

Test Report

No. AJFS1802001133FF-02

Date: JUN.01, 2018

Page 1 of 7

HANGZHOU HIKVISION DIGITAL TECHNOLOGY CO., LTD

NO.555 QIANMO ROAD, BINJIANG DISTRICT, HANGZHOU 310052, CHINA

THE TEST REPORT IS TO SUPERSEDE THE TEST REPORT No.: AJFS1802001133FF-01, DATE: MAY.22, 2018.

The following sample(s) was / were submitted and identified on behalf of the client as:

Sample Description: MATERIALS FOR NETWORK CAMERA

SGS Ref No.: SHEM1802000982IT

Trade Mark: HIKVISION

Model Name: DS-2XM6122FWD-I; DS-2XM6122FWD-IM; DS-2XM6112FWD-I; DS-2XM6112FWD-IM; DS-2XM61XYZUV-ABCDEF; DS-2XM6522FWD-I; DS-2XM6522FWD-IM; DS-2XM6512FWD-I; DS-2XM6512FWD-IM; DS-2XM65XYZUV-ABCDEF; DS-2CD6520D-I; DS-2CD6510D-I; DS-2CD6512-I; DS-2CD6512-IO; DS-2CD6522-I; DS-2CD6522-IO; DS-2XM6XYZUV-ABCDEF; DS-2XM6726FWD-IS; DS-2XM6726FWD-I; DS-2XM6726FWD-IM; DS-2XM6736FWD-IS; DS-2XM6736FWD-I; DS-2XM6736FWD-IM; DS-2XM6756FWD-IS; DS-2XM6756FWD-I; DS-2XM6756FWD-IM
iDS-2XM6810F-I/C、iDS-2XM6810F-IM/C、DS-2XM6222FWD-IM、DS-2XM6222FWD-I、DS-2XM6212FWD-IM、DS-2XM6212FWD-I、DS-2XM6512WD-IM、DS-2XM6512WD-I、DS-2XM6425G0/F-C2、DS-2XM6425G0/F-DI、DS-2XM6425G0/F-LI、DS-2XM6425G0/F-T、DS-2XM6522WD-IM、DS-2XM6522WD-I

Test Requested:

EN 45545-2:2013+A1:2015 Railway applications—Fire protection on railway vehicles Part 2: Requirements for fire behaviour of materials and components, and testing according to Table 5 — Material requirement sets (R22)

Test Results: -- See attached sheet --

Test Period:

Sample Receiving Date : FEB.11, 2018

Test Performing Date : FEB.11, 2018 TO FEB.24, 2018

Signed for and on behalf of
SGS-CSTC Co., Ltd. Anji Branch

Allen Zou
Technical Manager



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
No. 301, Sunlight Road, 2 Block, Sunlight Industry Zone, Anji County, Zhejiang Province, China 313300 t (86-572) 5018825 f (86-572) 5018829 www.sgsgroup.com.cn
中国·浙江·安吉县阳光工业园二区阳光大道301号 邮编: 313300 t (86-572) 5018825 f (86-572) 5018829 e sgs.china@sgs.com

I. Description of Test specimens

Sample Description	Materials for network camera
Color	Clear
Thickness	About 2.6mm
Exposed (test) surface	One surface
Size of specimens	T01 EN ISO 4589-2:150mm×10.0mm×2.6mm
	T10.03 EN ISO 5659-2: About 75mm×75mm×2.6mm
	T12 NF X70-100-1&-2: 1, <u>1.0007g</u> 2, <u>1.0016g</u> 3, <u>0.9994g</u>

II. Summary of test results

Requirement set (used for)	Test method reference	Parameter Unit	Test results *
R22 (IN16; EL2; EL6A; EL7A; M2)	T01 EN ISO 4589-2: OI	Oxygen content %	28.2
	T10.03 EN ISO 5659-2: 25 kW/m ²	Ds max. dimensionless	3.5
	T12 NF X 70-100-1 and -2 600°C	CIT _{NLP} dimensionless	0.31

* For the test details, please see the appendix of this test report.

III. Conclusion

According to the test results, the submitted sample **meets** the requirements of **R22** (detailed in Table 5 of EN 45545-2:2013+A1:2015) for **HL1, HL2 Hazard Level Classification**.

