

# The Operation Manual

## CML 305 IPL machine



### **Notices:**

**In order to operate machines correctly:**

- 1. please read this manual carefully before using;**

2. Please put the user manual on place that is easy to access;
3. Please retain the user manual for future reference.

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## 1. Safety Precautions

To make sure safety usage, the machine must be operated after carefully reading the manual and accepting the professional training.

### Warning!!!

1. The machine must be filled with water before starting, otherwise, the treatment handle will be burnt.
2. The light of IPL is forbidden to irradiate eyes directly.
3. Keep any reflecting materials (such as: watches, mirrors, jewelries, etc.) out of Operating Room.
4. The treatment handle is fragile object, please handle with care; please fixed it on the Support Bracket if not using.

## 2. Carrying Safety

This OS contains refined part, and the whole device are not fit for long-distance mobile using for long time. When delivery, it must use the Cushioning packaging provided by the original factory, otherwise, it may lead to the misbalance of the optical system, and thus impact the power and input of the energy.

## 3. Product Structure

1. **The Operation Interface**----- used to display the operating system
2. **Emergency Stop Switch**----- used to shut off the power in emergency circumstance
3. **Key Switch**----- used to put on and off
4. **Treatment Handle**----- used for treatment
5. **Cable Connector**----- used to connect the treatment handle with machine
6. **Water Filling Nozzle**----- used to waterflood into the machine from it
7. **Water Overflowing Nozzle**----- used to overflow the spare water which are inside of machine
8. **Water Drainage Nozzle**----- used to release water from it.

## 4. Treatment Theory

### 1. The Theory of Permanent Hair Removal:

The theory is the energy from IPL acting on the 15mm depth of surface, plus RF to prevent hair growth without hurting the sweat glands. Naturally, the hair will be never grown for the hair follicles closed, and having no melanin. Generally, there are 3 cycle of hair growth: Growth Phase, Maturity Phase, Dormancy Phase, and the treatment will be most effectively in hair's Growth Phase, so patients need do the treatment 3-4 times to achieve permanent hair removal.

### 2. The theory of speckles/ freckle/ age spot/ sun-induced freckles removal:

To extract and decompose a plenty of pigment from skin depth by taking advantage of IPL, and to impel the pigment's discharge from Lymphatic by taking advantage of RF; some others will be excreted through skin's metabolism.

### 3. The theory of Skin whitening/ lifting/ rejuvenating, pore shrinking, and wrinkles removal:

To stimulate the Fiber-forming Tissue of the skin's Dermal Layer, promote collagen's forming, and accelerate cell tissue's rearrangement by using IPL+RF, so as to achieve the effect of skin whitening, skin rejuvenating, pore shrinking, and wrinkles removal.

### 4. The theory of blood vessel/ erythema removal:

The Skin Lesions Capillaries can be solidified by the light of IPL, and the RF can improve IPL' function through locking the lesion, so the blood vessel will be removed by Skin and Lymph System's metabolism. After the treatments, if the blood vessels are seemed more clear and become purple color, that is showed that we get the best effective treatment.

## 5. Treatment Scope

1. Permanent hair removal;

2. Skin rejuvenation, wrinkles removal, and pigment removal;
3. Improving skin's situation: more smooth, tender, delicate and elastic;
4. Changing complexion dark: skin whitening and uniform color;
5. Removing the pigment and scar: removing the sun-induced freckle, speckle, etc.
6. Removing the acne and blain to imprint
7. Removing the vascular lesions and blood vessel

## 6. About Skin

### 1. About the skin:

**A:** The physiological structure of the skin:

Skin is the largest organ in one's body, and its area of adults is about 1.5-2.0 square meters. The skin can be divided into the epidermis, dermis, and subcutaneous tissue, and its metabolic cycle is 28-40 days. Normal skin is partial acidic.

**B:** The physiological function of skin:

Protection, secretion, excretion, attemperation, immune, absorb, feeling, and reacting visceral issue,etc.

**C:** The factors affecting skin's color:

Genes, hormones(the melanocyte-stimulating hormone, estrogen,etc.), ultraviolet rays (skin will produce the pigmentation in 48hours)

### 2. About the Pregnancy Spots, Malar Rash:

More common in young and middle-aged women's cheek and 2 sides of nose; vary in size, yellowish-brown flaky, edges clearness or showed diffuse shape, symmetrical growing; caused by endocrine disorders from taking some contraception's methods ( such as: Sheung Wan, oral contraceptives); there is no discomfort symptoms, incidence unknowingly.

