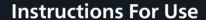
radii xpert

Professional LED Curing Light

Smarter design.

Optimal cure every time.





Please read these instructions before operating this unit

Product description

Thank you for purchasing the Radii Xpert LED curing light. The Radii Xpert is a high performance light source for the intraoral polymerization of light-cured materials with photoiniator(s) in the wavelength range of 440 nm - 480 nm (standard curing tip). It has been designed to consistently produce optimum polymerization for all light-cured materials in order to produce high-quality restorations.

Target assist technology, a special low power light, has been incorporated into the Radii Xpert to assist users to accurately position the curing tip before polymerization begins.

The Radii Xpert is a high quality medical device which has been designed in accordance to the latest science and technology for curing lights. Each unit comes with an international power supply and is suitable for power outlets from 100 - 240 Volts.

SAFETY, WARNINGS & CAUTIONS

the device

Use of the Radii Xpert is restricted to qualified medical professionals in accordance with the safety instructions below:



- 2. Do not introduce any objects into the unit with the exception of replacement parts handled in accordance with this manual.

1. Do not open or alter the Radii Xpert in anyway. Only dealers authorised by SDI Ltd may open the housing and repair

- 3. Only charge the Radii Xpert handpiece in the Radii Xpert charger.
- Connect the power plug into a suitable grounded and approved outlet.
- 5. Always unplug the power to the charger during cleaning of the unit.
- Do not use damaged power cord. 6.
- Should you have any reason to suspect the safety of the Radii Xpert to be compromised, the unit must be taken out of operation and appropriately labelled to prevent third parties from inadvertently using a potential defective unit.



- 1. The Radii Xpert emits a high intensity light and must only be used as indicated in this manual.
- Do not look directly into the light source.
- Operator, assistants and patient must always wear appropriate blue light blocking eye protection or use a blue light blocking light shield.
- 4. Restrict exposure to the oral cavity in which clinical treatment is intended.
- Avoid direct contact of curing tip with soft tissues and mucosa



- Radii Xpert can only be operated with the supplied LED tip and is not compatible with previous Radii model of LED attachments.
- Condensation resulting from unit being transferred from a cold to a warm environment may be a potential risk. The unit should only be turned on after it is completely equilibrated to ambient temperature.
- 3. Use only genuine SDI Ltd parts when replacing defective components as directed in this manual.
- Do not operate the unit in the proximity of flammable mixtures.
- Keep solvents, flammable liquids and sources of intense heat away from the unit as they may damage the plastic housing.
- 6. Do not allow cleaning agents to enter the Radii Xpert as this may short circuit the unit.
- 7. Do not use the Radii Xpert in patients or by users:
 - a. with heart pacemaker implants who have been advised to be cautious with regard to their exposure to small electrical devices.
 - b. with a history of photo biological reactions (including individuals with urticaria solaris or erythropoietic protoporphyria) or who are currently on photo-sensitising medication (including 8-methoxypsoralen or dimethylchlorotetracycline).
 - c. who have history of retinal disease.
 - d. who have had surgery for eye cataracts.

Seek advice from their prescribing medical practitioner prior to operating the Radii Xpert on these patients.

- 8. Prior to each use of the Radii Xpert, ensure that the emitted intensity is sufficient to safely guarantee polymerization.
- 9. The Radii Xpert was developed and tested in accordance to relevant EMC regulations and standards to conform with legal requirements. Due to variables that may exist within the work environment, such as power supply, wiring and the ambient conditions that can affect the EMC properties of the Radii Xpert, EMC disruption may occur. If this happens, move the unit to a different location.
- 10. SDI Ltd accepts no liability for any damage resulting from the use of the Radii Xpert for any other purpose than the polymerization of light-cured dental materials.

