TEST REPORT

For

Homogeneous Vinyl Flooring

Model No.:	**2.0mm, 1.0mm, 1.2mm, 1.3mm, 1.5mm, 1.8mm, 1.9mm, 2.2mm, 2.3mm, 2.5mm, 3.0mm, 3.5mm, 4.0mm, 4.5mm, 5.0mm**
Applicant :	**Longda China Group HK Co., Limited** **705A SILVERCORD TOWER 2, 30 CANTON ROAD, TSIM SHA TSUI, KL, HONGKONG**
Manufacturer :	**Longda China Group HK Co., Limited** **705A SILVERCORD TOWER 2, 30 CANTON ROAD, TSIM SHA TSUI, KL, HONGKONG**
Issued By :	**Shenzhen KES Testing & Certfication Co., Ltd.** **Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' An District, Shenzhen, Guangzhou, China**
Tel :	**+86 755 23009643**
Fax :	**+86 755 23009643**
Report Number :	**00440KES5291S**
Issued Date :	**Aug. 22, 2024**
Date of Report :	**Aug. 22, 2024**

Note: This report shall not be reproduced except in full, without the written approval of Shenzhen KES Testing & Certfication Co., Ltd.This document may be altered or revised by Shenzhen KES Testing & Certfication Co., Ltd personnel only, and shall be noted in the revision section of the document. The test results in the report only apply to the tested sample.

TEST Report EN 14041 Resilient, textile, laminate and modular multilayer floor coverings - Essential characteristics	
Report reference No. ……..……:	00440KES5291S
Testing laboratory ……:	Shenzhen KES Testing & Certfication Co., Ltd.
Location……..:	Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Applicant……:	Longda China Group HK Co., Limited
Address:……....:	705A SILVERCORD TOWER 2, 30 CANTON ROAD, TSIM SHA TSUI, KL, HONGKONG
Manufacturer :……:	Longda China Group HK Co., Limited
Address:……....:	705A SILVERCORD TOWER 2, 30 CANTON ROAD, TSIM SHA TSUI, KL, HONGKONG
Standards……..:	EN 14041: 2018
Procedure deviation……:	N/A
Non-standard test method……..:	N/A
Type of test equipment ……...:	Homogeneous Vinyl Flooring
Trade mark……:	N/A
Model/Type designation……..:	2.0mm, 1.0mm, 1.2mm, 1.3mm, 1.5mm, 1.8mm, 1.9mm, 2.2mm, 2.3mm, 2.5mm, 3.0mm, 3.5mm, 4.0mm, 4.5mm, 5.0mm
Rating……:	N/A
TRF originator……:	Shenzhen KES Testing & Certfication Co., Ltd.
Copyright blank test report:	Shenzhen KES Testing & Certfication Co., Ltd.
Protection against ingress of water	N/A

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

Possible test case verdicts :

test case does not apply to the test object	N(/A.)
test object does meet the requirement	P(ass)
test object does not meet the requirement	F(ail)

Name and address of the testing laboratory :

Shenzhen KES Testing & Certfication Co., Ltd.
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' An District, Shenzhen, Guangzhou, China

Tested by : Jet chen — Signature — Aug. 22, 2024 — Date

Jet Chen / Engineer
Name/Title

Witnessed by: Henry Tian — Signature — Aug. 22, 2024 — Date

Henry Tian/ Engineer
Name/Title

Approved by : Shenzhen KES Testing&Certification Co., LTD — Signature — Aug. 22, 2024 — Date

Kevin Liu / Manager
Name/Title

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

General remarks: Clause number between brackets refer to clauses in EN 14041 "(see remark #)" refers to a remark appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a comma is used as the decimal separator. The test results presented in this report relate only to the object tested. This report shall not be reproduced except in full without the written approval of the testing laboratory. Unless otherwise specified, test are made under normal conditions at an ambient temperature within the range of 15℃ to 35℃, RH45% to 75% and an air pressure of 860mbar of 1060mbar	Attachment with: 1) Photo documentation

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

1.This report covers 2.0mm, 1.0mm, 1.2mm, 1.3mm, 1.5mm, 1.8mm, 1.9mm, 2.2mm, 2.3mm, 2.5mm, 3.0mm, 3.5mm, 4.0mm, 4.5mm, 5.0mm All models in each series have similar construction with the same layout , but different from model names.

2.All tests were conducted on one model 2.0mm is test result was pass.

3. This test report shall not be reproduced except in full without the written approval of the tesing laboratory. The test results presented in this report relate only to the item tested. The test samples were pre-production without serial numbers.

