Slit lamp with Dry Eye system

SLD10L-VSM

Hans Heiss

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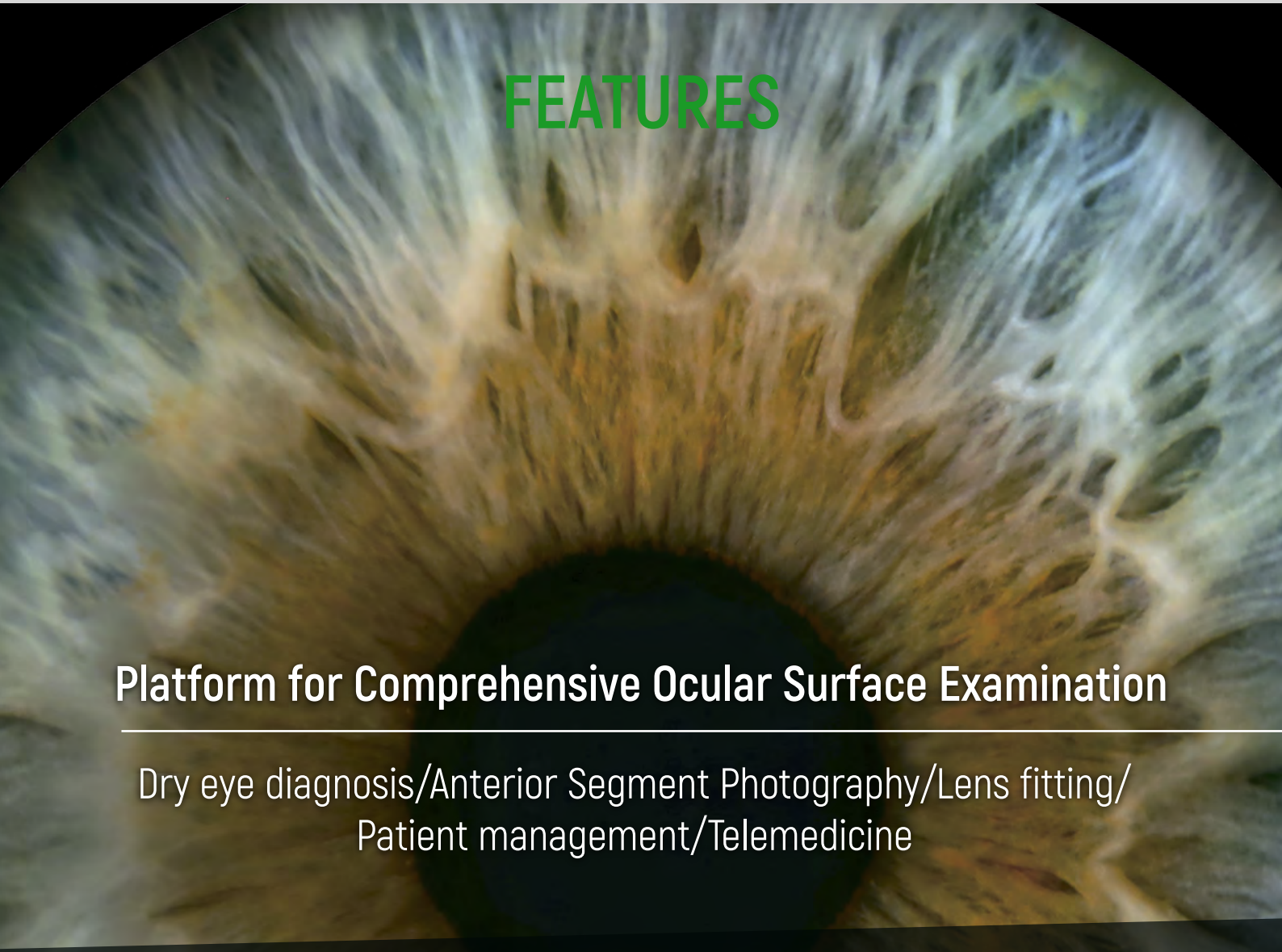


FEATURES

Platform for Comprehensive Ocular Surface Examination

Dry eye diagnosis/Anterior Segment Photography/Lens fitting/
Patient management/Telemedicine

Guided examination: providing a comprehensive report covering 7 dry eye diagnosis.

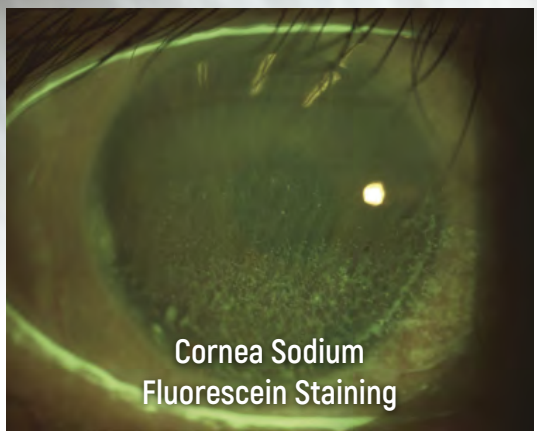
Non-invasive examination, Quantitative data.

Full-automatic Firefly digital module, easy operation without parameter settings.

High quality optics and built-in yellow filter efficiently increase the accuracy of lens fitting.

Professional 1/1.8-inch sensor and 2.4μm pixel, real-time playing and storage.

