



TÜV NORD China

—— PV Business 光伏组件、部件、储能、系统

光伏建筑一体化产品（BIPV）认证评估方案

演讲人：陆元元

公司介绍

T: Technischer Ü: Überwachungs V: Verein



公司描述

TÜV NORD 成立逾150年，作为德国最具公信力的技术监督协会（TÜV）的成员之一。全世界已有超过十万多家一流企业获得TÜV认证，是德国最大的提供技术服务的集团之一，并在德国北部居于首位，是全球十大认证机构之一。

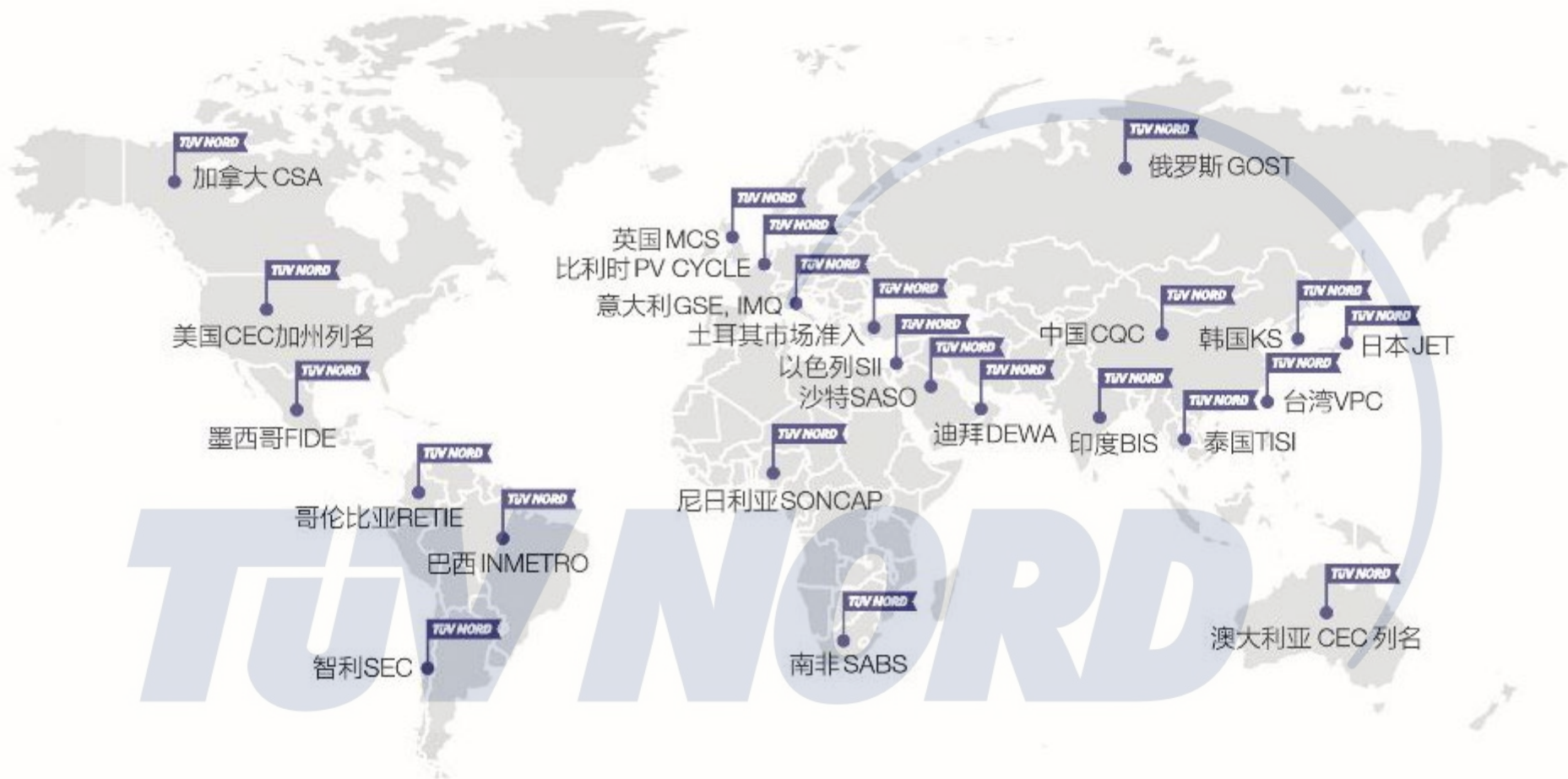
专业技术、中立、独立 - TÜV 认证在客户心目中赢得了严谨、负责的美誉。

TÜV NORD的总部在德国的**汉诺威**；国际业务总部在鲁尔Ruhr工业区—埃森市

TÜV NORD



Our World - Never Stop Walking





国家认证机构NCB - TÜV NORD CERT




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NCB TÜV NORD CERT GmbH

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National Certification Body	
	TÜV NORD CERT GmbH Langemarckstraße 20 DE-D-45141 Essen Germany TEL: +49 201 825 2054 FAX: +49 201 825 3290
Website	http://www.tuev-nord-cert.de
Acceptance date	2007-06-19
Accredited by	
IECEE Certificate	

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Membership	
	
Reporting Member Body	
Deutsches Komitee der IEC	 Germany

测试实验室委员会 (CTL)

Committee of Testing Laboratories (CTL)


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Working Groups & Task Forces > CTL ETF 09

Title / Description

CTL ETF 09
CTL Expert Task Force 09 "Photovoltaics"

Convenor

 **Mr Ji Liang**
UL (US)

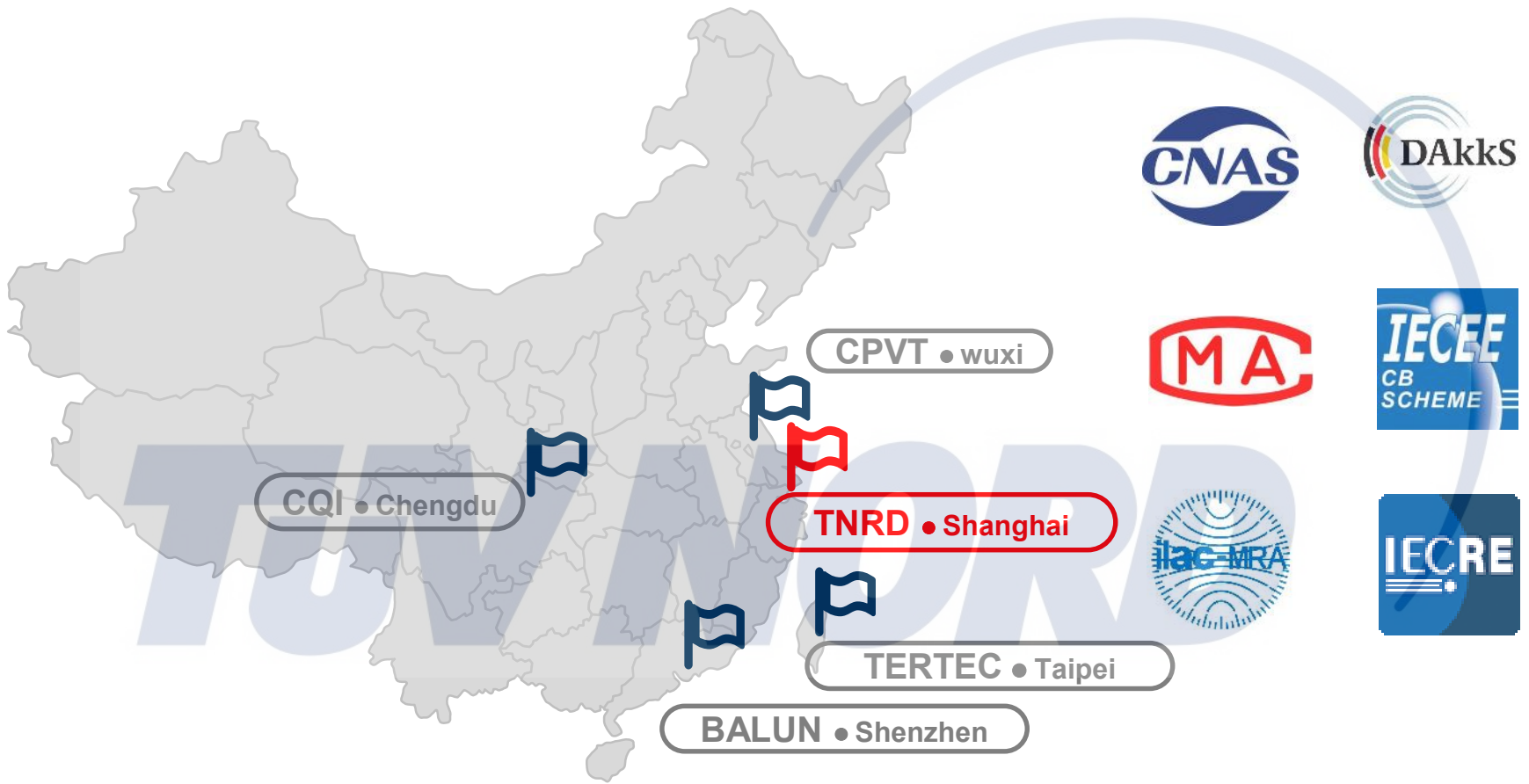
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Mr Guo Ze	CSA Group
Mr Inoue Takamitsu	Japan Electrical Safety and Environment Technology Laboratories - JET Tokyo
Mr Jäckel Bengt	UL International Germany GmbH
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Mr Ye Grady	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
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- CTL决议
- 测试设备清单
- CB报告模板
- PTPs

