JOOBYTM AVENUE luminaires series

USER MANUAL

This user manual contains information about the JOOBY AVENUE luminaires (hereinafter referred to as "luminaires"), and sets the rules of exploitation and storage of the device.

1 GENERAL INFORMATION

1.1 Luminaires are compliant to the requirements of Directive LVD 2014/35/EU, Directive EMC 2014/30/EU, EN 60598-1, EN 60598-2-3, EN 60598-2-1, EN 60598-2-5.

1.2 Denotation of possible luminaires options:

Avenue S2x80-S1-5K7H-Ci-SPC-T1						
Avenue S2x80-S1-5K7H-Ci-SPC-T1	Housing type:					
	C – console;					
	S – suspended.					
Avenue S 2 x80-S1-5K7H-Ci-SPC-T1	Quantity of light modules:					
	from 1 to 5.					
Avenue S2x 80 -S1-5K7H-Ci-SPC-T1	Power consumption of each light module:					
	20 - 20 W;					
	30 - 30 W;					
	40 - 40 W;					
	60 - 60 W;					
	80 – 80 W.					
Avenue S2x80- S1 -5K7H-Ci-SPC-T1	Optical system type:					
	S1 – asymmetrical glass lens 145°x65°;					
	S2 – asymmetrical glass lens 170°x120°;					
	S3 – asymmetrical glass lens 160°x80°;					
	S4 – asymmetrical glass lens $150^{\circ}x70^{\circ}$;					
	S6/T1 – 28 LEDs asymmetrical lens arrays, type I					
	S6/T2 – 28 LEDs asymmetrical lens arrays, type II;					
	S6/T3 – 28 LEDs asymmetrical lens arrays, type III;					
	S6/T5s – 28 LEDs symmetrical lens arrays, type V;					
	S6/Sc – 28 LEDs symmetrical lens arrays, type II/III (long);					
	$F1/45$ – symmetrical glass lens $45^{\circ}x45^{\circ}$;					
	$F1/60$ – symmetrical glass lens $60^{\circ}x60^{\circ}$;					
	$F1/90 -$ symmetrical glass lens $90^{\circ}x90^{\circ}$;					
	$F1/120 -$ symmetrical glass lens $120^{\circ}x120^{\circ}$;					
	$F6/30 - 28$ LEDs symmetrical lens arrays $30^{\circ}x30^{\circ}$;					
	$F6/65 - 28$ LEDs symmetrical lens arrays $65^{\circ}x65^{\circ}$;					
	$F6/90 - 28$ LEDs symmetrical lens arrays $90^{\circ}x90^{\circ}$;					
	$F//18 = 36$ LEDs symmetrical lens arrays 18° x 18° ;					
	$F7/22 = 30$ LEDs symmetrical lens arrays 22° X22 ^{\circ} ;					
	$F7/30 = 30$ LEDs symmetrical lens arrays 30° x 30° ;					
	F7/1840 = 26 LEDs symmetrical lens arrays 45 x45;					
	$F^{7/1640} = 30$ LEDs symmetrical long arrays $10^{\circ} \times 10^{\circ}$, $F^{7/115d} = 36$ LEDs matt symmetrical long arrays $115^{\circ} \times 115^{\circ}$.					
	$F7/125 = 36 \text{ LEDs matt symmetrical lens arrays } 125^{\circ} \text{ x} 125^{\circ}$					
A	Correlated colour temperature:					
Avenue 52x80-51- 5N /H-C1-5PC-11	3κ 3000 κ .					
	3K = 3000 K; 4K = 4000 K:					
	5K = 5000 K					
	57K - 5700 K					
	6.5K - 6500 K					