TRANSPORT AND STORAGE CONDITIONS

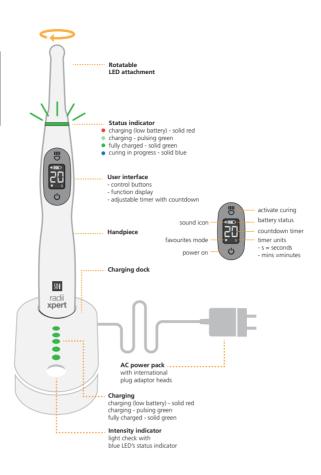






PRODUCT OVERVIEW





INDICATIONS FOR USE

- 1. Standard curing attachment:
 - To polymerize all light-cured products in the wavelength range of 440 nm 480 nm (standard curing tip)

TECHNICAL DATA

CHARGING DOCK	
Operating voltage	100 – 240 V – 50 / 60 Hz
Power input	12 V DC
Dimensions	Length: 142 mm, Width: 70 mm, Height: 70 mm
Weight	155 g
Classification	Class II - double insulated
Safety	IEC 60601-1
EMC (Electro-Magnetic Compliance)	IEC 60601-1-2
Protection from electrical shock	Type BF
Protection from ingress of liquids	Handpiece: IPX4 Charging dock: IPX3

HANDPIECE	
Wavelength emission range	Standard curing attachment: 440 nm - 480 nm
Wavelength peak	Standard curing attachment: 460 nm
Dimensions	Length: 255 mm Diameter: 30 mm
Weight	185 g

CHARGER AND HANDPIECE	
Time to charge low battery	For everyday case approx 3 hours
Time to charge flat battery	Allow 5 - 6 hours. (Best left on overnight)
Operating temperature	10°C - 40°C (50°F - 104°F)
Relative humidity	10 % - 85 %
Atmospheric pressure	0.5 atm - 1.0 atm (500 hPa to 1060 hPa)
Total height with handpiece	290 mm

POWER PLUG WITH INTERNATIONAL AC ADAPTERS		
Input voltage	100 – 264 V – 50 / 60 Hz	
Output voltage	12 V DC	
Output current	1.0 A	
Dimension	38 mm H x 45 mm W x 70 mm L	
Weight	104 g / 3.66 ounces	
Rating	Medical grade (UL, CE, RoHS, WEEE)	

OUICK START-UP

ALL FIGURES CAN BE FOUND ON PAGE 9

Check the content of the box for completeness and any possible transportation damage. If parts are damaged or missing, contact your local SDI Ltd representative immediately.

Factory settings

The factory setting of the Radii Xpert's standard curing attachment is 20 seconds per exposure cycle.

Charging dock (Figure 1)

- 1. Slide the correct AC adapter head into the power plug and plug into power supply. Tilt it slightly and apply slight pressure until you hear it snap into place.
- 2. Plug the other end of the AC power plug into the back of the charging dock.
- 3. Place charging dock on a suitable flat table top and turn the power ON.
- 4. The LED lights on the charging dock will flash once from all red to all green to all blue. This indicates the unit is ready to use.

Handpiece (Figure 2)

- 1. Remove the Radii Xpert handpiece from its packaging and place into the charging dock.
- 2. Allow the Radii Xpert to fully charge until status ring and all five lights on the charging base illuminate solid green.

Note:

- 1. During charging the status ring and lights on the charging base illuminate pulsing green.
- 2. The Radii Xpert contains a lithium ion rechargeable battery that does not have any memory and can be recharged at any time.

Operating

- Remove the Radii Xpert handpiece from the charging dock and place a hygienic barrier sleeve.
 Note: Ensure the Radii Xpert barrier sleeve fits flush over the lens without wrinkling/folds. Seam of the sleeve should be positioned down the sides of the attachment and handpiece. (Figure 3)
- 2. Rotate the curing tip to desired position.
- 3. Press (top button) and hold. A very low intensity light will illuminate to assist you to position the curing tip in the oral cavity. When the tip is in the correct position, release your finger tip and curing will commence. Status ring illuminates solid blue with the standard curing tip attached. The LCD displays 20, counting down to 0.
- 4. One long beep will sound when curing finishes and the status ring goes OFF.
- 5. Press to start another 20 second cure.
- 6. To change pre-set curing time (temporary setting). Press 🖒 and hold for 1-2 seconds. Numbers on LCD start flashing.
- 7. Press to to scroll up through the options from last setting used. Press once to select. Numbers on LCD stop flashing.
- 8. Discard barrier sleeve after each patient.
- 9. Clean and sanitise the handpiece. See MAINTENANCE AND CLEAN section in this manual.

