TEST REPORT

Report #: SD-435419-IN **Report Date:** October 6th,2024

Customer **Location** **Customer Statement Info**	PAN- LIGHTING FACTORY New 2nd Industrial City - Riyadh - Saudi Arabia Mic103126-21708
Manufacturer **Location / Address** **Factory** **Location / Address**	PAN LIGHTING FACTORY New 2nd Industrial City - Riyadh - Saudi Arabia PAN LIGHTING FACTORY New 2nd Industrial City - Riyadh - Saudi Arabia
Product **Brand** **Model** **Technical specifications** **Country of Mfr.**	LED Fixed Luminaires SKIYING FB9011 100-240VAC, 50/60Hz, 100W, 6500K, 12000Lm K.S.A
Received Date **Test Start Date** **Test End Date** **Test Method**	03-09-2024 15-09-2024 07-12-2024 SASO 2902:2018

Test Results:

Result:	☑ **for registration (Confirm)**
Remarks:	**- Product meets SASO 2902: 2018 requirements#.** **- Complete Report will be issued later at the end of aging 2000hrs.** **- Start Date: 15-09-2024** **- End Date: 07-12-2024**

Authorized Signatories:

Yousef Abdul-Aziz Fallatah
(EPTL-J Technical Manager)

GCC Lab Calibration Services Company
شركة المختبر الخليجي لخدمات المعايرة
مختبر فحص الأجهزة و المنتجات
الكهربائية-جدة
Electrical Products Testing Lab-Jeddah
CR No.: 4030532978

General disclaimer:

1. Test Report relates only to the item(s) tested.
2. Test Report shall not be reproduced, except in full, without the written approval of the **GCS** Electrical Product Testing Lab Jeddah.
3. Unless requested for return, Test Item(s) are destroyed and discarded 30 days after Test Report Date.
4. Test conducted may form into unusable and dangerous item(s). **GCS** Electrical Product Testing Lab Jeddah does not assume liability resulting from the use of the returned item(s).
5. Pass - the measured value is within the acceptance limit, Fail: - the measured value is outside the acceptance limit, NA: Not Applicable, NC: Test(s) Not conducted.
6. Test report meets the requirement of ILAC-G8:09/2019 Decision Rules. Binary Statement for Simple Acceptance Rule (w = 0

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DESCRIPTION OF REFERENCES TESTED / Declared by the client	
Brand	SKIYING
Type / Model	FB9011
Lighting source:	☒ Direct ☐ Indirect
Luminaire with non- replaceable lamps	☒ Yes ☐ No
Standard 2902:	☐ LED (>12,000 Lumens) ☐ Incandescent (>12,000 Lumens) ☐ halogen (>12,000 Lumens) ☐ CFLi (>12,000 Lumens) ☐ CFLni ☐ LFL and other Fluorescent ☐ High Intensity Discharge (HID) ☐ Control gear ☒ Luminaires
Control gear:	☐ Internal ☒ External ☐ None
Product type	☐ Lamp ☒ Luminaires ☐ Ballast and Control gear
Nominal/rated voltage (V)	100-240VAC
Rated frequency (In Hz)	50/60Hz
Nominal/rated power (W)	100W
Lifetime (h)	50.000hrs
Rated luminous flux (lm)	12000 lm
Efficacy (lumen/Watt)	120 lm/W
Color temperature (K)	☒ 6500 ☐ 5000 ☐ 4000 ☐ 3000
CRI	≥80
Number of switching cycles	30000

➢ **Applicable Annexes which can be adopted for the mentioned products :**

1- ANNEX A – Regulated products in the scope of this standard
2- ANNEX D – Functionality and endurance requirements for non-directional lamps and luminaires
3- ANNEX F – Functionality requirements for directional lamps and integrated luminaires
4- ANNEX M – Energy efficiency for (integrated) luminaires

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Clause	Test Description	Analysis	Result
4	**Requirements for non-directional/directional lamps, control gears and luminaires**		
4.1	**Energy efficiency requirements**		**P**
	Lamps listed in Annex A of this Standard shall comply with the energy efficiency requirements specified in Annex C for non-directional lamps and Annex E for directional lamps.		N/A
	For Incandescent, Halogen, and CFLi with luminous flux above or equal to 12,000 lumens the tests and criteria described in SASO 2870 apply.		N/A
	For LED lamps, tests and criteria described in SASO 2870 apply.		N/A
	Energy efficiency classes and the methods of calculating the EEI for lamps are also detailed in Annex C for non-directional lamps and Annex E for directional lamps.		N/A
	Ballasts and control gears shall comply with the Energy Efficiency Requirements specified in Annex H.		N/A
	Luminaires in the scope of this standard (integrated luminaires) shall comply with energy efficiency requirements expressed in Annex M of this standard.	See annex M	P
4.2	**Functionality requirements**		**P**
	Lamps listed in Annex A of this Standard shall comply with the functionality requirements specified in Annex D (non-directional lamps) and Annex F (directional lamps).		N/A
	For Incandescent, Halogen, and CFLi with luminous flux above or equal to 12,000 lumens the tests and criteria described in SASO 2870 apply.		N/A
	For LED lamps, tests and criteria described in SASO 2870 apply.		N/A
	Integrated luminaires listed in Annex A shall comply with requirements specified in Annex D, F and M, when applicable.	See annex D , F & M	P
4.3	**Marking requirements**		**P**
	Instruction manuals supplied with products and available on website shall be:		P
	- Cautionary and/or any safety warnings for the direct user or consumer shall be in the Arabic and English language. The use of international accepted pictograms is permitted instead of verbally expressed language.	Provided	P
	- And available on a Website (English only is permitted).	Comply	P
	Lamps, ballasts and luminaires listed in Annex A of this Standard shall comply with the marking requirements specified in Annex G	Comply	P

