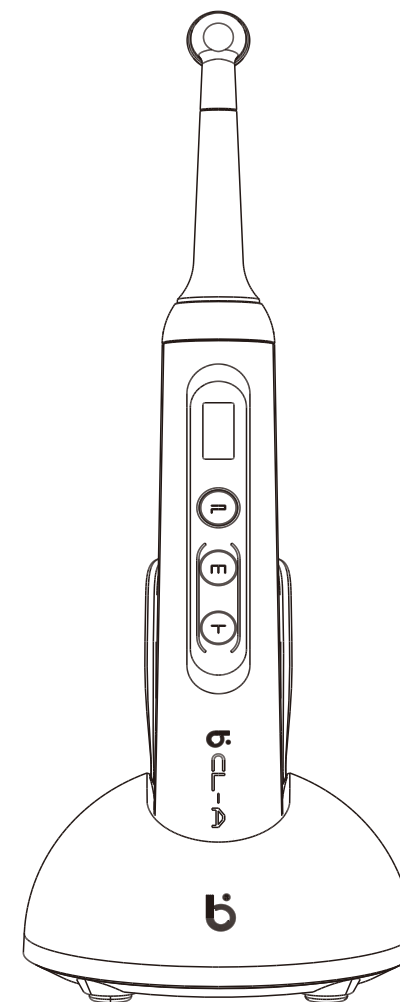


CL-A

LED Curing Light

Instruction Manual

Please read the instruction manual carefully before operating



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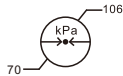

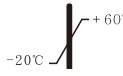
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17.7 Recommended separation distances between portable and mobile RF communications equipment and the model.

Recommended separation distances between portable and mobile RF communications equipment and the model CL-A.			
The model CL-A is intended for use in electromagnetic environment in which radiated RF disturbances is controlled. The customer or the user of the model CL-A can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the model CL-A as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter/m		
	150kHz to 80MHz $d=1.2 \times P^{1/2}$	80MHz to 800MHz $d=1.2 \times P^{1/2}$	800MHz to 2,5GHz $d=2.3 \times P^{1/2}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
<p>For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) accordable to the transmitter manufacturer.</p> <p>NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			

1.Symbol instruction

 Trademark	 Caution
 Type B applied part	 Follow instructions for use
 Use indoor only	 Appliance compliance with WEEE directive
 Screw inside/outside	IPX0 Ordinary equipment
 Date of manufacture	 Manufacturer
SN Serial number	 Class II equipment
 CE marked product	 Time setting button
 On/Off button	 Mode button
 Autoclavable	 Prevent rain
 The light emitted may is harmful to the eyes Do not stare at the light source	
 Atmospheric pressure for storage 70kPa-106kPa	
 Humidity limitation for storage 0%~80%	
 Temperature limitation for storage -20°C~+60°C	

2. Introduction

2.1 Model No:CL-A.

2.2 Portable curing light design.

2.3 Three kinds of working modes:

Low intensity mode (L) 1000~1300mW/cm².

High intensity mode (H) 1600~1800mW/cm².

Super high intensity mode (SH) 2200~2400mW/cm².

2.4 Time setting:

Time setting for low intensity mode:5S, 10S, 15S, 20S.

Time setting for high intensity mode:3S,5S,10S,15S.

Time setting for super high intensity mode:1S,2S,3S.

2.5 Lamp cap can be disinfected with alcohol.

2.6 Principle: Adopts the principle of ray radiation to solidify the light-sensitive resin by shooting at it in a short time.

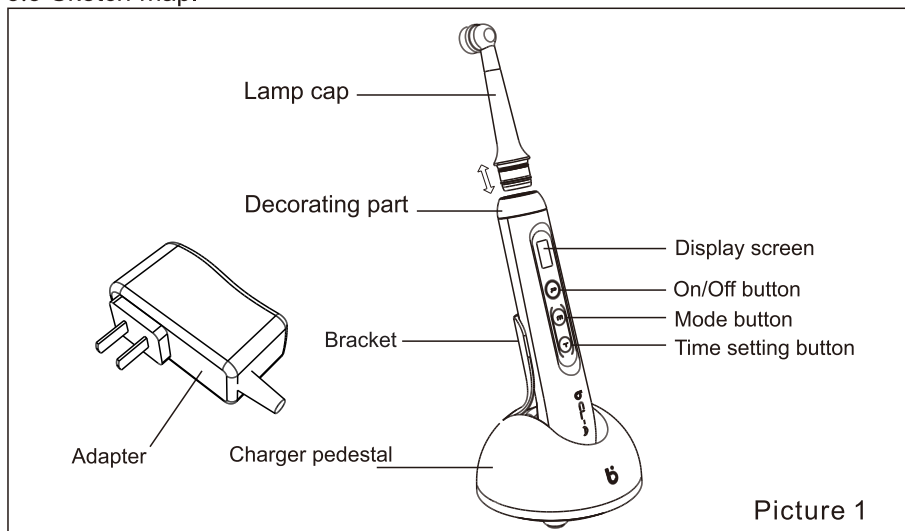
2.7 This product is used to restore teeth and solidify material for whitening teeth.

