

Report of RCNP International Joint Usage/Joint Research		
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1	Title of reserch	Supplements for an additional beam test of Q051 (Testing prototype multi-gap resistive plate chamber (MRPC) detectors)
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3	Period of research	2026.2.17-23
4	Publication list	Articles
		Talks
		Theses
5	Description of the results and outputs	We have been developing Multi-gap Resistive Plate Chambers (MRPCs) for experiments at J-PARC and for muography. The main purpose of this test experiment is to evaluate the performance of our discriminators with a streaming DAQ system using updated firmware. Since the signal width of the tracker MRPC is as small as 1 ns, it is difficult to measure it while preserving pulse-width information, namely the Time-Over-Threshold (TOT). The test revealed that the new firmware performs much better than the previous version and is capable of handling narrow signals down to 1 ns with proper polarity. It also indicated that modifications to the discriminator are necessary so that it can output signals with the porper polarity for both negative and positive inputs. We also tested the E88 MRPC; small gain and insufficient performance were obseerved.