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Clause	Test Description	Analysis	Result
	(directional lamps, non-directional lamps and luminaires) and Annex H.2 (ballasts / control gears).		
	"Special purpose" products (Annex B.1) do not need to comply with the marking requirements specified in Annex G. Instead, the following information shall be clearly and prominently indicated on their packaging and in all forms of product information accompanying the lamp when it is placed on the market:		N/A
	• Their intended purpose		N/A
	• That they are not suitable for household/commercial illumination		N/A
	Products listed in Annex B.1.2 shall fulfill the documentation and information requirements specified for them in the same Annex.		N/A
4.4	Energy efficiency label		-
	Lamps and integrated luminaires in the scope of this standard shall have a label printed directly on the individual packaging of the product.	Under registration (Not issued the EER label).	-
	Products listed in Annex B.1 and ballasts/control gears are excluded from the energy labelling requirements.		N/A
	Products listed in Annex B.2 shall have a label printed or put as a sticker directly on the individual packaging of the product.		N/A
4.5	Hazardous chemicals: Substance restrictions for lamps and control gears		P
	Products specified in Annex A and Annex B.1 and B.2 shall comply with the maximum hazardous substances limits according to Annex J.	As declared by manufacturer	P
	The useful luminous flux (Φuse) is defined in accordance with Table 15.		N/A
ANNEX F :Functionality requirements for directional lamps and integrated luminaires			**P**
	The lamp functionality requirements are outlined in Table 18 for directional LED lamps and integrated luminaires.	According to table 18	P
	For the purposes of testing the number of times the lamp can be switched on and off before failure, the switching cycle shall consist of periods comprising 1 minute on and 3 minutes off or 5 minutes on and 5 minutes off.	1min ON 3min OFF	-*
	For the purposes of testing lamp lifetime, lamp survival factor, lumen maintenance and premature failure, the standard switching cycle shall be used.		-*

Table 18: Functionality and endurance requirements for directional LED lamps and integrated luminaires

	Parameter	Requirements		
	Lamp survival factor at 6,000 h	≥ 0.90		-*
	Lumen Maintenance at 6,000 h	≥ 0.80		-*

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Clause	Test Description		Analysis	Result
	Number of switching cycles before failure	☐ ≥ 15,000 if rated lamp life ≥ 30,000 h otherwise: ☒ ≥ half the rated lamp life expressed in hours		-*
	Starting time	< 0.5 s	0.25 s	P
	Premature failure rate	≤ 5.0 % at 1,000 h		-*
	Color rendering (Ra)	☒ ≥ 80 ☐ ≥ 65 if the lamp is intended for outdoor or industrial applications	71.6	P
	Color consistency	Variation of chromaticity coordinates within a six-step MacAdam ellipse or less.		P
	Lamp displacement factor (Df) for lamps with integrated control gear and integrated luminaires	☐ P ≤ 2 W: no requirement 2 W < P ≤ 5 W: Df > 0.4 ☐ ☒ 5 W < P ≤ 25 W: Df > 0.7(1) ☐ P > 25 W: Df > 0.9(1) during one year after date of enforcement Df ≥ 0.5	0.944	P
ANNEX G :Marking requirements for non-directional and directional lamps and luminaire				P
G.1	**Information to be displayed on the lamp itself**			P
	For lamps other than high-intensity discharge lamps, the following shall be printed on the bulb with non-removable ink:			
	• Brand name		SKIYING	
	• Input voltage		100-240VAC	
	• Nominal power		100W	
	• Country of origin		K.S.A	
G.2	**Information to be visibly displayed to end-users, prior to their purchase, on the packaging and on free access websites**			
	The information in paragraphs (a) to (y) below shall be displayed on free-access websites and in any other form the manufacturer deems appropriate.		Provided	P

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Clause	Test Description	Analysis	Result
	The information in paragraphs (a) to (p) below shall be visibly displayed on the packaging if the product is intended to be displayed to the end-users.	Provided	P
	The information does not need to use the exact wording on the list below. It may be displayed in the form of graphs, drawings or symbols rather than text.		P
	a. Brand name	SKIYING	P
	b. Model number	FB9011	P
	c. Country of origin	K.S.A	P
	d. Rated voltage and rated frequency;	100-240VAC	P
	e. Rated useful luminous flux;	12000 lm	P
	f. Efficacy (lumen/Watt);	120 lm/W	P
	g. Rated power;	100W	P
	h. Rated beam angle in degrees (only for directional lamps);	Beam Angle(B): 120°	P
	i. Lamp displacement factor (only for LED lamps with integrated control gear);	>0,9	P
	j. Rated life time of the lamp in hours;	50.000hrs	P
	k. Rated Color temperature, as a value in Kelvins, expressed graphically or in words;	6500K	P
	l. Number of switching cycles before premature failure (only for LED lamps or if claimed by the manufacturer for other type of lamps);	30000	P
	m. Color rendering index (Ra);	>80	P
	n. Stating all hazardous material contained in the lamp/luminaire, as relevant;		P
	o. Statement referring to a Website - on how to clean lamp debris in case of accidental lamp breakage and disposal of lamp at the end of life, when relevant; - About actual values of the hazardous content, when relevant		P
	p. A warning if the lamp cannot be dimmed or can be dimmed only on specific dimmers; in the latter case, a list of compatible dimmers shall be also provided on the manufacturer's website		P
	Following information are optional:		