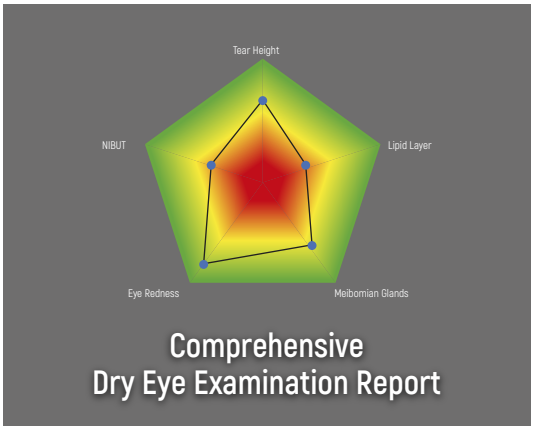
Smart patient management system,DICOM supported.

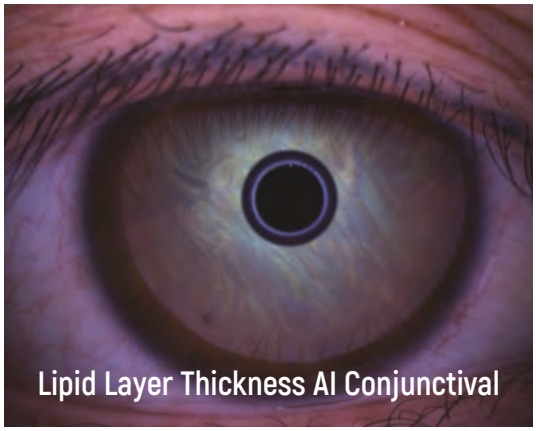

Cornea Sodium
Fluorescein Staining

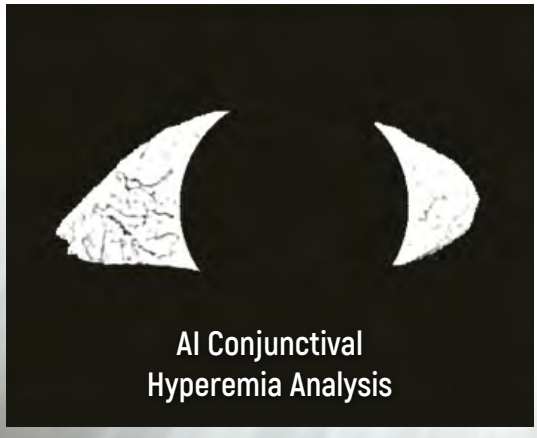

0.16mm
AI Non-Invasive
Tear Meniscus Height


AI Non-Invasive
Tear Film Break Up Time


Meibomian Glands Function Evaluation


Tear Height
Lipid Layer
Meibomian Glands
Eye Redness
NIBUT
Comprehensive
Dry Eye Examination Report


Lipid Layer Thickness AI Conjunctival


AI Conjunctival
Hyperemia Analysis


Eyelid Margin

Automatic Classification of Meibomian Glands

Unique Built-in infrared lighting system provides a larger scope capture of Meibomian Glands, adjustable depth of field and aperture enables more vivid images.
Precise diagnosis of Dry Eye caused by MGD is guaranteed with the help of automatic Meibomian Glands loss classification.

Increase positive rate of early corneal epithelial staining

Built-in yellow filter along with cobalt-blue filter increases the contrast of Sodium Fluorescein Staining image.

HD Optical System

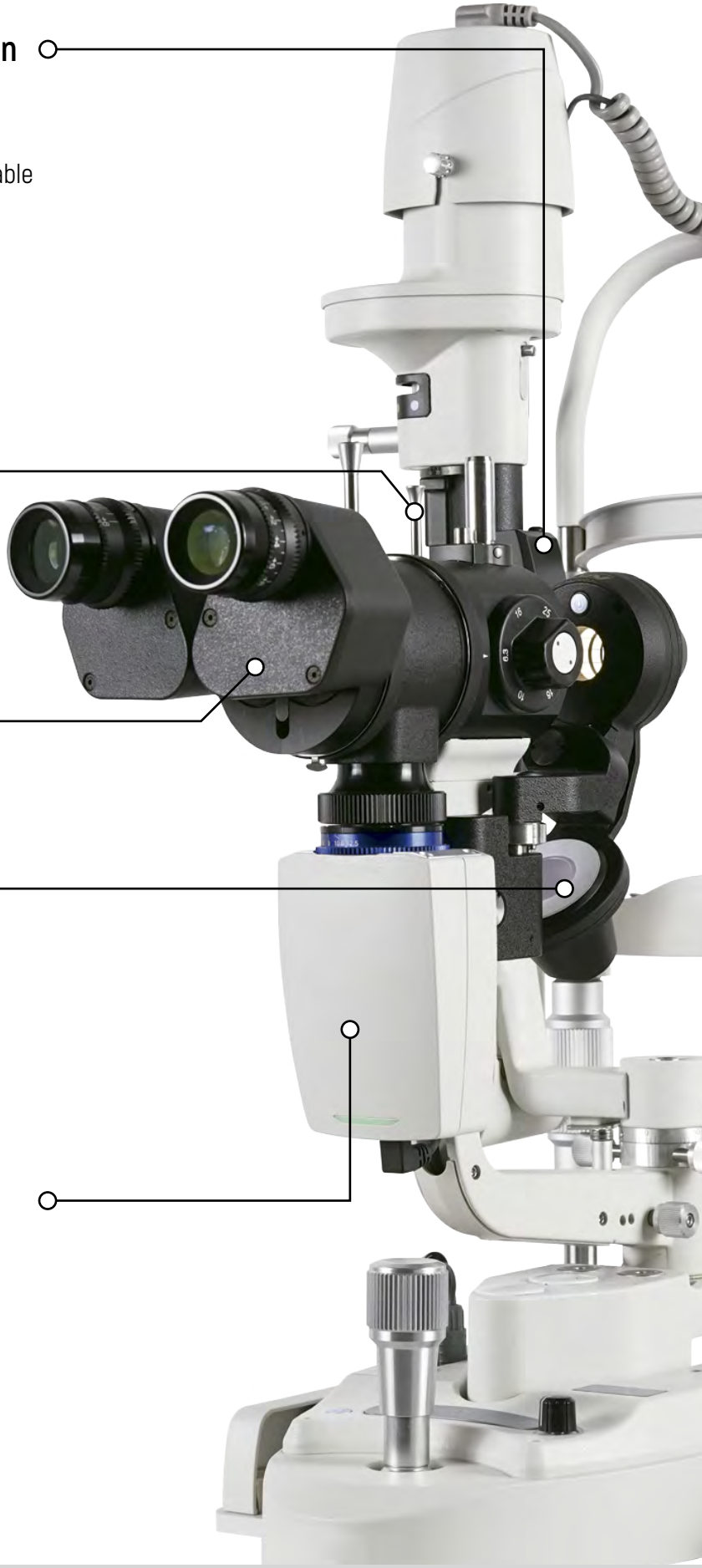
Resolution is up to 200 lp/mm, providing more details of the pathologies.