Avenue S2x80-S1-5K7H-Ci-SPC- T1	
Avenue S2x80-S1-5K 7 H-Ci-SPC-T1	Colour rendering index:
	7 – 70 -79;
	8-80-89;
	$9 - \ge 90.$
Avenue S2x80-S1-5K7 H -Ci-SPC-T1	Efficacy category:
	$T = \ge 91 \text{ lm/W (tiny)};$
	$I = \geq 101 \text{ lm/W} \text{ (initial)};$
	$S = \geq 111 \text{ lm/W} \text{ (small)};$
	$M = \geq 121 \text{ lm/W} \text{ (medium)};$
	$L = \geq 131 \text{ lm/W} \text{ (large)};$
	$H = \ge 141 \text{ lm/W}$ (high);
	$E = \geq 151 \text{ lm/W} \text{ (extra)};$
	$U = \geq 161 \text{ lm/W} \text{ (ultra)}.$
Avenue S2x80-S1-5K7H- Ci -SPC-T1	LED manufacturer:*
	Ci – Citizen Electronics Co., Ltd;
	Os – Osram AG;
	Se – Seoul Semiconductor Co., Ltd;
	Cr – Cree Inc.
Avenue S2x80-S1-5K7H-Ci- SPC -T1	Surge protection module:*
	SP - 10 kA, uncontrollable;
	SPC – 10 kA, controllable;
	SP2 – 20 kA, uncontrollable;
	SP2C – 20 kA, controllable.
Avenue S2x80-S1-5K7H-Ci-SPC- T1	Mount type:**
	T1 - for hanging rope, 3d;
	F1 – narrow floodlight type, 2d;
	F2 – narrow floodlight type, 3d;
	F3 – wide floodlight type;
	Fw – wide floodlight type, separate;
	R – eye nut;
	Rx2 - eye nut, 2pcs.
* Symbols are present in luminaire designation	ations only when corresponding options are included.
** Used only with S-type housing (suspend	ded).

The manufacturer reserves the right to make changes in design and designation of luminaire options, which do not worsen products technical characteristics.

1.3 Product description, serial number, manufacturing date — see chapter 11.

1.4 Manufacturer:

"TELECOMMUNICATION TECHNOLOGIES Ltd" Office address: 65026, Ukraine, Odessa, 1 Mytna Ploscha Phone: +380 48 759-09-09 E-mail: sales@jooby.com.ua, www.jooby.com.ua

2 ABOUT PRODUCT

2.1 The luminaire is intended for illumination of streets, roads, highways, tunnels, bridges, parks, residential areas, industrial locations, public spaces, administrative buildings, parking lots, etc.

The luminaire can be used for general internal illumination of production halls, warehouses, stores, auxiliary rooms, etc.

The light source is an irreplaceable light-emitting-diode module.

2.2 The luminaire is intended for exploitation in the AC mains with 230 V rated voltage and 50 Hz frequency.

2.3 Luminaire remains its efficiency with ambient temperature from minus 40 to 50 °C.

2.4 Depending on the embodiment, in accordance with chapter 1.2, the luminaire has the builtin surge protection module and is capable of working at the following conditions:

- **SP** and **SPC** options - according to EN 61000-4-5 (4 kV/2 kA, 6 kV/3 kA, 10 kV/5 kA) and IEEE C62.41.2 category C Low (6 kV/3 kA);

- **SP2** and **SP2C** options - according to EN 61000-4-5 (4 kV/2 kA, 6 kV/3 kA, 10 kV/5 kA) and IEEE C62.41.2 category C High (20 kV/10 kA).

2.5 The luminaire is suitable for mount on surface of materials with normal flammability rank.

2.6 The mounting method, depending on luminaire embodiment and mount type, is encoded according to table 2.1.

Luminaire option	Mounting method		
Avenue CV	on console (tube)		
Avenue CA	on vertical pole		
Avenue SXT1	on bearing cable		
Avenue SXF1			
Avenue SXF2	on a wall or ceiling		
Avenue SXF3			
Avenue SXFw			
Avenue SXR	on suspended rope		
Avenue SXRx2	on suspended tope		

