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New detector design for combined measurements of omega meson KAZUKI UTSUNOMIYA, KYOICHIRO OZAWA, YOSUKE WATANABE, SHINICHI MASUMOTO, YUSUKE KOMATSU, TAMOTSU SATO, The University of Tokyo, SATOSHI YOKKAICHI, KAZUYA AOKI, Riken, TOMOYA TSUJI, CNS, the University of Tokyo — We proposed an experiment at J-PARC for measurements of a direct omega meson mass modification in nucleus. The experiment also aims measurements of a nuclear bound state. In the experiment, mass of meson in nucleus is measured with omega to pi0 gamma decays and initial conditions in produced omega meson are also measured in p(pi-, n)omega reaction. Produced pi0 meson is detected with two gamma decays. Therefore, two detector are needed such as Gamma detecter and neutron counter. We have developed a TOF type neutron counter. The counter consists of an iron plate and scintillators. This has 4 layers. and 6 scintillators in each lay. To achieve enough mass resolution, time resolution needed to be less than 80 ps. At K1.8 beam line in J-PARC Hadron Hall, the maximum flight path is 7m and the mass resolution of 22 MeV/c2 can be achieved. A Gamma-ray detector is also needed for detecting total three gammas. We perform beam tests and simulations for these two detectors. The result and the present status of detector development and design will be presented.

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