Test Report
Light

Customer	**AUDI**	**Project**	**MLBevo Q5 Komfort**		
Project No.	**TCL.000813**	**File**	Audi_Komfort_CW_51_ Iluminación		
Test	**Planar luminance**			**LAP No.**	**0606**

Test Information

Test Reference	TS_ AUDI_MLBevo_Light_2015-03-10_en
Ordering Person	Vega, Jesús //
Test Reason	Validation
Test Date	December 17th 2025

Test Sample

Sample	BHTC-Number	Customer No.	Manufacturing Date	SW Vers.	HW Vers.	Type of sample
0115	5HB 013 923-48	80A820043AN	15.12.25	0350	H70	Serie
0116	5HB 013923-48	80A820043AN	15.12.25	0350	H70	Serie
0117	5HB 013923-48	80A820043AN	15.12.25	0350	H70	Serie

Test Evaluation

Planar luminance: Search Illumination		
Planar Color: Search Illumination		
Planar luminance: Function Illumination		
Planar Color : Function Illumination		
Planar luminance: Display Illumination		
Planar Color: Display Illumination		
Planar luminance: TFT Illumination		
Planar luminance: TFT BlackMura		

Test Implementation

Test procedure:

The test sample is positioned vertically in a device-specific plastic fixture.
The power supply for the device is set to (13.0 ± 0.1) V at room temperature T = (23 ± 3) °C.
The measurements start when the sample has been warmed up for 30 minutes.

Measuring / Test Instruments

Measuring system:

-Camera: CCD measuring camera (LMK5-1 Color)
s/n TTE4225
-Lens: - Changeable lens color TT 50mm focusable
s/n TT50-C213525
- Conoscopic lens for LMK Color piece (angle of coverage +-60°)
s/n TTC-134
-Software LMK Laboratory Software 4
Program version: 20.09.16

Test parameters:

Test voltage: (13.0 ± 0.1) V
Test temperature: TRT= (23 ± 3) °C

Files

G:\PROD\PROD3\04. Laboratorio\02_Laboratory\05_Reports\MX2025\Audi\00_Audi Komfort\02_Producción support\Light Test\Comfort\16_2025 3piezas

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5HB 013 923-48_YRA-00115.12.2502160115

Test requirement:

Search Illumination

Colour	Luminance	Saturation	Dom. wavelength $\lambda_{dom.}$
White	23.0cd/m² +/- 6cd/m²	Tolerance colour area, see chart.	

Test results:

Search Illumination

Region	luminance cd/m²	Dom. Wavelength (x) nm	Color Saturation (y)%
Seat_Heater_Left	35.5	0.3214	0.3074
Defrost_MAX	38.51	0.3254	0.3134
Defrost_REAR	37.46	0.321	0.3079
Recirculation	35.3	0.3233	0.3103
OFF	33.1	0.3216	0.3116
Seat_Heater_Right	34.27	0.3248	0.3082

Remark: The red marked results are out of the tolerance area.

Chart 1.

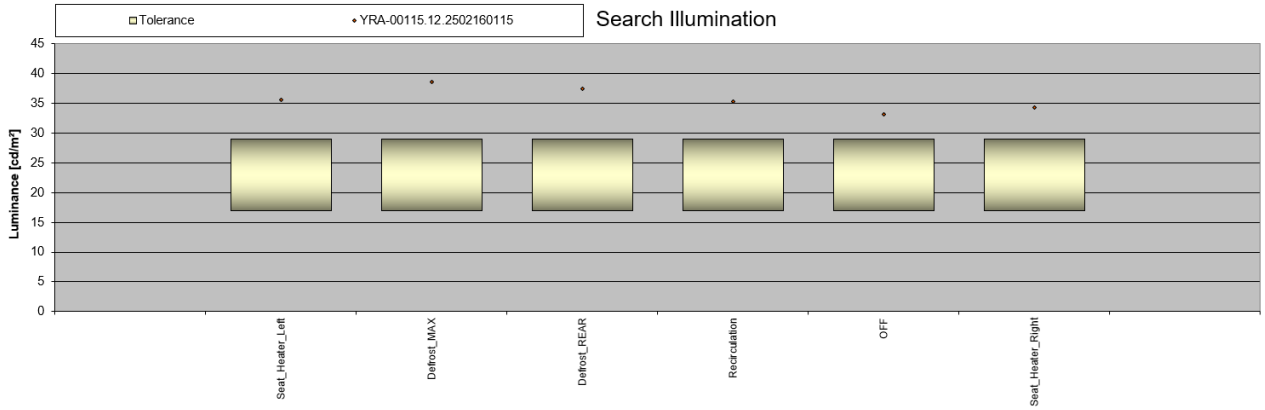
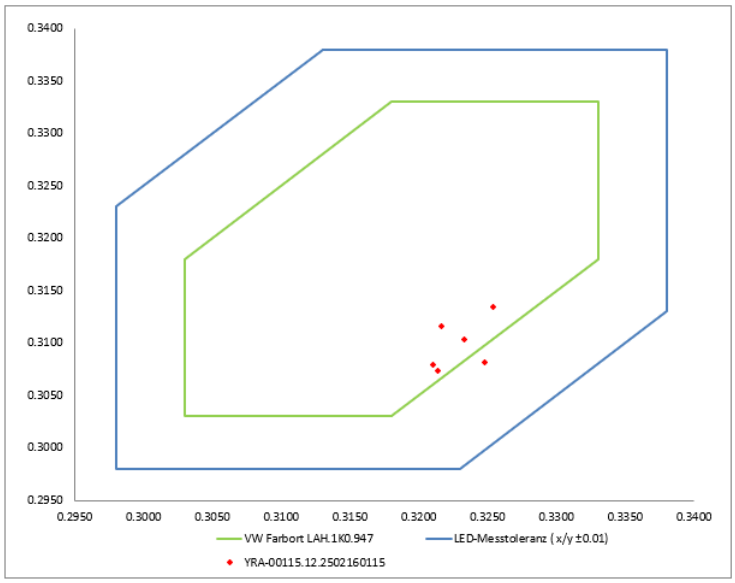


Chart 2.

VW Farbort LAH.1K0.947	
X	Y
0.3180	0.3030
0.3330	0.3180
0.3330	0.3330
0.3180	0.3330
0.3030	0.3180
0.3030	0.3030
0.3180	0.3030

LED-Messtoleranz (x/y ±0.01)	
CIE_x	CIE_y
0.3130	0.3380
0.2980	0.3230
0.2980	0.2980
0.3230	0.2980
0.3380	0.3130
0.3380	0.3380
0.3130	0.3380



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Planar luminance picture Search Illumination - Left.

Planar luminance picture Search Illumination – Right.

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Customer	**AUDI**	**Project**	**MLBevo Q5 Komfort**
Project No.	**TCL.000813**	**File**	**Audi_Komfort_CW_51_ Iluminación**

Test requirement:

Function Illumination

Colour	luminance cd/m²	Dom. wavelength λ_{dom}	Saturation	View angle
Yellow	1250+/- 313 cd/m²	589 +/- 4nm	> 90%	Vertical
Blue	450 +/- 113 cd/m²	465+8 /- 5nm	> 80%	
Red	1250+/- 313 cd/m²	633 +/- 6nm	> 90%	

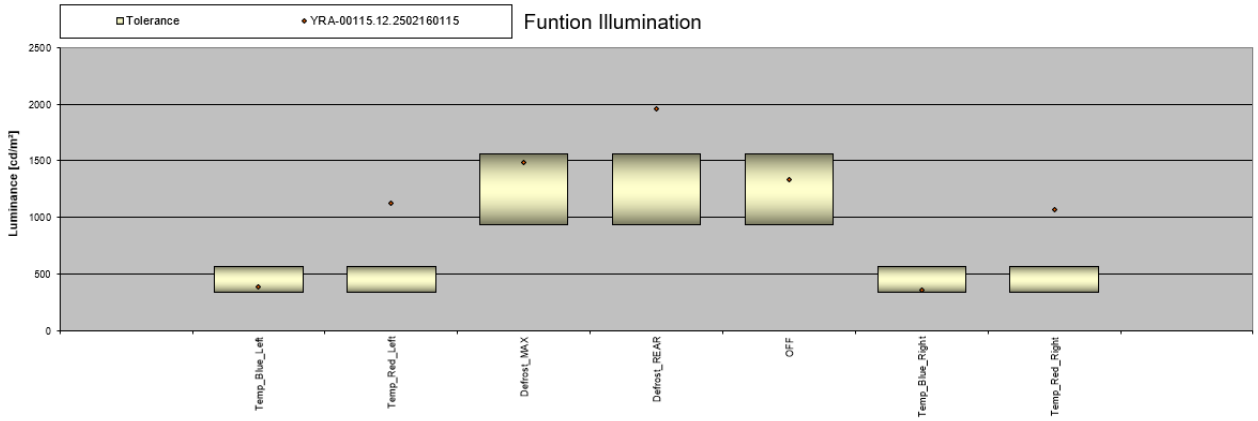
Test results:

Function Illumination

Region	luminance cd/m²	Dom. Wavelength (x) nm	Color saturation (y)%
Temp_Blue_Left	388	461.4	92.29
Temp_Red_Left	1125	629	100
Defrost_MAX	1481	587.8	99.66
Defrost_REAR	1957	588.2	99.69
OFF	1329	628	100
Temp_Blue_Right	354.2	461.8	93.12
Temp_Red_Right	1069	629	100

Remark: The red marked results are out of the tolerance area.

Chart 1.