**3. About the Sunburn/ Sun-induced freckle:** appearing on the full face or partial; vary in size, indefinite shape, yellowish-brown or tawny, unclear edges; case by excessive ultraviolet

radiation, no physical symptoms.

**4. About the freckles:** appearing on the whole face, especially the on both sides of nose; grain size, pale brown, net brown in occasion, unclear edges; cause by ultraviolet rays or the family history, and no discomfort symptoms.

**5. About the blood vessel:** a skin disease caused by the telangiectasia, showing the porphyritic/ point-like/ filiform damage in red or purple; no multiple symptoms. Generally, patients obtain the blood vessel from the heredity, and Partial people obtain it from the posteriority, caused by the plateau and cold zone, or using the chemical exfoliation resurfacing.

**6. About the Hair:** Generally, there are 3 cycle of hair growth: Growth Phase, Maturity Phase, Dormancy Phase, and the treatment will be most effectively in hair's Growth Phase.

**7. The factors of wrinkles:** With the growth of the age, human's metabolism is slowing down, loss of collagen is losing, so will appear the dry skin and false wrinkles. And, the stereotypes wrinkles and sagging skin are formed by the lack of elastic fibers and the collagen fiber's fracture.

## 7. Product Introduction

### A: The advantage of product

1. non-invasive: no wound of skin
2. painless: dispensing with anesthesia, only having slight acupuncture feeling during the treatment
3. Security: E-light can avoid the side effects of the glare effectively, simultaneous, also can reduce the difficulty of operation.
4. effect: a wider range of applicable customer, instant effect is more obvious, while long-term effect is more durable.

## 8. Instrument Installation Instruction

### 1. The standard configuration of equipment

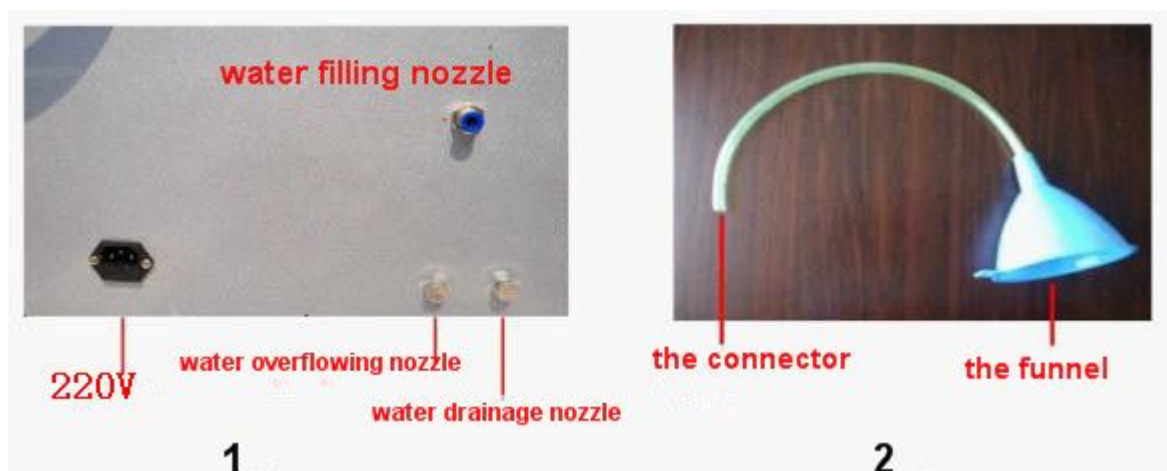
Please carefully check and verify the devices after opening the packing case, and the standard configurations are in the following:

A. 1 main unit    B. 1 set of treatment handles    C. 1 power wire    D. 1 set of funnel for adding water  
E. 1 user manual    F. 1 set of goggles    G. 2 keys

### 2. Installation Procedure

#### *A: Adding water:*

1. Please find and open the water filling nozzle and the water overflowing nozzle in the back of machine. (as shown in the Figure 1);
2. Please add the purified water or the distilled water to the machine from the water filling nozzle through the funnel(as shown in the Figure 2), until the machine is filled.
3. The machine is filled if some water flows from the water overflowing nozzle.



#### *B: Turn on the machine:*

1. Please plug in the power wire (Figure 3), and connect it with the machine;
2. Please examine the red button--the emergency stop switch(Figure 4), please make sure it is turned on at ordinary times. Because if the red button is pressed, the machine would not be turned

on.