Full Cornea Dry Eye Analysis

By Placido ring projection system with visible light, the examination scope is up to 8mm cornea diameter. Examination of the tear film outside of pupil center has the same significance for the diagnosis of Dry Eye.

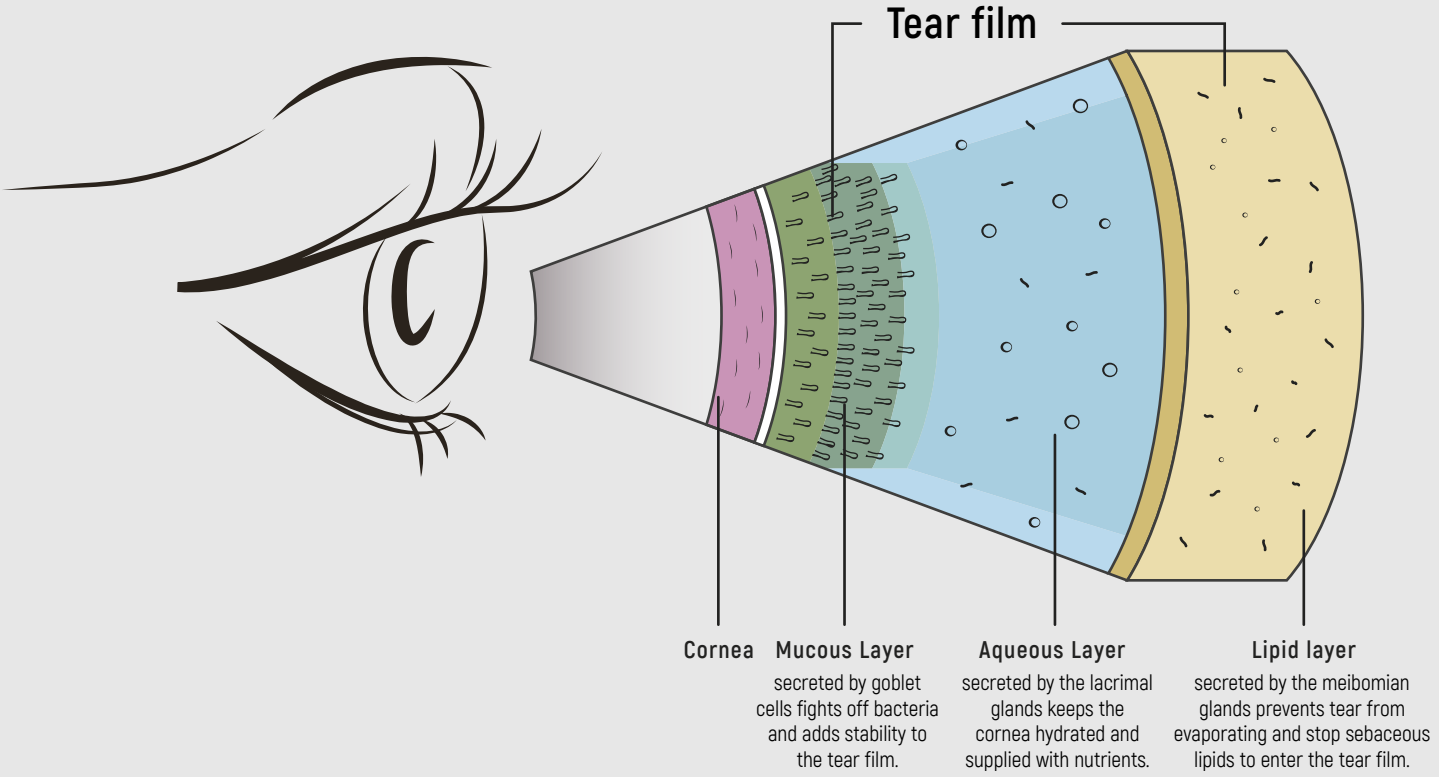
Fully automatic Firefly digital module

HVS-990 module is specially designed for anterior segment examination, no parameter settings equired (automatic exposure,auto white balance,auto focus), with adjustable depth of field and wide dynamic range, 5 Mega Pixels video output, high examination efficiency is allowed.