Note:

- 1. Single patient use hygienic Radii Xpert barrier sleeve (100 pieces is included in each kit) is strongly recommended to prevent cross contamination and protect the lens cap from dental material adhering to its surface and body. These sleeves have been especially designed to produce optimal emission.
- 2. Light output may be significantly reduced if the wrong barrier sleeve is used or not correctly placed.

Curing time

- 1. Follow the recommended curing times published by the manufacturer of your restorative materials.
- 2. The indicated curing times usually assume the light tip is held at the correct position over the material being polymerized.

QUICK LIGHT INTENSITY STATUS CHECK USING THE BUILT-IN INTENSITY INDICATOR (Figure 4)

Gently place the LED attachment tip on the test area
of the charging dock. Ensure the tip is level and central
within the test area. If not centered, it may give you lower
readings.

2. Activate the light.

All 5 blue LEDs	100%
4 blue LEDs	90%
3 blue LEDs	80%
2 blue LEDs	70%
1 blue LED	60%

SLEEP MODE

The Radii Xpert will go into a sleep mode (LCD turns OFF) when it is:

- 1. Sitting on the charging dock or
- 2. Not in use for more than 3 minutes

The unit will automatically wake up when removed from the charging dock. Press 😈 to start curing.

If the unit turns OFF / goes into sleep mode outside the charging dock, press 🖒 once to wake unit up. Press 📛 to start curing.

OPERATION

1. Handpiece

LED ATTACHMENT	PROGRAM	
Standard curing attachment (440 nm - 480 nm)	Default curing time: 20 secondsLCD counting down 20, 19, 183,2,1	
	User option curing time:2, 10, 20, 40, 60 seconds	
	Note: Observe Instructions for Use of the material applied when selecting curing time.	

STATUS - WHILE OPERATION	STATUS RING INDICATOR
Positioning light (target assist)	Solid yellow
Curing in progress	Solid blue
LED attachment too warm (allow to cool)	1 red flash, then shuts off
Charge level low	Solid blue for 1 second and 2 short beeps

2. Charging dock lights display (while handpiece is charging)

STATUS - WHILE CHARGING	STATUS RING INDICATOR
Charging (low battery)	Solid red
Charging in progress	Pulsing green
Charge completed	Solid green

STATUS - WHILE CHARGING	CHARGING DOCK INDICATOR
Charging (low battery)	Solid red
Charging in progress	Pulsing green
Charge completed	Solid green

HOW TO CHANGE THE LED (Figure 5)

To change the LED attachment, carefully pull off the LED attachment from the handpiece and click in a new LED attachment.

HOW TO CHANGE THE LENS CAP (Figure 6)

- 1. Turn the lens cap anti-clockwise to remove.
- 2. Replace with a new lens cap by screwing it on clockwise.

HOW TO SET FAVOURITE CURING TIME (Figure 7)

- 1. Press 🖒 and hold for 1-2 seconds. Numbers on LCD start flashing.
- 2. Press 🖰 to scroll up through the options from last setting used.
- 3. Press and hold for 1-2 seconds to save. Numbers on LCD stop flashing. Status ring illuminates solid green for 2 seconds with one short beep, to confirm selection is saved.
- 4. A star appears on the bottom left of the LCD screen. Unit is ready to use.

HOW TO ADJUST THE AUDIO VOLUME (Figure 8)

- 1. Press (b) to turn the unit on.
- 2. Remove the LED attachment from the Radii Xpert handpiece.
- 3. Press 🖒 and hold for 1-2 seconds to activate change mode.
- 4. Speaker symbol | lights up.
- 5. Bar graph displays volume settings
- 6. Press 🖰 to scroll through options. Buzzer will sound to demonstrate the volume level (mute, low, medium, high).
- 7. Press and hold for 1-2 seconds to save. Status ring illuminates solid green for 2 seconds with one short beep, to confirm selection is saved.
- 8. A star appears on the bottom left of the LCD screen. Re-insert the LED attachment. Unit is ready to use.

