



RAYPLICKER

ONE VISION • MILLIONS SHADES

USER MANUAL

SUMMARY

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RAYPLICKER™ USER MANUAL

Version 1.2

- 2019 -

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1 Introduction

1.1 Dear customers,

Congratulations for your new purchase. Rayplicker™ is an auto-calibrated device for shade and translucency dental analysis destined to Dentists and Laboratories.

This Plug and Play device, made in France, is equipped with a technology allowing exact determination of shades for natural tooth and dental prosthesis according to a multitude choices of ceramic powders.

Accurate and ergonomic, the Rayplicker™ solution is also equipped with a software allowing data processing and recording thus elaboration of an roduction file.

The smartphone application « Rayplicker™ Pics App Solution » will let you the possibility of adding easily contextual pictures to your file, an essential element for the realisation of a prosthesis by the dental technician.

In order to realise perfect shade taking, please read carefully this user manual.

Forget about approximative measurements and be more efficient with the Rayplicker™.

Borea Team



1.2 Terms choice

Terms used in the user manual :

Dentist, dental surgeon = Practitioner

Dental technician, dental prosthesis manufacturing laboratory, Prosthetist = Laboratory














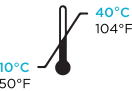

Dentist and Dental technician = Users

1.3 Safety notices

Warnings

- 1 Please ensure that you only use rechargeable battery supplied with the device. (Li-polymer battery 3.7V 2000 mAh). The use of an other battery is prohibited and may damage the battery or the unit. BOREA SAS will not be held responsible in this case.
- 2 Do not look in the light source direction.
- 3 Do not immerse the Rayplicker™ device or charger in water or other liquid.
- 4 All repairs or maintenance must be performed by authorized persons. Failure to comply with this rule will cancel the warranty.
- 5 Please follow the instructions contained p.23 to clean and sterilize the Rayplicker™ and tip.
- 6 Please follow the instructions listed in p.13 to place the sterilizable tip and the protective sheath.
- 7 When using the Rayplicker™, respect safety measures for dental practices and dental laboratories.
- 8 Do not expose to temperatures above 40 °C (104°F) or below 10° C (50°F).
- 9 Protective sheaths designed against infection are single use.
- 10 Protect the device from direct sunlight. The device must be stored in a dry place.
- 11 Do not drop the device, there is a risk of equipment damage and electrical shock.
- 12 The temperature range for shade taking should be between 10 °C (104°F) and 30 °C (86°F)

1.4 Description of symbols

CEM	Certification marking indicating that the product complies with the requirements of the «German Product Safety Act (ProdSG)».	
	Certification C-UL-US means that representative product samples have been evaluated and indicates compliance with the United States requirements. (concerning mechanics, fire and electrical shock risks)	
CE	The Rayplicker™ is a medical device that complies with the European Community Directive according to : <ul style="list-style-type: none"> • Medical Devices Directive 93/42/EEC. Norm NFEN 60601-1-2 (Medical electrical equipment - Part 1-2 : general requirements for basic safety and essential performance - Collateral standard : electromagnetic disturbances - Requirements and tests • RoHS Directive 2011/65/CE According to norm EN-50581:2013 • RED Directive 2014/53/UE avec justification EMF • DEEE Directive 2012/19/CE 	
Elimination	This appliance and all accessories marked with this symbol must not be disposed of with unsorted household waste. Return of the old device to Borea SAS.	
Protection class	Equipment of protection class II.	
	Read instructions before use.	
	Type	
	Serial number	
	Catalog Number	
	Batch number	
	Non-sterile	
	Do not reuse	
	Place of manufacture	
	Temperature limits	
	Recyclable	

2 Rayplicker™ solution description

Rayplicker™ is a shade taking device for determining the shade and translucency of the tooth. It's a device working with a multi-spectral measurements built around spectrophotometer based on a two-dimensional optical sensor. This enables acquisition of spectral data at all points on the tooth and the automatic realization of a complete and accurate mapping of colour variations of the tooth. The analysis is performed on specific relevant spectral bands for recognition of hues. Due to its geometry, this wireless device allows access to all the teeth in the mouth.

It has a sterilizable calibration tip which comes in contact with the patient's teeth ensuring precise positioning of the device (focus is facilitated and it also reduces the impact of stray light).

These calibration tips are important because they enable a self-calibration of the device not perceived by the user.

A LCD screen is integrated in the device and displays real-time analyzed area, facilitating the positioning of the measuring head on the tooth. Finally, an interface and algorithms for data processing are embedded within the device and thus allow the user to interact and directly view map of hues and translucence of the analyzed tooth. It will also allow the user to specify the analyzed tooth, select the ceramic powder manufacturer, choose the resolution of the mapping (segmentation of the tooth by 3, 9, detailed mapping)

2.1 Information about Rayplicker™ device

Rayplicker™ works with most of the greatest ceramics powders brands (Vita®, Ivoclar®, Kuraray®, Shofu®)

The user has only one shade taking to do in order to automatically obtain all the necessary informations for a dental prosthesis realisation.

- A polarized image
- A complete and accurate mapping of the hues variations in all the tooth area thanks to a bi-dimensional sensor and a spectrophotometer.
- A translucency mapping.





When the device is charging, its base lights on in blue. It will turn off automatically when it's fully charged.

2.2 Information about the Rayplicker™ software

Rayplicker™ software is destined to follow up customer files, to realize an order form and follow up the order process. It allows, depending on the selected option and thanks to the Cloud (Optional) to exchange digital data between dentists-dental technician and offshore laboratory.

2.3 The different versions available

DENTIST





5 years free

1 dentist pack including :

- 1 Rayplicker™ device
- 1 Dentist software license (x4 users)
- 1 Mobile application
- 5 years of Cloud option
- 6 Calibration tips (Autoclavable)
- 50 Protective sheaths
- 1 Quickstart guide

Ref: RP0001

LABORATORY

5 Years free

1 laboratory pack including :

- 1 Rayplicker™ device
- 1 Laboratory software license (x4 users)
- 1 Mobile application
- 5 years of Cloud option
- 6 Calibration tips (Autoclavable)
- 50 Protective sheaths
- 1 Quickstart guide

Ref: RP0002



3 Delivered set and charging

3.1 Delivered set

Articles		Quantity	RAYPLICKER™ items
Handpiece Rayplicker™	1	1	-
Docking station (Charge and USB transfer)	2	1	Ref : SF0005
Stylus for touch screen	3	1	Ref : PA0011
Calibration tips (autoclavable)	4	7	Ref : RA0008
Protective sheaths		50	Ref : SF0007
USB 2 cable	5	1	Ref : CA0005
AC-DC Power supply, universal input (wall plug adaptators 5V 1A)	6	1	Ref : CA0004
Quick start		1	-
Cleaning wipe		1	-
Activation key for Rayplicker™ software		1	-
Recharge for Pack Rayplicker™ Service		1	-
Packaging and shipping carton		1	-

1



5



2



6





3








4



3.2 Spare parts and accessories

ACCESSORIES		
	50 Protective sheaths	Ref : SF0015
	6 Calibration tip (Autoclavable)	Ref : RA0015

SPARE PARTS		
	Main plug 5V 1A	Ref : CA0004
	USB cable	Ref : CA0005
	Battery	Ref : EA0007
	Stylus	Ref : PA0011
	Docking station	Ref : SF0005



4 First start

4.1 Fit the protective sheath

Prior to use on each patient, place a protective sheath over the measuring head of the Rayplicker™.

The sterilised calibration tip is clipped after, between the measuring head and the protective sheath. (see or refer to explanations below Point 4.2)

These sheaths must be disposed of according to regulations.

4.2 Fit the calibration tip



The measuring head must be sterilised with disinfectant wipes before patient use (see point 8 p.23 cleaning and sterilization).

Then place the sheath on the measuring head. To prevent infection, sterilized the mouthpiece in an autoclave at 134°C during 20 minutes.

This mouthpiece by touching the patient's teeth ensures precise positioning of the device. Focus is facilitated and it also reduces the impact of stray light.

It includes a color reference (gray pattern) required for an auto-calibration not perceived by the user.

WARNING

The sterilisable calibration tip has an estimated life of 100 uses. Beyond the recommended sterilisation quota, it can be damaged. Then, the unit will not be able to auto-calibrate. It's then necessary to change the tip.

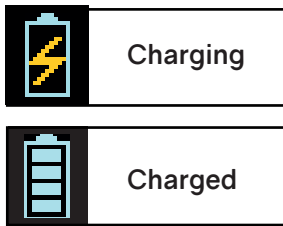
4.3 Charging the device



Before first use, the device must be charged at least 4 hours. For this, the unit must be placed on its docking station and connected via cable to a main plug or by USB.

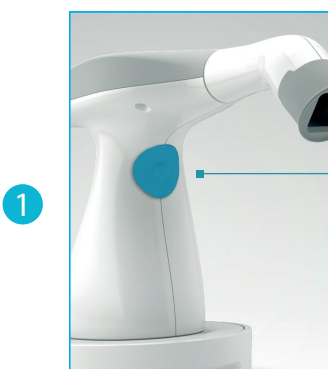
When the device is charging, the base lights up blue. Once loaded, the base lights off.

4.4 Battery status

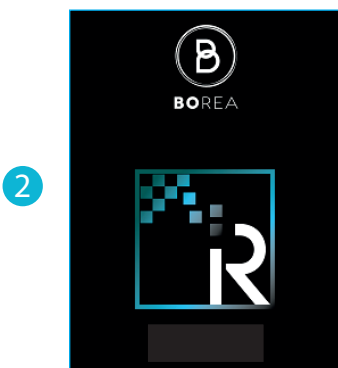


On the main screen of your device, the battery symbol will indicate its charging status.

4.5 Turning on/off Rayplicker™ device




Turn on the device by pressing the measurement button in the center of the device handle.



The main screen lights on (2) then the main menu appears (3).



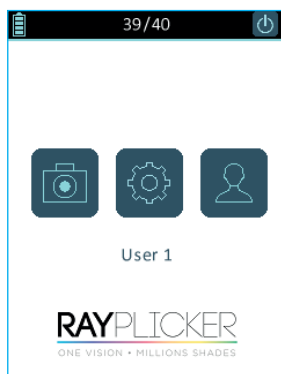
The top banner gives you indications on battery charge and the available sheets.

The button «  » allows you to turn off the device.



Automatic switch-off

1

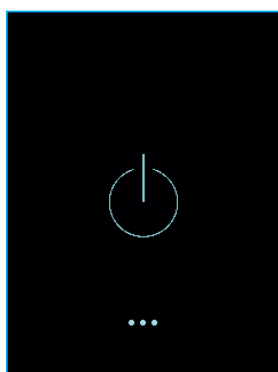


To ensure the maximum battery charge, there is a system shutdown in two stages.

Stage 1 :

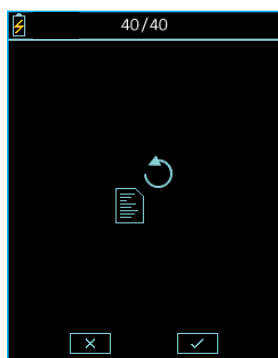
Whether there is a current record or not, after 3 minutes automatic return to the home screen.

2



Stage2:

After 5 minutes, the system stops.



Data recovery :

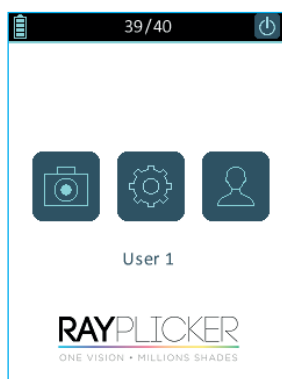
This screen indicates that there was an unsaved file before the automatic switch-off.

4.6 Observations concerning the device illustrations

Scroll right	Scroll left	Cancel Delete	Confirm	Picture	Save
Home	Settings	Charging	Charged	Edit	Turn off
User	Overall shade	3 parts	9 parts	Detailed mapping	Translucency
Unselected	Selected				

5 Settings for Rayplicker™ device

5.1 Basic settings



By clicking on « » icon from the device main screen, you can access basic settings.

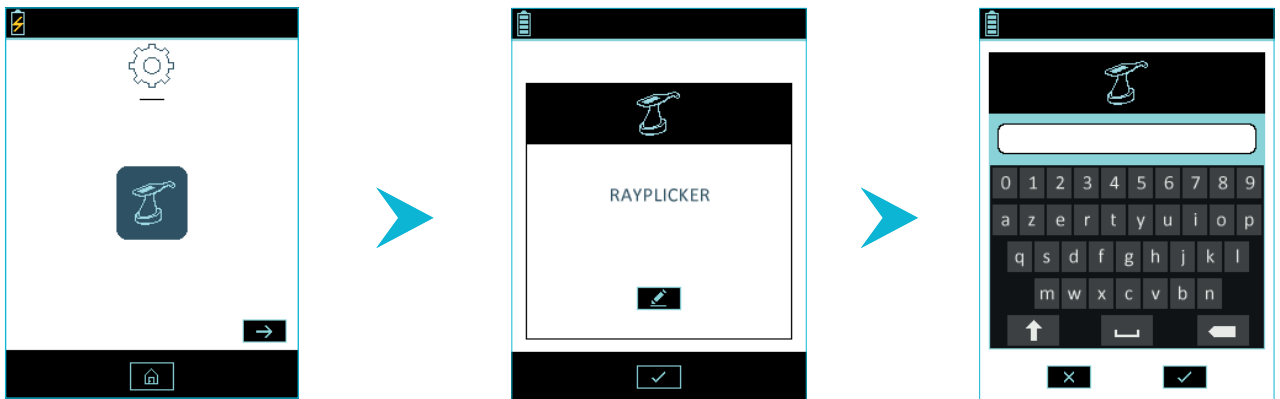
- 1 Change Rayplicker Name
- 2 Information concerning the device

Click on this icon « » to come back to the main screen.