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

EN 14041			
Clause	Requirement – Test	Result	Verdict
4	Essential characteristics		--
4.1	Reaction to fire		--
	The reaction-to-fire performance of a given type of floor coverings, as specified in the respective EN product standard (see the list in Annex A), shall be classified according to the requirements of EN 13501-1, based on one of the following options: a) either without the need for testing (CWT),according to 4.1.2; or b) based on results of the test method(s), relevant to specific reaction to fire class, as specified in 4.1.3.1.		P
4.1.2	Classification without the need for testing (CWT)		--
	The reaction to fire performance of a given type of floor coverings is automatically classified EFL, when meeting the requirements for that type of floor coverings, as specified in the following tables: in Table 1 for the laminate floor coverings, in Table 2 for the textile floor coverings and in Table 3 for the resilient floor coverings.		N/A
	Table 1 — Classes of reaction to fire performance [1] of laminate floor coverings Floor covering type [a] | Product detail | Min. density kg/m3 | Min. overall thickness mm | Class [b] Floorings Laminate floor coverings | Laminate floor coverings manufactured in accordance with EN 13329 [1] | 800 | 6,5 | E_{FL} [a] Floor covering loose laid over any wood based substrate ≥ D-s2, d0, or any substrate of class A2-s1, d0. [b] Class as provided for in Table 2 to the Annex to Commission Delegated Regulation (EU) 2016/364.		N/A
	Table 2 — Classes of reaction to fire performance of textile floor coverings [2] Floor covering type [a] | Product standard | Class Floorings [b] Textile floor coverings and carpet tiles [c] | EN 1307 [1] | E_{FL} [a] Floor covering glued or loose laid over a class A2-s1, d0 substrate. [b] Class as provided for in Table 2 to Commission Delegated Regulation (EU) 2016/364. [c] Textile floor coverings having a total mass of max 4 800 g/m2, a minimum pile thickness of 1,8 mm (ISO 1766) and: — a surface of 100 % wool, — a surface of 80 % wool or more — 20 % polyamide or less, — a surface of 80 % wool or more — 20 % polyamide/polyester or less, — a surface of 100 % polyamide, — a surface of 100 % polypropylene and if with SBR[3]-foam backing, a total mass of > 780 g/m2. All polypropylene carpets with other foam backings are excluded.		N/A

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

<table>
<tr><td></td><td>
Table 3 — Classes of reaction to fire performance of resilient floor coverings[4]
<table>
<tr><th>Floor covering type [a]</th><th>EN Product standard</th><th>Min. mass (g/m²)</th><th>Max. mass (g/m²)</th><th>Min. overall thickness (mm)</th><th>Class [b] Floorings</th></tr>
<tr><td>Plain and decorative linoleum</td><td>EN ISO 24011[5]</td><td>2 300</td><td>4 900</td><td>2</td><td>E_{FL}</td></tr>
<tr><td>Homogeneous polyvinyl chloride floor coverings</td><td>EN ISO 10581[6]</td><td>2 300</td><td>3 900</td><td>1,5</td><td>E_{FL}</td></tr>
<tr><td>Heterogeneous polyvinyl chloride floor coverings</td><td>EN ISO 10582[7]</td><td>2 300</td><td>3 900</td><td>1,5</td><td>E_{FL}</td></tr>
<tr><td>Polyvinyl chloride floor coverings with foam layer</td><td>EN 651</td><td>1 700</td><td>5 400</td><td>2</td><td>E_{FL}</td></tr>
<tr><td>Polyvinyl chloride floor covering with cork-based backing</td><td>EN 652</td><td>3 400</td><td>3 700</td><td>3,2</td><td>E_{FL}</td></tr>
<tr><td>Expanded (cushioned) polyvinyl chloride floor coverings</td><td>EN ISO 26986[7]</td><td>1 000</td><td>2 800</td><td>1,1</td><td>E_{FL}</td></tr>
<tr><td>Semi-flexible polyvinyl chloride tiles</td><td>EN ISO 10595[8]</td><td>4 200</td><td>5 000</td><td>2</td><td>E_{FL}</td></tr>
<tr><td>Linoleum on corkment backing</td><td>EN 687</td><td>2 900</td><td>5 300</td><td>2,5</td><td>E_{FL}</td></tr>
</table>
<table>
<tr><th>Floor covering type [a]</th><th>EN Product standard</th><th>Min. mass (g/m²)</th><th>Max. mass (g/m²)</th><th>Min. overall thickness (mm)</th><th>Class [b] Floorings</th></tr>
<tr><td>Homogeneous and heterogeneous smooth rubber floor coverings with foam backing</td><td>EN 1816</td><td>3 400</td><td>4 300</td><td>4</td><td>E_{FL}</td></tr>
<tr><td>Homogeneous and heterogeneous smooth rubber floor coverings</td><td>EN 1817</td><td>3 000</td><td>6 000</td><td>1,8</td><td>E_{FL}</td></tr>
<tr><td>Homogeneous and heterogeneous relief rubber floor coverings</td><td>EN 12199</td><td>4 600</td><td>6 700</td><td>2,5</td><td>E_{FL}</td></tr>
</table>
[a] Floor covering loose laid over any wood based substrate ≥ D-s2, d0, or any substrate of class A2-s1, d0.
[b] Class as provided for in Table 2 to Commission Delegated Regulation (EU) 2016/364.
</td><td></td><td>N/A</td></tr>
<tr><td>4.1.3</td><td>Classification according to the test results</td><td></td><td>P</td></tr>
<tr><td>4.1.3.1</td><td>General</td><td></td><td>P</td></tr>
<tr><td></td><td>The reaction to fire performance of a given type of floor coverings shall be determined on a base of results of the test(s), performed in accordance with the relevant method(s), which is(are) specified, for the claimed reaction to fire in the standard(s), referred in EN 13501-1:2007+A1:2009, with exception of class FFL, which shall be tested according to EN ISO 11925-2:2010 9.</td><td></td><td>P</td></tr>
<tr><td>4.1.3.2</td><td>Specimen preparation and conditioning</td><td></td><td>P</td></tr>
<tr><td>4.1.3.2.1</td><td>General</td><td></td><td>P</td></tr>
<tr><td></td><td>The test specimens shall be prepared in accordance with the relevant test method(s), specified for claimed class in the standard(s), referred in EN 13501-1, considering also CEN/TS 15447.</td><td></td><td>P</td></tr>
</table>

