# Commodity Description

| 종목 번호 Item No. | 관세분류 번호 HSK No. | 정부물품분류번호(8자리) Korean Government Commodity Classification Code(eight-digit) | 품 명 Description | 단 위 Unit | 수 량 Q'ty |
|---|---|---|---|---|---|
| 1 | 9027.89.20 | 41115333 | 초전도체 나노선 광자 검출기칩 모듈 (Modules of superconducting nanowire single photon detection chip) | set | 2 |

Ⅰ. End-user's Use

The foundation of instrument techniques of entanglement measurements is the conversion of a photon energy to a digital pulse that signals its time of the photon absorption event very accurately and genuinely (no false alarms). Among single photon detectors so far that mimics playing this role closely, “superconducting nanowire single photon detectors”(SNSPD) that has the near-unity probability of photon detections with time jitters shorter than most of coherent carrier dynamics and photon coherence time met the required level of ideality for entanglement measurements.

Most of SNSPD are supplied in a form of system including a refrigeration platform. However, end-user is running a customized platform of 0.8 K refrigeration, so requires only modules of SNSPD chip and electronics, and wants to fit this sets to owned custom refrigerators.

Ⅱ. Configurations of Goods

1. SNSPD chip module: 2 set
: satisfying photon detection efficiency, time jitters, and dark count rate noted in specification below.
2. Electronics : 2 set, or one device that supports 2 chip modules at least
: for controlling dc-bias, and for amplifying RF pulses of photon detection signals

Ⅲ. Performance & Specification

1. Operation Principle: To meet the conditions of low time jitters, efficiency and accuracy of photon detection signaling, the type of detection modules is limited to the modern "Superconducting nanowire single photon detectors" (SNSPD).
2. Use wavelength : 900 ~ 1000 nm
3. Single detection probability (quantum efficiency) > 80 % around 920 ~ 930 nm
4. Dark count rate < 100 cps
5. Time jitter < 100 ps
6. [Electronics] Controlling bias and amplifying photon RF signals to the conventional trigger level of digital electronics

Ⅳ. Remarks

1. Installation: End-user installs SNSPD modules on owned custom refrigerator.