测试实验室 - CB实验室 (CBTL)

TESTING LABORATORIES



目击实验室

CTF



CTF3

服务理念

SERVICE CONCEPT

■
对口服务

■
本土发证

■
缩短周期

■
一检多证

固定人员

一名项目工程师
一个技术工程师
一名商务

本土签证官

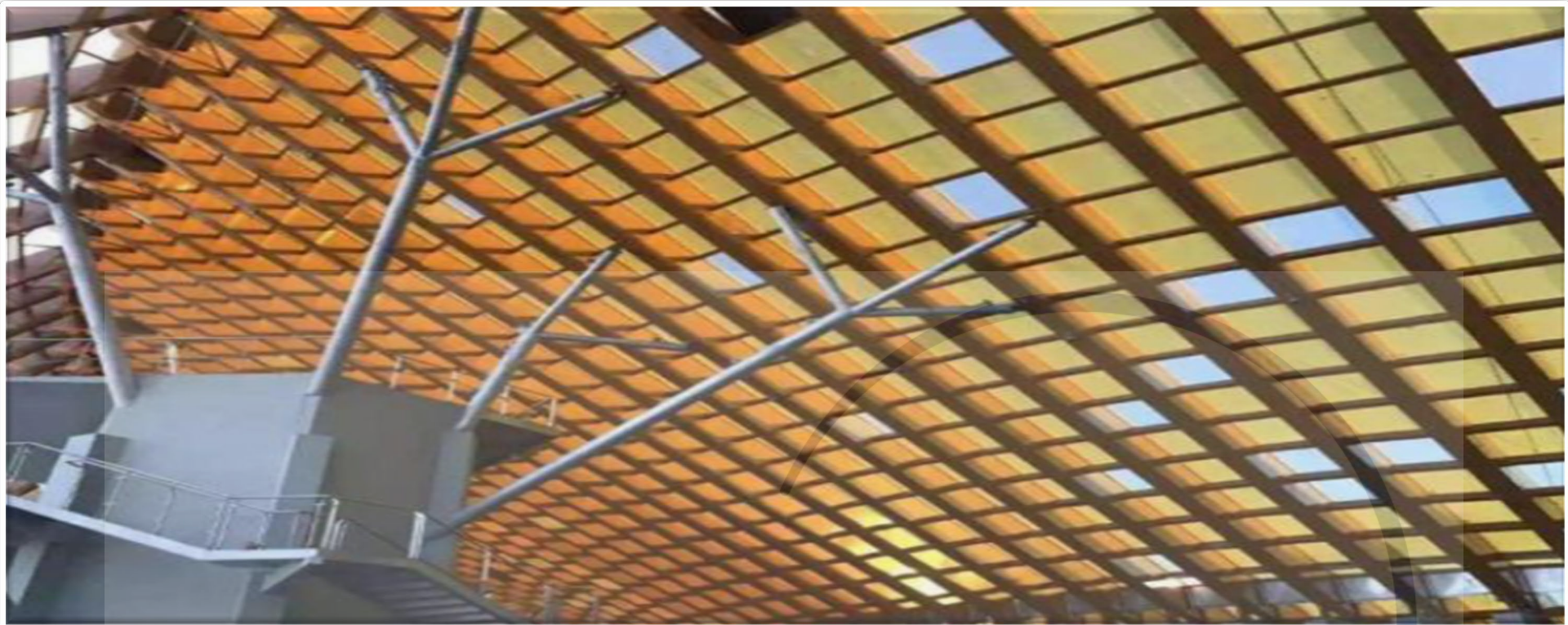
上海4名签证官
一天签发证书
半天签发声明信

本土实验室

最高优先级别
自有实验室
超大测试容量

实战经验

CQC认证
JET认证
BIS认证



TUV NORD

BIPV PRODUCTS

IEC 63092-1:2020 Building integrated photovoltaic modules



IEC 63092-2:2020 Building integrated photovoltaic systems

ISO/TS 18178:2018 Laminated solar photovoltaic glass for use in buildings

ISO/DTS 21486 Glass in building - Retesting substrate for laminated solar photovoltaic glass for use in buildings



EN 50583-1:2016 Photovoltaics in buildings BIPV modules

EN 50583-2:2016 Photovoltaics in buildings BIPV system

MCS 017:2019 Bespoke Building Integrated Photovoltaic Products



GB 29551:2013 建筑用太阳能光伏夹层玻璃

GB 29759:2013 建筑用太阳能光伏中空玻璃

JG/T 482:2015 建筑用光伏遮阳构件通用技术条件

JG/T 492:2016 建筑用光伏构件通用技术标准

CSTM 建筑用晶体硅光伏屋面瓦



UL 7103:2020 Outline for Investigation for Building-Integrated Photovoltaic Roof Coverings

Australia Performance Requirements extracted from the National Construction Code

01

IEC 63092

TUV NORD

BIPV RELATED STANDARD - IEC 63092

BIPV相关标准 - IEC 63092

- This part of IEC 63092 specifies BIPV (building-integrated photovoltaic) module requirements while IEC 63092-2 specifies BIPV system requirements. This document does not apply to concentrating photovoltaic modules.

IEC 63092-1规定了BIPV组件的要求，而IEC 63092-2规定了BIPV系统的要求。
本标准不适用于聚光光伏组件。

- Both parts specify building requirements and the applicable electrotechnical requirements

标准的两部分都规定了建筑要求和适用的电气要求。

- For some applications, national standards (or regulations) for building products may also apply in individual countries, which are not explicitly referenced herein and for which harmonized International Standards are not yet available.

对于某些应用，建筑产品的国家标准(或法规)可能也适用于个别国家，这些国家在本文中并没有明确引用，并且还没有统一的国际标准。

BIPV MODULE

■ Building-integrated photovoltaic module - BIPV module

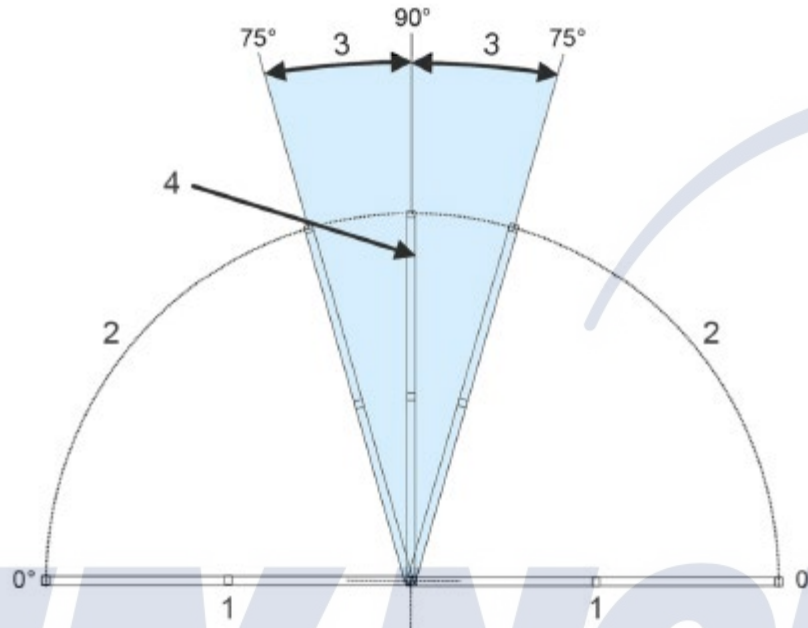
The building envelope functions shall be, depending on the application, one or more of the following 作为建筑围护结构，必须满足以下一项或多项功能：

