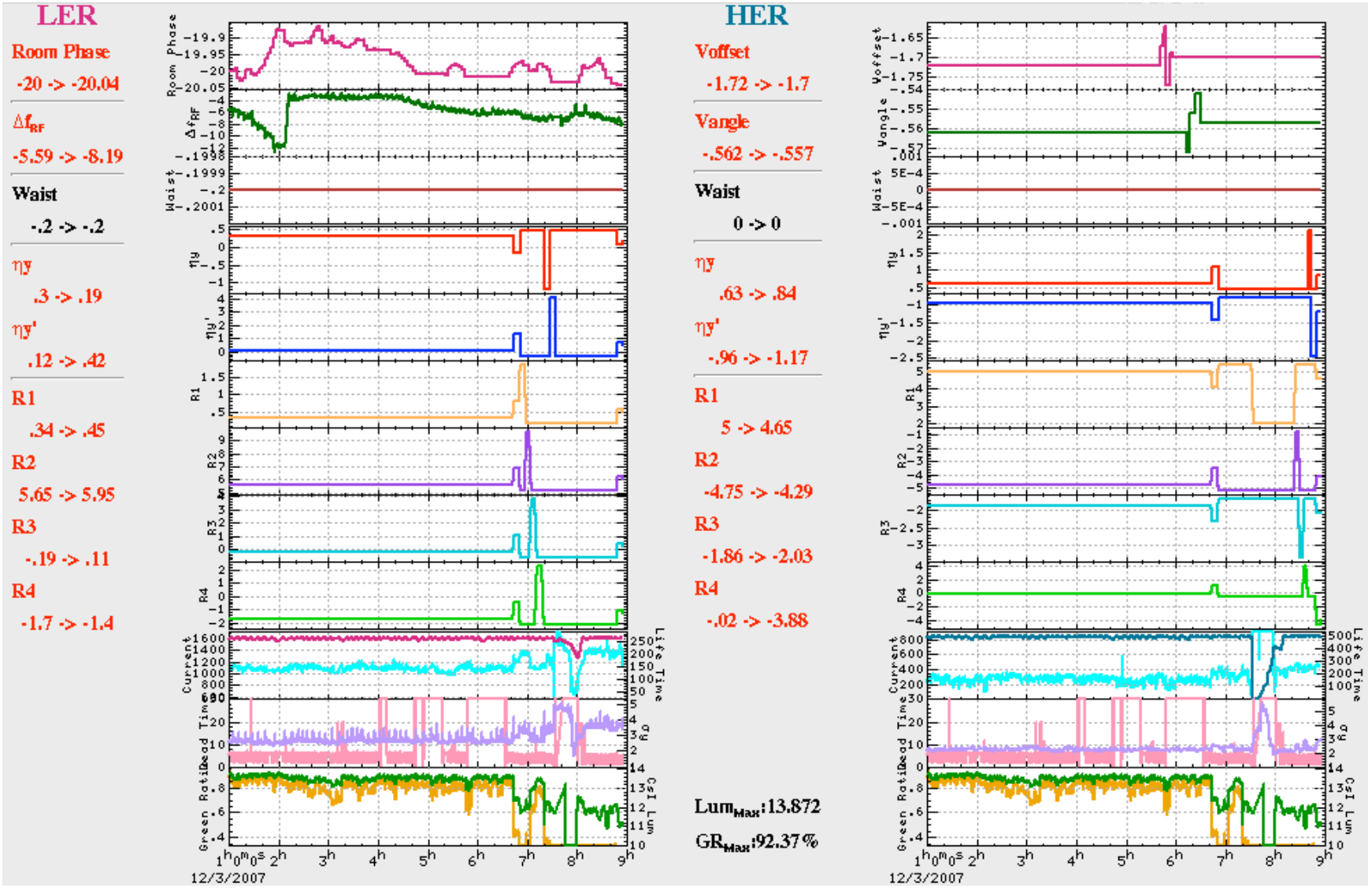


# Tuning Items

- HER $\eta_x$*', Crab $R_2$,$R_4$, iBump, Downhill Simplex(GR)

| | LER | HER |
|---|---|---|
| $R_1$ | Downhill Simplex | Downhill Simplex |
| $R_2$ | Downhill Simplex | Downhill Simplex |
| $R_3$ | Downhill Simplex | Downhill Simplex |
| $R_4$ | Downhill Simplex | Downhill Simplex |
| $\eta_y$* | Downhill Simplex | Downhill Simplex |
| $\eta_y$*' | Downhill Simplex | Downhill Simplex |
| $\eta_x$* | | |
| $\eta_x$*' | | 0 → -12 |
| $R_2$@Crab | 1 → 1 | 0 → 0 |
| $R_4$@Crab | 2 → 2 | -1 → -1 |

