



BA Ultimate

LED 1400



INSTRUCTIONS FOR USE



Caution: For dental use only by dental professionals
Made in Switzerland



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BA Ultimate LED 1400

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1. Product Description

The **Ultimate 1400** curing light is a cordless, pen-shaped, high energy, dual wavelength LED device intended for the polymerization of latest generation light curing dental restorative materials, which are activated by wavelengths in the 400nm to 480nm light range. It is exclusively designed for use by trained dental professionals in the dental office or dental laboratory. The **Ultimate 1400** features:

- High output of blue and violet light
- Lightweight, small compact size, and ergonomic design
- Cordless operation with easy to exchange battery packs
- Exceptionally fast recharging of battery packs
- Detachable fiber-optic light guide(s) designed for optimal intraoral access
- Effective curing field for polymerization of latest generation, light curing restorations
- Convenient and easy-to-use recharging station with extra battery packs and built-in radiometer

The **Ultimate 1400** has been shipped from the manufacturer in a safe and technically sound condition. The following directions for use must be adhered to in order to maintain product performance; ensure risk-free operation; and prevent injury to patients and dental professionals.

1.1. Indications for Use

The **Ultimate 1400** curing light is indicated for polymerization of latest generation dental materials which cure with blue and violet light (400nm to 480nm).

1.2. Contraindications

The **Ultimate 1400** curing light is not for use with patients who:

- A.) are prone to photobiological reactions, including patients with solar urticaria or erythropoietic protoporphyria or
- B.) are currently undergoing treatment with photosensitizing pharmaceuticals.

Anyone (users, patients, etc.) with questions, concerns or a history of health issues concerning their eyes (ex. retinal disease, retinopathy, cataracts etc.), should consult their eye specialist before operating or prior to receiving treatment with the **Ultimate 1400** curing light.

2. Safety Notices

The **Ultimate 1400** is only intended for use as described in this manual. Any and all other uses constitute improper use and are the sole responsibility of the user and owner.

Safety alert symbol

In this manual, this symbol alerts you to information regarding possible safety and/or personal injury hazards. Obey all safety messages that follow this symbol.

2.1. General Warnings

- Never modify the **Ultimate 1400** curing light or any **Ultimate 1400** accessories. Modification may compromise safety and effectiveness.
- Maintain adequate infection control measures when using the **Ultimate 1400** in the oral cavity, and execute the appropriate hygiene plan after usage with patients.
- Do not use damaged equipment. Routinely check the light guide for scratches and surface damage.
- Only authorized technicians can repair the **Ultimate 1400** curing light, battery packs and recharging station.
- Avoid placing the **Ultimate 1400** or the recharging station on top, under, or close to other equipment. A safe distance from other electrical appliance should be maintained.
- Use of accessories not mentioned in this manual may result in unsafe conditions and/or reduced product performance. For this reason, use only factory authorized accessories.
- Do not charge or use the device near flammable or combustible substances.

2.2. Handpiece

- When using commonly available, protective, plastic barriers (bags, shields, etc.) with the **Ultimate 1400**, be certain that these are securely fixed to avoid patient aspiration and treatment complications.
- Make sure that the exit-port of the light guide is not covered by debris or items that may block the light emission.
- Do not use the **Ultimate 1400** light guide as a tissue retractor or as an instrument to manipulate the tongue and/or cheeks.
- Make certain the **Ultimate 1400** Eye-protector is installed securely and inspect it routinely. Replace as needed.
- Always clean and disinfect the **Ultimate 1400** handpiece before placing it on/in the recharging station.
- To change the direction of the light, rotate the light guide or the handpiece as a whole, similar to rolling a pen in your fingers. The light guide rotates independently of the handpiece

2.3. Charging Station

- Make certain there is a match: incoming power supply and the product electrical requirement. Do not use the recharging station with voltages different than stated in this manual or labeled on the equipment.
- Voltage is present in the recharging station and battery packs: do not open! Operate only in dry conditions. Never use when wet.
- Install and operate only on flat surfaces.
- Unplug the power connector from main electrical supply (ex. wall socket) before disconnecting the power cable connector from the recharging station.
- Only touch the recharging station with clean/disinfected gloves to avoid contamination by bodily fluids.