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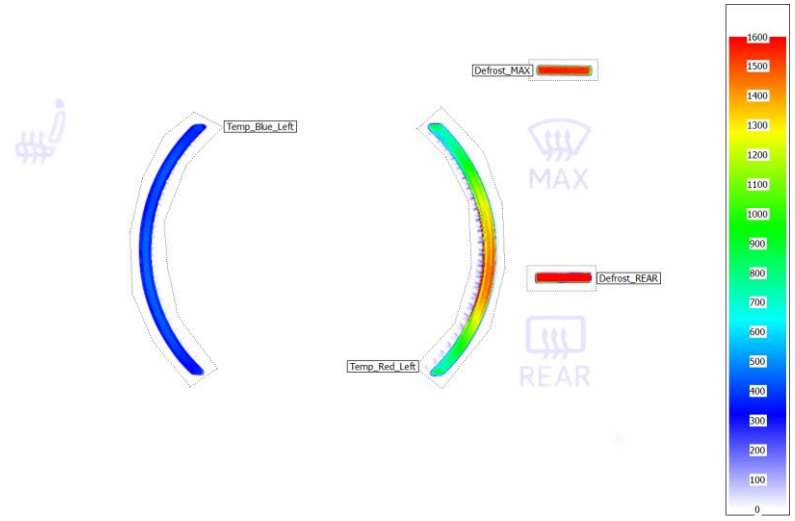
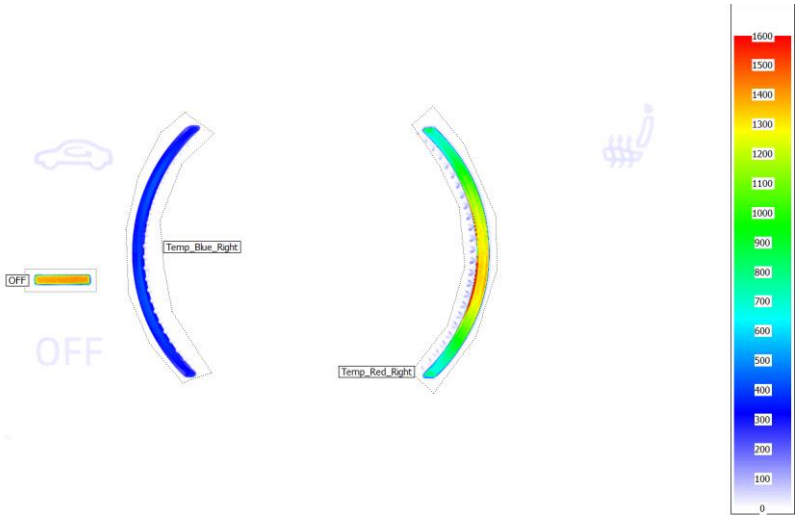
Planar luminance picture Function Illumination - Left.



Planar luminance picture Function Illumination - Right.



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Customer	**AUDI**	**Project**	**MLBevo Q5 Komfort**
Project No.	**TCL.000813**	**File**	**Audi_Komfort_CW_51_ Iluminación**

Test requirement:

Display Illumination

Region	Luminance	Chromaticity table		View angle
		Tolerance Color spectrum Audi-BHTC		
		X	**Y**	
Driver Man 95%	>320cd/m²	0.2780	0.2800	
		0.2830	0.2700	
		0.3070	0.2700	
		0.3210	0.2750	
		0.3400	0.3000	
Co-Driver Man 95%	>320cd/m²	0.3520	0.3250	
		0.3520	0.3450	
		0.3430	0.3600	
		0.3220	0.3600	
		0.3070	0.3500	
		0.2920	0.3300	
		0.2780	0.3000	
		0.2780	0.2800	

Driver	**Phi**	**Theta**
95%Man	140°	21°
Co-driver	**Phi**	**Theta**
95%Man	27°	28°

Test results:

Display Illumination

Region	luminance cd/m²	Dom. Wavelength (x) nm	Color saturation (y)%
Display Left	546.1	0.2932	0.3167
Display Right	440.9	0.3023	0.3318

Remark: The red marked results are out of the tolerance area.

Chart 1.

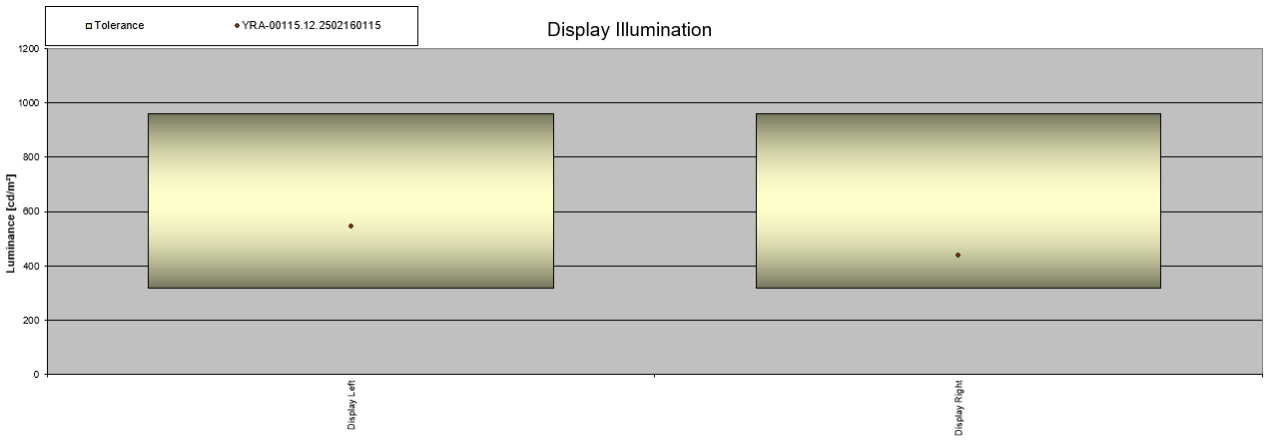

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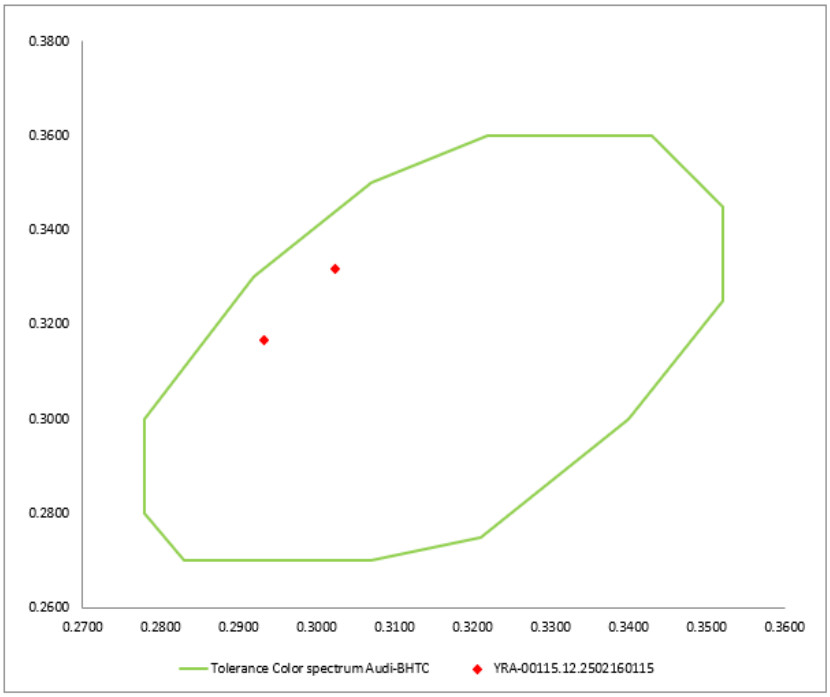
Chart 2..

lerance Color spectrum Audi-BH	
X	Y
0.2780	0.2800
0.2830	0.2700
0.3070	0.2700
0.3210	0.2750
0.3400	0.3000
0.3520	0.3250
0.3520	0.3450
0.3430	0.3600
0.3220	0.3600
0.3070	0.3500
0.2920	0.3300
0.2780	0.3000
0.2780	0.2800



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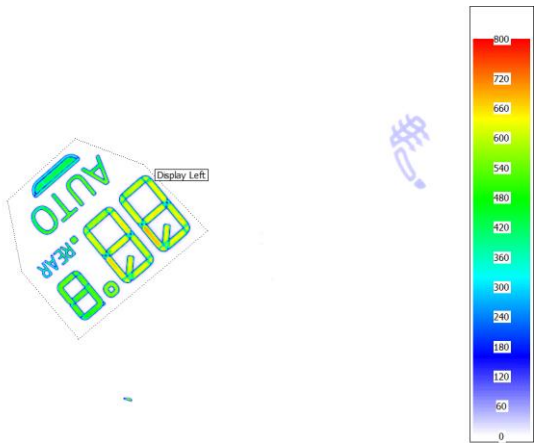
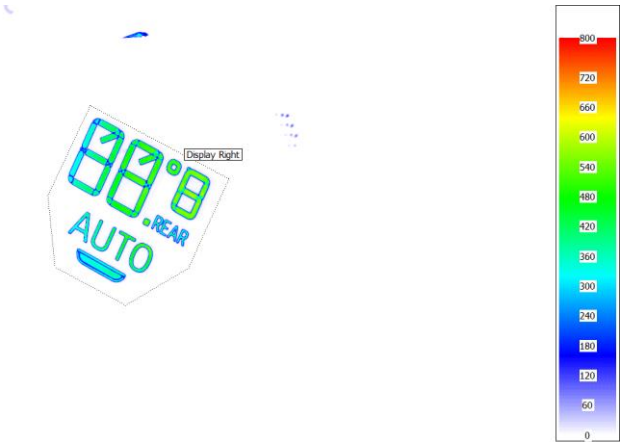
Planar luminance picture Display Illumination - Display_Left



Planar luminance picture Display Illumination - Display_Right .



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Customer	**AUDI**	**Project**	**MLBevo Q5 Komfort**
Project No.	**TCL.000813**	**File**	**Audi_Komfort_CW_51_ Iluminación**

Test requirement:

TFT (Illumination)

Region	**Luminance**	**Dom. wavelength λ_{dom}**	**View angle**
Driver Man 95%	>320cd/m²	Tolerance colour area, see chart.	
Co-driver Woman 5%	>240cd/m²		

Driver	**Phi**	**Theta**
95%Man	143°	39°
5%Woman	156°	21°
Co-driver	**Phi**	**Theta**
95%Man	34°	49°
5%Woman	19°	32°

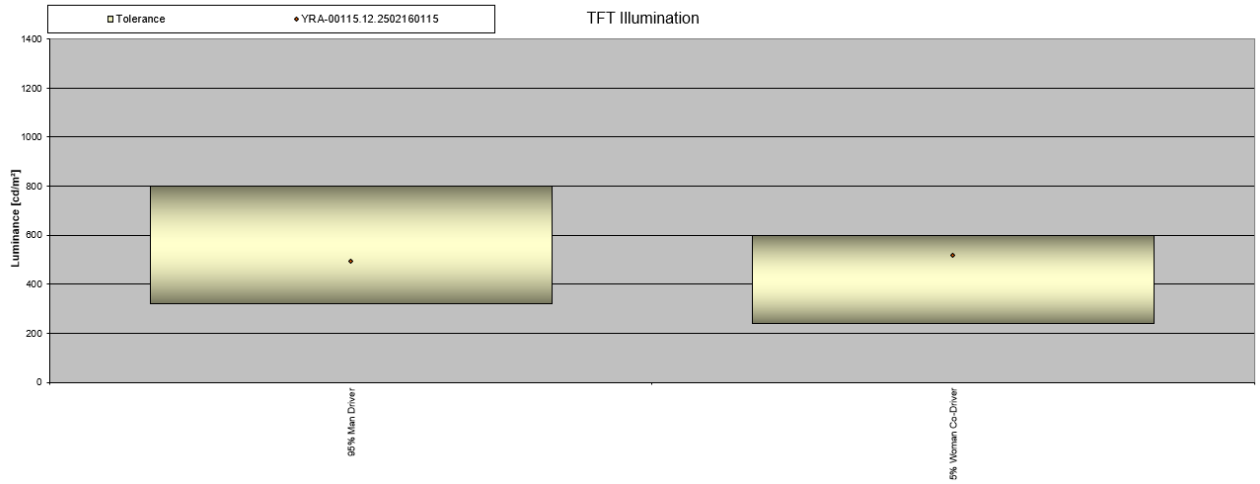
Test results:

TFT (Illumination)

Region	luminance cd/m²
95% Man Driver	495.6
5% Woman Co-Driver	519.9

Remark: The red marked results are out of the tolerance area.