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

	The following information on the floor covering to be tested shall be provided for specimen preparation, conditioning and testing: - density or mass per area; - construction; - generic composition, including the presence of any flame retardant; -thickness.		P
4.2	Content of dangerous substances		P
4.2.1	General		P
	Resilient, textile, laminate and modular multilayer floor coverings shall be evaluated with respect to their content of dangerous substances. This shall be done: - without testing, based on a manufacturer declaration and supplier declarations (assessment without testing, 4.2.2.2); or - based on calculation (assessment by calculation, 4.2.2.3.2); or - based on testing (assessment by testing, 4.2.2.3.3).		P
4.2.2	Content of specific dangerous substances		P
4.2.2.1	General		N/A
	A list of specific dangerous substances, which are known to occur in resilient, textile, laminate, and modular multilayer floor coverings, or the raw materials and constituent products used for manufacturing thereof, is provided in Table 4.		N/A
4.2.2.2	Assessment without calculation or testing		P
	If any of the substances or groups of them listed in Table 4 are known to not be present in the product, as assessed by manufacturer declaration and based on supplier declarations for raw materials or constituent products used for the manufacturing of the floor covering product, then the performance shall be expressed as 'compliant, not actively added'.		P
4.2.2.3	Assessment based on calculation or testing		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

4.2.2.3.1	General		P
	If one or more substances or groups of them, listed in Table 4, are either actively added during the production process of the floor covering or they are present in the raw materials or constituent products, or it is known they may occur in any stage of the production process, their content of such substance in the floor covering shall be determined either - by calculation, according to 4.2.2.3.2; or - by testing, according to 4.2.2.3.3.		P
4.2.2.3.2	Assessment based on calculation		P
	The content of each of the dangerous substances or group of them, listed in Table 4, shall be determined individually and for the final floor covering product, using a standard calculation method.		P
	a) If any dangerous substances or group of them, listed in Table 4, is added during the manufacturing of a floor covering product, then the content of such dangerous substances or group of them in the floor covering product shall be calculated based on: — the amount of product added to the manufacturing process (x_m); and — the amount of product consumed during the manufacturing process (x_c). The net amount of this dangerous substance or group of, listed in Table 4, retained in the product after manufacturing, x_n, with $x_n = x_m - x_c$, shall be calculated in mg/kg.		P
	b) If any dangerous substances or group of them, listed in Table 4, is present in any of the raw materials or constituent products of a floor covering product, then the content of such dangerous substances or group of them in the floor covering product shall be calculated based on: — the content of the raw material, x_r, or constituent product, x_{cp}, in the floor covering product; — the content of the dangerous substance or group of them, listed in Table 4, in the raw material, $x_{s,r}$, or constituent product, $x_{s,cp}$.		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

	c) The net amount of dangerous substance or group of, listed in Table 4, in the product after manufacturing, xn, shall be calculated for the sum of all raw materials and constituent products used for the manufacturing of the floor covering product, according to $x_n = \Sigma (x_{s,r} \cdot x_r) + \Sigma (x_{s,cp} \cdot x_{cp})$, and shall be reported in mg/kg. Depending on the reported content of each of such substances or group of them, the performance of this characteristic shall be expressed: 1) as a uniform indication 'compliant, actively added', when the content of none of such substances or of group of them, exceeds the respective threshold value(s), listed in Table 4, Alternatively, graphic symbol may be used for expressing the performance of this characteristic. The respective pictogram specified in Annex I, shall be used. or 2) with the name of each individual substance and its content value (in mg/kg), when the content of such substance or of group of them, exceeds the respective threshold value(s), listed in Table 4.		P
4.2.2.3.3	Assessment based on testing		P
	a) The content of each of the substances, listed in Table 4 and presented in the floor coverings in the forms explained above, as indicated in 4.2.2.3.1, shall be determined individually by testing according to respective test method, specified in Table 4, and the resulting content reported.		P
	b) Depending on the reported content of each of such substances, the performance of this characteristic shall be expressed: 1) as a uniform indication 'compliant, actively added', when the content of none of such substances or of group of them, exceeds the respective threshold value(s), listed in Table 4, Alternatively, graphic symbol may be used for expressing the performance of this characteristic. The respective pictogram specified in Annex I, shall be used. or 2) with the name of each individual substance and its content value (in mg/kg), when the content of such substance or of group of them, exceeds the respective threshold value(s), listed in Table 4.		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