- a) Mechanical rigidity or structural integrity 机械刚性或结构完整性
- b) Primary weather impact protection: rain, snow, wind, hail 主要天气影响防护：雨、雪、风、雹
- c) Shading, daylighting, thermal insulation 遮阳、采光、保温
- d) Fire protection 消防/防火
- e) Noise protection 噪音保护
- f) Separation between indoor and outdoor environments 室内外环境隔离
- g) Security, shelter or safety 保密、保护或安全

NOTE: If a BIPV module is uninstalled, it would have to be replaced by an appropriate building product. 如果BIPV拆除，则必须用合适的建筑产品替换

SLOPING AND NON-SLOPING MODULE

倾斜与非倾斜组件



1 horizontal module 水平安装组件

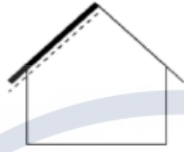




2 angle of module considered to be sloping (including horizontal) 倾斜角度组件

3 angle of module considered to be non-sloping 非倾斜角度组件

4 vertical module 垂直安装组件

APPLICATION CATEGORIES

应用类别

Category A	Sloping, roof-integrated, not accessible from within the building The BIPV modules are installed at a tilt angle between 0° and 75° from the horizontal plane [0°,75°), (see Figure 1), with another building product installed underneath (see Note).	
Category B	Sloping, roof-integrated, accessible from within the building The BIPV modules are installed at a tilt angle between 0° and 75° from the horizontal plane [0°,75°), (see Figure 1).	
Category C	Non-sloping (vertically) envelope-integrated, not accessible from within the building The BIPV modules are installed at a tilt angle between 75° and 90° from the horizontal plane [75°,90°], (see Figure 1) with another building product installed behind (see Note).	
Category D	Non-sloping (vertically), envelope-integrated, accessible from within the building The BIPV modules are installed at a tilt angle between 75° and 90° from the horizontal plane [75°,90°], (see Figure 1).	
Category E	Externally-integrated, accessible or not accessible from within the building The BIPV modules are installed to form an additional functional layer (as defined in 3.1) exterior to its envelope (e.g. balcony balustrades, shutters, awnings, louvers, brise soleil, etc.).	
<p>NOTE A BIPV module is considered to be "not accessible" when another building product (represented by a dashed line in the pictograms) is present, which among other functions prevents:</p> <ul style="list-style-type: none"> a) the interior surface of the module from being touched, and b) large pieces (in case of breakage) falling onto adjacent accessible areas within the building. 		

A类：倾斜，屋顶一体化，室内不可触及

B类：倾斜，屋顶一体化，室内可触及

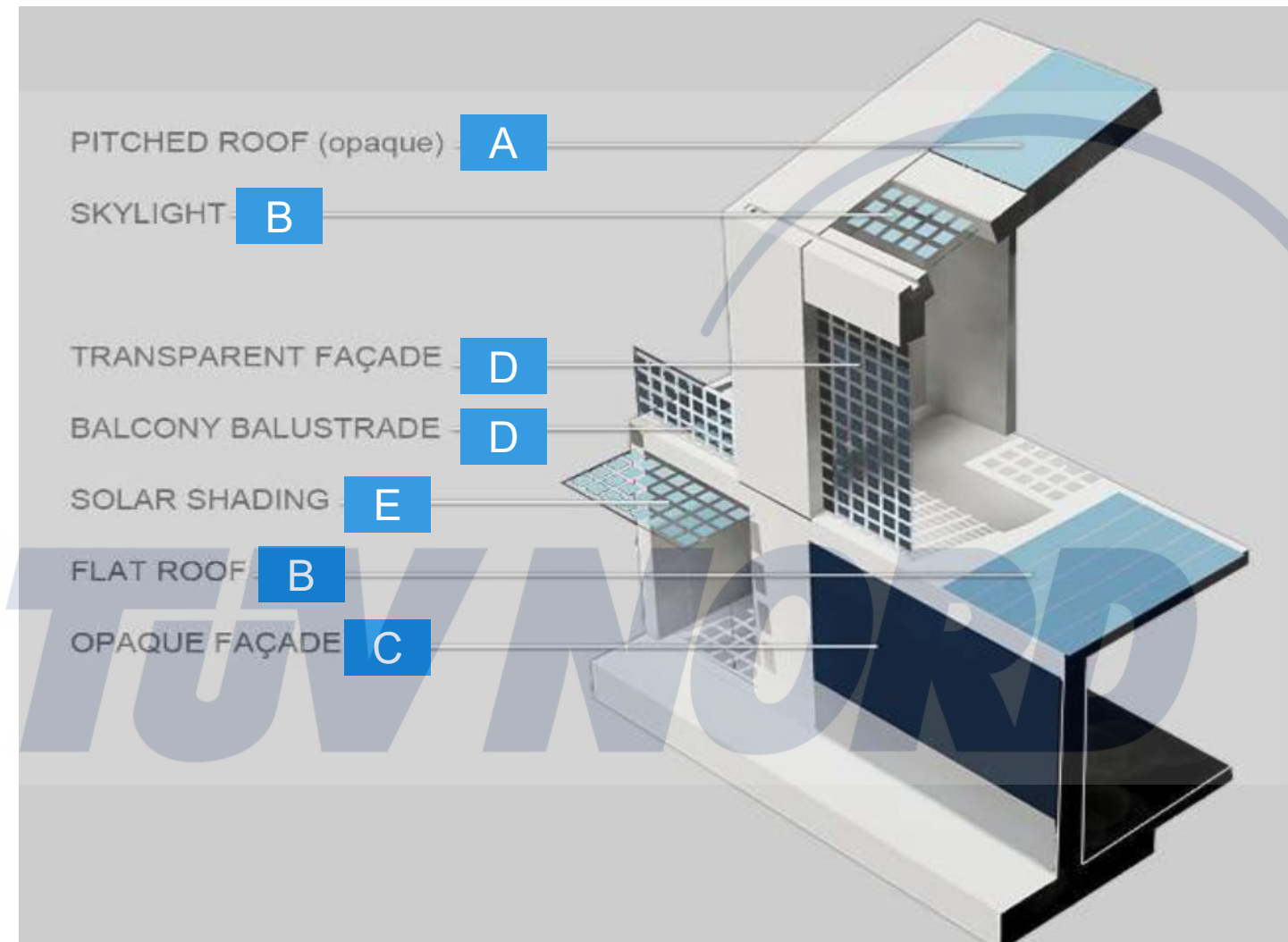
C类：非倾斜，建筑围挡集成，室内不可触及

D类：非倾斜，建筑围挡集成，室内可触及

E类：建筑附件一体化，室内可触及或不可触及

APPLICATION CATEGORIES

应用类别

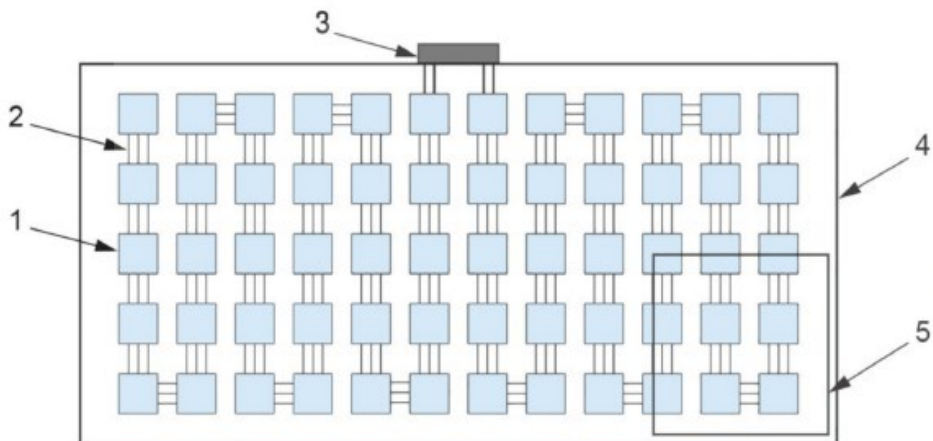


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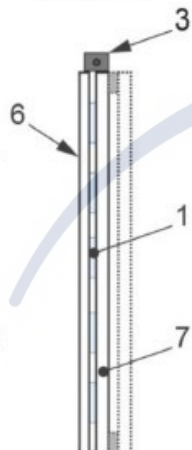
OPTICALLY REPRESENTATIVE AREA OF THE MODULE

