

REF 601000

VA VISTA | APEX

USER'S MANUAL

For use by qualified professionals only



This manual must be read thoroughly and understood prior to using the VALIANT™ Curing Light.



Inter-Med, Inc.
2200 South St.
Racine, WI 53404, USA
Tel: +1-262-636-9755

www.vistadental.com

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Important!

PLEASE NOTE! Prior to installation and start-up of the device, please read these instructions carefully. As with all technical devices, the proper function and safe operation of this device depend on the user's compliance with the standard safety procedures as well as the specific safety recommendations presented in these Operating Instructions.

Introduction

Welcome to Vista Dental's VALIANT™

Congratulations on your decision to incorporate the VALIANT™ curing light into your practice. Vista Dental's VALIANT™ curing light uses multiple wavelengths (395 – 500nm) to cure mostly all polymerizable dental materials, making it one of the most versatile curing lights on the market. The VALIANT™ will greatly enhance the way you cure polymerized light cured dental materials and is lightweight, easy to use, and most importantly clinically effective.

The Vista Dental Products website, www.vista-dental.com, also provides information on new products, accessories, and educational assistance for you and your professional staff. If you have any questions regarding the use of the VALIANT™, please call our customer service department at 877.418.4782 (Toll Free).

Contents of the VALIANT™ Kit

The VALIANT™ Curing Light is composed of the following:

- (1) Cordless Handpiece
- (1) Charging Base
- (100) Disposable Barrier Sleeves
- (1) Instructions for Use
- (1) Curing Light Shield
- (1) Plug Set
- (1) Battery Pack

NOTE: All components are non-sterile



Intended Use / Indications for Use

Source of illumination for curing photo-activated dental restorative materials and adhesives.

VALIANT™ Set-Up and Use

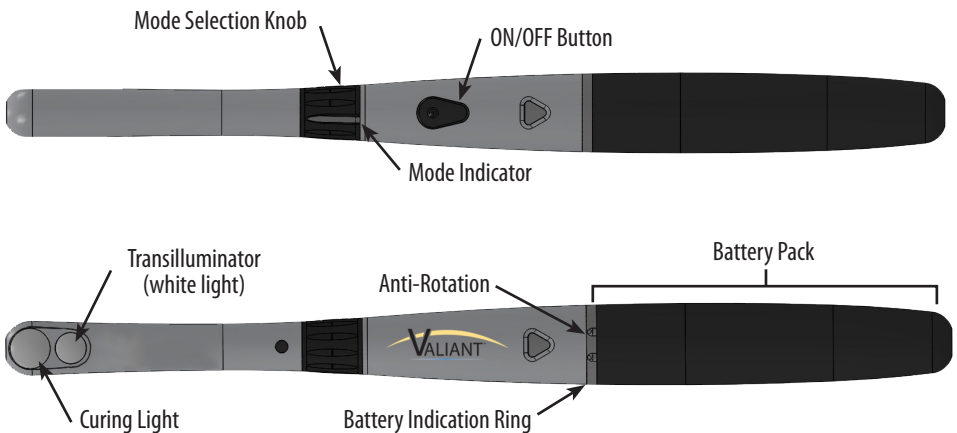
Unpacking the Container

No special assistance is required to unpack and assemble the VALIANT™. If you have questions or concerns, please visit www.vista-dental.com or call Vista Dental Products at 877.418.4782 (Toll Free).

Packaging should be inspected upon arrival for evidence of shipping damage. Damaged packaging may indicate the presence of an unsafe product and the product should not be used until carefully inspected. If the package or product is damaged, please contact Vista Dental Products at 877.418.4782 (Toll Free) as well as the delivery service to file a complaint.

Introduction to the VALIANT™

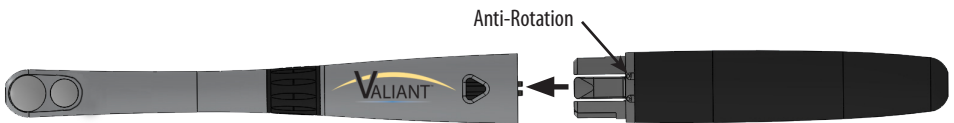
Please reference the image below to familiarize yourself with the VALIANT™.