Table 2.1

3 TECHNICAL SPECIFICATION

3.1 Basic characteristics:		
 Limit voltage value. V 	_	min 120. max 280
– AC frequency, Hz	_	50
– Power factor	_	>0.95
 Colour rendering index (CRI) 	_	>70
 Ingress protection according to EN 60529 	_	IP66
 Protection class against electric shock in accordance to EN 60598-1 	_	Ι
– Lifetime. h	_	>100000
– Lumen maintenance	_	L70
 Failure fraction corresponding to the lifetime 	—	F50
3.2 Rated power of the luminaire P, W is calculated by the formula:		
$P=P_{M}\cdot n$,		(1)
where P_M – rated power of light module, W;		
n – quantity of light modules.		
The consumed power of the luminaire must not exceed 10 % of the rated	d va	lues.
3.3 Rated luminous flux of luminaire of Φ , lm is calculated by the form	ıla:	
$\Phi = \Phi_{M} \cdot n$,		(2)
where Φ_{M} – rated luminous flux of the light module, lm;		()
n - quantity of light modules.		

The actual luminous flux of the luminaire must be not less than 90 % from the rated value.

3.4 Rated power and luminous flux of the light modules are encoded according to table 3.1.

Table 3.1

Crown of	Nominal luminous	Rated power of a single module, W					Class of
luminous	efficacy of	20	30	40	60	80	energy
efficacy	lm/W	Rat	Rated luminous flux of a single module, lm				
Т	100	2000	3000	4000	6000	8000	A+
Ι	110	2200	3300	4400	6600	8800	A+
S	120	2400	3600	4800	7200	9600	A+
М	130	2600	3900	5200	7800	10400	A++
L	140	2800	4200	5600	8400	11200	A++
Н	150	3000	4500	6000	9000	12000	A++
Е	160	3200	4800	6400	9600	12800	A++
U	170	3400	5100	6800	10200	13600	A++

3.5 The luminaire's energy efficiency class is determined by the class of the light module in accordance with table 3.1.

3.6 The light intensity distribution diagram and average beam angle of the luminaire depending on the optical system type are encoded according to table 3.2.

Ontion and the true	Intensity distribution	A wave as been an als
Optical system type	diagram	Average beam angle
S1	figure 3.1	145°/65°
S2	figure 3.2	170°/120°
S 3	figure 3.3	160°/80°
S4	figure 3.4	150°/70°
S6/T1	figure 3.5	145°/80°
S6/T2	figure 3.6	160°/50°
S6/T3	figure 3.7	150°/60°
S6/T5s	figure 3.8	140°
S6/Sc	figure 3.9	160°/65°
F1/45	figure 3.10	45°
F1/60	figure 3.11	60°
F1/90	figure 3.12	90°
F1/120	figure 3.13	120°
F6/30	figure 3.14	30°
F6/65	figure 3.15	65°
F6/90	figure 3.16	90°
F7/18	figure 3.17	18°
F7/22	figure 3.18	22°
F7/30	figure 3.19	30°
F7/45	figure 3.20	45°
F7/1840	figure 3.21	18°/40°
F7/115d	figure 3.22	115°
F7/125	figure 3.23	125°

Table 3.2







0° S4 Figure 3.4

Figure 3.5

0° S6/T2 Figure 3.6

90

90

90

60

C0/180 C90/270





3.7 The correlated colour temperature in depending on luminaire options is encoded according to table 3.3.

. <i>.</i>	Correlated colour temperature, K			
Luminaire option	Rated value	Tolerance intervals		
Avenue 3K XX	3000	2850 - 3250		
Avenue 4K XX	4000	3750 - 4250		
Avenue 5K XX	5000	4750 - 5350		
Avenue 5.7K XX	5700	5350 - 6000		
Avenue 6.5K XX	6500	6000 - 7000		

3.8 Luminaires dimensions and mass, depending on housing type, mount type and light modules quantity, are encoded according to table 3.4.