Chart 1.



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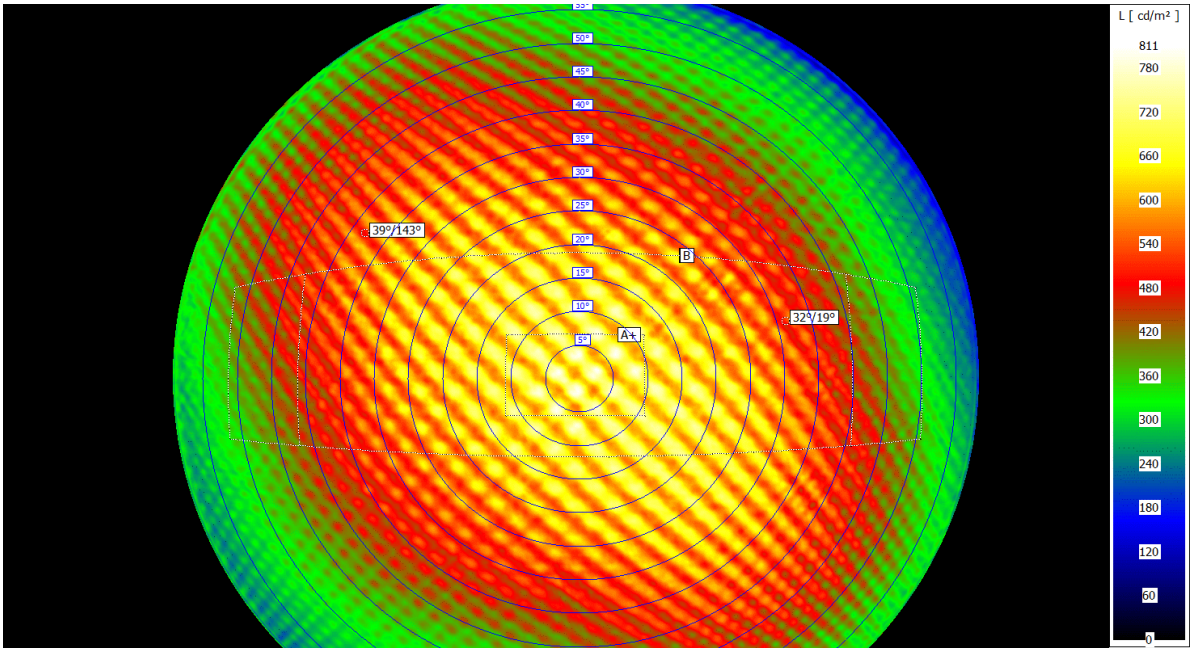
Customer	**AUDI**	**Project**	**MLBevo Q5 Komfort**
Project No.	**TCL.000813**	**File**	**Audi_Komfort_CW_51_ Iluminación**

Planar luminance TFT Illumination.



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Customer	**AUDI**	**Project**	**MLBevo Q5 Komfort**
Project No.	**TCL.000813**	**File**	**Audi_Komfort_CW_51_ Iluminación**

Test requirements:

TFT (Homogeneity / Black Mura)

Image	Uniformity	View angle
Dark image	>=50%	Vertical
Bright image	>=80%	
Black Mura Gradient	Max 0.004% pixel	

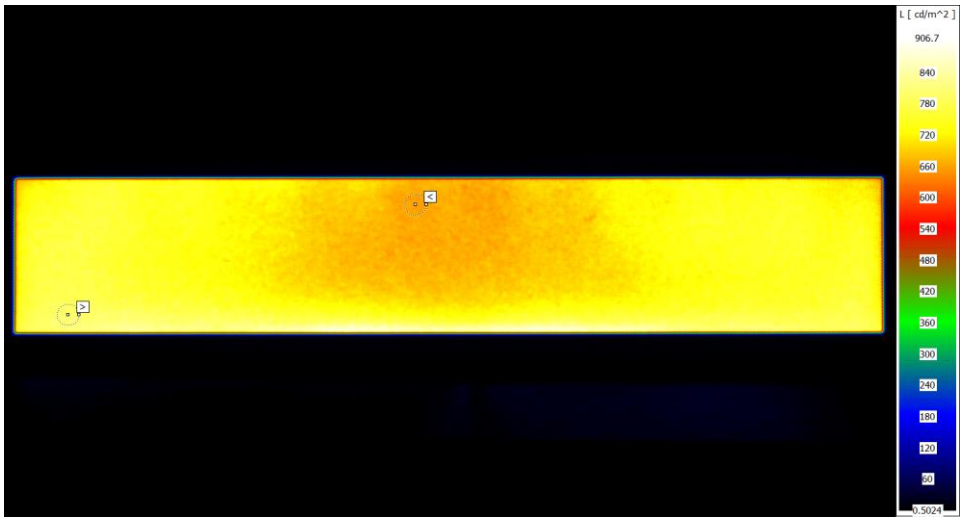
Measuring results:

TFT (Homogeneity / Black Mura)

Region	Parameter	Value	Unit
Dark_Image	Uniformity	74.57	%
Bright_Image	Uniformity	82.56	%
Gradient_Image	Maximum W	0.00273	% Pixel

Remark: Results out of tolerance are marked red.

Bright image.



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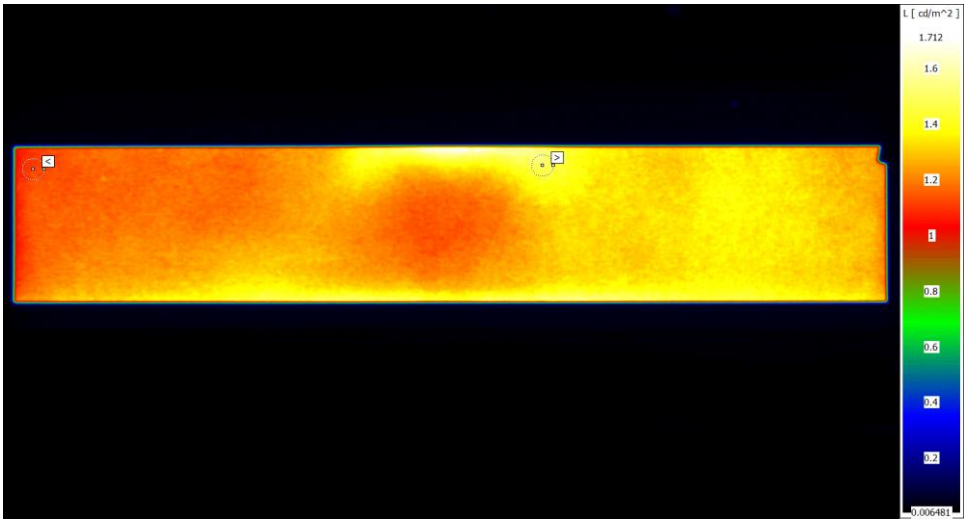
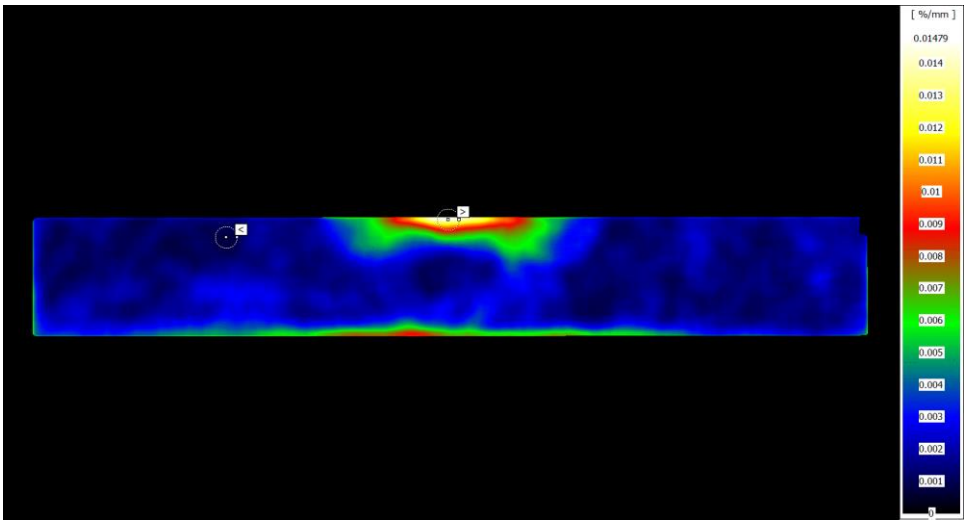
Dark image.



Gradient image.



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5HB 013 923-48_YRA-00115.12.2502160116

Test requirement:

Search Illumination

Colour	Luminance	Saturation	Dom. wavelength $\lambda_{dom.}$
White	23.0cd/m² +/- 6cd/m²	Tolerance colour area, see chart.	

Test results:

Search Illumination

Region	luminance cd/m²	Dom. Wavelength (x) nm	Color Saturation (y)%
Seat_Heater_Left	38.42	0.3176	0.3062
Defrost_MAX	41.3	0.3185	0.3037
Defrost_REAR	38.55	0.3138	0.3026
Recirculation	38.17	0.3166	0.3052
OFF	39.72	0.321	0.3164
Seat_Heater_Right	35.54	0.3177	0.3081

Remark: The red marked results are out of the tolerance area.

Chart 1.