To create and select a user click on « » see page 18.



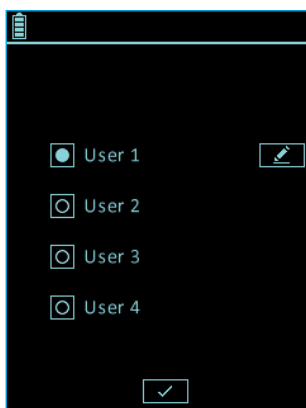
1 Change device name




Enter or change the name of the device, for this, click on « Modify » ,use the keypad and validate.

2 Information concerning the device

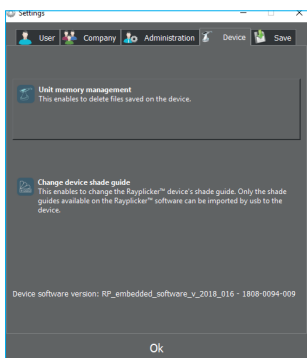
Find here information about your device serial number and software version.



To display the users list, click on «  » to open a window. Select the user of your choice and validate.

Modify the user name clicking on «  »

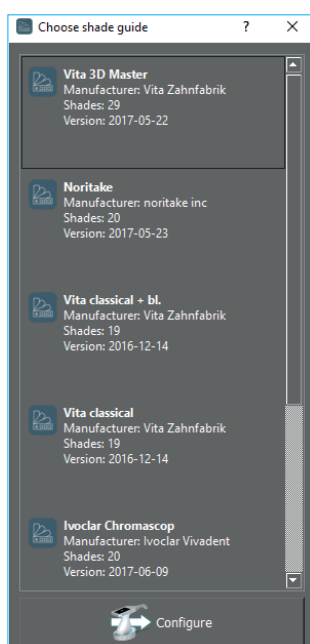
5.2 Shade guide choice on Rayplicker™ device



To change the shade guide of your device, this one has to be connected to your software.

From your software, go to :
parameters > device > change shade guide device

Click on « change shade guide device ».



Select the shade guide you wish and click on « configure ».
Your Rayplicker™ device will automatically turn off. Next restarting, this one will be configured with the new shade guide.

5.3 Device informations

Device serial number	see on the label of the device
Version	see on the label of the device

5.4 Automatic calibration

When you switch on the Rayplicker™, it performs an auto-calibration.

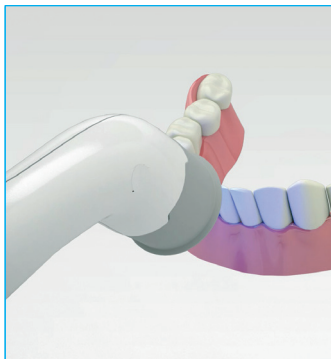
This is done through the sterilised calibration tip that has a gray pattern. This tip degrades over time. In that case the user must use a new tip. Renewal of the calibration tip ensures the quality of the calibration of the device (and thus shade detection).



6 Realization of a shade taking

6.1 Obtaining a correct measurement of shade and translucency.

The device allows the acquisition of spectral data at all points on the tooth, the automatic realization of a complete and accurate mapping of colour variations of the tooth. The analysis is performed on specific relevant spectral bands for recognition of shades.



Due to its geometry, the wireless device allows access to all teeth up to premolars. Be sure to follow the procedure in order to obtain compliant results.

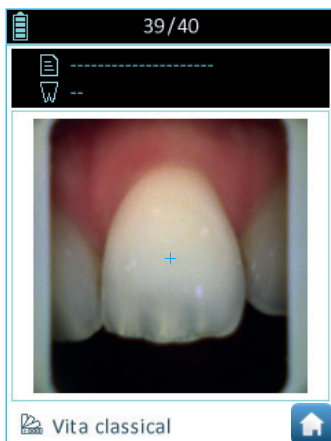
*The measuring head of the unit must be in contact with the reference tooth.



Camera

The calibration tip must be parallel to the tooth which must appear at the center of the screen of your device. A blue cross on the screen of the device will allow to help the user in a good positioning.

The displayed video of the target tooth will allow the user to properly position the measuring head on the tooth.



Tooth picture

Keep the measuring head against the tooth and press the measurement button.

Once the measurement obtained, a picture of the tooth will appear on the screen.

WARNING

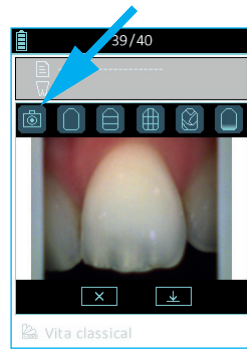
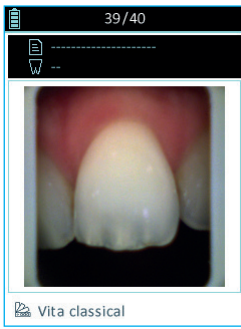
It is necessary to don't move during the acquisition (1 second), if a movement is detected, the analysis can't be made properly.

6.2 Shade taking interface presentation.

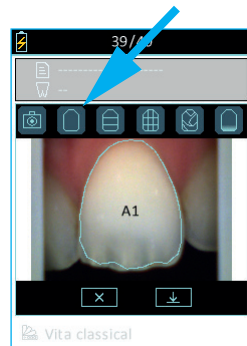
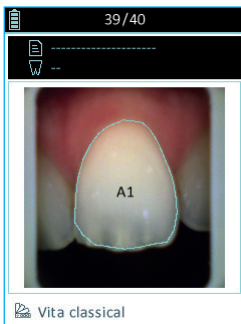
After performing the measurement, a picture of the tooth appears on the screen

Click on the touch screen to access the mapping menu with different types of viewing. Surf on the different icons to access the different viewing.

6.3 Types of visualisation of shade taking

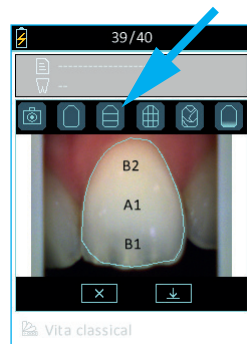
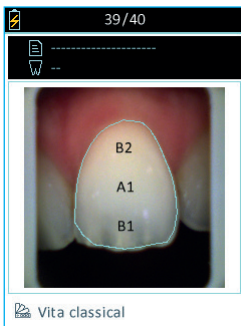


Color polarised picture of the tooth.

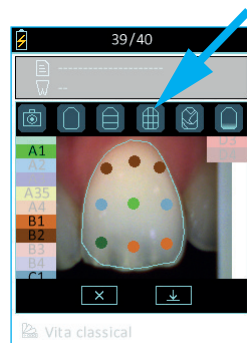
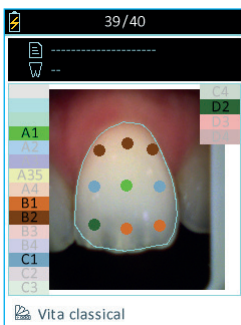


General mapping : this icon allows you to view the global tooth color.

The camera automatically detects the outline of the reference tooth. If clipping is distorted, make sure to follow the directions under 6.1 and perform a new shade taking or perform a « manual tooth border editing » from the Rayplicker software.
(See point 13 «Image treatment tools» page 46)

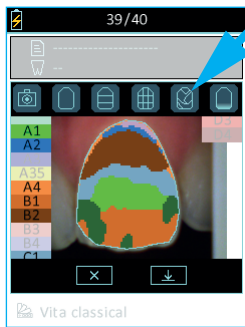
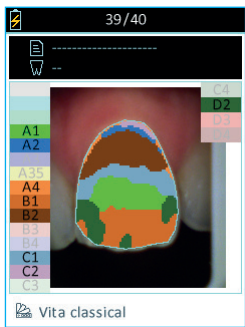


Mapping in 3 parts : this icon allows you to view a map three areas of the tooth.

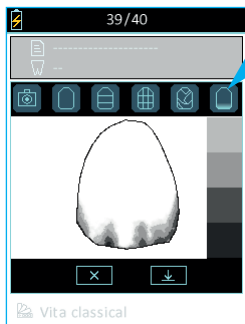
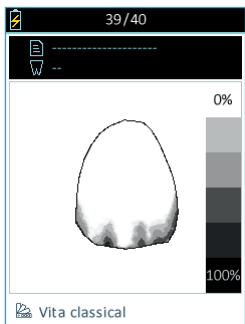


Mapping in 9 parts : this icon allows you to view a map into 9 areas of the tooth.





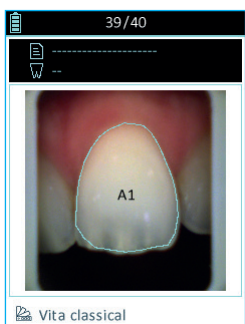
Detailed mapping : this icon allows you to view the complete mapping of the tooth. The referent shade guide is specify under the picture. References of this shade guide appears on the screen edges.



Translucency : this icon allows you to view indicatively the translucency of the tooth according to the grey scale on the right edge of the screen. In this scale, the more the view is dark, the more the translucency of the area is important.

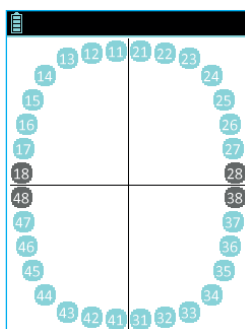
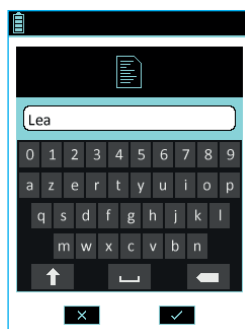
6.4 Shade taking personalization

After shade taking, it's possible to personalise it.



*Patient name

*Reference tooth



Patient name :

Use the stylus to click on the field «Patient» and access to the numeric keypad. Enter a name then confirm.

Referent tooth number :

Click on «Tooth» then a representative pattern of tooth numbers appears, point the tooth number.

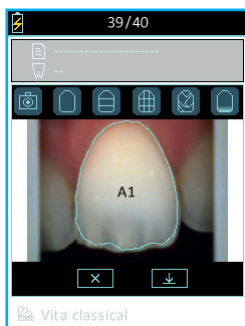
Shade guide choice :


Select the desired powder manufacturer. Select the shade of your device from the administration tab > Device > Change Device shade guide. (See 5.2, page 18)

Observation: the information related to the patient, tooth number and the referent shade guide are informations that can be completed from the analysis tab in the software.

7 Storage of measurements

7.1 Measurement record

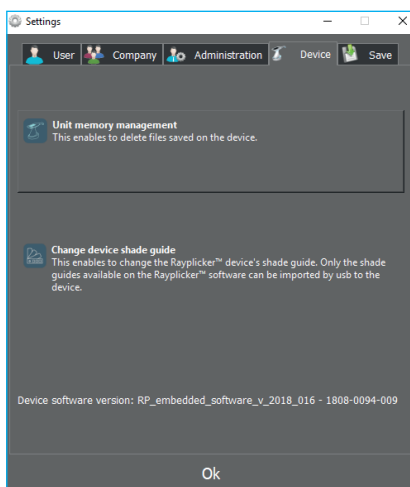


After a shade taking, Click on «  » to save the file or «  » to delete the file.

It's possible to record up to 40 files on the internal memory of the device.

When recording, the device also records the date, time and a file number. These informations can be helpful for the import of a file on the software in order to easily identify a patient file.

7.2 Delete recorded measurements.

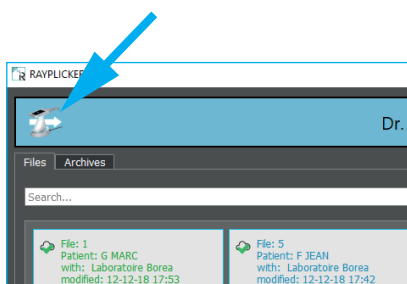


To remove some data from the memory of the device, it must be connected to the software by USB.

Go to : settings > Administration > Unit memory management. Select the file(s) to delete and confirm.



