

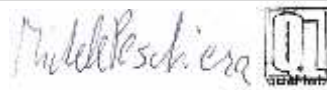


	Test report n.	241-QL18-R03 ver. 0	 <small>LAB N°1235</small> <small>Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC</small> <small>Signatory of EA, IAF and ILAC Mutual Recognition Agreements</small>
	Applicant	LARES di Claudio Lerici Regione Viazzi, 6 15010 Castelletto d'Erro (AL)	
	EUT/Type	Reflecting device O03, R03, W03	

## TEST REPORT Nr. 241-QL18-R03 ver. 0

Addresses Indirizzi		
Applicant Richiedente	LARES di Claudio Lerici - Regione Viazzi, 6 - 15010 Castelletto d'Erro (AL)	
Manufacturer Produttore	Same as applicant/Come il richiedente	
Test laboratory Laboratorio di prova	Qualilab s.r.l. Via Trento, 87 25020 – Capriano del Colle (BS)	
Dates and authorization Date e autorizzazioni		
EUT acceptance date Data accettazione campioni	Simultaneously with the beginning of the test. Contestualmente all'inizio delle prove.	
Report Date Data preparazione rapporto di prova	07/02/2018	
Authorization Autorizzazioni	Ing. Carsten Seyring Test engineer	
	Ing. Michele Peschiera Reviewer	
Equipment under test EUT (data declared by the applicant) Dispositivo sottoposto a prova EUT (Dati forniti dal richiedente)		
EUT description Descrizione EUT	Reflecting device	
Type Modello	LARES O03 – reflex-reflector amber LARES W03 – reflecting sheet white LARES R03 – reflecting sheet red	
Marking Marcature	-	
Applicable norms Norme applicabili		
	CIE 54.2 – Retroreflection: definition and measurement, ECE R03 and FMVSS108	



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I risultati e le osservazioni indicate in questo rapporto di prova sono riferite esclusivamente ai campioni testati. Non è permesso utilizzare i risultati e le osservazioni di questo rapporto di prova per altri sistemi o configurazioni. Non è permessa la pubblicazione o la duplicazione completa o parziale di questo rapporto di prova e dei suoi allegati senza un consenso scritto da parte del laboratorio di prova. Il laboratorio di prova non si assume responsabilità nei confronti di terzi per danni o eventuali costi derivanti dall'utilizzo dei dati presenti in questo rapporto di prova. Ogni uso del nome del laboratorio di prova e dei suoi marchi per la vendita o per pubblicizzare il prodotto testato deve essere prima approvato in forma scritta dal laboratorio di prova. In caso di rapporti di prova con più lingue, la versione inglese è da considerarsi quella ufficiale.

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Test Name Identificazione prova	Test Procedure Procedura di prova	Test Requirement Requisito di prova	Test Result Esito Prova
LARES O03	CIL measurement in accordance to CIE 54.2, ECE R3 and FMVSS108	n.a.	See Annex
LARES W03	CIL measurement in accordance to CIE 54.2, ECE R3 and FMVSS108	n.a.	See Annex
LARES R03	CIL measurement in accordance to CIE 54.2, ECE R3 and FMVSS108	n.a.	See Annex

Uncertainty Incertezza	
Photometric parameter Parametri fotometrici	Coefficient of retroreflection: 3,3% Coefficiente di retroriflessione
Statement Dichiarazione	<p>The measured value (<math>y</math>) and the associated expanded uncertainty (<math>U</math>) represent the interval (<math>y \pm U</math>) which contains the value of the measured quantity with a probability of approximately 95 % and a coverage factor <math>k = 2</math>.</p> <p>The values into the different appendix have the maximum significant figures managed by the measurement software.</p> <p>Il valore misurato (<math>y</math>) e l'incertezza estesa associata (<math>U</math>) rappresentano l'intervallo (<math>y \pm U</math>) che contiene il valore della grandezza misurata con una probabilità di circa il 95% e un fattore di copertura <math>k=2</math>.</p> <p>I valori negli appendici sono riportati con il massimo numero di cifre significative gestite dal software della strumentazione.</p>

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APPENDIX I	LARES O03 - amber
Norm and applicable points	CIE 54.2, ECE R3 and FMVSS108
Sample identification	241-QL18-S03
Place of testing	QUALILAB s.r.l. Via Trento, 87 25020 – Capriano del Colle (BS)
Test date	06/02/2018
Environmental conditions	Temperature 23°C±3°C
Instruments	Goniometer LMT GOH1200 QL-IN-002 Retro Unit LMT RETRO 2000 QL-IN-008
Test procedure	The sample was prepared, stabilized and measured like defined in ECE R 3 and FMVSS08
Test requirements	n.a.
Test measurement	The sample was mounted onto the test stand, provided by the manufacturer. The sample was illuminated with standard illuminant A. The sample was installed perpendicular to the light source. Afterwards the grid, given in the ECE R3 and FMVSS108, was measured.
<b>TEST RESULT</b>	

#### ECE R03

Functions	R [mcd/lx]	Unit
0.333 at H - V	2486,3	mcd/lx
0.333 at H - 10U	2127,3	mcd/lx
0.333 at H - 10D	2287,4	mcd/lx
0.333 at 20R - 5U	1241,6	mcd/lx
0.333 at 20R - 5D	1331,6	mcd/lx
0.333 at 20L - 5U	1325,6	mcd/lx
0.333 at 20L - 5D	1375,6	mcd/lx
1.500 at H - V	79,5	mcd/lx
1.500 at H - 10U	62,5	mcd/lx
1.500 at H - 10D	87,8	mcd/lx
1.500 at 20R - 5U	26,9	mcd/lx
1.500 at 20R - 5D	45,0	mcd/lx
1.500 at 20L - 5U	57,2	mcd/lx
1.500 at 20L - 5D	33,0	mcd/lx