Attaching the Battery Pack to the Handpiece (or Charging Cap)

1. Line up the triangle on the battery pack with the triangle on the handpiece or charging cap.
2. Insert the battery pack into the handpiece (or charging cap) until the arrow clicks; if inserted correctly, the indications lights will blink.
3. **NOTE:** the battery pack is keyed and can only be inserted into the handpiece (or charging cap) in one orientation! Do NOT try to fit the battery pack into the handpiece (or charging cap) in the wrong orientation. The battery pack should be easy to insert. To ensure proper mating of the battery pack with the handpiece, the anti-roll bumps on the battery pack should be on the same side as the ON/OFF button.



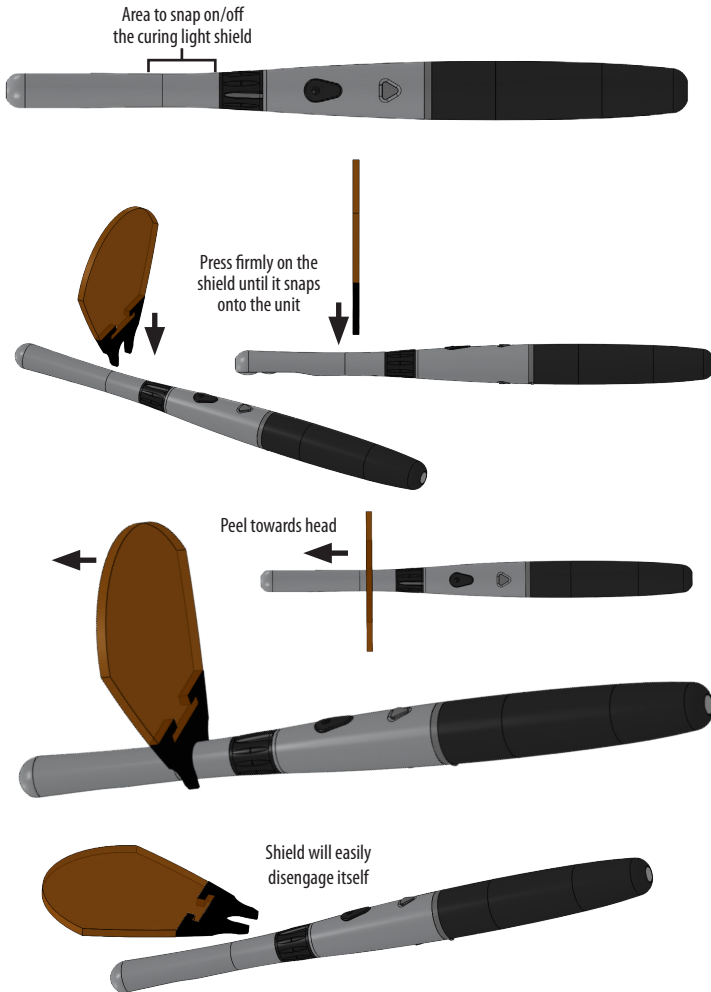
Attaching and Removing the Barrier Sleeve

1. Insert the head of the VALIANT™ Curing Light into the opening on the bottom of the barrier sleeve.
2. Slide the barrier sleeve onto the VALIANT™ Curing Light to cover the entire device; the unit is now ready for use.
3. After use, peel off and dispose of the barrier sleeve.

NOTE: Only VALIANT™ Curing Light Barrier sleeves should be used on the VALIANT™ Curing Light (Brand = TIDI Products, LLC; Model = 21102)

Attaching and Removing the Curing Light Shield

1. Snap the shield onto the neck of the VALIANT™ Curing Light by lining up the open area of the shield with the unit's neck and pressing firmly until the shield clicks on (see image below).