Table 4 — Content of dangerous substances: Test methods and requirements

Substance	CAS number	Floor covering type[e]	Test method	Threshold values
Pentachlorophenol (PCP)	87–86–5	R, T	See Annex B	≤ 5 mg/kg
		L, M	CEN/TR 14823	≤ 5 mg/kg
Phthalates:	-	R, T, L, M	See Annex F	Sum of listed phthalates ≤ 1 000 mg/kg
Benzyl butyl phthalate (BBP)	85–68–7			
Bis(2-ethylhexyl)phthalate (DEHP)	117–81–7			
Dibutylphthalate (DBP)	84–74–2			
Short chain chlorinated paraffins (C10–13, SCCP)	85535–84–8	R, T, L, M	EN ISO 18219[a]	≤ 1 000 mg/kg[b]
Medium chain chlorinated paraffins (C14–17, MCCP)	85535–85–9	R, T, L, M	EN ISO 18219[a]	≤ 1 000 mg/kg[b]
Pentabromodiphenylether	32534–81–9	R, T, L, M	EN 62321–1	≤ 1 000 mg/kg
Octabromodiphenylether	32536–52–0	R, T, L, M	EN 62321–1	≤ 1 000 mg/kg
Decabromodiphenylether	1163–19–5	R, T, L, M	EN 62321–1	≤ 1 000 mg/kg
Cadmium	7440–43–9	R, T, L, M	EN 1122 Total digestion of sample by hydrofluoric acid, followed by atomic absorption spectroscopy (AAS) or inductively coupled plasma (ICP)	≤ 100 mg/kg
Lead	7439–92–1	R, T, L, M	EN 1122 Total digestion of sample by hydrofluoric acid, followed by atomic absorption spectroscopy (AAS) or inductively coupled plasma (ICP).	≤ 1 000 mg/kg
PAH (polycyclic aromatic hydrocarbons)	-	R, T, L, M	See Annex E	individual PAH ≤ 1mg/kg
Benzo[a]pyrene	50–32–8			
Benzo[e]pyrene	192–97–2			
Benzo[a]anthracene	56–55–3			
Dibenzo[a,h]anthracene	53–70–3			
Benzo[b]fluoranthene	205–99–2			
Benzo[k]fluoranthene	205–82–3			
Benzo[j]fluoranthene	207–08–9			
Chrysene	218–01–9			
Organostannic (organotin) compounds	-	R, T, L, M	CEN ISO/TS 16179	Sum of all organotin compounds listed ≤ 1 000 mg/kg
Tri-substituted organostannic compounds	–			
Dibutyltin (DBT)	1002–53–5			
Dioctyltin (DOT)	15231–44–4			
Azo-colorants which can form the carcinogenic amines listed in Annex H	–	T, M[c] R, L, M[d]	EN ISO 14362–1 Not relevant	≤ 30 mg/kg
Perfluoro-octanoic acid (PFOA), salts and esters of PFOA	335–67–1	R, T, L, M	CEN/TS 15968	≤ 1 000 mg/kg
Dimethylfumarate	624–49–7	T, L, M R	CEN ISO/TS 16186 Not relevant	≤ 1 000 mg/kg

[a] Contents of SCCP and MCCP can only be determined together, as separation with the existing test method is not possible.

[b] In addition, also the sum of contents of SCCP and MCCP shall be ≤ 1000 mg/kg.

[c] Relevant for modular multilayer floor covering with a textile use surface only.

[d] Not applicable for modular multilayer floor covering with a non-textile use surface

[e] R = resilient,
T = textile,
L = laminate,
M = modular multilayer

			P
4.3	Emission of dangerous substances into indoor air		P
4.3.1	General		P
	Resilient, textile, laminate and modular multilayer floor coverings shall be evaluated concerning their emission of the following dangerous substances: — volatile organic compounds (VOC), with exception of formaldehyde, as specified in 4.3.2; and — formaldehyde (HCHO), as specified in 4.3.3.		P
4.3.2	Emissions of volatile organic compounds (VOC) with exception of formaldehyde		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

