Vehicle Certification Agency

THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

COMMUNICATION CONCERNING THE APPROVAL EXTENDED OF A TYPE OF PROTECTIVE HELMET WITH ONE VISOR TYPE PURSUANT TO UN REGULATION NO. 22.06

E11 Approval No: E11*22R06/00*0657*02

Reason(s) for Extension:
1) Addition of the item “Commercial name”
2) Change of the manufacturer and assembly plant’s address
3) Correction of the lower face cover description
4) Change of the way of weight description
5) Correction of the retention system’s comfort padding thickness
6) Correction of part names
7) Addition of the item “SUN SHIELD”
8) Change and addition of drawings
9) Update from 05 to 06 series of amendments

1. Trade mark: SCORPIONEXO

2. Type: EXO-TECH

3. Sizes: XXXL, XXL, XL, L, M, S, XS

4. Manufacturer's name: KIDO SPORTS CO., LTD.

5. Address:
395,
Gonghang-daero,
Gangseo-gu,
Seoul, 07590,
Rep. of Korea

6. If applicable, name of manufacturer's representative: Not applicable

7. Address: Not applicable

KSA588056

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8. Brief description of helmet: Modular helmet with movable protective lower face cover, one visor type and sun shield

9. Helmet with movable or detachable lower face cover (P/J)

10. Type of visor or visors: KDF-18

11. Brief description of visor or visors: Clear visor made of polycarbonate (PC) with anti-scratch coating and 2.0 mm thickness

12. Submitted for approval on: As before (30 AUGUST 2019) and 16 NOVEMBER 2022

13. Technical service responsible for conducting approval tests: Vehicle Certification Agency

14. Date of report issued by that service: As before (30 AUGUST 2019) and 12 DECEMBER 2022

15. Number of report issued by that service: As before (KSV472030 (0657 Ext.1), KSY554641 (0789/PJ-SUN)) and KSA588056 (0657/PJ ext.02)

16. Comments: None

17. Approval EXTENDED

18. Place: BRISTOL

19. Date: 06 JANUARY 2023

20. Signature:



C McCABE
Chief Technical and Statutory Operations Officer

21. The following documents, bearing the approval number shown above, are available on request

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THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

APPROVAL NUMBER: E11*22R06/00*0657*02

INFORMATION PACKAGE CONTENTS

INDEX REVISION NUMBER: 02

Conformity of Production (COP) Declaration	**COP Confirmed**	
Assessment Method	**COP Audit**	
Date of Initial Clearance		**Pre 2013**
Date of Last Clearance	**April**	**2022**

Total number of sheets: 26 (Twenty-six)

Reasons for Revision: See Manufacturer's Documentation

Revision Date
&
Office Stamp

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KSA588056

R22.06/ECE TYPE-APPROVAL OF PROTECTIVE HELMETS AND THEIR VISORS FOR DRIVERS AND PASSENGERS OF MOTORCYCLES AND MOPEDS

INDEX OF DOCUMENTATION

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4	RETENTION SYSTEM	5
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6	COMFORT PADDING	6
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20	***DRAWING OF THE PROTECTIVE PADDING (Bottom EPS M-L Size) #***	18
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22	DRAWING OF THE PROTECTIVE PADDING (***Ear #*** EPS ***XS-S #*** Size)	19
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26	DRAWING OF THE RETENTION SYSTEM (One touch buckle)	23, 24
27	DRAWING OF THE VISOR	25
28	DRAWING OF THE ***SUN SHIELD #***	26

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Reason(s) for Extension:

1) **Addition of the item "Commercial name"**
2) **Change of the manufacturer and assembly plant's address**
3) **Correction of the lower face cover description**
4) **Change of the way of weight description**
5) **Correction of the retention system's comfort padding thickness**
6) **Correction of part names**
7) **Addition of the item "SUN SHIELD"**
8) **Change and addition of drawings**
9) **Update from 05 to 06 series of amendments**

