



**TONYA LIGHT**

PROFESSIONAL LED SOLUTION PROVIDER  
Energy Saving and Environmental Protection

Since 2007

# LED THERAPY LIGHT



LIGHTING CATALOGUE

TONYA LIGHT 2021

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# RED LIGHT WAVELENGTH: EVERYTHING YOU NEED TO KNOW

There are not many straight answers to the question- "Does red light therapy work?" You have to understand how it works first to determine if it will have the same efficacy for one particular condition/ailment, as it will work well for some, while it won't be that effective with certain other conditions.

Light therapy is among the earliest recorded healing modalities. Solar therapy was first used by the Egyptians, and forms of light therapy were also practiced by the ancient Greeks, Chinese and Indians.

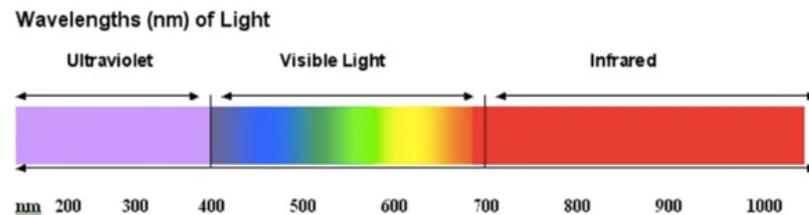
There's no question that light exerts biological effects: in fact, the body needs light to be healthy. Clinical studies are now establishing how different wavelengths of light affect the body at a cellular level, the conditions that can be successfully treated using light therapy, and the optimal conditions needed to absorb the benefits of light-based treatments.

## Understanding Red Light Wavelengths

All light falls along a spectrum of wavelengths. The red and infrared light that falls within the wavelength range of 650-850 nm is extremely beneficial and is regarded as deep penetrating healing light therapy and often referred to as the "therapeutic window." These wavelengths of light are bioactive in humans and affect the function of our cells.

Red light emits wavelengths of between 620-700 nm. All red light wavelengths are effective and offer health benefits, although certain wavelengths are more powerful than others--particularly those that fall between 630-680nm. Visible red light therapy uses (within this range) include deep penetration into the skin, offering rejuvenating and balancing outcomes for a range of health conditions.

Sunlight includes a component of red light; it is this light wavelength that contributes to the enhanced sense of well-being we experience after a few hours outdoors. Red light therapy devices, such as those offered by PlatinumLED Therapy Lights, harness the regenerative healing capability of red light wavelengths, without the more problematic UVA and UVB light rays that can cause skin cancer and premature aging.



## Understanding How Red Light Therapy Works

Red light therapy, therefore, is the therapeutic science of utilizing red and infrared light wavelengths to assist with the treatment of health conditions, and promote general well-being. You may have also heard of red light therapy referred to by other names, such as:

- Low level light therapy (LLLT)
- Photobiomodulation (PBM)
- Soft laser therapy
- Biostimulation
- Photonic stimulation
- Low-power laser therapy
- Cold laser therapy

During a red light therapy treatment, chromophores within our cellular mitochondria absorb red and infrared light photons, and convert them into energy. Mitochondria are the powerhouses of cells, responsible for making adenosine triphosphate (ATP), the cell's form of energy, and enhancing the consumption of oxygen.

Once this red light energy has been absorbed by the body, it is then used by the cells to build new proteins such as collagen and elastin, and assist with cellular regeneration. Red light give cells a helping hand, ensuring mitochondria reaches its potential by providing it with a full tank of fuel which results in optimal performance for the organism.

You could compare the process to photosynthesis, where plants absorb sunlight and convert it into complex molecules. In red light therapy, we absorb the energy of the red light photons to enhance our cellular potential, promote oxygen utilization within the cell, and generate ATP, or cellular fuel.

There's nothing mystical or new-agey about it--the process by which red light transforms bodily tissue at a cellular level has been scientifically proven. Improving the performance of mitochondria in the body improves the body's overall performance and health.

## Understanding Near Infrared (NIR) Light Wavelengths

While visible red light constitutes one half of red light therapy, near infrared light (NIR) constitutes the other half. Near infrared light (NIR) sits just above the visible light spectrum, with wavelengths ranging from 700 nm to over 1,100 nm. Similar to red light, not all wavelengths within this range are equally effective with respect to healing: wavelengths between 800-880 nm appear to offer the greatest therapeutic benefits.

The body absorbs NIR light in the same way as visible red light, via chromophores in our cells. Following absorption, a range of healing metabolic processes are stimulated, promoting healing and regeneration.