	Emission of volatile organic compounds (VOC) from a floor covering product shall be determined in accordance with EN 16516:2017. The performance of this characteristic shall be expressed with value, in mg/m^3, and name of the respective characteristic.		P
4.4	Water-tightness		P
	The water-tightness performance of the resilient floor coverings shall be determined by test according to EN 13553:2017,Annex A. If at the bottom surface of the test specimen after the test is finished, there is no sign of penetrating water, the resilient floor coverings may be considered water-tight and the related performance expressed as "compliant".		P
4.5	Slip resistance		P
	The slip resistance performance of a floor covering, shall be determined by test as dynamic coefficient of friction, u, in accordance with EN 13893 under dry and non-contaminated conditions.		P
	When determining the slip resistance performance of the textile floor coverings, the floor covering parameters, influencing such performance, as given in D.4, shall be taken into account. The coefficient of friction, u, shall be declared, depending on the obtained result, as: a) $\mu < 0,30$; or b) $\mu \geq 0,30$.		P
4.6	Electrical behaviour		P
4.6.1	General		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

<table>
<tr><td></td><td>Electrical behaviour of the floor coverings, determined as antistatic, static dissipative or conductive performances, shall be individually determined by test results and in accordance with the test methods, as specified in the standards, listed in Table 6, column (3), under test conditions, specified in Table 6, column (4). The individual results shall be evaluated according to the relevant assessment requirements, listed in Table 6, column (5), and the respective performance shall be expressed as one of the indications, given also in Table 6, column (6).
Alternatively, graphic symbol may be used for expressing the performance of this characteristic. In the case of the referenced expression, specified in Table 6, the respective pictogram specified in Annex I, shall be used.</td><td></td><td>P</td></tr>
<tr><td></td><td>Table 6 — Requirements for floor covering for antistatic, dissipative or conductive performance
<table>
<tr><th>Electrical behaviour</th><th>Floor coverings types[a]</th><th>Specification with test methods</th><th>Test conditions</th><th>Assessment requirements</th><th>Ways of expression of the performance</th></tr>
<tr><td>(1)</td><td>(2)</td><td>(3)</td><td>(4)</td><td>(5)</td><td>(6)</td></tr>
<tr><td rowspan="3">Antistatic</td><td>R</td><td>EN 1815</td><td>Directly on metal base plate and at 25 % RH</td><td rowspan="3">BV[b] ≤ |2,0| kV</td><td rowspan="3">"Body Voltage ≤ |2,0| kV" or "Antistatic" or graphic symbol (Annex I)</td></tr>
<tr><td>L, M</td><td>EN 1815 or ISO 6356:2012, Method A</td><td>PE foil/foam on metal base plate at 25 % RH</td></tr>
<tr><td>T</td><td>ISO 6356:2012 Method A</td><td>Rubber mat on metal base plate and at 25 % RH</td></tr>
<tr><td rowspan="2">Static dissipative</td><td>R, L, M</td><td>EN 1081</td><td>≤ 50 % RH</td><td rowspan="2">VR[c] ≤ $1,0 \times 10^9$ Ω</td><td rowspan="2">"Vertical resistance ≤ $1,0 \times 10^9$ Ω" or "Static dissipative" or graphic symbol (Annex I)</td></tr>
<tr><td>T</td><td>ISO 10965</td><td>25 % RH</td></tr>
<tr><td rowspan="2">Conductive</td><td>R, L, M</td><td>EN 1081</td><td>≤ 50 % RH</td><td rowspan="2">VR[c] ≤ $1,0 \times 10^6$ Ω</td><td rowspan="2">"Vertical resistance ≤ $1,0 \times 10^6$ Ω" or "Conductive" or graphic symbol (Annex I)</td></tr>
<tr><td>T</td><td>ISO 10965</td><td>25 % RH</td></tr>
</table>
[a] Floor coverings types: R – resilient; L – laminate; T – textile; M – modular multilayer.
[b] BV = Body voltage (in kV), for antistatic performance.
[c] VR = Vertical resistance (in Ω), for static dissipative and conductive performances.</td><td></td><td>P</td></tr>
<tr><td>4.6.2</td><td>Specimen preparation and conditioning</td><td></td><td>N/A</td></tr>
</table>

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

	The test specimen of the floor coverings shall be prepared and conditioned in accordance with the respective test method(s),as specified in the standards, listed in Table 6,column (3). In the case of textíle floor coverings, when an antistatic or static dissipative additive has been directly applied to the exposed use surface of a floor covering by spray, foam or other technology, the test specimen shall be subjected to a laboratory cleaning procedure prior to testing. The spray-extraction cleaning procedure according to IS0 11379 shall be used with the following modifications: a) the specimens shall be cleaned three times, with an interval of (120 ± 15) min between cycles, each cleaning cycle consisting of two strokes: - for the first stroke: use the spray extraction machine with simultaneous spray and extraction; - for the second stroke: operate the machine only as an extraction machine. b) the first cleaning cycle shall be carried out using the reference cleaning solution at ambient temperature (25 ± 10) ℃ and the second and third cleaning cycle with water at ambient temperature without any addition of chemicals.		N/A
4.7	Thermal resistance (thermal conductivity)		P
4.7.1	The performance of thermal resistance, R, of the floor coverings shall be determined either: a) by calculation, using the thermal conductivity design value(s), λ_{ij}, of the material(s), which the floor coverings is(are) made of, taken from EN ISO 10456; or NOTE The conversion quotations for the thermal values in EN ISO 10456 may be used to extrapolate the data to 23°C. b) by testing in accordance with the following standards: — ISO 8302 or EN 12667, for the floor coverings, which are made of medium to high thermal resistance materials; — ISO 8302 or EN 12664, for the floor coverings, which are made of low to medium thermal resistance materials.		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

