

# DATA FORMAT

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## IOL\_RAYTRACE

### Table of Contents:

- 1. Definition of TAG and fields in CSV file ..... 2
- 2. Sample (Portion following a common header) ..... 6

## DATA FORMAT : Examination data part IOL\_RAYTRACE (version:1-00-00)

### 1. Definition of TAG and fields in CSV file

Table1 Field in CSV TAG

| Tag Name     | Explanation of the tag   | Field following a tag |               |                        |                |                |                                      |   |      |
|--------------|--|-----------------------|---------------|------------------------|----------------|----------------|--------------------------------------|---|------|
|              |  | No. of appearance     | No. of fields | Name of fields         | Type of fields | Character type | The maximum number of the characters | Detail  | Unit |
| [FM_IF]      | Unit format  | -                     | 2             | Unit format            | String         | ASCII          | 64                                   | Format for IOL_RAYTRACE   |      |
|              |  |                       |               | Version                | String         | ASCII          | 64                                   | Character string of software version                            |      |
| [MAC_V]      | Software version   | -                     | 1             | Version                | String         | ASCII          | 3                                    | Character string of Unit software version                       | -    |
| [KI_R]       | Keratometric Index of right eye                                | -                     | 1             | Keratometric Index     | Num            | ASCII          | 9                                    | Unsigned decimal, blank means no data<br>blank means no data    |      |
| [INF1_R]     | Calculation1: RayTrace Calculation classification of right eye | -                     | 2             | Calculation type       | String         | ASCII          | 11                                   | Show one of (OKULIX/EASTIOL) , blank means no data              |      |
|              |  |                       |               | Calculation Version    | String         | ASCII          | 11                                   | Character string of software version<br>blank means no data     |      |
| [K12_MSR1_R] | Calculation1: Corneal refractive power of right eye            | -                     | 2             | K1(Φ3)                 | Num            | ASCII          | 5                                    | Unsigned decimal(measurement position Φ3), blank means no data  | mm/D |
|              |  |                       |               | K2(Φ3)                 | Num            | ASCII          | 5                                    | Unsigned decimal(measurement position Φ3), blank means no data  | mm/D |
| [MSR1_R]     | Calculation1: representative value of right eye                | -                     | 6             | Measurement mode       | String         | ASCII          | 5                                    | Show one of (OPT/US) , blank means no data                      |      |
|              |  |                       |               | Conversion method      | String         | ASCII          | 9                                    | Contact/Immersion/OptLength/Contact2, blank means no data       |      |
|              |  |                       |               | Axial length           | Num            | ASCII          | 5                                    | Unsigned decimal, blank means no data                           | mm   |
|              |  |                       |               | ACD                    | Num            | ASCII          | 5                                    | Unsigned decimal, blank means no data                           | mm   |
|              |  |                       |               | Lens thickness         | Num            | ASCII          | 5                                    | Unsigned decimal, blank means no data                           | mm   |
| [IOL_RES1_R] | Calculation1: IOL calculation result parameter of right eye    | -                     | 8             | Cornea thickness       | Num            | ASCII          | 5                                    | Unsigned decimal, blank means no data                           | um   |
|              |  |                       |               | IOL Manufacturer name1 | String         | ASCII          | 20                                   | Manufacturer name used for IOL calculation, blank means no data |      |
|              |  |                       |               | IOL Model name1        | String         | ASCII          | 32                                   | Model name used for IOL calculation, blank means no data        |      |
|              |  |                       |               | IOL Manufacturer name2 | String         | ASCII          | 20                                   | Manufacturer name used for IOL calculation, blank means no data |      |
|              |  |                       |               | IOL Model name2        | String         | ASCII          | 32                                   | Model name used for IOL calculation, blank means no data        |      |
|              |  |                       |               | IOL Manufacturer name3 | String         | ASCII          | 20                                   | Manufacturer name used for IOL calculation, blank means no data |      |
|              |  |                       |               | IOL Model name3        | String         | ASCII          | 32                                   | Model name used for IOL calculation, blank means no data        |      |
|              |  |                       |               | IOL Manufacturer name4 | String         | ASCII          | 20                                   | Manufacturer name used for IOL calculation, blank means no data |      |
|              |  |                       |               | IOL Model name4        | String         | ASCII          | 32                                   | Model name used for IOL calculation, blank means no data        |      |

