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> MSC.1/Circ.1629 14 December 2020

REVISED STANDARDIZED LIFE-SAVING APPLIANCE EVALUATION AND TEST REPORT FORMS (VISUAL SIGNALS)

1 The Maritime Safety Committee, at its 102nd session (4 to 11 November 2020), approved the *Revised standardized life-saving appliance evaluation and test report forms*.

The original forms, as set forth in the *Standardized life-saving appliance evaluation and test report forms* (MSC/Circ.980) and its addenda, were developed on the basis of the requirements of the International Life-Saving Appliance (LSA) Code and the *Revised recommendation on testing of life-saving appliances* (resolution MSC.81(70)) by the Maritime Safety Committee, at its seventy-third session in 2001, with a view to providing guidance on how to conduct tests, record test data and verify tests. The Committee has since adopted seven amendments to the LSA Code and eight amendments to resolution MSC.81(70). These amendments have been incorporated in the original forms which, due to their volume, are now presented in six separate circulars, i.e. MSC.1/Circ.1628, MSC.1/Circ.1629, MSC.1/Circ.1630, MSC.1/Circ.1631, MSC.1/Circ.1632 and MSC.1/Circ.1633, pertaining to the equipment addressed in chapters II to VII of the LSA Code, respectively. The forms annexed to this circular apply to the equipment addressed in chapter III of the LSA Code, i.e. visual signals (rocket parachute flares, hand flares and buoyant smoke signals).

3 The use of the revised forms will continue to be of benefit to Administrations and other parties, such as manufacturers, test facilities, owners and surveyors, and will be a major help in mutually accepting the type approval of appliances approved by other Administrations.

4 Member Governments are invited to bring the annexed, revised forms to the attention of all parties concerned with approving, manufacturing and testing life-saving appliances and to encourage them to use the forms.

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5 This circular supersedes MSC/Circ.980.



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ANNEX

REVISED STANDARDIZED LIFE-SAVING APPLIANCE EVALUATION AND TEST REPORT FORMS (VISUAL SIGNALS)

INTRODUCTION

Reference

These standardized life-saving appliance evaluation and test report forms have been revised on the basis of the requirements of the International Life-Saving Appliance (LSA) Code, as amended through resolution MSC.425(98), *the Revised recommendation on testing of life-saving appliances* (resolution MSC.81(70)), as amended through resolution MSC.427(98), and the *Recommendation on means of rescue on ro-ro passenger ships* (MSC/Circ.810).

Status

In general, the tests described in the Revised recommendation (resolution MSC.81(70)) constitute the test procedures and the LSA Code sets the acceptance criteria. The evaluation and test report forms are guidelines on how to conduct tests, record test data and verify tests. These forms are not intended to change the standards given in the LSA Code and the Revised recommendation, as amended. In the case of inconsistency between the forms and the LSA Code or the Revised recommendation, the text of the Code/resolution should prevail over that of the forms.

Layout

Each Administration may use electronically distributed evaluation and test report forms as the basis for customising the layout to reflect the profile of the approving body, without changing the original contents.

Internal references

The evaluation and test report forms should be stand-alone documents. Therefore, all internal references in the original text from the LSA Code or the Revised recommendation have been replaced by either the full-length text or a reference to other relevant evaluation and test report forms. However, in some of the forms, external references are kept for updating purposes.

Documentation of tests

For approval purposes, all detailed records of test data are to be enclosed with the report forms.

Verification of tests

Each test is to be verified passed or failed by an Administration representative's initials (e.g. recognized organization or surveyor) and date of testing. Each page is to be verified on completion by the Administration representative's signature and its date of completion.

Reporting of type approval

To facilitate unified reporting procedures, the completed evaluation and test report forms are to be seen as a documented verification of required type approval tests for each type of equipment. When documentation of type approval is required by a third party, the verified evaluation and test report forms should constitute the complete documentation of the type approval together with the relevant approval certificates.

REVISED STANDARDIZED LIFE-SAVING APPLIANCE EVALUATION AND TEST REPORT FORMS (VISUAL SIGNALS)

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3.1 ROCKET PARACHUTE FLARES

EVALUATION AND TEST REPORT

Manufacturer	
Type/Model	
Date of Approval	
Place	
Name Surveyor printed	
Signature	
Approving Organization	

Rocket parachute fla	res	Manufacturer: Model: Lot/Serial Numbe	Date: Time: Surveyor: Organization:		Date: Time: Surveyor: Organization:			
3.1.1 Submitted	draw	vings, reports and	l documents					
			Submitted drawings and docu	ments		Status		
Drawing No.	Revision No. & date		Title of drawing					
	1		Submitted reports and docum	nents		Status		
Report/Document No.	Rev	vision No. & date	T	itle of re	port/document			
			Maintenance Manual -					
			Operations Manual -					

	Manufacturer:		Date: Time:					
Rocket parachute flares	Lot/Serial Number:	·····	Organization:					
3.1.1.1 Quality assuran	nce	Regulation	ons: MSC.81(70) 2/1.2, 1.1					
3.1.1.1 Quality assurant Except where all appliances of the International Convention for the International Life-Sav representatives of the Admir manufacturers to ensure the materials used comply with life-saving appliance. Manufacturers should be requensure that life-saving appliance intervention of any production Administration's instructions.	of a particular type are required by chapter III of for the Safety of Life at Sea, 1974, as amended, ving Appliance (LSA) Code to be inspected, histration should make random inspections of the quality of life-saving appliances and the specification of the approved prototype uired to institute a quality control procedure to nees are produced to the same standard as the ce approved by the Administration and to keep tests carried out in accordance with the	Regulation Quality Ass Quality Ass Description Quality Ass acceptable Comments	ssurance Standard Used: ssurance Procedure: ssurance Manual: on of System: ssurance System le Yes/No ts/Observations					

Roc	ket parachute flares	Manufacturer: Model: Lot/Serial Numbe	r:	Date: Surveyor: Organization:	Time:		
3.1.1.	2 Visual inspection			Regulations: LSA Code	ə //1.2.2 & III/3.1, 1.2.3		
	Test Procedur	re	Acceptance (Criteria	Significant Test Data		
Visua	examination:		Rocket Parachute Flares should	:			
1.	Approval markings.		 be clearly marked with appr the Administration which manufacture and expiry an markings are to be indelible 	roval information including approved it, date of d operational restrictions, e;	1. Approval markings: Pass/Fail		
2.	Operating instructions.		 be provided with brief instruing illustrating the use of the printed on the casing; 	ictions or diagrams clearly e rocket parachute flare			
3.	Outer casing.		 not depend on adhesive ta for its water-resistant properties 	apes or plastic envelopes erties;	3. Outer casing: Pass/Fail		
4.	Comfort.		4. be so designed as not to person holding the casing with the manufacturers' are	cause discomfort to the when used in accordance	4. Comfort: Pass/Fail		
5.	Operation.		5. be so constructed that the	end from which the rocke	t 5. Operation: Pass/Fail		
6.	Ignition System.		and 6. be fitted with an integral me	eans of ignition.	6. Ignition system: Pass/Fail		
Lifetin	ne		The Administration should d acceptability of the unit which a with age.	etermine the period of re subject to deterioration	Comments/Observations		

Rocket parachute flares	Manufacturer: _ Model: Lot/Serial Numb	per:	Date: Time: Surveyor: Organization:			
3.1.1.3 General data and	specifications		Regulations: LSA Co	de 1.2; MSC.81(70) Pt 1/4.6		
General Informa	tion	Dimensions	6	Weight		
Construction Material:		Dimensions:		Design Weight:		
Casing:		Length of Casing:		Weight as Tested: Weight of Flare Material:		
Top cover (if applicable):		Diameter of Casing:	_	Weight of Rocket Charge:		
Bottom cover (if applicable):		Parachute Dimensions:		Comments/Observations		
Method of Ignition	_	Number of attachment Cords:				
Operational Safety Delay ((if applicable):	Diameter of Line:				
Parachute	Material					

Rocket parachute flares	Man Mod Lot/S	ufacture el: Serial Nu	umber: _			· · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		Date: Surveyor: Organization:			
TEST ITEMS CONDITIONING SEQUENCE		SPECIMEN NUMBER						REFERENCES	REMARKS			
Specimen No>	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-28	MSC81(70)		
Measuring dimensions and mass	А	А	A	A	А	А	А	A	A			
Temperature cycling test (3.1.2)	В									4.2.1		
Low temperature conditioning (3.1.3)		В								4.2.2		
High temperature conditioning (3.1.4)			В							4.2.3		
Humidity conditioning (3.1.5)				В						4.2.4		
1 m immersion for 24 hours (3.1.6.1)					В					4.3.1		
100 mm for 5 minutes (3.1.6.2)						В				4.3.2		
Salt water spray (3.1.6.3)							В			4.3.3		
2 m Drop Test (3.1.7.1)								В		4.4.1		
Safety inspection (3.1.9)	С	С	С	С	С	С	С	С		4.5		
Operation at ambient temperature	D				D	D	D	D		4.2.1, 4.3.1, 4.3.2, 4.3.3 & 4.4.1		

	Manufac Model:	turer: _					· · · · · · ·	Da	te:		Time:
Rocket parachute flares	Lot/Seria	al Numb	er:					Or	Organization:		
Specimen No>	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-28	References	Remarks
Operate at conditioning Temperature		D	D	D						4.2.2, 4.2.3 & 4.2.4	
Operational test using immersion suit glove (3.1.7.2)	E				Е			Е		/4.4.2	Use specimens #2, #14 and #23.
Vertical firing height, descent speed, burn time. (Note 1)			Е		E	E	E			4.6.1	
45° firing to horizontal. (Note 2)	E	Е		E				Е		4.6.3	
Rocket recoil test for hand- held only. (Note 3)	E	Е	Е	E	ш	E	Е	E		4.6.4	
Flare material test colour and luminosity (3.1.8)										4.6.2	Additional flares may be used to measure the luminous intensity and may be carried out by an independent laboratory acceptable to the administration and report submitted.
Chute examination after recovery. (Note 4)	F	F	F	F	F	F	F	F		LSA. Code Chapter III/ 3.1.2.5	
Liferaft Drop Test (4.2.4)									G	LSA Code Chapter IV/ 4.1.1.2	The liferaft manufacturer should complete this form.

Note: The letters in the above 'boxes' refer to the sequence of testing of each specimen Rocket Parachute Flare. Note 1. Not all samples marked need to be fired at 90°. A representative sample of at least 18 specimens should be so assessed, so that a representative descent rate can be found.

Note 2. Not all samples marked need to be fired at 45°. A representative sample of at least 3 specimens should be so assessed.