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Clause	Test Description	Analysis	Result
	q. Lamp type: directional or non-directional	Directional	P
	r. Color consistency (only for LED lamps);		P
	s. Lumen maintenance factor at the end of the nominal life;		P
	t. Warm-up time up to 60 % of the full light output (may be indicated as 'instant full light' if less than 1 second), when relevant;	'instant full light'	P
	u. If designed for optimum use in non-standard conditions (such as ambient temperature Ta ≠ 25 °C or specific thermal management is necessary), provide information on those conditions;		N/A
	v. Rated peak intensity in candela (cd), when available;		N/A
	w. An equivalence claim involving the power of a replaced lamp type may be displayed only if the lamp type is listed in Part 1 - Table 13 and if the luminous flux of the lamp in a 90° cone (□□□°) is not lower than the corresponding reference luminous flux in Part 1 - Table 13 The reference luminous flux shall be multiplied by the correction factor in Part 1 - Table 14. For LED lamps, it shall be in addition multiplied by the correction factor in Part 1 - Table 15. The intermediate values of both the luminous flux and the claimed equivalent lamp.		N/A
	x. For LED lamps, if intended for use in outdoor or industrial applications, an indication to this effect;		N/A
	y. Lamp dimensions in millimeters (length and largest diameter);	Ø=250mm & L=230mm	P
	z. Actual values of all hazardous material contained in the lamp/luminaire		N/A
ANNEX I :Energy label for lamps and integrated luminaires			
I.1	Determining the energy efficiency class		P
	The energy efficiency class for each product shall be determined as outlined in Table 6 in Annex C (non-directional lamps), as outlined in Table 17 in Annex E (directional lamps) or in Table 37 in Annex M for integrated luminaires.		P
I.2	Design and placement of the label		-
	The label is issued automatically by SASO application at the end of the registration process.		-
	Energy efficiency classes shall each be represented as follows with a fixed number of color-coded bars as outlined in Table 23 and illustrated in Figure 1, Figure 2, or Figure 3.		-
Table 23: Energy efficiency class representation			

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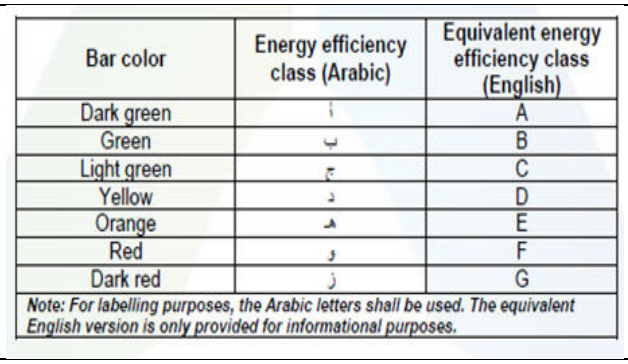
Clause	Test Description	Analysis	Result
	 Bar color / Energy efficiency class (Arabic) / Equivalent energy efficiency class (English) Dark green / أ / A Green / ب / B Light green / ج / C Yellow / د / D Orange / هـ / E Red / و / F Dark red / ز / G *Note: For labelling purposes, the Arabic letters shall be used. The equivalent English version is only provided for informational purposes.*	☐ ا / A ☐ ب / B ☐ ج / C ☐ د / D ☐ ه / E ☐ و / F ☐ ز / G	-
	The label shall be printed directly on one side of the individual packaging of the product.		-
	The label shall be (43 mm wide and 75 mm high) as in Figure 1 without alteration. If the label would cover more than 70 % of the surface area of the largest side, then the label presented in Figure 2 (43 mm wide and 45 mm high) shall be used.		-
	Individual packaging with dimensions less than (43 mm wide and 45 mm high) shall have a printed label with the design in Figure 3 (resized to fit the individual packaging) on one side. Additionally, a separate QR code will be generated by SASO registration system and shall be printed separately on the individual packaging without alteration.		-
	The label shall be printed on the most prominent part of the individual product packaging to be easily visible to the end-user.		-
I.3	**Information and values contained on the label**		-
	The fields (a), (b), (c), (d), (e), (f), (g), (h) and (i) outlined in Figures 1 - 3 (given for illustration) shall comply with the following requirements:		-
	Field (a): This field shall display the logo of the Saudi Standards, Metrology and Quality Organization (SASO).		-
	Field (b): This field shall reflect the energy efficiency class, which the product attained, based on its energy efficiency index (EEI).		-
	Field (c): This field shall have a QR code representing the main characteristics of the lamp or integrated luminaire, this may include the following items based on the data provided in the registration form (Annex O):		-
	o Manufacturer name		-
	o Model number		-
	o Country of origin		-
	o Luminous flux (lumens)		-
	o Beam angle (for directional lamps only)		-