However, there is one significant difference between red and near infrared light: near infrared light is able to penetrate deeper into the body's tissue, because its wavelengths are longer.

Red light therapy devices that combine both red light and near infrared light offer potent healing potential because they incorporate a range of therapeutic wavelengths. These wavelengths can target diverse issues. For example, red light can penetrate to the depth of the skin, promoting collagen production and healing wounds, while near infrared light is able to penetrate deeper into the body's tissue to more successfully target deep wounds, muscle, or joint pain.

All of LED therapy light devices are available in either a combination of red 660nm and near-infrared 850m light for optimal therapeutic benefits.

## How does red light therapy work to mitigate the effects of stress, illness or injury?

When we are unwell, stressed, or injured, the ability of cellular mitochondria to function at full capacity becomes impaired. In the fast-paced, stress-saturated context of the modern world, most of us are uncomfortably aware of the effects of constant tension on our skin--sleepless nights and tight deadlines lead us to look worn out, haggard, and older than our actual age. Cosmetic treatments can only provide a superficial fix for what is, in essence, a problem that originates within our cells.

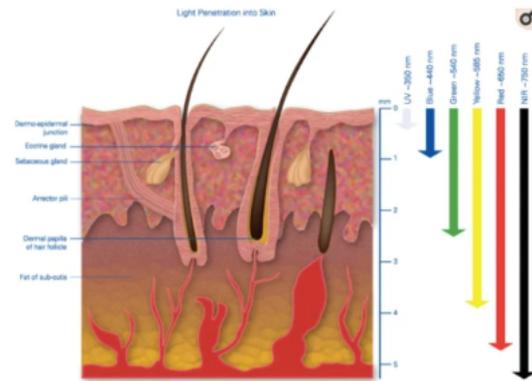
## How Does Red Light Therapy Work for Better Sleep?

When we are stressed or ill, mitochondria begin to produce excess nitric oxide. Nitric oxide is problematic because it interferes the consumption of oxygen within the cell, leading to oxidative stress, and ultimately, ceasing the production of ATP, the cell's source of fuel. The cell may die as a result.

Red and near infrared light (delivered within the optimal wavelengths and energy levels) protect the cell from the damage that nitric oxide can cause. The disruptive potential of nitric oxide is minimized by the absorption of red light photons, allowing the cell to continue effectively utilizing oxygen and creating ATP. Only red-light therapy can reach all the way into cell's mitochondria to stimulate healing and regeneration, improving appearance, performance, and overall well-being.

## THE DEPTH OF PENETRATION OF RED LIGHT

Red and infrared light can penetrate the skin deeper than almost any other light wavelength. Take a look at the diagram below sourced from this clinical study of light penetration:



As discussed earlier, infrared light has a penetration depth that surpasses other wavelengths of light, meaning it can access underlying bodily tissues beneath the skin. This deep tissue penetration also results in light therapy having a systemic, or metabolic effect on the entire body, rather than localized effects on one specific area. In optimal conditions, red light can penetrate to a depth of 5-10mm.

The LED (light emitting diode) lights used in Light Therapy deliver the most therapeutic red and infrared light wavelengths to ensure maximal absorption. Traditional light bulbs such as halogen or incandescent do not emit sufficient light required for cellular regeneration and healing.

## RED LIGHT ENERGY OUTPUT: WHY LED THERAPY LIGHTS ARE SUPERIOR

While wavelengths of red light influence the efficacy of the treatment, many people do not realize that the energy output of the red light therapy device is just as vital. At present, there is a VAST variation between LED red light therapy devices currently on the market. Most emit an extremely low energy output, even though they consume much power.

TONYA Light is one of the rare and outstanding LED red light therapy company which brings the concept of power measurement to practical application. With the years of experience for producing LED grow lights, it makes sense to us, then that the energy output of the light which strongly influenced its efficacy should be measured.

The output of an LED therapy light is known as irradiance (the flux of radiant energy per unit area) and is measured in terms of mw/cm2. We've helped educate our community over many years about the differences between LED light brands with regards to these outputs. The energy output of TONYA LED Therapy lights is maximized, ensuring you get a clinical-grade red light therapy treatment. Our lights emit more irradiance than any other LED therapy light currently on the market.

TONYA LED Therapy Light is capable to achieve deeper penetration of red light and near infrared light than any other lights.

## FREQUENTLY ASKED QUESTIONS

How long does red light therapy take to work?