3. Please turn the key to right to open the machine.



The power  
line

3



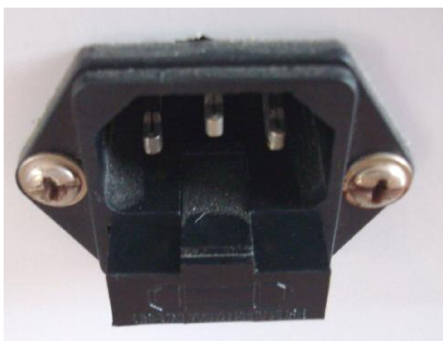
Emergency stop switch

Key switch

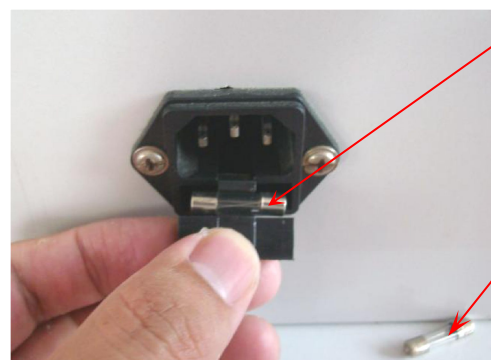
4

**Notices:** If the machine could not be turned on in normal, or the doctor could not hear any sound after turning it on, please examine it and take some methods by following steps:

1. To examine the power wire is connected correctly and fully or not.
2. To examine the emergency stop button is turned on or not.
3. To find the position of “220V” (Figure 5) in the back of machine, find the 2 fuses(Figure 6), and examine the using fuse. If the using fuse is broken, please replace it by the spare fuse.



5



The spare  
fuse

The using  
fuse

6

3. **To fix the support bracket:** please fix the support bracket stably by screws, then put the handle on it well.

4. **Treatment Preparedness:** please turn on the machine, 2-3 minutes later, do the treatment after the handle is cooling sufficiently. Please notice that if press the button of handle



to output the light immediately after turning on the machine, the machine will be damaged and its life time will be shorter. Please check the handle, if the sapphire's position is frosting/ water coagulated, the handle is totally cooling; if not, the handle is not cooling enough, and please do not operate the handle for a long time, or the handle will become overheating and damaged

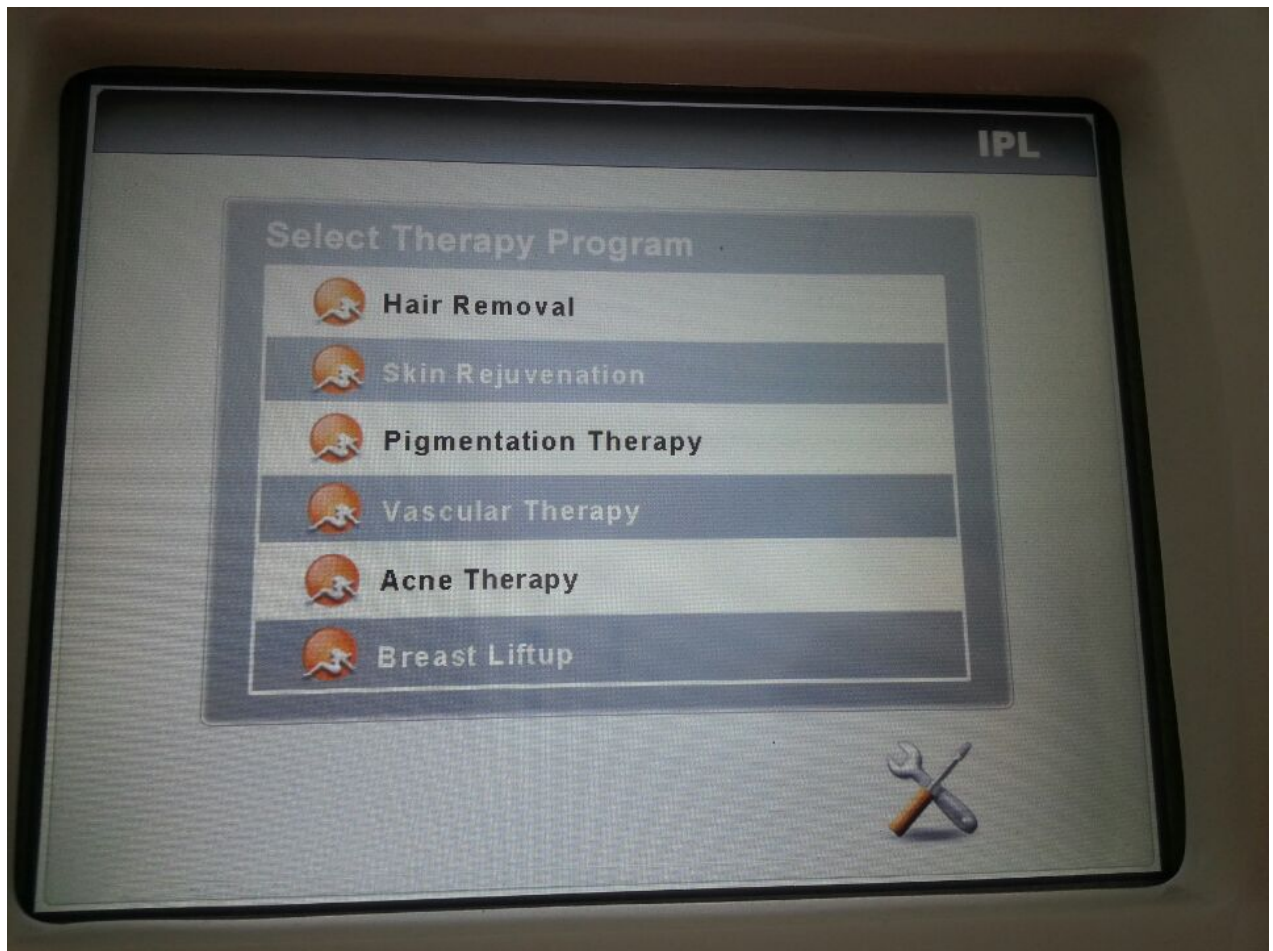
**5. the reasons of no refrigeration:** (please put off the machine when check its system)

