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## Construction and test of the enhanced Racetrack Model Coil, first CERN R&D magnet for the FCC

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Racetrack model coils (RMC) have been built at CERN during the past decade, as a R&D tool to qualify conductors and technologies developed for high field superconducting magnets. Racetrack model coils, assembled in a dipole magnet configuration, proved to be an efficient instrument reducing cost and feed-back time while developing new magnets. In a similar way as for the HL-LHC project, CERN has designed the enhanced RMC (eRMC) made of two flat coils using 40 (1 mm diameter) Nb<sub>3</sub>Sn strand cable produced with RRP technology. This conductor geometry, originally designed and produced to build the FRESCA2 magnet, was chosen to reduce the production time and shorten the road towards the feasibility demonstration to reach 16-18 T magnetic fields in a dipolar configuration. As previous model coils built at CERN (SMC & RMC), eRMC1 has been built using the “bladders and keys” type mechanical structure. This paper describes the main construction steps and the powering test results. The magnet produced a 16.5 T field at 1.9 K, the highest ever for a dipole magnet of this configuration.

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