7.3 Measurements transfer

To transmit the measurements to a computer, two options are available :

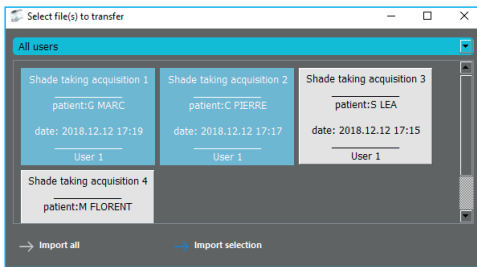


Via USB :

Place the device on its docking station. Connect the docking station to the computer by USB.

To import the files, open the Rayplicker™ software then click on the icon «  » and «  »





If you want to import only some of the recorded files, click on the the files you are interested in. They are highlighted. Import by clicking « import selection ».

«Import all» allows you to import all the files.

The imported records are transferred on the software in the main page. Follow the instructions, page 30 to process the data and prepare an order.

Observation: Once imported, data are no longer available on your Rayplicker™. The number of records available on your device is then updated automatically. .

8 Cleaning and sterilization

The Rayplicker™ device :

To clean the Rayplicker, it is recommended to use cleaning and disinfection wipes for medical devices. Type mikrozid AF wipes Jumbo.

Calibration tips:

The calibration tips are delivered by batch of 6. They must be sterilised before use.

Calibration tips can be cleaned and sterilized in autoclave at 134°C during 20 mn. These tips have an estimated lifespan of 100 uses.

WARNING:

Beyond the recommended sterilisation quota, it can be damaged and discoloration of the grey frame appears.

Protective sheaths :

The plastic sheaths are single use and should be disposed of according to regulations.

CMOS Sensor : 400x400 px

Spectrophotometer : measuring range 400-700 nm

Dimension of the measuring head in mm : L.76 / Diameter 25

Screen : touchscreen

Resolution : 320 x 240 NTSC

Battery : 3,7 V 2000 mAh

Memory capacity : 40 shade taking files

Weight of the handpiece : 450g

Dimensions of the handpiece in mm : L. 210 X w.75 x h 155

Dimensions of the docking station in mm : L.133 x w.101 x h 43

USB : 1 USB 2.0

Weight of the docking station : 165 g

Main plug : 5V 1Ah

The Rayplicker™ is a medical device that complies with the European Community Directive according to :

- Medical Devices Directive 93/42/EEC. Norm NFEN 60601-1-2 (Medical electrical equipment - Part 1-2 : general requirements for basic safety and essential performance - Collateral standard : electromagnetic disturbances - Requirements and tests
- RoHS Directive 2011/65/CE According to norm EN-50581:2013
- RED Directive 2014/53/UE avec justification EMF
- DEEE Directive 2012/19/CE

PART 3- RAYPLICKER™ SOFTWARE

Download the Rayplicker™ software from the BOREA website

<http://borea.dental/telechargement/>

10 Install the software

In order to use the maximum capacity of the Rayplicker™ solution, install the software to follow up customer files and realise order forms.

10.1 System compatibility



Windows®

Windows® minimum configuration

Operating system : Windows Xp or superior

Processor : Intel Core I3 or AMD equivalent

RAM : 2 GB

Hard disc: 5Go

USB ports : USB 2.0 x 1

Screen resolution : 720 p

Internet : High speed connection

Windows® recommanded configuration

Operating system : Windows Xp or superior

Processor : Intel Core I5 or AMD equivalent

RAM : 4 GB

Hard disc: 5Go

USB ports : USB 2.0 x 1

Screen resolution : 1080 p

Internet : High speed connection



Mac®

Mac minimum configuration

Operating system macOS 10.13
High Sierra ou ultérieur

RAM : 2 Go

Hard disc: 5Go

USB ports: USB 2.0 x 1

Screen resolution: 720 p

Internet : High speed connection

Mac recommandd configuration

Operating system macOS 10.13
High Sierra ou ultérieur

RAM : 4 Go

Hard disc: 5 Go

USB ports: USB 2.0 x 1

Screen resolution: 1080 p

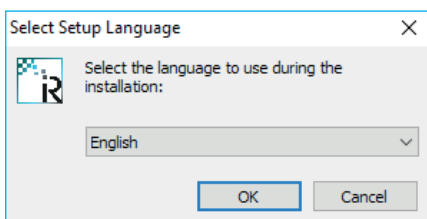
Internet : High speed connection

10.2 Drivers installation



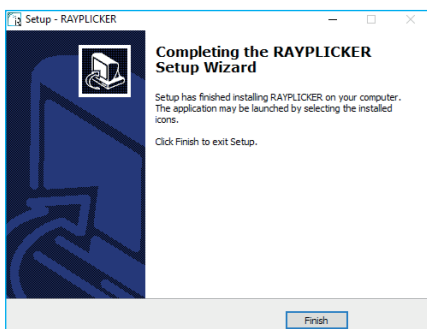
In the first software installation, drivers will install automatically.

10.3 Software installation



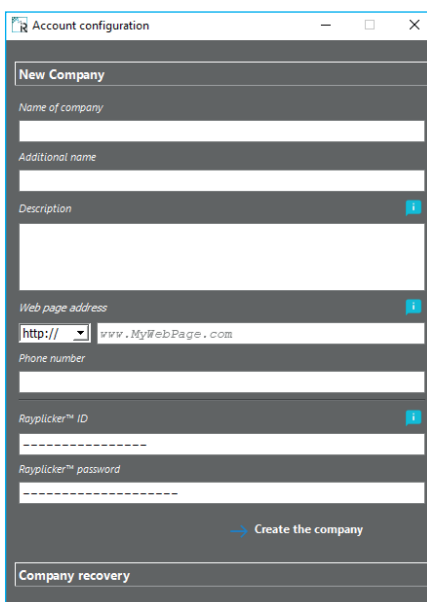
The « rayplicker.exe » file can be freely downloaded from : <http://borea.dental/téléchargement/>.

Double click on the « rayplicker.exe » file to start installing the software. Select the installation language.



Follow directions of the different screens. Click on « finish » to complete the setup.

10.4 Start the Rayplicker™ software



Open the application from your desktop.

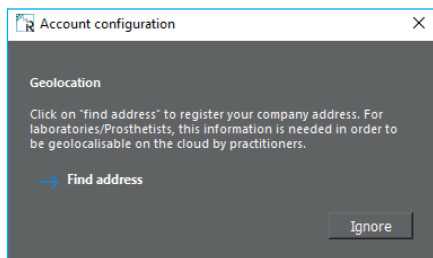
First, you must create a company. To do so, fill the requested informations.

Indicate your Rayplicker™ personal login in order to activate your software. Click on « create a company » to confirm.

Your login credential can be found in the pack.

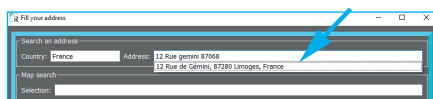
For data recovery, follow the instructions p28.



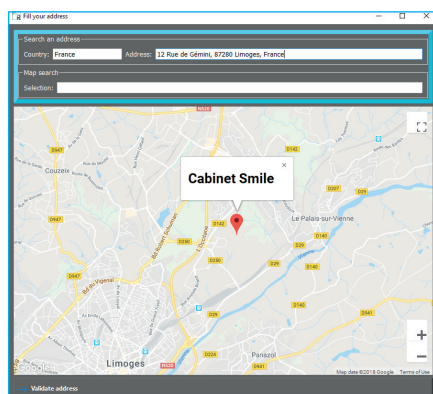


Click on « add an address » or « ignore »

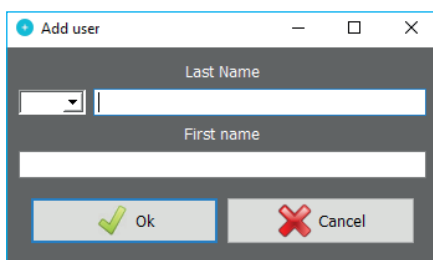
Complete your address in order to get the geolocation option and be able to send files by Cloud.



To complete your address, use the automatic fields or the free search. For each completed field, select the proposal that appears on the drop-down menu by clicking on it.



If the data are correct, click on « Validate address » otherwise you have to return to the previous stape.



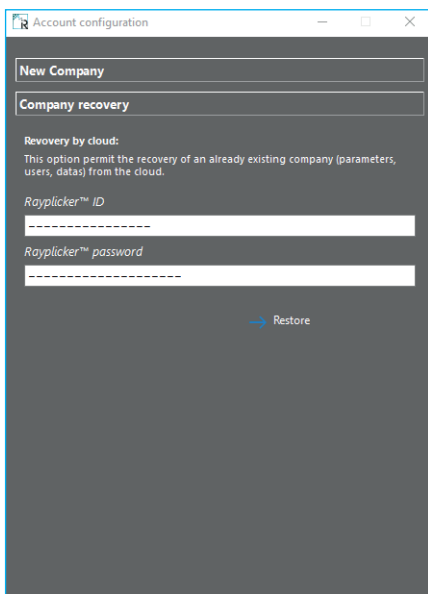
Fill the requested information then press confirm to create a new user.



A welcome screen appears.

Click on your « user » to open the work session.

10.5 Restore a company data from the Cloud



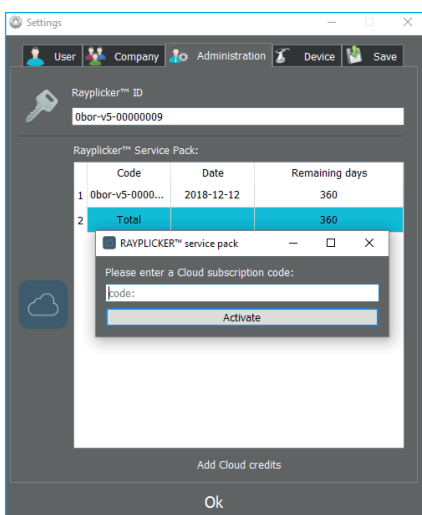
This option allows you to restore company data parameters, users and files automatically with your Cloud licence.

To recover data after uninstalled the software, it is possible to make restoration on an added computer for example.

This restoration is possible for Cloud users ;

To do this, fill the sheets with your Rayplicker™ personal login then click on «Restore».

10.6 Cloud credits



Click on « administration » tab on Rayplicker™ software settings.

Click on « add Cloud credits » then fill your Cloud credits password in order to activate your Rayplicker™ Service Pack.

11 Using the software with the Dentist Pack.

The Dentist Pack allows shade taking thanks to the Rayplicker™ device, transfer data and the realisation of production files from the software. Then, these files can be printed, sent by mail or directly by Cloud as part of Rayplicker™ Service Pack.

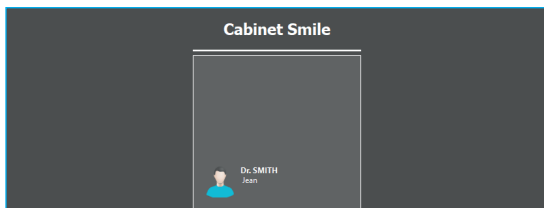
The Cloud allows the dentists to directly transfer its orders digitally to the different laboratories also equipped with the Rayplicker™ solution. The cloud allows the user to follow the order progress in real-time and gives an access to the community of laboratories also using the cloud.



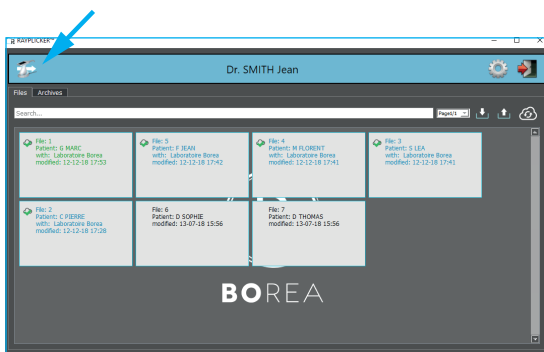
11.1 Software illustration

Previous	Next	User	Add	Refresh Cloud	Files pending	Settings
Disconnect	USB	USB connected	Import pictures	Polarised image	Overall shade	3 parts
9 parts	Detailed mapping	Shade guides	Lock the tab	Tooth border editing	Translucency	B&W
Ruler	Delta E analysis	Colorimetric coordinates	Print	Export	Import	Send
Low	Standard	High	Add translucency	Reduce translucency	Delete translucency	No Colar
360° Collar	Lingual	Occlusal Metal	Pontic design case 1	Pontic design case 2	Pontic design case 3	Pontic design case 4
On the Cloud	Received by the laboratory	Accepted by the laboratory	Files timer	Add by Cloud	Manual add	Validate
Cancel	Information	Mail contact	Cloud contact	Error	Delete data	Company
Administration	ID	Memory management	Save files	Save contacts		

11.2 Import shade taking



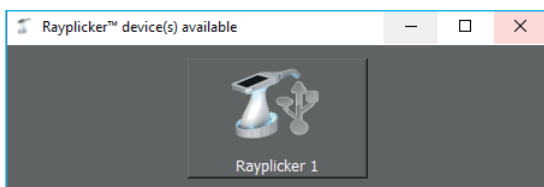
Open Rayplicker™ software and select a user. To create a new user, recover files, please refer to the explanations described page 28.



On this main page, it's possible to select several sheets imported from the Rayplicker™ device. They are classified by date.