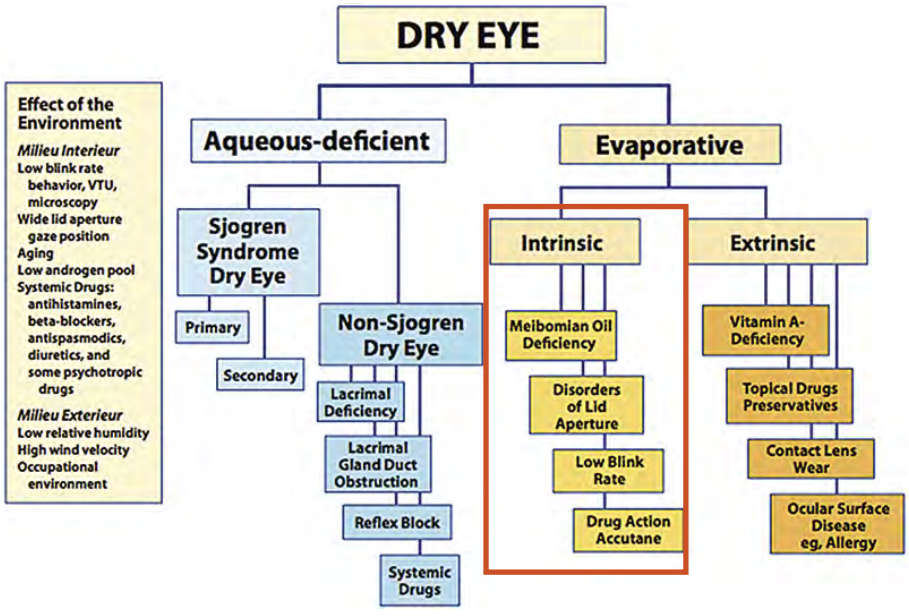


Due to various causes of Dry Eye Disease,traditional examination is difficult to find out the cause and quantify for the diagnosis.

Hans Heiss Dry Eye Diagnostic System can provide standardized examination and quantified causes evaluation for Dry Eye Disease.



Dry eye classification from the 2007 DEWS Report



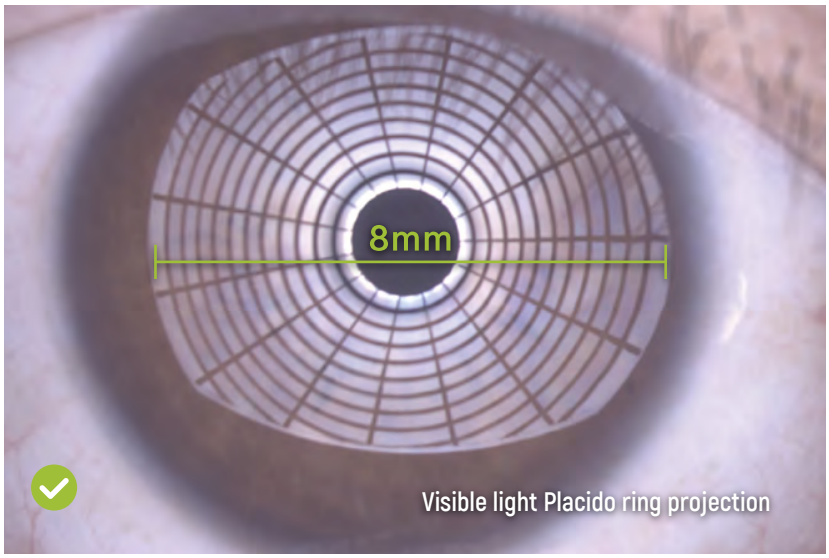
Functions

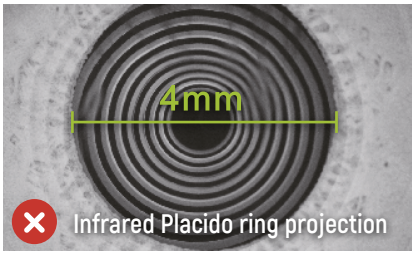
AI Non-Invasive Break Up Time

After taking one video, it brings out automatis result of NIBUT and Tear Meniscus Height.

Grade 0 Normal, First Rupture Time: 10 s - Average Rupture Time: 14 s
Grade 1 Warning, First Rupture Time: 6-9 s - Average Rupture Time: 7-13 s
Grade 2 Dry eye, First Rupture Time: 5 s - Average Rupture Time: 7 s

AI identifies the break-up area and analyzes NIBUT automatically. Fully automatic analysis system provides efficient quantified evaluation for the overall stability of tear film.It automatically acquires the first break up time, average break up time, break up distribution,break up area percentage curve and time distribution.