组件光学代表区域

FRONT VIEW



SIDE VIEW



1 PV cell or thin film 电池

2 interconnection 内部导线

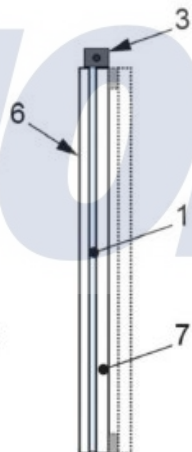
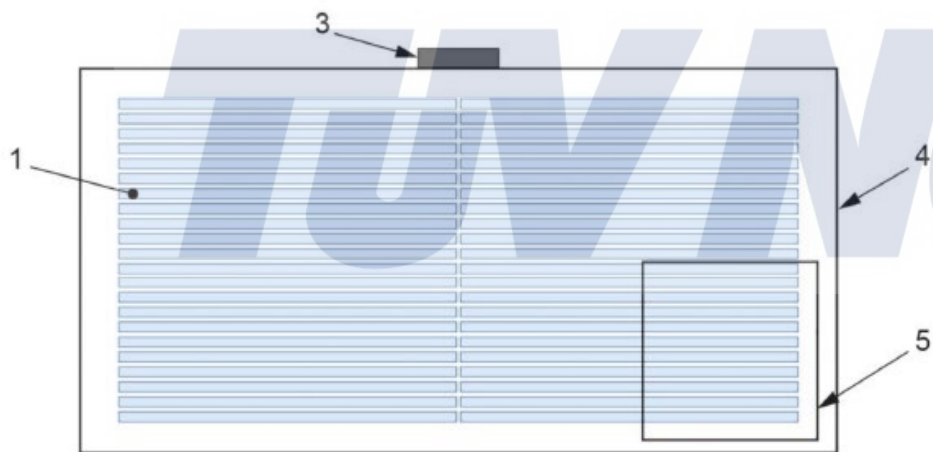
3 junction box 接线盒

4 perimeter of total module area
组件整体区域

5 optically representative area of
the module 组件光学代表区域

6 frontsheet 前板

7 backsheet 背板



OPTICALLY REPRESENTATIVE AREA OF THE MODULE

组件光学代表区域

- selected surface area of the module that includes all the components of the module which have a significant effect on its optical properties and g value.

所选模块表面积，包括对其光学特性和g值有显著影响的模块的所有组件。

- The ratio of electrically active area (area covered by PV cells and interconnectors) to electrically inactive area within the optically representative area should not differ by more than 5 % from the ratio of the total electrically active area to the total electrically inactive area for the complete module.

电活性区域(即光伏电池和内部导线所覆盖的面积)与非电活性区域的比率，光学代表区域内与总区域的比率相差不超过5%。

- The figure of 5 % was determined to result in an error of 3 % or less in the g value for BIPV modules consisting of crystalline silicon PV cells spaced over a light-transmitting medium (e.g. glass).

- 晶硅电池和透光介质的组成的BIPV组件，5%的比例对应g值误差在3%或更小。

- The g value refers to the solar heat gain coefficient (SHGC) as defined in ISO 19467.

- g值是指ISO 19467中定义的阳光得热系数(SHGC)。

REQUIREMENTS FOR PRODUCTS WITH AT LEAST ONE GLASS PANE 单玻或双玻组件要求

Clause	Application category based on Table 1	A	B	C	D	E
5.1	Electrotechnical requirements	IEC 61215-1				
		IEC 61215-1-1				
		IEC 61215-2				
		IEC 61730-1				
		IEC 61730-2				
		IEC TS 62915				
5.2.1	Building-related requirements	Withstand mechanical loads, MST34 ML or local nation building code				
5.2.2.2	Mechanical resistance and stability	IEC TS 63126 (if 98 th -Percentile Temperature is less than 70°C)				
		Clause A.2 (if 98 th -Percentile Temperature is less than 70°C)				
		ISO 12543-2 (only safety laminated glass)				
		ISO 12543-3 (only laminated glass)				
		ISO 12543-4				
5.2.2.3	Safety in case in fire	UL 790 or local nation building code				
5.2.2.4	Hygiene, health and the environment	N/A				
5.2.2.5	Safety and accessibility in use	ISO 29584				
		ISO 28278-1 (if structure sealant glazing)				
5.2.2.6	Protection against noise	ISO 16940				
		ISO 22897				
5.2.2.7	Energy economy and heat retention	ISO 9050 and/or ISO 15099				
		ISO 10291 and/or ISO 10292 and/or ISO 10293				N/A
		N/A		ISO 19467		ISO 52022-1 ISO 52022-3
5.2.2.8	Sustainable use of natural resources	N/A				

REQUIREMENTS FOR PRODUCTS WITHOUT GLASS PANES 无玻璃组件要求

Basic requirements	Application category based on Table 1				
	A	B	C	D	E
Mechanical resistance and stability	National, regional or local codes, or standards IEC 61215-1 and IEC 61215-2 (if relevant) IEC 61730-1, IEC 61730-2 IEC TS 63126 (if operating under high temperatures)				
Safety in case in fire	National, regional or local codes				
Hygiene, health and the environment	National, regional or local codes, or standards				
Safety and accessibility in use	National, regional or local codes, or standards				
Protection against noise	No requirements are specified				
Energy economy and heat retention	No requirements are specified				
Sustainable use of natural resources	National, regional or local codes				



IEC TS 63126

Guidelines for qualifying PV modules, components and materials for operation at high temperatures

高温下运行的光伏组件、零部件及材料认可导则

IEC TS 63126 OPERATION AT HIGHER TEMPERATURE

高温下运行的光伏组件、零部件及材料认可导则

- Suitable to roof-parallel or building-integrated roof top applications in climates with local environmental temperatures that exceed 40 °C.

适用于光伏组件安装地的环境温度超过40°C的平行屋顶或BIPV应用

- Note that it is not necessarily cost effective for module materials to comply with Level 1 or Level 2 requirements defined in this document unless the module temperature is expected to exceed 70 °C at the 98th percentile.