- A. To check the water is added to machine or not.
- B. Poor circulation of water, to check the handle is connected well or not.
- C. Open back over to check the water pipes (if there is any dead fold, will prevent water circulation)
- D. To check the water pump is working or not.

**Notices:** For the super refrigeration system of this machine, it is necessary to boot run 2--3 minutes after the first time to add purified/ distilled water, then, the machine can be operated. Recommend that change the water every 15 days if the machine is used frequently.

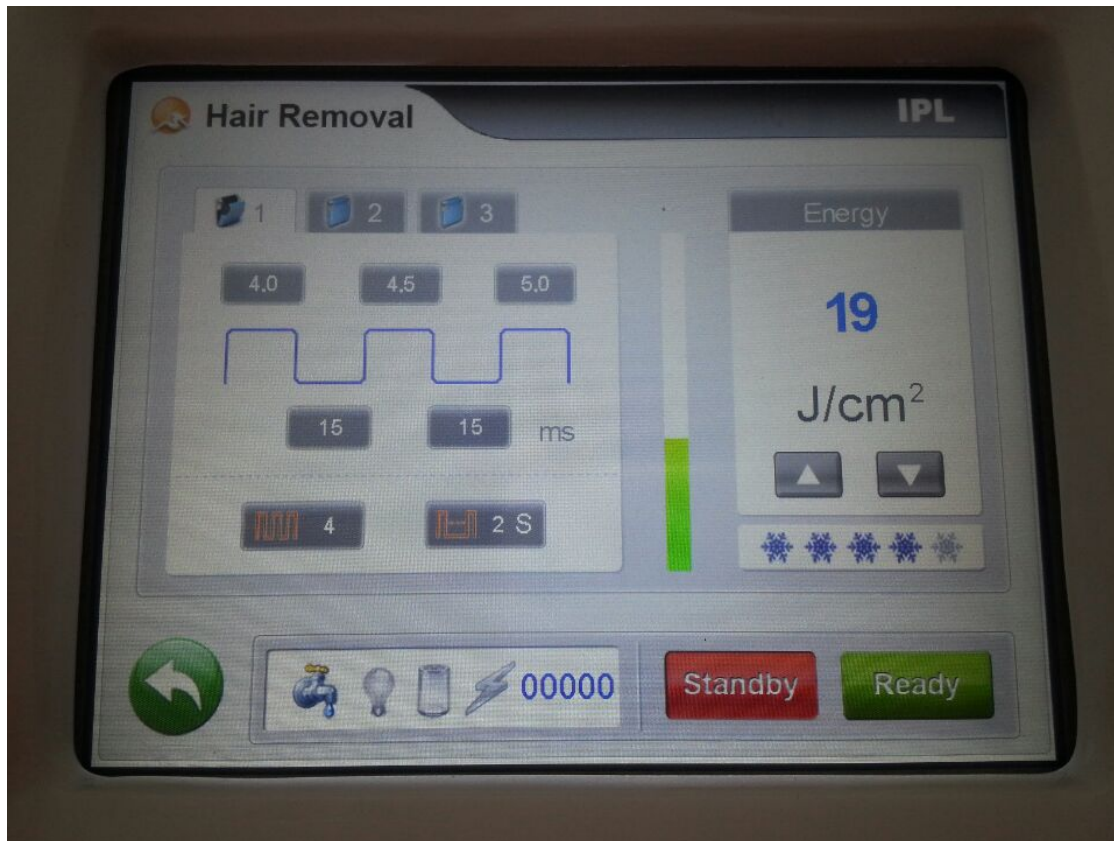
**9. Enter into the treatment interface**

