

## J-PARC Hadron Hall : EXPERIMENTAL REPORT on RUN#45

|               |  |                                      |              |
|---------------|--|--------------------------------------|--------------|
|               |  | Date(submitted)                      | Jan.11, 2013 |
| Group         | E36  | Beam line                            | K1.1BR       |
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### Summary and Results

#### 1) Beam tuning:

Kaon beam fine tuning was performed based on the parameters accumulated in the previous tuning run in June 2012. A new parameter set was established for nominal beam momentum of 800 MeV/c, but with K1.8-D1=+447 A. High intensity and good K/ $\pi$  ratio, which are sufficient for E36, were confirmed. A preliminary result is summarized in Table.

| Slit condition | $K^+ / \text{spill} [10^3] @ 11 \text{ kW}$<br>(Measurement) | $I (K^+) [\text{kHz}] @ 30 \text{ kW}$<br>at the E36 target<br>position <sup>*)</sup> | $K / \pi @ \pm 250 \text{ kV}$ | $K / \pi @ \pm 300 \text{ kV}$<br>at the E36 target<br>position <sup>*)</sup> |
|----------------|--|---|--------------------------------|---|
| 1              | 208  | 144   | 1.69                           | 7.7   |
| 2              | 329  | 228   | 0.81                           | 4.1   |
| 3              | 441  | 306   | 0.61                           | 3.4   |

\*) The E36 target position is by 2.0 m upstream of the current measurement.

#### 2) $K^+$ stopping rate measurement:

The  $K^+$  stopping rate was measured by putting a BeO and Al degrader at 730, 780 and 830 MeV/c (effective). It was found that the 780 MeV/c with BeO is the best condition for E36.

#### 2) Beam halo studies:

Beam halo was studied with a CsI(Tl) counter. The flux from the degrader was also studied.

### SCHEDULED and EXECUTED MACHINE TIME, BEAM CONDITION, DOWN TIME, Priority etc.

1) Scheduled time: 19 x 4 Hr = 76 Hrs (from Dec. 15 5:00 to Dec 22 9:00 am)

2) Executed machine time: as scheduled with several downtimes

#### 3) Beam condition :

- 800 MeV/c with several K18-D1 settings, 750 MeV/c and 700 MeV/c with K18-D1=neg
- Stable, but several troubles with ESS due to user mis-operation at the beginning

#### 4) Down time:

- Main ring down time , and
- Several hours of ESS down time
- Frequent area entering to change the degrader and CsI(Tl) position conditions

### Comments/Requests

1) Some times we observed a sudden change of the beam intensity and K/ $\pi$  ration which could be attributed to neither the instability of the secondary beam line condition nor counter instability.

2) The Q6 reading became strange. Its fixing will be necessary.