Note 3. Not all samples need to be recoil tested. A representative sample of at least 3 rockets should be so assessed by hand firing.

Note 4. It is accepted that all parachutes may not be recoverable - as many as possible should be recovered and inspected for damage.

Rocket parachute flares	Manufacturer: Model: Lot/Serial Number:		Date: Surveyor: Organization:	Date: Time: Surveyor:				
3.1.2 Temperature cy	cling test	Regulations: LSA Code I/1.2 & III/3.1; MSC.81(70) 1/1.2.1, 4.2 & 4.6						
Test Proce	dure	Accept	tance Criteria		Significant T	est Data		
The three specimens of p should be alternately sub temperatures of -30°C and + cycles need not follow imme	arachute rocket flares jected to surrounding 65°C. These alternating diately after each other	After the test, each spe damage such as sh dissolution or change should then function at	cimen should show no sign of nrinking, cracking, swelling, of mechanical qualities and ambient temperature.	1 Condition after Ejection height	2 conditioning (t of flare (metre	3 Pass/Fail) es) Operation		
 and the following procedure, 10 cycles, is acceptable: .1 an 8 h exposure at a m +65°C to be completed in 	repeated for a total of inimum temperature of one day;	.1 It should be estab measuring instrume specimens 1 and 2 less than 300 m.	Burn out heigh	t of flare (metr	N/A es) N/A			
 .2 the specimens removed f that same day and left e room conditions at a tem until the next day; .3 an 8 h exposure at a ma -30°C to be completed the 	rom the warm chamber exposed under ordinary perature of 20°C ± 3°C aximum temperature of next day; and	 .2 The height of whic burning period shout .3 It should be measurements that than 5 m/s and the 	h the flare burns out and the Ild also be measured. established from these the rate of descent is not more burning period is not less than	Burn time of fla Descent rate o Operation at 4 N/A	are (sec) of flare (m/s) 5° (Pass/Fail) N/A d (metres)	N/A		
.4 the specimen removed fro same day and left expose conditions at a temperatur next day.	m the cold chamber that ed under ordinary room e of 20°C ± 3°C until the	40 s..4 Specimen 3 should not reach a height c.5 If the rocket is hand	f function efficiently but need of 300 metres. -held when operated, it should	Parachute cond	lition (Pass/Fai	N/A I)		
The three parachute rock temperature cycling should ambient temperature Samples 1 and 2 should Sample 3 should be fired at a	he three parachute rockets after completing mperature cycling should function effectively at mbient temperature amples 1 and 2 should be fired vertically. ample 3 should be fired at an angle of 45°.		at its recoil is minimal. nined by examination that the lamaged its parachute or it was burning.	at the te or PassedFailed				

Rocket parachute flares	Manufacturer: Model: _ot/Serial Number:	Date: Surveyor: _ Organizatio	Date: Surveyor: Organization:			
3.1.3 Low temperature	conditioning test	Regulations: LSA	Code I/1.2 & .III/3.	1; MSC.81(70) 1/-	4.2.2	
Test Procedure	Acceptance Criteria			Significant Test D	Data	
Three parachute rockets sho	After the test, each specimen should show	no sign of damage	4	5	6	
be subjected to a temperature	of such as shrinking, cracking, swelling, diss	olution or change of	Condition after of	conditioning (Pass	/Fail)	
function effectively immediat	elv mechanical qualities and should then	function effectively				
upon removal from the c	old immediately.	immediately.			peration 90°	
chamber.	1 It should be established by means of	accurate maccuring			N/A	
	instruments that the parachute flares of s	specimen 4 and 5 are	Burn out height of flare (metres)			
	eiected at a height of not less than 300 m				N/A	
Specimen 4 and 5 should be fir	red		Burn time of flar	e (sec)	-	
vertically. Specimen 6 should	be .2 The height of which the flare burns out a	nd the burning period				
fired at an angle of 45°.	should also be measured.		Descent rate of	flare (m/s)	I	
	2. It should be established from these mes	asurements that the			N/A	
	rate of descent is not more than 5 m/s ar	astrements that the	Operation at 45	° (Pass/Fail)		
	is not less than 40 s.	ia ale balling period	N/A	N/A		
			Height reached	(metres)		
	.4 Specimen 6 should function efficiently b	out need not reach a			N/A	
	height of 300 metres.		Parachute condition (Pass/F			
	5 If the rocket is hand-held when one	rated it should be				
	demonstrated that its recoil is minimal.	Tated, it should be	Recoil minimal (Recoil minimal (Pass/Fail)		
	.6 It should be determined by examination	Comments/Observations		ervations		
	damaged its parachute or attachments w	hilst it was burning.	Passed	Failed		

Rocket parachute flares	Manufacturer: Model: Lot/Serial Nur	nber:		Date: Surveyor: Organization:		_ Time:	
3.1.4 High temperatu	re conditioning	y test	Regulations	ations: LSA Code I/1.2 & III/3.1; MSC.81(70) 1/4.2.3, 4.6			
Test Procedure	est Procedure Accepta					Significant Te	est Data
Three parachute rockets	should be	After the test, each specimen s	hould show n	o sign of damage	7	8	9
subjected to a temperature of least 48 b and then function	of +65°C for at	such as shrinking, cracking, sw	elling, dissolu	tion or change of	Condition af	ter conditioning (I	Pass/Fail)
immediately upon removal from the hot		mechanical qualities and she	ould then fur	nction effectively			
chamber.		immediately.			Ejection heio 90°	ght of flare (metre	s) Operation
The three rockets should be f	ired vertically.	1. It should be established by means of accurate measuring instruments that the parachute flares of the three rockets are ejected at a height of not less than 300 m.					
	,				Burn out hei	ght of flare (metre	es)
		are ejected at a height of ho	0 111.				
		2. The height of which the flare burns out and the burning period should also be measured.			Burn time of	flare (sec)	1
					Descent rate of flore (m/a)		
					Descent rate of flare (m/s)		
		3. It should be established from	n these measi	and the burning		 ondition (Dass/Ea	 \il\
		period is not less than 40 s.		and the burning	Faracritice c		
		1			Recoil minin	nal (Pass/Fail)	
		4. If the rocket is hand-held	when operat	ed, it should be			
		demonstrated that its recoil	is minimal.		Comments/0	Observations	
		 It should be determined by not damaged its parachute burning. 	examination t or attachme	that the flare has nts whilst it was			
					Passed	Failed	

	Manufacturor	Data:	Timo:				
	Model:		IIIIe	· · · · · · · · ·			
Rocket parachute flares	I ot/Serial Number:	Organization:	Organization:				
3.1.5 Humidity conditi	ioning test	Regulations: LSA Code I/1.2 & III/3.1; MSC.81(70) 1/4.2.4					
Test Procedure	Acceptance Crite	eria	Significant	Test Data			
Three specimens of parachut	After the test, each specimen should show	w no sign of damage such as	10 11	12			
rockets should be subjected to	o shrinking, cracking, swelling, dissolution or (change of mechanical qualities	Condition after conditioning	(Pass/Fail)			
a temperature of +65°C an	d and should then function at ambient temper	ature.					
90% relative humidity for a	at		Ejection height of flare (me	tres) Operation			
least 96 h, followed by 10 day	s .1 It should be established be by me	ans of accurate measuring	90°				
at 20°C to 25°C at 65% relativ	e instruments that the parachute flares of a significant of the parachute flares of the significant of the s	of specimens 10 and 11 are		N/A			
numiaity.	ejected at a neight of not less than 300 h	n.	Burn out height of flare (me	etres)			
Specimen 10 and 11 should be	.2 The height of which the flare burns out	and the burning period should		N/A			
fired vertically. Specimen 12	also be measured.		Burn time of flare (sec)				
should be fired at an angle							
of 45°.	.3 It should be established from these m	easurements that the rate of	Descent rate of flare (m/s)				
	descent is not more than 5 m/s and the	burning period is not less than		N/A			
	40 S.		Operation at 45° (Pass/Fail)			
	.4 Specimen 12 should function efficiently	but need not reach a height of	N/A N/A				
	300 metres.	5	Height reached (metres)				
				N/A			
	.5 If the rocket is hand-held when operated,	it should be demonstrated that	Parachute condition (Pass/	Fail)			
	its recoil is minimal.						
	6 It should be determined by examination	that the flare has not damaged	Recoil minimal (Pass/Fail)				
	its parachute or attachments whilst it was	s burning.					
		0	Comments/Observations				
			PassedFailed				

Rocket parachute flares	Manufacturer: Model: Lot/Serial Nur	nber:	Date: Surveyor: Organization:	Date: Time: Surveyor: Organization:				
3.1.6.1 1 m immersion	for 24 hours te	st	Regulations: LSA Code I/1.2 & III/3.1; MSC.81(70) 1/4.3.1, 4.6					
Test Procedure		Acceptan	ce Criteria		Significant 1	Fest Data		
Three parachute rockets immersed horizontally for 24 I water. The three rockets should be f	should be n under 1 m of ired vertically.	 After the test, each rocket shou as shrinking, cracking, swell mechanical qualities and sho temperature. 1. It should be established by instruments that the parach are ejected at a height of no 2. The height of which the fla period should also be meas 3. It should be established from rate of descent is not mor period is not less than 40 s. 4. If the rocket is hand-held demonstrated that its recoil 5. It should be determined by not damaged its parachute burning. 	d show no sign of damage sung, dissolution or change build then function at ambie means of accurate measuring oute flares of the three rocker of less than 300 m. are burns out and the burning ured. In these measurements that the than 5 m/s and the burning when operated, it should is minimal. examination that the flare has or attachments whilst it w	13 of Condition after of Condition after ent Ejection heigh 90° Burn out heigh 90° Burn out heigh ng Burn time of f Descent rate Descent rate ng Parachute col Descent rate Comments/Of Descent state Passed	14 er conditioning Int of flare (metr Int of flare (metr Iare (sec) Indition (Pass/F Indition (Pass/F))	15 (Pass/Fail) res) Operation res)		
		5. It should be determined by not damaged its parachute burning.	examination that the flare h or attachments whilst it w	Comments/O	bservations			

