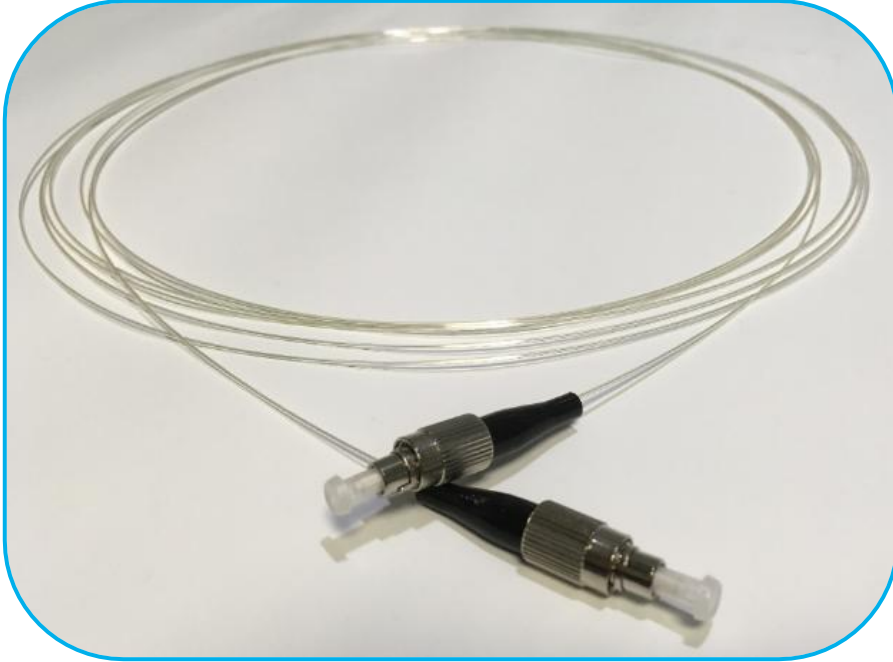




## Acetylene ( $C_2H_2$ ) PMC<sup>®</sup> frequency reference

*Fibered Gas Cell For Telecom Wavelength reference*



*Small footprint*

*Hermetic seal*

*High transmission & contrast*

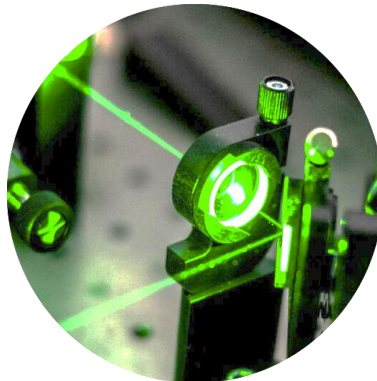
*S & C band coverage*

*Absorption contrast on demand*

Telecom



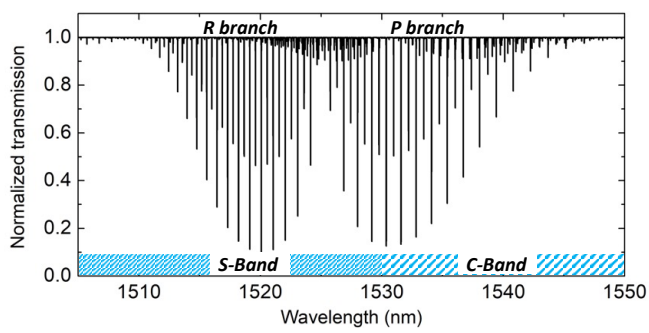
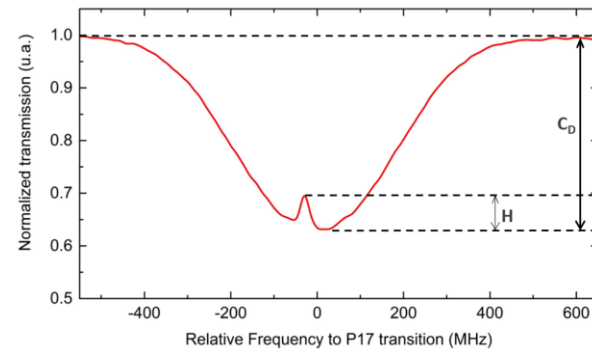
Instrument Calibration



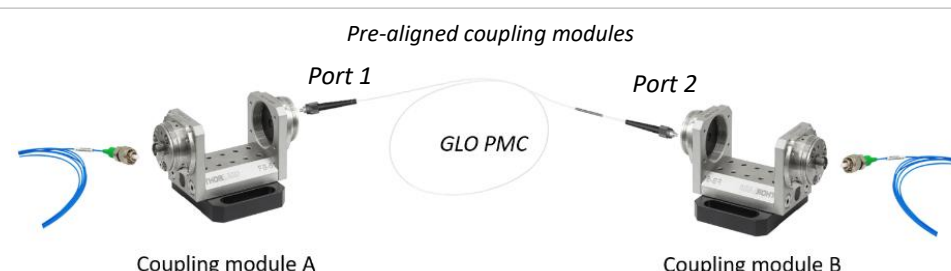
Environment / Space



# Spectroscopic and optical properties <sup>(1)</sup>

|                                                                                           |                                                                                                                                     |                                                                                    |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Molecule                                                                                  | Acetylene ( <sup>12</sup> C <sub>2</sub> H <sub>2</sub> )                                                                           |                                                                                    |
| Wavelength range                                                                          | 1510 to 1550 nm                                                                                                                     |  |
| Doppler limited Absorption contrast $C_D^{(2)}$ (for P9 line – 1530,371 nm)               | $5\% \leq C_D \leq 90\%$                                                                                                            |                                                                                    |
| Doppler limited linewidth <sup>(2)</sup> (for P9 line – 1530,371 nm)                      | $500 \text{ MHz} \leq \text{FWHM} \pm 50 \text{ MHz} \leq 660 \text{ MHz}$<br>$\text{FWHM} \pm 50 \text{ MHz} \leq 1.2 \text{ GHz}$ | <i>for a length of 4m</i><br><i>for a length of 0.2m</i>                           |
| sub-Doppler feature contrast $C_{SD} = H/C_0^{(2)}$ (with Saturable Absorption Technique) | minimum of 10%<br>(for a minimum coupled pump power of 100mW)                                                                       |                                                                                    |
| Typical Doppler-free spectrum of a C <sub>2</sub> H <sub>2</sub> PMC <sup>(1)</sup>       |                                                  |                                                                                    |
| Off resonance Insertion loss (with coupling efficiency of 100%) <sup>(3)</sup>            | From port 1 to 2                                                                                                                    | $\leq 3.5 \text{ dB}$                                                              |
|                                                                                           | From port 2 to 1                                                                                                                    | $\leq 5.5 \text{ dB}$                                                              |

## Physical Properties

|                             |                                                                                                                                                 |  |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Total length <sup>(4)</sup> | $0.2 \text{ m} \leq L \leq 6 \text{ m}$                                                                                                         |  |
| PMC terminations            | Port 1: Spliced SMF or Glass End-capped mounted on FC/APC or FC/PC connectors<br>Port 2: Glass End-capped mounted on FC/APC or FC/PC connectors |  |
| Option                      |                                                             |  |

<sup>(1)</sup> At room temperature (20°C), for 4m PMC

<sup>(2)</sup> For other transition, contrast, linewidth or any requirements, please contact us

<sup>(3)</sup> Free-space coupling conditions

<sup>(4)</sup> The length of the PMC is adjusted within the reported range to fit customer spectroscopic properties requests

All specifications may be changed without notice