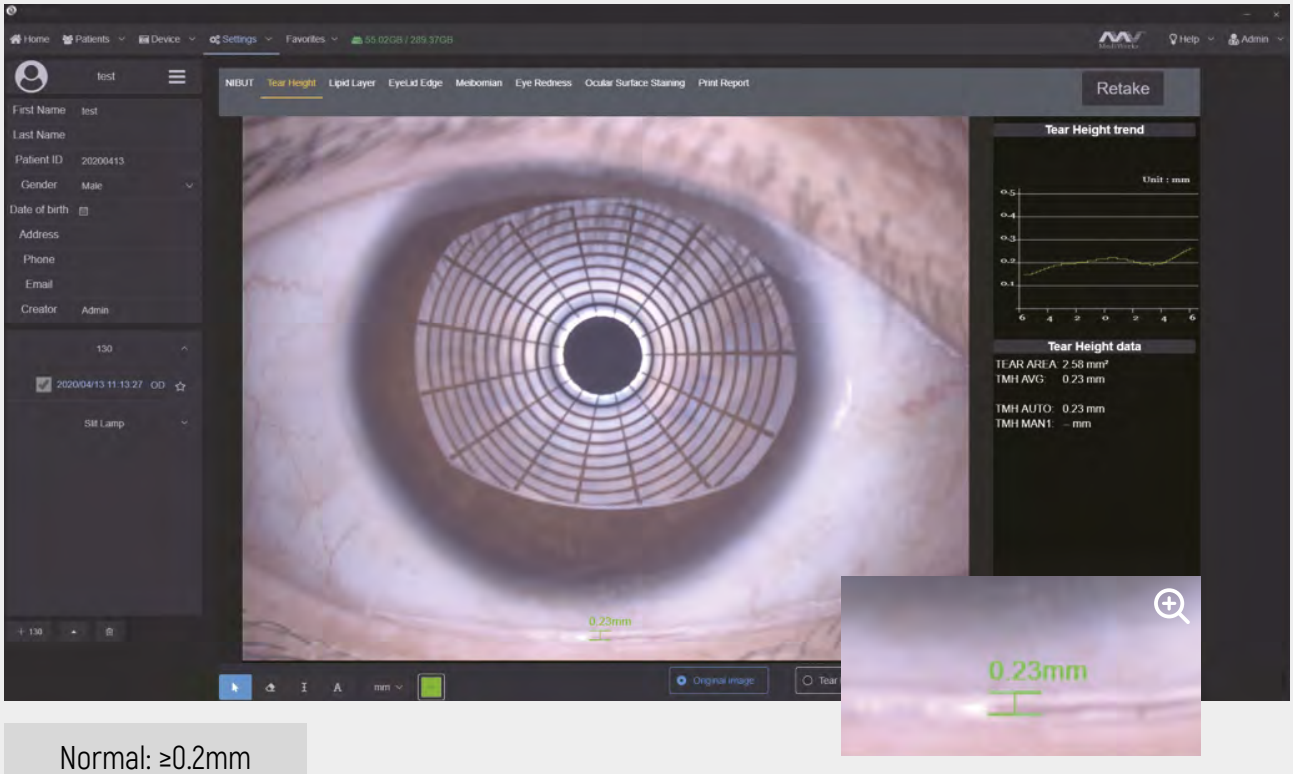




Hans Heiss adopts Placido ring projection system with visible light to do NIBUT examination,the examination scope is up to 8mm cornea diameter which brings much more comprehensive diagnosis outcome. The non-invasive examination avoids the irritation brought by the traditional Cornea Sodium Fluorescein Staining.

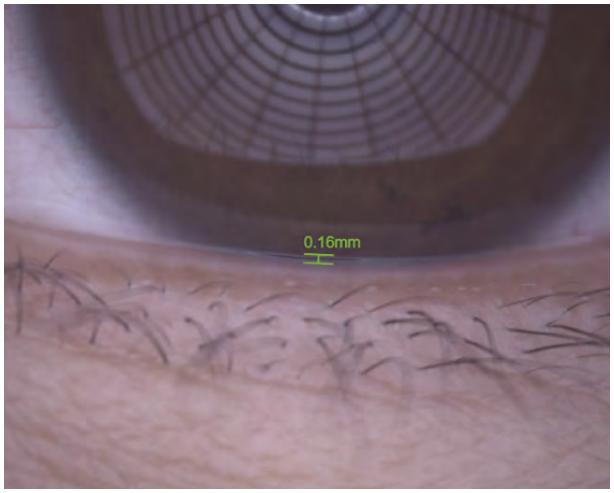
Functions

AI Non-Invasive Tear Meniscus Height

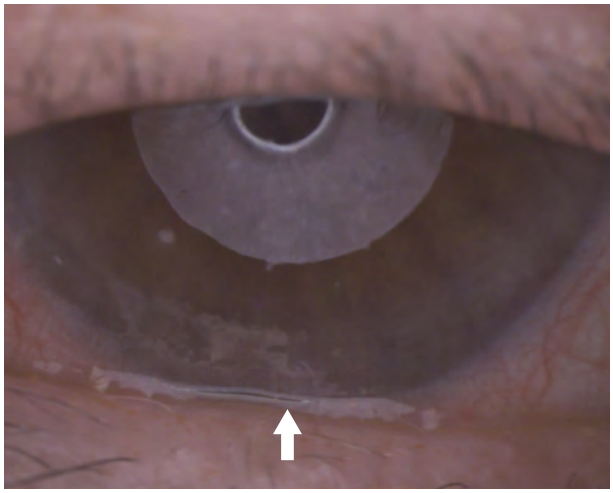


Normal: ≥0.2mm

AI identification system depicts Tear Meniscus area and measures the tear height automatically.
Evaluate tear secretion amount and continuity objectively.
More efficient and less irritation compared with the traditional Schirmer's test.



Insufficient tear secretion



Abnormal dynamics and conjunctival chalasis

Functions Evaluation of Meibomian Glands Function

Automatic classification system provides precise and quantified diagnosis of DES caused by meibomian glands dysfunction.
With built-in infrared lighting system,doctors can observe larger image scope of the Meibomian Glands.
Adjustable depth of field makes the glands more prominent and distinguishable against the background.

Grade 0: No Meibomian Glands Loss
Grade 1: Meibomian Glands Loss ＜ 1/3
Grade 2: Meibomian Glands Loss 1/3-2/3
Grade 3: Meibomian Glands Loss ＞2/3

Meibomian glands loss

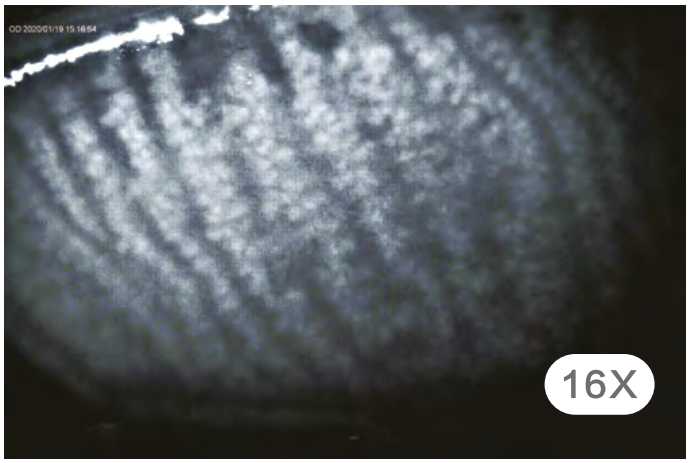


Image of Meibomian Glands under high-magnification

Functions

Lipid Layer Thickness

White ring projection system ensures a larger examination area compared to Placido ring.