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1. GENERAL INFORMATION

1.1 Trade mark:

SCORPIONEXO

1.2 Type:

EXO-TECH

1.3 Variants / Versions: N/A

1.4 Commercial name: EXO-TECH, EXO-TECH EVO, TECH EVO, TECH #

1.5 Name and address of manufacturer:

KIDO SPORTS CO., LTD.
395, Gonghang-daero, Gangseo-gu, Seoul, 07590, Rep. of KOREA #

1.6 If any, name and address of manufacturer's authorized representative :

N/A

1.7 Assembly Plant:

Qingdao Geosong Sports Product Co., Ltd.
17 Wenhua-road, Jimo-qu, Qingdao, 266200, China #

1.8 Location and method of affixing of the international approval mark:

Marked in a label sewn to the retention system

1.9 Number of visors which can be fitted:

One ***visor, see Annex 27 for brief description of the visor #***

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2. DESCRIPTION OF THE HELMET

2.1. Type of helmet:

Modular helmet

2.2. Type of lower face cover:

P/J with movable protective lower face cover #

2.3. Sizes:

Large Shell: XS(53~54), S(55~56), M(57~58), L(58~59)
XLarge Shell: XL(60~61), XXL(62~63), XXXL(62~63)

2.4 Weight ***(Shell weight + Protective pading weight) #***

SIZE	XS	S	M	L	XL	XXL	XXXL
WEIGHT	***750g #***	***750g #***	***760g #***	***760g #***	***860g #***	***860g #***	***860g #***

3. SHELL

3.1. Material:

PC/ABS (Polycarbonate and Acrylonitrile Butadien Styrene Plastic)

3.2. Composition of the border join on the shell:

PVC Gasket

3.3. Ventilation

3.3.1. Number of ventilations: 2

3.4.2. Positioning on the shell:

Front and Lower

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4. RETENTION SYSTEM

4.1. Chin strap

4.1.1. Material: Made of Nylon webbing

4.1.2. Width:

20mm (One touch buckle)

4.2. Retention system: One touch buckle

4.3. Comfort padding of the retention system: Made of polyester

4.3.1. Composition:

Comfort padding & One touch buckle & Webbing

4.3.2. Thickness:

3.5 # ±0.1 mm

4.4. Fixing system to the shell:

Rivet

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5. PROTECTIVE PADDING

5.1. Composition:

	S Specificgravity (kg/m³)	L Specificgravity (kg/m³)	XL Specificgravity (kg/m³)
TOP	N/A	22±2	33±3
BOTTOM	35±3	45±3	63±4
FRONT	45±3	45±3	53±4
CHIN	63±4	83±4	91±4
MOUTH	67±5	67±5	67±5

6. COMFORT PADDING

6.1. Composition of:

Comfort padding: Sponge
Comfort tissue: Polyester
Protection of the back of the neck: Polyurethane

7. VISOR

7.1. Trade mark:

SCORPIONEXO

7.2. Type:

KDF-18 (E11)

7.3. Commercial name: KDF-18, KDF-18-1 #

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7.4. Name and address of manufacturer:

KIDO SPORTS Co., LTD.
395, Gonghang-daero, Gangseo-gu, Seoul, 07590, Rep. of KOREA #

7.5. Material:

Poly Carbonate

7.6. Surface treatment:

Anti Scratch/ Anti Scratch

7.7. Colour:

Clear

7.8. Manufacturing method:

Injection molding

8. SUN SHIELD #

8.1. Trade mark:

SCORPIONEXO

8.2. Type:

KS-11

8.3. Name and address of manufacturer:

KIDO SPORTS Co., LTD.
395, Gonghang-daero, Gangseo-gu, Seoul, 07590, Rep. of KOREA

8.4. Material:

Poly Carbonate

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8.5. Surface treatment:

Anti Fog / Anti fog

8.6. Colour:

Smoke

8.7. Manufacturing method:

Injection molding

9. ACCESSORIES

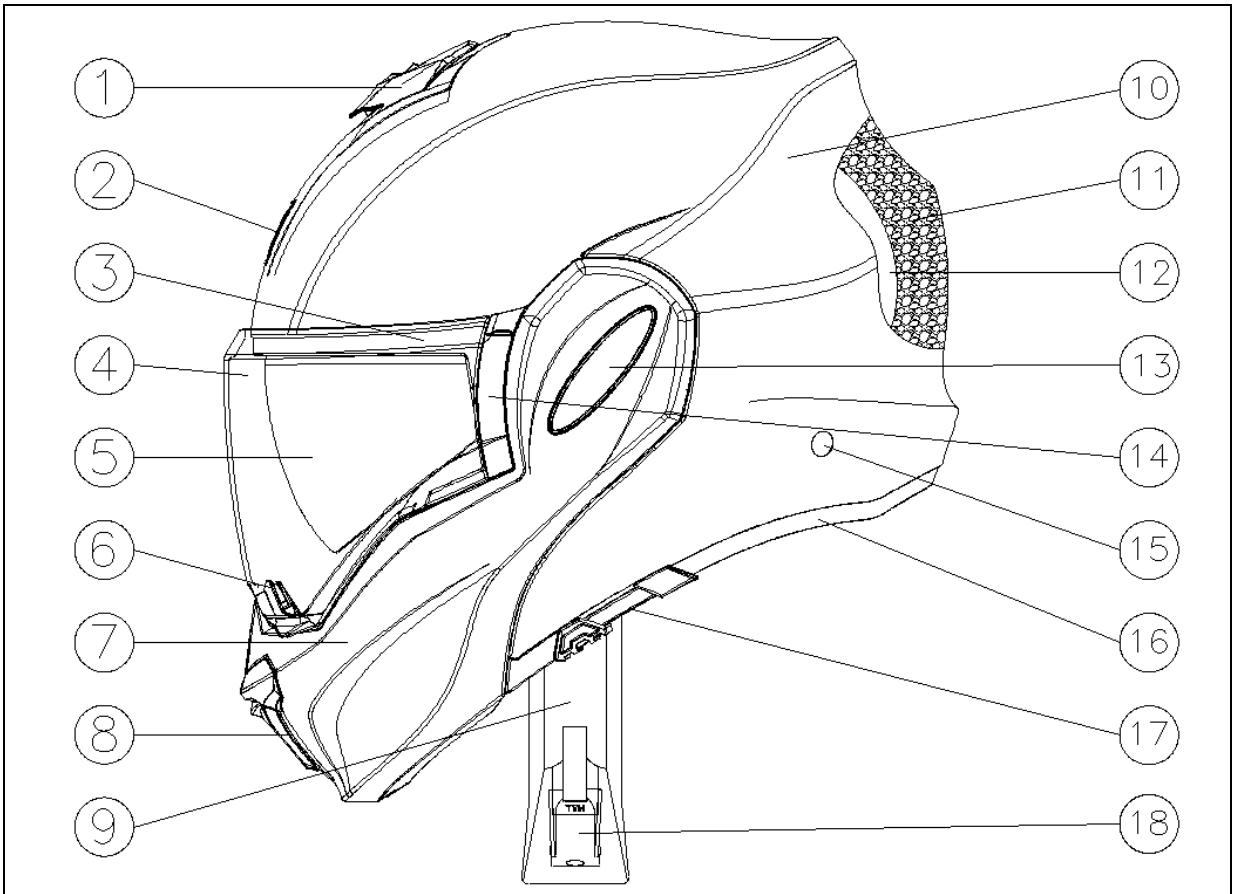
9.1. Peak: N/A

9.2. User instructions

9.2.1. Location: Between in Shell & EPS

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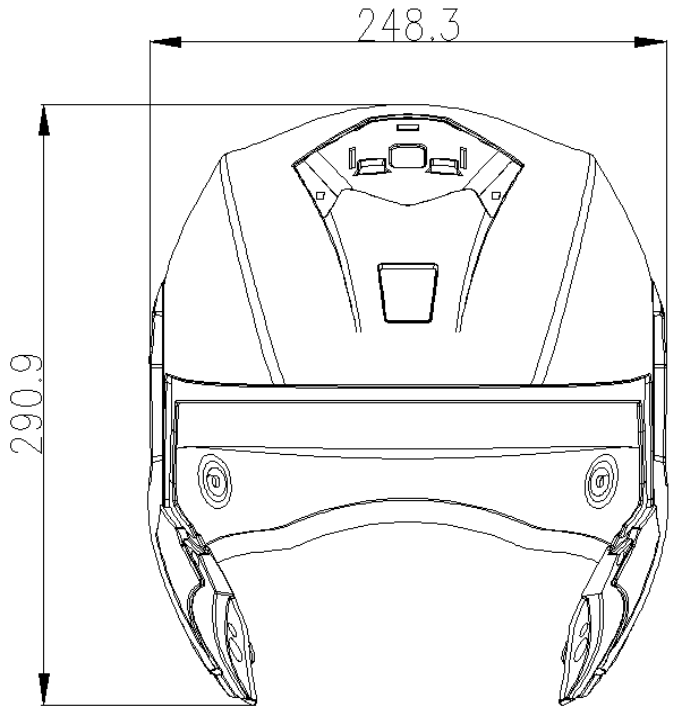
10. GENERAL VIEW OF THE HELMET

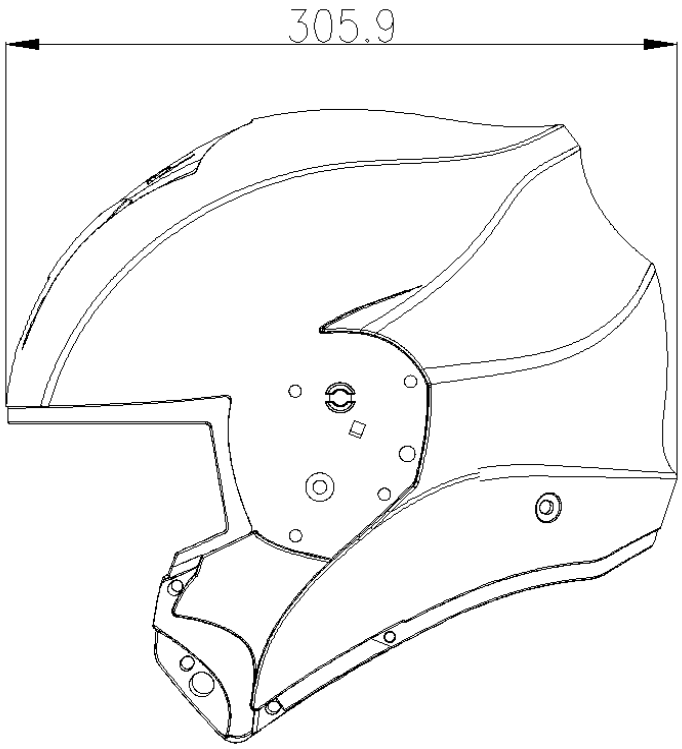


11	EPS liner	Polystyrene	1						
10	SHELL	ABS/PC	1						
9	Chin Strap	Nylon	2						
8	Lower Vent	ABS/PC	1						
7	Chin bar	ABS/PC	1		18	One touch buckle	STEEL	1	SET
6	Chin gasket	PVC	1		17	***Sun shield #*** Handle	PC	1	
5	***Sun shield #***	PC	1		16	Lower Gasket	PVC	1	
4	***Visor #***	PC	1		15	Rivet	SUS	1	
3	Eyeport gasket	PVC	1		14	***Visor #*** Holder	PC	2	LH/RH
2	Front LOGO	ABS	1		13	Side Logo	ABS	2	LH/RH
1	Top vent	ABS/PC	1		12	Comfort Liner	Polyester	1	11
NO	**Part**	**Material**	**Q'ty**	**Remark**	**NO**	**Part**	**Material**	**Q'ty**	**Remark**