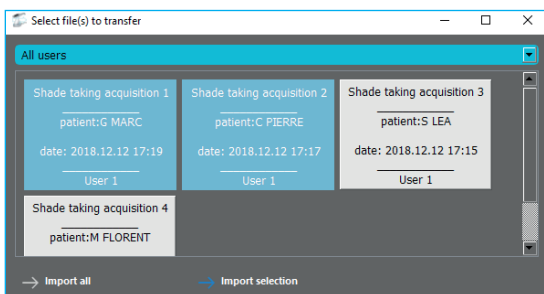
The icons and colours of the sheets give information on their states of progress. All the different states of progress are described page p.39.

Click on this icon «  » to import files from your Rayplicker™.

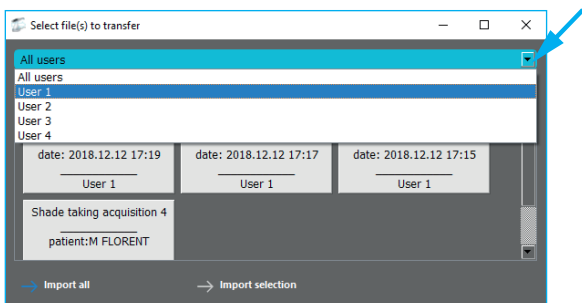


The software will show you the various Rayplicker™ devices available. To be able to connect your device to the software, make sure your device is light on and on the main screen. The device must be connected by USB. Click on the corresponding icon to import files.

The process to connect your device to a computer is explained in details page p.22

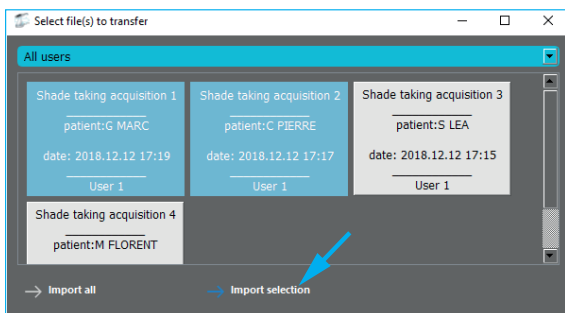


On this page, it's possible to select « the User », to « Import all the files » or, select the files of your choice and to « Import the selection ».



Click here and make your user choice.





Then, click on the files you want to import. They appear in blue.

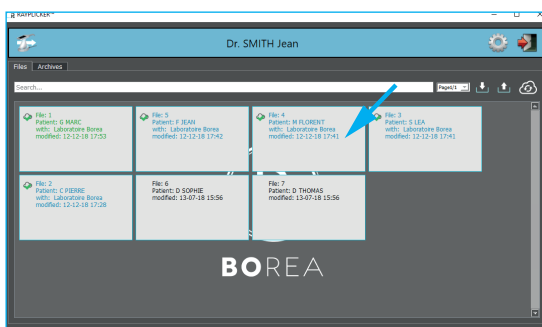
Click on « Import the selection » to download the selected files.



You will obtain the following informations in this file :

Patient name, (if you defined it during the shade taking with Rayplicker™ device), date, hour of shade taking realization and the Rayplicker™ device user.

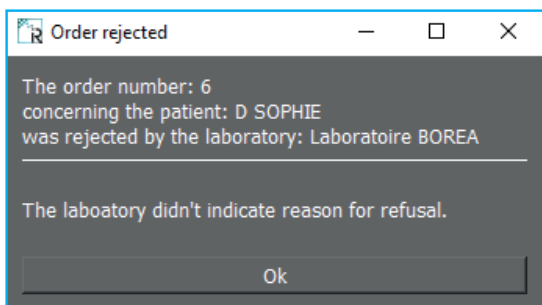
11.3 Open a file



After import sheets from your device, they are displayed on the software main page. The files you just have imported appear in grey.

Just click on it to open it.

Details of colors and states of process of the sheets, please refer page p.39



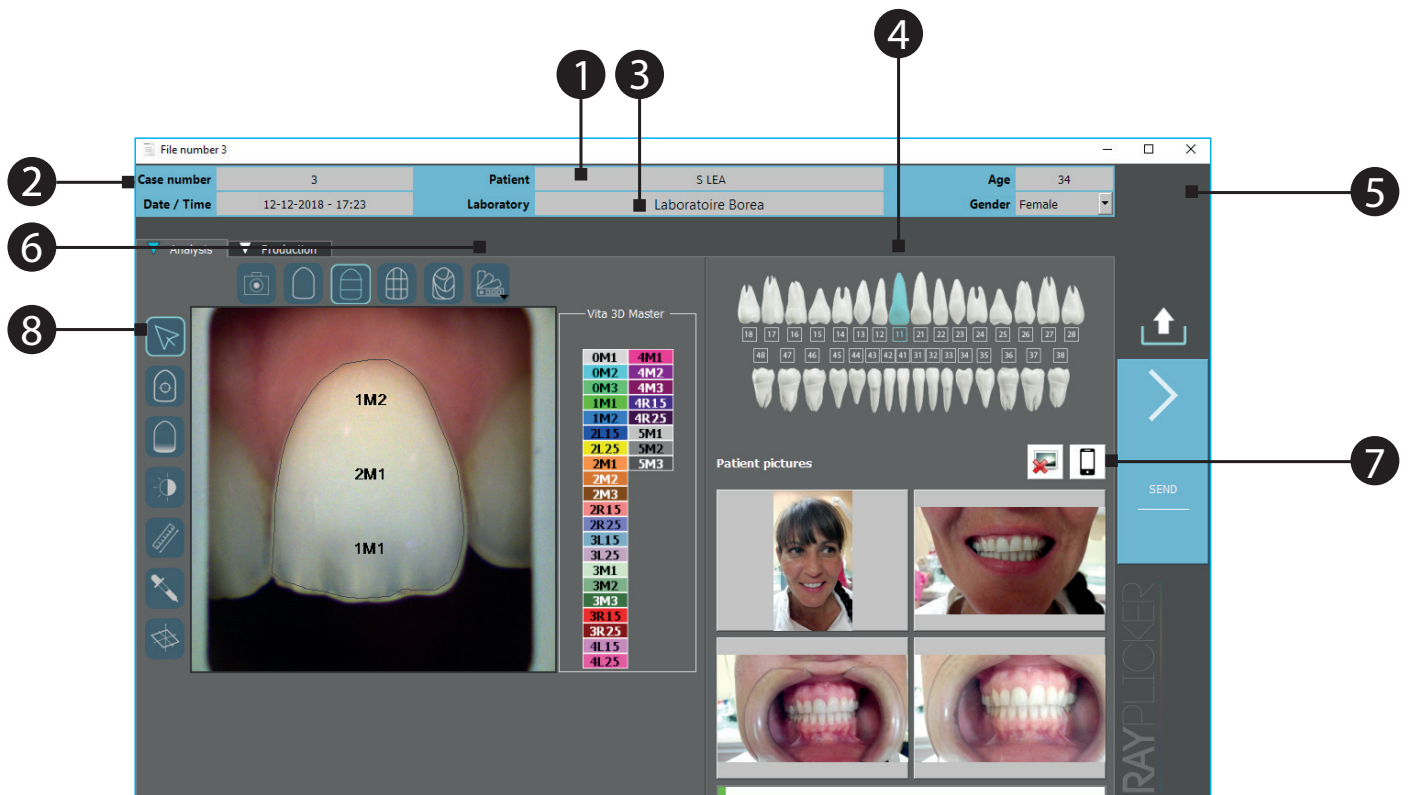
If the laboratory does not accept the order you have sent, a message appears to inform you about it.

Grounds for refusal can also be explained by the lab.

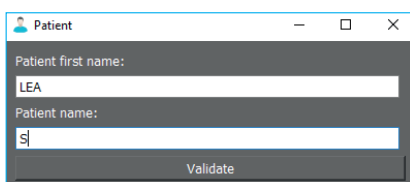
This option is valid insofar as the command was sent from the Cloud.

11.4 Shade taking tab

When you open a file, it will display the information on the shade taking tab of the software.



- 1 Fill the patient name unless you did it on the Raypicker device.



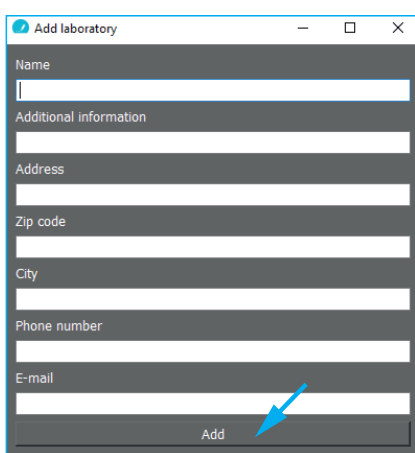
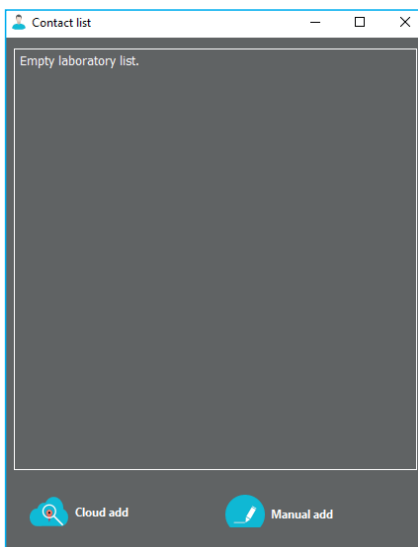
- 2 sheet number and the date

- 3 Add a recipient « Laboratory » of the order form.

2 options are available to add a Laboratory :

« Cloud add » or « Manual add »,





Manual add :

This option is destined to add a Laboratory who doesn't use Rayplicker™ software.

It's necessary to add the Laboratory email address in order to send an order form as PDF file and to fill your own email address in :

Settings > User > Email address

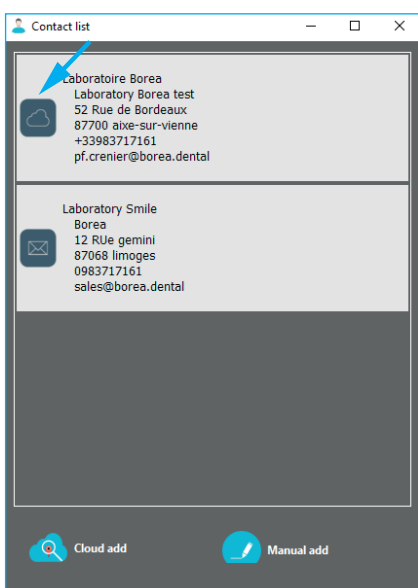
Fill the other informations then click on « Add »



Cloud add :

Use the map or make a research owing to the address then double-click on the selected Laboratory using the Cloud

(For more informations, see p35)



The created or added by Cloud contacts appear on the contact list.

Click right if you want to remove a Laboratory, then « delete »,


The different laboratories registered on the Cloud and represented with a Cloud icon use the Rayplicker™ Pack Service.


The « Cloud » icon allows you to send a full digital order.

- 4 Choose the « referent » teeth.
- 5 Fill the patient « age » and « gender »
- 6 See the mappings and change the referent shade guide


 *Polarised picture

 *Overall shade

 *3 parts


 *9 parts

 *Detailed mapping

 *Shade guide

- 7 Click on the phone icon to import patient pictures taken with the mobile application. The process is explained page p 52.

- 8 Click on the following icons to show the image treatment tools:

 *Block the toolbar

 *Tooth border edition tool

 *Translucency

 *Black & White

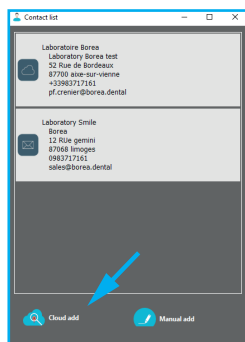
 *Ruler

 *Colorimetric analysis

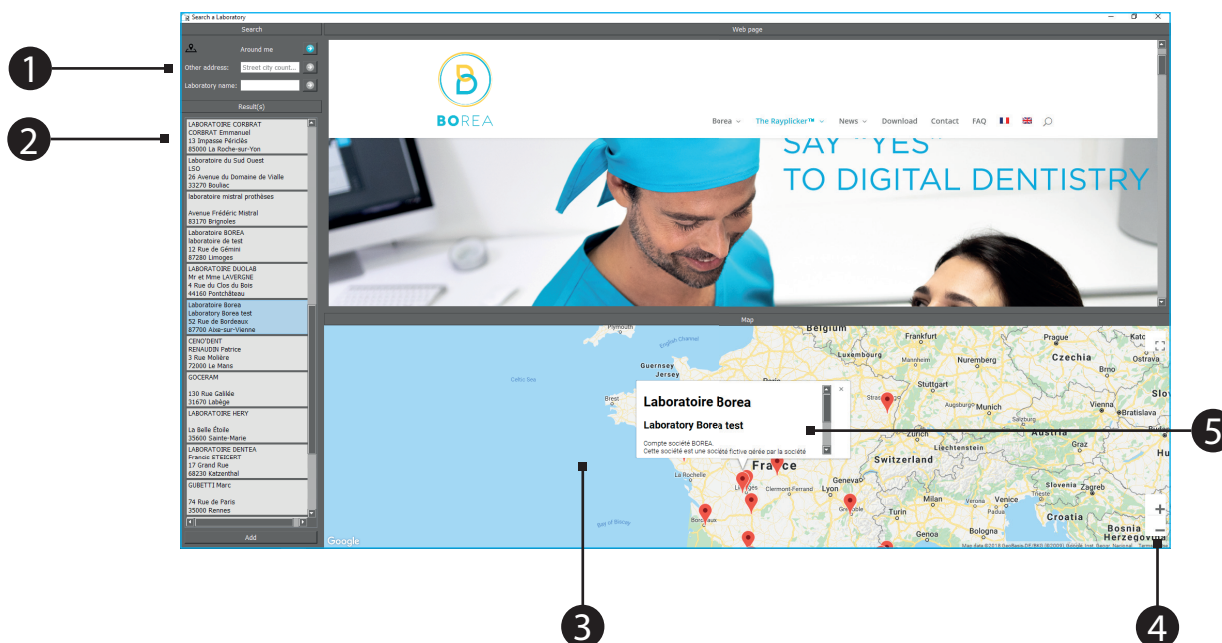
 *Colorimetric coordinates



11.5 Add a Laboratory using the Cloud



Click on «Add Cloud» and follow the instructions just below.