2. To easily remove the shield, peel the shield towards the tip/head of the unit. The shield should easily pop off.

Charging the Battery Pack

The VALIANT™ battery packs are partially charged when shipped. Before you turn on and start using the device, you must insert a battery pack into the handpiece (or charging cap) and fully charge the battery pack before using it for the first time. The battery pack will be fully charged within three hours. It is advised to fully charge the back-up battery (if included in your order) upon arrival to ensure a back-up battery is readily available.

When the battery pack is charging the light on the charging base will pulsate. Once charging is complete the light on the charging base stop pulsating and remains lit.



The handpiece is designed to display the battery state to the user via the battery indication ring.

- When the battery pack is greater than 50% the indication lights will blink **Green** during use.
- When the battery pack is between 20% - 50% the indication lights will be solid **Red** during use. It is advised to charge the battery pack when the indication lights are **Red**.
- When the battery pack is less than 20%, the light will blink **Red** during use, indicating the handpiece needs to be charged as soon as possible and may die during a procedure.
- When the handpiece is not in use, the charging base securely stores and charges the VALIANT™ unit at the same time.

VALIANT™ Operation

The handpiece is capable of emitting multispectral curing light (broad spectrum blue light) and white light (for transillumination and general visualization). You can select and control the various operations of the handpiece by rotating the mode selection knob to the desired setting and using the ON/OFF button to initiate or halt light emission. There are four settings: standard curing, ramp curing, boost curing, and white light (transillumination).

Curing Modes

The curing modes are selected via the rotational knob. The figure below illustrates the various curing settings on the rotation knob.



Quick Curing Guide

	Standard Mode	Ramp Mode	Boost Mode
Irradiance (mW/cm²)	>1200	>1200	>1700
Curing Per Layer	One 10s cure	One 20s cure	One 3s cure
Final Cure	One 20s cure	One 20s cure	Two 3s cures

NOTE: Curing time may need to be adjusted due to composite, shade, depth of layer if over 2mm

NOTE: These are default curing durations for the VALIANT™ curing light. Follow composite / dental material manufacturer’s guidelines for required curing durations and irradiance values.

NOTE: Software will automatically turn the VALIANT™ handpiece off if left on for two continuous minutes in white light / transilluminator mode.

NOTE: Software does not allow for the handpiece to be used when in the charging base.



Transillumination Mode

The transillumination mode can be executed on any mode by depressing the ON/OFF button until white light mode is engaged.

Disinfection / Sterilization

The VALIANT™ Curing Light is provided non-sterile. There are not any special accessories needed to sterilize the VALIANT™ Curing Light parts.

Quaternary ammonium compound products are recommended (containing 20% alcohol or less). Wipe, do not spray, solution onto the unit. Prevent liquids from entering openings on unit.

DO NOT AUTOCLAVE.



CAUTION:

- **DO NOT** immerse the unit or unit parts in solutions. Use of solutions other than those recommended may damage plastic parts and will void product warranty.
- **DO NOT** use abrasive material such as scouring powder, organic solvents, or solvent-based cleaning fluids. In case of severe contamination, gently clean the device by using diluted alcohol.
- Store the device in the box if it is not to be used for an extended period of time.
- Disassembly is not required when cleaning the handpiece and charging base.

Infection Control Measures



CAUTION: To prevent cross-contamination, a disposable plastic sleeve must be used over the VALIANT™ with each use. A low-density polyethylene plastic disposable barrier covers the entire unit and provides a hermetically sealed barrier between the handpiece and patients. The disposable barrier limits patient-to-patient contamination. Discard used barrier sleeves after each patient.

NOTE: Only VALIANT™ Curing Light Barrier sleeves should be used on the VALIANT™ Curing Light (Brand = TIDI Products, LLC; Model = 21102)



Routine Maintenance

Periodically check the lens for cured dental resins. If necessary, carefully remove any adhered resin using a non-diamond dental hand instrument.