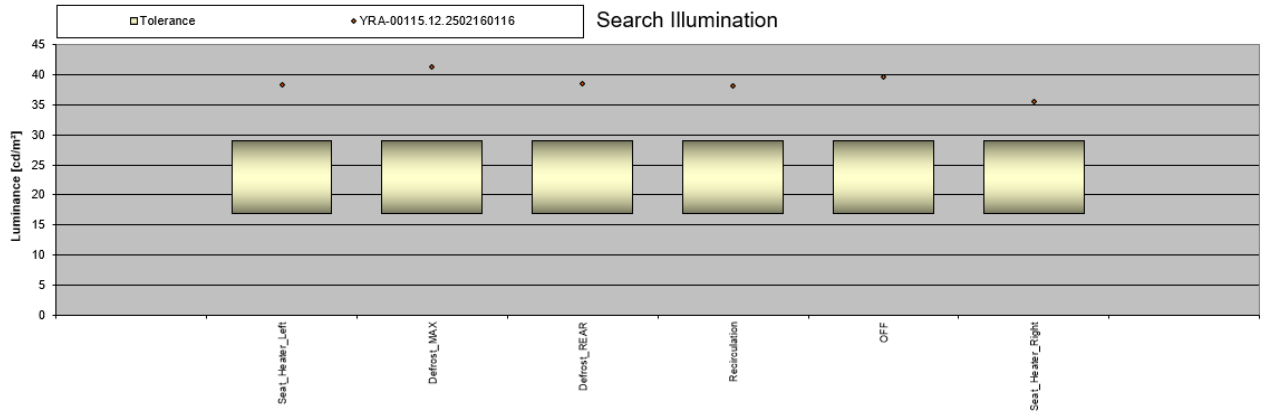
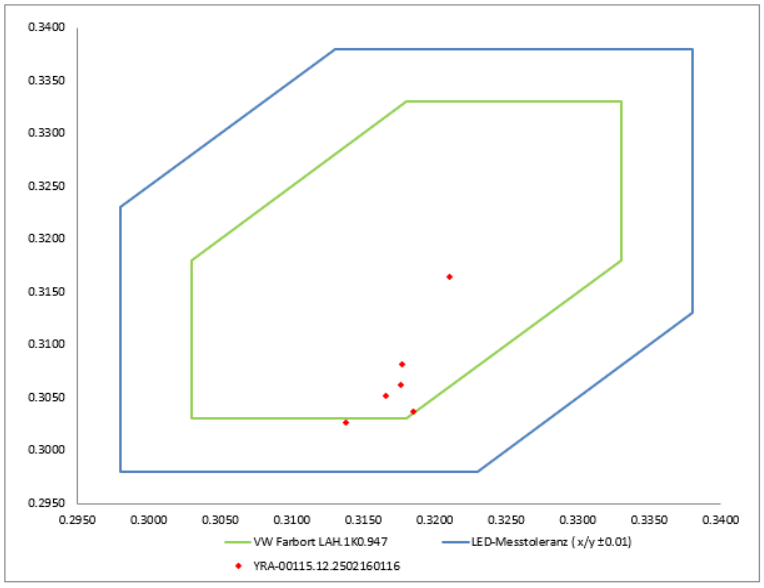


Chart 2.

VW Farbort LAH.1K0.947		LED-Messtoleranz (x/y ±0.01)	
X	Y	CIE_x	CIE_y
0.3180	0.3030	0.3130	0.3380
0.3330	0.3180	0.2980	0.3230
0.3330	0.3330	0.2980	0.2980
0.3180	0.3330	0.3230	0.2980
0.3030	0.3180	0.3380	0.3130
0.3030	0.3030	0.3380	0.3380
0.3180	0.3030	0.3130	0.3380



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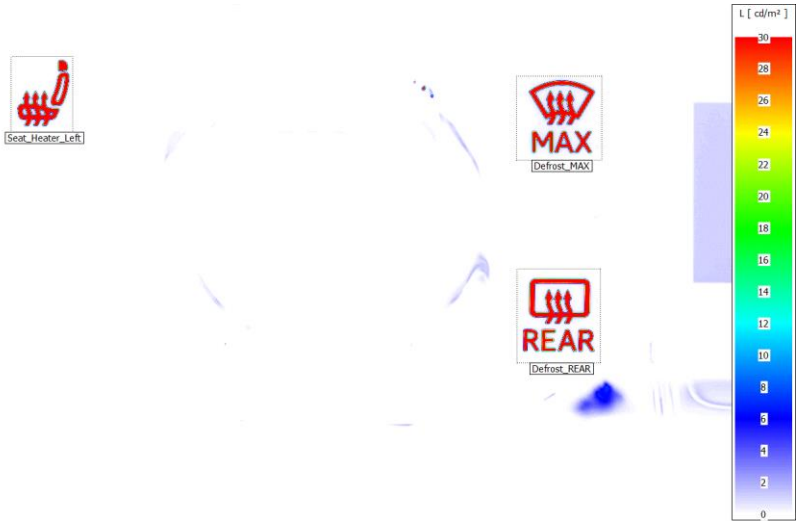
Planar luminance picture Search Illumination - Left.



Planar luminance picture Search Illumination – Right.

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Customer	**AUDI**	**Project**	**MLBevo Q5 Komfort**
Project No.	**TCL.000813**	**File**	**Audi_Komfort_CW_51_ Iluminación**

Test requirement:

Function Illumination

Colour	luminance cd/m²	Dom. wavelength λ_{dom}	Saturation	View angle
Yellow	1250+/- 313 cd/m²	589 +/- 4nm	> 90%	Vertical
Blue	450 +/- 113 cd/m²	465+8 /- 5nm	> 80%	
Red	1250+/- 313 cd/m²	633 +/- 6nm	> 90%	

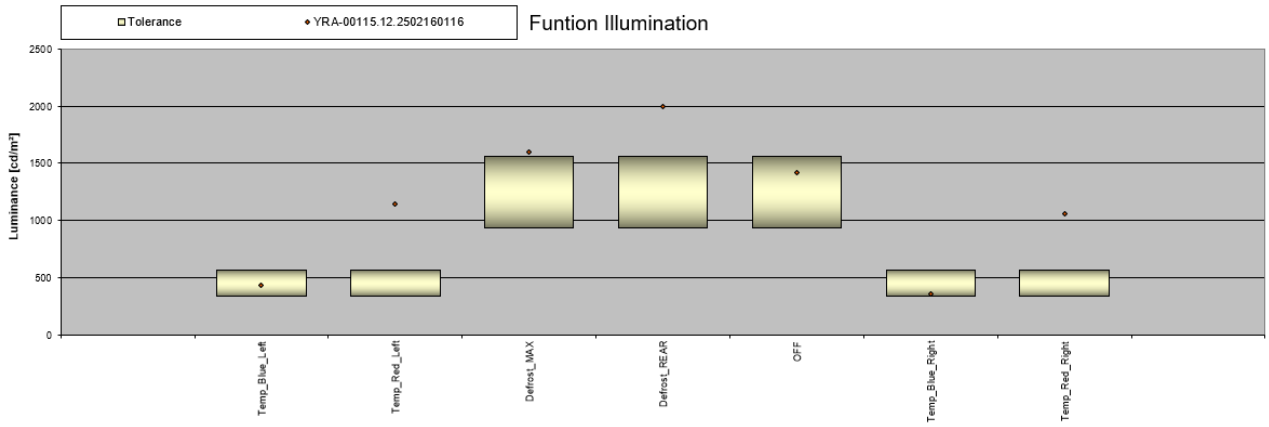
Test results:

Function Illumination

Region	luminance cd/m²	Dom. Wavelength (x) nm	Color saturation (y)%
Temp_Blue_Left	432.7	461.6	92.76
Temp_Red_Left	1140	629.4	100
Defrost_MAX	1602	588.4	99.7
Defrost_REAR	1998	588.2	99.69
OFF	1418	628.2	100
Temp_Blue_Right	356.6	461.1	93.51
Temp_Red_Right	1056	629.3	100

Remark: The red marked results are out of the tolerance area.

Chart 1.



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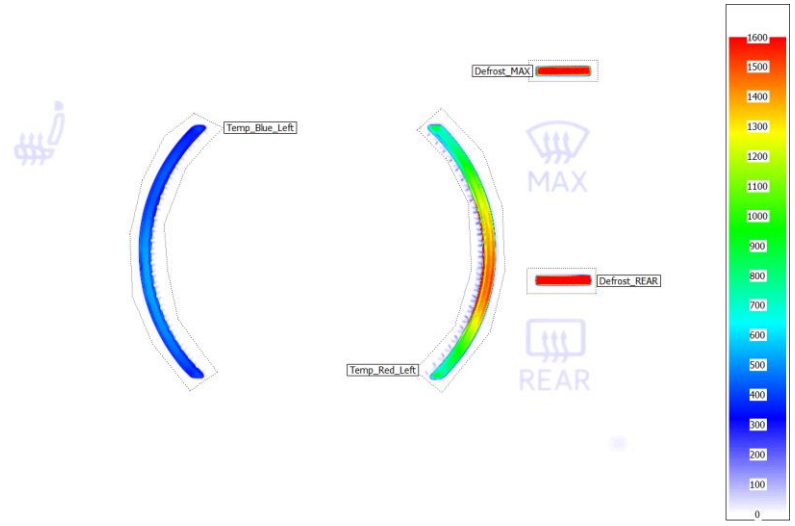
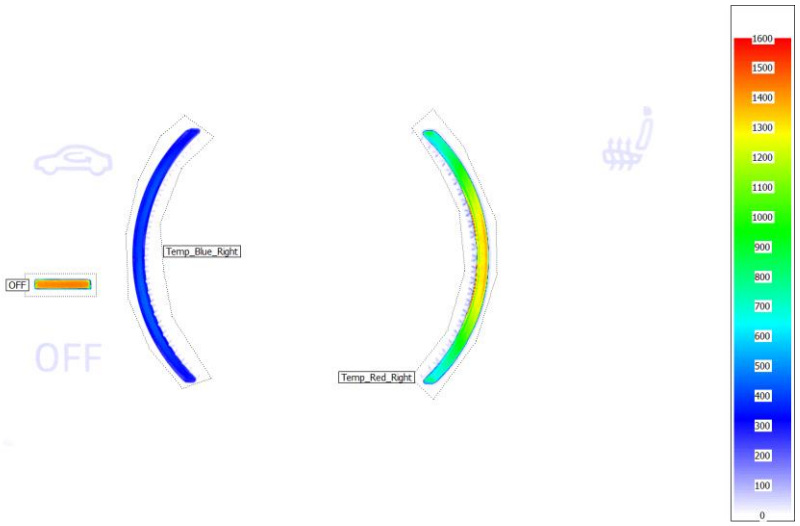
Planar luminance picture Function Illumination - Left.