1 Click on the blue arrow for searching a laboratory around you or either with the address or with the laboratory name.

2 Once founded on the map, the list of laboratories appears on the left.

After selecting a laboratory : click on it. All its information are described in the upper window if the laboratory has already provided them.

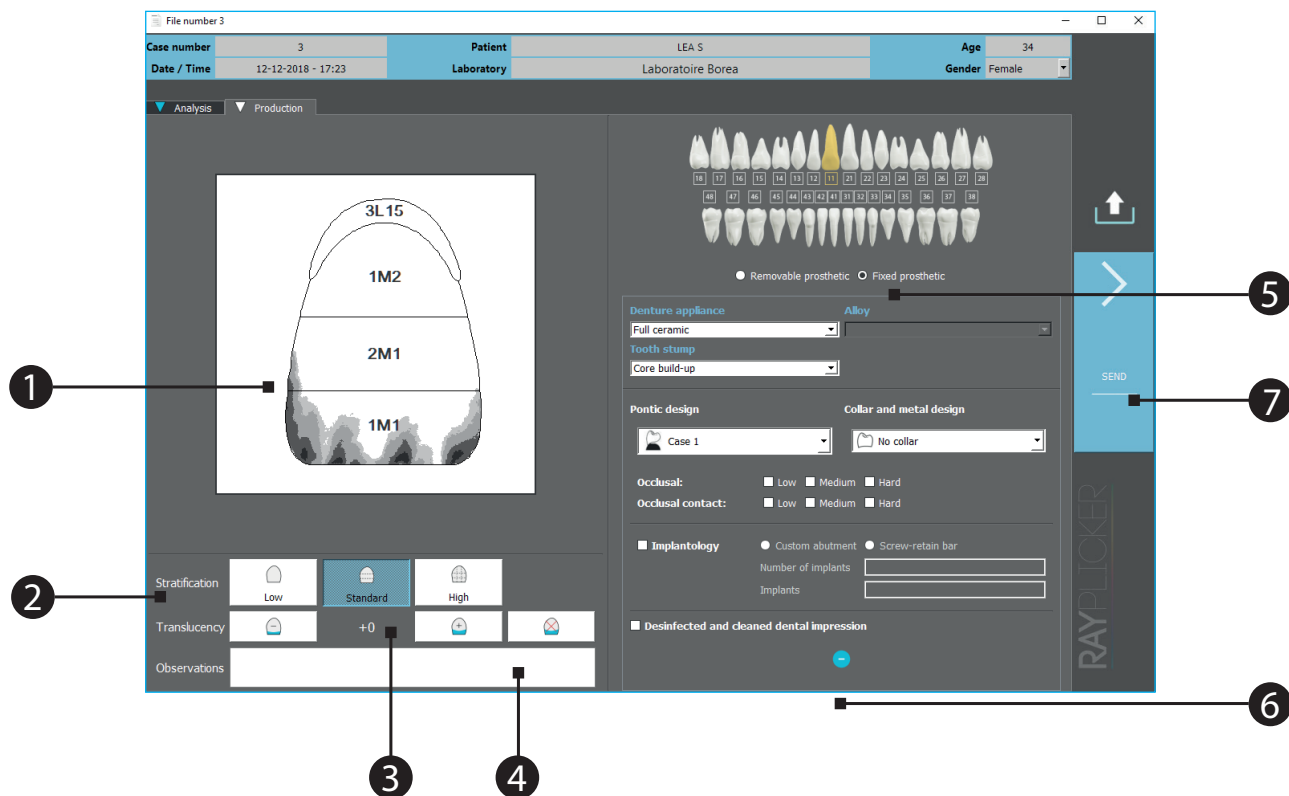
Double-click on the laboratory of your choice to add it to your contacts list. Or click on «Add» at the bottom left.

3 Use the map to visualize the different laboratories registered on the Cloud.

4 Use the mouse scroll wheel or the « + » and « - » icons to modify the map view.




5 After selecting a laboratory, you can see some of its informations on this window. (only available if the laboratory has already provided these information).

11.6 Order tab






1 Scheme of the production tooth

2 Select the prosthesis stratification :

-  *Neck of the tooth and overall shade
-  *Neck of the tooth and 3 horizontal zones
-  *Neck of the tooth and 9 zones

3 Translucency adjustment :

-  *click here to add translucency
-  *click here to reduce translucency
-  *click here to delete the translucency

4 Leave notes about the order form to the laboratory in this banner. (Specific features for the prosthetic wished ...)

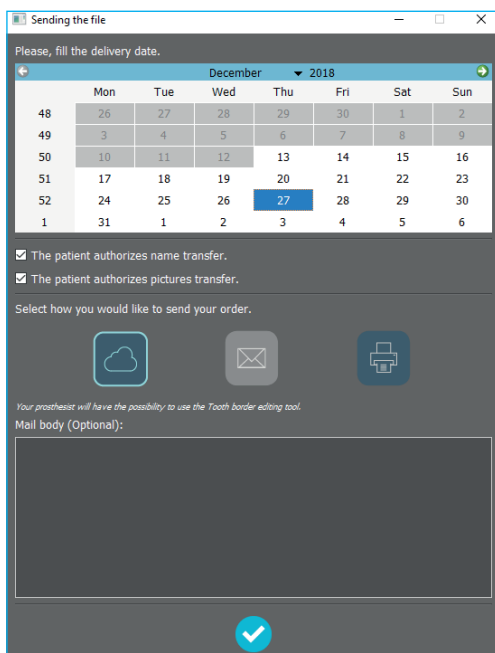
5 Fill in the information in link with the prosthetic realization. Use the drop down menu and select the elements. These information can be compulsory before sending your order form. This depend if the selected labs as defined these information as mandatories or no.



- 6 Click on the arrow to select additional informations linked to the order form. These informations are optional but allow more informations in prosthetic realization by the laboratory.

- 7 After filling your order form, click on «send», a new window opens.

11.7 Validate the order



Sending the file




Please, fill the delivery date.

December 2018

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
48	26	27	28	29	30	1	2
49	3	4	5	6	7	8	9
50	10	11	12	13	14	15	16
51	17	18	19	20	21	22	23
52	24	25	26	27	28	29	30
1	31	1	2	3	4	5	6

The patient authorizes name transfer.
 The patient authorizes pictures transfer.

Select how you would like to send your order.

Your prosthesis will have the possibility to use the Tooth border editing tool.

Mail body (Optional):

Select the wished delivery date and the sending way.

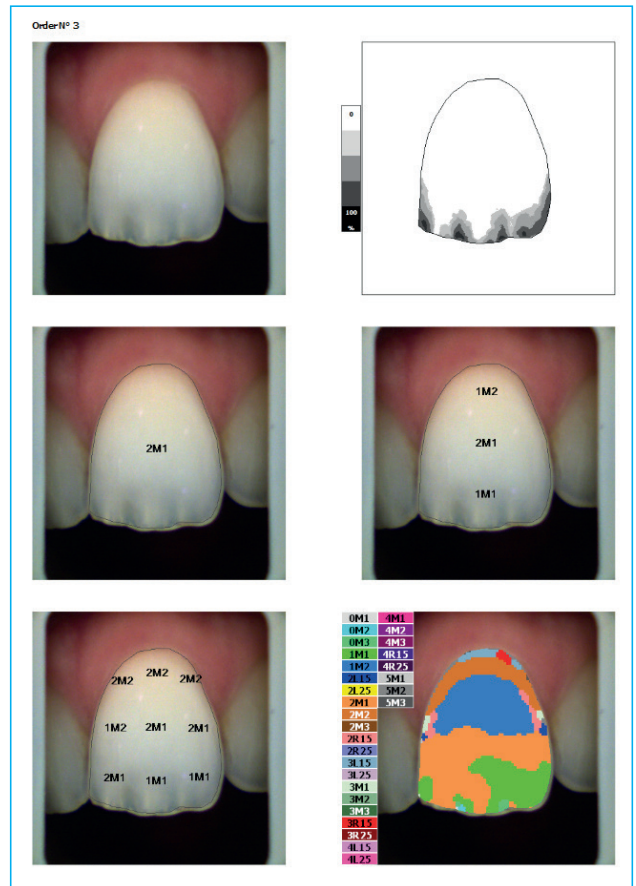
Tick the privacy statements then validate the order to send it.

11.8 Example of order form

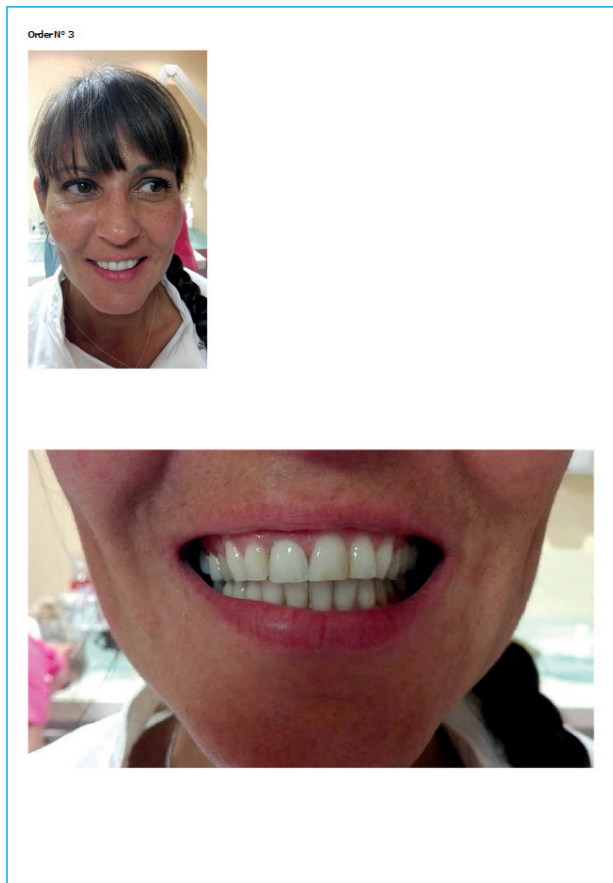
Cabinet Smile Dr. SMITH Jean 12 Rue de G�mini 97290 Limoges 0983717161	Laboratoire Borea Laboratory Borea test 52 Rue de Bordeaux 87700 Aves-sur-Vienne +33983717161
12-Dec-2018 Patient: LEA S Gender: Female Age: 34	Order N� 3 Type of order : Fixed prosthetic Production tooth/teeth : 18 17 16 15 14 13 12 11 21 22 23 24 25 26 27 28 48 47 46 45 44 43 42 41 31 32 33 34 35 36 37 38
Delivery date: 27-Dec-2018 Type of prosthesis: Full ceramic Type of tooth stumps: Core build-up Pontic design: Case 1 Collar and metal design: No collar	<p>Shade guide: Vita 3D Master</p>

RAYPLICKER

Page 1 : Production sheet



Page 2 : Mappings



Page 3 : Patient pictures



Page 4 : Patient pictures

11.9 Sheet's colors meaning

Without using (Rayplicker™ parck Service = Cloud) :

File : 1
Patient : M SOFIA
With : Borea Laboratory
Modified : 28-07-17 12:22

Grey sheet :

The sheet is only imported from the Rayplicker™ device.
The order form has not been sent or printed.

File : 1
Patient : M SOFIA
With : Borea Laboratory
Modified : 28-07-17 12:22

Green sheet :

The order form has been sent

With the option Service Pack Rayplicker™.

 File : 1
Patient : M SOFIA
With : Borea Laboratory
Modified : 28-07-17 12:22



The Grey blurred sheet :

Means that the order is on transfer on the cloud.