Table 3.4

Housing type		Dimensions, n	nm, not more	Mass, kg	, not more		
and quantity	Mount	tha	an	tł	nan	Projected	
of light	typo		Optical system type				
modules	type	Single glass lens	Plastic lens array	Single glass lens	Plastic lens array	more than	
Avenue C1		390x250x130	390x250x110	5,5	5,3	0,07	
Avenue C2		525x250x130	525x250x110	8,4	8	0,103	
Avenue C3		660x250x130	660x250x110	11,3	10,7	0,135	
Avenue C4		790x250x130	790x250x110	14,2	13,4	0,167	
Avenue C5		925x250x130	925x250x130	17,1	16,1	0,2	
Avenue S1	T1	260x250x220	260x250x200	4,2	4		
	F1	260x250x215	260x250x195	4,1	3,9	0.059	
	F2	260x250x290	260x250x270	4,4	4,2	0,038	
	R	260x250x175	260x250x155	4	3,8		
Avenue S2	T1	395x250x220	395x250x200	7,1	6,7		
	F1	395x250x215	395x250x195	7	6,6	0.00	
	F2	395x250x290	395x250x270	7,3	6,9	0,09	
	Rx2	395x250x175	395x250x155	7,1	6,7		
Avenue S3	F3	530x250x215	530x250x195	10,4	9,8		
	Fw	530x250x215	530x250x195	10,2	9,6	0,123	
	Rx2	530x250x175	530x250x155	9,9	9,3		
Avenue S4	F3	665x250x215	665x250x195	13,2	12,4		
	Fw	665x250x215	665x250x195	13	12,2	0,155	
	Rx2	665x250x175	665x250x155	12,7	11,9		
Avenue S5	F3	800x250x215	800x250x195	16,1	15,1		
	Fw	800x250x215	800x250x195	15,9	14,9	0,188	
	Rx2	800x250x175	800x250x155	15,6	14,6		

4 DELIVERY SET

4.1 The delivery set of the luminaire is specified in table 4.1.

Table 4.1

Item	Quantity	Commentary
Luminaire	1 pcs.	
M10x60 screw	2 pcs.	Avenue CX
T1 mount set	1 pcs.	Avenue SXT1
F1 mount set	1 pcs.	Avenue SXF1
F2 mount set	1 pcs.	Avenue SXF2
F3 mount set	1 pcs.	Avenue SXF3
Fw mount set	1 pcs.	Avenue SXFw
R mount set	1 pcs.	Avenue SXR
	2 pcs.	Avenue SXRx2
User manual	1 pcs.	
Package	1 pcs.	

5 SECURITY MEASURES

5.1 In terms of security measures the luminaire is completed in accordance with EN 60598-1, EN 60598-2-3, EN 60598-2-1, EN 60598-2-5, requirements.

5.2 Installation and maintenance of the luminaire must be executed by skilled specialist, authorized to work on electrical installations under voltage up to 1000 V.

5.3 Disconnect from power supply before installing and maintaining the luminaire.

5.4 Connecting the luminaire to power supply which properties are different from those indicated in marking of the luminaire is prohibited.

5.5 The luminaire must be grounded to avoid electric shock.

5.6 **DO NOT:**

- assemble, disassemble or service a luminaire with connected power supply;
- switch on a disassembled luminaire;
- use a mechanically damaged luminaire;
- use luminaire with the damaged isolation of wires or places of electric connections;
- use luminaire without protective grounding;
- lift and hold the luminaire by the cable;
- use luminaire for unintended purposes.

6 DESCRIPTION

6.1 Common description

The luminaire has a module structure.

The basic functional unit of the luminaire is the light module, which consists of aluminum housing, LED light source, driver and secondary optical system (lens with accompanying parts).

Depending on the housing type, there are two types of modules: "Console" and "Middle".

Depending on the embodiment, luminaires can contain from one to five light modules and one (Avenue CX-... option) or two (Avenue SX-... option) front sections.

Depending on the embodiment, the front section (figure 6.1) may contain the surge protection module (Avenue -SP-, -SPC-, -SPC-, -SPC2- options) and additional power regulation devices.

To connect luminaire to the power supply an external flexible three-core cable is used.

For expansion of luminaire functions, the front cover may be replaced with ASC (Avenue Smart Cover) Control Devices in variety of options.