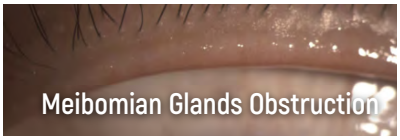
By comparing with the standard grading template and recording the Lipid Layer thickness, it is helpful for judging MGD.

(Unit: nm)

Grade 1: <15
Grade 2: ≈ 15
Grade 3: ≈ 30
Grade 4: ≈ 30-80
Grade 5: ≈ 80
Grade 6: ≈ 80-120
Grade 7: ≈120-160

Eyelid Margin

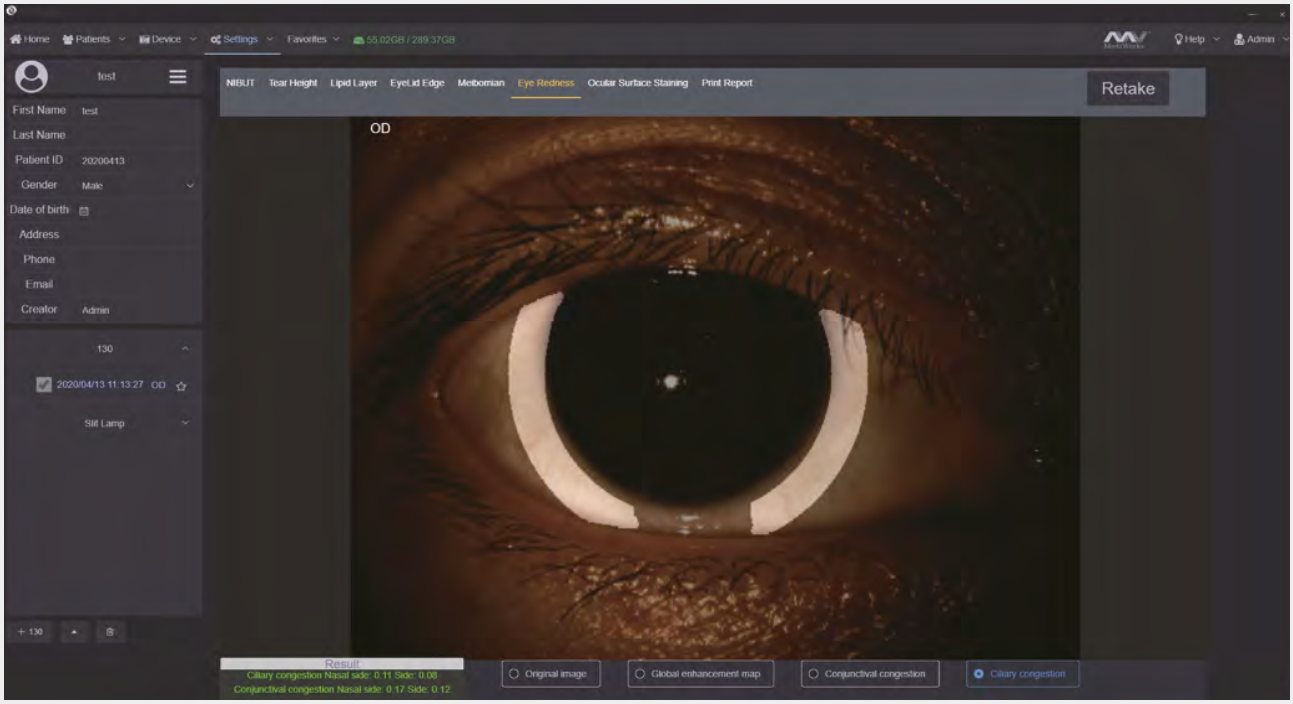
1. Normal including (Ophthalmic embolism bright, transparent)
2. Mild including (gland cap crown - glandular prominent)
3. Moderate including (glandular fat plug - disappearance of the marginal mucosa, hyperkeratosis)
4. Severe including (uneven margins, disappearance of the meibomian glands - posterior margin Blunt round, thickening, new blood)



Hans Heiss professional design of optical system is capable of providing HD digital image that remains clear and sharp even zoom in, meets the examination requirements of the overall shape of eyelid margin and its slight change.