 File : 1
Patient : M SOFIA
With : Borea Laboratory
Modified : 28-07-17 12:22



Blue sheet :

The sheet has been sent. It's on the cloud

 File : 1
Patient : M SOFIA
With : Borea Laboratory
Modified : 28-07-17 12:22



Blue sheet :

The order has been received by the laboratory

 File : 1
Patient : M SOFIA
With : Borea Laboratory
Modified : 28-07-17 12:22



Blue sheet :

The order has been accepted by the laboratory

 File : 1
Patient : M SOFIA
With : Borea Laboratory
Modified : 28-07-17 12:22



Green sheet :

The order has been sent by the labotary.



Observation : this icon indicates that sheets are waiting for update.

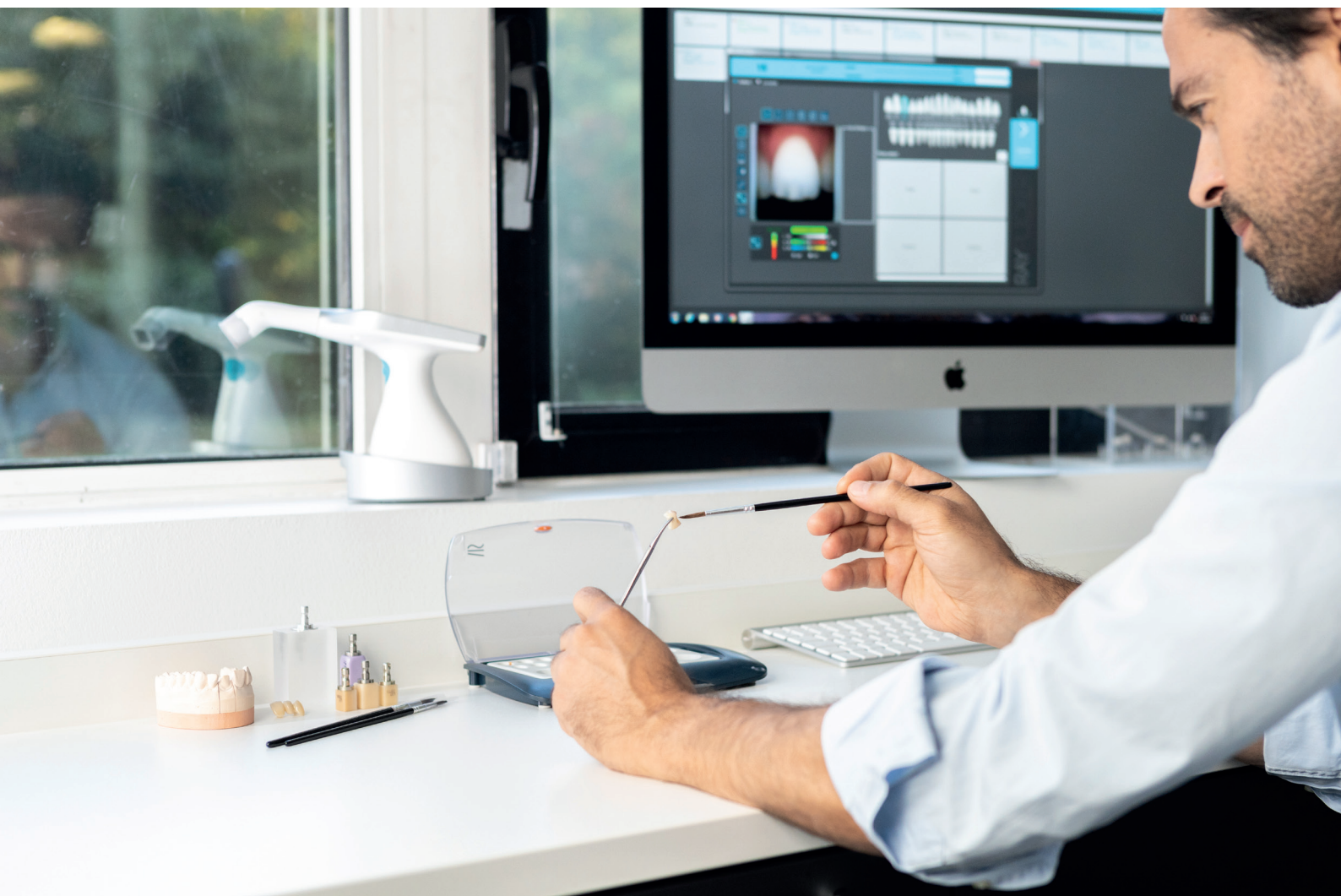
12 Using the software with the laboratory pack.

12.1 Similarities with the Dentist Pack

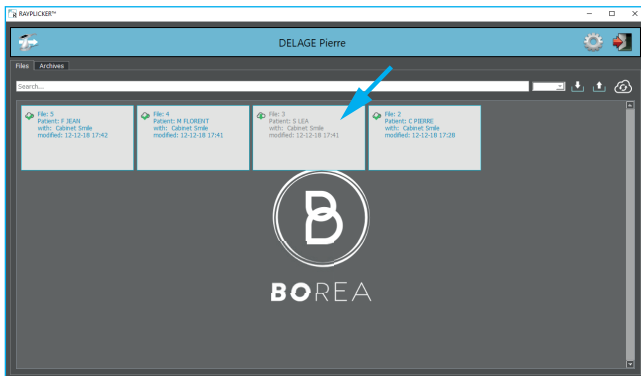
The Prosthesis version is destined to Laboratories. It offers the same solutions as the Dentist version (shade taking, viewing and follow up of patients' folders)

However, the use is somewhat different thanks to the possibility of order form received from dentist using the cloud.

Moreover, orders can be sent or exported to other laboratories in digital format under «.Borea» file and read by an other Laboratory for example if they also have a Rayplicker™ software.



12.2 Receive and process an order

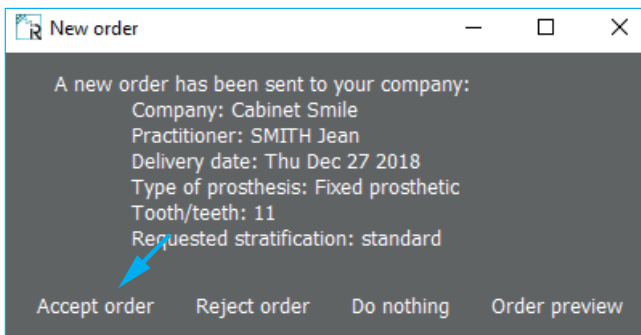


Orders are received in this main page.

Click on this icon «  » to actualize the cloud, to receive new orders and to update sheets

Sheets are classified by date.

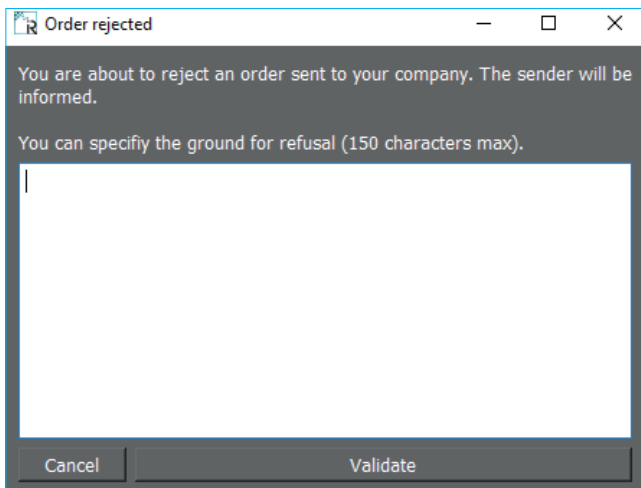
After sheet receipt, click on it to see information.



The origin, the delivery date, the type of prosthesis and the type of stratification are specified.

You can do nothing, in this case, the tab closes automatically and the order doesn't open.

The order opens when you accept it.



When you reject the order, you can specify a reason for rejection.

Validate to send the rejection to the practitioner.

12.3 Interpret an order

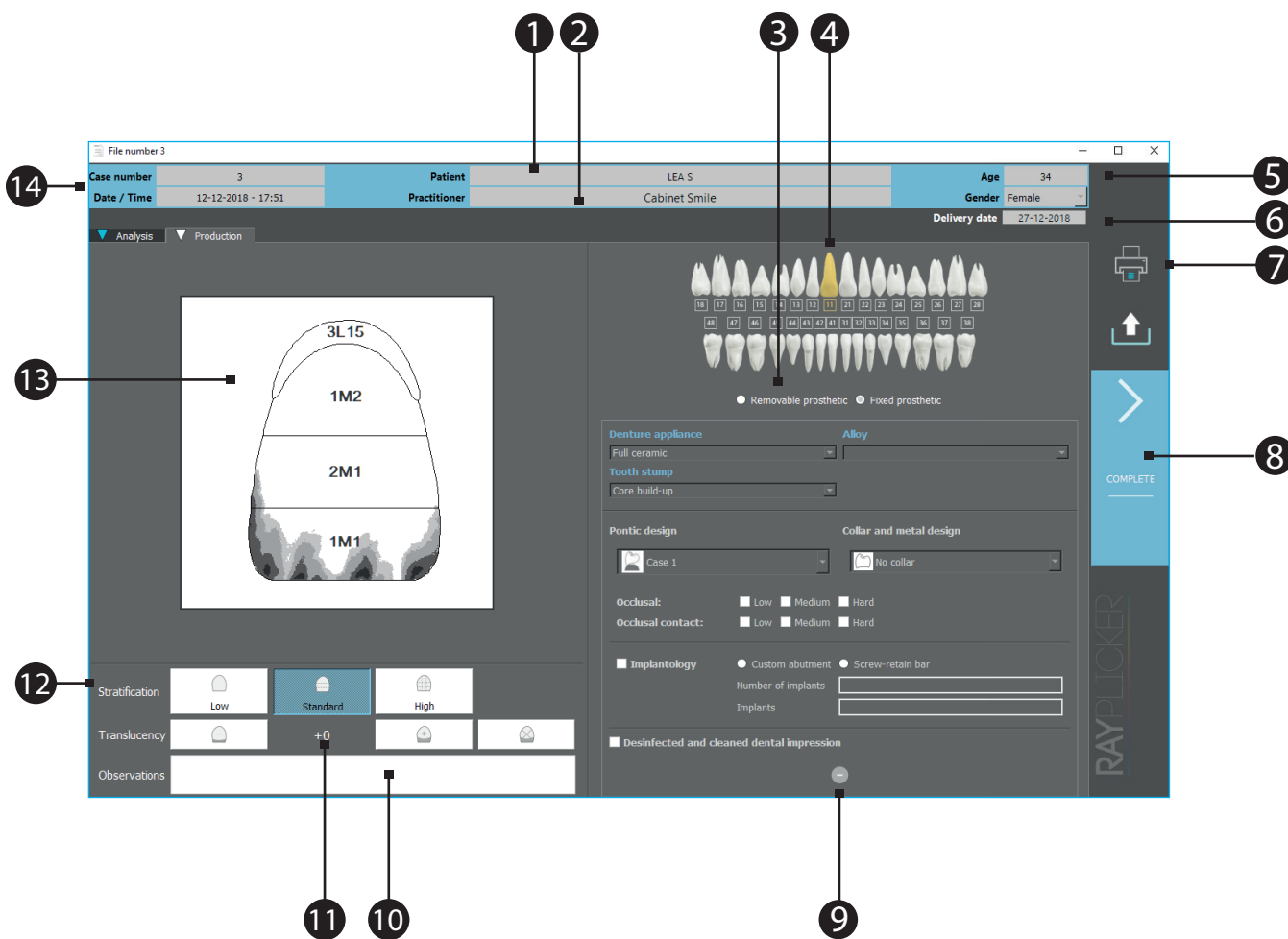
After clicking on an order sheet and accept it, it opens on the order tab.

Here are presented the different specifications of the ordered prosthesis.

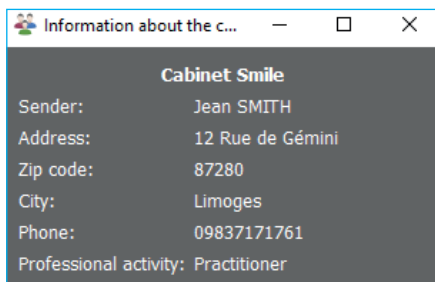
The upper banner indicates general informations about this order.

IMPORTANT :

On the order tab, information selected by the practitioner can't be changed. If as a laboratory you only need to receive shade information, then select your «preferences» in your company settings. (See point 14.2 on page 49)



- 1 Patient name.
- 2 Informations concerning the practitioner who sent the order form.

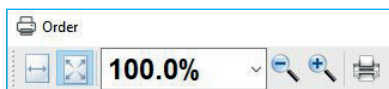


Click on the practitioner name to open a window with his contact details.



