




	Test report	684-QL22-R03 ver. 0	
	Applicant	LARES di Claudio Lerici Regione Viazzi, 6 15010 - Castelletto d'Erro (AL) - Italy	
	Type	Reflecting sheets O03, R03, W03	

## TEST REPORT 684-QL22-R03 ver. 0

Addresses Indirizzi		
Applicant Richiedente	LARES di Claudio Lerici - Regione Viazzi, 6 - 15010 - Castelletto d'Erro (AL) - Italy	
Manufacturer Produttore	Same as applicant/Come il richiedente	
Dates and authorization Date e autorizzazioni		
Report Date Data emissione rapporto di prova	17/05/2022	
Written by Preparato da	Matteo Roncali	
Authorized by Autorizzato da	Ing. Michele Peschiera	
Sample under test (data declared by the applicant and under applicant's responsibility) Dispositivo sottoposto a prova (dati forniti dal richiedente e sotto la sua responsabilità)		
Sample description Descrizione dispositivo	Reflecting sheets	
Type Modello	LARES O03 - Amber LARES W03 - White LARES R03 - Red	
Applicable Standard Norme applicabili		
CIE 54.2:2001 - Retroreflection: definition and measurement, ECE R150 rev. 0 and FMVSS108:2020		

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Annex Annesso	Test Name Identificazione prova	Test Procedure Procedura di prova	Test Requirement Requisito di prova	Verdict / Result Esito / Risultato
I	LARES O03	CIL measurement in accordance to CIE 54.2:2001, ECE R150 rev. 0 and FMVSS108:2020	Not applicable	See Appendix I
II	LARES W03	CIL measurement in accordance to CIE 54.2:2001, ECE R150 rev. 0 and FMVSS108:2020	Not applicable	See Appendix II
III	LARES R03	CIL measurement in accordance to CIE 54.2:2001, ECE R150 rev. 0 and FMVSS108:2020	Not applicable	See Appendix III
IV	Photographs	-	-	-

Uncertainty Incertezza	
Photometric parameter Parametri fotometrici	Coefficient of retroreflection/Coefficiente arcico di intensità luminosa= 2,8 %
Sample mounting precision Precisione montaggio dispositivo	$\pm 0,5^\circ$
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 annex 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 annessi sono riportati con il massimo numero di cifre significative gestite dal software della strumentazione.</p>

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ANNEX I		LARES O03 - amber
Standards and applicable points	CIE 54.2:2001, ECE R150 rev.0 and FMVSS108:2020	
Sample identification	LARES O03	
Place of testing	Qualilab Srl - Via Trento, 87 - 25020 - Capriano del Colle (BS) - Italy	
Test date	13/05/2022	
Environmental conditions	Temperature 23 °C ± 3 °C	
Instruments	Temperature-humidity datalogger Testo 174H QL-IN-018 Temperature-humidity datalogger Testo 174H QL-IN-020 Goniophotometer LMT GOH-1200 QL-IN-002 Retroreflection Unit LMT RETRO 2000 QL-IN-008	
Test procedure	The sample was prepared, stabilized and measured like defined in ECE R150 and FMVSS108	
Test requirements	Not applicable	
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 R150 and FMVSS108, was measured.	
VERDICT / RESULT		

<u>ECE R150</u>		<u>FMVSS108</u>	
Functions	CIL [mcd/lx]	Functions	CIL [mcd/lx]
0.333 at H - V	1666	0.200 at H - V	2340
0.333 at H - 10U	1573	0.200 at H - 10U	2230
0.333 at H - 10D	1587	0.200 at H - 10D	2250
0.333 at 20R - 5U	1541	0.200 at 20L - V	2190
0.333 at 20R - 5D	1539	0.200 at 20R - V	2190
0.333 at 20L - 5U	1542	1.500 at H - V	189,9
0.333 at 20L - 5D	1540	1.500 at H - 10U	130,1
1.500 at H - V	190,2	1.500 at H - 10D	130,9
1.500 at H - 10U	130,2	1.500 at 20L - V	132,9
1.500 at H - 10D	130,9	1.500 at 20R - V	132,6
1.500 at 20R - 5U	131,3		
1.500 at 20R - 5D	130,4		
1.500 at 20L - 5U	131,8		
1.500 at 20L - 5D	130,8		