Rocket parachute flares	Manufacturer: Model: Lot/Serial Number:			Date: Surveyor: Organization: _		_ Time:	
3.1.6.2 10 cm immersion for 5 min test			Regula	tions: LSA Cod	e I/1.2 & III/3.1;	MSC.81(70) 1/4.3	3.2, 4.6
Test Procedure Acceptance C		riteria			Significant Test	Data	
Three parachute rockets should be immersed in the ready to fire condition for 5 min under 10 cm of water.		After the test, each rocket sh damage such as shrinking, crack or change of mechanical qua function at ambient temperature	After the test, each rocket should show no sign of damage such as shrinking, cracking, swelling, dissolution or change of mechanical qualities and should then		16 Condition after	17 r conditioning (Pas	18 ss/Fail)
The three rockets should be f	 three rockets should be fired vertically. 1 It should be established by measuring instruments that the three rockets are ejected at a 300 m. The height of which the burning period should also be established from these measu descent is not more than 5 m/s is not less than 40 s. 2 If the rocket is hand-held wher demonstrated that its recoil is interval. 				Ejection heigh Burn out heigh Burn time of fla Descent rate o Parachute con Recoil minimal Comments/Ob	t of flare (metres)	Operation 90°
		.3 It should be determined by examination that the flare has not damaged its parachute or attachments whilst it was burning.	Passed	Failed			

Rocket parachute flares	et parachute flares Manufacturer: Model: Lot/Serial Number:			Date: Surveyor: Organization:		Time:	
3.1.6.3 Salt spray test			Regulations	s: LSA Code I/1.2	& III/3.1; MSC.8	81(70) 1/4.3.3, 4	1.6
Test Procedure	•	Acceptan	ce Criteria			Significant Te	est Data
Three specimens of parachute rockets should be subjected to a salt spray (5% Natrium Chloride solution) at a temperature of +35±3°C for at least 100 h.		After the test, each specimen should show no sign of damage such as shrinking, cracking, swelling, dissolution or change of mechanical qualities and should then function at ambient temperature.		19 Condition afte Ejection heigh Operation 90°	20 r conditioning (F t of flare (metre	21 Pass/Fail) s)	
The three rockets should be fired vertically. Note: Natrium and Sodium are the same		 It should be established by means of accurate measuring instruments that the parachute flares of the three rockets are ejected at a height of not less than 300 m. The height of which the flare burns out and the burning period should also be measured. It should be established from these measurements that the rate of descent is not more than 5 m/s and the burning period is not less than 40 s. If the rocket is hand-held when operated, it should be demonstrated that its recoil is minimal. It should be determined by examination that the flare has not damaged its parachute or attachments whilst it was burning. 		Burn out heigh Burn time of fl	nt of flare (metre are (sec)	25)	
				Parachute cor Recoil minima	ndition (Pass/Fa	il)	
				that the flare has ents whilst it was	Comments/Ob	pservations	

Rocket parachute flares	Manufacturer: Model: Lot/Serial Num		Date: Surveyor: Organization:		Time:	
3.1.7.1 2 m drop test			Regulations: LSA Code I/1.	2 & III/3.1; MSC.	.81(70) 1/4.4.1, 4	4.6
Test Procedure	•	Acceptance	Criteria		Significant Te	est Data
Three parachute rockets shou	uld be dropped	After the test, each specimen should show no sign of damage		22	23	24
in turn end-on and horizontally	y from a height	such as shrinking, cracking, swel	ling, dissolution or change of	Condition afte	er conditioning (F	Pass/Fail)
of 2 m on to a steel plate abo cemented on to a concret should remain in a safe conc	out 6 mm thick te floor. They dition after this	mechanical qualities and shoul temperature.	d then function at ambien	Ejection heigh	nt of flare (metre	s) Operation
test.		.1 It should be established by m	eans of accurate measuring			N/A
Specimen 22 and 23 sho	ould be fired	Instruments that the parachute	e flares of specimens 22 and of less than 300 m	Burn out heig	Burn out height of flare (metres)	
vertically Specimen 24 should be fired at		25 are ejected at a height of hot less than 500 m.				N/A
an angle of 45°.		.2 The height of which the flare burns out and the burning period should also be measured..3 It should be established from these measurements that the rate of descent is not more than 5 m/s and the burning period is not less than 40 s.		Burn time of f	lare (sec)	Γ
				Descent rate	of flare (m/s)	N1/A
				Oneration at		N/A
		4. Specimen 24 should function	officiently but need not reach		n/A d (metres)	
		a height of 300 metres	eniciently but need not reach	Theight Teache		N/A
				Parachute co	ndition (Pass/Fa	il)
		.5 If the rocket is hand-held w	hen operated, it should be			
		demonstrated that its recoil is	minimal.	Recoil minima	al (Pass/Fail)	
		.6 It should be determined by e	amination that the flare has			
		not damaged its parachute o burning.	or attachments whilst it was	Comments/O	bservations	
				Passed	Failed	

Rocket parachute flares	Manufacturer: Model: Lot/Serial Nur	nber:		Date: Surveyor: Organization:	Т	ime:	
3.1.7.2 Immersion suit g	glove test		Regulations	s: LSA Code I/1.2	& III/3.1; MSC.8	1(70) 1/4.4.2, 4.	6
Test Procedure		Acceptanc	e Criteria			Significant Tes	t Data
Three parachute rockets activated in accordance manufacturer's operating instru- operator wearing an insulat immersion suit or the gloves ta insulated buoyant immersion establish that they can be effectively without injury to the any person in close proximity or burning. The three rockets should be fir	should be with the uctions by an ted buoyant aken from an on suit to be operated e operator, or during firing red vertically.	 After the test, each specimen s such as shrinking, cracking, sw mechanical qualities and sho temperature. .1 It should be established by instruments that the parach are ejected at a height of no .2 The height of which the fla period should also be measured is not less than 40 s. .3 It should be established from rate of descent is not more period is not less than 40 s. .4 If the rocket is hand-held demonstrated that its recoil is not damaged its parachute burning. 	hould show n elling, dissolu uld then fun means of acc ute flares of t less than 30 tre burns out ured. In these measu than 5 m/s when operat is minimal. examination or attachme	o sign of damage ation or change of ction at ambient curate measuring the three rockets 0 m. and the burning urements that the and the burning ted, it should be that the flare has ents whilst it was	2 Condition after Ejection height 90° Burn out height Burn time of fla Descent rate of Parachute cond Recoil minimal Comments/Obs	14 conditioning (Pa of flare (metres) t of flare (metres) re (sec) f flare (m/s) dition (Pass/Fail) (Pass/Fail) servations	23 Iss/Fail) Operation

Rocket parachute flares	Manufacturer: Model: Lot/Serial Number:	Date: Time: Surveyor: Organization:
3.1.8 Luminous inten	sity test	Regulations: LSA Code I/1.2 & III/3.1.2; MSC.81(70) 1/4.6.2
Test Procedure Acceptance Criteria		Significant Test Data
Laboratory testing of the ro parachute flare should estal that it will burn with the requ luminous intensity and colour.	cket Laboratory testing of the flare material shalined .1 that it will burn uniformly with an a intensity of not less than 30,000 cd fless than 40 seconds, at temperature +65°C; and .2 that the colour of the flame is a v coordinates x = 0.61 to 0.69 and y computed from these coordinates: a v + 11 nm. The measured chromaticity coordinates the boundaries of the area of the diagram	hould establish: Laboratory Testing report Report acceptable (Yes/No) average luminous for a period of not res from -30°C to Luminous intensity levels at -30°C: KCd Burning time of Flaresec Colour coordinates: xy rivid red with CIE = 0.3 to 0.39, or wavelength of 608 Luminous intensity levels at +20°C: KCd Burning time of Flaresec Colour coordinates: xy Luminous intensity levels at +65°C KCd Burning time of Flaresec colour coordinates: xy. Luminous intensity levels at +65°C KCd Burning time of Flaresec Colour coordinates: xy. Colour coordinates: xy. KCd Burning time of Flaresec Colour coordinates: xy. Colour coordinates: xy. KCd Burning time of Flaresec Colour coordinates: x Colour coordinates: x Yes Colour coordinates: x Comments/Observations. PassedFailed Passed

Rocket parachute flares	ocket parachute flares Manufacturer: Date: Model: Surveyor: _ Surveyor: _ Lot/Serial Number: Organization		Date: Surveyor: Organization: _	Time:		
3.1.9 Safety inspection	on		Regulations:	LSA Code I/1.	.2 & III/3.1; MSC.81(70) 1/4.5	
Test Procedure		Acceptance	e Criteria		Significant Test Data	
It should be established by vis inspection that the rocket para	sual achute flare:					
.1 is indelibly marked with cle instructions on how it shou and that the danger end ca by day or night;	ar and precise ld be operated in be identified	Clear and precise operating insparachute rocket flare and the identifies the danger end.	structions are r parachute rock	narked on the et flare clearly	Markings and identification of ends acceptable PassedFailed	
.2 can, if hand operated, be operated from the bottom (safe end) or that it contains an operational safety delay of 2 seconds;		If operated from the top the than 2 s.	time delay is	not to be less	Time delay if operated from the top	_sec
.3 has a simple and integ ignition which requires the preparation and can be re in adverse conditions wi aid and with wet, cold or g	ral means of e minimum of adily operated thout external loved hands;	It has a simple and integral m operated by cold, wet and glove	neans of ignitio ed hands.	n and can be	Operation of specimen when wet, cold and gloved hands. PassedFailed	
.4 does not depend on adhe plastic envelopes for its v properties; and	esive tapes or vater-resistant	Adhesive tapes or plastic envelo water-resistant properties.	opes are not us	ed to maintain	Water resistant without the use of envelopes or adhesive tape.	S
.5 can be indelibly marked we determining its age.	with means of	Date of manufacturing and date the outside.	e of expiry indel	ible printed on	PassedFailed Indelible date stamped PassedFailed Comments/Observations	

Rocket parachute flares	Manufacturer: Model: Lot/Serial Nur	Date:			Time:			
3.1.10 Liferaft drop tes	st		Regulatio	ns: LSA Code 1.2	& 4.1.1.2, MS	SC.81(70)	/5.1.2	
Test Procedure		Acceptanc	e Criteria			Signifi	cant Test Da	ata
The liferaft in the operation	onally packed	Damage to any item of equipme	ent is accepta	ble subject to the	25	26	27	28
condition should be suspen dropped from a height of 18 m	ded and then	administration being satisfied t	hat the oper	ational efficiency	Condition of	units (Pas	s/Fail)	
If the liferaft is to be stowe	at a height							
greater than 18 m above the v	vaterline in the				Passed	I	ailed	
Note: This test sheet should by the liferaft manufacture should be made to the test sh	be completed er. Reference leet 4.2.4.	After the test, each rocket parac of damage such as shrinking, cr change of mechanical qualities.	hute flare sho acking, swelli	ould show no sign ing, dissolution or	Comments/	Observatio	ns	