只有当组件实际运行温度的第98分位数超过70°C的时候，要求组件及材料的等级达到L1或者L2才具有意义。

- Temperature Level 1 and Temperature Level 2

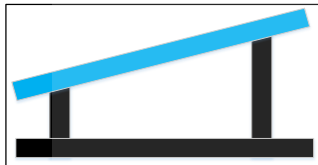
- L1: $T_{98th} \leq 80 \text{ °C}$

- L2: $T_{98th} \leq 90 \text{ °C}$

DETERMINATION OF TEMPERATURE LEVEL

温度等级的确定

Modelling



Open
 T_{gg} - open

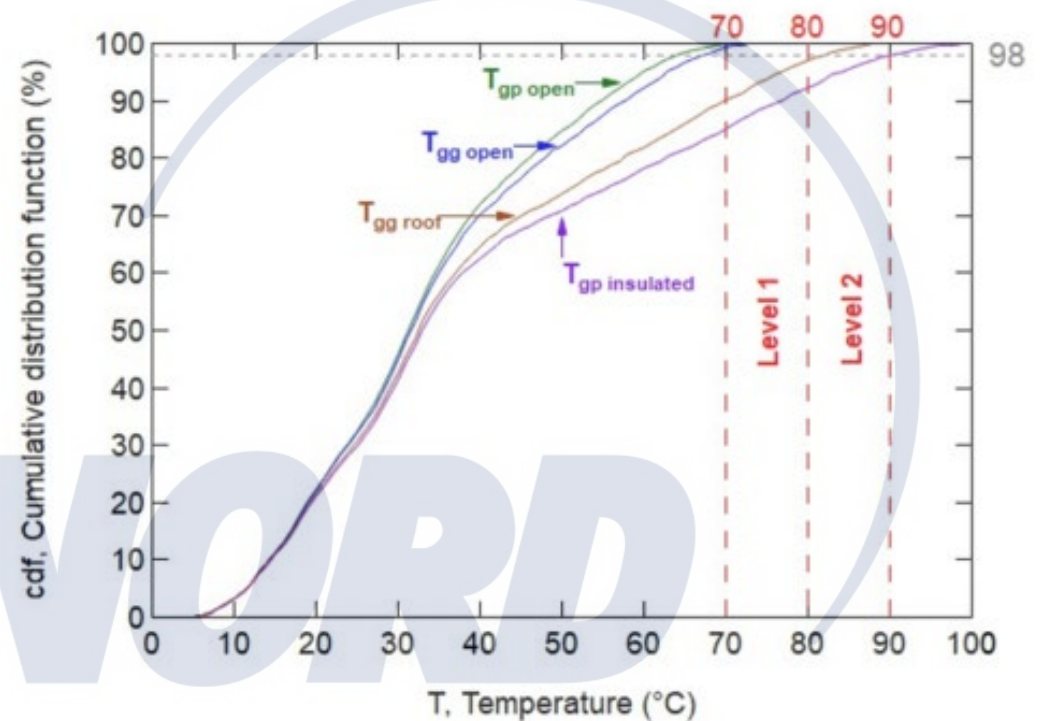


Roof
 T_{gg} - roof



Insulated
 T_{gp} - insulated
such as BIPV

98th-Percentile Temperatures (T_{98th})



CDF of module temperature for Riyadh Saudi Arabia

DETERMINATION OF TEMPERATURE LEVEL

温度等级的确定

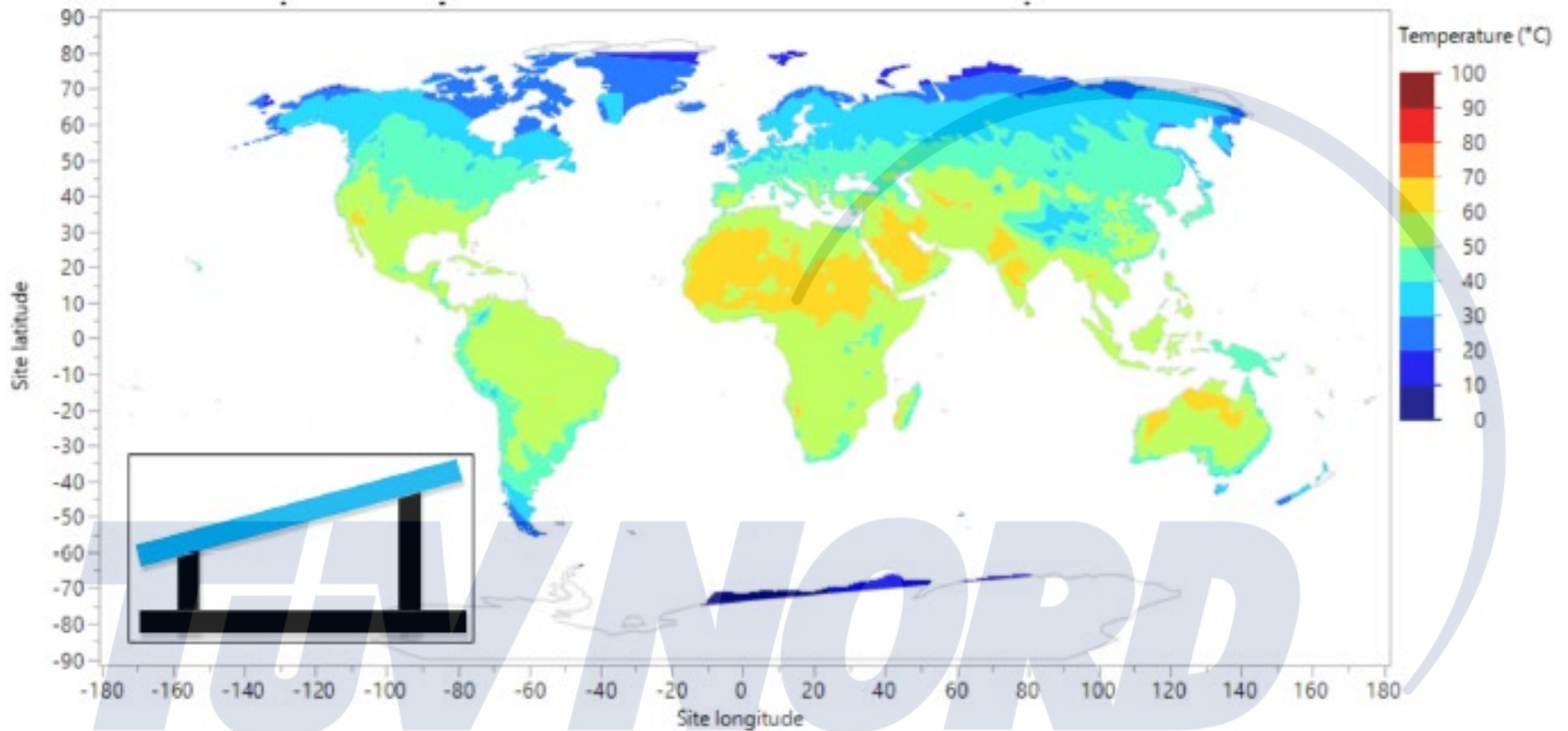


Figure A.3 – 98th-percentile temperature for an open-rack, or thermally unrestricted, glass superstrate, polymer backsheet module