2.4. Precautions

- Anyone (users, patients, etc.) with questions, concerns or a history of health issues concerning their eyes (ex. retinal disease, retinopathy, cataracts etc.), should consult their eye specialist before operating or prior to receiving treatment with the **Ultimate 1400** curing light.
- People who have undergone treatment for cataracts, have a history of photobiological reactions, or who are under the influence of photosensitizing medication (ex. 8-methoxypsoralen or dimethyl chloro tetracycline), may be sensitive to light. Such patients should not be treated with the **Ultimate 1400**.
- Patients as well as dental professionals should always use appropriate safety precautions. Use the **Ultimate 1400** curing light with great care and carefully comply with all safety precautions, including wearing suitable light-filtering safety glasses or goggles.
- Only use the **Ultimate 1400** after it has completed an adequate hygiene procedure.
- Protect the **Ultimate 1400** from contamination by using protective plastic barrier-sleeves. These sleeves are intended for single-use; discard after each patient to prevent possible cross-contamination.
- Do not use mobile phones or other hand-held electronic devices at the same time as the **Ultimate 1400**.
- Avoid directing the light at unprotected soft-tissue. This may cause irritation and/or injury.
- Do not stare at the light source and avoid allowing the light to shine directly into eyes. This, and reflected light from shiny surfaces such as the tooth surfaces, may injure the eyes. Always install the eye-protector on the **Ultimate 1400** in addition to using protective, light-filtering safety glasses.
- Confine usage of the light to the area being treated.
- Prolonged usage of any curing light can increase temperature. Extended usage near pulp and soft tissues should be avoided to prevent injury. Curing near or around sensitive tissues should be performed in short time intervals.

3. Operation Instructions

3.1. Owner's Obligations

In addition to complying with the statutory regulations, the owner must ensure that statutory requirements are observed and implemented in the workplace. In particular, the owner must train personnel and comply with industrial safety legislations and all related regulations or laws.

For working with the unit, the owner must provide the person(s) with the written operating instructions in an understandable format as well as in the relevant language(s).

The owner is fully responsible to assure that the **Ultimate 1400** unit is in a safe working condition at all times. If in doubt, do not use the unit and contact the supplier or BA International.

BA International recommends that you keep this manual and related document(s) together.

3.2. Set-up

Carefully unpack all **Ultimate 1400** components and familiarize yourself with the individual items. Check for completeness.

- A.) First, check that the voltage indicated on the **Ultimate 1400** name plate complies with the local power supply (Fig. 11).
- B.) On the underside of the recharging station, plug the telephone-jack-type power cable connector into the socket (Fig. 12).
- C.) Adjacent to the recharging station socket, thread the power cable underneath the three clips in the cable exit-channel (Fig. 12). The power cable should fit snugly under the clips and relieve tension on the telephone-jack connector.
- D.) Carefully insert the light guide to the front-end of the **Ultimate 1400** handpiece (Fig. 8, 14).
- E.) Attach the rubber eye-protector on to the light guide.

1. First, check that the voltage indicated on the **Ultimate 1400** name plate complies with the local power supply.
2. Place the recharging station on a stable, horizontal surface at least 1.5 m from the patient!
3. Attach the rubber eye-protector on to the light guide.

3.3. Charging

- A.) Fully charge both battery packs prior to first use. Insert the batteries onto the charging connectors in the recharging station (Fig. 9, 19).
- B.) When resistance is encountered, push on the battery pack to lock it in place (Fig. 7, 19, 22). A green light will be seen on the recharging station indicating that charging is in progress.
- C.) When the green light turns off, battery charging is complete.
- D.) When the **Ultimate 1400** is not in use, battery packs should be kept on the charging mounts to ensure maximum battery operating time.
- E.) Depleted battery packs will require approximately an hour to fully recharge. A fully charged battery pack will power the **Ultimate 1400** for approximately 16 minutes.

1. Never autoclave the battery packs!
2. These batteries are memory-free and should be kept charging whenever possible.
3. These battery packs may only be charged by using the provided recharging station.
4. Do not insert metallic parts into open end of battery; short circuit could occur.
5. Keep battery contacts dry for proper operation.

