

Supplementary Material

Table S1. Transmittance of 630 nm LED light source in different models.

| Skin and fat | | | | | | | | | |
|--------------|----------|-------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------|
| T_t | T_{qs} | T_m | E_1 | $E_{1'}$ | $E_{1-1'}$ | E_2 | $E_{2'}$ | $E_{2-2'}$ | Light |
| /cm | /cm | /cm | /mW/cm ² | /mW/cm ² | /mW/cm ² | /mW/cm ² | /mW/cm ² | /mW/cm ² | transmission |
| | | | | | | | | | rate |
| | | | | | | | | | /% |
| 0.530 | 0.200 | 0.330 | 26.5 | 0.4 | 26.1 | 10.3 | 0.1 | 10.2 | 39.080 |
| 0.675 | 0.200 | 0.475 | 26.3 | 0.5 | 25.8 | 7.4 | 0.1 | 7.3 | 28.295 |
| 0.785 | 0.200 | 0.585 | 26.8 | 0.5 | 26.3 | 6.5 | 0.1 | 6.4 | 24.335 |
| 0.867 | 0.200 | 0.667 | 25.8 | 0.4 | 25.4 | 6.1 | 0.1 | 6.0 | 23.622 |
| 1.110 | 0.200 | 0.910 | 26.3 | 0.4 | 25.9 | 3.4 | 0.1 | 3.3 | 12.741 |
| 1.382 | 0.200 | 1.182 | 26.4 | 0.4 | 26.0 | 2.3 | 0.1 | 2.2 | 8.462 |
| 1.672 | 0.200 | 1.472 | 24.9 | 0.4 | 24.5 | 0.8 | 0.0 | 0.8 | 3.265 |
| 1.882 | 0.200 | 1.682 | 26.6 | 0.5 | 26.1 | 0.6 | 0.0 | 0.6 | 2.299 |
| 2.066 | 0.200 | 1.866 | 26.6 | 0.5 | 26.1 | 0.5 | 0.1 | 0.4 | 1.533 |
| 2.150 | 0.200 | 1.950 | 26.2 | 0.5 | 25.7 | 0.4 | 0.0 | 0.4 | 1.556 |
| 2.292 | 0.200 | 2.092 | 27.3 | 0.4 | 26.9 | 0.3 | 0.0 | 0.3 | 1.115 |
| 2.561 | 0.200 | 2.361 | 27.1 | 0.5 | 26.6 | 0.2 | 0.0 | 0.2 | 0.752 |
| 3.423 | 0.200 | 3.223 | 27.1 | 0.5 | 26.6 | 0.1 | 0.0 | 0.1 | 0.376 |
| Flesh | | | | | | | | | |
| T_t | T_{qs} | T_m | E_1 | $E_{1'}$ | $E_{1-1'}$ | E_2 | $E_{2'}$ | $E_{2-2'}$ | Light |
| /cm | /cm | /cm | /mW/cm ² | /mW/cm ² | /mW/cm ² | /mW/cm ² | /mW/cm ² | /mW/cm ² | transmission |
| | | | | | | | | | rate |
| | | | | | | | | | /% |
| 0.500 | 0.200 | 0.300 | 26.7 | 0.4 | 26.3 | 11.0 | 0.1 | 10.9 | 41.445 |
| 0.888 | 0.200 | 0.688 | 26.8 | 0.4 | 26.4 | 5.9 | 0.1 | 5.8 | 21.970 |
| 1.475 | 0.200 | 1.275 | 26.8 | 0.4 | 26.4 | 1.7 | 0.0 | 1.7 | 6.439 |
| 1.730 | 0.200 | 1.530 | 26.0 | 0.4 | 25.6 | 1.0 | 0.1 | 0.9 | 3.516 |
| 1.880 | 0.200 | 1.680 | 26.7 | 0.4 | 26.3 | 0.8 | 0.0 | 0.8 | 3.042 |
| 2.200 | 0.200 | 2.000 | 26.1 | 0.4 | 25.7 | 0.7 | 0.0 | 0.7 | 2.724 |
| 2.400 | 0.200 | 2.200 | 26.1 | 0.4 | 25.7 | 0.5 | 0.0 | 0.5 | 1.946 |
| 3.212 | 0.200 | 3.012 | 26.3 | 0.4 | 25.9 | 0.1 | 0.0 | 0.1 | 0.386 |

T_t , total thickness; T_{qs} , quartz sheet thickness; T_m , tissue thickness; E_1 , irradiance by the light source; $E_{1'}$, environmental irradiance; E_2 , irradiance of light passing through meat; and $E_{2'}$, environmental irradiance. The results are depicted to three decimal places.