**DATA FORMAT : Examination data part IOL\_RAYTRACE (version:1-00-00)**

|                 |  |   |   |                                 |        |       |    |   |         |
|-----------------|--|---|---|---------------------------------|--------|-------|----|---|---------|
| [TARGET_REF1_R] | Calculation1:<br>Desired<br>refractive power<br>of right eye               | - | 3 | Refractive<br>power(sph)        | Num    | ASCII | 5  | Unsigned decimal (0.00~99.99) The astigmatism none is a blank.  | Diopter |
|                 |  |   |   | Refractive<br>cylindrical power | Num    | ASCII | 5  | Unsigned decimal (0.00~99.99) The astigmatism none is a blank.  | Diopter |
|                 |  |   |   | Refractive angle                | Num    | ASCII | 3  | Unsigned integer(0~179). The astigmatism none is a blank.       | °       |
| [INF2_R]        | Calculation2:<br>RayTrace<br>Calculation<br>classification of<br>right eye | - | 2 | Calculation type                | String | ASCII | 3  | Show one of (OKULIX/EASTIOL) , blank means no data              |         |
|                 |  |   |   | Calculation Version             | String | ASCII | 11 | Character string of software version<br>blank means no data     |         |
| [K12_MSR2_R]    | Calculation2:<br>Corneal<br>refractive power<br>of right eye               | - | 2 | K1(Φ3)                          | Num    | ASCII | 5  | Unsigned decimal(measurement position Φ3), blank means no data  | mm/D    |
|                 |  |   |   | K2(Φ3)                          | Num    | ASCII | 5  | Unsigned decimal(measurement position Φ3), blank means no data  | mm/D    |
| [MSR2_R]        | Calculation2:<br>representative<br>value of right<br>eye                   | - | 6 | Measurement mode                | String | ASCII | 5  | Show one of (OPT/US) , blank means no data                      |         |
|                 |  |   |   | Conversion method               | String | ASCII | 9  | Contact/Immersion/OptLength/Contact2, blank means no data       |         |
|                 |  |   |   | Axial length                    | Num    | ASCII | 5  | Unsigned decimal, blank means no data                           | mm      |
|                 |  |   |   | ACD                             | Num    | ASCII | 5  | Unsigned decimal, blank means no data                           | mm      |
|                 |  |   |   | Lens thickness                  | Num    | ASCII | 5  | Unsigned decimal, blank means no data                           | mm      |
|                 |  |   |   | Cornea thickness                | Num    | ASCII | 5  | Unsigned decimal, blank means no data                           | um      |
| [IOL_RES2_R]    | Calculation2:<br>IOL calculation<br>result<br>parameter of<br>right eye    | - | 8 | IOL Manufacturer<br>name1       | String | ASCII | 20 | Manufacturer name used for IOL calculation, blank means no data |         |
|                 |  |   |   | IOL Model name1                 | String | ASCII | 32 | Model name used for IOL calculation, blank means no data        |         |
|                 |  |   |   | IOL Manufacturer<br>name2       | String | ASCII | 20 | Manufacturer name used for IOL calculation, blank means no data |         |
|                 |  |   |   | IOL Model name2                 | String | ASCII | 32 | Model name used for IOL calculation, blank means no data        |         |
|                 |  |   |   | IOL Manufacturer<br>name3       | String | ASCII | 20 | Manufacturer name used for IOL calculation, blank means no data |         |
|                 |  |   |   | IOL Model name3                 | String | ASCII | 32 | Model name used for IOL calculation, blank means no data        |         |
|                 |  |   |   | IOL Manufacturer<br>name4       | String | ASCII | 20 | Manufacturer name used for IOL calculation, blank means no data |         |
|                 |  |   |   | IOL Model name4                 | String | ASCII | 32 | Model name used for IOL calculation, blank means no data        |         |
| [TARGET_REF2_R] | Calculation2:<br>Desired<br>refractive power<br>of right eye               | - | 3 | Refractive<br>power(sph)        | Num    | ASCII | 5  | Unsigned decimal (0.00~99.99) The astigmatism none is a blank.  | Diopter |
|                 |  |   |   | Refractive<br>cylindrical power | Num    | ASCII | 5  | Unsigned decimal (0.00~99.99) The astigmatism none is a blank.  | Diopter |
|                 |  |   |   | Refractive angle                | Num    | ASCII | 3  | Unsigned integer(0~179). The astigmatism none is a blank.       | °       |
| [KI_L]          | Keratometric<br>Index of left eye  | - | 1 | Keratometric Index              | Num    | ASCII | 9  | Unsigned decimal, blank means no data<br>blank means no data    |         |
| [INF1_L]        | Calculation1:<br>RayTrace<br>Calculation<br>classification of<br>left eye  | - | 2 | Calculation type                | String | ASCII | 11 | Show one of (OKULIX/EASTIOL) , blank means no data              |         |
|                 |  |   |   | Calculation Version             | String | ASCII | 11 | Character string of software version<br>blank means no data     |         |