Functions

AI Analysis of Conjunctival Hyperemia

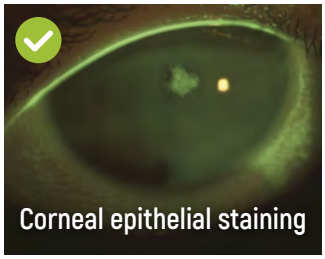


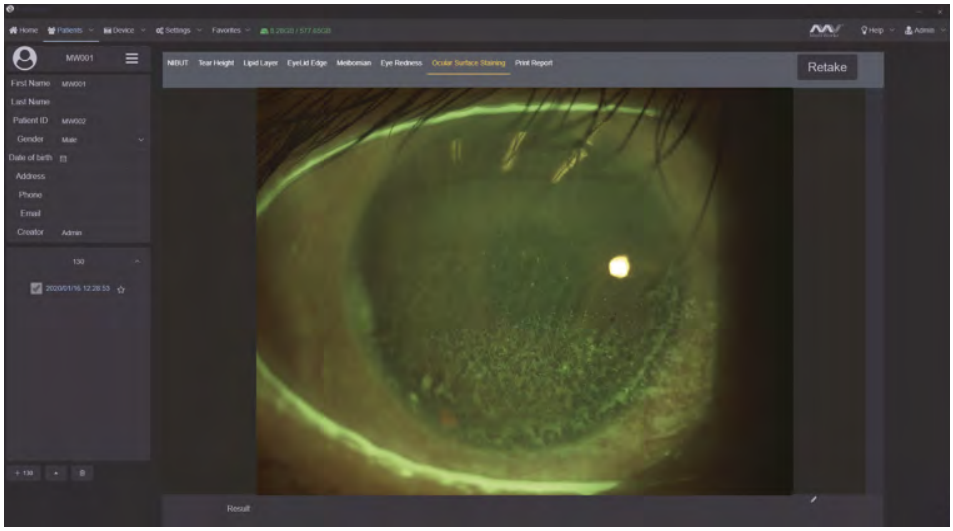
Normal: ≤2 Abnormal: >2

The unique AI identification system can identify and calculate percentages of conjunctival congestion and ciliary congestions and evaluate severity of eye congestion.

AI image

Cornea Sodium Fluorescein Staining

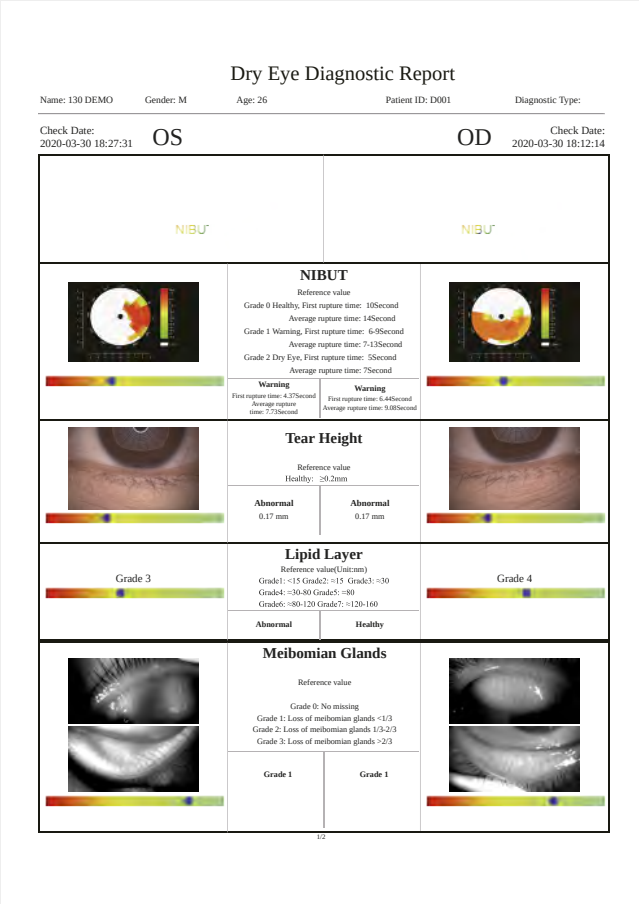




Effectively increases positive rate of early corneal epithelial staining.
Built-in yellow filter along with cobalt-blue filter makes the corneal sodium fluorescein images more clearly.

Convenient Medical Consultation on Dry Eye Syndrome

Dry Eye Comprehensive Evaluation Report


Dry Eye Diagnostic Report

Name: 130 DEMO Gender: M Age: 26 Patient ID: D001 Diagnostic Type:

Check Date: 2020-03-30 18:27:31 OS OD Check Date: 2020-03-30 18:12:14

NIBUT

NIBUT

Reference value
Grade 0 Healthy, First rupture time: 10Second
Average rupture time: 14Second
Grade 1 Warning, First rupture time: 6-9Second
Average rupture time: 7-13Second
Grade 2 Dry Eye, First rupture time: 5Second
Average rupture time: 7Second

Warning First rupture time: 4.37Second Average rupture time: 7.73Second

Warning First rupture time: 6.44Second Average rupture time: 9.08Second

Tear Height

Reference value
Healthy: ≥0.2mm

Abnormal 0.17 mm

Abnormal 0.17 mm

Lipid Layer

Reference value(Unit:nm)
Grade1: <15 Grade2: ≈15 Grade3: ≈30
Grade4: ≈30-80 Grade5: ≈80
Grade6: ≈80-120 Grade7: ≈120-160

Grade 3

Grade 4

Abnormal

Healthy

Meibomian Glands

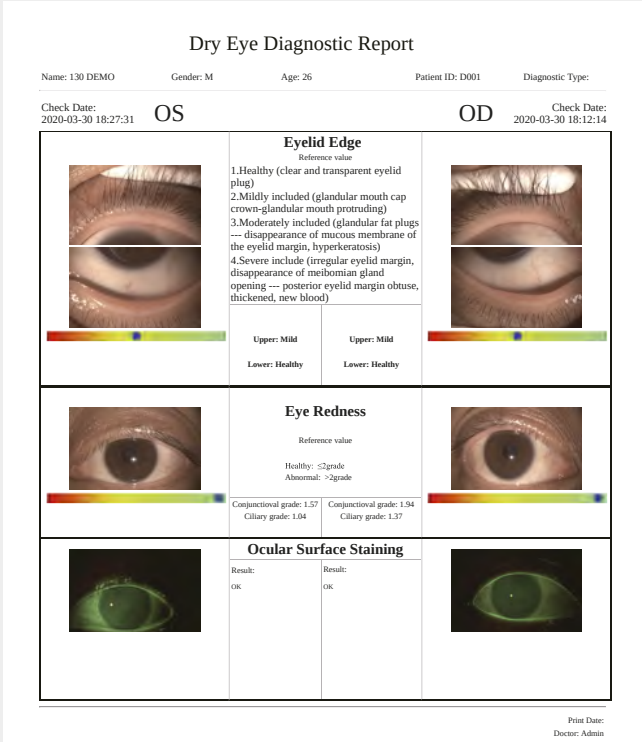
Reference value

Grade 0: No missing
Grade 1: Loss of meibomian glands <1/3
Grade 2: Loss of meibomian glands 1/3-2/3
Grade 3: Loss of meibomian glands >2/3