3.2 HAND FLARES

EVALUATION AND TEST REPORT

- 3.2.1 Submitted drawings, reports and documents
 - 3.2.1.1 Quality assurance
 - 3.2.1.2 Visual inspection
 - 3.2.1.3 General data and specifications
- 3.2.2 Temperature cycling test
- 3.2.3 Low temperature conditioning test
- 3.2.4 High temperature conditioning test
- 3.2.5 Humidity conditioning test
- 3.2.6 Water and corrosion resistance test
 - 3.2.6.1 1 metre immersion for 24 hours test
 - 3.2.6.2 100 mm immersion for 5 minutes test
 - 3.2.6.3 Salt spray test
- 3.2.7 Handling safety
 - 3.2.7.1 2 m drop test
 - 3.2.7.2 Immersion suit glove test
 - 3.2.7.3 Handling safety immersion test
- 3.2.8 Heptane test
- 3.2.9 Luminous intensity test
- 3.2.10 Liferaft drop test
- 3.2.11 Safety inspection

3.2 HAND FLARES

EVALUATION AND TEST REPORT

Manufacturer	
Type/Model	
Date of Approval	
Place	
Name Surveyor printed	
Signature	
Approving Organization	

Hand flares	d flares Manufacturer: Model: Lot/Serial Number:			Date: Surveyor: Organization:	Time:	
3.2.1 Su	bmitted drawing	gs, reports and	documents			
		Sub	mitted drawings and documents	6		Status
Drawing N	o. Revis	sion No. & date	Ti	tle of drawing		
		Su	bmitted reports and documents			Status
Report/Docum	ent No. Revis	sion No. & date	Title o	f report/document		Status
			Maintenance Manual -			
			Operations Manual -			

Hand flares	Manufacturer: Model: Lot/Serial Number:		Date: Surveyor: Organization:	Time:		
3.2.1.1 Qua Except where a chapter III of the Sea, 1974, as ar (LSA) Code to b should make rar the quality of life- the specification Manufacturers s procedure to ens same standard a the Administration	ality assurance Il appliances of a particular type are required by e International Convention for the Safety of Life at mended, or the International Life-Saving Appliance e inspected, representatives of the Administration ndom inspections of manufacturers to ensure that -saving appliances and materials used comply with of the approved prototype life-saving appliance. should be required to institute a quality control sure that life-saving appliances are produced to the as the prototype life-saving appliance approved by on and to keep records of any production tests	Regulations: MSC.81(70) 2/1.1, 1.2 Quality Assurance Standard Used:				
carried out in ac	cordance with the Administration's instructions.	Quality Assurand Yes/No Comme	ce System acceptable nts/Observations			

Hand flares	Manufacturer: Model: Lot/Serial Nun	nber:	Date: Surveyor: Organization	Date: Surveyor: Organization:		
3.2.1.2 Visual inspection Re			Regulations: LS	A Code I/1.2.2, 1.2	2.3 & III/3.2	
Test Pro	cedure	Acceptance Criteria			Significant Test Data	
Visual examinati	on:	Red hand flares should:				
Approval markin	gs	.1 be clearly marked with approval informati Administration which approved it, date of n expiry and operational restrictions, mark indelible;	on including the nanufacture and kings are to be	Passed	Failed	
Operating instruc	ctions	.2 be provided with brief instructions or d illustrating the use of the hand flare printer	iagrams_clearly d on the casing;	Passed	Failed	
Outer casing		.3 not depend on adhesive tapes or plastic e water-resistant properties;	envelopes for its	Passed	Falled	
Comfort		.4 be so designed as not to cause discomfor holding the casing when used in accor manufacturers' operating instructions;	ort to the person rdance with the		Falled	
Operation		.5 be so constructed that the end from wh burning can be positively identified by day	nich the flare is or night; and	Passed	Failed	
Ignition System		.6 be fitted with an integral means of ignition				
Life of Hand Flar	e	The Administration should determine the period of the unit which are subject to deterioration with the unit which are subject to deterior to deterior the unit which are subject to deterior the unit which are subject to deterior to deterio	od of acceptability ith age.		Falled	
				Comments/Obser	rvations	

Hand flares	Manufacturer: Model: Lot/Serial Number:		Date: Surveyor: Organization:	Time:
3.2.1.3 Ge	neral data and specifications		Regulations: LSA Cod	e 1.2; MSC.81(70) 1/4.7
Gen	eral Information	Dimensio	ns	Weight
Construction Ma	terial:	Dimensions:		Design Weight:
Casing <u>:</u> Top cover (if app Bottom Cover (if	blicable): applicable):	Length of Casing:		Weight as Tested: Weight of Flare Material Comments/Observations
Method of Ignitio	ety Delay (if applicable)			
Acceptable life	of the item yrs			

Hand flares	Manufactur Model: Lot/Serial N	er: lumber:					-		Date: Surveyo Organiza	r: ation:	Time	2:
TEST ITEMS CONDITIONING SEQUENCE					SPECI	MEN NU	JMBER				REFERENCES	REMARKS
Specimen No>		1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	MSC81(70)	
Measuring dime mass	nsions and	А	А	A	A	A	А	А	A			
Temperature cyc (3.2.2)	cling test	В									4.2.1	
Low temperature conditioning (3.2	e 2.3)		В								4.2.2	
High temperatur conditioning (3.2	e 2.4)			В							4.2.3	
Humidity condition (3.2.5)	oning				В						4.2.4	
1 metre immersi hours (3.2.7.1)	on for 24					В					4.3.1	
100 mm for 5 mi (3.2.7.2)	n						В				4.3.2	
Salt water spray	(3.2.7.3)							В			4.3.3	
2 m Drop Test (3	3.2.8.1)								В		4.4.1	
Safety inspection	n (3.2.12)	С	С	С	С	С	С	С	С	С	4.5	
Operation at am temperature	bient	D				D	D	D	D	D	4.2.1, 4.3.1, 4.3.2, 4.3.3 & 4.4.1	

Hand flares	Manufacture Model: Lot/Serial Nu	r: ımber:	· · · · · · · · · · ·	· · · · · · · · · ·				Dat Sur Org	e: veyor: anizatior	ו:	Tin	ne:
Specimen No>	•	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-30	References	Remarks
Operate at cond Temperature	itioning		D	D	D						4.2.2, 4.2.3 & 4.2.4	
Operational test immersion suit g	using love (3.2.8.2)								Е		/4.4.2	
Burning time of f	lare	Е	Е	E	Е	Е	Е	Е	Е		4.7.1	
Flare immersion water (3.2.8.3)	test under			E							4.7.1	
Heptane test (3.2	2.9)								Е		4.7.3	
Flare material te Colour and lumir (3.2.10)	st nosity									F	4.7.2	May be carried out by an independent laboratory acceptable to the Administration & report submitted. Use specimens 29 to 30.
Liferaft Drop Tes	st (3.2.11)									G	LSA Code Chapter IV/4.1.1.2	The liferaft manufacturer should complete this form.

Note: The letters in the above 'boxes' refer to the sequence of testing of each specimen Hand Flare.

Har	d flares	Manufacturer:			Date: Surveyor: Organization:					
3.2.2	Ten	perature cycling test	Regulations: LSA Code I			/1.2 & III/3.2; MSC.81(70) 1/1.2.1 & 4.2.1				
Test Procedure		st Procedure	Acceptance Criteria				Significant Test	Data		
The three specimens of hand flares should be alternately subjected to surrounding		nens of hand flares should subjected to surrounding	After the test, each specimen should show no sign of damage such as shrinking, cracking, swelling, dissolution			1 Condition (Pass	1 2 3 Condition (Pass/Fail)			
altern	ating cvo	eles need not follow	function at ambient temperature	annes a	and should then	Burn time (sec)	I	L		
imme	diately aft	er each other and the	·							
follow 10 cy	ving proced cles, is acce	ure, repeated for a total of eptable:	The three flares should burn for a period of not less than 1 minute		Time delay (if a	oplicable) (sec)	1			
.1	an 8 h temperatu completed	exposure at a minimum re of +65°C to be in one day;				Comments/Obs	ervations			
.2	the speci warm char exposed conditions 3°C until th	mens removed from the nber that same day and left under ordinary room at a temperature of 20°C ± ne next day;	The hand flare should not cause holding the casing and not enda burning or glowing residues w with the manufacturer's operati	e disco anger t hen u ng inst	mfort to the person he survival craft by sed in accordance ructions.					
.3	an 8 h temperatu the next da	exposure at a maximum re of -30°C to be completed ay; and								
.4	the specin chamber exposed conditions 3°C until th	nen removed from the cold that same day and left under ordinary room at a temperature of 20°C ± ne next day.				Passed	Failed			
The temp effect	three hanc erature cy ively at amb	I flares after completing /cling should function pient temperature.								

Hand flares	d flares Manufacturer: Model: Lot/Serial Number:			Date: Surveyor: Organization:	Time: _		
3.2.3 Lov	w temperature conditioning	test	Regu	Ilations: LSA Code I/	1.2 & III/3.2; MSC	.81(70) 1/4.2.2	
Test Procedure Accep			e Criter	ia	Significant Test Data		
Three specime	ns of hand flare should be	After the test, each specime	en shou	Ild show no sign of	4	5	6
subjected to a	temperature of -30°C for at	damage such as shrinking, cra	acking,	swelling, dissolution	Condition (Pass	/Fail)	•
least 48 h a	and should then function	or change of mechanical quality	lies and	I should then function			<u> </u>
immediately upon removal from the cold effectively immediately.				Burn time (sec)	1		
onanibon		The three flares should burn f	for a pe	eriod of not less than			
		1 minute.	•		Time delay (if ap	plicable) (sec)	T
		The hand flare should not cau holding the casing and not en- burning or glowing residues wh the manufacturer's operating in	ise disc danger nen use nstructi	comfort to the person the survival craft by ed in accordance with ons.	Comments/Obse	ervations	

Hand flares	Manufacturer: Model: Lot/Serial Number:		Date: Time: Surveyor: Organization:				
3.2.4 Hig	h temperature conditioning te	est	Regulations: LSA Co	ode I/1.2 & III/3.2; M	SC.81(70) 1/4.3		
7	Test Procedure	Acceptance Cr	iteria	Się	gnificant Test Da	ıta	
Three specime subjected to a least 48 h a immediately u chamber.	Test Procedure ns of hand flares should be temperature of +65°C for at nd then function effectively pon removal from the hot	Acceptance Cr After the test, each specimen s damage such as shrinking dissolution or change of med should then function effectively The three flares should burn for than 1 minute. The hand flare should not ca person holding the casing at survival craft by burning or g used in accordance with the ma instructions.	iteria hould show no sign of cracking, swelling, chanical qualities and immediately. or a period of not less use discomfort to the nd not endanger the lowing residues when anufacturer's operating	Condition (Pass/Fa Burn time (sec) Time delay (if appli Comments/Observ	gnificant Test Da		
				Passed	_ Falled		