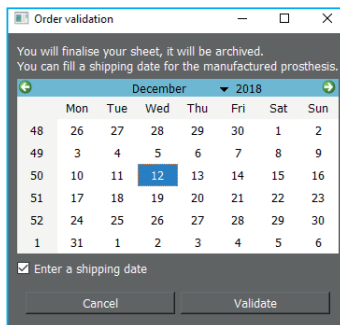
- 3 Type of prosthesis order « removable » or «fixed prosthetics».
- 4 Number of the production tooth.
- 5 Patient « age » and « gender »
- 6 Delivery date requested by the practitioner.
- 7 Click on the icon to print the order form

The order form opens, click on the icon printer to print it.



An example of order form is detailed page p.38

- 8 Click here to finish.



Select a shipping date to the practitioner.
The form is saved automatically and available on the «archives » tab on the main page.

- 9 Here are described order additional information. They are optional but allow more accuracy for the prosthetic manufacturing by the laboratory.
- 10 Here are the notes about the order destined for the laboratory. (particularity of the wished prosthetic, tooth surface...)
- 11 Indication about translucency of the desired prosthetic
- 12 Indication about stratification of the desired prosthetic
- 13 Scheme of the production tooth
- 14 Information about the form number, date and hour of the shade taking.

12.4 Shade taking tab

Here are presented details of shade taking registered by the practitioner. Patient pictures can also be joined.



1 See the mappings and change the referent shade guide

- | | | | |
|--|--------------------|--|-------------------|
| | *Polarised picture | | *9 parts |
| | *Overall shade | | *Detailed mapping |
| | *3 parts | | *Shade guide |

2 Click on the following icons to show the image treatment tools:

- | | | | |
|--|----------------------------|--|---------------------------|
| | *Block the toolbar | | *Ruler |
| | *Tooth border edition tool | | *Colorimetric analysis |
| | *Translucency | | *Colorimetric coordinates |
| | *Black & White | | |

3 Patient pictures. Click on to enlarge it

4 Export the sheet in «.borea» files.



- 5 Print the order form
- 6 Delivery date requested by the practitioner

In the upper banner, we find the same informations as those presented in the « order » tab. (see previous scheme p.42).

12.5 Sheet's colors meaning



File : 1
Patient : M SOFIA
With : Borea Laboratory
Modified : 28-07-17 12:22



Grey sheet :

An order came by cloud. It hasn't yet been opened.



File : 1
Patient : M SOFIA
With : Borea Laboratory
Modified : 28-07-17 12:22



Blue sheet:

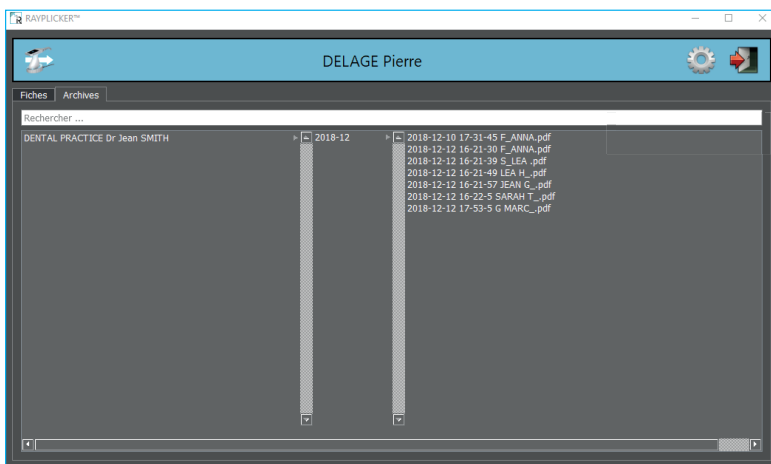
The order has already been opened but hasn't been finished.



This icon indicates that sheets are waiting for updates.

Observation : Once processed and sent, the order is automatically saved in the «archives» tab of the main page.


12.6 Archived files



From the « archives » tab of the main page, you can access to the saved files.

To open it, just double click on it.

13. Tools for image treatment and analysis

To access the analysis tools, hover the left edge of the image with your mouse. A menu appears with the different tools available. Click on the «  » icon to lock the menu.



*Tooth border editing



*Tranclucency



*Black & White



*Ruler



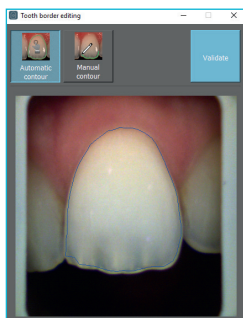
*Colorimetric analysis (Delta E)



*Colorimetric coordinates



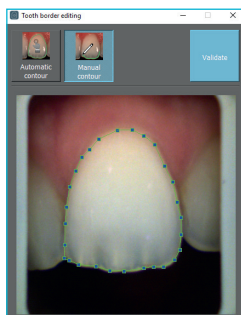
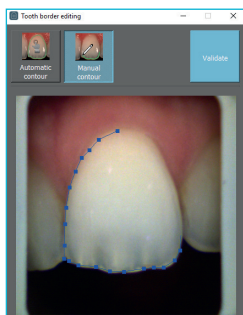
Tooth border editing tool



Click on «automatic contour» and then click on the tooth for automatic detection.

If the contour is compliant click on «Validate».

If the contour is not conform, you can do a manual contour.



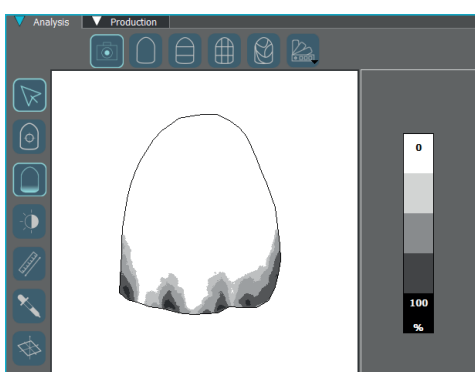
Click on «Manual contour» and then make the contour of the tooth point by point.

Finish the outline by clicking on the starting point.

Click on «Confirm» to confirm.



Tranclucency analysis

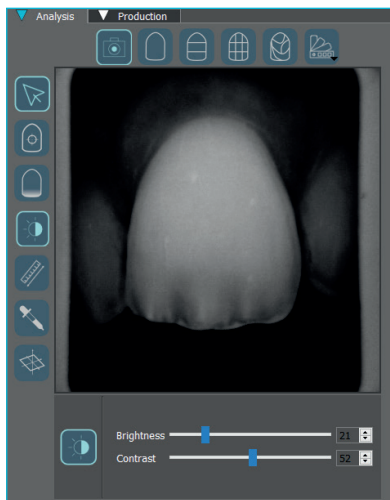


This tool allows you to visualize a map of the translucency of the tooth.

This is indicated by a gray scale indicating the presence of translucency on a scale from 0% to 100%.



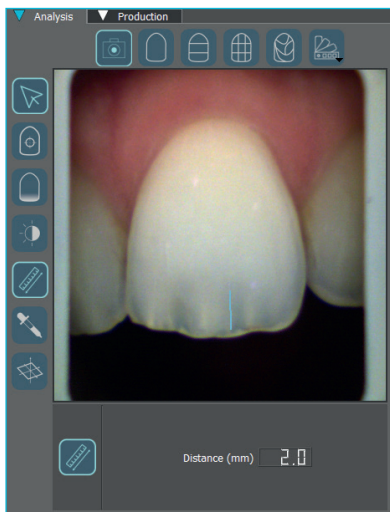
Black & White analysis



This black and white adjustment tool converts the color polarized picture into a grayscale image.

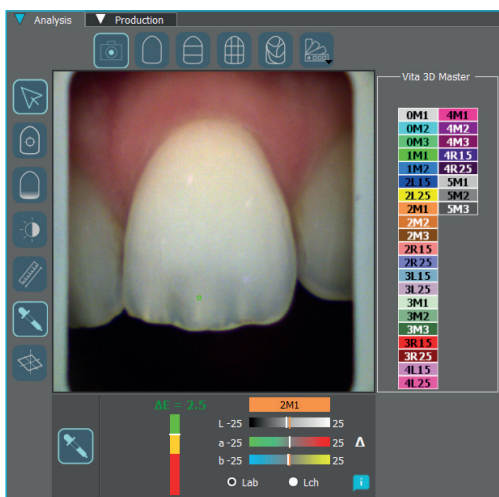
Use the sliders to change the brightness and contrast settings to highlight the distribution of dentin, enamel, or other notable features.

Ruler



This tool makes it easy to locate the location of translucent areas or other notable features.

Colorimetric analysis tool

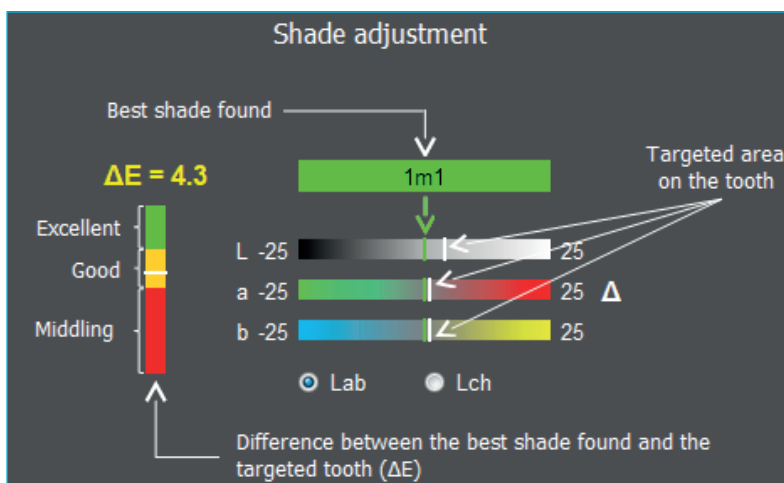


Calculate by pixel the color difference «Delta E or ΔE » between the actual shade of the tooth and the closest shade according to the reference shade guide.

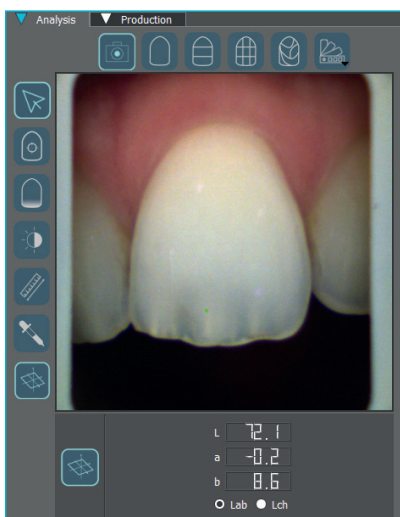
Visualize the differences according to the 3 dimensions of the color: brightness, saturation and hue.

This analysis can be performed under the Cie Lab or Lch references.

Interpretation of the data communicated by the tool:



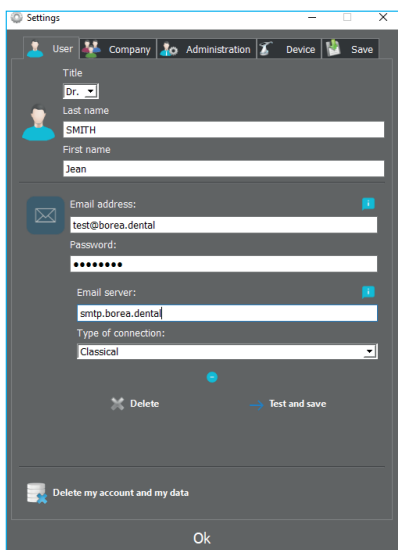
Colorimetric coordinates



Determine, pixel by pixel, the colorimetric coordinates according to the Cie Lab or Lch repository.

14. Software settings management

14.1 User tab



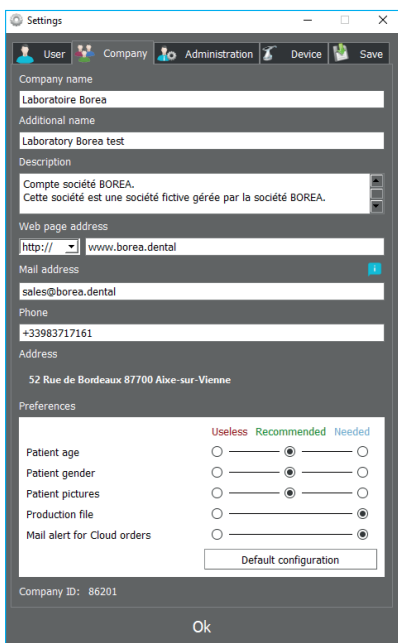
In this user tab, you can edit your user’s contact information.

Click on «Delete my account and my data» to delete your user.

Validate to save the changes.

For «Dentist» accounts, it is possible to register an e-mail address by specifying your address and your password then click on «Test and save» (Your server may be also necessary)

14.2 Company tab



Dentist and Prosthetic Accounts:

In this company tab, you can change the contact information of your company.

Prosthesis Account only:

Specify a description that will be presented on the geolocation map.