**DATA FORMAT : Examination data part IOL\_RAYTRACE (version:1-00-00)**

|                 |  |   |   |                              |        |       |    |   |         |
|-----------------|--|---|---|------------------------------|--------|-------|----|---|---------|
| [K12_MSR1_L]    | Calculation1:<br>Corneal refractive power of left eye            | - | 2 | K1(Φ3)                       | Num    | ASCII | 5  | Unsigned decimal(measurement position Φ3), blank means no data  | mm/D    |
|                 |  |   |   | K2(Φ3)                       | Num    | ASCII | 5  | Unsigned decimal(measurement position Φ3), blank means no data  | mm/D    |
| [MSR1_L]        | Calculation1:<br>representative value of left eye                | - | 6 | Measurement mode             | String | ASCII | 5  | Show one of (OPT/US) , blank means no data                      |         |
|                 |  |   |   | Conversion method            | String | ASCII | 9  | Contact/Immersion/OptLength/Contact2, blank means no data       |         |
|                 |  |   |   | Axial length                 | Num    | ASCII | 5  | Unsigned decimal, blank means no data                           | mm      |
|                 |  |   |   | ACD                          | Num    | ASCII | 5  | Unsigned decimal, blank means no data                           | mm      |
|                 |  |   |   | Lens thickness               | Num    | ASCII | 5  | Unsigned decimal, blank means no data                           | mm      |
|                 |  |   |   | Cornea thickness             | Num    | ASCII | 5  | Unsigned decimal, blank means no data                           | um      |
| [IOL_RES1_L]    | Calculation1:<br>IOL calculation result parameter of left eye    | - | 8 | IOL Manufacturer name1       | String | ASCII | 20 | Manufacturer name used for IOL calculation, blank means no data |         |
|                 |  |   |   | IOL Model name1              | String | ASCII | 32 | Model name used for IOL calculation, blank means no data        |         |
|                 |  |   |   | IOL Manufacturer name2       | String | ASCII | 20 | Manufacturer name used for IOL calculation, blank means no data |         |
|                 |  |   |   | IOL Model name2              | String | ASCII | 32 | Model name used for IOL calculation, blank means no data        |         |
|                 |  |   |   | IOL Manufacturer name3       | String | ASCII | 20 | Manufacturer name used for IOL calculation, blank means no data |         |
|                 |  |   |   | IOL Model name3              | String | ASCII | 32 | Model name used for IOL calculation, blank means no data        |         |
|                 |  |   |   | IOL Manufacturer name4       | String | ASCII | 20 | Manufacturer name used for IOL calculation, blank means no data |         |
|                 |  |   |   | IOL Model name4              | String | ASCII | 32 | Model name used for IOL calculation, blank means no data        |         |
| [TARGET_REF1_L] | Calculation1:<br>Desired refractive power of left eye            | - | 3 | Refractive power(sph)        | Num    | ASCII | 5  | Unsigned decimal (0.00~99.99) The astigmatism none is a blank.  | Diopter |
|                 |  |   |   | Refractive cylindrical power | Num    | ASCII | 5  | Unsigned decimal (0.00~99.99) The astigmatism none is a blank.  | Diopter |
|                 |  |   |   | Refractive angle             | Num    | ASCII | 3  | Unsigned integer(0~179). The astigmatism none is a blank.       | °       |
| [INF2_L]        | Calculation2:<br>RayTrace Calculation classification of left eye | - | 2 | Calculation type             | String | ASCII | 3  | Show one of (OKULIX/EASTIOL) , blank means no data              |         |
|                 |  |   |   | Calculation Version          | String | ASCII | 11 | Character string of software version<br>blank means no data     |         |
| [K12_MSR2_L]    | Calculation2:<br>Corneal refractive power of left eye            | - | 2 | K1(Φ3)                       | Num    | ASCII | 5  | Unsigned decimal(measurement position Φ3), blank means no data  | mm/D    |
|                 |  |   |   | K2(Φ3)                       | Num    | ASCII | 5  | Unsigned decimal(measurement position Φ3), blank means no data  | mm/D    |
| [MSR2_L]        | Calculation2:<br>representative value of left eye                | - | 6 | Measurement mode             | String | ASCII | 5  | Show one of (OPT/US) , blank means no data                      |         |
|                 |  |   |   | Conversion method            | String | ASCII | 9  | Contact/Immersion/OptLength/Contact2, blank means no data       |         |
|                 |  |   |   | Axial length                 | Num    | ASCII | 5  | Unsigned decimal, blank means no data                           | mm      |
|                 |  |   |   | ACD                          | Num    | ASCII | 5  | Unsigned decimal, blank means no data                           | mm      |
|                 |  |   |   | Lens thickness               | Num    | ASCII | 5  | Unsigned decimal, blank means no data                           | mm      |
|                 |  |   |   | Cornea thickness             | Num    | ASCII | 5  | Unsigned decimal, blank means no data                           | um      |