Ans: It's ideal for a beginner to start off with 20 minute sessions with a frequency of 3-5 days/week for the first month, and then you can decline your session frequency to 2-3 times/week for the next 1-3 months.

Does red light therapy work on cellulite?

Ans: Red light therapy does indeed work on cellulite by activating the lymphatic system to help detoxify the body and boosting the immune system.

## WHAT IS LED LIGHT THERAPY?

If I asked you to name one product or treatment that achieves successful results for all skin types, what would you say? Impossible? Not anymore. LED Light Therapy is a proven treatment for a variety of skin concerns including acne, pigmentation, redness and rosacea, as well as having excellent anti-ageing benefits.



A large, Red & Near-Infrared Light Therapy Lamp suitable for use in your home. Each Lamp comes with 5w LED diodes in your choice of configuration. The TONYA Red TY-MRB500 runs on 110-240v for use wherever you are in the world.

Dual switches allow you to use 660nm (Red light), 850nm (Near-Infrared), or a combination of both

Stand-alone or door/wall mounted. When hanging the height is adjustable using our pulley system.

### LED & POWER SPECIFICATIONS:

- LED Power class: 500 Watts
- LEDs: 96 x 5W LEDs
- 48 x LEDs @ 660nm (Red Light)
- 48 x LEDs @ 850nm (Near-Infrared)
- Beam angle: 60 degrees
- Flicker rate: Flicker Free
- Power Consumption: 120w
- Amps @220v: 0.6A
- Voltage: 100-240V (Works Worldwide. Supplied with a plug suitable for your location)

### Irradiance:

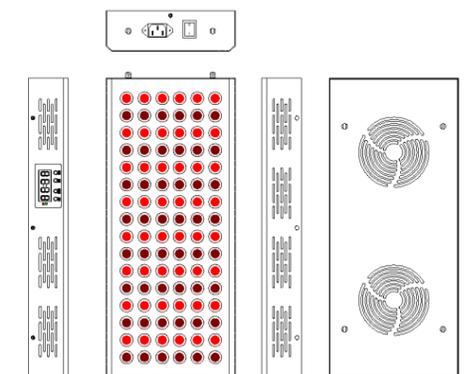
- 60 mw/cm2 at 6"
- 30 mw/cm2 at 12"
- 22 mw/cm2 at 18"
- 18 mw/cm2 at 24"
- 10 mw/cm2 at 36"

### EMF Levels (measured with a TriField TF2 Meter)

- 6 V/m @ 3"
- 0.5 V/m @ 6"
- 3 mG @ 3"
- 0.8 mG @ 6"

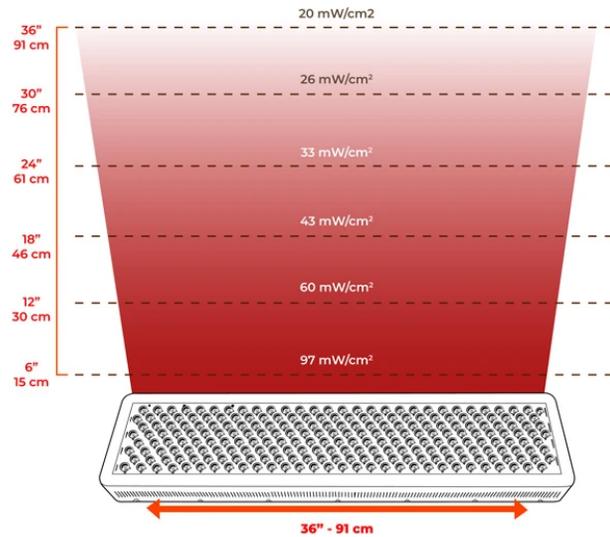
### Other Information

- Treatment Time Per Area: Approximately 7-10 Minutes
- Cooling Fans: 2
- LED Lifetime: 50,000 Hours
- Dimensions: 485 x 210x 65mm