DETERMINATION OF TEMPERATURE LEVEL

温度等级的确定

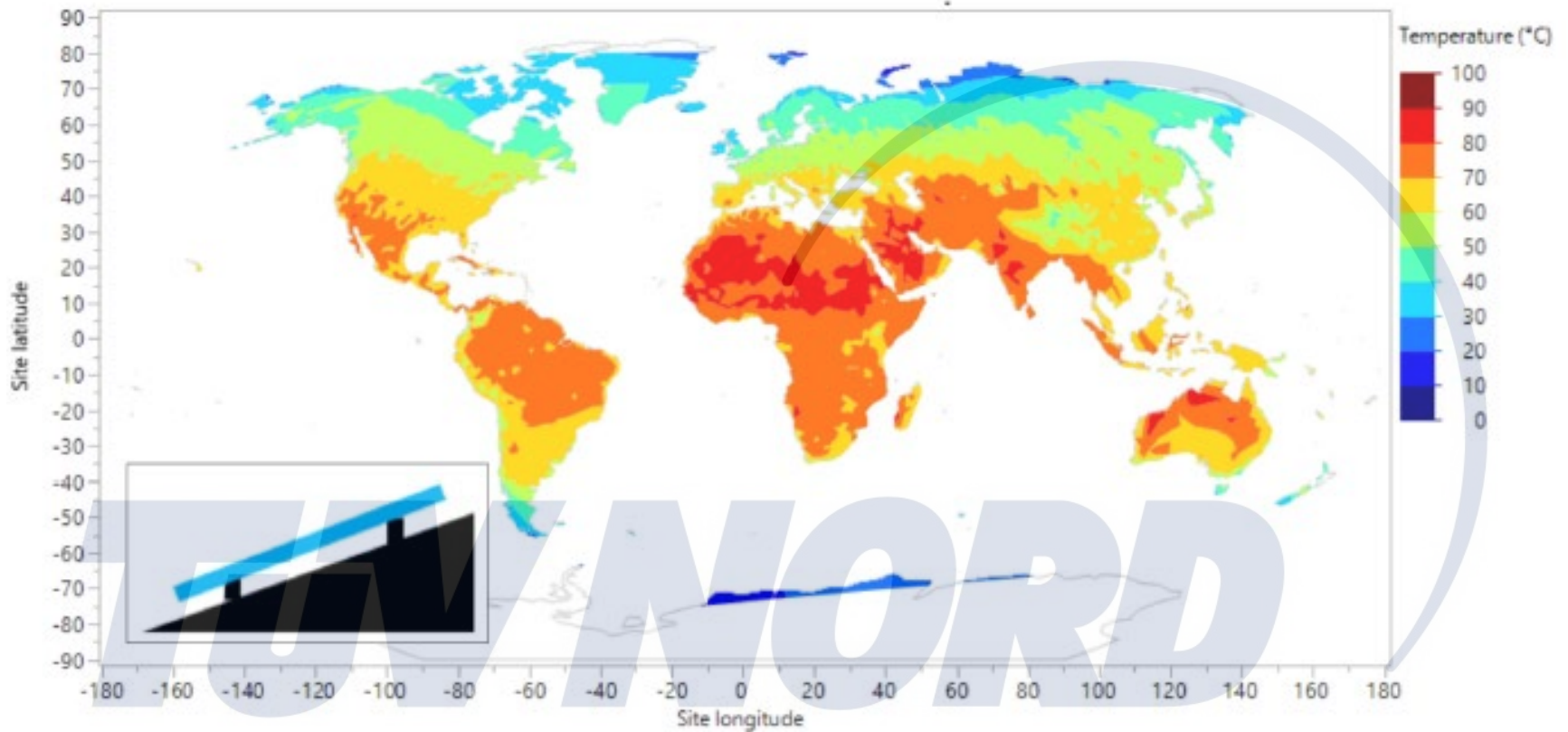


Figure A.4 – 98th-percentile temperature for a close-roof mounted glass superstrate, polymer backsheet module

DETERMINATION OF TEMPERATURE LEVEL

温度等级的确定

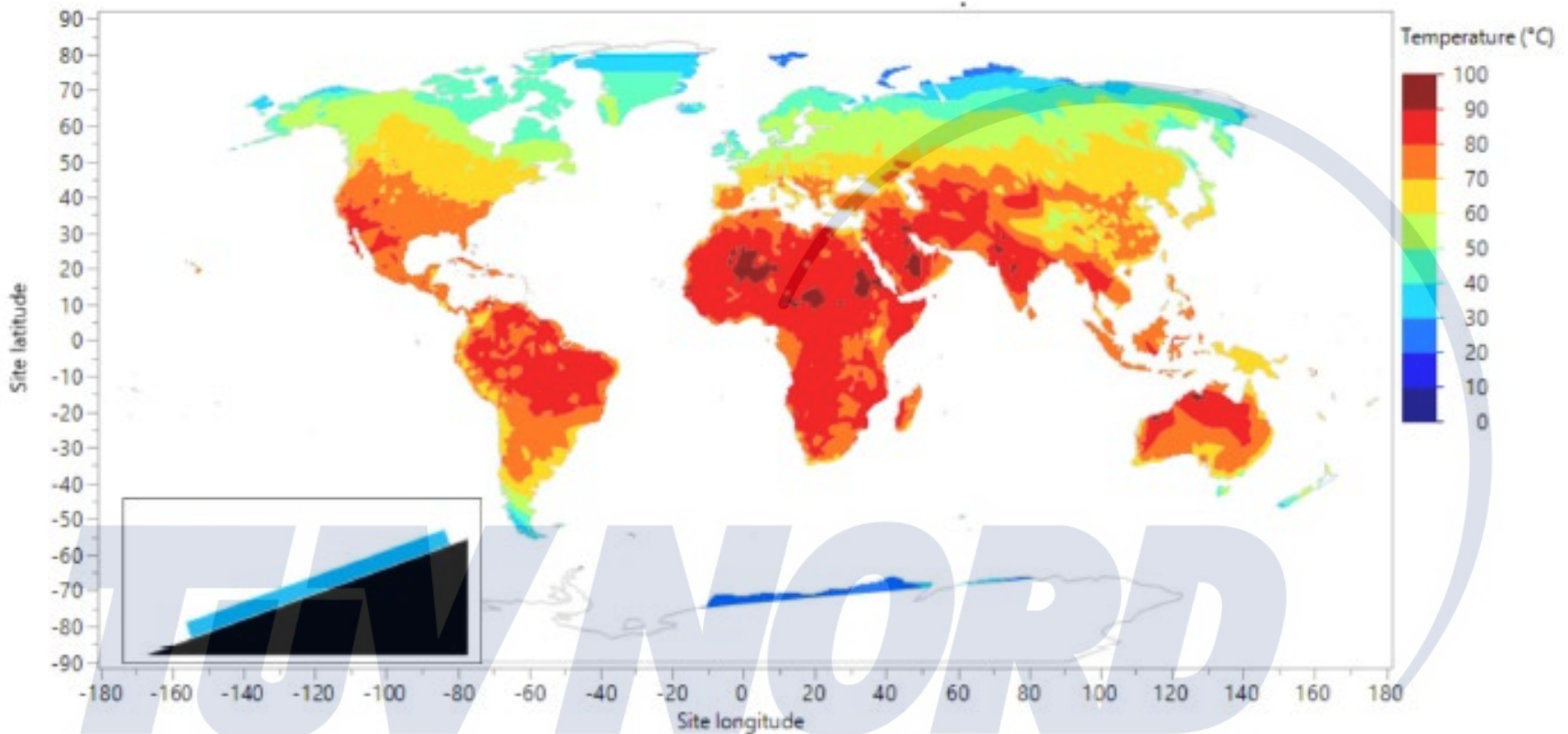


Figure A.5 – 98th-percentile temperature for insulated-back glass superstrate, polymer backsheet module

IEC TS 63126 OPERATION AT HIGHER TEMPERATURE

高温下运行的光伏组件、零部件及材料认可导则

Standard	Test Ref	Test Name	Original Requirement	Proposal - Level 1	Proposal - Level 2	
			$T_{98\%} = 70\text{ °C}$ or less	$T_{98\%} > 70\text{ °C}$ to $\leq 80\text{ °C}$	$T_{98\%} > 80\text{ °C}$ to $\leq 90\text{ °C}$	
module level tests						
IEC 61215	MQT 09	Hot-spot endurance test	$(50 \pm 10)\text{ °C}$	$+10\text{ °C}$, $(60 \pm 10)\text{ °C}$	$+20\text{ °C}$, $(70 \pm 10)\text{ °C}$	
	MQT 10	UV preconditioning	$(60 \pm 5)\text{ °C}$	$+10\text{ °C}$, $(70 \pm 5)\text{ °C}$	$+20\text{ °C}$, $(80 \pm 5)\text{ °C}$	
	MQT 11	Thermal cycling test	$(85 \pm 2)\text{ °C}$	$+10\text{ °C}$, $(95 \pm 2)\text{ °C}$	$+20\text{ °C}$, $(105 \pm 2)\text{ °C}$	
	MQT 18	Bypass diode testing chamber	Part 1	$(75 \pm 2)\text{ °C}$	$+15\text{ °C}$, $(90 \pm 2)\text{ °C}$	$+25\text{ °C}$, $(100 \pm 2)\text{ °C}$
			Part 2	I_{sc}	$1,15 * I_{sc}$ for diode T	$1,15 * I_{sc}$ for diode T
			$1,25 * I_{sc}$	$1,4 * I_{sc}$ for stress	$1,4 * I_{sc}$ for stress	
IEC 61730		RTI/RTE/TI	min RTI 90 °C	min RTI 100 °C	min RTI 110 °C	
	MST 22	Hot spot endurance	$(50 \pm 10)\text{ °C}$	$+10\text{ °C}$, $(60 \pm 10)\text{ °C}$	$+20\text{ °C}$, $(70 \pm 10)\text{ °C}$	
	MST 37	Material creep test	105 °C	no change	110 °C	
	MST 51	Thermal cycle	$(85 \pm 2)\text{ °C}$	$+10\text{ °C}$, $(95 \pm 2)\text{ °C}$	$+20\text{ °C}$, $(105 \pm 2)\text{ °C}$	
	MST 54	UV test	$(60 \pm 5)\text{ °C}$	$+10\text{ °C}$, $(70 \pm 5)\text{ °C}$	$+20\text{ °C}$, $(80 \pm 5)\text{ °C}$	
	MST 56	Dry heat conditioning	105 °C	no change	110 °C	
component level tests						
IEC 62788-1-7 (encapsulant, performance)	8	Optical durability encapsulants	IEC TS 62788-7-2 (A3 cond.)	IEC TS 62788-7-2 (A4 cond.)	IEC TS 62788-7-2 (A5 cond.)	
IEC TS 62788-2* (backsheet and frontsheet safety)	4.10.3	Weathering (UV) ageing test	IEC TS 62788-7-2 (A3 cond.)	IEC TS 62788-7-2 (A4 cond.)	IEC TS 62788-7-2 (A5 cond.)	
IEC 62852		Marking, Upper Limit Temperature (ULT)	no requirement	95 °C	105 °C	
IEC 62790		Range of temperature (upper ambient temperature)	no requirement	95 °C	105 °C	

02

EN 50583

TUV NORD

BIPV RELATED STANDARD - EUROPE

BIPV相关标准 - 欧洲

EN 50583-1

设计要求

建筑特殊要求 CPR 305/2011
夹胶玻璃 EN 14449
.....