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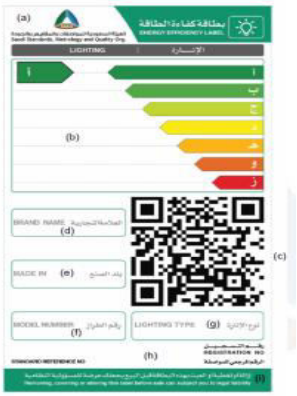
Clause	Test Description	Analysis	Result
	o Lifetime (h)		-
	o Rated power (W)		-
	o EEI (unit-less)		-
	o Efficacy (lumens/W)		-
	o Color Rendering Index (Ra)		-
	o Color temperature (K)		-
	o Annual electricity consumption (kWh/year)		-
	Field (d): this field identifies the brand name of the product.		-
	Field (e): this field identifies the country of origin		-
	Field (f) : this field identifies the model number		-
	Field (g): this field identifies the lighting type		-
	Field (h): this field identifies the registration number and the standard reference number		-
	Field (i): this field identifies the legal statement		-
Figure 1	**Label for lighting products**		-
			-
Figure 2	Alternative label for lighting products		-

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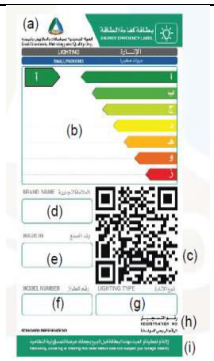
Clause	Test Description	Analysis	Result
			-
Figure 3	Alternative label for small packaging		-
			-
ANNEX J	**Hazardous chemicals: Substance restrictions for lamps & control gears**		P
	The following limits for hazardous substances apply.		P

Table 24:Maximum content limits of hazardous substances

	Descriptions	**Tolerated mcv of substance by weight in homogeneous materials**	Declared Less than	P
	Lead(Pb)	0.1%	0.1%	P
	Cadmium (Cd)	0.01%	0.01%	P
	Hexavalent chromium (Cr6+)	0.1%	0.1%	P
	Polybrominatedbiphenyls (PBB)	0.1%	0.1%	P
	Polybrominateddiphenylether (PBDE)	0.1%	0.1%	P
	Table 25 outlines exemptions to the hazardous substance limits set in this annex. Eligible products or components have no limit on the levels of the relevant hazardous substance.			P

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Clause	Test Description	Analysis	Result
ANNEX M :Energy efficiency for (integrated) luminaires			
M.1	**Types of luminaires**		P
	Definitions for the different types of luminaires are presented in Clause 3 Luminaires within the scope of this standard (integrated luminaires) are characterized as direct or indirect lighting sources depending of the beam angle of the light emission.--		P
	For information only, luminaires can be identified per type of use as expressed in Table 34		P
M.2	**Minimum Efficacy for luminaires**		P
	The minimum energy efficacy for luminaires are reported in Table 35, depending on the total power of the luminaires		P
Table 35:Minimum energy efficacy for (MEPS) Luminaires			
	Power of the luminaire / **Minimum value for efficacy**		
	Prated < 15 W / ≥ 65 Lumen/Watt		N/A
	Prated ≥ 15 W / ≥ 70 Lumen/Watt	P rated :100W , Measured : 123.58lm/W	P
M.3	**Energy Efficiency Index for luminaires (EEI)**		P
	The energy efficiency for luminaires is calculated as for the EEI for lamps of the same category (directional or non-directional) according respectively to Annex C for non-directional luminaires and E for directional luminaires, based on illuminance (Lumen) and Power deducted from the Energy Efficacy.		P
	For the calculation of the energy efficiency index (EEI) of a model, its corrected (electric) power Pcor for any control gear losses is compared with its reference power Pref (based on the luminous flux emitted).		P
	The EEI is calculated as follows and rounded to three decimal places:	EEI = Pcor / P ref =0.108	P
	Pcor is defined as:		
	- For models *without* external control gear, Pcor is the rated power (Prated).		N/A
	- For models *with* external control gear Pcor is the rated power (Prated) corrected in accordance with the corrections factors listed below:		P
	The rated power Prated of the lamps/luminaires is measured at their nominal input voltage.		N/A
	Correction factors presented in Table 36 apply to moderated the electric power of the luminaires		N/A