Hand flares	es Manufacturer: Model: Lot/Serial Number:			:: eyor: anization:	Time:		
3.2.5 Humidity conditioning test			Regulatio	ns: LSA Code I/1.2	& III/3.2; MSC.8	31(70) 1/4.2.4	
Te	est Procedure	Acceptanc	e Criteria		Significant Test Data		
Three specimer	ns of hand flares should be	After the test, each specimen s	hould show	no sign of damage	10	11	12
subjected to a	temperature of +65°C and	such as shrinking, cracking, sw	elling, disso	lution or change of	Condition (Pas	ss/Fail)	
followed by 10 c	lumidity for at least 96 h, lays at 20°C to 25°C at 65%	mechanical qualities and should	a then funct	ion effectively.			
relative humidity	/.	The three flares should burn	for a period	d of not less than	Burn time (sec	;)	
		1 minute.			The state of the		
		The band flore should not as		fort to the nerve of	Time delay (If	applicable) (sec)	
		The hand flare should not ca holding the casing and not e burning or glowing residues who manufacturer's operating instru	use discom ndanger the en used in a ctions.	fort to the person e survival craft by ccordance with the	Comments/Ob	oservations	

Hand flares	Manufacturer: Model: Lot/Serial Number:		Date: _ Survey Organi	/or: ization:	Tin	ne:	
3.2.6.1 1 m	etre immersion for 24 hour	rs test	Regulations	: LSA Co	de I/1.2 & III/3.2; M	SC.81(70) 1/4.3.	1
Te	est Procedure	Acceptance C	riteria		S	ignificant Test Da	ita
Three specimens of hand flares should be immersed horizontally for 24 h under 1 m of		After the test, each specimen should show no sign of damage such as shrinking, cracking, swelling,			131415Condition (Pass/Fail)		
water.		should then function at ambient	t temperature.	ties and	Burn time (sec)		
		The three flares should burn for 1 minute.	a period of not	t less than	Time delay (if app	licable) (sec)	
		The hand flare should not ca person holding the casing a survival craft by burning or g used in accordance with the ma instructions.	ause discomfo ind not endar lowing residue anufacturer's c	rt to the nger the es when operating	Comments/Obser	vations	
					Passed	Failed	

Hand flares Manufacturer: Model: Model: Lot/Serial Number: Manufacturer:		Date: Surveyor: Organization:	Time:			
3.2.6.2 100 mm immersion for 5 min t	est Reg	ulations: LSA Code	e I/1.2 & III/3.2; MS	C.81(70) 1/4.3.2		
Test Procedure	Acceptance Criteria	1	S	ignificant Test D	ata	
Three specimens of hand flares should be immersed horizontally in the ready to fire	After the test, each specimen shoul damage such as shrinking, cr	161718Condition (Pass/Fail)				
condition for 5 min under 100 mm of water.	should then function at ambient temp	cal qualities and erature.	Burn time (sec)			
	The three flares should burn for a per 1 minute.	od of not less than	Time delay (if app	licable) (sec)		
	The hand flare should not cause person holding the casing and not en- craft by burning or glowing residu accordance with the manufact instructions.	discomfort to the danger the survival es when used in curer's operating	Comments/Obser	vations		

Hand flares	Manufacturer: Model: Lot/Serial Number:		Date: Surveyor: Organization:					
3.2.6.3 Salt spray test			Regulations: LSA Code I/1.2 & III/3.2; MSC.81(70) 1/4.3.3					
Τe	est Procedure	Acceptance Criteria	Signi	ficant Test Data				
Three specimens of hand flares should be subjected to a salt spray (5% natrium chloride solution) at a temperature of +35±3°C for at least 100 h.		After the test, each specimen should sl of damage such as shrinking, crackin dissolution or change of mechanical q should then function effectively.	19 Condition (Pass/Fail) Burn time (sec)	20	21			
		The three flares should burn for a period of not less - than 1 minute.		Time delay (if applica	ble) (sec)			
Note: Natrium a compound	and Sodium are the same	The hand flare should not cause disco person holding the casing and not er survival craft by burning or glowing res used in accordance with the ma operating instructions.	mfort to the ndanger the sidues when nufacturer's	Comments/Observation	ons			

Hand flares	Manufacturer: Model: Lot/Serial Number:	Manufacturer: Model: Lot/Serial Number:			te: Time: veyor: ganization:				
3.2.7.1 2 m	n drop test		Regulations:	LSA Code I/1.2 & II	I/3.2; MSC.81(70) [/]	1/4.4.1			
1	Test Procedure	Acceptance Criteria	а	Sig	nificant Test Data				
Three specimer dropped in turn from a height of	ns of hand flare should be on both ends and horizontally 2 m on to a steel plate about	After the test each hand flare sh sign of damage such as shrink swelling, dissolution or change	22 Condition (Pass/Fa	23 il)	24				
6 mm thick cemented on to a concrete floor. qualities and remain operable an subsequently be operated and effectively.			and function	Burn time (sec)		1			
				Time delay (if appli	cable) (sec)	<u>I</u>			
They should burn for a period than 1 minute. The hand flare should not cause the person holding the casir endancer the survival craft by		e discomfort to ing and not by burning or	Comments/Observa	ations					
		glowing residues when used i with the manufacturer's operating	n accordance g instructions.						
				Passed	_ Failed				

Hand flares	Manufacturer: Model: Lot/Serial Number:		Date: Surveyor: Organization: _	Tim	e:	
3.2.7.2 Im	nersion suit glove test	Regu	lations: LSA C	ode I/1.2 & III/3.2; M	SC.81(70) 1/4.2.2	
Те	est Procedure	Acceptance Criteria		Sigi	nificant Test Data	
Three specimer activated in manufacturer's o operator weari immersion suit o insulated buoya	is of hand flare should be accordance with the operating instructions by an ng an insulated buoyant or the gloves taken from an it immersion suit.	The three specimens should be cap operated effectively without injury to t any person in close proximity during fir they must burn for a period of not less The hand flare should not cause dis person holding the casing and not survival craft by burning or glowing used in accordance with the operating instructions.	pable of being he operator, or ring or burning, than 1 minute. comfort to the endanger the residues when manufacturer's	19 Operation using glo Burn time (sec) Time delay (if applic Type of Glove used Comments/Observa	20 ve (Pass/Fail) able) (sec) tions	

Hand flares Manufacturer: Model: Lot/Serial Number:		Date: Surveyor: Organization:	Ti	me:	
3.2.7.3 Handling safety immersion test	t Re	gulations: LSA Cod	de I/1.2 & III/3.2; I	MSC.81(70) 1/4.7.1	
Test Procedure	Acceptance Criteri	а	Significant Test Data		
Three hand flares should be activated and	The three specimens should operate	e effectivelv under	7	8	9
should burn for a period of not less than	water without injury to the operator for	or a period of 10 s,	Under-water ope	ration (Pass/Fail)	
1 min. After burning for 30 s each flare	the flare should burn for a period of n	not less than 1 min.			
should be immersed horizontally under	The hand flore should not equipe	diacomfort to the	Burn time (sec)		
should continue to burn for at least a further	person holding the casing and r	not endanger the	Time delay (if an	nlicable) (see)	
20 s.	survival craft by burning or glowin	ng residues when	Time delay (il ap		
	used in accordance with the manufa	acturer's operating	Comments/Obse	rvations	

Hand flares	Manufacturer: Model: Lot/Serial Number:		Date: Surveyor: Organization:						
3.2.8 Hep	otane test	Regu	gulations: LSA Code I/1.2 & III/3.2; MSC.81(70) 1/4.7.3						
Τe	est Procedure	Acceptance Criteria	l		Significant Test D	Jata			
Three hand flar 1.2 m above a	es should be activated at test pan 1 m square	The three specimens should not ignite flare should burn for a period of not le	e the heptane. The ess than 1 minute.	22 Heptane ignition	23 (Pass/Fail)	24			
containing 2 litre layer of water. Th	es of heptane floating on a ne test should be conducted	The hand flare should not cause	discomfort to the	Burn time (sec)		<u> </u>			
at an ambient +25°C. The flare	temperature of +20°C to should be allowed to burn	craft by burning or glowing residue	langer the survival es when used in urer's operating	Time delay (if ap	plicable) (sec)	<u> </u>			
completely.		instructions.	urers operating	Comments/Obse	rvations				
				Passed	Failed				

Hand flares	Manufacto Model: Lot/Serial	urer: Number:	Date: Surveyo Organiz	Time: ayor: nization:					
3.2.9 Lur	ninous inte	ensity test	Regulations: LSA Code I/1.2 & III/3.2.2; MSC.81(70) 1/4.7.2						
Test Proce	dure	Acceptance Criteria	Significant Test Data						
Test Procee Laboratory testii flare should esta it will burn required intensity and colo	dure ng of the ablish that with the luminous our.	Acceptance Criteria Laboratory testing of the flare material should es .1 that it will burn with an average luminous inte 15,000 cd for a period of not less than temperatures from -30°C to +65°C; and .2 that the colour of the flame is vivid red with C x = 0.61 to 0.69 and y = 0.3 to 0.39, or compu- coordinates: a wavelength of 608 + 11 nm. The testing laboratory report should confirm the luminous intensity of the flare is at least 15,000 C The measured chromaticity coordinates should boundaries of the area of the diagram as per CIE	tablish: nsity of at least 1 minute, at IE coordinates uted from these at the average Cd.	Significant Test Data Laboratory Testing report No.: Report acceptable (Yes/No): Luminous intensity levels at -30°C Luminous intensity levels at -30°C KCd Burning time of Flare sec Colour coordinates: xy. Luminous intensity levels at +20°C KCd Burning time of Flare sec Colour coordinates: xy. Luminous intensity levels at +20°C KCd Burning time of Flare sec Colour coordinates: xy. Luminous intensity levels at + 65°C KCd Burning time of Flare sec Colour coordinates: xy. Colour coordinates: xy. Colour coordinates: xy. Comments/Observations Passed Failed					