The barrier sleeve helps keep dental materials from adhering to the surface of the lens.

Troubleshooting Guide

If the suggested solutions do not rectify the problem, please call Vista Dental 877.418.4782 (Toll Free).















Problem	Possible Solution
Light will not turn on	<ol style="list-style-type: none">1. Check the unit's indication light. If red, place the handpiece on the charging base2. Remove the battery pack and inspect for any defects if none are found reconnect the battery pack. A beep should be heard when the battery pack is inserted.
Light is not curing properly	<ol style="list-style-type: none">1. Verify the unit provides adequate optical power using a radiometer2. Verify that the appropriate curing mode is selected3. With the handpiece turned off, and battery pack removed, inspect the lens for residual cured composites/resins4. Check expiration date of composite/resin
Batteries will not charge	<ol style="list-style-type: none">1. Remove the battery pack and inspect for any defects, if none are found reconnect the battery pack2. Make sure the battery pack is properly connected to the handpiece3. Make sure the charger is plugged in and verify the outlet is receiving power

Technical Data

Technical Information	VALIANT™ Cordless LED Curing Light
Wavelength Range	<p>395-500nm (see graph below).</p> <p>VALIANT™ optical power falls between 395-500nm. Minimal and insignificant power can be found in wavelength ranges <39nm and >500nm.</p> <div style="text-align: center;"> <p>VALIANT's Wavelength Spectrum</p> <p>Lower wavelength band: 395-405nm Upper wavelength band: 465-475nm</p> <p>Intensity (A.U.) vs Wavelength (nm)</p> </div>
Wavelength Range	<p>Standard: >1200mW/cm² Ramp: >1200mW/cm² Boost: >1700mW/cm²</p>
Charger	<p>Input: 100-240 VAC, 50-60 Hz Nominal Consumption: 6W max Manufacturer: Inter-Med, Inc. Model: VALIANT™ Dimensions without adaptor (DxH): 87mm x 58mm Mass: 120g Classification: Protection class II, </p>
Handpiece	<p>Battery Pack: 3.7 V nominal, 1030mAh Li-ion, 3.81 Wh Battery Pack Manufacturer: Shenzhen Bak Energy Co., LTD Battery Pack Model: 14650 Dimensions (LxD): 235mm x 20mm Mass: 72g Classification: Type BF, </p> <p>Intermittent Operation: The device has been designed solely for short-term operation. Typical operating time at room temperature (23°C): 3-20 sec (depending on mode) per layer of composite. Operating Time: Approximately 1 hr fully charged. Approximately 150 20 second cures.</p>
Operating Conditions	<p>Time to Charge Empty Battery Pack: Approx. 4 hr</p> <p>Temperature: 10°C - 40°C (59°F - 104° F)</p> <div style="text-align: center;"> </div> <p>Atmospheric Pressure: 697hPa - 1013hPa</p> <div style="text-align: center;"> </div>
Transport and Storage Conditions	<p>Temperature: -20°C - 40°C (-4°F - 104° F)</p> <div style="text-align: center;"> </div> <p>Relative Humidity: 30% - 90% (non condensing)</p> <div style="text-align: center;"> </div> <p>Atmospheric Pressure: 500hPa - 1400hPa</p> <div style="text-align: center;"> </div>

Symbol Identification

Description for additional symbols.

	Serial Number		Follow instructions for use
	Manufacturer		Temperature Limitation
	Manufacturing Date		Humidity Limitation
	Protected Class II Electrical Insulation		Atmospheric Pressure Limitation
	Type BF Applied Part		Batch Code / Lot Number
	Keep Dry		Warning / Caution
	Part Number		
RxOnly	Perscription Only		
	Do Not Dispose Of		



Battery Pack Disposal

Batteries contain toxic material and should not be disposed of in landfills or incinerators. Dispose of depleted batteries as directed by your local solid waste handling regulations. To dispose of the battery pack, we recommend www.call2recycle.com (for North America) to locate a recycling facility near you.