HOW TO CHANGE THE BATTERY

- 1. Hold the handpiece in the palm of your left hand.
- 2. Use your right hand to turn the bottom of the handpiece approximately 10 degrees anti-clockwise (twist then pull, Figure 9).
- 3. Carefully remove the battery from the handpiece.
- 4. Insert a new battery and lock in position twisting it 10 degrees clockwise (push then twist, Figure 10).
- 5. Turn ON the Radii Xpert handpiece and place it into the charging dock until status ring shows solid green. Note: The LED attachment does not have to be attached to the handpiece to charge the battery.
- 6. Dispose of used battery in accordance to local regulations. Do not dispose with unsorted household waste.

Battery Life Expectancy: Battery life is dependent on the amount of use and LED efficiency. SDI Ltd guarantees the battery to have a minimum of 300 total discharges. To extend the life of your Radii Xpert battery, keep it on the charging dock at the end of each day if possible.

TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Handpiece status ring flashes red.	Handpiece over heated.	Allow handpiece to cool down before reuse.
Handpiece status ring shows solid red.	Battery low.	Handpiece can still be used for curing. Return to charging dock as soon as possible.
Handpiece status ring flashes blue once and goes OFF.	Battery empty.	Return to charging dock for charging.
No light appears on the charging dock when handpiece is docked.	No power.	Check all connections are clean and properly connected.
		2. Ensure power outlet is switched ON.
		3. If the above does not work, move the whole unit to a different powerpoint.
		4. Call your local SDI Ltd representative for repair.
Unit works fine yesterday but will not turn on this morning.	Moisture from condensation.	Check for sign of moisture inside the barrier sleeve.
		2. Remove barrier sleeve and allow unit to dry for a few hours.
No audio beep heard when connecting with the handpiece.	Battery empty.	Return to charging dock for charging.
The light intensity is too low.	Dirty or scratched lens cap. Barrier sleeve.	Check and clean lens cap. Replace if required. Ensure barrier sleeve fits tightly over the emission tip.
The LCD on the handpiece flashes.	Unit is in the setting mode.	Press 🖒 once to come out of the setting mode.
Battery shows corrosion or emits a scorched odour.	Do not use unit.	Call your local SDI Ltd representative.
The dental material does not cure completely.	Wrong attachment?	Ensure the correct LED attachment is used. Check material specifications for curing requirement from the manufacturer.
I want to delete my favourite setting and go back to the factory setting.		Place the handpiece on the charging dock. Press (b) (top & bottom button) simultaneously for 1-2 seconds, then status ring illuminates solid yellow for 4 seconds and returns to factory setting.
The handpiece has been on the charger overnight. Status ring still showing red and handpiece felt very hot.	Charging problem. Battery maybe at the end of its useful life.	Replace battery.
The light emission does not start when the button is pressed.	Battery is flat.	Return to charging dock for charging.
The LED attachment does not fit the handpiece.	Wrong Radii LED attachment.	LED attachments from previous model of Radii is not compatible with the Radii Xpert.

MAINTENANCE AND CLEANING

Handpiece

- 1. After each use, remove and dispose of barrier sleeve.
- Wipe the Radii Xpert handpiece with a disinfectant wipe (benzalkonium base) or soft cloth moistened with isopropyl alcohol/ethyl alcohol based cleaners.
- 3. Do not wipe electrical contacts at the base of the handpiece. Use a dry cloth to clean if required.
- 4. Allow handpiece to air dry before placing a new barrier sleeve.

Note: If using anti-bacterial wipes, ensure they are not soaked in excess liquid. Liquid residue must not enter any part of the handpiece or charger.

Charging dock

- 1. Disconnect power from charging dock.
- 2. Wipe surface with a disinfectant wipe (benzalkonium base) or soft cloth moistened with isopropyl alcohol/ethyl alcohol based cleaners.
- 3. Use an air gun to blow off any debris collected inside the handpiece holder and carefully wipe clean without wetting the electrical contacts.