Hand flares Manufacturer: Model: Lot/Serial Number:	Da Su Or	Date: Surveyor: Organization:									
3.2.10 Liferaft drop test	Regulations: LSA Code 1.2 & 4.1.1.2, MSC.81(70) I/5.1.2										
Test Procedure	Acceptance Criteria	3		Signif	icant Test D	ata					
The liferaft in the operationally packed	Damage to any item of equipment is acc	ceptable subject to the	25	26	27	28					
condition should be suspended and ther dropped from a height of 18 m into the water	not been impaired.	erational eπiciency has	Condition	of units (Pa	ss/Fail)						
Note: This test sheet should be completed by the liferaft manufacturer. Reference should be made to the test sheet 4.2.4.	After the test, each hand flare should sho such as shrinking, cracking, swelling, dis mechanical qualities.	ow no sign of damage ssolution or change of	Comment	s/Observatio	ons						

Hand flares	Manufacturer: Model: Lot/Serial Number:	Date: Surve Organ	Date: Surveyor: Organization:						
3.2.11 Safe	ety inspection	Regulations: LSA Code I/1.2 & III/3.2; MSC.81(70) 1/4.5							
Те	st Procedure	Acceptance Criteria	Significant Test Data						
It should be esta that the hand flar	blished by visual inspection e:								
.1 is indelibly ma instructions o and that the d by day or nigł	arked with clear and precise n how it should be operated anger end can be identified nt;	Clear and precise operating instructions are marked on the hand flare and the hand flare clearly identifies the danger end.	Markings and identification of ends acceptable Passed Failed Time delay if operated from the top sec						
.2 can, if hand o the bottom (s an operationa	operated, be operated from afe end) or that it contains I safety delay of 2 seconds;	If operated from the top the time delay is not less than 2 s.	to be Operation of specimen when wet, cold and gloved hands.						
.3 has a simple and integral means of ignition which requires the minimum of preparation and can be readily operated in adverse conditions without external aid and with wet, cold or gloved hands;		It has a simple and integral means of ignition and can be operated by cold, wet and gloved hands.	PassedFailed Water resistant without the use of envelopes or adhesive tape.						
.4 does not dep plastic envelo properties; ar .5 can be indeli determining it	end on adhesive tapes or opes for its water-resistant d bly marked with means of s age.	Adhesive tapes or plastic envelopes are not used to maintain water-resistant properties.	PassedFailed Hand flare indelible date stamped. PassedFailed						
		Date of manufacturing and date of expiry indelible printed on the outside.	Comments/Observations						

3.3 BUOYANT SMOKE SIGNALS

EVALUATION AND TEST REPORT

- 3.3.1 Submitted drawings, reports and documents
 - 3.3.1.1 Quality assurance
 - 3.3.1.2 Visual inspection
 - 3.3.1.3 General data and specifications
- 3.3.2 Temperature cycling test
- 3.3.3 Low temperature conditioning test
- 3.3.4 High temperature conditioning test
- 3.3.5 Ambient temperature conditioning test
- 3.3.6 Humidity conditioning test
- 3.3.7 Water and corrosion resistance test
 - 3.3.7.1 1 metre immersion for 24 hours test
 - 3.3.7.2 100 mm immersion for 5 min test
 - 3.3.7.3 Salt spray test
- 3.3.8 Handling safety
 - 3.3.8.1 2 m drop test
 - 3.3.8.2 Immersion suit glove test
- 3.3.9 Heptane test
- 3.3.10 Laboratory smoke obscuration test
- 3.3.11 Wave test
- 3.3.12 Liferaft drop test
- 3.3.13 Safety inspection

3.3 BUOYANT SMOKE SIGNALS

EVALUATION AND TEST REPORT

Manufacturer	
Type/Model	
Date of Approval	
Place	
Name Surveyor printed	
Signature	
Approving Organization	

Buoyant smoke signa	als	Manufacturer: Model: Lot/Serial Number	· · · · · · · · · · · · · · · · · · ·	Date: Surveyor: Organization:	Time:
3.3.1 Submitted	drav	vings, reports and	documents		
	Status				
Drawing No.	Re	evision No. & date	Title o	of drawing	
		Submit	ted reports and documents		Status
Report/Document No.	Re	vision No. & date	Title of re	port/document	
			Maintenance Manual -		
			Operations Manual -		

Buoyant smoke signals	Manufacturer: Model: Lot/Serial Number:	Date: Time: Surveyor: Organization:						
3.3.1.1 Quality assurar	nce	Regulations: MSC.81(70) 2/1.1, 1.2						
Except where all appliances of International Convention for t International Life-Saving App of the Administration should ensure that the quality of life- the specification of the approx	of a particular type are required by chapter III of the he Safety of Life at Sea, 1974, as amended, or the liance (LSA) Code to be inspected, representatives d make random inspections of manufacturers to saving appliances and materials used comply with wed prototype life-saving appliance	Quality Assurance Standard Used: Quality Assurance Procedure:						
		Quality Assurance Manual:						
Manufacturers should be required to institute a quality control proce ensure that life-saving appliances are produced to the same standard prototype life-saving appliance approved by the Administration and t records of any production tests carried out in accordance w Administration's instructions.		Description of System:						
		Quality Assurance System						
		acceptable Yes/No						
		Comments/Observations						

Buoyant smoke signals	Manufacturer: Model:	ate: Time: urveyor:						
3.3.1.2 Visual inspection		Regulations:	s: LSA Code I/1.2.2, 1.2.3 & III/3.3					
Test Procedure	Acceptance Criteria		Significant Test Data					
Visual examination:	Buoyant Smoke Signals should:							
Approval markings	.1 be clearly marked with approval information Administration which approved it, date of mar expiry and operational restrictions, marking indelible;	including the nufacture and gs are to be	Passed	Failed				
Operating instructions	.2 be provided with brief instructions or diag illustrating the use of the buoyant smoke sigr the casing;	rams clearly al printed on	Passed	Failed				
Outer casing	.3 not depend on adhesive tapes or plastic env water-resistant properties;	elopes for its	Passed	Failed				
Comfort	.4 be so designed not to ignite explosively w accordance with the manufacturers' instructions;	hen used in operating						
Operation	.5 be so constructed that the end from which emitted can be positively identified by day should not emit flame during the entire emissi	the smoke is / or night, it on time or be	Passed	Failed				
	swamped in a seaway; and		Passed	Failed				
Ignition System	.6 has a simple means of ignition which minimum of preparation.	requires the	Passed	Failed				
Life of Smoke Signal	The Administration should determine the period of the unit which are subject to deterioration with	of acceptability age.	Comments/Observations					

Buoyant smoke signals	inulacturer: del: t/Serial Numbe	pr:		Date: Time: Surveyor: Organization:					
3.3.1.3 General data and sp	pecifications		Regula	egulations: LSA Code 1.2; MSC.81(70) 1/4.5					
General Information		Dimensio	ns		Weight				
Construction Material: Casing: Top cover (if applicable): Bottom cover (if applicable): Method of Ignition Operational Safety Delay (if applic	_ cable) yrs	Dimensions: Length of Casing: Diameter of Casing:			Design Weight: Weight as Tested: Weight of smoke-generating Material Comments/Observations				

Buoyant smoke signals	Manu Mode Lot/S	Ifacturer el: erial Nu	:: mber:	· · · · · · · · ·					Date: Surveyor: Organization:			
TEST ITEMS CONDITIONING SEQUENCE					SPEC	IMEN N	UMBER				REFERENCES	REMARKS
Specimen No>		1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	MSC81(70)	
Measuring dimensions and m	ass	А	А	А	А	А	А	А	А	А		
Temperature cycling test (3.3	.2)	В	В	В							4.8.1	
Low temperature conditioning (3.3.3)	1	С									4.8.1	
High temperature conditioning	9		С								4.8.1	
(3.3.4) Ambient temperature conditioning. (3.3.5)				С							4.8.1	
Humidity conditioning (3.3.6)					С						4.2.4	
1 metre immersion for 24 hou (3.2.7.1)	irs					С					4.3.1	
100 mm for 5 minutes (3.2.7.2	2)						С				4.3.2	
Salt water spray (3.2.7.3)								С			4.3.3	
2 m Drop Test (3.3.8.1)									С		4.4.1	
Safety inspection (3.3.13)		D	D	D	D	D	D	D	D		4.5	

Buoyant smoke signals	Manu Mode Lot/Se	lfacture el: erial Νι	r: umber: _						Date: Surveyor: Organization:			
Specimen No>		1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-26	References	Remarks
Operation at ambient temper	ature			E		E	E	Е	E		4.3.1, 4.3.2, 4.3.3 & 4.4.1, 4.8.1	
Operate at conditioning Temperature		Е	E		E						4.2.4 4.8.1	
Operational test using immer suit glove (3.3.8.2)	sion							F			4.4.2	
Heptane test (3.3.9)									F		4.8.2	
Smoke material test Smoke obscuration (3.3.10)											4.8.3	Additional smoke signals may be submitted to an independent laboratory acceptable to the Administration and report submitted.
Wave height test (3.3.11)					G						4.8.4	
Smoke emission time: 3 min minimum, Smoke colour		н	н	н	н	н	Н	Н	Н		4.8.1	
Drop Test (3.3.12) & (4.2.4)										I	LSA Code Chapter IV/ 4.1.1.2	The liferaft manufacturer should complete this form.

Note: The letters in the above 'boxes' refer to the sequence of testing of each specimen Buoyant Smoke Signal.