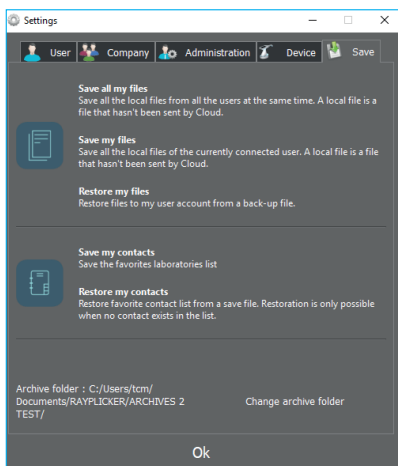
Specify your website address, this information will also be displayed on the Cloud search page for dentists using the Rayplicker™ Service Pack option.

You can also configure your preferences in three categories. (Useless / Recommended/ Needed)

Enter an email address for «Order by Cloud Notification»

Validate to save the changes.

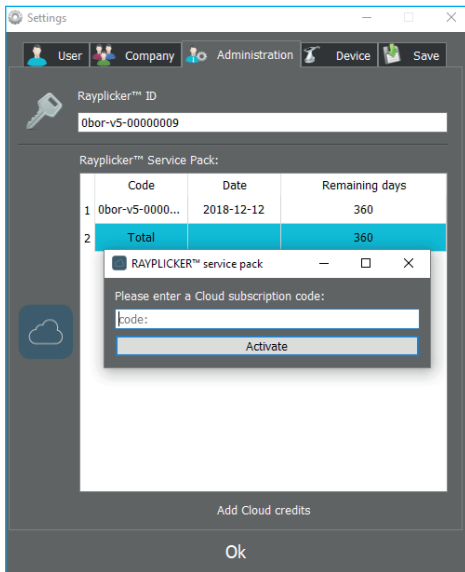
14.3 Save files on the computer



From this tab, you can save unsent files to the cloud.

Save the list of Laboratories contacts.

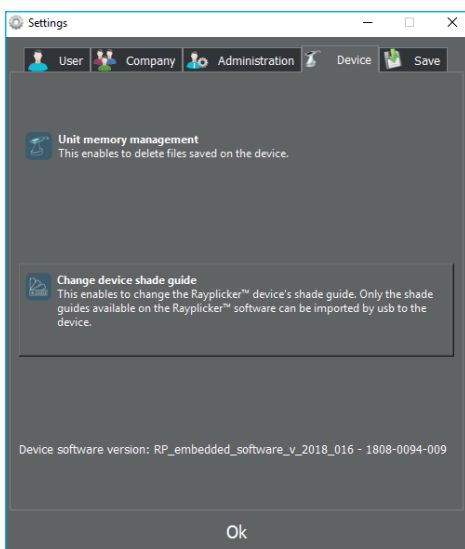
14.4 Administration



The Administration tab lets you access your Rayplicker™ credentials and manage your Rayplicker™ Service Pack.

Here you can add credits to activate your Rayplicker™ Service Pack.

14.5 Device



To manage the device memory, it must be connected to the software. Click on « device memory management », this will open a new window where you can select files and delete some of them by clicking on « delete ».

To change the shade guide of your device, this one must be connected to the software. Click on «change shade guide», a new window will open.

Select the wished shade guide and click on « configure ». See page 18.

15. Mobile application «Rayplicker™ Pics App Solution»

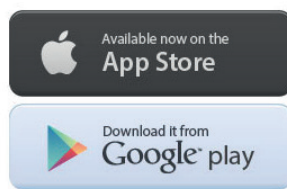
To complete your order form, you can take patient pictures and transfer them by wifi thanks to the smartphone app.

Contextual pictures are an additional support to the order form.

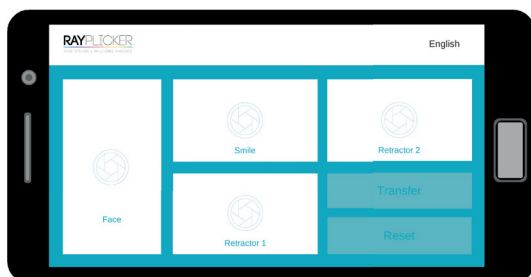
Observation : Pictures are saved temporarily on the application until their transfer. If you log off the application without transferring the pictures, they will be lost.

15.1 Download and compatibility.

You can download freely the application Rayplicker™ Pics App Solution for your mobile or tablet on the different stores.

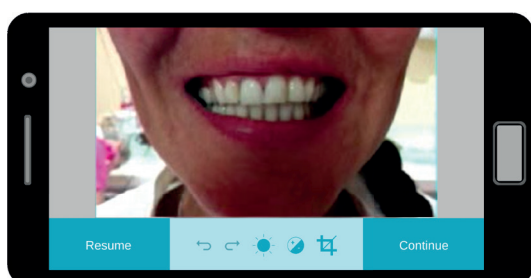


15.2 Take contextual pictures



There are four shooting views :

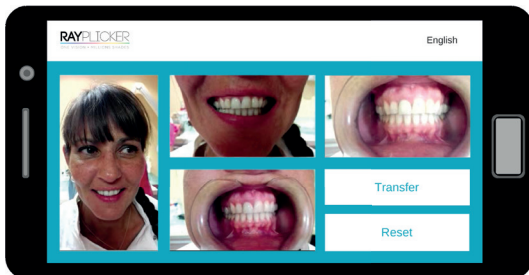
- *Face
- *Smile
- *Retractor 1 and 2



Take the pictures

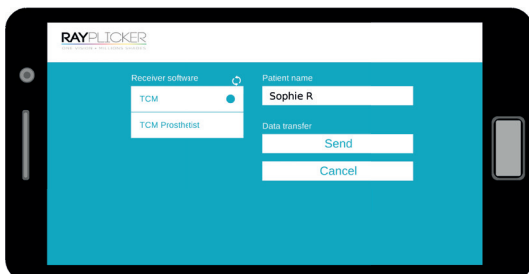
The banner allows pictures improvement

- Previous
- Cancel
- Brightness
- Contrast
- Cropping



After taking pictures, click on « Transfer » to go on the next step.

click on « reset » to erase the pictures.

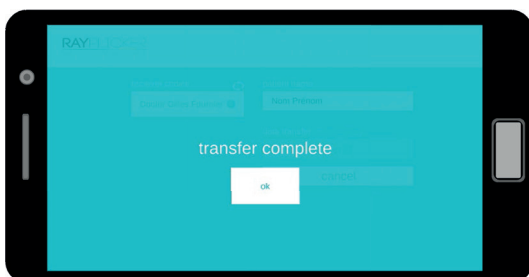


Fill the patient name

Click on the arrow to make a software research

Select the software that will receive the data then click on « send ».

Pictures will automatically be transferred to the software by wifi.



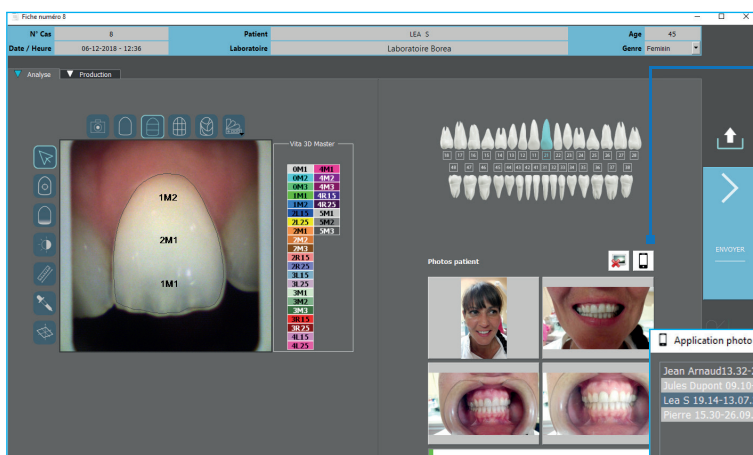
Important : make sure both your devices (phone and software) are connected at the same time to the same wi-fi network.

15.3 Import contextual pictures

After pictures transfer from the mobile application, they are available on the « shade taking » tab by clicking on the icon « »

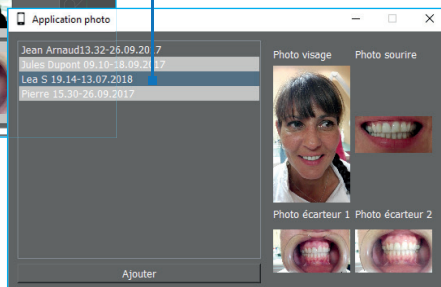
Files are classified by name and date.

Double-click on the file to add them to the order.



Click on the «Phone icone» to import pictures.

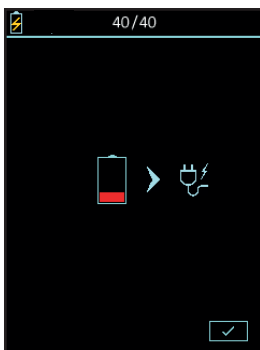
Select the corresponding photos. Double-click, pictures are automatically added to the «analyse» tab



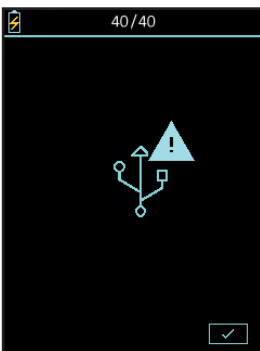
16. Annex

16.1 Error messages

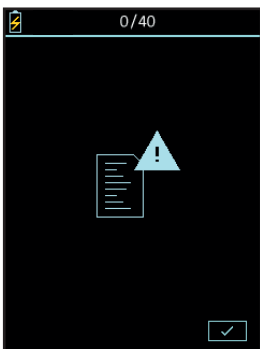
Device error messages



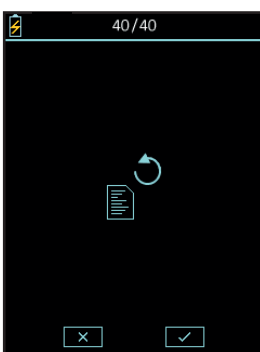
The battery of the device is weak. The device must be positioned on its base and connected by USB or directly to a power outlet.



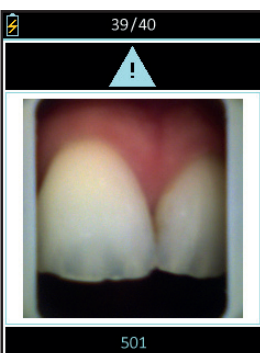
The USB connection failed. Check that the cable is connected and then re-connect.



The internal memory of the device is full. Please transfer the files via the software (see page 30).



The system turned off after an acquisition was made without being saved or deleted. Select whether you want to recover the file or not.



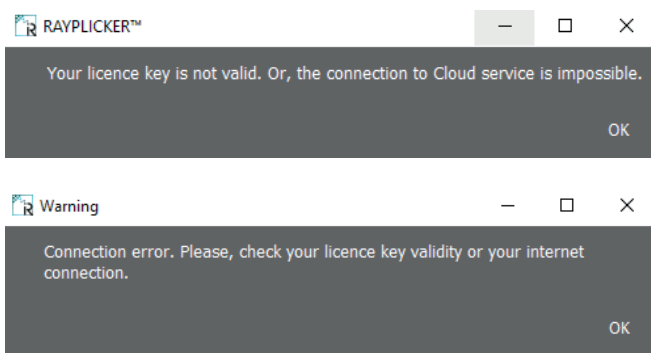
The device has detected movement during the analysis. Please redo the acquisition.



Following the acquisition, the automatic order does not conform to the shape of the tooth.

Delete the color registration and start again according to the instructions on page 19 or change the contour from the software's color registration tab, see page 46.

Error message in the software:



Check your username and license number.

IDs and passwords contain only zero "0" digits and no "O" letters.

Check the correct internet connection of your computer and check the ports. See point 16.2 on page 54)

16.2 Port configuration

How to configure the network to set up the Rayplicker solution

If you are behind a firewall or a network device, such as a router, you may have to modify the configuration to allow your Rayplicker device or your Rayplicker mobile application to communicate with the Rayplicker software on your computer.

This operation is sometimes called "port opening".

RAYPLICKER software needs the following ports to be opened:
(Mandatory for using Rayplicker software)

- Port 3306 (TCP)

RAYPLICKER mobile application needs the following ports to be opened:
(Application Mobile Pics app Solution)

- Port 7777 (UDP & TCP)
- Port 7778 (UDP & TCP)

Note: Communications between the different elements of the Rayplicker solution takes place on the local network. All the different elements of the RAYPLICKER solution needs to be connected on the same local network.

If you encounter difficulties to configure your network, call your network administrator or your internet provider to open the ports above, used by the RAYPLICKER solution.

16.3 Glossary

Spectrophotometer :

Device for acquiring spectral data on all points of the tooth. These wavelengths are analyzed and compared to a data basis to deduct the color of a tooth.

Color:

It characterizes the dominant wavelength of light reflected by a tooth. It is the hue that gives this sensation of color (red, yellow, green or blue ...).

Translucency:

Characteristic of the effect of light passing through an object.

16.4 Patents

Rayplicker™ is protected by the following patents

France:

1556140; 1556141; 1651452

US:

14837,449

16.5 Warranty

The guarantees are specified in the terms of sale. These can be found on the www.BOREA.dental (download tab)

NOTES :



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