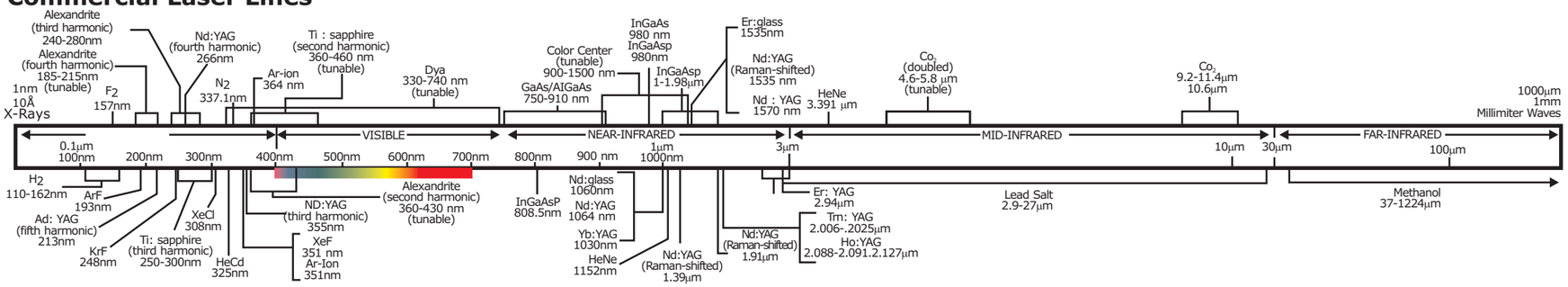
TESCA™

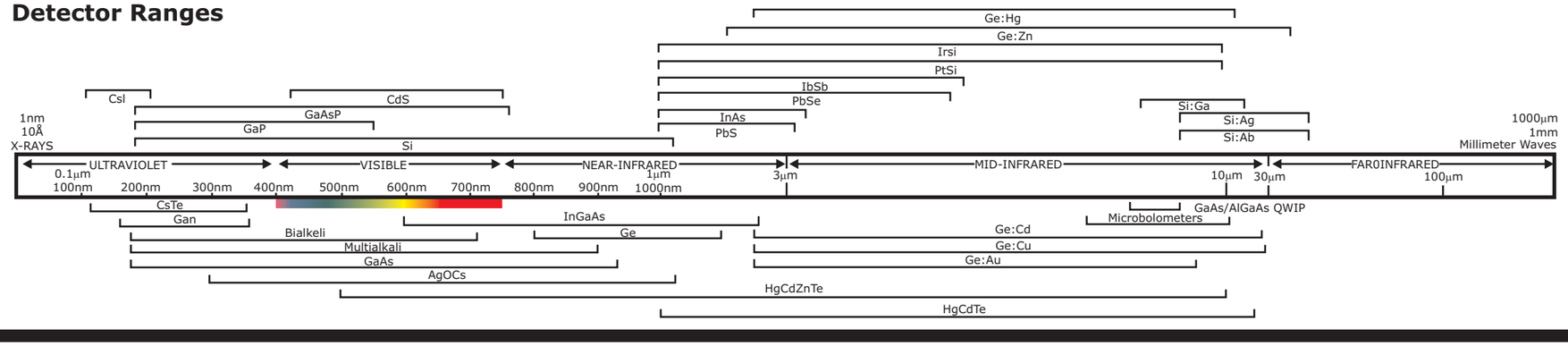
Tesca Technologies Pvt. Ltd.