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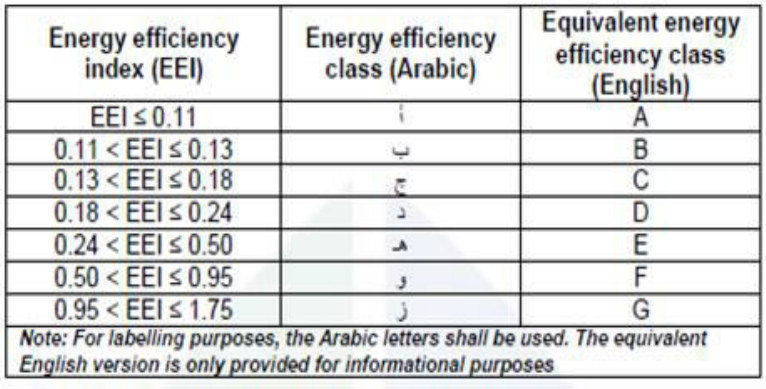
Clause	Test Description		Analysis	Result
	Correction factor cumulative with those expressed in annex C for indirect lamps and Annex E for direct lamps.			N/A
Table 36: Correction factors applicable to Power of the Luminaires				
	Rated Power of the Luminaire	**Correction factor**		N/A
	P rated ≤ 6W	Pcor = Prated x 1.17		N/A
	6 W < P rated ≤ 15 W	Pcor = Prated x 1.03		N/A
	15 W < P rated	Pcor = Prated x 0.98	Pcor :for rated 98W Pcor :for measured 95.06W	P
	Pref is defined as:			P
	- Pref is the reference power obtained from the useful luminous flux of the model (Φuse) by the following formulae:			-
	- For models with Φuse < 1300 lumen: Pref = 0.88 $\sqrt{\Phi use}$ + 0.049 x Φuse		Pref : for rated 880.92W	P
	-For models with Φuse ≥ 1300 lumen: Pref = 0.07341 x Φuse			N/A
	For non-directional lamps, the useful luminous flux (Φuse) is the total rated luminous flux (Φ).			-
M.4	**Classification of Energy Efficiency Index for (integrated) luminaires (EEI)**			P
	The energy efficiency rating of luminaires shall be determined on the basis of their energy efficiency index (EEI) as outlined in Table 37.		**A/**أ	P
Table 37: Energy efficiency classes for luminaires				P
			☒ ا / A ☐ ب / B ☐ ج / C ☐ د / D ☐ ه / E ☐ و / F ☐ ز / G	P

Energy efficiency index (EEI)	Energy efficiency class (Arabic)	Equivalent energy efficiency class (English)
EEI ≤ 0.11	أ	A
0.11 < EEI ≤ 0.13	ب	B
0.13 < EEI ≤ 0.18	ج	C
0.18 < EEI ≤ 0.24	د	D
0.24 < EEI ≤ 0.50	هـ	E
0.50 < EEI ≤ 0.95	و	F
0.95 < EEI ≤ 1.75	ز	G

Note: For labelling purposes, the Arabic letters shall be used. The equivalent English version is only provided for informational purposes

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ANNEX N – Criteria for market surveillance

The enforcer may draw a sample of batch of a minimum of twenty (20) lamps or ten (10) luminaires of the same model from the same manufacturer, where possible obtained in equal proportion from four randomly selected sources, unless specified otherwise in Table 38.
The model shall be considered to comply with the requirements laid down in this Standard if:

- The lamps in the batch are accompanied by the required and correct product information,
- All parameters listed in Table 38 are met.

Table 38: Criteria applying for market surveillance

Parameter	Procedure
Energy efficiency index[1]	Compliance: The Energy Efficiency Index (EEI) value for lamps in the scope of this Standard shall be less than or equal to the specified values in Tables 2 and 8, when calculated at both rated and average tested power and luminous flux. Furthermore, the average EEI of the sample tested should be not higher than 10% of the rated EEI, and each lamp in the sample should have an EEI value within 10% of the sample's average EEI. For Luminaires the MEPS for Energy Efficacy shall be respected for each product; furthermore, the average efficacy of the sample tested should not be lower 10% of the rated efficacy (in Lumen/W), and each luminaire in the sample should have an efficacy value within 10% of the sample's average efficacy. Non-compliance: otherwise
Lamp survival factor at 6000 h (for LED lamps only)	The test shall end • when the required number of hours is met, or • when more than two lamps fail, whichever occurs first Compliance: a maximum of two out of every 20 lamps in the test batch may fail before the required number of hours Non-compliance: otherwise
Number of switching cycles before failure	The test shall end when the required number of switching cycles is reached, or when more than one out of every 20 lamps in the test batch have reached the end of their life, whichever occurs first Compliance: at least 19 of every 20 lamps in the batch have no failure after the required number of switching cycles is reached Non-compliance: otherwise
Starting time	Compliance: the average starting time of the lamps in the test batch is not higher than the required starting time plus 10 %, and no lamp in the sample batch has a starting time longer than two times the required starting time Non-compliance: otherwise
Lamp warm-up time to 60 % Φ	Compliance: the average warm-up time of the lamps in the test batch is not higher than the required warm-up time plus 10%, and no lamp in the sample batch has a warm-up time that exceeds the required warm-up time multiplied by 1.5

[1] The tolerances for variation indicated above relate only to the verification of the measured parameters by the authorities and shall not be used by the supplier as an allowed tolerance on the values in the technical documentation to achieve a more efficient energy class.

The declared values shall not be more favorable for the supplier than the values reported in the technical documentation.