# Knob 1


LER
Room Phase
-20 -> -20.04
Δf_RF
-5.59 -> -8.19
Waist
-.2 -> -.2
ηy
.3 -> .19
ηy'
.12 -> .42
R1
.34 -> .45
R2
5.65 -> 5.95
R3
-.19 -> .11
R4
-1.7 -> -1.4
HER
Voffset
-1.72 -> -1.7
Vangle
-.562 -> -.557
Waist
0 -> 0
ηy
.63 -> .84
ηy'
-.96 -> -1.17
R1
5 -> 4.65
R2
-4.75 -> -4.29
R3
-1.86 -> -2.03
R4
-.02 -> -3.88
Lum_Max:13.872
GR_Max:92.37%
12/3/2007
12/3/2007

# Knob 2

**LER**

LER Size@Inj

0 -> 0@0A

νx @0A

.5091 -> .5091

νy @0A

.5814 -> .5814

ξx

-.684 -> -.684

ξy

4.243 -> 4.243

$d_\delta\alpha^*_x$

15.76 -> 15.76

$d_\delta\alpha^*_y$

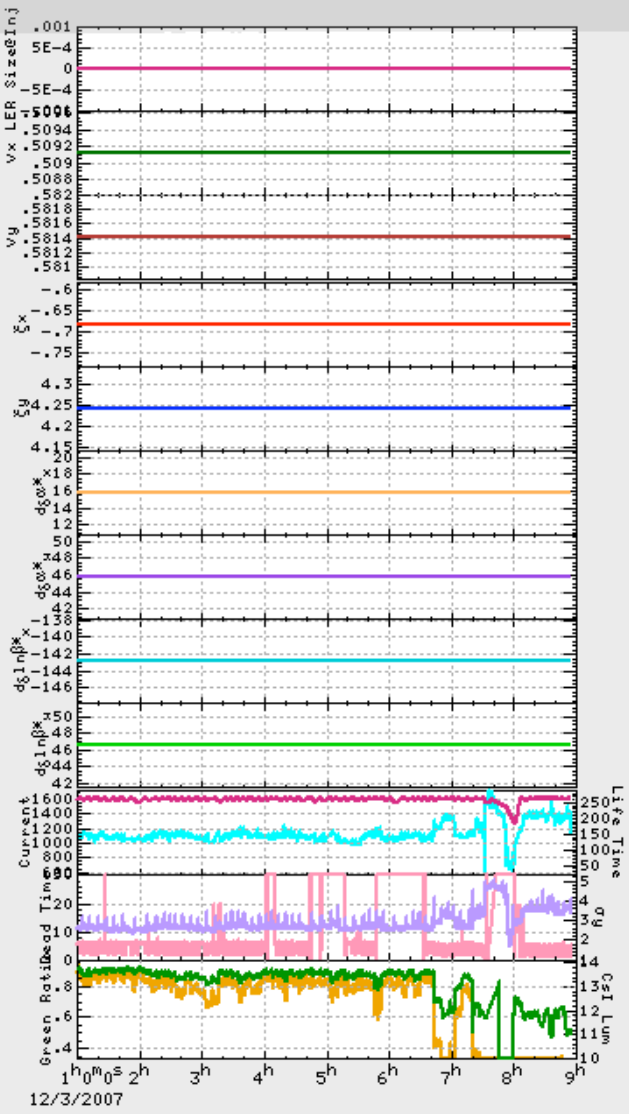
45.75 -> 45.75

$d_\delta\ln\beta^*_x$

-142.84 -> -142.84

$d_\delta\ln\beta^*_y$

46.56 -> 46.56




**HER**

LER Size@Col

0 -> 0@0A

νx @0A

.5122 -> .5122

νy @0A

.5923 -> .5923

ξx

-1.208 -> -1.208

ξy

.88 -> .88

$d_\delta\alpha^*_x$

-1 -> -1

$d_\delta\alpha^*_y$

-40.49 -> -40.49

$d_\delta\ln\beta^*_x$

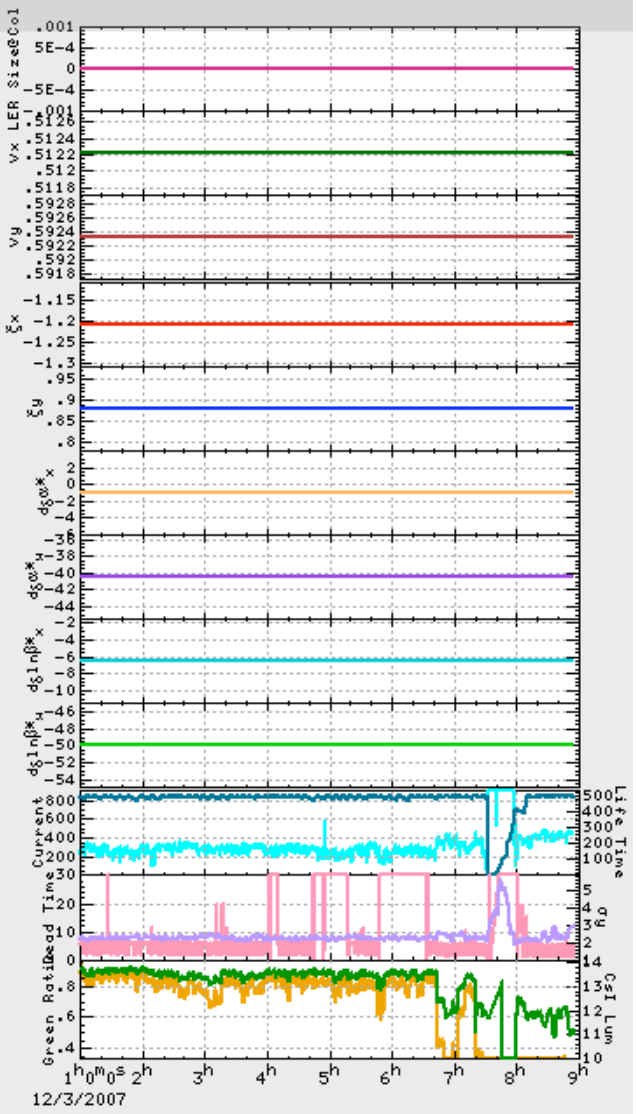
-6.55 -> -6.55

$d_\delta\ln\beta^*_y$

-49.97 -> -49.97

$Lum_{Max}$:13.872

$GR_{Max}$:92.37%



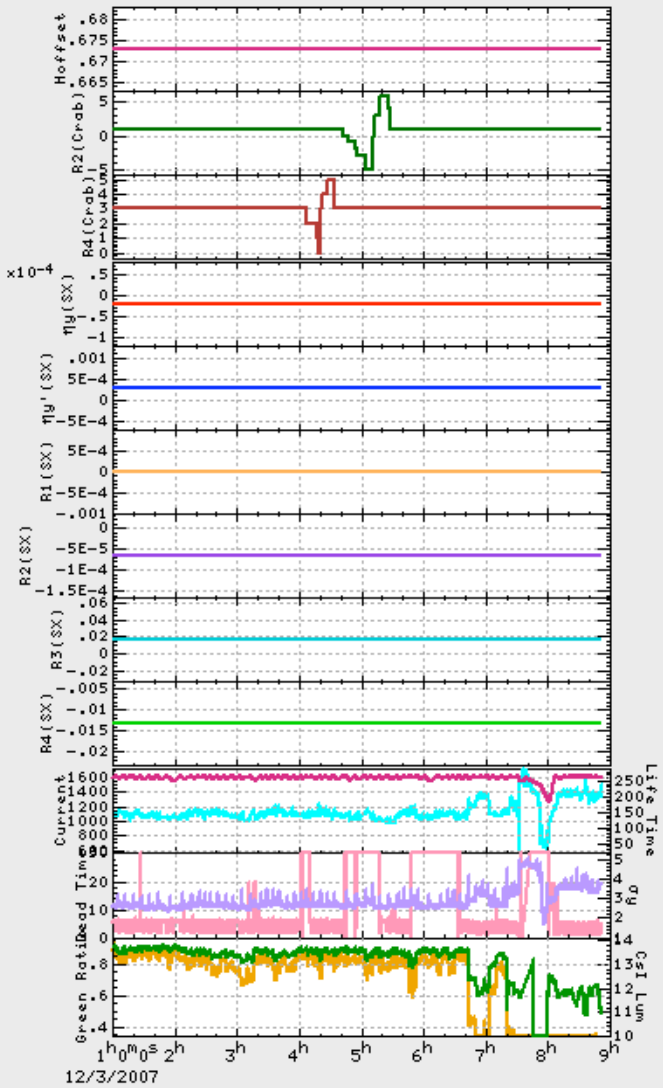