## POWER DENSITY

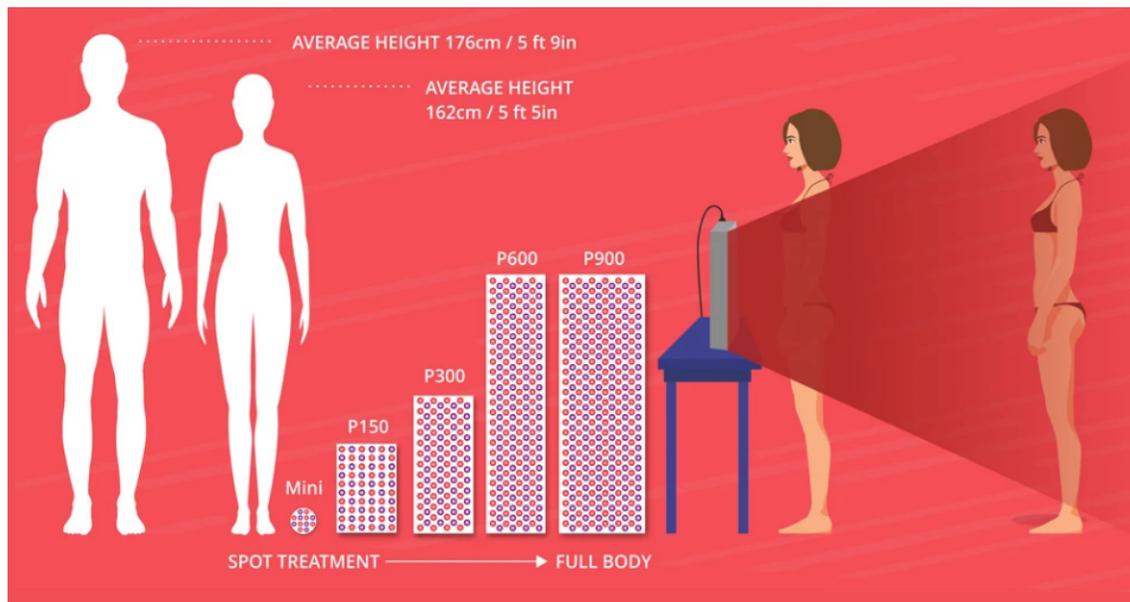
We have measured the power density of all our devices. For the MRB900, the data is below



## WHICH SIZE SHOULD I CHOOSE?

We Recommend the following:

- TY-MRB1500 for Maximum Power
- TY-MRB900 for a larger treatment area
- TY-MRB500 for smaller treatment area
- TY-MRB300 for facial treatment
- TY-MA200 for small / spot treatment



### LED & POWER SPECIFICATIONS:

LED Power class: 900 Watts  
 LEDs: 180 x 5W LEDs  
 90 x LEDs @ 660nm (Red Light)  
 90 x LEDs @ 850nm (Near-Infrared)  
 Beam angle: 60 degrees  
 Flicker rate: Flicker Free  
 Power Consumption: 230w  
 Amps @220v: 1.05A  
 Voltage: 100-240V (Works Worldwide. Supplied with a plug suitable for your location)

### Irradiance:

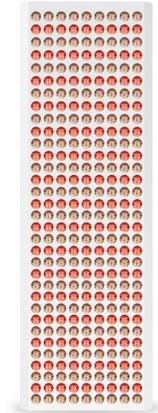
97 mw/cm2 at 6"  
 60 mw/cm2 at 12"  
 43 mw/cm2 at 18"  
 33 mw/cm2 at 24"  
 20 mw/cm2 at 36"

### EMF Levels (measured with a TriField TF2 Meter)

12 V/m @ 3"  
 1 V/m @ 6"  
 5.5 mG @ 3"  
 1.2 mG @ 6"

### Other Information

Treatment Time Per Area: Approximately 7-10 Minutes  
 Cooling Fans: 3  
 LED Lifetime: 50,000 Hours  
 Dimensions: 910 x 210 x 65mm



### LED & POWER SPECIFICATIONS:

LED Power class: 1500 Watts  
 LEDs: 297 x 5W LEDs  
 153 x LEDs @ 660nm (Red Light)  
 144 x LEDs @ 850nm (Near-Infrared)  
 Beam angle: 60 degrees  
 Flicker rate: Flicker Free  
 Power Consumption: 420w  
 Amps @220v: 1.9A  
 Voltage: 100-240V (Works Worldwide. Supplied with a plug suitable for your location)

### Irradiance:

145 mw/cm2 at 6"  
 90 mw/cm2 at 12"  
 64 mw/cm2 at 18"  
 49 mw/cm2 at 24"  
 30 mw/cm2 at 36"

### EMF Levels (measured with a TriField TF2 Meter)

18 V/m @ 3"  
 1.5 V/m @ 6"  
 8.5 mG @ 3"  
 2 mG @ 6"

### Other Information

Treatment Time Per Area: Approximately 7-10 Minutes  
 Cooling Fans: 4  
 LED Lifetime: 50,000 Hours  
 Dimensions: 910 x 286x 65mm