3.Intended use,structure and contraindication

3.1 Intended use: Solidify the light-sensitive resin to restore teeth by shooting at it. This equipment is intendedly used by dentist according to the instruction manual in dental clinic or hospital.

3.2 Structure and components: It is composed mainly of main unit, charger pedestal,light shield, lamp cap,battery,adapter etc.

3.3 Sketch map:




NOTE 1 At 80 MHz end 800 MHz. the higher frequency range applies.

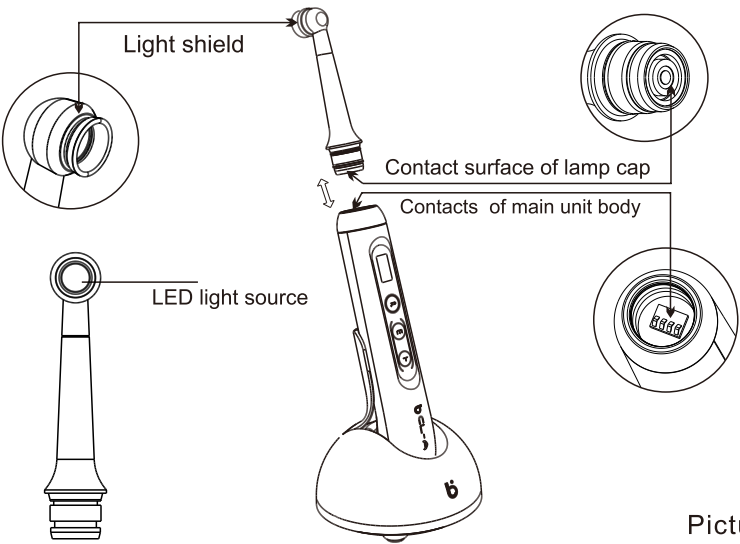
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

^a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the model CL-A is used exceeds the applicable RF compliance level above, the model CL-A should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the model CL-A.

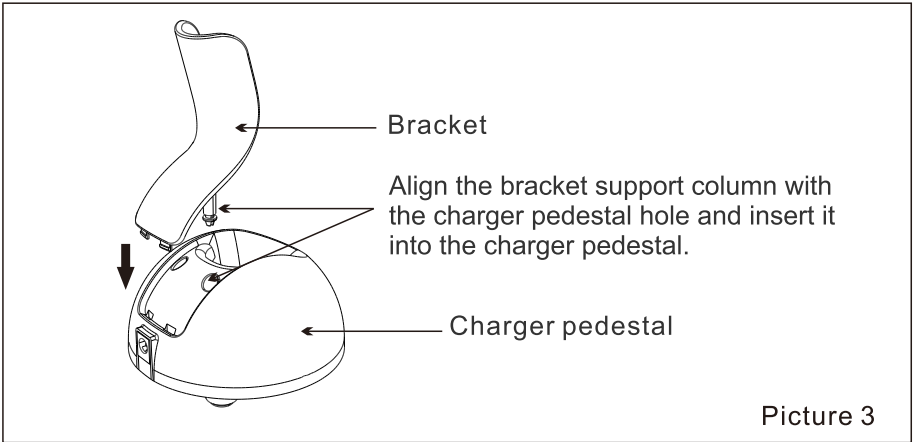
^b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/m.