3.4. Operation

- A.) Gently insert one battery pack into the rear-end of the Ultimate 1400 handpiece (Fig. 9). You will feel the connector slide the battery automatically into the “Off position” (Fig. 9).
- B.) When resistance is felt, gently push the battery all the way into the handle (Fig. 9). A click will be heard when the battery pack is completely inserted and correctly seated in the Ultimate 1400 handpiece. A short tone combined with a brief flash of blue light will confirm that the battery was detected and in good working condition.
- C.) Rotate the battery pack by a quarter turn, in either direction, to the “On position”.
- D.) With the handpiece and battery pack in the “On position”, the Ultimate 1400 can now be activated by pressing the switch on the handpiece (Fig. 23).
- E.) Activate the Ultimate 1400 by pressing the switch (Fig. 23).
- F.) Once activated, the Ultimate 1400 curing light will emit blue and violet light for 10 seconds.
- G.) Every 5 seconds, the Ultimate 1400 will emit a tone signaling the time cured.
- H.) If the battery pack is depleted, replace with 2nd battery pack and resume work. Do not place the depleted battery pack in the recharging station until it is properly cleaned and disinfected.
- I.) To manually stop curing or interrupt the curing cycle, press the switch (Fig. 25).
- J.) Adjust the angle of the light if necessary by rotating the light guide or by “slightly rolling” a pen-like grip.
- K.) For optimal curing results, the light guide tip should be positioned as close as possible to the dental material without actually touching the dental material itself.
- L.) The Ultimate 1400 handpiece may feel slightly warm during prolonged operation. This is normal.
- M.) To inspect the light output with the built-in radiometer, put the cleaned end of the light guide on to the sensor window of the recharging station. Activate the curing light. The adjacent LED in the recharging station will be green, if the light output is 1100 mW/cm² or above. It will be red, if the light output is below 1100 mW/cm². Stop as soon as an indication is shown. The radiometer only functions when the recharging station is connected to a power supply.

1. Prior to using the Ultimate 1400, attached the rubber eye-protector on to the light guide and use protective, light-filtering eyewear (ex. glasses).
2. Only use the Ultimate 1400 after it has completed an adequate hygiene procedure.
3. Protect the Ultimate 1400 by using single-use, protective, plastic barrier-sleeves.
4. Never place the Ultimate 1400 handpiece, light guide, or depleted battery packs on the recharging stations before they are cleaned and disinfected.

4. Dental Material Recommendations

In general, the **Ultimate 1400** has been optimized to achieve a 10 second curing time with the latest generation dental materials which cure with blue and violet light (400nm to 480nm). These materials include restoratives, bonding agents and adhesives, bases, liners, fissure sealants, some temporary material, and luting materials for brackets as well as dental-lab materials such as ceramic inlays. However, manufacturer’s instructions regarding specific light curing dental materials should be followed.

5. Hygiene

5.1. Before Patient Treatment

- Check that the light output via the radiometer and inspect the light guide to assure there are no obstructions.
- Check that the eye-protector is installed on the light guide properly.
- Insert the **Ultimate 1400** into a protective, single-use, barrier sleeve for additional protection if desired. Be certain the sleeve is tightly fitted to the **Ultimate 1400** to avoid treatment complications.
- Outfit dental personnel and patient with appropriate protective eyewear (light filtering, infection protection).
- Consider patient’s health needs, potential light sensitivity and determine the appropriate precautionary actions.
- Place the **Ultimate 1400** handpiece in a convenient place for use during treatment.

5.2. During Patient Treatment

- Never place the **Ultimate 1400** handpiece, light guide, or depleted battery packs on the recharging stations before they are cleaned and disinfected.
- Do not use the **Ultimate 1400** as a tissue retractor to manipulate the tongue and/or cheeks.

1. Prior to treatment, attached the rubber eye-protector on to the light guide and use protective, light-filtering eyewear (ex. glasses).
2. Only use the Ultimate 1400 after it has completed an adequate hygiene procedure.
3. Protect the Ultimate 1400 by using single-use, protective, plastic barrier-sleeves.
4. Never place the Ultimate 1400 handpiece, light guide, or depleted battery packs on the recharging stations before they are cleaned and disinfected.