Safety Notes, Warnings and Precautions

Read all instructions before operating this unit. The VALIANT™ LED curing light emits high intensity light waves and must only be used as indicated in this manual.

Safety Notes

The VALIANT™ Curing Light is a medical device which is subject to IEC 60601-1 (EN 60601-1) and EMC directives IEC 60601-1-2 (EN 60601-1-2) Edition 3.0.

The curing light has been shipped from the manufacturer in a safe and technically sound condition. In order to maintain this condition and to ensure risk-free operation, the notes and regulations in these Instructions for Use have to be observed. To prevent damage to equipment and risks for patients, users and third parties, the following safety instructions have to be observed.



WARNING

- The user should test the product before use to ensure proper functionality.
- The user should test the VALIANT™'s optical power using a radiometer prior to use.
 - An irradiance value 800-1750mW/cm² is acceptable for standard and ramp modes, and a value 1350-3300mW/cm² is acceptable for boost mode
 - The irradiance value should be measured at 10s within a 20s cycle for standard and ramp modes.
- As with any heavily used medical device, the user needs to ensure a functional backup is readily available.
- **DO NOT** look directly into the light output. The light attenuating shield should always be used. Additional eye protection is suggested.
- **DO NOT** expose soft oral tissues at close proximity. Maintain a safe distance between the lens and the soft tissue.
- If using the VALIANT™ curing light in the Standard Mode and in close proximity of the gingival tissue, **DO NOT** expose tissue for more than 20 seconds.
- In Boost Power Mode, **DO NOT** expose soft oral tissue for more than 9 seconds (3 cycles)
- **DO NOT** insert fingers, instruments, or other objects into the rear of the handpiece when the battery pack is removed
- **DO NOT** autoclave the handpiece, battery pack, charging base, or light attenuating shield



CAUTION

- U.S. Federal law restricts the sale of this device by or on the order of a healthcare professional. Use of the device is restricted to qualified and trained personnel only in accordance with the instructions below. The manufacturer assumes no liability for any damage arising from any other or improper use of this device.
- Use only the charger (AC adapter plug) which is provided with the device. The use of any other charger can result in damage to the battery pack.
- Condensation resulting from the device being transferred from a cold to a warm environment may be a potential risk. Never begin operating the device until it has reached the ambient temperature.
- There are no user-serviceable items in the handpiece or charger. No modification of this equipment is allowed.
- Use only components and accessories listed in the instructions associated with the device. Failure to do so will void the warranty, may decrease the performance, and may lead to unsafe operation.
- In order to avoid electric shock, do not introduce any objects into the device or remove the device enclosure.
- Should you have any reason to suspect the safety of the device to be compromised, the device must be taken out of operation and labeled accordingly to prevent third parties from inadvertently using a possibly defective device. Safety may be compromised, e.g., if the device malfunctions or is noticeably damaged.
- Keep solvents, flammable liquids, and sources of intense heat away from the device as they may damage the plastic housing of the device, the seals, or the operating buttons.
- According to IEC 60601-1, this device must not be used in the presence of flammable mixtures.
- Do not allow any cleaning agents to enter the device during cleaning as they could cause an electrical short or a dangerous malfunction.

- Only Vista Dental Products may open the device housing and repair the device.
- VALIANT™ must not be used in patients, or by users, with heart pacemaker implants who have been advised to be cautious with regard to their exposure to small electrical devices.
- This device has been tested and found to comply with relevant EMC regulations and standards. These limits are designed to provide reasonable protection against harmful interference in a typical medical installation. The device generates radio frequency energy and, if not installed and used in accordance with these instructions, may cause harmful interference to other devices in the vicinity. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference with other devices, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
 - Reorient or relocate the receiving device.
 - Increase the separation between the devices.
 - Connect the device into an outlet on a circuit different from that to which the other device(s) are connected.
 - Consult the manufacturer for help.