Notes

1 To connect additional power regulating device, or ASC Control Device, the system connector is used (figure 6.1).

2 ASC Control Device may be installed by the manufacturer, or purchased separately and installed by user to upgrade the already bought luminaire.

3 Description and exploitation details of ASC Control Device are given in the appropriate user manual.



Figure 6.1 – Front section without removed cover

6.2 Console luminaires (Avenue CX option)

The console luminaire consist of the Console Light Module and front section (Avenue C1 option) or Console Light Module, front section and from one to four Middle Light Modules (Avenue C2 – Avenue C5 options).

The console luminaire is equipped with a mounting bracket for set on tubes with diameter from 40 to 65mm.

The construction of mounting bracket allows to set the luminaire on L-type console (figure 6.2) or vertical pole (figure 6.3) and provides tilt adjustment from minus 5° to $+30^{\circ}$ with a 2,5° step.



Figure 6.2 – Luminaire set on a L-type console



Figure 6.3 - Luminaire set on a vertical pole

6.3 Suspended luminaires (Avenue SX option)

The suspended luminaire consist of Middle Light Modules (from 1 to 5 depending on the model) and two front sections.

Suspended luminaires can be equipped with different mount types. List of mount types, their description and compatibleness with luminaire options is given in table 6.1.

Code	Title	Description	Compatible luminaires	Figure
T1	Suspended,	For hanging on bearing cable of diameter	Avenue S1T1	6.4
	bearing	from 6 to 12,5 mm.	Avenue S2T1	
	cable, 3d	Adjustability: turn angle 0-360°; slope		
		angle $\pm 20^{\circ}$.		
F1	Narrow	For mount on hard surface (wall, ceiling,	Avenue S1F1	6.5
	floodlight,	and metal construction). Adjustability: turn	Avenue S2F1	
	2d	angle 0-360°; slope angle $\pm 20^{\circ}$.		
F2	Narrow	For mount on hard surface (wall, ceiling,	Avenue S1F2	6.6
	floodlight,	and metal construction). Adjustability: turn	Avenue S2F2	
	3d	angle 0-360°; longitudinal slope angle $\pm 20^\circ$;		
		transversal slope angle $\pm 90^{\circ}$.		

1 auto 0.1	Table 6.	1
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Continuation of table 6.1

Code	Title	Description	Compatible luminaires	Figure
F3	Wide	For mount on hard surface (wall, ceiling,	Avenue S3F3	6.7
	floodlight,	and metal construction). Adjustability:	Avenue S4F3	
	lyre	transversal slope angle $\pm 90^{\circ}$.	Avenue S5F3	
Fw	Wide	For mount on hard surface (wall, ceiling,	Avenue S3Fw	6.8
	floodlight,	and metal construction). Adjustability:	Avenue S4Fw	
	separated	slope angle in transversal plane $\pm 90^{\circ}$;	Avenue S5Fw	
		distances between mounting brackets.		
R	Suspended,	For mount on ceiling by suspended steel	Avenue S1R	6.9
	eye nut	rope with diameter of 4 mm and more. One		
		attachment point.		
Rx2	Suspended,	For mount on ceiling by suspended steel	Avenue S2Rx2	6.9
	eye nut, 2 pcs.	rope with diameter of 4 mm and more.	Avenue S3Rx2	
		Two attachment points.	Avenue S4Rx2	
			Avenue S5Rx2	



Figure 6.4 – T1 mount



Figure 6.5 – F1 mount



Figure 6.6 – F2 mount



Figure 6.7 – F3 mount



Figure 6.8 – Fw mount



Figure 6.9 – R (Rx2) mount

7 PRE-LAUNCH PROCEDURE

7.1 Unpack the luminaire and check its integrity and assembly correctness.

7.2 **Power supply connection**

Connection to the power grid must be executed in accordance to national installation rules. An external three-core cable is used to connect the luminaire to the power supply.

For correct connection be aware of the wires colour denotation:

- brown for "phase" (L);
- blue for "zero" (N);
- yellow-green for grounding.