5.3. After Patient Treatment

- Immediately remove the protective, single-use, barrier sleeve and dispose of according to local regulations and manufacturer's instructions. During removal, be careful not to contaminate the **Ultimate 1400**.
- Discard examination gloves according to local regulations and disinfect hands with a bactericidal, virucidal, and fungicidal hand disinfectant solution according to local regulations. Use according to disinfectant solution manufacturer's instructions for Use. Use a new, clean pair of examination gloves for cleaning and disinfection of the **Ultimate 1400**.
- Remove eye-protector. Clean and disinfection this separately.
- Remove bioburden from the **Ultimate 1400**.
- Disinfect with alcohol-based fluids by wiping the complete exterior of the **Ultimate 1400** components. Use a single-use cloth for wiping the unit. Do not submerge and be careful to avoid getting the battery pack contacts wet. Do not allow fluids to penetrate into the handpiece.
- The battery pack can be removed after the **Ultimate 1400** exterior has been cleaned and disinfected.
- The light guide can be removed after cleaning and disinfection. The light guide can now be autoclaved.
- After cleaning and disinfection, place the **Ultimate 1400** and battery pack back on the recharging station.

1. Only use the **Ultimate 1400** after it has completed an adequate hygiene procedure.
2. Never place the **Ultimate 1400** handpiece, light guide, or depleted battery packs on the recharging stations before they are cleaned and disinfected.
3. Disinfect with alcohol-based fluids by wiping the complete exterior of the **Ultimate 1400** components. Do not submerge in fluids and be careful to avoid getting the battery pack contacts wet. Keep battery contacts dry for proper operation.
4. The battery pack can be removed after the **Ultimate 1400** exterior has been cleaned and disinfected.
5. **Battery packs and handpiece may not be autoclaved!!**

6. General Care & Maintenance

- Regularly inspect the **Ultimate 1400** for damage and if necessary send for repair service.
- Use the built-in radiometer to monitor output.
- The surface of the recharging station can be cleaned and disinfected using a mild cleaner or disinfectant with an alcohol base. To avoid scratches, always use a soft, lint-free cloth to clean plastic surfaces.

6.1. Battery Care

- As is the case with all batteries, battery capacity will decline during the course of its product lifetime. Batteries are a consumable item. This is due to the internal chemical reaction inside batteries. Never open the batteries. Replacement is at user's discretion.
- When the **Ultimate 1400** is not in use, battery packs should be kept on the charging mounts to ensure maximum battery operating time.
- Battery contacts do not require cleaning and must be kept dry.
- This device is provided with 2 batteries. The **Ultimate 1400** and battery should not be disposed of in normal domestic waste. For environmental reasons, please dispose of the device and battery according to local environmental guidelines or regulations.

1. Battery pack contacts do not require cleaning and must be kept dry.
2. Never open or modify the batteries.
3. Keep batteries a safe distance from sources of heat and fire.

6.2. Repair Service

- A.) Inform your local dental supplier or BA International of a malfunction and the need for repair.
- B.) Pack all components of the **Ultimate 1400** in a carton with appropriate protective packaging. Include your name, address, and a brief description of the problem. Important: enclose a copy of proof of purchase (ex. invoice, shipping note).
- C.) Send your package to your local dental supplier or the closest BA International Service Center with a reliable postal/shipping service.

7. Trouble-Shooting

If there is any doubt about safe operation, then power must be disconnected and the battery removed to avoid accidental operation. This may be the case, for example, if the apparatus is visibly damaged or no longer works correctly.

Symptom	Action
Unit does not turn "On"	<ol style="list-style-type: none"> 1.) Check battery pack is properly inserted and in the "On" position 2.) Replace battery pack

8. Compliance

8.1. Declaration of Conformity

BA International hereby declares that the design, structure and version introduced to the dental market of the unit described in this manual correspond to the relevant safety and health requirements of the EU Directive. This declaration is invalid in the event of an alteration made to the unit without prior authorization by BA International.

BA International hereby confirms that the **Ultimate 1400** unit complies with the Directive 93/42 EC and the Standards IEC 60601-1 and IEC 60601.