Operating Conditions and Safety Consideration

Heat generation

The metal parts of the VALIANT™ Curing Light do not overheat to the point of discomfort or injury during standard operating durations (i.e. five consecutive standard mode, ramp mode or boost mode cures). However, care should be taken to allow the product to completely cool to room temperature between patients (approximately two minutes), to ensure overheating does not occur.

Safety Eyewear



CAUTION: The VALIANT™ consists of high powered LEDs in the range of 395 – 420nm and 455 - 500nm. The device's intended use is within the oral cavity and is to be used with the protective light attenuating shield.

Anyone with a history of retinopathy should consult their eye specialist before operating this unit. Use the VALIANT™ curing light extremely carefully and comply with all the necessary safety precautions (including wearing suitable, light filtering safety glasses).

Anyone who has had a cataract operation may be especially sensitive to light and should be advised against undergoing treatment with a VALIANT™ curing light unless adequate safety precautions are taken such as wearing suitable, light filtering safety glasses.

Adverse Reactions

There are no known adverse reactions.

Contraindications

- The VALIANT™ Curing Light is contraindicated in patients with a known history of hypersensitivity or allergy to any of the ingredients or their analogs.
- Patients with a history of photosensitivity or photophobia or those using photosensitive medications (such as antimalarial drugs, chlorpromazine, St. John's wort, dimethylchlorotetracycline and 8-methoxypsoralen) are contraindicated for VALIANT™ Curing Light screening and should not be exposed to the light emitting tip of the VALIANT™ curing light.



Vista Dental Products Terms and Conditions of Warranty

The operator assumes all risk and liability for damages arising out of the improper use of the VALIANT™ curing light. In the event of a defect in material or workmanship, Vista Dental Products is limited, at its option, to replace of the defective product, a part thereof, or reimbursement of the actual cost of the defective product. In order to take advantage of this limited warranty, the defective product must be returned to Vista Dental Products.

The VALIANT™ handpiece is warranted to be free from defects under normal usage conditions for 3 years of its date of delivery; the batteries for 1 year. There is no warranty, expressed or implied, of merchantability or fitness. The manufacturer's sole obligation under this warranty is to opt to either repair or replace the defective part(s) or product. If service must be performed to correct a defect, then the manufacturer will provide the service at its factory according to the mutual agreement made in advance. The manufacturer and its distributors will not accept the return of the product unless the return is authorized and shipped in accordance with the manufacturer's instructions. Contact the local representative of the distributor or if purchased directly from the manufacturer for shipping instructions, a return authorization number, and ARS shipping label. There is no warranty, remedy or condition, expressed or implied, except as provided herein. The warranty and remedies contained herein are made by the manufacturer to the first buyer for dental use and are in lieu of all other agreements (expressed or implied), liabilities or remedies for breach of warranty. Vista Dental Products shall not be liable for consequential or incidental damages. No person or distributor is authorized to modify the terms of this warranty.

This warranty is void if any defect is caused by conditions beyond the manufacturer's control, including acts of God, damage resulting from mishandling, neglect, misuse, improper maintenance, accident or alteration/repair by anyone other than the manufacturer. The buyer assumes all liability for any damage caused by improper use of the product. The manufacturer assumes no liability for the user's failure to follow the instructions contained in this manual.



Return Policy

Vista Dental Products will accept for return previously purchased merchandise which is suitable for resale or was shipped in error by Vista Dental Products. Merchandise suitable for resale requires current labeling and unopened non-soiled packaging.

All returns must have prior approval and must be shipped “prepaid” along with a return authorization form and a copy of the original invoice. Any products returned that are discontinued, dated, damaged, or opened could be denied credit or assessed a higher return fee.

Equipment cannot be returned without written authorization from Vista Dental Products. Merchandise returned for credit must be received by Vista Dental Products within 30 days of the original invoice date.