17.6 Guidance & Declaration-Electromagnetic immunity

Guidance & Declaration - Electromagnetic immunity			
The model CL-A is intended for use in the electromagnetic environment specified below. The customer or the user of the model CL-A should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80MHz 6 Vrms in ISM and amateur radio bands	3 Vrms 150 kHz to 80MHz 6 Vrms in ISM and amateur radio bands	Portable and mobile RF communications equipment should be used no closer to any part of the model CL-A including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance. $d=[3,5/V1] \times P^{1/2}$ $d=1.2 \times P^{1/2}$ 80 MHz to 800 MHz $d=2.3 \times P^{1/2}$ 800 MHz to 2.7 GHz where P is the maximum output power rating of the transmitter In watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, ^a should be less than the compliance level in each frequency range. ^b Interference may occur In the vicinity of equipment marked with the following symbol: 
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz 10 V/m 80 MHz to 2.7 GHz	3 V/m 80 MHz to 2.5 GHz 10 V/m 80 MHz to 2.7 GHz	
	385MHz-5785MHz Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communication equipment (Refer to table 9 of IEC 60601-1-2:2014)	385MHz-5785MHz Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communication equipment (Refer to table 9 of IEC 60601-1-2:2014)	



Picture 2



Picture 3

3.4 Contraindication:
The heart disease patients, photosensitization patients, pregnant women and children should be cautious to use this equipment.

4. Technical specifications

4.1 Rechargeable Lithium battery.

Battery model: NCM18490-160 Voltage: DC 3.6V,Capacity:1600 mAh.

4.2 Adapter

Adapter is one part of this equipment.

Adapter model: DJ-0500100-A5

Input:100V-240VAC 50Hz/60Hz 0.5-0.2A

Output:DC 5V/1A

4.3 Dimensions:228mm×30mm×34mm.

4.4 Net weight:0.24kg.

4.5 Components: details in packing list.

4.6 LED light performance:

4.6.1 LED model: 7070LED

4.6.2 LED power: 5W.

4.6.3 Wave length:440nm~480nm.

4.6.4 Category:I.

4.6.5 Light intensity:

a) L mode :1000mW/cm²~1300mW/cm².

b) H mode :1600mW/cm²~1800mW/cm².

c) SH mode :2200mW/cm²~2400mW/cm².

4.6.6 Optical active area 56mm².

4.7 Working condition:

4.7.1 Environment temperature:+5°C~+ 30°C.

4.7.2 Relative humidity:0~80%.

4.7.3 Atmosphere pressure:70KPa~106KPa.

4.8 Design safety category:

4.8.1 Running mode: Indirect running.

a) L mode: on 20S; off 15S

b) H mode: on 15S; off 15S

c) SH mode: on 3S; off 15S

4.8.2 Protection type against electrical shock: Class II with internal power supply

4.8.3 Protection against electrical shock: Lamp cap is type B applied part

4.8.4 Protection against harmful ingress of water or particular matter:ordinary equipment (IPX0).

4.8.5 Safety in the presence of flammable anesthetic mixture with air,oxygen or nitrous oxide:Non AP/APG type equipment.

17. 5 Guidance & Declaration — electromagnetic immunity

Guidance & Declaration — electromagnetic immunity			
The model CL-A is intended for use in the electromagnetic environment specified below. The customer or the user of the model CL-A should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Electrostatic discharge(ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood,concrete or ceramic tile.If floors are covered with synthetic material,the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for Input/output lines	±2 kV for power supply lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line to line ± 2 kV line to earth	± 2 kV line to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11.	<5 % UT (>95% dip in UT.) for 0.5 cycle 40 % UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95 % dip in UT) for 5 sec	<5 % UT (>95% dip in UT.) for 0.5 cycle 40 % UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95 % dip in UT) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the model CL-A requires continued operation during power mains interruptions,it is recommended that the CL-A be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3A/m	3A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE UT is the a.c. mains voltage prior to application of the test level.			

17.3 The key parts of electromagnetic compatibility

The key parts of electromagnetic compatibility of this equipment are power inductor and capacitance. If use or change non-matching design of accessories, power inductor and capacitance, that will significantly decrease electromagnetic emissions and immunity performance. Please not change equipment parts arbitrarily.

17.4 Guidance and manufacturer's declaration-electromagnetic emissions

Guidance and manufacturer's declaration-electromagnetic emissions		
The model CL-A is intended for use in the electromagnetic environment specified below. The customer or the user of the model CL-A should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 11	Group 1	The model CL-A uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

5. Components

This equipment is mainly composed of following parts:

No	Description	Specification	Category
01	Main unit	CL-A	——
02	Lamp cap	——	Accessory
03	Adapter	——	Separatable part
04	Charger pedestal	——	Separatable part
05	Bracket	——	——
06	Light shield	——	——
07	Instruction manual	——	——
08	Qualified certificate	——	——
09	Warranty card	——	——
10	Packing list	——	——

More details about product and accompanying documents in the packing list.