8.2. EMC Tables

See Annex One

8.3. Regulatory Certifications

93/42/EEC	Council Directive 93/42/EEC of Date concerning medical devices amended by Directive 2007/47/EC, annex 1
2002/95/EC	Restriction of the use of hazardous substances in electrical and electronic equipment
IEC 60601-1	2005 Medical Electrical Equipment (General requirements for basic safety and essential performance)
IEC 60601-1-2	2005 – Medical electrical equipment – Part 1-2: General requirements for safety and essential performance – Collateral standard: Electromagnetic compatibility – Requirements and tests
ISO 10650-2	2007 Dentistry – Powered polymerization activators – Part 2: Light-emitting diode (LED) lamps
EN 62471	2008 Photobiological Safety of Lamps and Lamp Systems
IEC 62471	2006 Photobiological Safety of Lamps and Lamp Systems
TUV	
UL 60601-1 CSA C22.2 No. 601.1 E113604	

9. Technical Data

This device is provided with 2 batteries. The **Ultimate 1400** and battery should not be disposed of in normal domestic waste. For environmental reasons, please dispose of the device and battery according to local environmental guidelines or regulations.

Classification of product Class I, according to rule 12, Council Directive 93/42/EEC

Applied part Type BF

Protection from liquids IP XO

Handpiece	
Light source	High power Light Emitting Diode
Wavelength	400 – 480 with peak at 450-55 and 415-20
Average light intensity	1400 mW/cm ²
Operation	Intermittent use, 20 cycles @ 10 sec / 3 minute pause
Light guide	Diameter 8mm optical fiber (autoclavable @ 134°C, 20 minutes)
Battery	Lithium-polymer, rechargeable, 3.7V, 300mAh
Battery performance	>80 cycles @ 10 seconds
Dimensions	Triangular shape; Approx. Diameter 15.5mm x Length 160mm with battery inserted
Weight	70gr. (approx.)
Charger Station	
Input	6 VDC, <1 A
Capacity	Simultaneous automatic charging of 2 batteries with overcharging protection
Radiometer	Built-in, optical indication for light intensity
Dimensions	Length 145mm x Width 60mm x Height 30mm without battery mounts
Weight	170gr. (approx.)
Power Supply	
Type	AC supply
Input	100-240 VAC, 50/60 Hz, 0.5 A
Output	6 VDC / 1 A
Classification	Class II, double/reinforced isolated equipment
Plug	Exchangeable wall plug adapter
General	
Environment	Not intended for use where flammable gases are present
Operating conditions	10°C – 30°C
Storage & Transport	-20°C to 45°C, 10% humidity, 50-606 kPa barometric pressure

10. Warranty

BA International grants an 18 month warranty on all components of the **Ultimate 1400** except the battery. The warranty commences on the date of purchase.

Within the warranty period, BA International will, free of charge, eliminate any defects in the **Ultimate 1400** and **Ultimate 1400** accessories resulting from faults in material or workmanship. BA International reserves the right to either repair or exchange parts or exchange the complete device. The following is not covered by this warranty: damage from improper use (ex. operation with incorrect current/voltage, breakage, cleaning by other than the recommended methods); normal wear and defects that have a minor effect on the value or operation of the device. This warranty becomes void if repairs are undertaken by unauthorized persons.

This warranty extends to every country where this device is supplied by BA International or by authorized representatives of BA International products and where no import restrictions or legal regulations hinder or prevent service being given under warranty. Service under this warranty does not affect the expiration date of the warranty. The warranty on parts or entire devices which are exchanged ends when the warranty on this device expires.

In the event of a complaint claim regarding this device, return the complete **Ultimate 1400** device (recharging station, handpiece, battery packs, and light guides) together with the proof of purchase (ex. invoice) to your dealer or send it to your nearest BA International Service Center.

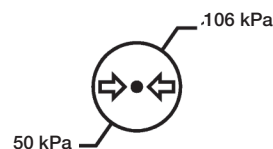
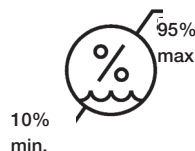
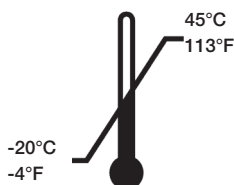
All other claims including those for damages resulting from this warranty are excluded unless our liability is legally mandatory. Except where prohibited by law, BA International will not be liable for any loss or damage arising from this product, whether direct, indirect, special, incidental or consequential, regardless of the theory asserted, including warranty, contract, negligence or strict liability.