Buoyant smoke signals	Manufacturer: Model: Lot/Serial Numbe	er:		Date: Surveyor: Organization:	· · · · · · · · · · · · · · · · · · ·	Time:		
3.3.2 Temperature cy	/cling test		Regulat	de I/1.2 & III/3.3	de I/1.2 & III/3.3; MSC.81(70) 1/1.2.1 & 4.8.1			
Test Procedu	re	Acceptance Cr	iteria		Significant Test	Data		
The 9 specimens of smoke s	signals should be	After 10 alternating cycles each	n specime	en should no	1	2	3	
alternately subjected to	o surrounding	sign of damage such as shrinki	ng, crack	ing, swelling,	Condition (Pas	ss/Fail)		
temperatures of -30°C and	d +65°C. These	dissolution or change of mech	anical pr	operties and				
alternating cycles need not for	ollow immediately	should function effectively imme	diately.					
after each other and the follo	owing procedure,				4	5	6	
repeated for a total of 10 cycl	es, is acceptable:				Condition (Pas	ss/Fail)		
1 an 8 h exposure at a minir	num temperature							
of $+65^{\circ}$ C to be completed	in one day;				7	0	0	
	•				/ Condition (Dec	<u></u> б	9	
.2 the specimens removed	from the warm				Condition (Pas	ss/Fall)		
chamber that same day a under ordinary room o temperature of 20°C ± 3 day;	and left exposed conditions at a °C until the next				Comments/Ob	oservations		
.3 an 8 h exposure at a maxir of -30°C to be completed t	num temperature the next day; and							
.4 the specimen removed chamber that same day under ordinary room of temperature of 20°C ± 3 day.	from the cold and left exposed conditions at a °C until the next							
					Passed	Failed		

Buoyant smoke signals	smoke signals Manufacturer: Model: Lot/Serial Number:		Date: Surve Organ	Date: Time: Surveyor: Organization:			
3.3.3 Low temperature conditioning test			Regulations:	LSA Code I/1.2 & III/	3.3; MSC.81(70) 1	/4.8.1	
Test Procedu	re	Acceptance Criter	ia	Si	gnificant Test Data	l	
Three smoke signals that have undergone temperature cycling should be taken from a stowage temperature of -30°C, be activated and operate in seawater at a temperature of -1°C.		After conditioning each specime	After conditioning each specimen should no sign		2	3	
		of damage such as shrinking, cr	acking, swelling,	Condition (Pass/Fa	ail)	1	
		dissolution or change of mechanical properties.					
		The 2 energine of energy		Smoke emission ti	me (min/sec)		
		function effectively they should	emit smoke of a	Smoke colour (Do			
		highly visible colour at a uniform rate for a period		Smoke colour (Pa	55/Fall)		
		of not less than 3 minutes when floating in calm water.		Time delay (if appl	icable) (sec)		
		The buoyant smoke signal should not ignite	Smoke emission q	uality (Continuous/	/Intermittent)		
		explosively when used in accordance with th			2		
		manufacturer's operating instru any flame during the entire smok	ctions, nor emit e emission time.	Comments/Observations			
		The colour of the orange smoke should be evaluated by means of visual comparison, in daylight, to a colour comparison chart containing the range of acceptable orange colours. Refer to the acceptance criteria on test form 3.3.10 Acceptance Criteria.					
				Passed	_ Failed		

Buoyant smoke signals	Joyant smoke signals Manufacturer: Date: Model: Survey Lot/Serial Number: Organi			Time: yor: ization:			
3.3.4 High temperature conditioning test Regulati				LSA	Code I/1.2 & III/3.3;	MSC.81(70) 1/4.8	.1
Test Procedure	•	Acceptance Cri	teria		Si	gnificant Test Data	1
Three smoke signals that hat temperature cycling should b	ave undergone e taken from a	After conditioning each specimen should no sign of damage such as shrinking, cracking, swelling,			er conditioning each specimen should no sign of 4 5 mage such as shrinking cracking swelling Condition (Pass/Fail)		
stowage temperature of +65°C, be activated and operate in seawater at a temperature of +30°C.		dissolution or change of mechanical properties.		Smoke emission ti	me (min/sec)		
		The 3 specimens of smok effectively, they should emit	e signals func smoke of a hig	tion ghly	Smoke colour (Pa	ss/Fail)	
		visible colour at a uniform rate for a period of not		,	ł		
			ng in cann water	in cann water.	Time delay (if applicable) (sec)		
		The buoyant smoke signal should not ignite explosively when used in accordance with the manufactureral energy instructions, not emit any		nite the	Smoke emission q	uality (Continuous	/Intermittent)
		flame during the entire smoke emise	emission time.	Comments/Observ	vations	1	
		The colour of the orange smoke should be evaluated by means of visual comparison, in daylight, to a colour comparison chart containing the range of acceptable orange colours. Refer to the acceptance criteria on test form 3.3.10 Acceptance Criteria.		be in ning r to 3.10			
					Passed	_ Failed	

Buoyant smoke signals	Buoyant smoke signals Manufacturer:			Date: Time: Surveyor: Organization:			
3.3.5 Ambient tempe	3.3.5 Ambient temperature conditioning test		Regulations	s: LSA C	ode I/1.2 & III/3.3;	MSC.81(70) 1/4.8	.1
Test Procedure	e	Acceptance Cr	iteria		S	Significant Test Dat	a
Three smoke signals that have undergone temperature cycling should be taken from ordinary room conditions and activated. After emitting smoke for 1 minute they should be fully submerged for a period of not less than 10 seconds.		After conditioning each specimen should no sign of damage such as shrinking, cracking, swelling, dissolution or change of mechanical properties. The 3 specimens of smoke signals should function effectively, they should emit smoke of a highly visible colour at a uniform rate for a period of not less than 3 minutes when floating in calm water		7 Condition (Pass/F Smoke emission	ail) fail) time (min/sec)	9	
				Smoke colour (Pass/Fail)			
		The buoyant smoke signal should not ignite explosively when used in accordance with the	l ime delay (if app	blicable) (sec)			
			Smoke emission	during submerge to	est (Pass/Fail)		
		manufacturer's operating instructions, not emit any flame during the entire smoke emission time.	mit any	Comments/Observations			
		The colour of the orange smoke should be evaluated by means of visual comparison, in daylight, to a colour comparison chart containing the range of acceptable orange colours. Refer to the acceptance criteria on test form 3.3.10.					
					Passed	Failed	

Buoyant smoke signals Manufacturer: Model: Lot/Serial Number:				Date: Time: Surveyor: Organization:			
3.3.6 Humidity condit	tioning test		Regulation	is: LSA C	ode I/1.2 & III/3.3;	MSC.81(70) 1/4.2	2.4
Test Procedure)	Acceptance Cr	iteria		S	Significant Test Da	ta
Three specimens of smoke sig subjected to a temperature 90% relative humidity for a followed by ten days at 20°C for relative humidity.	gnals should be of +65°C and at least 96 h, to 25°C at 65%	After conditioning each specim damage such as shrinking, dissolution or change of mecha The 3 specimens should func should emit smoke of a highly uniform rate for a period of not when floating in calm water. The buoyant smoke signal explosively when used in a manufacturers' operating instru- flame during the entire smoke of The colour of the orange smoke by means of visual comparison colour comparison chart cont acceptable orange colours. Ref criteria on test form 3.3.10.	en should no cracking, s nical properti tion effective y visible colo : less than 3 should no ccordance w actions, not e emission time e should be ev on, in daylig aining the r fer to the acc	o sign of swelling, ies. ely, they our at a minutes at ignite with the emit any e. valuated ht, to a ange of ceptance	10 Condition (Pass/F Smoke emission Smoke colour(Pa Time delay (if app Smoke emission Comments/Obser	11	12

Buoyant smoke signals	Manufacturer: Model: Lot/Serial Num	Manufacturer:			e: Time: veyor: janization:			
3.3.7.1 1 metre immers	3.3.7.1 1 metre immersion for 24 hours test Regulations: LSA				3; MSC.81(70) 1/4.3.1	l		
Test Procedure	Э	Acceptance Crit	eria	Significant Test Data				
Three specimens of smoke signals shoul be immersed horizontally for 24 h under 1 r of water and then subjected to the functio test at ambient temperature.		After conditioning each specim of damage such as shrinking, dissolution or change of mecha The three specimens should fu they should emit smoke of a hi at a uniform rate for a period 3 minutes when floating in calm The buoyant smoke signal	ten should no sigr cracking, swelling anical properties. unction effectively ighly visible colour d of not less thar n water. should not ignite	13 , , , , , , , , , , , , , , , , , , ,	14	15		
		explosively when used in acc	ordance with the	Condition (Pass/F	Condition (Pass/Fail)			
		manufacturer's operating instructions, not emit		t	Smake emission time (min/see)			
		any name during the entire sind						
		The colour of the orange s	moke should be	Smoke colour (Pa	Smoke colour (Pass/Fail)			
		evaluated by means of visual daylight to a colour compariso	al comparison, in					
		the range of acceptable orange	e colours. Refer to	Time delay (if app	Time delay (if applicable) (sec)			
		the acceptance criteria on test	form 3.3.10.	Smoke emission (Continuous/Intermitte			
				Smoke emission (11)		
					Comments/Observations			
				Passed	Failed	_		

Buoyant smoke signals	Manufacturer:		Date: Time: Surveyor: Organization:				
3.3.7.2 100 mm immersion for 5 min test Regulations: LSA Co			s: LSA Coo	de I/1.2 & III/3.3; N	MSC.81(70) 1/4.3.	2	
Test Procedure	•	Acceptance Cr	riteria			Significant Test Da	ata
Three specimens of smoke signals should be immersed in the ready to fire condition for 5 minutes under 10 cm of water and then subjected to the function test at ambient temperature.		After conditioning each specimen should no sign of damage such as shrinking, cracking, swelling, dissolution or change of mechanical properties. The three specimens should function correctly, they should emit smoke of a highly visible colour at a uniform rate for a period of not less than 3 minutes when floating in calm water		16 Condition (Pass/	17 Fail)	18	
				Smoke colour (Pass/Fail)			
			Time delay (if ap	plicable) (sec)			
		The buoyant smoke signal should not ignite		ot ignite with the	Smoke emission	(continuous/Interr	nittent)
		manufacturers' operating instru flame during the entire smoke e The colour of the orange smoke by means of visual comparison, comparison chart containing the orange colours. Refer to the acco form 3.3.10.	e should be in daylight, t e range of a eptance crite	emit any evaluated o a colour cceptable ria on test	Comments/Obse	ervations	
					Passed	Failed	

Buoyant smoke signals Manufacturer: Model: Lot/Serial Number:		ıber:	Date: Time: Surveyor:			
3.3.7.3 Salt spray test Regulations: LSA			ns: LSA Co	de I/1.2 & III/3.3; N	ISC.81(70) 1/4.3.3	8, 4.4.1
Test Procedure	•	Acceptance Criteria			Significant Test Da	ta
Three specimens of smoke signal should be subjected to a salt spray (5% natrium* chloride solution) at a temperature of +35±3°C for at least 100 h and then subjected to the function test at ambient temperature. *Note: Natrium and sodium are the same compound.		After conditioning each specimen should no sign of damage such as shrinking, cracking, swelling, dissolution or change of mechanical properties. The three specimens should function correctly, they should emit smoke of a highly visible colour at a uniform rate for a period of not less than 3 minutes when floating in calm water. The buoyant smoke signal should not ignite explosively when used in accordance with the manufacturer's operating instructions, nor emit any flame during the entire smoke emission time. The colour of the orange smoke should be evaluated by means of visual comparison, in daylight, to a colour comparison chart containing the range of acceptable orange colours. Refer to the acceptance criteria on test form 3.3.10.		Condition (Pass/Fail) Smoke emission time (min/sec) Smoke colour (Pass/Fail) Time delay (if applicable) (sec) Smoke emission (Continuous/Intermittent)		
				Comments/Obse	rvations Failed	