- 4. Click the the button to enter into the corresponding treatment interface.



Picture 1

## 5. Treatment interface



Picture 2

## 2.1 IPL treatment

After enter into the treatment model. To press the “Standby” button to trigger the handle, at the same time, the system is going into the “Ready” situation; to press the “Ready” button to go into the “Work ” situation. and charge the capacitor; The capacitor icon will become light. Please do other operations after finishing the charging. (Any operation is invalid in the process of charging). All the operation about the handle will regards as wrong operation, will have alarm signal before the capacitor charged full.

**The current treatment mode:** to display the current selected treatment mode. Change the treatment model will also change the treatment handle. It will have 1S delay when change the treatment head.( Will have 1s delay when change among hair removal to other treatment function. Or change from other function to hair removal)





**The treatment parameters:** the recorded treatment parameters under the treatment mode.





**Status hints:** to display the machine’s current status , light shot numbers and treatment time of the treatment head ; and the alarm information.

**The treatment tracking record:** to display the current treatment record; Each treatment function can record 3 groups of treatment parameters. It can treat different patients conveniently; the treatment record can be changed if clicking the screen; Click 1,2,3 to choose the different parameters.

**Cooling system adjustment:** used to adjust the cooling temperature of the treatment head; it can be adjusted for 5 levels; the cooling system will be more stronger when blue snowflake is more; the cooling system will close when the blue snowflake disappears.

**The return button:** used to return the Boot Screen;

**IPL energy:** to adjust the output energy of the treatment head, during the adjustment process, the energy display window will show the current output energy, and its adjustable range is 1--50J/cm<sup>2</sup>, this parameter can be adjusted directly during the treatment process: to press the  or  to add or reduce its energy; "" means add energy, "" means reduce energy. The energy can also be adjusted quickly by click the energy bar directly.

**RF energy:** to adjust the output energy of RF, during the adjustment process, the energy display window will show the current output energy, and its adjustable range is 1--50J/cm<sup>2</sup>, this parameter can be adjusted directly during the treatment process: to press the " or " to add or reduce its energy; "" means add, "" means reduce. Energy can be adjusted quickly by click the energy bar directly.

**water stream/ water temperature:** used to display the status of cooling system.



to mean the water circulation of system is in normal condition





to mean the water circulation of system is abnormal






: to mean the water temperature is too high

When the icon of abnormal of water circulation and the water temperature is too high, the machine

can not be used for work, and if only can be operated after clearing all problems.

**The status of treatment head:** it is used to display the 2 treatment head status:  /  to show the lighten status/ extinguishing status. After the treatment head had been lighted, the machine can enter the charging status. If the treatment head can not be lighted within 3s, it will return to the standby status.

**The charging status:** used to display the charging status, it has 2 status:  /  to show the full of electricity/ the empty electricity status. If charging finished, the system can be entered the treatment status to do treatments; if charging unfinished, please return to the Standby status.

**Flash Status:** used to display the flash status,  means the system is flashing.

**The current counter:** used to display the flash numbers of current treatment.

**Time:** used to show the current time.

In this sub-region will show five kinds fault status.

Alarm information: Water Error   Sim Lost  
Foot Error   No Count  
Charge Error   High temperature

Treatment parameters are all the adjustable values for treatment in this machine. And the different treatment results will be achieved by adjusting the output energy of handpiece, pulse width, pulse number according to the actual situations and customers requirements.

There are 8 adjustable parameters in total listed in the following (Picture 6):

**The first pulse width:** to adjust the width of first pulse. For the single pulse, it means the pulse width; for the multiple pulse, it means the first pulse width. Its adjustable range is 1--10ms, and its unit is 0.1ms.