To be continued...



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
 No. 301, Sunlight Road, 2 Block, Sunlight Industry Zone, Anji County, Zhejiang Province, China 313300 t (86-572) 5018825 f (86-572) 5018829 www.sgsgroup.com.cn
 中国·浙江·安吉县阳光工业园二区阳光大道301号 邮编: 313300 t (86-572) 5018825 f (86-572) 5018829 e sgs.china@sgs.com

Test Criteria for EN 45545-2:2013+A1:2015 Table 5 Material requirement sets (R22)

Requirement set (used for)	Test method reference	Parameter Unit	Requirement Definition	HL1	HL2	HL3
R22 (IN16; EL2; EL6A; EL7A; M2)	T01 EN ISO 4589-2: OI	Oxygen content %	Minimum	28	28	32
	T10.03 EN ISO 5659-2: 25 kW/m ²	Ds max. dimensionless	Maximum	600	300	150
	T12 NF X 70-100-1 and -2 600°C	CIT _{NLP} dimensionless	Maximum	1.2	0.9	0.75

Statements:

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

The test results relate only to the specimens of the product in the form in which were tested.

The specimen was supplied by the sponsor and SGS-CSTC ANJI Branch was not involved in any selection or sampling procedure.

To be continued...



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

**APPENDIX 1: T01 EN ISO 4589-2:2017 Determination of burning behaviour by oxygen Index Part 2:
Ambient temperature test**

1. Conditioning

T: 23±2°C, R.H: 50±5%, at least 88 h.

2. Test results

- a) Select initial oxygen concentration (in accordance with 8.1.3): 28%
- b) Determining the Preliminary Oxygen Concentration (Till pair of oxygen concentrations which gives opposite response differs by ≤1%, in accordance with 8.5)

Oxygen concentration, % (V/V)	28	29							
Burning period, s	<180	>180							
Response, ("X" or "O")	O	X							

Oxygen concentration of the "O" response for the pair = 28.0 % (this is the concentration to be used again for the first measurement in section below)

- c) Determination of the oxygen index (in accordance with 8.6)

Step size to be used for successive changes d in oxygen concentration = 0.2 % [Initially to be 0.2% (V/V), unless otherwise instructed]

Parameter	N _T series measurements									
	NL series measurements (8.6.1 and 8.6.2)					(According to the 8.6.3) <i>cf</i>				
Oxygen concentration, % (V/V)	28.0	28.2			--	28.2	28.0	28.2	28.4	28.2
Burning period, s	<180	>180			--	>180	<180	<180	>180	>180
Response ("X" or "O")	O	X			→	X	O	O	X	X
	Column (2, 3, 4 or 5): 2					Row (1 to 16): 4				
	k value from EN ISO 4589-2 table 4: -0.17									
	Hence k= -0.17									

$$\begin{aligned}
 OI &= Cf + kd = 28.2 + (-0.17 \times 0.2) \\
 &= \underline{28.2\%} \text{ (to one decimal place)} \\
 &= \underline{28.17\%} \text{ (to two decimal places)}
 \end{aligned}$$

To be continued...



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
 No. 301, Sunlight Road, 2 Block, Sunlight Industry Zone, Anji County, Zhejiang Province, China 313300 t (86-572) 5018825 f (86-572) 5018829 www.sgsgroup.com.cn
 中国·浙江·安吉县阳光工业园二区阳光大道301号 邮编: 313300 t (86-572) 5018825 f (86-572) 5018829 e sgs.china@sgs.com

APPENDIX 2: T10.03 EN ISO 5659-2:2012 Plastics—Smoke generation — Part 2: Determination of optical density by a single- chamber test. Heat flux 25Kw/m² with pilot flame, test duration is 10min.

1. Conditioning

T: 23±2 °C, R.H: 50±5%, until the test sample was conditioned to constant mass.

