|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| APPENDIX 1A: Nature's atomic e-m frequencies ν/Hz | | | | | | | | |  |  |  |  |  |  |  |  |  |
| A\*N | Atom | ν | AN | Atom | ν | AN | Atom | ν | AN | Atom | Ν | AN | Atom | ν | AN | Atom | ν |
| 1 | e | 1 | 21 | Cg | 512 | 41 | P | 163840 | 61 | Br | 3932160 | 81 | Cs | 67108864.0 | 101 | Re | 658887028.4 |
| 2 | Bl | 2 | 22 | D | 1024 | 42 | S | 196608 | 62 | Kr | 4194304 | 82 | Ba | 134217728.0 | 102 | Os | 689391057.5 |
| 3 | Bs | 4 | 23 | T | 1536 | 43 | Cl | 229376 | 63 | Rb | 4194304 | 83 | La | 201326592.0 | 103 | Ir | 719895086.5 |
| 4 | A | 8 | 24 | H | 2048 | 44 | Ar | 262144 | 64 | Sr | 8388608 | 84 | Ce | 227137693.5 | 104 | Pt | 750399115.6 |
| 5 | Jm | 8 | 25 | L | 2560 | 45 | K | 262144 | 65 | Y | 12582912 | 85 | Pr | 252948795.1 | 105 | Au | 780903144.7 |
| 6 | En | 16 | 26 | Ha | 3072 | 46 | Ca | 524288 | 66 | Zr | 16777216 | 86 | Nd | 278759896.6 | 106 | Hg | 811407173.8 |
| 7 | Ey | 24 | 27 | Ng | 3584 | 47 | Sc | 786432 | 67 | Nb | 20971520 | 87 | Pm | 304570998.2 | 107 | Tl | 841911202.9 |
| 8 | Ah | 32 | 28 | He | 4096 | 48 | Ti | 1048576 | 68 | Mo | 25165824 | 88 | Sm | 330382099.7 | 108 | Pb | 872415232.0 |
| 9 | Bd | 40 | 29 | Li | 4096 | 49 | V | 1310720 | 69 | Tc | 29360128 | 89 | Eu | 356193201.2 | 109 | Bi | 872415232.0 |
| 10 | De | 48 | 30 | Be | 8192 | 50 | Cr | 1572864 | 70 | Ru | 33554432 | 90 | Gd | 382004302.8 | 110 | Po | 939524096.0 |
| 11 | Rm | 56 | 31 | Be | 12288 | 51 | Mn | 1835008 | 71 | Rh | 33554432 | 91 | Tb | 407815404.3 | 111 | At | 1006632960.0 |
| 12 | Bt | 64 | 32 | C | 16348 | 52 | Fe | 2097152 | 72 | Pd | 37748736 | 92 | Dy | 433626505.9 | 112 | Rn | 1073741824.0 |
| 13 | Mc | 64 | 33 | N | 20480 | 53 | Co | 2097152 | 73 | Ag | 41943040 | 93 | Ho | 459437607.4 | 113 | Fr | 1073741824.0 |
| 14 | Pn | 128 | 34 | O | 24576 | 54 | Ni | 2359296 | 74 | Cd | 46137344 | 94 | Er | 485248708.9 | 114 | Ra | 2147483648.0 |
| 15 | Vt | 192 | 35 | F | 28672 | 55 | Cu | 2621440 | 75 | In | 50331648 | 95 | Tm | 511059810.5 | 115 | Ac | 3221225472.0 |
| 16 | Ou | 256 | 36 | Ne | 32768 | 56 | Zn | 2883584 | 76 | Sn | 54525952 | 96 | Yb | 536872912.0 | 116 | Th | 3758096384.0 |
| 17 | Tr | 320 | 37 | Na | 32768 | 57 | Ga | 3145728 | 77 | Sb | 54525952 | 97 | Lu | 536872912.0 | 117 | Pa | 4294967296.0 |
| 18 | Bz | 384 | 38 | Mg | 65536 | 58 | Ge | 3407872 | 78 | Te | 58720256 | 98 | Hf | 567374941.1 | 118 | U | 4831838208.0 |
| 19 | Hl | 448 | 39 | Al | 98304 | 59 | As | 3407872 | 79 | I | 62914560 | 99 | Ta | 597878970.2 | 119 | Np | 5368709120.0 |
| 20 | G | 512 | 40 | Si | 1E+05 | 60 | Se | 3670016 | 80 | Xe | 67108864 | 100 | W | 628382999.3 | 120 | Pu | 5905580032.0 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 121 | Am | 6442450944.0 |

\*AN = Nature’s mass number (formerly, Russell’s)

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