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	Non-compliance: otherwise
Premature failure rate	The test shall end • when the required number of hours is met, or • when more than one lamp fails, whichever occurs first. Compliance: a maximum of one out of every 20 lamps in the test batch fails before the required number of hours Non-compliance: otherwise
Color rendering (Ra)	Compliance: the average Ra of the lamps in the test batch is not lower than three points below the required value, and no lamp in the test batch has a Ra value that is more than 3,9 points below the required value Non-compliance: otherwise
Lumen maintenance at end of life and rated lifetime (for LED lamps only)	For these purposes, 'end of life' shall mean the point in time when only 50 % of the lamps are projected to survive or when the average lumen maintenance of the batch is projected to fall below 70 %, whichever is projected to occur first Compliance: the lumen maintenance at end of life and the lifetime values obtained by extrapolation from the lamp survival factor and from the average lumen maintenance of the lamps in the test batch at 6000 h are not lower than respectively the lumen maintenance and the rated lifetime values declared in the product information minus 10 % Non-compliance: otherwise
Equivalence claims for retrofit lamps according to Annex G	If only the equivalence claim is verified for compliance, it is sufficient to test 10 lamps, where possible obtained approximately in equal proportion from four randomly selected sources Compliance: the average results of the lamps in the test batch do not vary from the limit, threshold or declared values by more than 10 % Non-compliance: otherwise
Beam angle	Compliance: the average results of the lamps in the test batch do not vary from the declared beam angle by more than 25 % and the beam angle value of each individual lamp in the test batch does not deviate by more than 25 % of the rated value Non-compliance: otherwise
Peak intensity	Compliance: the peak intensity of each individual lamp in the test batch is not less than 75 % of the rated intensity of the model Non-compliance: otherwise
Other parameters	Compliance: the average results of the lamps in the test batch do not vary from the limit, threshold or declared values by more than 10 %. Non-compliance: otherwise

If a model within the registered family of product fails, the registration of all models under the same family of product will be automatically canceled.

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ANNEX I – Results of Measurements

Voltage/frequency: 230V, 60Hz

Sample No.	Power (Watts)	Luminous Flux (lm)	Efficacy (lm/W)	Starting Time (sec.)	Lamp Power Factor	Number of switching cycles
1	**96.44**	**12011.8**	**123.7**	**0.21**	**0.954**	**15000**
2	**97.58**	**12012.7**	**123.75**	**0.26**	**0.9**	**15000**
3	**96.9**	**12013.5**	**123.9**	**0.28**	**0.93**	**15000**
4	**97.62**	**12012.9**	**123.8**	**0.22**	**0.95**	**15000**
5	**96.78**	**12010.3**	**123.85**	**0.27**	**0.94**	**15000**
6	**98.41**	**12012.1**	**123.83**	**0.29**	**0.91**	**15000**
7	**96.8**	**12014**	**123.88**	**0.24**	**0.94**	**15000**
8	**97.54**	**12011**	**123.77**	**0.23**	**0.98**	**15000**
9	**96.48**	**12013.2**	**123.79**	**0.25**	**0.93**	**15000**
10	**96.02**	**12010.8**	**123.86**	**0.28**	**0.95**	**15000**
11	**97.08**	**12012.4**	**123.72**	**0.26**	**0.92**	**15000**
12	**97.67**	**12013.6**	**123.81**	**0.24**	**0.95**	**15000**
13	**96.59**	**12011.2**	**123.87**	**0.26**	**0.9**	**15000**
14	**97.56**	**12014.5**	**123.74**	**0.28**	**0.95**	**15000**
15	**97.96**	**12012.6**	**123.89**	**0.23**	**0.93**	**15000**
16	**97**	**12010.9**	**123.76**	**0.21**	**0.91**	**15000**
17	**97.24**	**12011.7**	**12378**	**0.25**	**0.96**	**15000**
18	**97.07**	**12013.3**	**123.82**	**0.28**	**0.94**	**15000**
19	**97.76**	**12012**	**123.84**	**0.26**	**0.92**	**15000**
20	**97.51**	**12014.1**	**123.73**	**0.25**	**0.87**	**15000**
Average	**97.20**	**12012.43**	**123.58**	**0.25**	**0.93**	**15000**

Limits in Table 38

Rated Power Max: 110%, **2-** Luminous flux Min: 90%

Limits in Table 35

Prated < 15 W = ≥ 65 Lumen/Watt, Prated ≥ 15 W = ≥ 70 Lumen/Watt

Limits in Table 18

1- Starting time<0.5s, **5-** lamp power factor 2 W < P ≤ 5 W: Df ≥ 0.4, 5 W <, P ≤ 25 W: Df ≥ 0.7, P > 25 W: Df ≥ 0.9

TEST REPORT

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Sample No.	Lumen Maintenance & Lamp survival factor					Ra	CCT	Beam angle
	Initial	1000h	2000h	Survival at 1000h (%)	Survival at 2000h (%)			
1	-*	-*	-*	-*	-*	**71.5**	**6568**	**92.4**
2	-*	-*	-*	-*	-*	**71.7**	**6568**	**92.6**
3	-*	-*	-*	-*	-*	**71.6**	**6568**	**92.5**
4	-*	-*	-*	-*	-*	**71.7**	**6568**	**92.6**
5	-*	-*	-*	-*	-*	**71.7**	**6568**	**92.5**
6	-*	-*	-*	-*	-*	**71.6**	**6568**	**92.5**
7	-*	-*	-*	-*	-*	**71.6**	**6568**	**92.5**
8	-*	-*	-*	-*	-*	**71.6**	**6568**	**92.5**
9	-*	-*	-*	-*	-*	**71.6**	**6568**	**92.5**
10	-*	-*	-*	-*	-*	**71.6**	**6568**	**92.5**
11	-*	-*	-*	-*	-*	**71.5**	**6569**	**92.4**
12	-*	-*	-*	-*	-*	**71.7**	**6567**	**92.6**
13	-*	-*	-*	-*	-*	**71.6**	**6569**	**92.5**
14	-*	-*	-*	-*	-*	**71.6**	**6567**	**92.5**
15	-*	-*	-*	-*	-*	**71.6**	**6569**	**92.5**
16	-*	-*	-*	-*	-*	**71.7**	**6567**	**92.6**
17	-*	-*	-*	-*	-*	**71.5**	**6569**	**92.4**
18	-*	-*	-*	-*	-*	**71.7**	**6567**	**92.6**
19	-*	-*	-*	-*	-*	**71.5**	**6569**	**92.4**
20	-*	-*	-*	-*	-*	**71.7**	**6567**	**92.6**
Average	-*	-*	-*	-*	-*	**71.6**	**6568**	**92.5**