Buoyant smoke signals	t smoke signals Manufacturer: Data Surfacturer: Data Surfacturer: Data Surfacturer: Data Surfacturer: Output Data Surfacturer:		Date: Surveyor: Organization:			
3.3.8.1 2 m drop test		Regulations	s: LSA	Code I/1.2 & III/3.3;	; MSC.81(70) 1/4.4. [,]	1
Test Procedure)	Acceptance Criteria		Si	gnificant Test Data	
Three specimens of buoyant smoke signal should be dropped in turn end-on and horizontally from a height of 2 m on to a steel plate about 6 mm thick cemented on to a concrete floor. The three specimens should remain in a safe condition after the 2 m Drop Test and should function effectively.		The three specimens should function correctly, they should emit smoke of a highly visible colour at a uniform rate for a period of not less than 3 minutes when floating in calm water. The buoyant smoke signal should not ignite explosively when used in accordance with the manufacturer's operating instructions, nor emit any flame during the entire smoke emission time.		22 Condition (Pass/F Smoke emission ti	23 ail) ime (min/sec)	24
				Smoke colour (Pass/Fail) Time delay (if applicable) (sec)		
		The colour of the orange smoke should be	Smoke emission (Continuous/Intermitt	ent)	
		evaluated by means of visual comparison daylight, to a colour comparison chart contain the range of acceptable orange colours. Re- the acceptance criteria on test form 3.3.10.	al comparison, in on chart containing e colours. Refer to orm 3.3.10.	Comments/Observations		
				Passed	Failed	

Buoyant smoke signals	yant smoke signals Manufacturer: Model: Lot/Serial Number:		Date: Time: Surveyor: Organization:			
3.3.8.2 Immersion suit glove test Regulations			A Code I/1.2 & III/3.3;	MSC.81(70) 1/4.4.2		
Test Procedure	9	Acceptance Criteria	Sign	ificant Test Data		
Three specimens of buoyant smoke signals should be activated in accordance with the manufacturer's operating instructions by an operator wearing an insulated buoyant immersion suit or the gloves taken from an insulated buoyant suit.		The three specimens should be capable of being operated effectively without injury to the operator, or any person in close proximity, during firing or burning.	19 20 21 Condition (Pass/Fail)			
		The three specimens should function correctly, they should emit smoke of a highly visible colour at a uniform rate for a period of not less than 3 minutes when floating in calm water. The buoyant smoke signal should not ignite explosively when used in accordance with the manufacturer's operating instructions, nor emit any flame during the entire smoke emission time.	Smoke colour (Pass/Fail)			
			Time delay (if applicable) (sec) Smoke emission (Continuous/Intermittent) Comments/Observations			
		The colour of the orange smoke should be evaluated by means of visual comparison, in daylight, to a colour comparison chart containing the range of acceptable orange colours. Refer to the acceptance criteria on test form 3.3.10.				
			Passed	Failed		

Buoyant smoke signals	ignals Manufacturer: Model: Lot/Serial Number:		Date: Time: Surveyor: Organization:			
3.3.9 Heptane test	3.9 Heptane test Regulations: LSA Co			Code I/1.2 & III/3.3	3; MSC.81(70) 1/4	.8.2
Test Procedu	re	Acceptance Crit	teria		Significant Test D	ata
Three smoke signals should	function in water	The three specimens should not ignite the heptane, - they should emit smoke of a highly visible colour at a - uniform rate for a period of not less than 3 minutes		22	23	24
covered by 2 mm layer of her	otane.			Heptane ignition	(Pass/Fail)	
		when floating in calm water.				
		5		Smoke emission	n time (min/sec)	
		The buoyant smoke signal	should not ignite		(—)	
		explosively when used in a	Smoke colour (H	Pass/Fail)		
		flame during the entire smoke er	Time delay (if applicable) (sec)			
				plicable) (sec)		
		The colour of the orange smoke should be evaluated	Smoke emission	n (continuous/Inter	mittent)	
		by means of visual comparison, i	neans of visual comparison, in daylight, to a colour			
		orange colours. Refer to the acceptance critic test form 3.3.10.	cceptance criteria on	Comments/Observations		
				Passed	Failed	

Buoyant smoke signals	Manufacturer: Model: Lot/Serial Num	ıber:	Date	Time: or: cation:		
3.3.10 Laboratory smo	oke obscuratio	n test	Regulations: LS	A Code I/1.2 & III/3.3; MSC.81(70) 1/4.8.3		
Test Procedure	9	Acceptance Cr	riteria	Significant Test Data		
Three additional specimens from should be used. The smoke colour of the smoke sign determined by laboratory tes at a water temperature of +20 follows: The smoke should be an apparatus consisting of diameter duct with a fan capate an entrance air flow of 18 means of a light source with a one side of the tunnel and a pl on the other side the density smoke should be recorded. If picks up the total emitted light source, then the smoke dup percent which means that passing through the tunnel density is then considered to the photocell is not able to pick the light source through the pathe the tunnel. From the amount of photocell is able to pick up the should be calculated. measurement, the light intens value should be record	om the same lot e density and all should be ting conducted °C to +25°C as e drawn through f a 190 mm ole of producing .4 m ³ /min. By t least 10 cd on hotoelectric cell of the passing lf the photocell of the passing lf the photocell tt from the light ensity is zero no smoke is I. The smoke be 100% when c up any light of assing smoke in f light which the e smoke density Before each ity of the 100% ecked. Each rded.	 Smoke density should be at leaminimum emission time. The colour of the orange smoke by means of visual comparison chart con acceptable orange colours. The chart should have a gloss or mator of a series of at least five of a series of at least five of notation 8.75 R 6/14) to yellow notation 5 YR MAX) in gradual and lightness. The colour chip adjacent to one another, in order reddish orange to yellowish oral least one side to the edge of the chip should be at least 50 mm to the chip should be at least 50 mm to the chip should be at least 50 mm to the chip should be at least 50 mm to the chip should be at least 50 mm to	st 70% throughout t e should be evaluat on, in daylight, to taining the range ne colour comparis atte finish, and cons orange colour chip dish orange (Muns wish orange (Muns steps of hue, chrom os should be secure of progression fro nge, and extend on he chart. Each colo x 100 mm in size. ession would be 8. C 6/14; 3.75 YR MA a method to conve and CIE coordinates	he Laboratory Testing Report No. Report acceptable ed (Yes/No) a Smoke obscuration rate achieved at -30°C% Burning time of smoke signalsec Smoke obscuration rate achieved at +20°C to +25°C% Burning time of smoke signalsec achieved at +20°C to +25°C% Burning time of smoke signalsec Smoke obscuration rate achieved at +65°C: % Burning time of smoke signalsec Smoke obscuration rate achieved at +65°C: % Burning time of smoke signalsec Commany Smoke obscuration rate achieved at +65°C: % Burning time of smoke signal sec Smoke obscuration rate achieved at +65°C: % Burning time of smoke signal sec Comments/Observations		
				PassedFailed		

Buoyant smoke signals	Manufacturer: Model: Lot/Serial Num	Date: Date:Date: Date: Da	: Time: eyor: inization:		
3.3.11 Wave test	•	Regulations: LSA	Code I/1.2 & III/3.3;	MSC.81(70) 1/4.8.	4
Test Procedure)	Acceptance Criteria	5	Significant Test Dat	а
A smoke signal should be tested in waves at least 300 mm high and should be allowed to		The three specimens should function correctly, they should emit smoke of a highly visible colour at a	10	11	12
burn completely.		uniform rate for a period of not less than 3 minutes.	Smoke emission	time (min/sec)	I
		The buoyant smoke signal should not ignite	;		
		explosively when used in accordance with the	Smoke colour (Pa	ass/Fail)	1
		manufacturer's operating instructions, nor emit any flame during the entire smoke emission time. The colour of the orange smoke should be evaluated by means of visual comparison, in daylight, to a colour comparison chart containing the range of acceptable orange colours. Refer to the acceptance criteria on test form 3.3.10.	Time delay (if ap	plicable) (sec)	[
			Smoke emission	(continuous/Interm	ittent)
			Comments/Obse	rvations	
			Passed	Failed	

Buoyant smoke signals Manufacturer: Model: Lot/Serial Nun		nber:		Date: Time: Surveyor: Organization:				
3.3.12 Liferaft drop test			Regulations: LSA Code 1.2 & 4.1.1.2, MSC.81(7 I/5.1.2					
Test Procedure		Acceptance Criteria		Significant Test Data				
The liferaft in the operationally packed condition should be suspended and then		Damage to any item of equipment is acceptable subject to the administration being satisfied that the		acceptable	25	26		
				d that the	Condition of units (Pass/Fail)			
The liferaft in the operationally packed condition should be suspended and then dropped from a height of 18 m into the water. If the liferaft is to be stowed at a height greater than 18 m above the waterline in the lightest seagoing condition, it should be dropped from the height at which it is to be stowed.		subject to the administration being satisfied that the operational efficiency has not been impaired. After the test, each buoyant smoke signal should show no sign of damage such as shrinking, cracking, swelling, dissolution or change of mechanical qualities.		cracking, l qualities.	Condition of units (Pass/Fail) Comments/Observations			
should be made to the test sl	neet 4.2.4.							

Buoyant smoke signals Manufacture Model: Lot/Serial Nu		umber:		Date: Surveyor: Organization:			
3.3.13 Safety inspection			Regulations		: LSA Code I/1.2 & III/3.3; MSC.81(70) 1/4.5		
	Test Procedure		Acceptance Criteria		Significant Test Data		
 It should be established by visual inspection that the buoyant smoke signal: .1 is indelibly marked with clear and precise instructions on how it should be operated and that the danger end can be identified by day or night; .2 can, if hand operated, be operated from the bottom (safe end) or that it contains an operational safety delay of 2 seconds; 		Clear and precise operating instructions are marked on the buoyant smoke signal and the buoyant smoke signal clearly identifies the danger end. It operated from the top the time delay is not to be less than 2 s.		Markings and identification of ends acceptable Passed Failed Time delay if operated from the top sec Operation of specimen when wet, cold and gloved hands.			
.3 .4 5.	 .3 has a simple means of ignition which requires the minimum of preparation and can be readily operated in adverse conditions without external aid and with wet, cold or gloved hands; .4 does not depend on adhesive tapes or plastic envelopes for its water-resistant properties; and 5. can be indelibly marked with means of determining its age. 		It has a simple means of ignition and can be operated by cold, wet and gloved hands. Adhesive tapes or plastic envelopes are not used to maintain water-resistant properties. Date of manufacturing and date of expiry indelible printed on the outside.		Passed Failed Water resistant without the use of envelopes or adhesive tape. Passed Failed Buoyant smoke signal indelible date stamped. Passed Failed Comments/Observations		