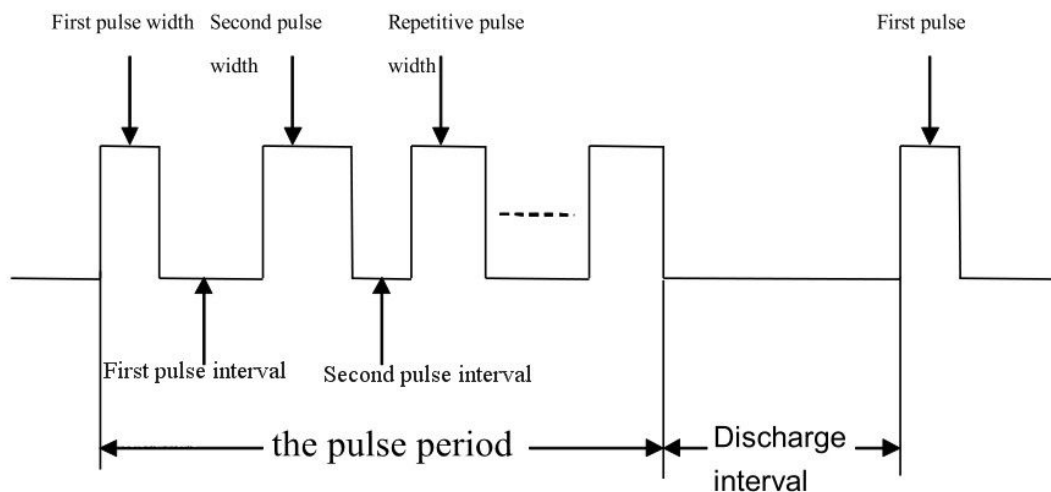
**The first pulse delay:** to adjust the delay between the first and assistant pulse (the second pulse). Its adjustable range is 1--100ms, and the 1ms is the adjustment unit.

**The second pulse width:** to adjust the pulse width of the assistant pulse (the second pulse), it will not show for the application of single pulse, and its adjustable range is 1--10ms, 0.12ms for adjustment unit.

**The second pulse delay:** to adjust the delay between the assistant pulse (the second pulse) with the repetitive pulse (the third pulse and the following pulse). It will not show for the application of single pulse, its adjustable range is 1--100ms, and 1ms for adjustment unit.

**The repetitive pulse width:** to adjust the pulse width of the repetitive pulse (the third pulse and the following pulse), it will not show for the application of single pulse. Its adjustable range is 1--10ms, 0.1ms for adjustment unit.

### The schematic diagram of Pulse Outputting:



Picture 6

## 10. Treatment analysis

Item	The first pulse width	The second pulse width	The repetitive pulse width	The pulse interval	The number of pulse	Energy	The interval time	Treatment Times
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Hair removal	5.0	4.5	4.0	20-30	6-8	15-30	21-28 days	4-6
Vascular Therapy	4.0	4.5	5.0	10-30	5-7	12-30	25-30 days	6-8
Freckle removal	4.0	4.5	5.0	6-10	5-7	15-30	25-30 days	5-7
Skin rejuvenation	5.0	3.6	3.0	20-30	5-7	12-25	18-20 days	6
Ance Therapy	3.0	4.0	4.5	10-30	5-7	10-25	18-20 days	6

**1. the treatment parameters:** the parameters should be adjusted according to the specific circumstances, this following form is only for reference.

## **2. the needed prepared work**

A: the consultation: To make a good communication (about the which treatment they had received, their reaction during the treatment, if they have the history of allergies or not) with the customer to know their psychological needs and ensure to achieve the best results of treatment.

B: Analysis: To distinguish the skin problems(about the wrinkles/ pores/ blood vessel), skin types, and spots types(deep or shallow, flaky or dot,congenital or acquired),etc.

C: To do a treatment file to record customer's details, then please make sure the file is confirmed and signed by himself. The file is used to track every treatment result.

D: To take and save the preoperative and postoperative pictures.

E: Please ensure the customer close their eyes or wear the goggles during the treatment

F: To choose the suitable parameters according to the color/ thickness/ pigment situation of customer's skin.

G: To ask the customer to leave after observing him treatment situation about 1/2 hour.

## **3. Delayed reactions and solutions:**

After the treatment, some delayed reaction in the following, caused by improper operation or the skin circumstance of customer(e.g: the dark/ sensitive skin), will be appeared in 24--48 hours.

A: The imprints of light spot after treatment: These imprints can be removed by using the



control cream 3 times a day.

