

	Test report n.	276-QL18-R02 ver. 0
	Applicant	TÜV RHEINLAND ULUSLARARASI STANDARTLAR SERTIFIKASYON VE DENETİM A.S. - Kozyatagi Mah. Saniye Ermutlu Sok. No:12 Çolakoglu Plaza B Blok 34742 Kadiköy Istanbul TURKEY
	EUT/Type	Emergency sign – NAIROBI – ANA D5 P01/01

## TEST REPORT Nr. 276-QL18-R02 ver. 0

Addresses Indirizzo		
Applicant Richiedente	TÜV RHEINLAND ULUSLARARASI STANDARTLAR SERTIFIKASYON VE DENETİM A.S. - Kozyatagi Mah. Saniye Ermutlu Sok. No:12 Çolakoglu Plaza B Blok 34742 Kadiköy Istanbul TURKEY	
Manufacturer Produttore	ALTEZ ELECTRONIC LIGHTING CO. Mecidiye Mh. Fatih Bulv. Bey Sk. No:15 34930 Sultanbeyli / İstanbul TURKEY	
Test laboratory Laboratorio di prova	Qualilab s.r.l. Via Trento, 87 25020 – Capriano del Colle (BS)-Italy	
Dates and authorization Date e autorizzazioni		
Date and method of sampling Data e metodo di campionamento	Sampling performed by the applicant / Campionamento a carico del cliente	
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	26/02/2018	
Authorization Autorizzazioni	Ing. Nicola Parolini 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	Emergency sign with self-contained battery	
Type Modello	NAIROBI – ANA D5 P01/01	
Light source and driving current	N°18 Led SEOUL SEMICONDUCTOR STW8A12D – Mid-Power LED 3528 Series – Emergency mode@ 33,3mA – Mains mode@ 19,4mA	
Power supply Alimentazione	230Vac, 50/60Hz Battery Ni-Cd 3,6V 2200Ah	
Applicable norms Norme applicabili		
EN 60598-2-22 ed. 4 ,ISO 30061 ed.1, ISO 3864-1 ed.2 , ISO 3684-4 ed.1		

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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
Minimum luminance in non-emergency mode	ISO 30061 point 10.3.1 and ISO 3684-4 table 2	Safety color GREEN > 2 cd/m <sup>2</sup> Contrast color WHITE > 10cd/m <sup>2</sup>	PASS
Luminance in emergency mode	EN 60598-2-22 point 22.17.1 measurement of luminance after 5sec, 60sec and at the end of rated duration after failure of the normal power supply	@ 5sec min 50% of rated luminance @ 60sec 100% of rated luminance Note: Rated luminance not declared by the applicant	See Appendix I
Color	ISO 3684-1 and ISO 3684-4 table 2	The color shall lie within the defined area Green and White	PASS
Uniformity of colors	ISO 30061 point 10.4.1	If the luminance of the safety sign is greater than 100 cd/m <sup>2</sup> the ration of MIN to MAX within the color shall be not greater than 1:10 otherwise 1:5	FAIL
Uniformity between colors	ISO 30061 point 10.4.1 and ISO 3864-4 table 3	The ratio of the luminance $L_{contrast}$ color to the adjacent luminance $L_{safety}$ color shall be not less than 5:1 and not greater than 15:1	FAIL

Uncertainty Incertezza	
Photometric parameter Parametri fotometrici	Luminous intensity and illuminance/ Intensità luminosa e illuminamento 1,8%, Efficacy luminous intensity/Intensità luminosa efficace 3,2% Luminance/Luminanza 3,5% Coefficient of retroreflection/ <i>Coefficiente arisco di intensità luminosa</i> 3,3%
Color coordinates Coordenadas de cromaticidad	$x = \pm 0,0007$ ; $y = \pm 0,0009$
Statement Dichiarazione	The measured value (y) and the associated expanded uncertainty (U) represent the interval (y±U) which contains the value of the measured quantity with a probability of approximately 95 % and a coverage factor $k = 2$ . The values into the different appendix have the maximum significant figures managed by the measurement software. Il valore misurato (y) e l'incertezza estesa associata (U) rappresentano l'intervallo (y±U) che contiene il valore della grandezza misurata con una probabilità di circa il 95% e un fattore di copertura $k=2$ . I valori negli appendici sono riportati con il massimo numero di cifre significative gestite dal software della strumentazione.