	For the resilient, laminate and modular multilayer floor coverings the test samples shall be conditioned at 23 ℃and 50 % RH before testing. For the textile floor coverings test samples shall be conditioned according to EN ISO 139,at 20 ℃ 65 % RH.		P
4.7.2	The performance of this characteristic shall be expressed as the 23 C value of, either: a) thermal resistance, R_{23}, in m^2·K/W, or alternatively; b) thermal conductivity, λ_{23}, in W/m·K.		P
5	Assessment and verification of constancy of performance (AVCP)		--
5.1	General		P
	The compliance of the product (ie. resilient, textile, laminate or modular multilayer floor coverings) with the requirements of this standard and with the performances declared by the manufacturer in the Declaration of Performance (DoP) shall be demonstrated by: — product type determination (PTD); — factory production control (FPC) by the manufacturer, including product assessment.		P
5.2	Type Testing		P
5.2.1	General		P
	All performances related to characteristics included in this standard shall be determined when the manufacturer intends to declare the respective performances unless the standard gives provisions for declaring them without performing tests.		P
	Assessments previously performed in accordance with the provisions of this standard, may be taken into account provided that they were made to the same or a more rigorous test method, under the same AVCP system on the same product or products of similar design, construction and functionality, such that the results are applicable to the product in question.		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

	For the purposes of assessment, the manufacturer's products may be grouped into families, where it is considered that the results for one or more characteristics from any one product within the family are representative for that same characteristic for all products within that same family. Products may be grouped in different families for different characteristics (see also Annex D).		P
5.2.2	Test samples, testing and compliance criteria		P
	The number of samples of resilient textile laminate and modular multilayer floor coverings to be tested/assessed shall be in accordance with Table 7.		P

Table 7 — Number of samples to be tested and compliance criteria

Characteristic	Requirement	Assessment method	No. of samples[a]	Compliance criteria
Reaction to fire, assessed				
— without testing (R, T, L)[b]	4.1.2	4.1.2	-	4.1.2
— by testing	4.1.3.1	4.1.3.2	1	4.1.3.1
Content of specific dangerous substances, assessed				
— without testing/ calculation	4.2.2.2	4.2.2.2	-	4.2.2.2
— by calculation	4.2.2.3.2	4.2.2.3.2	-	4.2.2.3.2
— by testing	4.2.2.3.3	4.2.2.3.3, Table 4	1	Table 4
Emissions of volatile organic compounds (VOC) with exception of formaldehyde, assessed				
— by testing	4.3.2	4.3.2	1	4.3.2
Emissions of formaldehyde (HCHO), assessed				
— without testing	4.3.3.1	4.3.3.1	-	4.3.3.1
— by testing	4.3.3.2, Table 5	4.3.3.2, Table 5	1	4.3.3.2
Water tightness (R)	4.4	4.4	1	4.4
Slip resistance	4.5	4.5	1	4.5
Electrical behaviour, assessed as				
— antistatic	4.6.1, Table 6	4.6.1, Table 6	1	4.6.1
— static dissipative	4.6.1, Table 6	4.6.1, Table 6	1	4.6.1
— conductive	4.6.1, Table 6	4.6.1, Table 6	1	4.6.1
Thermal resistance (thermal conductivity), assessed				
— by calculation	4.7	4.7	-	4.7
— by testing	4.7	4.7	1	4.7

[a] Sample dimensions and number of test specimen as specified in the assessment method.
[b] Floor coverings types: R – resilient; L – laminate; T – textile; M – modular multilayer.

5.2.3	Test reports		P
	The results of the determination of the product type shall be documented in test reports. All test reports shall be retained by the manufacturer for at least 10 years after the last date of production of theresilient, textile, laminate and modular multilayer floor coverings to which they relate.		P
5.2.4	Shared other party results		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

	A manufacturer may use the results of the product type determination obtained by someone else (e.g. by another manufacturer, as a common service to manufacturers, or by a product developer), to justify his own declaration of performance regarding a product that is manufactured according to the same design (e.g. dimensions) and with raw materials, constituents and manufacturing methods of the same kind, provided that:		P
	- the results are known to be valid for products with the same essential characteristics relevant for the product performance;		P
	- in addition to any information essential for confirming that the product has the same performance related to specific essential characteristics, the other party who has carried out the determination of the product type concerned or has had it carried out, has expressly accepted12 to transmit to the manufacturer the results and the test report to be used for the latter's product type determination, as well as information regarding production facilities and the production control process that can be taken into account for FPC;		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