It is recommended to use a terminal block, which conforms to EN 60998-2-1 or EN 60998-2-2 and fulfills such requirements:

- rated voltage - 300 W;

- rated current - 4 A;

- rated connecting capacity -2.5 mm^2 .

Notes

1 To maintain declared ingress protection level use terminal blocks with appropriate protection level.

2 Execute any necessary preparation of the ends of conductors in a way meant by terminal block manufacturer.

7.3 Console luminaires (Avenue CX option)

7.3.1 The luminaire should be installed following such requirements:

– the luminaire's normal working position on L-type console (or on vertical support bracket) is at angle from 0° to 30° to horizon;

- the recommended setting height is from 3 to 30 meters (dependently on the luminaire option and specific of its exploitation);

- the tube wall thickness must be not less than 1,5 mm;

- tube diameter should be from 40 to 65 mm. To fasten the luminaire on tube with diameter from 40 to 54 mm use adjusting screw-bolts from the delivery set;

- the depth of the pole inset into the console holder must be at least 90 mm;

- tightening torque for fastening bolts must be not less than $17 \text{ N} \cdot \text{m}$.

Warning!

1m Minimum distance from lighted objects not less than 1 m.

7.3.2 To install the luminaire on vertical pole, change the position of the holder, as shown in figure 7.1.



Figure 7.1 – Holder adjustment for vertical set

7.3.3 Luminaire installation order:

- connect the power wire. The luminaire cable must be passed inside of the tube;

- release fastening bolts and set the luminaire on L-type console or vertical pillar. Ensure that the cable was not damaged by squeezing between surfaces and cuts of tubes;

- fix the luminaire by tightening fastening bolts. Tighten check-nuts;

- loose adjusting screws, adjust the luminaire tilt on vertical axis, then fix it at necessary angle by tightening adjusting screws;

- switch on the power and check if the luminaire is working properly.

7.4 Suspended luminaires (Avenue SX option)

7.4.1 The luminaire should be installed according to the following requirements::

- the normal working position of the luminaire depends on its model and specific of its exploitation;

- for F1, F2, F3 and Fw mount type, if the luminaire is exposed to precipitation, it is recommended to orientate it vertically (along the longitudinal axis);

- for T1 mount type the diameter of bearing cable must be from 6 to 12,5 mm;

- for R and Rx2 mount type use a steel rope with diameter no less than 4 mm;

– to hang the luminaire with F1, F2, F3 and Fw mount use screws or screw-bolts with diameter from 5 to 6,5 mm.

Notes

- 1 Screws, screw-bolts and dowels for attachment of luminaire upon mounting surface are not included in the delivery set and should be purchased separately.
- 2 Type and size of screws, screw-bolts and dowels should be chosen in dependence on type and material of mounting surface.

Warning!

1m Minimum distance from lighted objects not less than 1 m.

7.4.2 The luminaire installation order:

- set the T1, F1, F2 mount kit on the luminaire as shown in figures 7.2-7.4.

Note: F3, Fw, R and Rx2 mount are installed by the manufacturing enterprise;

– fasten the luminaire on:

- steel rope (T1 mount);
- mounting surface (F1, F2, F3 and Fw mount);
- suspended steel ropes (R and Rx2 mount);

– connect power wires;

-adjusting position of the luminaire:

- For T1 and F1 mount (figures 7.2 and 7.3). Loosen M8 nuts and adjust the turn and tilt angle. Tighten M8 nuts to fix the luminaire;
- For F2 mount (figure 7.4). Loosen M8 nuts and adjust the turn and elevation angles. To fix the luminaire, tighten M8 nuts. Loosen M6 nuts on the M6x20 screws (see figure 7.4) and adjust the tilt angle in transversal plane. To fix the luminaire, tighten M6 nuts. To change the tilt adjustment range, move the M6x20 screws with the M6 nuts into corresponding hole on U bracket (see figure 6.6);
- For F3 and Fw mount (figures 7.5 and 7.6). Loosen M6 nuts on the M6x20 screws and adjust the tilt angle. To fix the luminaire, tighten M6 nuts. To change the tilt adjustment range, move the M6x20 screws with M6 nuts into corresponding hole on turning bracket (see figure 6.8).