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ANNEX II		LARES W03 - white
Standards and applicable points	CIE 54.2:2001, ECE R150 rev.0 and FMVSS108:2020	
Sample identification	LARES W03	
Place of testing	Qualilab Srl - Via Trento, 87 - 25020 - Capriano del Colle (BS) - Italy	
Test date	13/05/2022	
Environmental conditions	Temperature 23 °C ± 3 °C	
Instruments	Temperature-humidity datalogger Testo 174H QL-IN-018 Temperature-humidity datalogger Testo 174H QL-IN-020 Goniophotometer LMT GOH-1200 QL-IN-002 Retroreflection Unit LMT RETRO 2000 QL-IN-008	
Test procedure	The sample was prepared, stabilized and measured like defined in ECE R150 and FMVSS108	
Test requirements	Not applicable	
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 R150 and FMVSS108, was measured.	
VERDICT / RESULT		

<u>ECE R150</u>			<u>FMVSS108</u>		
Functions	CIL [mcd/lx]		Functions	CIL [mcd/lx]	
0.333 at H - V	2230		0.200 at H - V	3010	
0.333 at H - 10U	2140		0.200 at H - 10U	2920	
0.333 at H - 10D	2110		0.200 at H - 10D	2880	
0.333 at 20R - 5U	2040		0.200 at 20L - V	2790	
0.333 at 20R - 5D	2030		0.200 at 20R - V	2790	
0.333 at 20L - 5U	2040		1.500 at H - V	218	
0.333 at 20L - 5D	2030		1.500 at H - 10U	133,6	
1.500 at H - V	218		1.500 at H - 10D	135,1	
1.500 at H - 10U	133,5		1.500 at 20L - V	138,8	
1.500 at H - 10D	135		1.500 at 20R - V	138,6	
1.500 at 20R - 5U	137,3				
1.500 at 20R - 5D	135,7				
1.500 at 20L - 5U	137,2				
1.500 at 20L - 5D	135,9				

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ANNEX III		LARES R03 - red
Standards and applicable points	CIE 54.2:2001, ECE R150 rev.0 and FMVSS108:2020	
Sample identification	LARES R03	
Place of testing	Qualilab Srl - Via Trento, 87 - 25020 - Capriano del Colle (BS) - Italy	
Test date	13/05/2022	
Environmental conditions	Temperature 23 °C ± 3 °C	
Instruments	Temperature-humidity datalogger Testo 174H QL-IN-018 Temperature-humidity datalogger Testo 174H QL-IN-020 Goniophotometer LMT GOH-1200 QL-IN-002 Retroreflection Unit LMT RETRO 2000 QL-IN-008	
Test procedure	The sample was prepared, stabilized and measured like defined in ECE R150 and FMVSS108	
Test requirements	Not applicable	
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 R150 and FMVSS108, was measured.	
VERDICT / RESULT		

<u>ECE R150</u>		<u>FMVSS108</u>	
Functions	<i>CIL</i> [mcd/lx]	Functions	<i>CIL</i> [mcd/lx]
0.333 at H - V	561	0.200 at H - V	713
0.333 at H - 10U	474	0.200 at H - 10U	620
0.333 at H - 10D	470	0.200 at H - 10D	612
0.333 at 20R - 5U	447	0.200 at 20L - V	587
0.333 at 20R - 5D	446	0.200 at 20R - V	586
0.333 at 20L - 5U	449	1.500 at H - V	118,1
0.333 at 20L - 5D	446	1.500 at H - 10U	37,4
1.500 at H - V	118,5	1.500 at H - 10D	37,9
1.500 at H - 10U	37,4	1.500 at 20L - V	35,7
1.500 at H - 10D	37,9	1.500 at 20R - V	35,7
1.500 at 20R - 5U	35,4		
1.500 at 20R - 5D	35,3		
1.500 at 20L - 5U	35,4		
1.500 at 20L - 5D	35,2		

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## ANNEX IV

## Photographs