**DATA FORMAT : Examination data part IOL\_RAYTRACE (version:1-00-00)**

|                 |  |        |   |                              |        |       |    |  |         |
|-----------------|--|--------|---|------------------------------|--------|-------|----|--|---------|
| [IOL_RES2_L]    | Calculation2: IOL calculation result parameter of left eye | -      | 8 | IOL Manufacturer name1       | String | ASCII | 20 | Manufacturer name used for IOL calculation, blank means no data  |         |
|                 |  |        |   | IOL Model name1              | String | ASCII | 32 | Model name used for IOL calculation, blank means no data   |         |
|                 |  |        |   | IOL Manufacturer name2       | String | ASCII | 20 | Manufacturer name used for IOL calculation, blank means no data  |         |
|                 |  |        |   | IOL Model name2              | String | ASCII | 32 | Model name used for IOL calculation, blank means no data   |         |
|                 |  |        |   | IOL Manufacturer name3       | String | ASCII | 20 | Manufacturer name used for IOL calculation, blank means no data  |         |
|                 |  |        |   | IOL Model name3              | String | ASCII | 32 | Model name used for IOL calculation, blank means no data   |         |
|                 |  |        |   | IOL Manufacturer name4       | String | ASCII | 20 | Manufacturer name used for IOL calculation, blank means no data  |         |
|                 |  |        |   | IOL Model name4              | String | ASCII | 32 | Model name used for IOL calculation, blank means no data   |         |
| [TARGET_REF2_L] | Calculation2: Desired refractive power of left eye         | -      | 3 | Refractive power(sph)        | Num    | ASCII | 5  | Unsigned decimal (0.00~99.99) The astigmatism none is a blank.   | Diopter |
|                 |  |        |   | Refractive cylindrical power | Num    | ASCII | 5  | Unsigned decimal (0.00~99.99) The astigmatism none is a blank.   | Diopter |
|                 |  |        |   | Refractive angle             | Num    | ASCII | 3  | Unsigned integer(0~179). The astigmatism none is a blank.  | °       |
| [FILES_N]       | File name and function                                     | -      | 2 | File number                  | Num    | ASCII | 3  | Unsigned integer(1~999). The astigmatism none is a blank.  |         |
|                 |  |        |   | Encryption                   | String | ASCII | -  | Disable: no encryption<br>Enable: encryption   |         |
| [FILE]          | File name and function                                     | MAX 21 | 3 | File name                    | String | ASCII | 15 | String(RAYTRACE_*.JPG, RAYTRACE*1_*.JPG)<br>*1 means calculation number (1,2)<br>* means R/L<br>RAYTRACE_*.JPG, - SCREENSHOT<br>RAYTRACE*1_*.JPG - calculation result of ray trace |         |
|                 |  |        |   | File type                    | String | ASCII | 4  | String(COPY,RAYTRACE)<br>COPY - SCREENSHOT<br>RAYTRACE - calculation result of ray trace   |         |
|                 |  |        |   | Classification code          | String | ASCII | 2  | Letter Refer ※1) About classification code   |         |

\*1) About Classification code

| Classification code | Category A(Eye) |               | Category B(Calculation No.) |               | Category C<br>(Calculation Type) |               |
|---------------------|-----------------|---------------|-----------------------------|---------------|----------------------------------|---------------|
|                     | R               | Right         | 1                           | No: 1         | O                                | OKULIX        |
|                     | L               | Left          | 2                           | No: 2         | E                                | EASYIOL       |
|                     | D               | Both eyes     | X                           | No indication | X                                | No indication |
|                     | X               | No indication |                             |               |                                  |               |