# Knob 3

**LER**

Hoffset
.673 -> .673
R2(Crab)
1 -> 1
R4(Crab)
3 -> 3

ηy(SX)
-2.2E-5 -> -2.2E-5
ηy'(SX)
2.73E-4 -> 2.73E-4

R1(SX)
-1.1E-5 -> -1.1E-5
R2(SX)
-6.6E-5 -> -6.6E-5
R3(SX)
.016 -> .016
R4(SX)
-.013 -> -.013



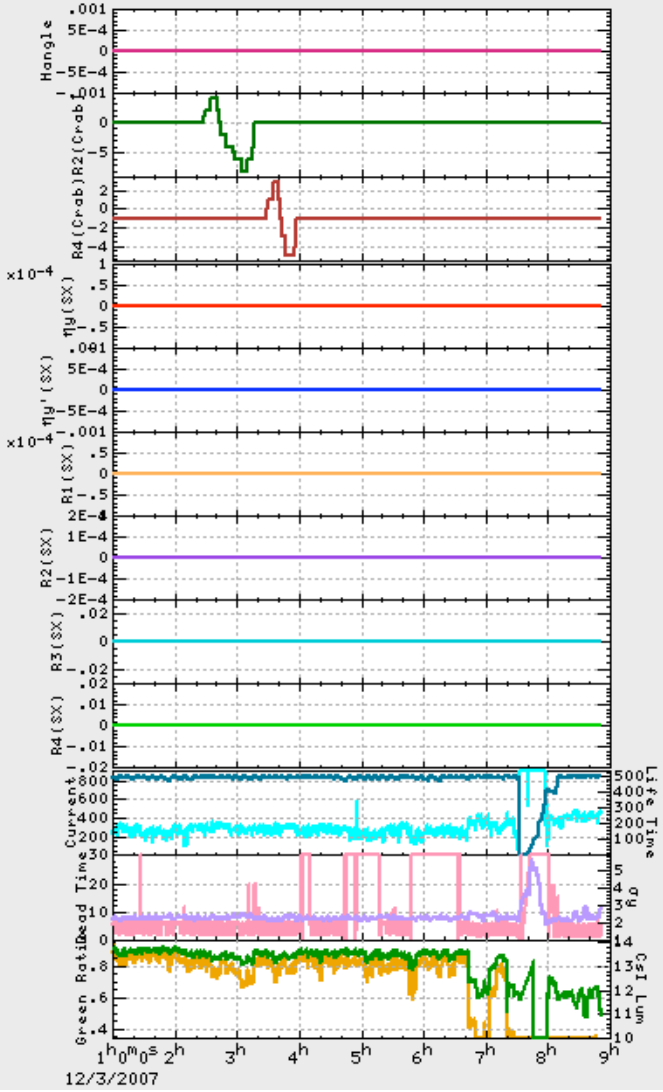

**HER**

Hangle
0 -> 0
R2(Crab)
0 -> 0
R4(Crab)
-1 -> -1

ηy(SX)
0 -> 0
ηy'(SX)
0 -> 0

R1(SX)
0 -> 0
R2(SX)
0 -> 0
R3(SX)
0 -> 0
R4(SX)
0 -> 0

$Lum_{Max}$:13.872
$GR_{Max}$:92.37%



## Comments

1. No comments

# Troubles

1. 7:31 HER Abort; Crab D11F

# Operationに関する感想、提案など

# 終わり