Limits in Table 38

CCT Max: 110%

Limits in Table 18

Color rendering (Ra)

☒ ≥ 80 if the lamp is intended for Indoor Use

☒ ≥ 65 if the lamp is intended for outdoor or industrial applications

TEST REPORT

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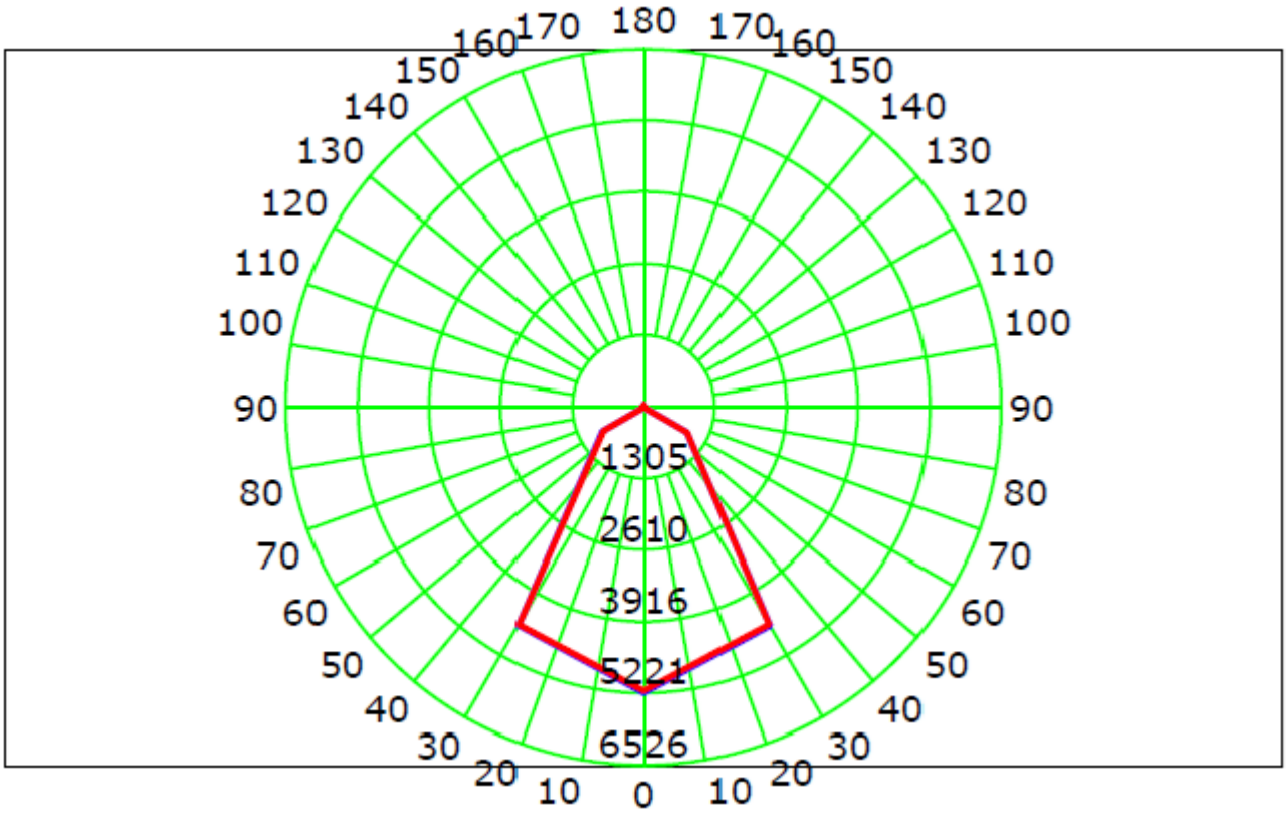
Lumen Maintenance

Life time	Useful Luminous flux (in lumens)	Lumen maintenance factor
0 h	-*	-*
1000 h	-*	-*
2000 h	-*	-*

Survival factor

Life time	Survival factor
1000 h	-*
2000 h	-*

Light Distribution curve



TEST REPORT

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Chromaticity Measurements

Color Properties

Chromaticity Coordinate: x=0.3105 y=0.3360 u(u')=0.1937 v=0.3145 v'=0.4717
Correlated Color Temperature: Tc=6568K (duv=0.00783)