## DATA FORMAT : Examination data part IOL\_RAYTRACE (version:1-00-00)

### 2. Sample (Portion following a common header)

#### 2-1. Both eye measurement

##### Sample

[FM\_IF],KERATO,1-00-00

[MAC\_V],1H1

[KI\_R], 1.3375

[INF1\_R],OKULIX,001-001

[K12\_MSR1\_R],43.28,42.54,87

[MSR1\_R],OPT,Immersion,25.45,3,79,3.50,565

[IOL\_RES1\_R],Alcon,Toric IQ,Alcon,SN60WF,AJL,Y601075,AMO,Sensar AR40e

[TARGET\_REF1\_R],0.00,,

[INF2\_R],EASYIOL,1.0.0

[K12\_MSR2\_R],43.28,42.54,87

[MSR2\_R],OPT,Immersion,25.45,3,79,3.50,565

[IOL\_RES2\_R],Dr. Schmidt,MS612,Morcher,92S TORIC,HumanOptics,1CU,,

[TARGET\_REF2\_R],0.00,0.00,10

[KI\_L], 1.3375

[INF1\_L],OKULIX,001-001

##### Explanation

Unit format IOL\_RAYTRACE Version 1-00-00

Unit software version Ver.1H1

(Right eye) Keratometric Index KI = 1.3375

(Right eye) Calculation1 OKULIX ver.001-001

(Right eye) K1=43.28D K2 =42.54D,87°

(Right eye) Measurement mode OPT

Conversion method : Immersion

Axial length 25.45mm

ADCend 3.79mm

Lens thickness 3.50mm

Cornea thickness 565um

(Right eye) Calculation1

IOL1 : Manufacturer Alcon / Model name Toric IQ

IOL2 : Manufacturer Alcon / Model name SN60WF

IOL3 : Manufacturer AJL / Model name Y601075

IOL4 : Manufacturer AMO / Model name Sensar AR40e

(Right eye) Calculation1 Refractive power 0.00D

(Right eye) Calculation2 EASYIOL ver.1.0.0

(Right eye) K1=43.28D K2 =42.54D,87°

(Right eye) Measurement mode OPT

Conversion method : Immersion

Axial length 25.45mm

ADCend 3.79mm

Lens thickness 3.50mm

Cornea thickness 565um

(Right eye) Calculation2

IOL1 : Manufacturer Dr. Schmidt / Model name MS612

IOL2 : Manufacturer Morcher / Model name 92S TORIC

IOL3 : Manufacturer HumanOptics / Model name 1CU

IOL4 : No select

(Right eye) Calculation2 Refractive power 0.00D / Refractive cylindrical power 0.00D  
/ Refractive angle 10°

(Left eye) Keratometric Index KI= 1.3375

(Left eye) Calculation1 OKULIX ver.001-001