B: Some blisters appear on the skin: to take the seepage out by using the disposable syringes, and clean the skin by using normal saline, and then please use the control cream 3 times a day.

C: The skin is red and swollen : to do the cold spraying (to do the cold compress directly for the customers with serious skin situation) about 15--30 minutes for the customers receiving the freckle removing treatment until their red skin is back to normal situation, then please use the control cream; to use the natural skin care products after doing the cold compress for the customers receiving the hair removal and skin rejuvenation treatment.

### **Notice:**

**For the customer who has the original skin and don't receive any photon treatment, please adjust the parameters of IPL energy and first pulse width to the moderate value to achieve a good effect for their first treatment. And the 2 parameters should be adjusted to a little higher properly for the second treatment. Generally, the IPL energy of the next treatment should not be lower than the last treatment.(and the energy should be the endurable scope of client's skin)**

## **11. Technical Parameters Meanings**

- 1. The first pulse width:** refers to the time of the first intense pulsed acting on the skin.
- 2. First pulse interval:** refers to the time interval between the first and second pulse width, that is to say, the time interval between every 2 pulses.
- 3. The second pulse width:** refers to the time of the second intense pulse acting on the skin.
- 4. Discharge interval:** refers to the time interval between the two discharges.
- 5. The pulse number:** refers to the number of strong pulses sent by system after each trigger discharge. With increasing pulse's number, the energy acting on the skin's depth will be enhanced. Its adjustment range is 1--10.
- 6. Light energy:** refers to the intensity of light.
- 7. The pulse number is bigger,** the stimulation of the skin deep is stronger, so please choose



more pulses to treat the serious problems of skin.

8. The pulse width is wider, the feeling of tingling is stronger; and the energy is greater, the sense of heat is stronger. So please select the the big first pulse width to treat the pigmentation problems of skin surface.

9. The pulse interval is longer, the customers will feel more comfortable.

10. The effect of skin whitening and rejuvenation will be better if there is a interval between the first and second pulse.

## **12. Taboo Crowd**

1. Pregnant women, light allergies
2. Taking the allergic food, drugs in recent time(such as celery, vitamin A acid, etc.)
3. The patients with heart pacemakers or defibrillators
4. The patients who's skin of treatment area is breakage
5. The patients with diabetes/ heart disease/ high blood pressure/ epilepsy
6. The suspected patients with skin cancer
7. The menstrual periods of female

## **13. Instrument Maintenance**

The equipment is consisted of precision optical instruments and electronic equipments, so its maintenance and repair should be consistent with the general provisions of theirs. Please exchange the cooling water inside of tank every 3,000 points to avoid energy loss. The bump/ extrusion/ vibration should be forbidden strictly during its store and use. Recommend to check if there is any splash in the surface of lens after each treatment, if yes, please use the cotton swab dipped in anhydrous alcohol to wipe the lens gently.

## **14. Fault Phenomenon and Solution**

Questions	Causes	Solutions
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The machine could not be powered on	The power line is broken or not connected well	To plug in the power line well or exchange it.
	The emergency stop switch is not opened	To let the emergency stop switch pop-up by turning it to right.
	The key switch is not opened	Turn on the key switch
The handle is not cooling after turning on the machine	The machine is not filled with purified/ distilled water	Please contact us at once.
	The handle is not connected with machine well	
	The thermoelectric cooler is broken	
The water inside of handle is leaking	The screw of handle is losing	To take handle off and contact us
	The water pipe of the handle is dropt	
	The tube or the crystal is broken	
The light could not be outputted	The wrong operation	To call us to consult, and we will help you to find the causes as soon as possible.
	The touch screen is broken	
	The control of the screen is broken	
	The power is broken	

## 15. Training Materials

### 1. the E-light

E light is IPL technology plus RF technology. And E light system could achieve more effective hair removal function of dark skin and light-colored hair, because the RF technology could replenish energy to IPL during the treatment.

## **2. Treatment Features:**

A: Treatment of stain: Generally, to the skin spots/ shallow spots , it will achieve the very effective treatment result by once treatment, and it will achieve the significant results after 4-5 treatments; to the deep spots, it will need more treatments and more time to show the function.

B: Treatment of telangiectasia: It will be improved effectively after several treatments.

C: About hair removal: It will achieve the effective effect after 1 treatment, and will be completely wiped out after 4-5 treatments; and the lip hair need 6-10 treatments to achieve the permanent hair removal result.

D: Acne removal and blain to imprint removal: Generally, it will get the effective result after 2-3 treatments.

