

## Energy unit conversion — 분광학 단위 변환 참조표

$\hbar\omega/2\pi = \nu$  (THz);  $\tilde{\nu} = \nu/c$ ;  $E = h\nu = \hbar\omega$ ;  $\lambda = c/\nu$ ;  $k_B T$ : 열에너지

| 영역                               | Reference point |                          | THz   | cm <sup>-1</sup> | meV   | μm    | nm                     | K     | eV                      |
|----------------------------------|-----------------|--------------------------|-------|------------------|-------|-------|------------------------|-------|-------------------------|
| THz / Microwave    마이크로파 · 테라헤르츠 |                 |                          |       |                  |       |       |                        |       |                         |
| THz                              | 0.1             | THz                      | 0.100 | 3.34             | 0.414 | 2998  | 3.00 × 10 <sup>6</sup> | 4.80  | 4.14 × 10 <sup>-4</sup> |
| THz                              | 1               | THz                      | 1.00  | 33.4             | 4.14  | 300   | 3.00 × 10 <sup>5</sup> | 48.0  | 4.14 × 10 <sup>-3</sup> |
| THz                              | 3               | THz                      | 3.00  | 100              | 12.4  | 99.9  | 9.99 × 10 <sup>4</sup> | 144   | 1.24 × 10 <sup>-2</sup> |
| THz                              | 10              | THz                      | 10.0  | 334              | 41.4  | 29.9  | 3.00 × 10 <sup>4</sup> | 480   | 4.14 × 10 <sup>-2</sup> |
| Far-IR    원적외선                   |                 |                          |       |                  |       |       |                        |       |                         |
| far-IR                           | 100             | cm <sup>-1</sup>         | 3.00  | 100              | 12.4  | 100   | 1.00 × 10 <sup>5</sup> | 144   | 1.24 × 10 <sup>-2</sup> |
| far-IR                           | 400             | cm <sup>-1</sup>         | 12.0  | 400              | 49.6  | 25.0  | 2.50 × 10 <sup>4</sup> | 576   | 4.96 × 10 <sup>-2</sup> |
| Mid-IR    중적외선                   |                 |                          |       |                  |       |       |                        |       |                         |
| mid-IR                           | 1               | meV                      | 0.242 | 8.07             | 1.00  | 1240  | 1.24 × 10 <sup>6</sup> | 11.6  | 1.00 × 10 <sup>-3</sup> |
| mid-IR                           | 100             | meV                      | 24.2  | 807              | 100   | 12.4  | 1.24 × 10 <sup>4</sup> | 1160  | 0.100                   |
| mid-IR                           | 1000            | cm <sup>-1</sup> (10 μm) | 30.0  | 1000             | 124   | 10.0  | 1.00 × 10 <sup>4</sup> | 1440  | 0.124                   |
| Near-IR / Visible    근적외선 · 가시광  |                 |                          |       |                  |       |       |                        |       |                         |
| near-IR                          | 1               | eV (1240 nm)             | 242   | 8070             | 1000  | 1.24  | 1240                   | 11600 | 1.00                    |
| Vis                              | 532             | nm (green)               | 564   | 18800            | 2330  | 0.532 | 532                    | 27100 | 2.33                    |
| Vis                              | 800             | nm (Ti:Sa)               | 375   | 12500            | 1550  | 0.800 | 800                    | 17990 | 1.55                    |

Key conversions:  $\nu$  [THz] =  $\tilde{\nu}$  [ $\text{cm}^{-1}$ ]  $\times$  33.356;  $E$  [meV] =  $\nu$  [THz]  $\times$  4.136;  $E$  [meV] = 1239.8/ $\lambda$  [nm]

$T$  [K] =  $E$  [meV]  $\times$  11.605;  $E$  [meV] =  $\tilde{\nu}$  [ $\text{cm}^{-1}$ ]  $\times$  0.12398