6. Install and uninstall way

6.1 Install light shield on the lamp cap.

6.2 Take off light shield when replacing lamp cap, and then pull out of lamp cap upward.

6.3 Insert main unit on the charger pedestal when recharging. Assure that charge point is contacted well and then connect power supply. Pull up of adapter after finishing recharging, and cut off power supply.

7. Sterilization

7.1 Pull out of lamp cap from CL-A curing light, wipe and disinfect it with medical alcohol or with special dental disinfection towel.

7.2 Put the cleaned lamp cap into the sterilizer for sterilization at 135°C and 0.22MPa during 3-4 minutes.

8.Operation

8.1 Open the packing and check if all the parts and accessories are complete according to the packing list.

8.2 Take out the bracket, align the bracket support column with the charger pedestal hole and insert it into the charger pedestal. Hearing the sound of buckle indicates that it has been installed in place.

Note: Be ensure the force is vertically downward when the bracket is inserted into the charger pedestal. Pressing the bracket support column at an angle or not aligned with the charger pedestal hole will cause the bracket support column to break.(Picture 3)

8.3 Ensure protection measures before use.For example, if light shield is installed on lamp cap or not.

8.4 Pull out of lamp cap, wipe and disinfected it with medical alcohol or with special dental disinfection towel.

8.5 Install light shield on the disinfected lamp cap, and then insert it to main unit.

8.6 Press 'P' button to start equipment. Press 'M' button to choose low power mode, high power mode, or super high power mode.

8.7 Press 'T' button and choose time setting.

8.8 Put the light source alignment resin,press 'P' button, then main unit shines blue light. There is a 'Di' voice when pressing 'P' button and main unit starts countdown.

8.9 This equipment can be stopped working at any time by short pressing 'P' button while operatin

8.10 The next working cyble should be started after a working cycle ends for 15 seconds in order to avoid discomfort or scald to the patient due to the overheated lamp cap.

8.11 L,H,SH flashes under condition of low voltage. Displayed 'Lob' means low battery and it can not meet power demand under present mode. Please charge battery firstly.

8.12 The lamp cap gets a little hot when working normally. But if the main unit or the lamp cap gets hot obviously, please turn off the device until the main unit becomes cool.

8.13 If there is resin remained on the lamp cap after using,please clean it by cotton cloth to make sure power intensity is good.

8.14 After using curing light every time, pull out of the lamp cap, wipe and disinfect it with medical alcohol or with special dental disinfection towel for using it next time.

16.Manufacturer's right

We reserve the rights to change the design of the equipment,the technique, fittings,the instruction manual and the content of the original packing list at any time without notice.If there are some differences between blueprint and real equipment,take the real equipment as the norm.

17.EMC-Declaration of conformity

Notes:

- 1) Maybe it will cause electromagnetic compatibility problem for this equipment or other equipments if change this equipment without our authorization.
- 2) Design and testing of this equipment conforms to the related operating instruction of electromagnetic compatibility.
- 3) This equipment should not be used near other equipments or stacked up with other equipments.If needed to use the equipment under situations mentioned above, the user should verify that the equipment can work normally.

17. 1 Electric cable information

No	Description	Electric cable length (m)	Shielding(Yes/No)	Remarks
1	Adapter power line	1.0m	No	None

17. 2 Basic performance

Performance	Description	Response time of achieving normal performance
Light output	The main unit is turned on.Press "P" button, then strong light shines from the front end of lamp cap. Pressing "P" button again can cancel operation when there is light.Set time by 'T' button and choose high intensity or low intensity by 'M' button when there is no light.	< 1s

13.Storage and transportation

13.1 The equipment should be handled carefully and lightly.Be sure that it's far from the vibration,and install or store in a cool,dry and ventilated place.

13.2 Don't store the machine with the articles that are combustible,poisonous, caustic and explosive.

13.3 Environmental conditions of storage:

a)Relative humidity:0% to 80%.

b)Atmospheric pressure:70kPa to 106kPa.

c) Environmental temperature:-20℃to+60℃

13.4 Prevent excessive shock and vibration in transportation,be sure to handle with care and avoid inversion.

13.5 Don't mix with dangerous goods during transportation.

13.6 Avoid the sun,rain or snow during transportation.

14. After-sale service

From the date of this equipment sold,if the equipment can't work normally because of the quality problems,our company will be responsible for the maintenance base on the warranty card. Please refer the warranty scope and period from warranty card.