## **3. Treatment details and essentials**

The hair should be scraped before the 48--72 hours when do the treatment of hair removal;

For the light-colored speckles, please blacken them with eyebrow pencil when do the treatment of freckle removal.

### ***A: Preoperative preparation***

(1) To communicate with customer before the treatment to make sure the treatment project, and ask if he has any taboo.

(2) To prepare the cooling gel, ask the customer to lie on the treatment couch, and do the thorough cleaning of customer's face. To daub the cooling gel with the optimum thickness of 1mm evenly after cleaning the face, and the cooling gel should be more thicker in chin, nose, forehead. The hair should be scraped off when do the hair removal treatment.

(3) Please take up the handle from the support, place it below the machine's body, and turn on the machine 2--3 times to make sure that the machine's normal operation.

Please touch the handle to feel if it is cooling or not. After this, please adjust the needed energy. And then, we can do the sensitive test now.

(4) Do the sensitive test below customer's ear before starting the treatment of face.

To observe customer's reaction after outputting 3 beams of light: ① the normal reaction: the treated area's color is reddish and customer feels Slightly tingle; ②the energy is too high: if the treated area's color is red, and customer feels pricking, please lower the energy and do the ice compress or other cooling treatment for customer ③ the energy is too low:if customer has no feeling after the test, please heighten the energy.

Perhaps there is the delayed response in 24-48 hours for darker skin customers, so please do not arbitrarily increase the energy for unobvious response at that time. Heighten and lower the energy in regular(no more than 2 points), until to achieve the normal reaction.

### ***B: Intraoperative taboo issues***

1. The crystal of handle should touch (not push) customer's skin totally and keep Perpendicular to the skin to avoid to light leak.

During the treatment of nose/ forehead/ cheekbone/ chin, please find the pinpoint angle and lower the energy of IPL and RF.

Take the treatment on the face as an example, the right operating should be from the edge of face to inner part of the face, and for the spot, the second spot should cover the first spot's 1/3 to reach the better treat effect.

2. Please keep touching the hand-piece and noticing its temperature; Please stop the operation immediately if the hand-piece is hot or the water's temperature is over 45°C. In the circumstances above, please continue to work after 2 hours downtime or just after 1/2 hours downtime by changing the 2/3 water.

3. For chloasma, the pigmentation may appear for some patients. And if the energy is too high, the pigmentation will be more serious, so please pay attention to the operation.

4. Please apply the cooling gel as the facial mask to customer's face for 20 minutes, and wash off it if no untoward effect.

### **C: *Postoperative taboo issues***

1. Spicy food/ seafood/ food with pigment/ tobacco and alcohol are forbidden.
2. Within 3 days after the treatment, please avoid using the excitant skincare products, such as: soap, and any products with efficacy
3. Do good skincare job and avoid the insolation. Use the sunscreen over SPF20.
4. Suggest to use the natural skincare products.
5. No sauna, no steaming face, washing face with cold water in 10 days. Do facial nursing after 10 days.

## **4. Notices**

A: Due to the glare's sensitivity and individual differences, maybe a few patients' skin will appear pigmentation, which will be excreted through skin's metabolism during the 3-9 months, after the E-light treatment. Taking the oral Vitamin C and E will promote the pigment's metabolism and enhance skin's immunity. As to the endocrine-related illness, patients should combine the traditional Chinese medicine with Oral Vitamin C/E to achieve the best effect.

B: The photosensitivity food (such as celery, leek, parsley, etc.) and photosensitive drugs are fasting during the E-light treatment.

C: Perhaps there are some swellings in some patients'skin, and the swellings will self-healing in 24-72 hours without treatment. A few patients's skin may appear the scab and purpura, which will be self-off and disappearing within 2 weeks, so please keep the wound dry and clean.

D: Please do avoid the insolation for the more soft and tender skin after doing the E-light treatment of skin rejuvenation. Please use the sunscreen over SPF20 when going out; it is strictly prohibited to use the Aloe Vera, anti-inflammatory, aspirin, alcohol, and alcoholic cosmetics; Please do not squeeze/ pressure/ touch/ rub the treating facial area.

E: The needed times of treatment's course are changed according to patients'different circumstances. Maybe some patients need 2-3 or more courses, and each course is divided into 5 times. Interval of 4 weeks with last treatment, the next treatment can be done.

F: After doing treatments of skin rejuvenation, perhaps some patients will experience the dry skin and hydropenia caused by the enhancing absorption ability of skin and the quickening metabolism of body, so please do good skin care by adding enough water and natural nutrition.