

Improvement of the Spill Control System For the J-PARC Slow Extraction

T. Kimura^{1#}, M. Tomizawa¹, K. Okamura¹, and H. Nakagawa¹

¹J-PARC Center, Tokai, Ibaraki 319-1195, Japan

a corresponding author: kimurata@post.j-parc.jp

The J-PARC Main Ring (MR) is slowly extracted using a third integer resonance and delivered to the Hadron Experimental Facility (HD-hall) for various nuclear and particle physics experiments [1]. A required beam spill of the slow extraction is a flat structure and low ripple noise. The spill control system used for making flat structure and small ripple. It consists of two kinds of quadrupole magnets, Extraction Quadrupole magnet (EQ) which makes flat structure, Ripple Quadrupole magnet (RQ) which suppresses the high frequency ripple noise and control unit which is Digital Signal Processor (DSP), makes a current pattern for EQ and RQ from spill beam monitor (figure 1).

We have improved serious spiky beam spills by improving the algorithm of spill control system. Here, we report process of the improvement of the algorithm

References

[1] M. Tomizawa, et al, "Performance of Resonant Slow Extraction from J-PARC Main Ring", Proc. of IPAC2012, p. 481.

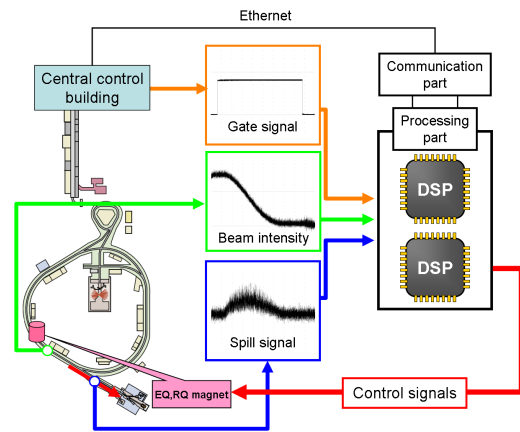


Fig. 1 Outline of the spill control system.