15.Environmental protection

The equipment has no any harmful ingredient. Please dispose according to the local laws.

9.Instruction of recharging

9.1 Connect adapter to charger pedestal,and then connect power supply. Put main unit to charger pedestal. The indicator turns to red when not finishing full charging,while,it turns to green when finishing full charging.

9.2 The main unit should be charged 2~2.5 hours at least when it is used for the first time.

9.3 Please put the equipment on the place for use where it is easy to interrupt of power supply.

9.4This equipment can not be used during recharging.

10.Precaution

10.1 The lamp cap is an electrical product. Wipe it by cotton cloth or medical alcohol. Dipping in liquid is forbidden

10.2 There is high nonopaque quartz glass at the front end of lamp cap. Knocking,striking or dropping it is forbidden.

10.3 During operation the light should be aimed straightly on the resin, to ensure solidification effectively.

10.4 Please install light shield or wear anti-glare glasses to avoid blue light hurts eyes. Strictly prohibit aiming light at eyes directly.

10.5 Please use the original adapter,because other adapter brand is likely to damage the Lithium battery and the circuit.

10.6 Using metal or other conductors to touch charging point is forbidden in order to avoid short circuit and burning up of the internal circuit or the Lithium battery.

10.7 Keep charging point dry in order to avoid unnormal electric discharge phenomena for battery.

10.8 Charge battery in the pleasantly cool and ventilated indoor environment. Compress buckle between main unit and charger pedestal when charging. Otherwise, that will cause poor contact at charger position and can not charge battery.

10.9 Disassembling battery without authorization is forbidden.Otherwise, that will cause short circuit or electrolyte leakage.

10.10 CL-A is a medical-electrical system which consists of adapter, charger pedestal, main unit. The main unit is considered as ME Equipment, adapter and charger pedestal are non-ME Equipment in this Me SYSTEM. It can't be operated when charging.

10.11 Squeezing, shaking or wobbling battery is forbidden. Battery short circuit is forbidden. Don't store battery with metal articles together.

10.12 Using product must conform to the related operation rules issued by health sector and the related laws requirements. It can be used by trained doctors or technicians only.

10.13 Suggest inspect light intensity of CL-A curing light with light meter every month. If light intensity is not in the scope of setting, please send it back to us for repair.

10.14 Be sure to replace the original lamp cap made by manufacturer. If not original or not unmatched one, maybe it will damage or cause insufficient light intensity.

11.Maintenance

11.1 This equipment does not include spare parts which can be repaired by the end user. It shall be repaired by the designated professional or a authorized dealer.

11.2 The end user can replace light shield and lamp cap on the spot. Please use original spare parts. Contact local dealer or us for purchase. Using spare parts of other brands is forbidden. Otherwise, that will damage curing light or cause other risks.

11.3 Lamp cap surface can be cleaned by clean water or disinfectant. Don't dip lamp cap into liquid.

11.4 Please check if there is resin remained on the lamp cap surface after finishing using every time in order to avoid influencing use life of lamp cap or curing effect.

11.5 If this equipment is not used for a long time, please recharge it once every 6 months.

12.Trouble shooting

Fault	Possible cause	Solution
Non-indication. Non-acts	The battery is used up.	Contact local dealer or us
	Battery damages.	Contact local dealer or us
	Curing light damages.	Contact local dealer or us
Nixie tube screen displays LEE	Circuit of lamp cap doesn't work	Check if contacts of main unit body has deformation or impurities (Picture 2)
		Check if electrode of contact surface of lamp cap rusts (Picture 2)
		Check if decorating part is in loosen (Picture 2)
Light intensity is insufficient.	Lamp cap isn't inserted till the bottom.	Insert lamp cap till the bottom.
	LED ageing	Replace lamp cap.
	There is resin remained at the light outlet of lamp cap.	Wipe off remained resin.
	Low battery	Charge the curing light.
The equipment is not charging when the adapter is connected.	The adapter is not connected well.	Reconnect adapter.
	Faulty of adapter or incompatible.	Replace adapter.
	There is impurity at charging point.	Wipe curing light and charging point with alcohol.
Use time is shorter after charging battery.	Battery capacity becomes low.	Send it to repair.

If the problem still can't be solved, please contact the local dealer or us.