Planar luminance picture Function Illumination - Right.



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Customer	**AUDI**	**Project**	**MLBevo Q5 Komfort**
Project No.	**TCL.000813**	**File**	**Audi_Komfort_CW_51_ Iluminación**

Test requirement:

Display Illumination

Region	Luminance	Chromaticity table		View angle		
		Tolerance Color spectrum Audi-BHTC				
		X	**Y**			
Driver Man 95%	>320cd/m²	0.2780	0.2800			
		0.2830	0.2700			
		0.3070	0.2700			
		0.3210	0.2750			
		0.3400	0.3000			
Co-Driver Man 95%	>320cd/m²	0.3520	0.3250			
		0.3520	0.3450			
		0.3430	0.3600			
		0.3220	0.3600			
		0.3070	0.3500			
		0.2920	0.3300			
		0.2780	0.3000			
		0.2780	0.2800			

Driver	**Phi**	**Theta**
95%Man	140°	21°
Co-driver	**Phi**	**Theta**
95%Man	27°	28°

Test results:

Display Illumination

Region	luminance cd/m²	Dom. Wavelength (x) nm	Color saturation (y)%
Display Left	568.4	0.2931	0.3142
Display Right	418.3	0.3002	0.3261

Remark: The red marked results are out of the tolerance area.

Chart 1.

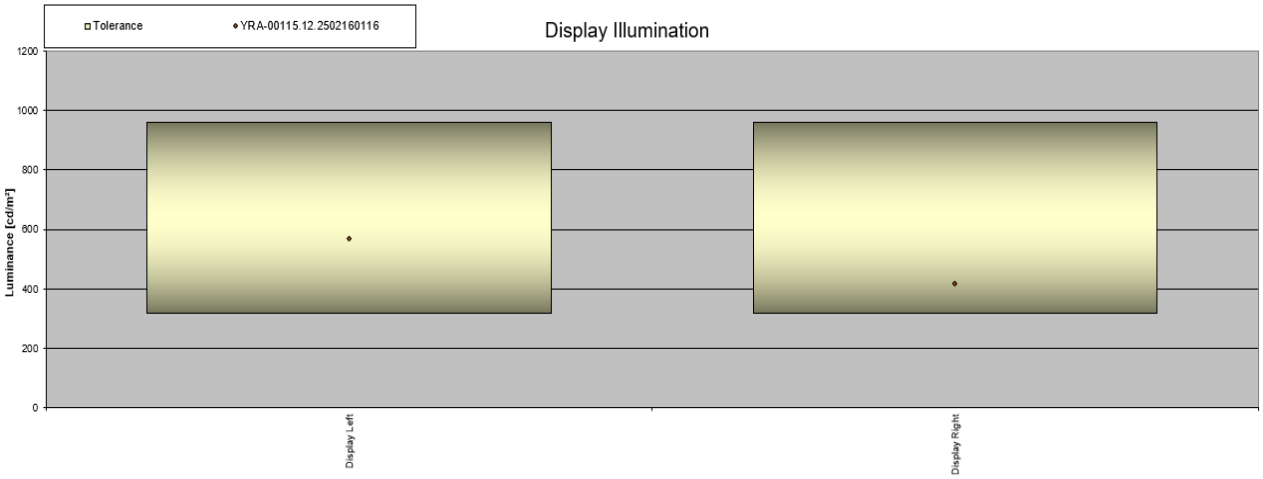

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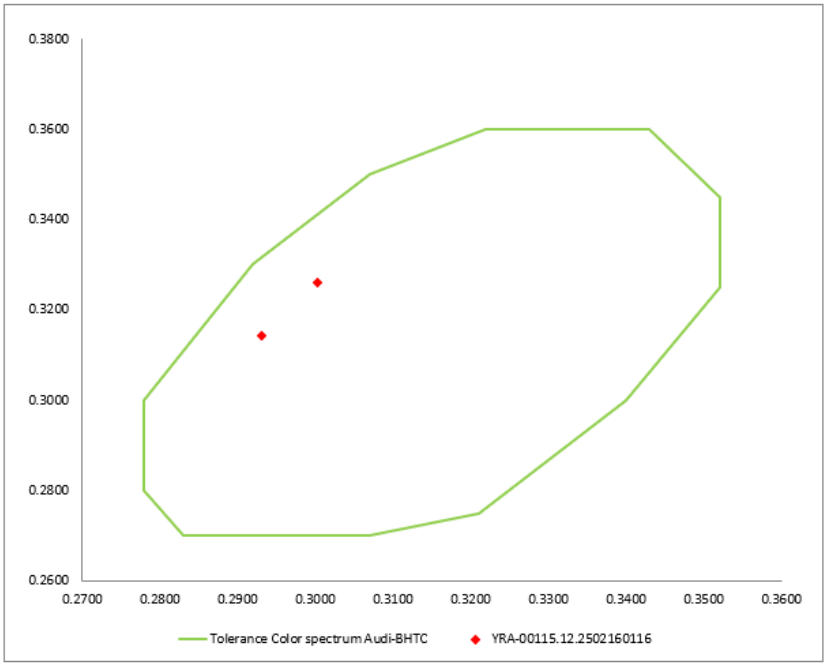
Chart 2.

lerance Color spectrum Audi-BH	
X	Y
0.2780	0.2800
0.2830	0.2700
0.3070	0.2700
0.3210	0.2750
0.3400	0.3000
0.3520	0.3250
0.3520	0.3450
0.3430	0.3600
0.3220	0.3600
0.3070	0.3500
0.2920	0.3300
0.2780	0.3000
0.2780	0.2800



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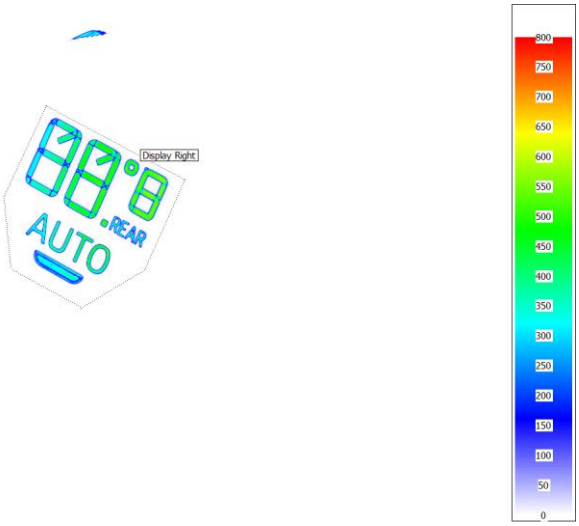
Planar luminance picture Display Illumination - Display_Left

Planar luminance picture Display Illumination - Display_Right .



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Customer	**AUDI**	**Project**	**MLBevo Q5 Komfort**
Project No.	**TCL.000813**	**File**	**Audi_Komfort_CW_51_ Iluminación**

Test requirement:

TFT (Illumination)

Region	**Luminance**	**Dom. wavelength λ_{dom}**	**View angle**
Driver Man 95%	>320cd/m²	Tolerance colour area, see chart.	
Co-driver Woman 5%	>240cd/m²		

Driver	**Phi**	**Theta**
95%Man	143°	39°
5%Woman	156°	21°
Co-driver	**Phi**	**Theta**
95%Man	34°	49°
5%Woman	19°	32°

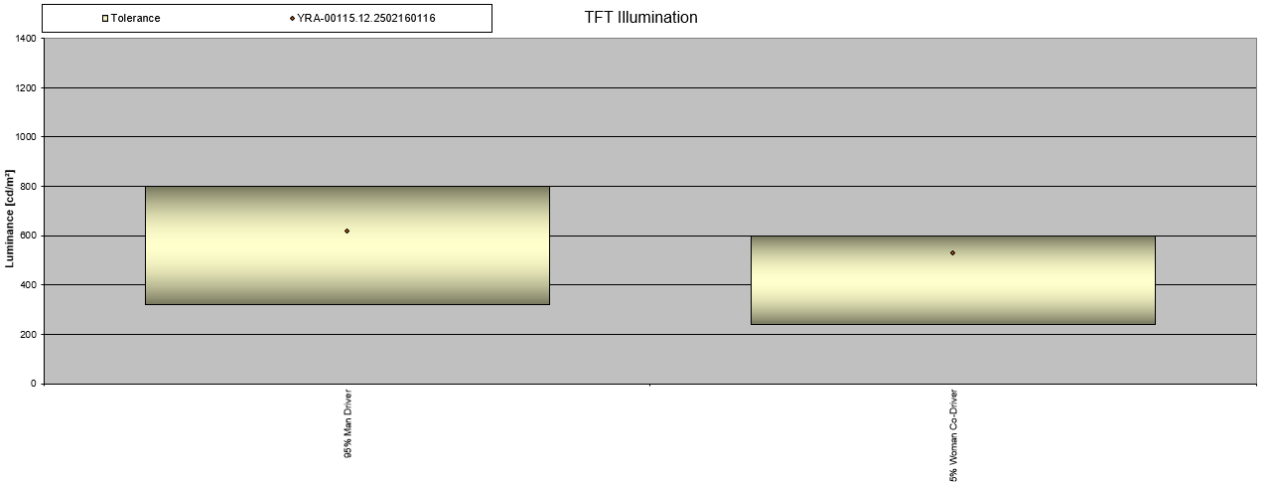
Test results:

TFT (Illumination)

Region	luminance cd/m²
95% Man Driver	616.8
5% Woman Co-Driver	529.7

Remark: The red marked results are out of the tolerance area.

Chart 1.



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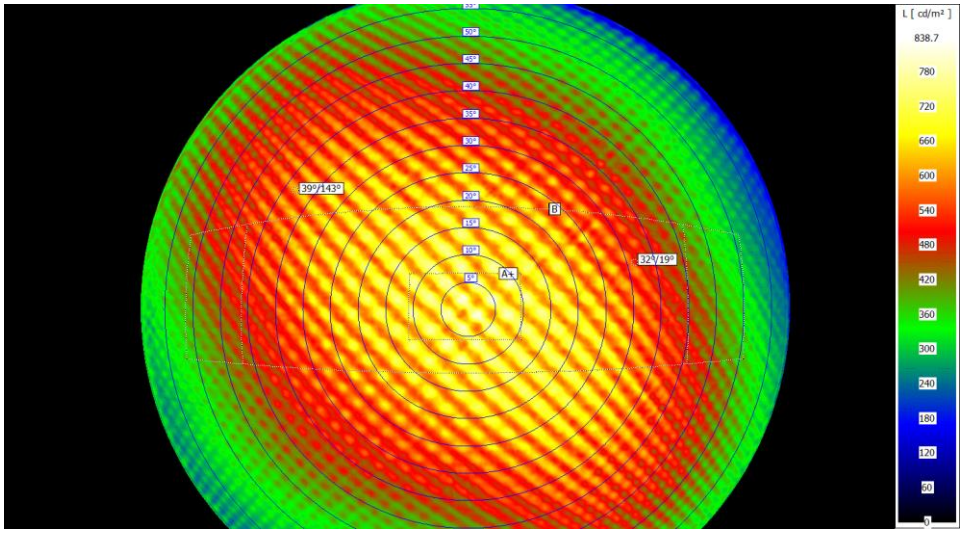
Planar luminance TFT Illumination.