Photonic Spectrum Reference Chart

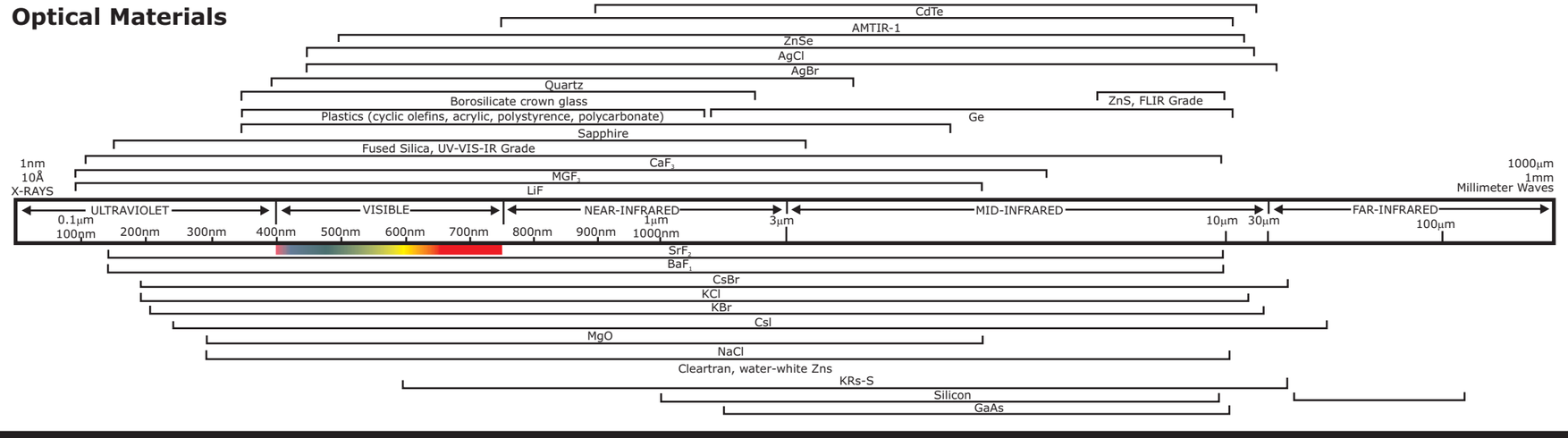
Commercial Laser Lines



Detector Ranges



Optical Materials



The photonic spectrum wall chart displays the major commercial laser lines, detectors and optical materials in the ultraviolet to the far-infrared and beyond. Space limitations make it impossible to include all available lasing media and particularly in the crowded areas of the visible spectrum and the near-infrared, we were forced to limit their multiple secondary lines to the more familiar. In drawing the full spectrum band, legibility received a higher priority than accurate scale or proportion.
Also include is a convenient table of equations, formulas and references for various applications in the photonics industry.

Commonly Used References

Conversion Equations

Wavelength to wave numbers : wave number (cm^{-1}) = $10^7/\lambda$(nm)

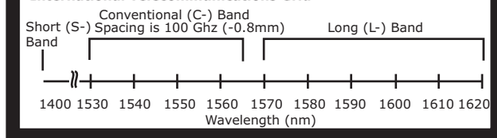
Wavelength to frequency : ν (Hz)=2.998 × $10^{11}/\lambda$(nm)

Wave numbers to frequency :ν(Hz)=2.998×10^{10}×wave number (cm^{-1})

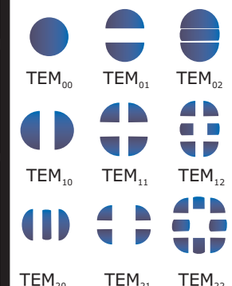
OC-3/ATM = 155 Mb/s
OC-12/SONET=622Mb/s
OC-48/STM-16=2.5 Gb/s
OC-192/STM-64 = 10Gb/s
OC-768/STM-256 = 40GB/s

Power loss (mW) to decibels (dbm):
Dbm = 10log (input power) 10 log (output power)

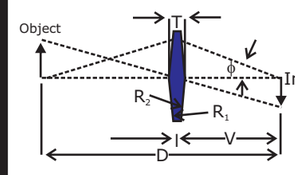
International Telecommunications Grid



Transverse Electromagnetic Modes



Common Lens Formulas



Focal Length:

$f = \frac{D \times M}{(M+1)^2}$ $f = \frac{U \times M}{M+1}$ $f = \frac{D}{M + 2 + (1/M)}$

$\frac{1}{f} = (n-1)\left(\frac{1}{R_1} - \frac{1}{R_2}\right)$ (Thin Lens)

$\frac{1}{f} = (n-1)\left[\frac{1}{R_1} - \frac{1}{R_2} + \frac{T(n-1)}{R_1 R_2 n}\right]$ (Thick Lens)

Relative Aperture (f/#)

$F/\# = \frac{\text{Focal Length (f)}}{\text{Lens Diameter (Clear Apertures)}}$

Magnification

$M = \frac{V}{U}$ $M = \frac{f}{U-f}$ $M = \frac{V-f}{f}$

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- Fibre-Optic Simplex Digital Transceiver Trainer
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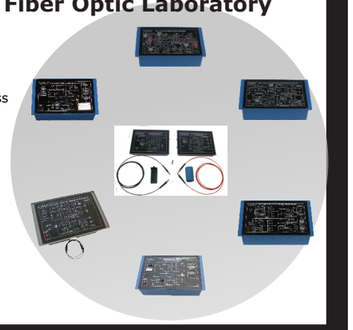
- Fibre-Optic trainer for numerical aperture and fibre loss measurement
- Fibre Optic voice transmitter and receiver trainer
- Laser Fibre Optic Trainer
- Physics of Fiber Optics Trainer
- Digital Fibre-Optic Power Meter



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