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APPENDIX I		Measurement
Norm and applicable points	EN 60598-2-22, ISO 30061, ISO 3864-1, ISO 3864-1	
Sample identification	276-QL18-S02	
Place of testing	QUALILAB s.r.l. Via Trento, 87 25020 – Capriano del Colle (BS)	
Test date	From 12/02/2018 to 26/02/2018	
Environmental conditions	Temperature 23°C±3°C	
Instruments	Jeti specbos1201 QUALILAB int. n° QL-IN-111 Luminance camera LMT L1009 QUALILAB int. n° QL-IN-003	
Test procedure	EN 60598-2-22, ISO 30061, ISO 3864-1, ISO 3864-1 Color coordinates measurement Luminance measurement test points: <div style="text-align: center; margin: 10px 0;">  </div>	
Test requirements	Safety color GREEN > 2 cd/m <sup>2</sup> / Contrast color WHITE > 10 cd/m <sup>2</sup> The color shall lie within the defined area of WHITE and GREEN $L_{max}/L_{min}$ within the color shall not be greater than 1:5 ratio of the luminance $L_{contrast\ color}$ to the adjacent luminance $L_{safety\ color}$ shall be not less than 5:1 and not greater than 15:1 Luminance @ 5sec min 50% of rated luminance Luminance @ 60sec 100% of rated luminance Note: Rated luminance not declared by the applicant	



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Test measurement

	Luminance cd/m <sup>2</sup>	
	Green	White
$L_{max}$	42,5	468
$L_{min}$	5,0	37,0
$L_{max} / L_{min}$	8,5	12,6

Luminance cd/m <sup>2</sup>	White point	1	2	3	5	7	9	13
Green point	$L_{white}/L_{green}$	254,0	53,0	37,0	84,6	100,1	80,2	220,0
4	8,14		6,5		10,4			
6	10,9				7,8	9,2		
8	10,1					9,9	7,9	
10	9,78						8,2	
11	17,2	14,8						12,8
12	5,3			7,0				

Luminance cd/m <sup>2</sup>	White point	14	15	16	19	20	22	26
Green point	$L_{white}/L_{green}$	49,0	227,0	51,3	292,0	54,4	51,2	370,0
12	5,3	9,2						
17	20,2		11,2		14,5			
18	6,9			7,4		7,9		
21	5,6						9,1	
23	6,4						8,0	
24	13,2							28,0
25	12,2							30,3

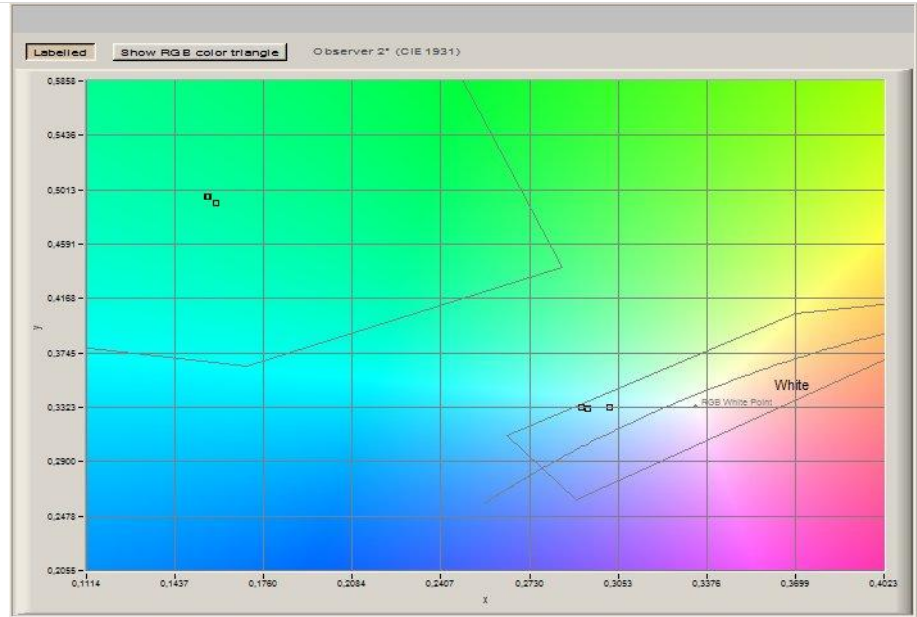
Measurement time	$L_{green}$ [cd/m <sup>2</sup> ]	$L_{white}$ [cd/m <sup>2</sup> ]
5sec	20,9	181,2
60sec	20,9	180,9
After stabilization 1h	20,3	175,5

Chromaticity coordinates

Color	$x$	$y$
White	0,3043	0,3323
Green	0,1588	0,4907



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**TEST RESULT**

**COLOR:**  
White – PASS  
Green – PASS

**MIN LUMINANCE:**  
White – PASS  
Green – PASS

*L<sub>max</sub>/L<sub>min</sub> within the color (homogeneity)*  
White – FAIL  
Green – FAIL

*L<sub>max</sub>/L<sub>min</sub> between the colors (contrast): FAIL*



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**APPENDIX II** **Photographs**





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