Note: Fw mount allows to change the distance between mounting brackets. For this purpose, loosen M4 screws and move turning brackets (see figure 7.6) on necessary distance. To fixate brackets tighten M4 screws;

- switch on the power and check that the luminaire is working properly.



Figure 7.2 – T1 mount installation



Figure 7.3 – F1 mount installation



Figure 7.4 – F2 mount installation



Figure 7.5 – F3 mount installation



Figure 7.6 – Fw mount installation



Figure 7.7 – R (Rx2) mount installation

8 MAINTENANCE

8.1 Luminaires require periodical (at least annual) preventive examination of functionality and fastening security. Discovered defects must be fixed.

8.2 Luminaires require cleaning at least twice a year, or when contaminated, with a water jet to remove dirt from between the heatsink ribs and dust from the optical element.

Do not use aggressive chemicals and hard brushes that can damage the housing paint or the lens surface.

Caution! Do not clean the luminaire with high-pressure cleaners.

Warning! Clean the luminaire only when it is switched off.

8.3 The luminaire should be repaired by the manufacturer authorized service center only.

8.4 If the luminaires external flexible power cable is damaged it should be replaced by manufacturer employee or agent or a similar qualified person.

9 UTILIZATION

9.1 The luminaire does not contain toxic materials, as well as components and parts that require special utilization. Utilization of the luminaire is carried out in a usual way.

10 TRANSPORTATION AND STORAGE

10.1 Transportation of the luminaire in the manufacturer's packaging may be carried out by rail, road, water (except sea) and aviation (in hermetic aircraft compartments) transport, with mandatory observance of rules and requirements applicable to these types of transport. Transportation by sea transport is allowed only in special packaging.

10.2 Transportation of packed luminaires can be carried out at ambient temperature from minus 50 to 50 °C and relative humidity up to 100% at 25 °C temperature.

10.3 Placement and fixation of containers with packed luminaires in vehicles should ensure a stable position and immobilization of the container during transportation. Containers with packed luminaires must be protected from precipitation through the transportation period.

10.4 The luminaire should be stored in the manufacturer's packaging in closed, dry rooms with ambient temperature from minus 40 to 50 $^{\circ}$ C and a relative humidity not exceeding 95% at 25 $^{\circ}$ C temperature.

10.5 The storage room should be absent of aggressive impurities (acid or alkaline steam) that can cause corrosion in stored luminaires.

10.6 The height of packaged luminaires stacking must not exceed 5 layers.

10.7 The storage period is not limited.

11 ACCEPTATION CERTIFICATE

Luminaire

manufactured and accepted with obligatory observance of state standards, existing technical documentary, and claimed suitable for usage

Technological Control Department Supervisor

Surname and initials

L.S.

Date

signature

12 MANUFACTURER WARRANTY

12.1 Manufacturer guarantees the quality of the product during specified warranty period for component parts, provided that the consumer fulfills all the requirements for storage, transportation and operation of the product during specified period of time.

12.2 Warranty period of the product is 7 (seven) years from the moment of putting the product into operation, but not more than 7 (seven) years and 6 (six) months from the moment of its delivery to the consumer. Warranty period includes the in-stock and transportation period, but not more then 6 (six) month. If the product remains in-stock longer than the specified period, the warranty period is decreased for a relevant term.

12.3 The manufacturer is obliged to eliminate the identified damage or replace the defective components during the specified warranty period.

12.4 Warranty doesn't cover luminaire damages caused by:

- pulse overvoltage (lightning strike), if the luminaire was not equipped with a surge protection module, according to use terms, or if the surge protection module was not replaced in a timely manner (for luminaires with controlled surge protection module);

- voltage with characteristics different to those set in technical specification.

12.5 Luminaires, provided without a completed acceptation certificate and this warranty card, would not be accepted for reclamation.

12.6 Reclamation acts and complaint letters should be sent to the address of manufacturer-facility.

L.S.

Date of sale:_____

Supplier ______