电气安全性能

风雪载荷等

防火要求

安全要求

其他要求

光伏组件

EN 1990

EN 13501-1

EN 1063

EN 12758

EN 62125 / 61730

EN 1991

EN 13501-2

EN 13541

EN 673

LVD 2006/95/EC

EN 1993

EN 13501-5

EN 356

EN 673

EN 1999

EN 12600

EN 410

EN 1863-1

EN 14500

EN 12543
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EN 15804
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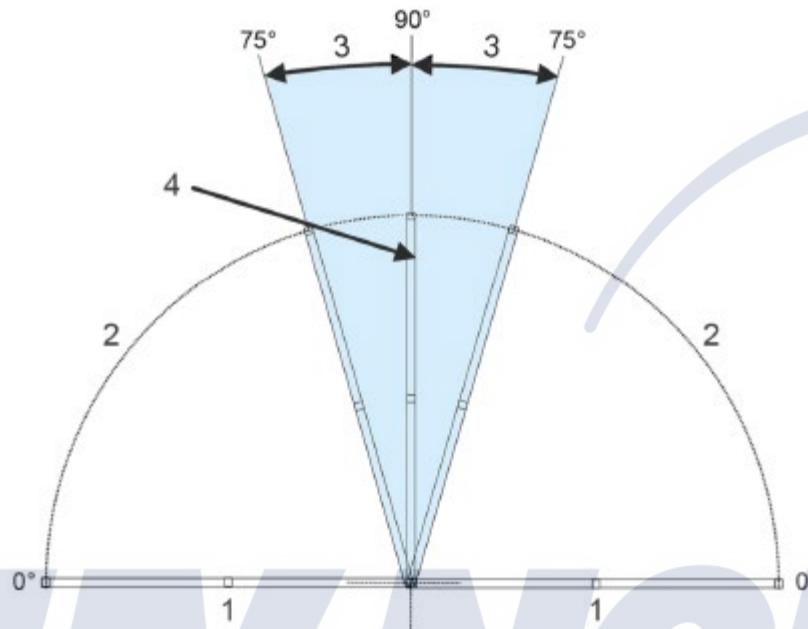
BIPV RELATED STANDARD - EUROPE

BIPV相关标准 - 欧洲

- Photovoltaic modules are considered to be building-integrated, if the PV modules from a construction product **providing a function as defined in the European Construction Product Regulation CPR 305/2011**. Thus the BIPV module is a prerequisite for the integrity of the building's functionality. If the integrated PV module is dismantled (in the case of structurally bonded modules, dismantling includes the adjacent construction product), the PV module would have to be replaced by an appropriate construction product.
- The building's functions in the context of BIPV are one or more of the following:
 - Mechanical rigidity or structural integrity 机械刚度或结构完整性
 - Primary weather impact protection: rain, snow, wind, hail 主要天气影响防护: 雨、雪、风、雹
 - Energy economy, such as shading, daylighting, thermal insulation 节能, 如 遮阳、采光、保温等
 - Fire protection 消防
 - Noise protection 噪声防护
 - Separation between indoor and outdoor environment 室内外环境的分离
 - Security, shelter or safety. 隐私, 庇护或安全

BIPV RELATED STANDARD - EUROPE

BIPV相关标准 - 欧洲



1 horizontal module 水平安装组件





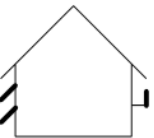
2 angle of module considered to be sloping (including horizontal) 倾斜角度组件

3 angle of module considered to be non-sloping 非倾斜角度组件

4 vertical module 垂直安装组件

BIPV RELATED STANDARD - EUROPE

BIPV相关标准 - 欧洲

Category A:	Sloped, roof-integrated, not accessible from within the building	
	The PV modules are mounted in the building envelope at an angle between 0° and 75° (see Fig. 1) with a barrier underneath preventing large pieces of glass falling onto accessible areas below	
Category B:	Sloped, roof-integrated, accessible from within the building	
	The PV modules are mounted in the building envelope at an angle between 0° and 75° (see Fig. 1)	
Category C:	Non-sloped (vertically) mounted not accessible from within the building	
	The PV modules are mounted in the building envelope at an angle between and including both 75° and 90° (see Fig. 1) with a barrier behind preventing large pieces of glass or persons falling to an adjacent lower area inside the building	
Category D:	Non-sloped (vertically) mounted accessible from within the building	
	The PV modules are mounted in the building envelope at an angle of between and including both 75° and 90° (see Fig. 1)	
Category E:	Externally integrated, accessible or not accessible from within the building	
	The PV modules are mounted onto the building and form an additional functional layer (as defined in 3.1) exterior to its envelope (e.g. balconies, balustrades, shutters, awnings, louvres, brise soleil etc.).	

A类：倾斜，屋顶一体化，室内不可触及

B类：倾斜，屋顶一体化，室内可触及

C类：非倾斜，建筑围挡集成，室内不可触及

D类：非倾斜，建筑围挡集成，室内可触及

E类：建筑附件一体化，室内可触及或不可触及

BIPV RELATED STANDARD - EUROPE

BIPV相关标准 - 欧洲

- BIPV modules containing glass panes

BIPV modules	Normative reference
Laminated glass 夹胶玻璃	EN 14449
Insulating glass 中空玻璃	prEN 1279-5
Use structural sealant glazing 使用结构胶玻璃	EN 13022-1

- BIPV modules not containing glass panes

BIPV modules	Normative reference
Polymer waterproofing sheet 聚合物防水面板	EN 13956
Based on metal sheet 含金属背板	EN 14782 or EN 14783

BIPV RELATED STANDARD - EUROPE

BIPV相关标准 - 欧洲

Table 1 — General requirements for all categories of BIPV modules containing glass panes

CPR Requirement	Standards, guidelines, test methods	Comment
1. Mechanical resistance and stability	A.2	Depending on application and national requirements
2. Safety in case of fire	EN 13501-1	Classification standard. Manufacturer to declare the fire rating. Further requirements depend on application and country.
3. Hygiene, health and the environment		
4. Safety and accessibility in use	EN 13022-1	Only applicable for BIPV modules or PV insulating glass units to be bonded adhesively which are sold separately from the framework and installed under the responsibility of the designer and assembler. National regulations may define restrictions or additional requirements. ³
	EN 12600	For laminated safety glass only and if national regulations require the classification of pendulum body impact resistance: required for CE marking of laminated safety glass
5. Protection against noise	EN 12758	
6. Energy economy and heat retention		
7. Sustainable use of natural resources	EN 15804 CEN/TR 15941 EN 15942 EN 15978	See also Final Report of IEA-PVPS Task 12

BIPV RELATED STANDARD - EUROPE

BIPV相关标准 - 欧洲

Table 8 — Requirements for BIPV modules based on polymer waterproofing sheet

CPR Requirement	Standards, guidelines, test methods	Comment
1. Mechanical resistance and stability		
2. Safety in case of fire	EN 13501-1	National apl. specific requirements Manufacturer to declare the fire rating.
3. Hygiene, health and the environment	EN 13956	National requirements
4. Safety and accessibility in use	EN 13956	National requirements
5. Protection against noise		
6. Energy economy and heat retention		
7. Sustainable use of natural resources	EN 15804 CEN/TR 15941 EN 15942 EN 15978	Additional information is provided in the final Report by IEA-PVPS Task 12”

