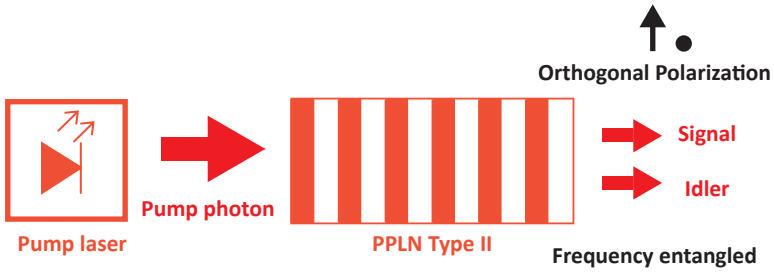
TPS_1550_TYPE_II

Quantum photon source

Self-contained entangled photon source [Telecom wavelength - 1550 nm]



The TPS_1550_TYPE_II is a new generation of self-contained quantum photon source working at room temperature generating orthogonally-polarized frequency-entangled photons in the C-band. Pairs of photons are produced by Spontaneous Parametric Down Conversion (SPDC) in Periodically Poled Lithium Niobate PPLN waveguide (Quasi Phase Matching-QPM).

Based on a table-top design, the TPS_1550_TYPE_II combines a temperature-tunable PPLN waveguide crystal with wavelength stabilized laser source. The laser pump power and the internal temperature of the crystal are controlled to adjust the phase matching with high-precicision via the USB interface and the proprietary software interface.

Very well-designed, the compactness and the modern interfaces of the TPS_1550_TYPE_II makes it your essential analytical tool for the most demanding academic and industrial quantum research !

Features

- Photon pairs generation at 1550 nm
- High brightness > 100 000 pairs/sec
- Bi-photon bandwidth < 2 nm
- Entangled photons
- Internal laser pump
- Adjustable pump power up to 5 mW
- PPLN waveguide crystal type
- Room temperature operation
- Remote control
- DLL libraries : LabVIEW, C++

Applications

- Photon pairs generation
- Quantum communications
- Quantum Key Distribution
- Quantum tomography
- Quantum teleportation
- Atomic interferometry

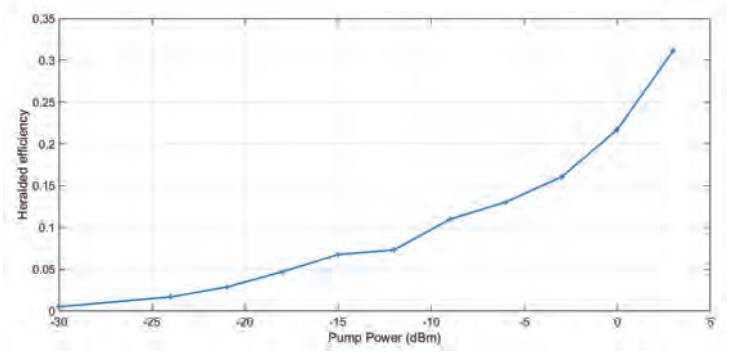
Options

- 1550 nm Type 0
- Polarization-entanglement
- 810 nm source

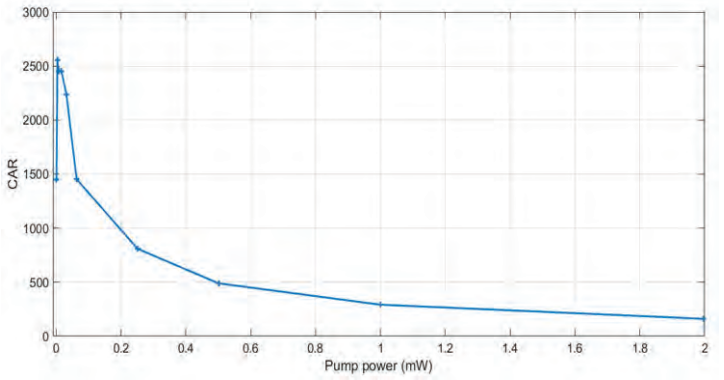
TECHNICAL SPECIFICATIONS

Photon pair generation - type II - 1550 nm	
Central wavelength	1550 nm +/- 10 nm
Biphoton bandwidth	< 2 nm
Effective pair-generation rate[1]	100 000 pairs/s
Heralded efficiency[2]	35%
$g^{(2)}(0)$ factor	< 0.01
Coincidence to Accidental ratio[3]	300
Two-photons interference visibility :	
- Frequency	> 99%
- Polarization[4]	> 95%
Wavelength stability	20 pm
Central wavelength tunability	+/- 2 nm
Input/Output - Mechanical - Environmental	
1550 nm Out	FC/APC for PM 1550 fiber
Optical Pump Out	FC/APC for PM HI780 fiber
Optical Pump In	FC/APC for PM HI780 fiber
Computer connection	Mini USB 2.0 type B
Power consumption	< 40 W
Dimensions (LxWxH)	250 x 280 x 70 mm³
Weight	4.5 kg
Operating temperature	+ 10°C to + 30°C
Cooling time	< 2 min @ 25°C

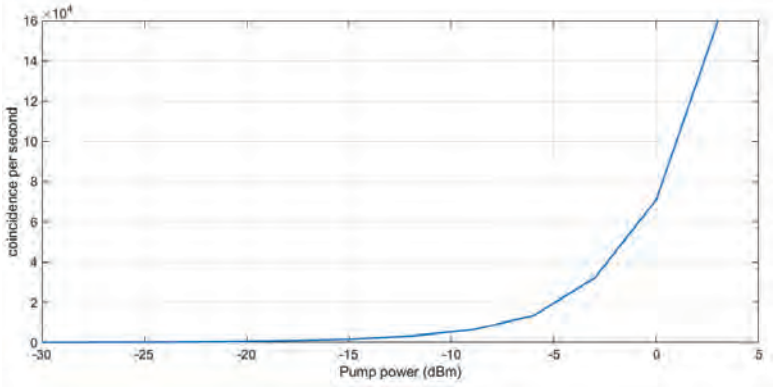
[1] @2mW (3dBm) pump power
[2] @2mW (3dBm) pump power
[3] @2mW (3dBm) pump power
[4] Additionnal filtering module is required



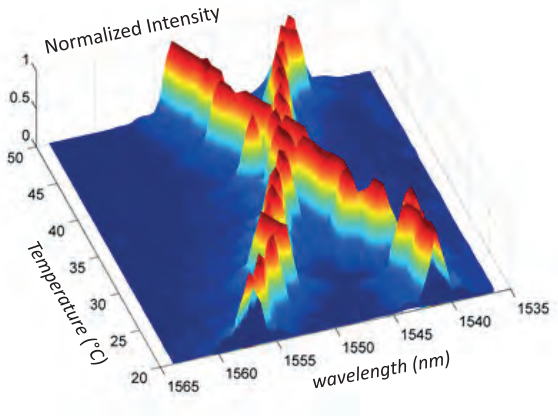
Heralded efficiency vs Pump power



Coincidence to accidental-ratio vs Pump power



Pairs generation rate vs Pump power



Spontaneous Parametric Down-Conversion Spectrum (SPDC) versus Temperature (775nm laser pump)

ORDERING INFORMATION

TPS_1550_X_00

- II : type II
- *0 : type 0**
- 00 : frequency entanglement
- 01 : frequency & polarization entanglement

***Please contact us for more information about type 0 sources**

NOTE

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