Sky Xtra Face Mask: Key Performance characteristics

Performance of the Sky Xtra Face Mask against the functional particle filtration and breathability performance requirements of popular standards for Face Masks has been independently determined as follows*:

Tests performed	FFP2 / P2	Comparable N95 performance*
Filtration **EN 149:2001+A1:2009, Clause 8.11 & AFNOR-SPEC-S76-001:2020, Reference to EN13274-7: 2019 Modified**	PASS	PASS
Breathability **EN 149:2001+A1:2009, Clause 8.9 & EN ISO 9237-1995**	PASS	PASS

Testing against FFP2 / P2 functional performance requirements

The Sky Xtra Face Mask has been independently tested by NTEK against the functional performance requirements of the FFP2 / P2 standard and determined to have the following key characteristics when new:

	Requirement	Result**	
Penetration of Filter Material **(EN 149:2001+A1:2009, Clause 8.11)**	*Maximum penetration of test aerosol:* Sodium chloride @ 95 L/m ≤ 6% Paraffin oil @ 95 L/m ≤ 6%	Sodium chloride ≤ 2.07% Paraffin oil ≤ 4.39%	PASS
Breathing Resistance **(EN 149:2001+A1:2009, Clause 8.9)**	*Maximum permitted resistance (mbar):* Inhalation @ 30 L/min ≤ 0.7 Inhalation @ 95 L/min ≤ 2.4 Exhalation @ 160 L/min ≤ 3.0	Inhalation @ 30 L/min ≤ 0.4 Inhalation @ 95 L/min ≤ 1.46 Exhalation @ 160 L/min ≤ 1.27	PASS
Total Inward Leakage **(EN 149:2001+A1:2009 Clause 8.5)**	Total inward leakage ≤ 8%	Total inward leakage < 8%	PASS

***NTEK test reports included as appendix*

Comparable N95 performance level*

	FFP2 / P2 Requirement	Comparable N95 Requirement*	Result*
Filter performance	*Maximum penetration of test aerosol:* Sodium chloride @ 95 L/m ≤ 6% Paraffin oil @ 95 L/m ≤ 6%	*Maximum penetration of test aerosol:* Sodium chloride @ 85 L/m ≤ 5%	**Sodium chloride ≤ 2.07%** Paraffin oil ≤ 4.39%
Breathing Resistance	*Maximum permitted resistance (mbar):* Inhalation @ 30 L/min ≤ 0.7 Inhalation @ 95 L/min ≤ 2.4 Exhalation @ 160 L/min ≤ 3.0	*Maximum permitted resistance (mbar):* Inhalation @ 85 L/min ≤ 3.43 Exhalation @ 85 L/min ≤ 2.45	Inhalation @ 30 L/min ≤ 0.4 **Inhalation @ 95 L/min ≤ 1.46** **Exhalation @ 160 L/min ≤ 1.27**

Refer to https://multimedia.3m.com/mws/media/1791500O/comparison-ffp2-kn95-n95-filtering-facepiece-respirator-classes-tb.pdf for a helpful comparison between FFP2 / P2, N95 and other international standards.

The test results for the Sky Xtra Face Mask are presented on the following pages.

* Comparisons between standards are for illustrative purposes only.

Mask has not been FDA cleared or approved.

Flashbay
January 2022

Test Report

Applicant: Flashbay Electronics
Address: Building 2, Jixun Industial Park, Xinjiao, Dong'ao Village, Shatian Town, Huiyang District, Huizhou City, Guangdong Province, P.R.China

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

Product name:	Face Mask
Model:	Sky Xtra(SKX)
Manufacturer:	Flashbay Electronics
Address:	Building 2, Jixun Industial Park, Xinjiao, Dong'ao Village, Shatian Town, Huiyang District, Huizhou City, Guangdong Province, P.R.China
Classification:	FFP2 NR
Sample quantity:	30 Pcs
Sample Received Date:	Feb. 04, 2021
Testing Period:	Feb. 04, 2021~ Feb. 22, 2021

Test Requirement:

According to the requirement of the client, the test item(s) of the sample is referring to the standard EN 149:2001+A1:2009.