BIPV RELATED STANDARD - EUROPE

BIPV相关标准 - 欧洲

Table 9 — Requirements for BIPV modules based on metal sheet

CPR Requirement	Standards, guidelines, test methods	Comment
1. Mechanical resistance and stability		
2. Safety in case of fire	EN 13501-1	National and application- specific requirements Manufacturer to declare the fire rating.
3. Hygiene, health and the environment	EN 14782 EN 14783	
4. Safety and accessibility in use	EN 14782 EN 14783	
5. Protection against noise		
6. Energy economy and heat retention		
7. Sustainable use of natural resources	EN 15804 CEN/TR 15941 EN 15942 EN 15978	Additional information is provided in the final Report of IEA-PVPS Task 12

BIPV RELATED STANDARD - EUROPE

BIPV相关标准 - 欧洲

- EN50583-1规定，BIPV作为光伏产品需要符合EN61215/61730；作为建筑产品（夹胶玻璃）需要符合CPR 305/2011（针对不同类型的BIPV,即不同用途或不同BOM），会有相对应的标准具体规定，如EN 199X系列标准)
- 防火是根据不同类型的产品，有相对应的等级要求，例如EN 13501-1 针对非铺地BIPV建筑产品，燃烧等级分为A1/A2/B/C/D/E/F，燃烧滴落等级D0/D1/D3等
- 载荷测试需要考虑不同产品的温度上限规定与载荷系数
- 透光率与发电量可以纳入建筑节能指标中计算
- 在欧盟的通用标准之上，各个欧盟国家还会有各个国家单独的一些要求。比如意大利有自己国家的防火测试要求等

BIPV RELATED STANDARD - EUROPE

BIPV相关标准 - CPR 305/2011

2011年3月，欧盟颁布了新建筑产品法规REGULATION (EU) No 305/2011 - CPR，并通告了新法规于2013年7月进入强制执行

CPR法规的范围

“建筑产品”是指任何以永久性方式包括在建筑工程内的任何产品，建筑工程包括建筑物和土建工程。

CPR对建筑产品的基本要求

1. 机械阻力及稳定性 (Mechanical resistance and stability) ;
2. 防火安全 (Safety in case of fire) ;
3. 卫生, 健康与环境 (Hygiene, health and the environment) ;
4. 使用安全 (Safety and accessibility in use) ;
5. 噪音防护 (Protection against noise) ;
6. 节能及保温 (Energy economy and heat retention) ;
7. 自然资源的可持续利用 (Sustainable use of natural resources)

BIPV RELATED STANDARD - EUROPE

BIPV相关标准 - CPR 305/2011

AREA CODE	PRODUCT AREA
1	预制混凝土制品(Prefabricated concrete products)
2	门(doors/gates)、窗(windows, shutters)及相关建筑五金(hardware)
3	隔膜(membrane)
4	保温材料/套件/系统(thermal insulation product)
5	结构支座(structural bearings)、结构连接用销(pins for joints)
6	烟囱(chimneys)、烟道(flues)
7	石膏产品(gypsum products)
8	土工织物(geotextiles)、土工膜(geomembranes)
9	幕墙(curtain walling)、室外覆层(cladding)、结构性密封胶(structural sealants glazing)
10	固定消防设备(fixed fire fighting equipment)
11	卫生洁具(sanitary appliances)
12	循环装置(circulation fixtures)、公路设备(road equipment)
13	木质结构(structural timber products)
14	木基板材(wood based panels)
15	水泥(cement)、建筑石灰(building limes)、水硬性胶凝材料(hydraulic binders)
16	混凝土用钢筋(reinforcing steel)、预变形钢材(prestress steel)
17	石材(masonry)
18	废水工程产品(waste water engineering products)
19	地板(floorings)
20	金属结构产品(structural metallic products)

BIPV RELATED STANDARD - EUROPE

BIPV相关标准 - CPR 305/2011

AREA CODE	PRODUCT AREA
21	内外墙及天花板饰品(internal & external wall and ceiling finishes)
22	屋顶覆盖物(roof coverings)、采光天窗(roof lights)、天窗(roof windows)
23	道路建筑产品(road construction products)
24	粒料(aggregates)
25	建筑用胶(construction adhesives)
26	混凝土(concrete)、砂浆(mortar)、水泥浆(grout)
27	采暖燃具(space heating appliances)
28	与应用水不接触的管、罐(pipes-tanks not in contact with water intended for human consumption)
29	与应用水直接接触的建筑产品(construction products in contact with water intended for human consumption)
30	玻璃制品(glass product)
31	能源、控制及通讯电缆(power, control and communication cables)
32	接头密封材料(sealants for joints)
33	附件(fixings)
34	建筑物组件、单元及预制品(building kits, units, and prefabricated elements)
35	挡火物、封火墙、及消防产品(fire stopping, fire sealing and fire protective products), 防火产品(fire retardant products)

BIPV RELATED STANDARD - EUROPE

BIPV相关标准 - CPR 305/2011

CPR认证的模式

Elements of control of conformity	system of attestation of conformity				
	1+	1	2+	3	4
Factory production control (FPC) 工厂生产控制	M	M	M	M	M
Further testing of samples taken at the factory in accordance with the prescribed test plan 根据规定的测试计划，对工厂抽取的样品进行进一步测试	M	M	M		
Determination of the product-type including type testing 产品类型的确定，包括型式测试	NB	NB	M	TL	M
initial inspection of the manufacturing plant and of FPC 初始厂检	NB	NB	NB		
continuous surveillance, assessment and evaluation of FPC 持续监测、评估和评价	NB	NB	NB		
audit-testing of samples taken before placing the product on the market 对产品投放市场前抽样测试	NB				

M: Manufacturer; NB: Notified Body; TL: The notified Testing laboratory

BIPV RELATED STANDARD - EUROPE

BIPV相关标准 - CPR 305/2011

Decision	Product family, product(Intended use)	Level(s) or class(es)	AVCP and body function
Laminated and laminated safety glass 夹胶玻璃或夹胶安全玻璃	For used in a glazed assembly intended specifically to provide fire resistance 用于专门用于防火的玻璃组件	Any	System 1
	For uses subject to reaction to fire regulations 适用于符合防火规定的用途	Euroclasses A1, A2, B, C, D, E	System 3
		Euroclasses A1*, F	System 4
	For uses subject to external fire performance regulations 适用于符合外部防火性能规定的用途	products requiring testing	System 3
		products "deemed to satisfy" without testing	System 4
	For use as anti-bullet, or antiexplosion glazing 用于防弹、防爆玻璃	-	System 1
	For other uses liable to present "safety-in-use" risks and subject to such regulations 对于可能存在"使用中安全"风险并须遵守此类规定的其他用途	-	System 3
	For uses relating to energy conservation and/or noise reduction 用于与节约能源及/或减低噪音有关的用途	-	System 3
For uses other than those specified above	-	System 4	

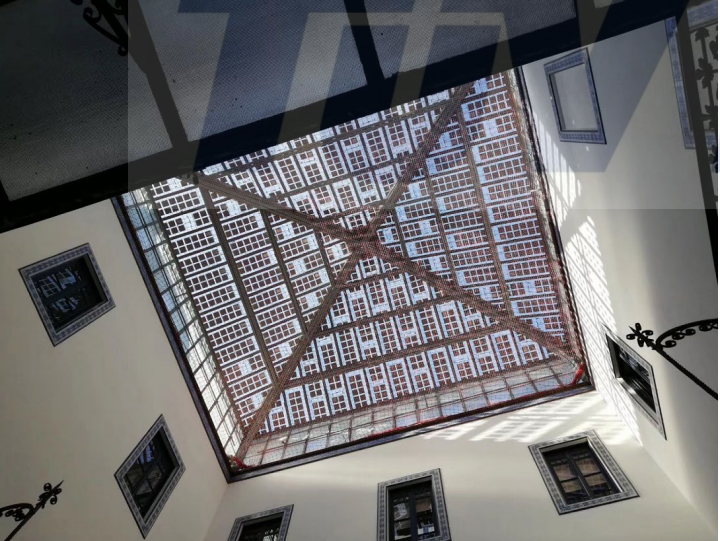
03

SUMMARY

TUV NORD

TÜV NORD TECHNICAL SERVICE FOR BIPV







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