CLEANING AGENT APPROVED FOR USE	CLEANING AGENT NOT APPROVED FOR USE
70% Isopropanol alcohol	Oxidising agents such as hydrogen peroxide
Neutral-enzymic cleaner	High alkaline detergents
Ethyl alcohol based	Hand soaps and dish soaps
Antiseptic benzalkonium chloride wipes	Abrasive cleaners
Chlorhexidine gluconate	Acetone based cleaners
Glutaldehyde	Bleach based cleaners
	Any cleaners with phosphoric acid
	Ammonia or iodine complex solution

STORAGE DURING EXTENDED PERIODS OF NON-USE

If the Radii Xpert is not to be used for an extended period of time, ie during holiday periods, fully charge the handpiece or keep it on the charging dock with the power ON.

The Radii Xpert has a built in safety feature to prevent the battery from discharging totally.



DISPOSAL INSTRUCTION

Do not dispose unserviceable battery and curing lights as unsorted municipal waste. Hazardous substances are present in electronic equipment and present potential risks to human health and the environment if disposed of in municipal landfills which are not designed to prevent migration of substances into the soil and groundwater.

Please dispose of in accordance to your specific country regulations.

WARRANTY

SDI Ltd provides a three (3) year warranty against defects in materials or workmanship from the date of purchase to the original purchaser of this product with the exception of the battery which has a two (2) year warranty. User is responsible for determining the suitability of the product for user's application. If this unit is defective within the warranty period, SDI Ltd or your local approved service centre will repair the unit at no cost. This warranty is only valid providing an inspection indicates that any such defect developed during normal and proper use subject to the conditions below.

SDI Ltd shall under no circumstances be liable for incidental or consequential damages. The warranty does not apply to any damage or defect caused by the user's failure to follow the instructions for use or the other user error in operating or maintaining the unit. Although SDI Ltd offers services to repair the Radii Xpert after the expiration of the warranty, SDI Ltd only guarantees the availability of such services and replacement parts for two (2) years after the model has been discontinued.

Only the above warranty shall be applicable, all other warranties, expressed or implied are hereby excluded.

Claim

In case of a claim under warranty, the complete unit (handpiece, charging dock, AC power plug and LED attachment) is returned, carriage paid to the dealer or directly to SDI Ltd together with a copy of the purchase document together with a clear description of the defect. Ensure you have your Radii Xpert's serial number ready when communicating with the Customer Service team.

Registering your Radii Xpert warranty

To speed up your warranty claim, it is advisable to register your Radii Xpert with SDI Ltd as soon as possible using the following two options:

- Fill out the warranty card included in kit and return with a copy of your receipt to: SDI Ltd PO Box 314 Bayswater, VIC 3153 AUSTRALIA
- 2. Alternatively goto http://www.sdi.com.au/warranty to register your warranty.



Do not autoclave the LED light attachment or any part of the Radii Xpert.

Liquids must not enter any part of the handpiece or charger.

Do not spray liquids directly onto, or apply copious amounts of liquids to the Radii Xpert. Instead, spray solutions on a cloth to wipe.

Table 201 - Guidance and MANUFACTURER'S declaration - ELECTROMAGNETIC EMISSIONS - for all equipment and systems

Guidance and manufacturer's declaration - electromagnetic emissions The Radii Xpert is intended for use in the electromagnetic environment specified below. The customer or the user of the Radii Xpert should assure that it is used in such an environment. Compliance Electromagnetic environment - guidance **Emissions test** RF emissions Group 1 The Radii Xpert uses RF energy only for its internal function. CISPR 11 Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment. RF emissions Class B The Radii Xpert is suitable for use in all establishments,

Not applicable

Not applicable

including domestic establishments. The Radii Xpert is powered by 1 x 3.7V 2600 mAh DC Lithium ion battery thus Harmonic

emission and Voltage Harmonic emissions fluctuation/flicker

emissions are not applicable.