Measurement Flux: 12012.3lm, PAR: 36.167W, PPF: 161.278umol/s

Peak Wavelength: 447nm
Dominant Wavelength: 493.2nm
EEI: 0.11

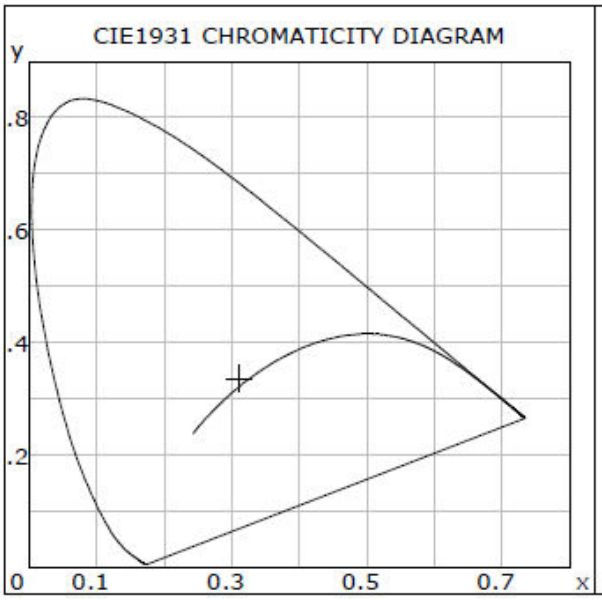
Half Bandwidth: 18.9nm
Color Purity: 0.075
Energy Efficiency Class: A (SASO 2902:2018)

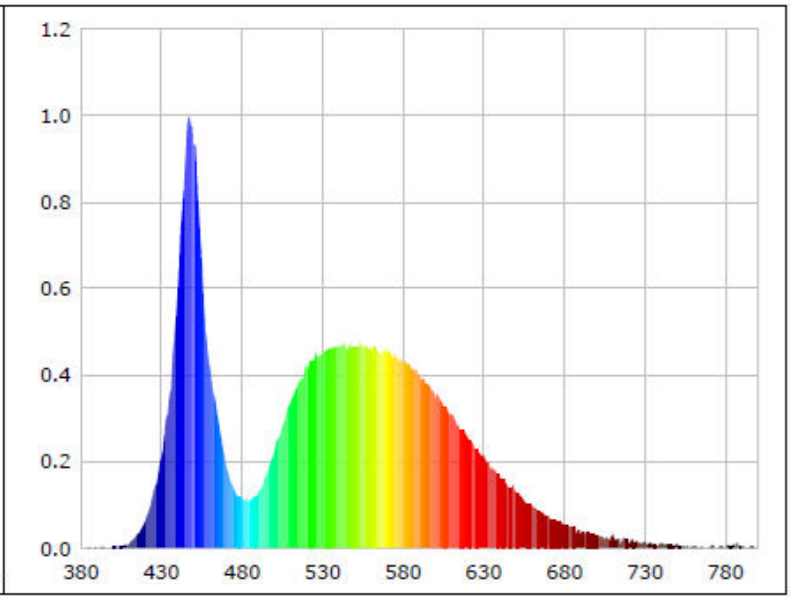
Color Ratio: R=0.115 G=0.845 B=0.040

TM30: Rf=70, Rg=92

Color Render Index: Ra= 71.6
R1 =68.1 R2 =74.8 R3 =79.8 R4 =72.5 R5 =70.3 R6 =67.5 R7 =81.4 R8 =58.2
R9 =-40.3 R10=40.7 R11=70.6 R12=42.5 R13=68.9 R14=88.8 R15=62.0

Color Quality Scale: Qa= 72.3 Qf= 71.8 Qp= 74.3 Qg= 87.8
Q1 =80.0 Q2 =94.4 Q3 =67.0 Q4 =61.8 Q5 =70.9 Q6 =73.6 Q7 =77.3 Q8 =85.6
Q9 =91.8 Q10=75.1 Q11=70.5 Q12=71.3 Q13=72.5 Q14=56.2 Q15=65.8





TEST REPORT

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ANNEX I – Energy Efficiency Class

- Energy Efficiency Class of the tested item (according to SASO 2902:2018):

The energy efficiency class of the lamp has been calculated based on the rated values:

According to rated value:

	Model	Calculated	Class
EEI Energy Efficiency Index (EEI) :	**FB9011**	**0.11**	☒ **A/ أ** □ **B/ ب** □ **C/ ج** □ **D/ د** □ **E/ هـ** □ **F/ و** □ **G/ ز**

According to rated value:

Energy Efficiency Class of the bulb:	EEI for indirect lamps	EEI for direct lamps
■ Class A	EEI≤0,11	EEI≤0,11
□Class B	0,11<EEI≤0,13	0,11<EEI≤0,13
□ Class C	0,13<EEI≤0,18	0,13<EEI≤0,18
□ Class D	0,19<EEI≤0,24	0,19<EEI≤0,24
□ Class E	0,24<EEI≤0,50	0,24<EEI≤0,50
□ Class F	0,50<EEI≤0,95	0,50<EEI≤0,95
□ Class G	0,95<EEI≤1,75	0,95<EEI≤1,75

According to measured value:

	Model	Calculated	Limit	Result
Energy Efficiency Index (EEI) :	**FB9011**	**0.11**	**0.11**	**Pass**

TEST REPORT

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Product Images:

Overview	Marking
	

- END OF TEST REPORT -

GCC Lab Calibration Services Company
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