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Customer	**AUDI**	**Project**	**MLBevo Q5 Komfort**
Project No.	**TCL.000813**	**File**	**Audi_Komfort_CW_51_ Iluminación**

Test requirements:

TFT (Homogeneity / Black Mura)

Image	Uniformity	View angle
Dark image	>=50%	Vertical
Bright image	>=80%	
Black Mura Gradient	Max 0.004% pixel	

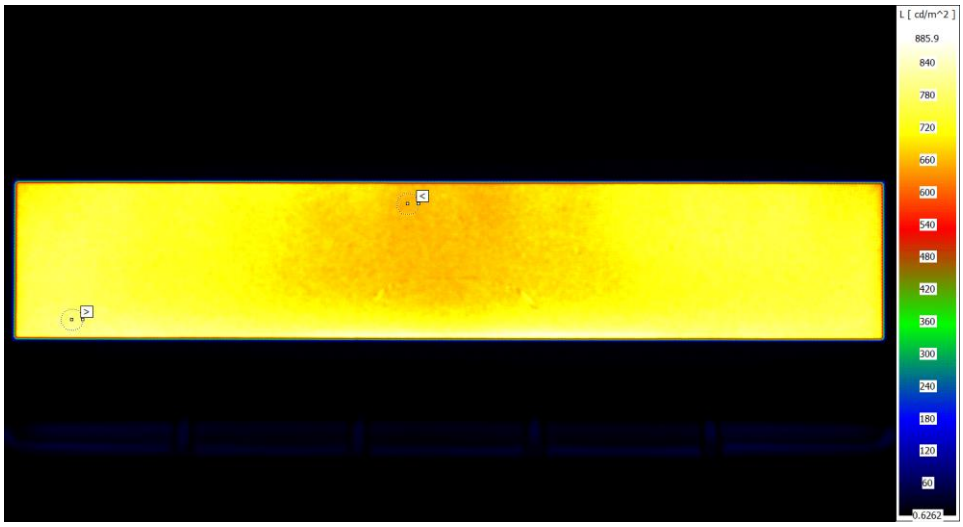
Measuring results:

TFT (Homogeneity / Black Mura)

Region	Parameter	Value	Unit
Dark_Image	Uniformity	69.42	%
Bright_Image	Uniformity	83.7	%
Gradient_Image	Maximum W	0.004707	% Pixel

Remark: Results out of tolerance are marked red.

Bright image.



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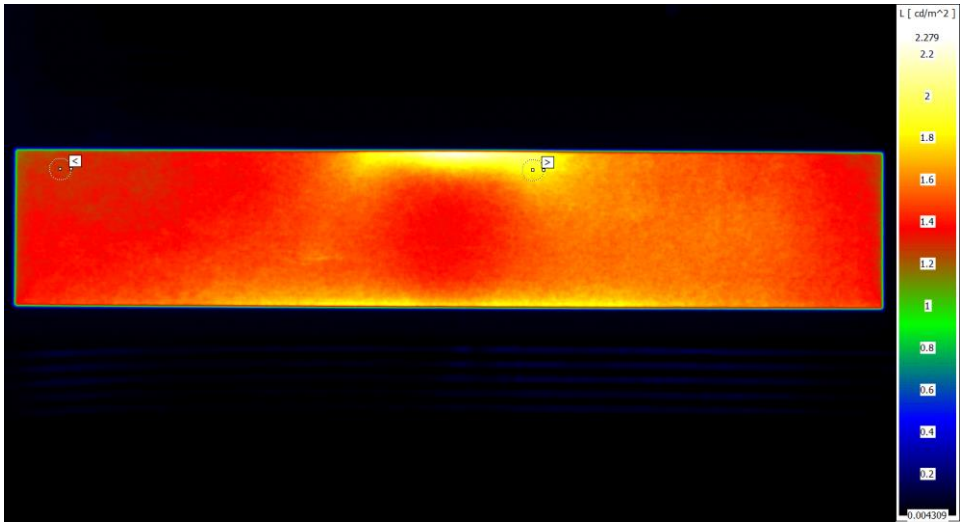
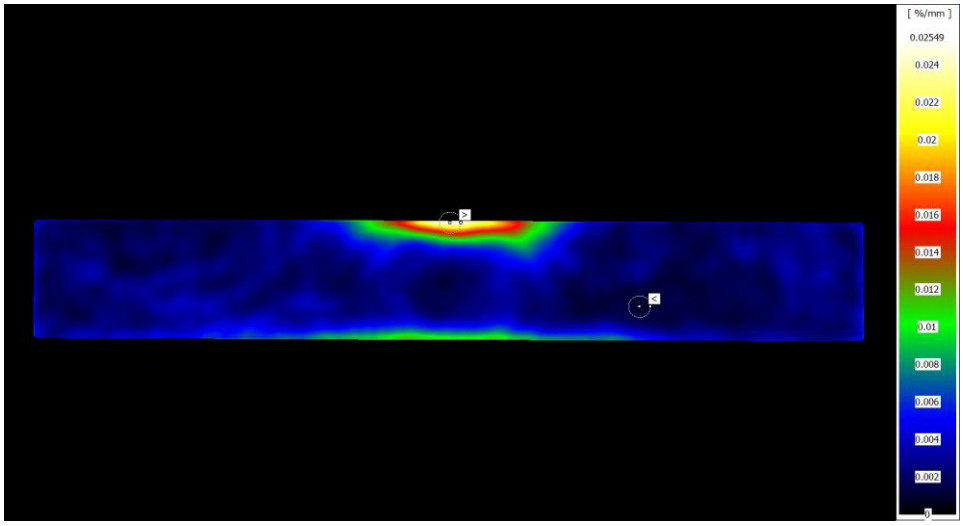
Dark image.



Gradient image.



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5HB 013 923-48_YRA-00115.12.2502160117

Test requirement:

Search Illumination

Colour	Luminance	Saturation	Dom. wavelength $\lambda_{dom.}$
White	23.0cd/m² +/- 6cd/m²	Tolerance colour area, see chart.	

Test results:

Search Illumination

Region	luminance cd/m²	Dom. Wavelength (x) nm	Color Saturation (y)%
Seat_Heater_Left	36.08	0.3213	0.3075
Defrost_MAX	38.08	0.321	0.3089
Defrost_REAR	37.88	0.328	0.3184
Recirculation	40.13	0.3226	0.3117
OFF	33.41	0.318	0.3109
Seat_Heater_Right	31.2	0.3248	0.309

Remark: The red marked results are out of the tolerance area.

Chart 1.

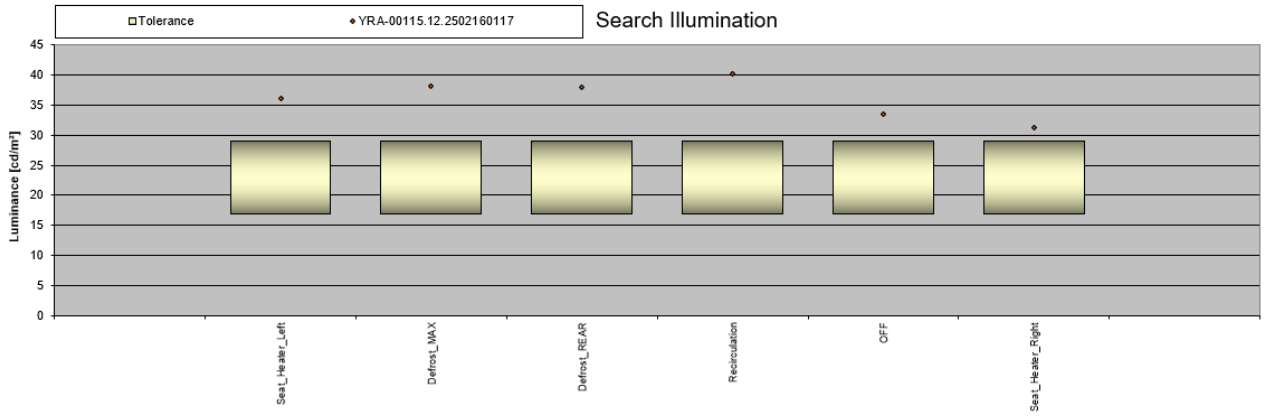
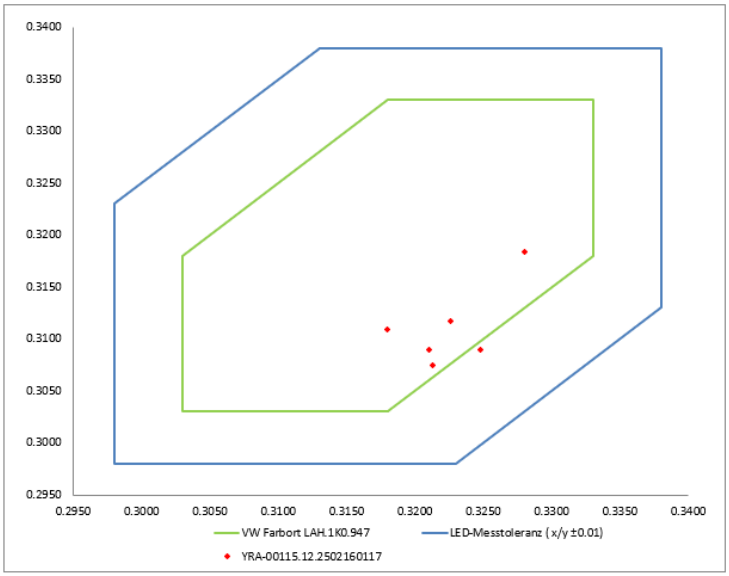


Chart 2.