	- the manufacturer using other party results accepts to remain responsible for the product having the declared performances and he also: a) ensures that the product has the same characteristics relevant for performance as the one that has been subjected to the determination of the product type, and that there are no significant differences with regard to production facilities and the production control process compared to that used for the product that was subjected to the determination of the product type; b) keeps available a copy of the determination of the product type report that also contains the information needed for verifying that the product is manufactured according to the same design and with raw materials,constituents and manufacturing methods of the same kind.		P
5.2.5	Cascading determination of the product type results		P
	Provided that the activities for which such a system house is legally established include manufacturing/assembling of products as the assembled one, the system house may take the responsibility for the determination of the product type regarding one or several essential characteristics of an end product which is subsequently manufactured and/or assembled by other firms in their own factory. When doing so, the system house shall submit an "assembled product" using components manufactured by it or by others, to the determination of the product type and then make the determination of the product type report available to the assemblers, i.e. the actual manufacturer of the product placed on the market.		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

	To take into account such a situation, the concept of cascading determination of the product type might be taken into consideration in the technical specification, provided that this concerns characteristics for which either a notified product certification body or a notified test laboratory intervene, as presented below.		N/A
5.3	Factory production control (FPC)		P
5.3.1	General		P
	The manufacturer shall establish, document and maintain an FPC system to ensure that the products placed on the market comply with the declared performance of the essential characteristics.		P
	The FPC system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control raw and other incoming materials or components, equipment, the production process and the product.		P
5.3.2	Requirements		P
5.3.2.1	General		P
	The manufacturer is responsible for organizing the effective implementation of the FPC system in line with the content or this product standard. Tasks and responsibilities in the production control organization shall be documented and this documentation shall be kept up-to-date.		P
	The responsibility, authority and the relationship between personnel that manages, performs or ver'ifies work affecting product constancy, shall be defined. This applies in particular to personnel that need to initiate actions preventing product non-constancies from occurring, actions in case of non-constancies and to identify and register product constancy problems.		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

	In each factory the manufacturer may delegate the action to a person having the necessary authority to: - identify procedures to demonstrate constancy of performance of the product at appropriate stages; - identify and record any instance of non-constancy; - identify procedures to correct instances of non-constancy.		P
5.3.2.2	Equipment		P
5.3.2.2.1	Testing		P
	All weighing measuring and testing equipment shall be calibrated and regularly inspected according to documented procedures, frequencies and criteria.		P
5.3.2.2.2	Manufacturing		P
	All equipment used in the manufacturing process shall be regularly inspected and maintained to ensure use, wear or failure does not cause inconsistency in the manufacturing process. Inspections and maintenance shall be carried out and recorded in accordance with the manufacturer's written procedures and the records retained for the period defined in the manufacturer's FPC procedures.		P
5.3.2.3	Raw materials and components		P
	The specifications of all incoming raw materials and components shall be documented, as shall the inspection scheme for ensuring their compliance. In case supplied kit components are used, the constancy of performance system of the component shall be that given in the appropriate harmonized technical specification for that component.		P
5.3.2.4	Traceability and marking		P
	Individual product batches or packages shall be identifiable and traceable with regard to their production origin. The manufacturer shall have written procedures ensuring that processes related to affixing traceability codes and/or markings are inspected regularly.		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

5.3.2.5	Controls during manufacturing process		P
	The manufacturer shall plan and carry out production under controlled conditions.		P
5.3.2.6	Product testing and evaluation		P
	The manufacturer shall establish procedures to ensure that the stated values of the characteristics the declares are maintained. The characteristics, and the means of control, are stated in Table 8.		P
5.3.2.7	Non-complying products		P
	The manufacturer shall have written procedures which specify how non-complying products shall be dealt with. Any such events shall be recorded as they occur and these records shall be kept for the period defined in the manufacturer's written procedures.		P
	Where the product fails to satisfy the acceptance criteria, the provisions for non-complying products shall apply, the necessary corrective action(s) shall immediately be taken and the products or batches not complying shall be isolated and properly identified.		P
	Once the fault has been corrected, the test or verification in question shall be repeated.		P
	The results of controls and tests shall be properly recorded. The product description, date of manufacture, test method adopted, test results and acceptance criteria shall be entered in the records under the signature of the person responsible for the control/test.		P
5.3.2.8	Corrective action		P
	The manufacturer shall have documented procedures that instigate action to eliminate the cause of non-conformities in order to prevent recurrence.		P
5.3.2.9	Handling, storage and packaging		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