Return Stock Policy

30 days	15%
21-59 days	25%
60+ days	Not Returnable

Any equipment returned within 30 days from the date of the original shipment from Vista Dental Products may not be assessed a restocking fee as long as the merchandise has current labeling and unopened non-soiled packaging. Unopened equipment returned within 31-60 days from the date of the original shipment from Vista Dental Products requires a restocking fee of 25% of the purchase price, including shipping and handling charges. Any equipment returned after 60 days from date of the original shipment from Vista Dental Products will not be restockable for credit.

- Special orders are not suitable for resale and therefore not returnable for credit.
- Claims for lost or damaged shipments should be filed immediately with the carrier.
- Claims for overage, shortage, and/or internal damage must be made to Vista Dental Products within 10 days of receipt of goods.

Appendix – Electromagnetic Compatibility and Electrical Safety Information

The VALIANT™ Curing Light is tested according to IEC 60601-1-2, Edition 3.0.

Medical electrical devices are subject to particular preventive action according to EMC rules and must be installed and operated according to the EMC guidelines in the accompanying documents.

Guidance and Manufacturer’s Declaration – Electromagnetic Emission

The following tables are guidelines according to the 3rd edition of the medical standard IEC 60601-1-2.

The VALIANT™ Curing Light is intended for use in the electromagnetic environment specified below. The customer or the user of the VALIANT™ Curing Light should assure that it is used in such an environment.

Emission test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	Valiant 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 emission CISPR 11	Class B	Valiant 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	N/A
Voltage fluctuations / flicker emissions IEC 61000-3-3	Complies	N/A

Table: According to IEC 60601-1-2, Edition 3.0.

Guidance and Manufacturer’s Declaration – Electromagnetic Immunity

The VALIANT™ Curing Light is intended for use in the electromagnetic environment specified below. The customer or the user of the VALIANT™ Curing Light 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 ± 15 kV air	± 6 kV contact ± 15 kV air	Floors should be concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electric fast transient / burst IEC 61000-4-4	± 2 kV for power supply lines	± 2 kV for power supply lines	Mains power quality should be that of typical commercial or dental environment.
Surge IEC 61000-4-4	± 1 kV line - line ± 2 kV line - earth	± 1 kV line - line No prot. earth	Mains power quality should be that of typical commercial or dental 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	<5% UT (>95% dip in UT) for 0.5 cycle 40% UT (60% dip in UT) for 5 cycles	Mains power quality should be that of typical commercial or dental environment. If the user of the Valiant requires continued operation during power mains interruptions, it is recommended that the Valiant be powered from an uninterruptible power supply or battery.


Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
	70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5 sec	70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5 sec	
Power frequency (50/60Hz) 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 dental environment.
Portable and mobile RF communications equipment should not be used closer to any part of Valiant, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.			
			Recommended separation distance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3V	$d = 0.35 \sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	10V/m	$d = 0.35 \sqrt{P}$ 80 MHz to 800 MHz $d = 0.70 \sqrt{P}$ 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 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:
			

Table: According to IEC 60601-1-2, Edition 3.0

NOTE: UT is the a.c. mains voltage prior to application of the test level

NOTE: 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.

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 broad-cast 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 VALIANT™ is used exceeds the applicable RF compliance level above, the Valiant should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the VALIANT™.

b - Over the frequency range 150 kHz to 80 MHz, field strength should be less than 10 V/m.

Recommended Separation Distances Between Portable and Mobile RF communications equipment and the “VALIANT™ Curing Light”

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

Rated maximum output power of transmitter (W)	Separation distance according to frequency of transmitter (m)		
	150kHz to 80MHz $d = 0.35 \sqrt{P}$	80 MHz to 800 MHz $d = 0.35 \sqrt{P}$	800 MHz to 2.5 GHz $d = 0.7 \sqrt{P}$
0.01	0.035	0.12	0.23
0.1	0.11	0.38	0.73
1	0.35	1.2	2.3
10	1.1	3.8	7.3
100	3.5	12	23

Table: According to IEC 60601-1-2, Edition 3.0

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be determined 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: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 4: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

NOTES