VW Farbort LAH.1K0.947		LED-Messtoleranz (x/y ±0.01)	
X	Y	CIE_x	CIE_y
0.3180	0.3030	0.3130	0.3380
0.3330	0.3180	0.2980	0.3230
0.3330	0.3330	0.2980	0.2980
0.3180	0.3330	0.3230	0.2980
0.3030	0.3180	0.3380	0.3130
0.3030	0.3030	0.3380	0.3380
0.3180	0.3030	0.3130	0.3380



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Planar luminance picture Search Illumination - Left.

Planar luminance picture Search Illumination – Right.

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Customer	**AUDI**	**Project**	**MLBevo Q5 Komfort**
Project No.	**TCL.000813**	**File**	**Audi_Komfort_CW_51_ Iluminación**

Test requirement:

Function Illumination

Colour	luminance cd/m²	Dom. wavelength λ_{dom}	Saturation	View angle
Yellow	1250+/- 313 cd/m²	589 +/- 4nm	> 90%	Vertical
Blue	450 +/- 113 cd/m²	465+8 /- 5nm	> 80%	
Red	1250+/- 313 cd/m²	633 +/- 6nm	> 90%	

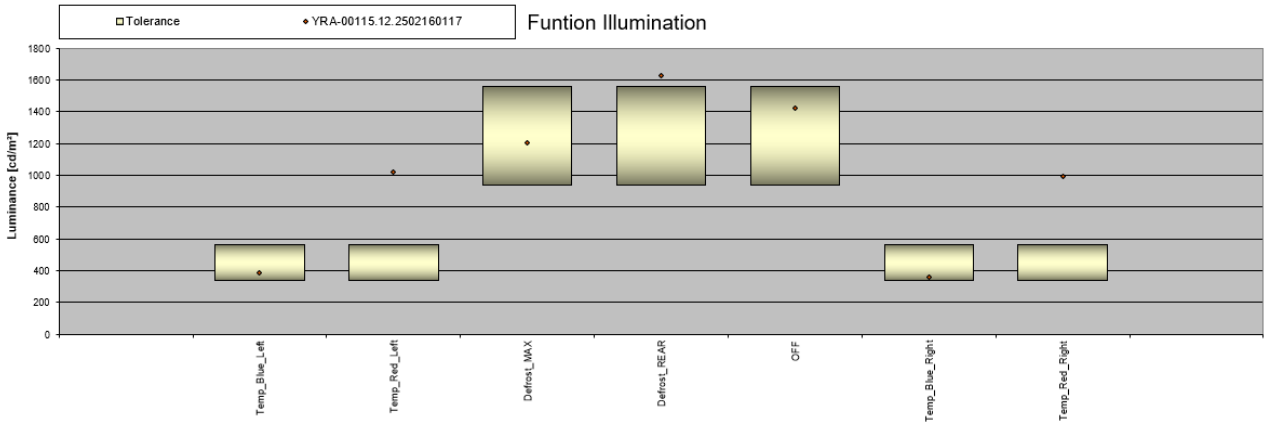
Test results:

Function Illumination

Region	luminance cd/m²	Dom. Wavelength (x) nm	Color saturation (y)%
Temp_Blue_Left	388.3	462	92.37
Temp_Red_Left	1019	629.5	100
Defrost_MAX	1203	589.6	99.96
Defrost_REAR	1627	588.9	99.79
OFF	1426	628.5	100
Temp_Blue_Right	358.7	461.9	92.66
Temp_Red_Right	993.6	629.8	100

Remark: The red marked results are out of the tolerance area.

Chart 1.



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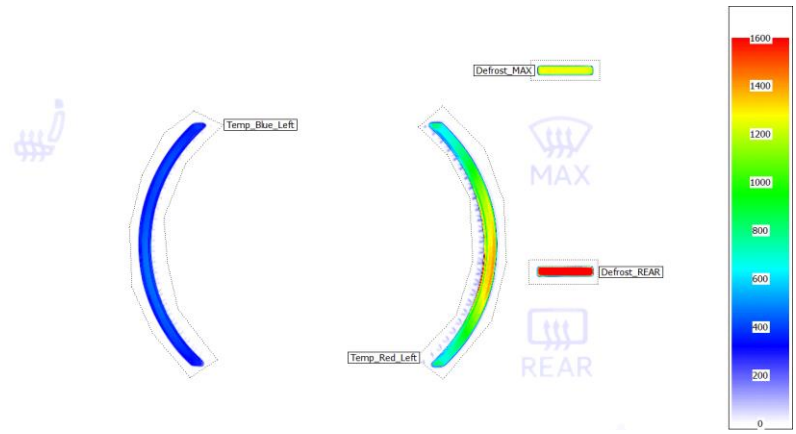
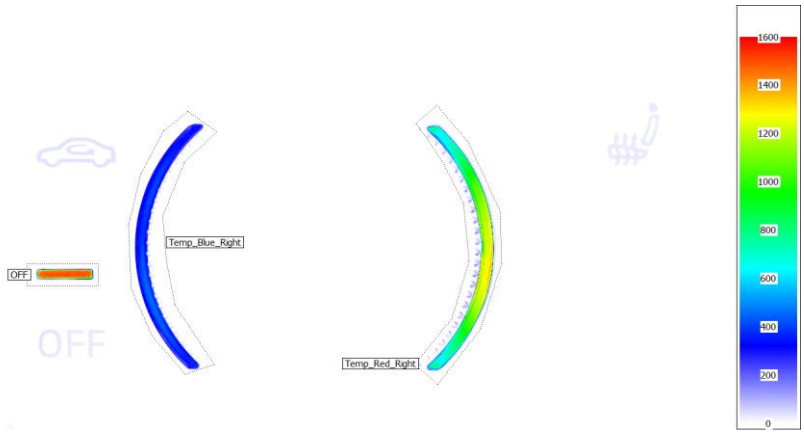
Planar luminance picture Function Illumination - Left.



Planar luminance picture Function Illumination - Right.



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Customer	**AUDI**	**Project**	**MLBevo Q5 Komfort**
Project No.	**TCL.000813**	**File**	**Audi_Komfort_CW_51_ Iluminación**

Test requirement:

Display Illumination

Region	Luminance	Chromaticity table		View angle		
		Tolerance Color spectrum Audi-BHTC				
		X	**Y**			
Driver Man 95%	>320cd/m²	0.2780	0.2800			
		0.2830	0.2700			
		0.3070	0.2700			
		0.3210	0.2750			
		0.3400	0.3000			
Co-Driver Man 95%	>320cd/m²	0.3520	0.3250			
		0.3520	0.3450			
		0.3430	0.3600			
		0.3220	0.3600			
		0.3070	0.3500			
		0.2920	0.3300			
		0.2780	0.3000			
		0.2780	0.2800			

Driver	**Phi**	**Theta**
95%Man	140°	21°
Co-driver	**Phi**	**Theta**
95%Man	27°	28°

Test results:

Display Illumination

Region	luminance cd/m²	Dom. Wavelength (x) nm	Color saturation (y)%
Display Left	564.7	0.2947	0.3216
Display Right	440.3	0.2996	0.3256

Remark: The red marked results are out of the tolerance area.

Chart 1.

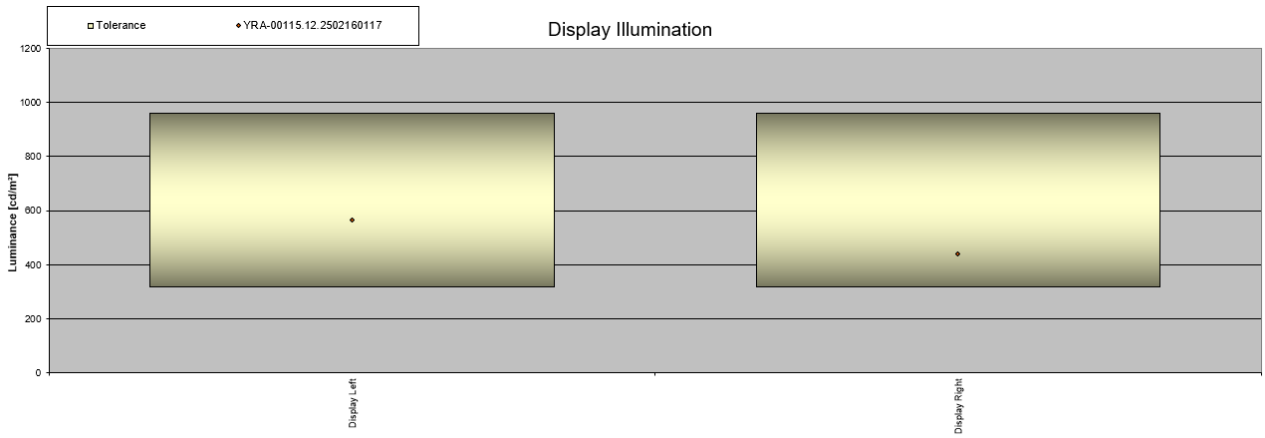

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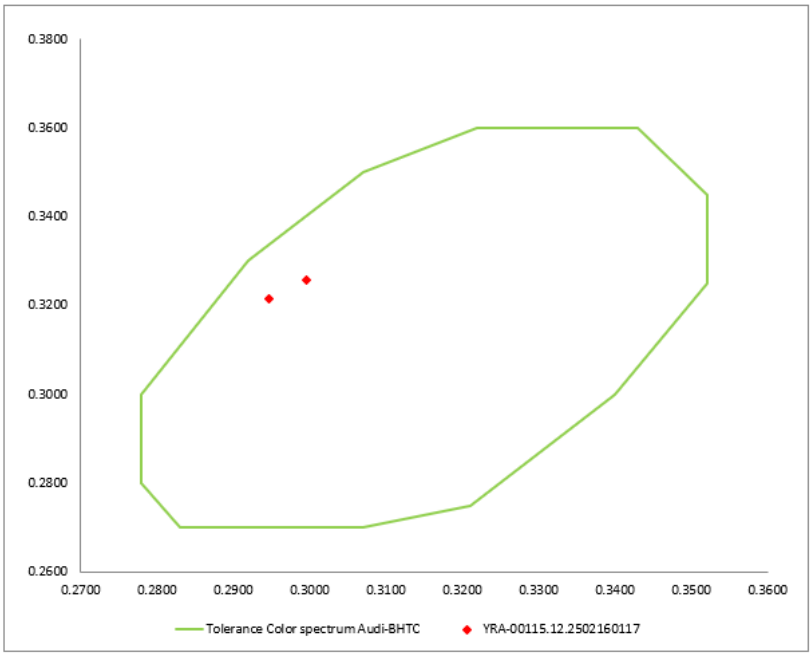
Chart 2.

lerance Color spectrum Audi-BH	
X	Y
0.2780	0.2800
0.2830	0.2700
0.3070	0.2700
0.3210	0.2750
0.3400	0.3000
0.3520	0.3250
0.3520	0.3450
0.3430	0.3600
0.3220	0.3600
0.3070	0.3500
0.2920	0.3300
0.2780	0.3000
0.2780	0.2800



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Planar luminance picture Display Illumination - Display_Left

Planar luminance picture Display Illumination - Display_Right .