## DATA FORMAT : Examination data part IOL\_RAYTRACE (version:1-00-00)

[K12\_MSR1\_L],43.34,42.07,81  
[MSR1\_L],OPT,Immersion,24.63,3.00,4.09,573

(Left eye) K1=43.34D K2 =42.07D,81°  
(Left eye) Measurement mode OPT  
Conversion method : Immersion  
Axial length 24.63mm  
ADCend 3.00mm  
Lens thickness 4.09mm  
Cornea thickness 573um

[IOL\_RES1\_L],Alcon,Toric IQ,Alcon,SN60WF,AJL,Y601075,AMO,Sensar AR40e

(Left eye) Calculation1  
IOL1 : Manufacturer Alcon / Model name Toric IQ  
IOL2 : Manufacturer Alcon / Model name SN60WF  
IOL3 : Manufacturer AJL / Model name Y601075  
IOL4 : Manufacturer AMO / Model name Sensar AR40e

[TARGET\_REF1\_L],0.00,,  
[INF2\_L],EASYIOL,1.0.0  
[K12\_MSR2\_L],43.34,42.07,81  
[MSR2\_L],OPT,Immersion,24.63,3.00,4.09,573

(Left eye) Calculation1 Refractive power 0.00D  
(Left eye) Calculation2 EASYIOL ver.1.0.0  
(Left eye) K1=43.34D K2 =42.07D,81°  
(Left eye) Measurement mode OPT  
Conversion method : Immersion  
Axial length 24.63mm  
ADCend 3.00mm  
Lens thickness 4.09mm  
Cornea thickness 573um

[IOL\_RES2\_L],Dr. Schmidt,MS612,Morcher,92S TORIC,HumanOptics,1CU,,

(Left eye) Calculation2  
IOL1 : Manufacturer Dr. Schmidt / Model name MS612  
IOL2 : Manufacturer Morcher / Model name 92S TORIC  
IOL3 : Manufacturer HumanOptics / Model name 1CU  
IOL4 : No select

[TARGET\_REF2\_L],0.00,0.00,10

(Left eye) Calculation2 Refractive power 0.00D / Refractive cylindrical power 0.00D  
/ Refractive angle 10°

[FILES\_N],5, no encryption  
[FILE],RAYTRACE1\_R.JPG,RAYTRACE,R10  
[FILE],RAYTRACE2\_R.JPG,RAYTRACE,R10  
[FILE],RAYTRACE1\_L.JPG,RAYTRACE,R10  
[FILE],RAYTRACE2\_R.JPG,RAYTRACE,R10  
[FILE],RAYTRACE\_R.JPG,COPY,RXO

Number of attachment file 5, no encryption  
(Right eye) Calculation No.1 Calculation Type : OKULIX  
(Right eye) Calculation No.2 Calculation Type : EASYIOL  
(Left eye) Calculation No.1 Calculation Type : OKULIX  
(Left eye) Calculation No.2 Calculation Type : EASYIOL  
(Right eye) Calculation No.1 Calculation Type : OKULIX