2. Test Results

Parameters	1	2	3	Avg
D _s (1.5)	0	0	0	0
D _s (4)	0	0	0	0
D _s (10)	4.2	3.8	2.5	3.5
VOF ₄ min	0	0	0	0
D _{s max}	4.2	3.9	2.5	3.5
T (D _{s max}) s	600	596	599	598.3

NOTE:

D_s (n) is the specific optical density at nth min;

VOF₄ is the cumulative value of specific optical densities in the first 4 min of the test;

D_{s max} is the maximum optical density in the test chamber.

To be continued...



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
 No. 301, Sunlight Road, 2 Block, Sunlight Industry Zone, Anji County, Zhejiang Province, China 313300 t (86-572) 5018825 f (86-572) 5018829 www.sgsgroup.com.cn
 中国·浙江·安吉县阳光工业园二区阳光大道301号 邮编: 313300 t (86-572) 5018825 f (86-572) 5018829 e sgs.china@sgs.com

APPENDIX 3: T12 NF X70-100-1:2006 Fire tests—Analysis of gaseous effluents—Part 1: Methods for analysing gases stemming from thermal degradation & NF X70-100-2:2006 Fire tests—Analysis of gaseous effluents—Part 2: Tubular furnace thermal degradation method. Furnace Temperature: 600°C. Toxic for non-listed products.

1. Conditioning

T: 23±2°C and R.H 50±5%, at least 48h and until the test sample was conditioned to constant mass.

2. Test results

Gas component [mg/g]	No.1	No.2	No.3	Avg	Reference concentration [mg/m ³]
CO	421.02	416.59	390.00	409.20	1380
CO ₂	940.18	898.39	908.84	915.80	72000
HF	ND	ND	ND	--	25
HCl	ND	ND	ND	--	75
HBr	ND	ND	ND	--	99
HCN	ND	ND	ND	--	55
NO, NO _x	ND	ND	ND	--	38
SO ₂	ND	ND	ND	--	262

ND indicates Non-detected.

Calculations of CIT_{NLP}

$$CIT_{NLP} = 1 \frac{g}{m^3} \sum_{i=1}^{i=8} \frac{Y_i}{C_i}$$

Y_i : is the yield of ith gas in mg/g in the NF X70-100-1 tube furnace;

C_i : is the reference concentration of the ith gas in mg/m³.

CIT_{NLP} = 0.31

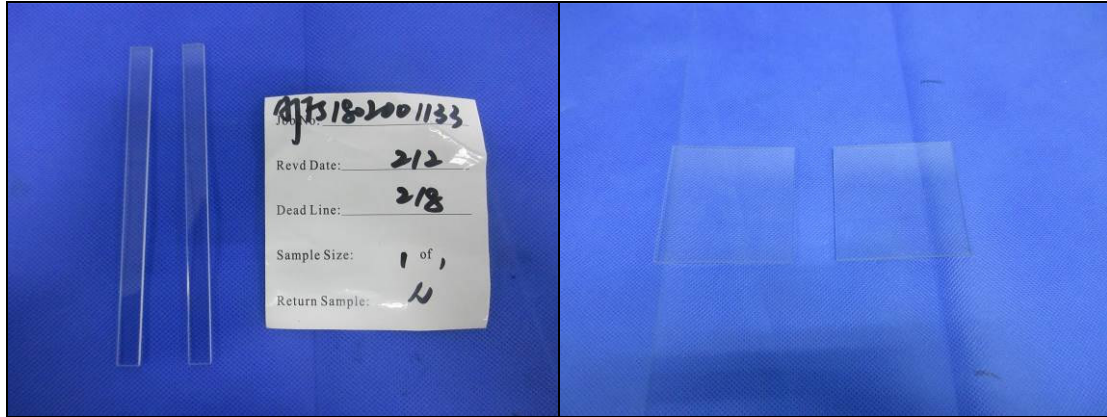
To be continued...



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com
 No. 301, Sunlight Road, 2 Block, Sunlight Industry Zone, Anji County, Zhejiang Province, China 313300 t (86-572) 5018825 f (86-572) 5018829 www.sgsgroup.com.cn
 中国·浙江·安吉县阳光工业园二区阳光大道301号 邮编: 313300 t (86-572) 5018825 f (86-572) 5018829 e sgs.china@sgs.com

Photo Appendix:



SGS authenticate the photo on original report only

End of Report

