Abstract: The HTS (High-Temperature Superconducting) conductor shows the critical current characteristics influenced by magnetic field direction acting on the surface of the conductor. The 1G (the first generation) HTS conductor made of BSCCO shows severe critical current degradation by the magnetic field normally acting magnetic field on its surface compared with parallel field. So when it is necessary to predict the critical current (or quench current) of a coil, the normal magnetic field characteristics is the major concern.

However, the 2G (the second generation) HTS conductor shows different critical current characteristics from the 1G conductor. The minimum critical current does not happen at the normal magnetic field all the time. Especially a 2G HTS conductor manufactured with flux-pinning process shows higher critical current at normal magnetic field than other field angles around it.

In this presentation we suggest a critical current estimation method of 2G HTS coils considering the magnetic field angular direction to the surface of the conductor.