#### FMVSS108

Functions	R [mcd/lx]	Unit
0.200 at H - V	3696,2	mcd/lx
0.200 at H - 10U	3087,2	mcd/lx
0.200 at H - 10D	3577,3	mcd/lx
0.200 at 20L - V	1903,6	mcd/lx
0.200 at 20R - V	1926,6	mcd/lx
1.500 at H - V	79,6	mcd/lx
1.500 at H - 10U	62,6	mcd/lx
1.500 at H - 10D	87,8	mcd/lx
1.500 at 20L - V	38,1	mcd/lx
1.500 at 20R - V	37,3	mcd/lx

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APPENDIX II	LARES W03 - white
Norm and applicable points	CIE 54.2, ECE R3 and FMVSS108
Sample identification	241-QL18-S04
Place of testing	QUALILAB s.r.l. Via Trento, 87 25020 – Capriano del Colle (BS)
Test date	06/02/2018
Environmental conditions	Temperature 23°C±3°C
Instruments	Goniometer LMT GOH1200 QL-IN-002 Retro Unit LMT RETRO 2000 QL-IN-008
Test procedure	The sample was prepared, stabilized and measured like defined in ECE R 3 and FMVSS08
Test requirements	n.a.
Test measurement	The sample was mounted onto the test stand, provided by the manufacturer. The sample was illuminated with standard illuminant A. The sample was installed perpendicular to the light source. Afterwards the grid, given in the ECE R3 and FMVSS108, was measured.
<b>TEST RESULT</b>	

#### ECE R03

Functions	R [mcd/lx]	Unit
0.333 at H - V	2266,3	mcd/lx
0.333 at H - 10U	2187,3	mcd/lx
0.333 at H - 10D	2207,4	mcd/lx
0.333 at 20R - 5U	2097,6	mcd/lx
0.333 at 20R - 5D	2097,6	mcd/lx
0.333 at 20L - 5U	2097,6	mcd/lx
0.333 at 20L - 5D	2107,6	mcd/lx
1.500 at H - V	152,7	mcd/lx
1.500 at H - 10U	134,5	mcd/lx
1.500 at H - 10D	135,4	mcd/lx
1.500 at 20R - 5U	137,2	mcd/lx
1.500 at 20R - 5D	139,2	mcd/lx
1.500 at 20L - 5U	137,5	mcd/lx
1.500 at 20L - 5D	139,7	mcd/lx

#### FMVSS108

Functions	R [mcd/lx]	Unit
0.200 at H - V	3096,2	mcd/lx
0.200 at H - 10U	2977,2	mcd/lx
0.200 at H - 10D	3007,3	mcd/lx
0.200 at 20L - V	2887,6	mcd/lx
0.200 at 20R - V	2877,6	mcd/lx
1.500 at H - V	152,7	mcd/lx
1.500 at H - 10U	135,2	mcd/lx
1.500 at H - 10D	134,8	mcd/lx
1.500 at 20L - V	140,0	mcd/lx
1.500 at 20R - V	140,4	mcd/lx

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	EUT/Type	Reflecting device O03, R03, W03	


APPENDIX III	LARES R03 - red
Norm and applicable points	CIE 54.2, ECE R3 and FMVSS108
Sample identification	241-QL18-S05
Place of testing	QUALILAB s.r.l. Via Trento, 87 25020 – Capriano del Colle (BS)
Test date	06/02/2018
Environmental conditions	Temperature 23°C±3°C
Instruments	Goniometer LMT GOH1200 QL-IN-002 Retro Unit LMT RETRO 2000 QL-IN-008
Test procedure	The sample was prepared, stabilized and measured like defined in ECE R 3 and FMVSS08
Test requirements	n.a.
Test measurement	The sample was mounted onto the test stand, provided by the manufacturer. The sample was illuminated with standard illuminant A. The sample was installed perpendicular to the light source. Afterwards the grid, given in the ECE R3 and FMVSS108, was measured.
<b>TEST RESULT</b>	

#### ECE R03

Functions	R [mcd/lx]	Unit
0.333 at H - V	556,3	mcd/lx
0.333 at H - 10U	478,3	mcd/lx
0.333 at H - 10D	482,4	mcd/lx
0.333 at 20R - 5U	452,6	mcd/lx
0.333 at 20R - 5D	457,6	mcd/lx
0.333 at 20L - 5U	455,6	mcd/lx
0.333 at 20L - 5D	456,6	mcd/lx
1.500 at H - V	52,2	mcd/lx
1.500 at H - 10U	34,2	mcd/lx
1.500 at H - 10D	35,1	mcd/lx
1.500 at 20R - 5U	33,3	mcd/lx
1.500 at 20R - 5D	34,0	mcd/lx
1.500 at 20L - 5U	33,5	mcd/lx
1.500 at 20L - 5D	33,9	mcd/lx

#### FMVSS108

Functions	R [mcd/lx]	Unit
0.200 at H - V	723,2	mcd/lx
0.200 at H - 10U	628,2	mcd/lx
0.200 at H - 10D	630,3	mcd/lx
0.200 at 20L - V	600,6	mcd/lx
0.200 at 20R - V	599,6	mcd/lx
1.500 at H - V	51,8	mcd/lx
1.500 at H - 10U	34,2	mcd/lx
1.500 at H - 10D	35,1	mcd/lx
1.500 at 20L - V	34,1	mcd/lx
1.500 at 20R - V	34,0	mcd/lx

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## APPENDIX IV

## Photographs