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Customer	**AUDI**	**Project**	**MLBevo Q5 Komfort**
Project No.	**TCL.000813**	**File**	**Audi_Komfort_CW_51_ Iluminación**

Test requirement:

TFT (Illumination)

Region	**Luminance**	**Dom. wavelength λ_{dom}**	**View angle**
Driver Man 95%	>320cd/m²	Tolerance colour area, see chart.	
Co-driver Woman 5%	>240cd/m²		

Driver	**Phi**	**Theta**
95%Man	143°	39°
5%Woman	156°	21°
Co-driver	**Phi**	**Theta**
95%Man	34°	49°
5%Woman	19°	32°

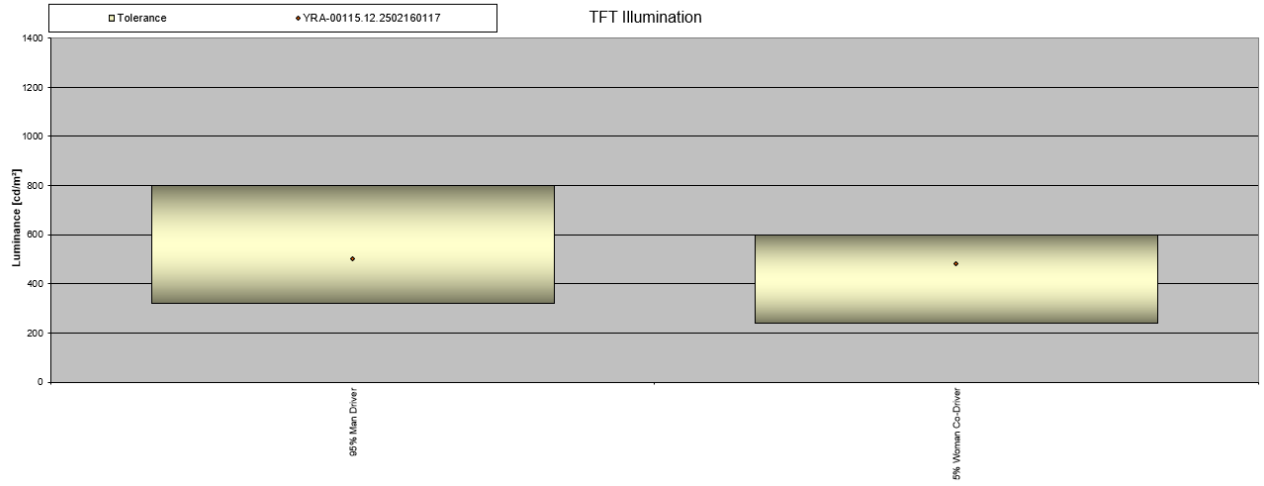
Test results:

TFT (Illumination)

Region	luminance cd/m²
95% Man Driver	502.6
5% Woman Co-Driver	481.3

Remark: The red marked results are out of the tolerance area.

Chart 1.



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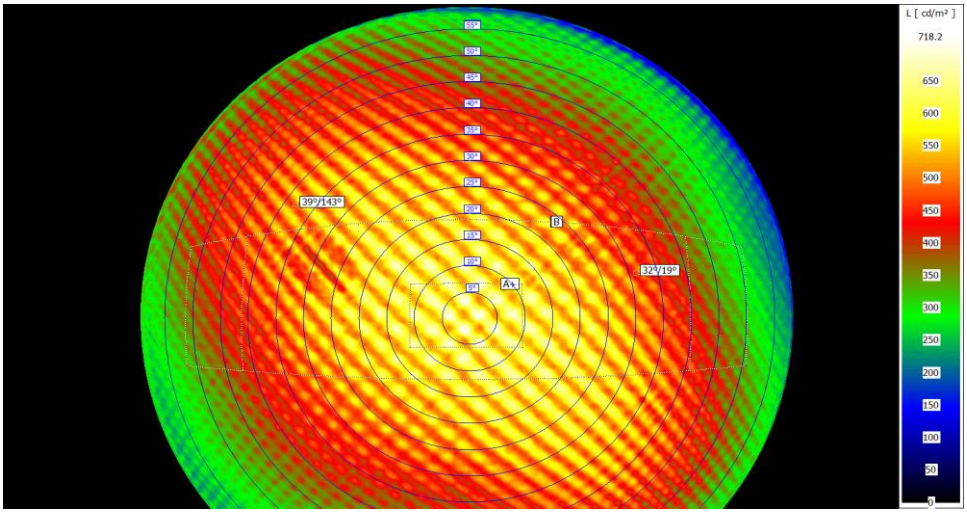
Planar luminance TFT Illumination.



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Customer	**AUDI**	**Project**	**MLBevo Q5 Komfort**
Project No.	**TCL.000813**	**File**	**Audi_Komfort_CW_51_ Iluminación**

Test requirements:

TFT (Homogeneity / Black Mura)

Image	Uniformity	View angle
Dark image	>=50%	Vertical
Bright image	>=80%	
Black Mura Gradient	Max 0.004% pixel	

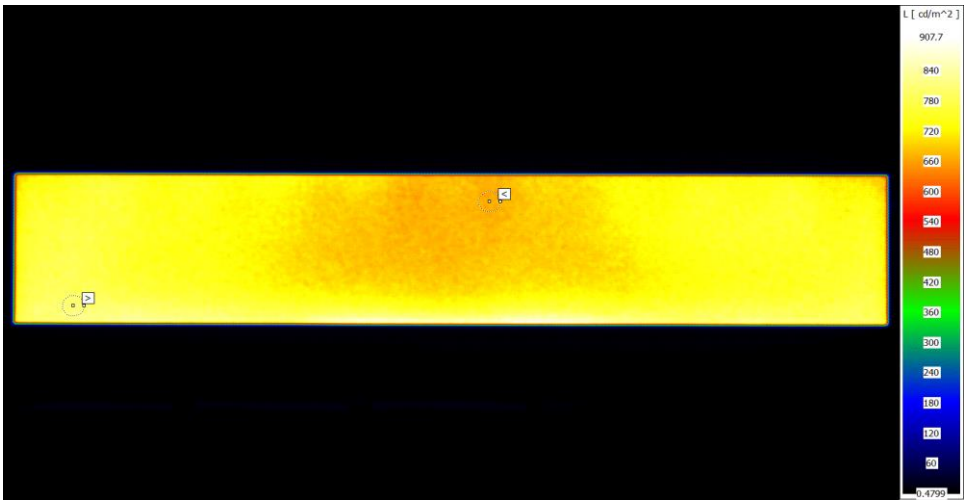
Measuring results:

TFT (Homogeneity / Black Mura)

Region	Parameter	Value	Unit
Dark_Image	Uniformity	71.7	%
Bright_Image	Uniformity	82.67	%
Gradient_Image	Maximum W	0.003775	% Pixel

Remark: Results out of tolerance are marked red.

Bright image.



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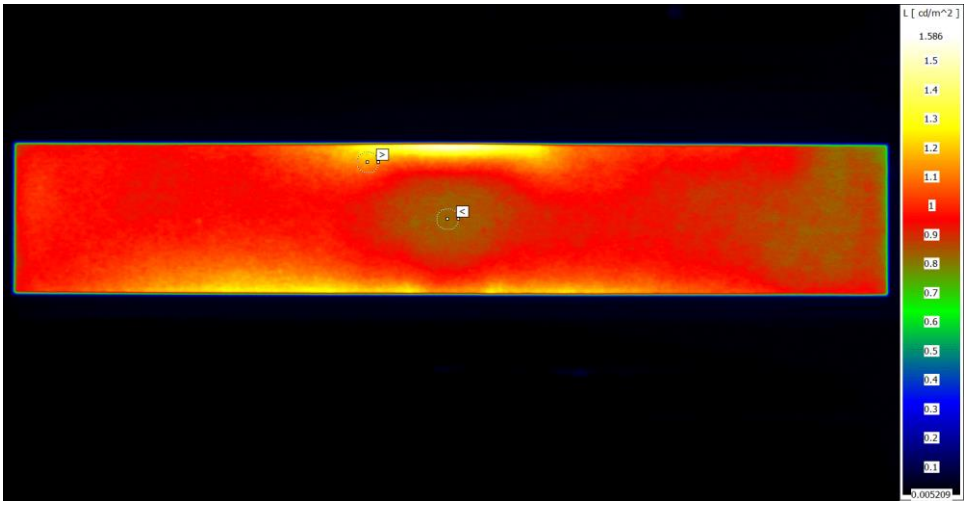
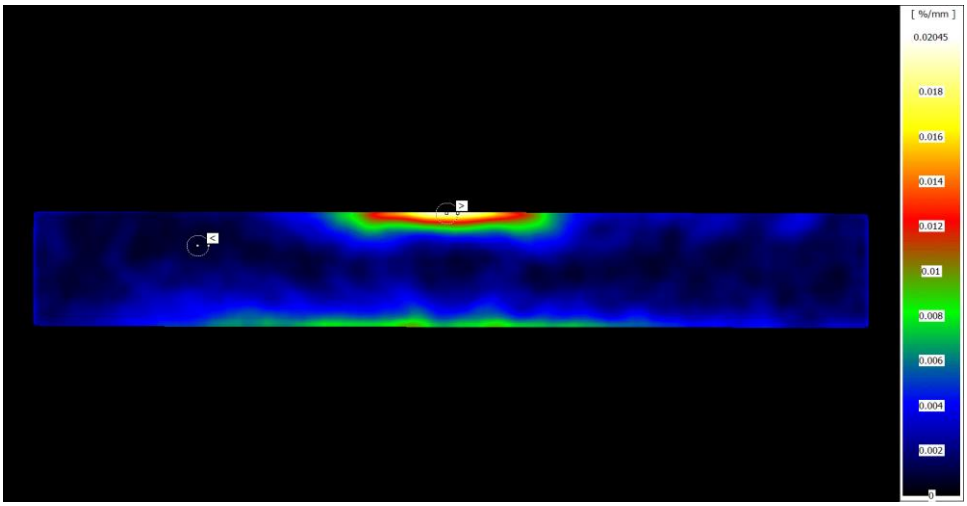
Dark image.



Gradient image.



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