	The manufacturer shall have procedures providing methods of product handling and shall provide suitable storage areas preventing damage or deterioration.		P
5.3.3	Product specific requirements		P
	The FPC system shall address this European Standard and ensure that the products placed on th market comply with the declaration of performance.		P
	The FPC system shall include a product specific FPC, which identifies procedures to demonstrate compliance of the product at appropriate stages, i.e.: a) the controls and tests to be carried out prior to and/or during manufacture according to frequency laid down in the FPC test plan; and/or b) the verifications and tests to be carried out on finished products according to a frequency laid down in the FPC test plan.		P
5.3.4	Initial inspection of factory and of FPC		P
	Initial inspection of factory and of FPC (for products covered by AVCP 1) shall be carried out when the production process has been finalized and ín operation. The factory and FPC documentation shall be assessed to verify that the requirements of 5.3.2 and 5.3.3 are fulfilled.During the inspection it shall be verified: that all resources necessary for the achievement of the product characteristics included in this a) European standard are in place and correctly implemented: and b) that the FPC-procedures in accordance with the FPC documentation are followed in practice; and c) that the product complies with the product type samples, for which compliance of the product performance to the DoP has been verified.		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

5.3.5	Continuous surveillance of FPC (for products covered by AVCP 1)		P
	Surveillance of the FPC shall be undertaken once per year. The surveillance of the FPC shall include a review of the FPC test plan(s) and production processes(s) for each product to determine if any changes have been made since the last assessment or surveillance. The significance of any changes shall be assessed.		P
5.3.6	Procedure for modifications		P
	If modifications are made to the product,production process or FPC system that could affect any of the product characteristics declared according to this standard, then all the characteristics for which the manufacturer declares performance, which may be affected by the modification, shall be subject to the determination of the product type, as described in 5.2.1.		P
5.3.7	One-off products, pre-production products (e.g. prototypes) and products produced in very low quantity		P
	The resilient, textile, laminate and modular multilayer floor coverings, produced as a one-off, prototypes assessed before full production is established, and products produced in very low quantities (less than 500 m^2 per year) shall be assessed as follows.		P
	For type assessment, the provisions of 5.2.1, 3rd paragraph apply, together with the following additional provisions: - in case of prototypes, the test samples shall be representative of the intended future production and shall be selected by the manufacturer; - on request of the manufacturer, the results of the assessment of prototype samples may be included in a certificate or in test reports issued by the involved third party.		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

	For the axial strength tests 7.3.2 and 7.3.11, tensile test apparatus is preferred.However, a simple test apparatus like that shown in Figure B.3 can be used as an alternative.		P
6	Marking and labelling		--
	Floor coverings shall be clearly and indelibly marked either on their package or on a label accompanying the package with the following information:		P
	- name and registered address of the manufacturer;		N/A
	- reference to this European Standard, i.e. EN 14041:2018;		N/A
	Where regulatory marking provisions require information on some or all items listed in this clause, the requirements of this clause concerning those common items are deemed to be met for the purpose of this clause and the information needs not be repeated.		P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

DESCRIPTION	According to the standard	Unit	Limit	Actual measurement	Result
Total thickness	EN ISO 24346	mm	2.00	2.00	P
Weight	EN ISO 23997	g/sq.m	2850	2850	P
Width of sheet	EN ISO 24341	cm	200	200	P
Length of sheet	EN ISO 24341	lm	20	20	P
CLASSIFICATION					
European classification	EN ISO 10874	class	34 - 43	34 - 43	P
Fire rating	EN 13 501-1	class	Bfl-s1	Bfl-s1	P
Static electrical propensity	EN 1815	kV	< 2	1.9	P
PERFORMANCE					
Dimensional stability (requirement)	EN ISO 23999	%	sheet < 0.40	0.30	P
Dimensional stability (average measured value)	EN ISO 23999	%	sheet ≈ 0.10	0.10	P
Impact sound insulation	EN ISO 717-2	dB	5	5	P
Residual indentation (norm)	EN ISO 24343-1	mm	⩽0.10	0.05	P
Residual indentation (average measured value)	-	mm	~0.02	0.02	P
Antislip	DIN 51130 / BGR 181	class	R9	R9	P
Castor chair test (type W)	ISO 4918	-	OK	PASS	P
Thermal conductivity	EN ISO 10456	W/(m.K)	0.25	0.25	P
Colour fastness	ISO 105 - B02	degree	⩾7	8	P
Water tightness	EN 13553	Annex A	-	PASS	P
Chemical products resistance	EN ISO 26987	class	-	OK	P
Anti-bacterial activity (E.coli – S. aureus – MRSA) **	ISO 22196	-	-	> 99 % inhibits growth	P
Antiviral activity (human coronavirus 229E)	ISO 21702	-	-	99.7% after 2h 99.9% after 5h	P
ENVIRONMENT / INDOOR AIR QUALITY					
TVOC after 28 days	ISO 16000-6	micrograms/ m3	< 10	9	P

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com

Photographs
Appendix 1
Photo documentation

Photo 1 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

Photo 2 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

THE END

Shenzhen KES Testing & Certification Co., LTD
Room 405, Floor 4th, Building C, Yuxing Technology Industrial Park, Xixiang Street, Bao' an District, Shenzhen, Guangdong, China
86-755-23009643 86-755-23009643 http://www.kaixitest.com