Table 202 - Guidance and MANUFACTURER'S declaration - Electromagnetic IMMUNITY - for all equipment and systems			
Guidance and manufacturer's declaration - electromagnetic immunity			
The Radii Xpert is intended for use in the electromagnetic environment specified below. The customer or the user of the Radii Xpert 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%.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment

Table 204 - Guidance and MANUFACTURER'S declaration - Electromagnetic IMMUNITY - for all equipment and systems that are not LIFE-SUPPORTING

Guidance and manufacturer's declar	ration - electromagnetic immunity			
The Radii Xpert is intended for use in the electromagnetic environment specified below. The customer or the user of the Radii Xpert should assure that it is used in such an environment.				
IMMUNITY test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance	
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the TENS PRO 900, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance	
			$d = \left[\frac{3.5}{V_1}\right] \sqrt{P}$	
			$d = \left[\frac{3.5}{E_1}\right]\sqrt{P} 80 \text{ MHz to } 800 \text{ MHz}$	
			$d = \left[\frac{7}{E_1}\right]\sqrt{P} \text{800 MHz to 2.5 GHz}$	
			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 metres (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. Interference may occur in the vicinity of equipment marked withthe following symbol:	
			((·•))	

NOTE 1 At 80 MHz and 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

*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 **Radii Xpert** is used exceeds the applicable RF compliance level above, the **Radii Xpert** should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or re-locating the Radii Xpert. b Over the frequency range 150kHz to 80MHz, field strengths should be less than 10/Vm.

Table 206 - Recommended separation distances between portable and mobile RF communications equipment and the equipment and systems - for equipment and systems that are not LIFE-SUPPORTING

Recommended separation distances between portable and mobile RF communications equipment and the Radii Xpert

The Radii Xpert is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Radii Xpert can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Radii Xpert 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		
transmitter vv	80 MHz 10 800 MHz	800 MHz a 2,5 GHz	
	$d = \left[\frac{3.5}{E_1}\right] \sqrt{P}$	$d = \left[\frac{7}{E_1}\right]\sqrt{P}$	
0,01	0.12	0.23	
0.1	0.38	0.73	
1	1.2	2.3	
10	3.8	7.3	
100	12	23	

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (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) according to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

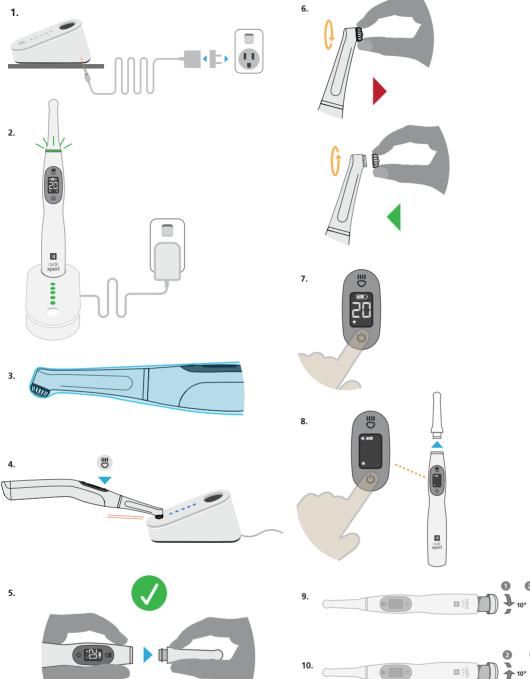
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

CISPR 11

Harmonic emissions IEC 61000-3-2

Voltage fluctuations / flicker emissions IEC 61000-3-3

FIGURES 1.





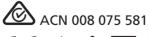
Made in Australia by SDI Limited Bayswater, Victoria 3153

Australia 1800 337 003 Austria 00800 0225 5734 Brazil 0800 770 1735 France 00800 0225 5734 Germany 0800 1005759 Ireland 00800 0225 5734 Italy 00800 0225 5734 New Zealand 0800 734 034 Spain 00800 0225 5734 United Kingdom 00800 0225 5734 USA & Canada 1 800 228 5166



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