11. Re-Order information






Accessory	ReOrderNbr.
Ultimate 1400 Handpiece	
Recharging Station	
8mm Light Guide	
Battery Pack	
Power Cable 100-240 V	
Plug Adapter EU	
Plug Adapter UK	
Eye-Protector Shield	
Protective Barrier Sleeves	

12. Storage & Transport Information

-20°C to 45°C, 10% humidity, 50-606 kPa barometric pressure



13. Explanation of Symbols

	<p>Complies with the regulations of the Directive 93/42/EEC.</p>
	<p>Attention: please see the documentation that accompanies this product!</p>
	<p>This symbol refers to the special disposal of electrical and electronic devices in EU countries. Please do not discard this device in household garbage. Check the proper means of disposal in your country at your community recycling or waste center or at your dealer. Take care to dispose of properly.</p>
	<p>This symbol indicates that a product or instrument (here, Ultimate 1400 light guides and eye-protector) can be sterilized at the indicated temperature (134°C=275°F).</p>
	<p>Please see the operating manual.</p>

13. Explanation of Symbols

In case of problems, please contact your local dealer or e-mail BA International at: info@bainternational.com

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Annex One

Guidance and manufacturer's declaration – Electromagnetic emissions

EN 60601 – 1-2/Table 201

Equipment Group 1 and Class B; per CISPR 11

The Ultimate 1400 is intended for use in the electromagnetic environment specified below. The customer or the user of the Ultimate 1400 should ensure that it is used in such an environment.		
RF emissions CISPR 11	Group 1	The Ultimate 1400 uses RF energy only for its internal function. Thus, it's RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The Ultimate 1400 is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Complies	
Voltage fluctuations / Flicker emissions IEC 61000-3-3		

Guidance and manufacturer's declaration – Electromagnetic immunity

EN 60601 – 1-2/Table 202

The Ultimate 1400 is intended for use in the electromagnetic environment specified below. The customer or the user of the Ultimate 1400 should ensure that it is used in such an environment.			
Immunity Test	IEC 60601 Test Level	Compliance	Electromagnetic Environment Guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	The device continues to work regularly and in safety.	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Radiated RF IEC 61000-4-3	3 V / m 80 MHz to 2.5 GHz	The device continues to work regularly and in safety	Field strengths from fixed transmitters cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered.
Electrical fast transient / burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input / output lines	The device continues to work regularly and in safety.	Main power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	The device continues to work regularly and in safety.	
Conducted RF IEC 61000-4-6	3 Veff 150 kHz to 80 MHz	The device continues to work regularly and in safety.	Portable and mobile RF communications equipment should be used no closer to any part of the disposal, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance ¹ : d = 1.2 $\sqrt[4]{P}$ d = 1.2 $\sqrt[4]{P}$ 80 MHz to 800 MHz d = 2.3 $\sqrt[4]{P}$ 800 MHz to 2.5 GHz

Immunity Test	IEC 60601 Test Level	Compliance	Electromagnetic Environment Guidance
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	-100 A/m	The device continues to work regularly and in safety.	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% U/ 10ms 70% U/ 0.5s 40% U/ 0.1s	The device can vary from the required levels of immunity with a duration for as long as the device remains in safety; no malfunctions have been detected and can be restored to pre-test status with the intervention of the operator.	Mains power quality should be that of a typical commercial or hospital environment.

Notes:

- 1.) (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, 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:



- 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 broadcasts and TV broadcasts 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 Ultimate 1400 is used exceeds the applicable RF compliance level above, the Ultimate 1400 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Ultimate 1400.

Recommended separation distances between portable and mobile RF communications equipment and the Ultimate 1400

This product is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Ultimate 1400 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Ultimate 1400 as recommended below, according to the maximum output power of the communications equipment.

Ultimate 1400

EN 60601-1-2 / Table 206

Separation distance according to frequency of transmitter (m)			
Rated maximum output power of transmitter (W)	50 kHz-80 MHz $d = 1,2 \times \sqrt{P_{\text{Sender}}}$	80 MHz-800 MHz $d = 1,2 \times \sqrt{P_{\text{Sender}}}$	800 MHz-2,5 GHz $d = 2,3 \times \sqrt{P_{\text{Sender}}}$
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
2	1,7	1,7	3,25
10	3,8	3,8	7,3
100	12	12	23