Grade 1

Grade 1

1/2


Dry Eye Diagnostic Report

Name: 130 DEMO Gender: M Age: 26 Patient ID: D001 Diagnostic Type:

Check Date: 2020-03-30 18:27:31 OS OD Check Date: 2020-03-30 18:12:14

Eyelid Edge

Reference value
1.Healthy (clear and transparent eyelid plug)
2.Mildly included (glandular mouth cap crown-glandular mouth protruding)
3.Moderately included (glandular fat plugs --- disappearance of mucous membrane of the eyelid margin, hyperkeratosis)
4.Severe include (irregular eyelid margin, disappearance of meibomian gland opening --- posterior eyelid margin obtuse, thickened, new blood)

Upper: Mild Lower: Healthy

Upper: Mild Lower: Healthy

Eye Redness

Reference value

Healthy: ≤2grade
Abnormal: >2grade

Conjunctioval grade: 1.57 Ciliary grade: 1.04

Conjunctioval grade: 1.94 Ciliary grade: 1.37

Ocular Surface Staining

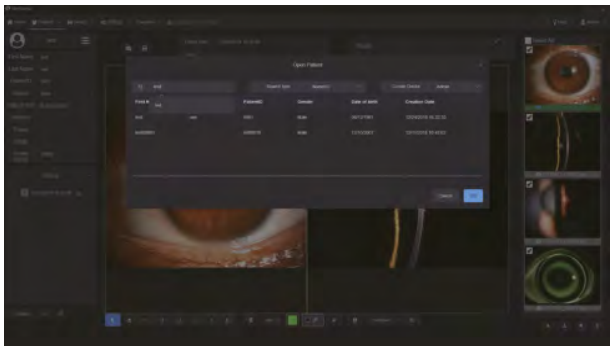
Result: OK

Result: OK

Print Date:
Doctor: Admin

Smart Patient Management system

Comparison of Patient records.
Supports repeated comparison among medical records to evaluate treatment and guide customized treatment plan.



Patient Management system allows doctors to build and edit medical records. Quickly search the patient case by key words. Doctors can note patients' situation via the software. This DICOM-supported system enables Mediview to connect with medical systems in hospitals.

TECHNICAL SPECIFICATIONS

Microscope			
Microscope Type	Galilean Type		
Magnification Change	Revolving Drum 5 steps		
Total Magnification	6.3X, 10X, 16X, 25X, 40X		
Optical Resolution	2700·N lp/mm (200 lp/mm)		
Eyepieces	12.5X		
Angle between Eyepieces	10°		
Pupillary Adjustment	52mm-80mm		
Diopter Adjustment	-8D~+8D		
Field of View	Ø36.2mm, Ø22.3mm, Ø14mm, Ø8.9mm, Ø5.7mm		
Slit Illumination			
Slit Width	0~14mm continuous (slit becomes a circle at 14mm)		
Slit Length	1~14mm continuous		
Aperture Diameters	Ø14mm, Ø10mm, Ø5mm, Ø3mm, Ø2mm, Ø1mm, Ø0.2mm		
Slit Angle	0°~180°		
Slit Inclination	5°, 10°, 15°, 20°		
Filters	Heat-absorbing filter, ND filter, Red-free filter, Cobalt blue filter,Yellow filter built-in		
Lamp	3V LED Module		
Luminance	≥150KLX		
Power Supply		**Packaging**	
Input Voltage	110V~220V	Dimension	770mm x 570mm (L/W/H)
Input Frequency	50Hz/60Hz	Gross weight	23kg
Power Consumption	90VA	Net weight	17kg
Output Voltage	3V LED, Fixation 5V		
System Specifications			
Digital Module	Automatic exposure/ Automatic white balance / Adjustable depth of field and aperture		
Image Sensor	1/1.8-inch sensor / 2.4μm pixel / 5.0M Pixels		
Photo Resolution	2592 x 1944		
Format	JPEG		
Video Resolution	2592 x 1944		
Frame of Video	25fps		
Video Formats	MP4 H.264		
Exposure Mode	Automatic exposure		
Transmission Interface	USB 3.0 TYPE-C		
System Specifications			
PC configuration	i5-8500T 8G 1T+128G 2Gdiscrete graphics		
Display	1920×1080 23.8inch		
PC system	Windows 10		

Häns Heiss

Slit lamp with Dry Eye system SLD10L-VSM

Dry Eye Module

AI Non-Invasive Tear Break Up Time

AI identify the break-up area
Automatic first break up time
Automatic average break up time
Visible light Placido ring projection(23 ring)

Meibomian Glands Function Evaluation

Automatic Meibomian glands
loss classification

Eyelid Margin

Optical magnification
Electronic amplification

AI Non-Invasive Tear Meniscus Height

AI identification system
Automatic Non-Invasive Tear Meniscus Height
Optical magnification
Electronic amplification

Lipid Layer Thickness

Template comparison evaluation

Dry Eye Examination Report

Automatic analysis report

AI Conjunctival Hyperemia Analysis

AI identification system
Automatic conjunctival congestion percentages
Automatic ciliary congestions percentages

Cornea Sodium Fluorescein Staining

Eye surface damage report
Built-in yellow filter
Cobalt blue filter

Dry Eye System

SLD10L-VSM

Häns Heiss

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