Test Result(s): Please refer to the following page(s)

Test Method: Please refer to the following page(s)

Compiled by: _____ Reviewed by: _____

Approved by: _____ Date: 2021-02-23

Test Result

Clause 7.9.2 Penetration of Filter Material

(EN 149:2001+A1:2009, Clause 8.11)

Test Requirement	Results
The penetration of the filter of the particle filtering half mask shall meet the requirements of the following table.	Detail refer to Appendix 1

Classification	Maximum penetration of test aerosol(%)	
	Sodium chloride test 95 L/min	Paraffin oil test 95 L/min
FFP1	20	20
FFP2	6	6
FFP3	1	1

Appendix 1: Summarization of Test Data

Penetration of filter material

Aerosol	Condition	Sample No.	Penetration (%)	
			Average in 30s after 3 min	Max. during exposure
Sodium chloride test	A.R.	1#	2.07	/
		2#	1.64	/
		3#	1.19	/
Paraffin oil test	A.R.	4#	4.38	/
		5#	3.86	/
		6#	4.39	/
Flow rate of test aerosol: 95.0 L/min				

Clause 7.9.1 Total Inward Leakage
(EN 149:2001+A1:2009 Clause 8.5)

Test Requirement	Results
For particle filtering half masks fitted in accordance with the manufacturer's information, at least 46 out of the 50 individual exercise results (i.e. 10 subjects x 5 exercises) for total inward leakage shall be not greater than: 25% for FFP1 11% for FFP2 5% for FFP3 and, in addition, at least 8 out of the 10 individual wearer arithmetic means for the total inward leakage shall be not greater than: 22% for FFP1 8% for FFP2 2% for FFP3	Detail refer to Appendix 2

Appendix 2: Summarization of Test Data

Subject	Sample	Condition	Normal Breathing (%)	Head Side/Side (%)	Head Up/Down (%)	Speak Loudly (%)	Normal Breathing (%)	Mean (%)
Gu	7#	A.R.	7.2	7.3	7.5	7.6	7.3	7.38
Hu	8#	A.R.	6.8	6.9	7.2	7.4	6.9	7.04
Wang	9#	A.R.	6.5	6.6	6.7	6.8	6.6	6.64
Long	10#	A.R.	7.4	7.6	7.7	7.9	7.5	7.62
Gao	11#	A.R.	6.9	7.1	7.2	7.4	7.1	7.14
Huang	15#	A.R.	6.9	7.1	7.2	7.3	7.1	7.12
Zhou	16#	A.R.	5.2	5.4	5.6	5.7	5.3	5.44
Ma	17#	A.R.	7.2	7.3	7.4	7.6	7.4	7.38
Wu	18#	A.R.	7.5	7.7	7.8	7.9	7.6	7.70
Li	19#	A.R.	6.2	6.3	6.4	6.6	6.4	6.38

Facial Dimension:

Subject	Length of Face (mm)	Width of Face (mm)	Depth of Face (mm)	Width of Mouth (mm)
Gu	114	127	119	52
Hu	128	144	135	53
Wang	112	136	122	50
Long	119	134	128	51
Gao	130	154	144	52
Huang	130	140	125	53
Zhou	100	148	125	55
Ma	120	158	110	50
Wu	110	148	121	44
Li	112	146	112	50

Clause 7.16 Breathing Resistance

EN 149:2001+A1:2009, Clause 8.9)

<table>
<tr><th>Test Requirement</th><th>Results</th></tr>
<tr><td>The breathing resistances apply to valved and valveless filtering half masks and shall meet the requirements as the following table.
<table>
<tr><td rowspan="2">Classification</td><td colspan="3">Maximum permitted resistance (mbar)</td></tr>
<tr><td colspan="2">Inhalation</td><td>Exhalation</td></tr>
<tr><td>30 L/min</td><td>95 L/min</td><td>160 L/min</td></tr>
<tr><td>FFP1</td><td>0.6</td><td>2.1</td><td>3.0</td></tr>
<tr><td>FFP2</td><td>0.7</td><td>2.4</td><td>3.0</td></tr>
<tr><td>FFP3</td><td>1.0</td><td>3.0</td><td>3.0</td></tr>
</table></td><td>Detail refer to Appendix 3</td></tr>
</table>

Appendix 3: Summarization of Test Data

Specimen	Condition	Inhalation(mbar)		Exhalation resistance(mbar)				
		At 30 L/min	At 95 L/min	At 160 L/min				
				A	B	C	D	E
12#	A.R.	0.38	1.43	1.25	1.26	1.24	1.25	1.25
13#		0.39	1.45	1.26	1.25	1.26	1.26	1.25
14#		0.40	1.46	1.26	1.25	1.26	1.27	1.26

A: facing directly ahead; B: facing vertically upwards; C: facing vertically downwards; D: lying on the left side; E: lying on the right side

Remark:

According to the requirement of the client, only the specimen of “A.R.” has been tested.

Sample photo(s):

Fig.1

Fig.2

This testing report displaces the original report of No. S21020400101E, and the original one No. S21020400101E was invalid since the date of this testing report released.

****End of Report****