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Commercialization of a Turbo-Brayton cycle refrigerator for HTS power applications

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Approaching to commercializing of High Temperature Superconducting (HTS) power applications is becoming more active. And cooling system is very important and essential for practical HTS power applications. HTS power applications on commercial scale will require cooling system which has cooling capacity from 2kW to 10kW at 65K, high reliability (long maintenance interval) and compactness. Taiyo Nippon Sanso Corporation (TNSC) is developing a turbo-Brayton cycle refrigerator using neon gas as working fluid (Neon-Refrigerator) for HTS power applications. And a 2kW class Neon-Refrigerator has been marketed in May 2013. Some Neon-Refrigerators were supplied for cable projects in Japan. Furthermore, development of 10kW class Neon-Refrigerator is under going. Detail of commercial type 2kW class Neon-Refrigerator and present status of development of 10kW class Neon-refrigerator will be introduced in this presentation.

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