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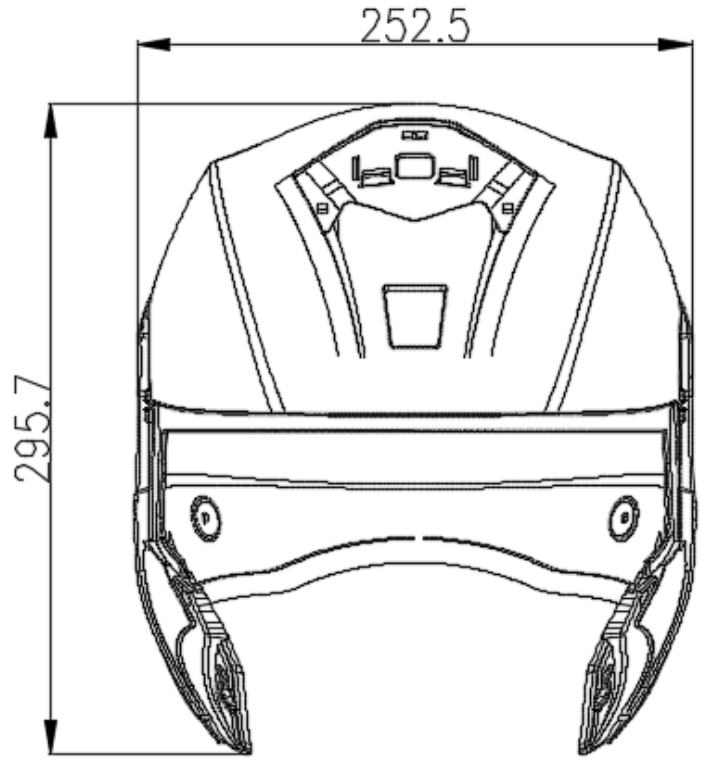
11. DRAWING OF THE SHELL(Large Size)

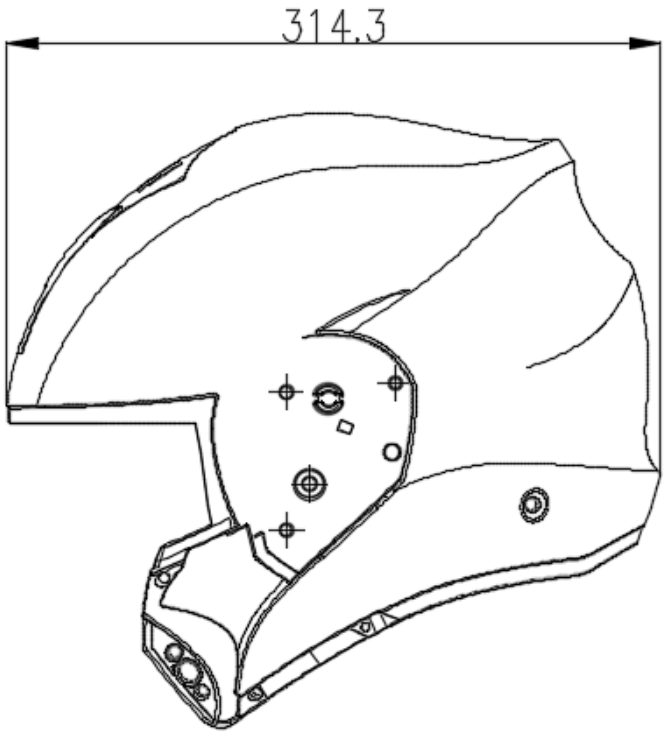




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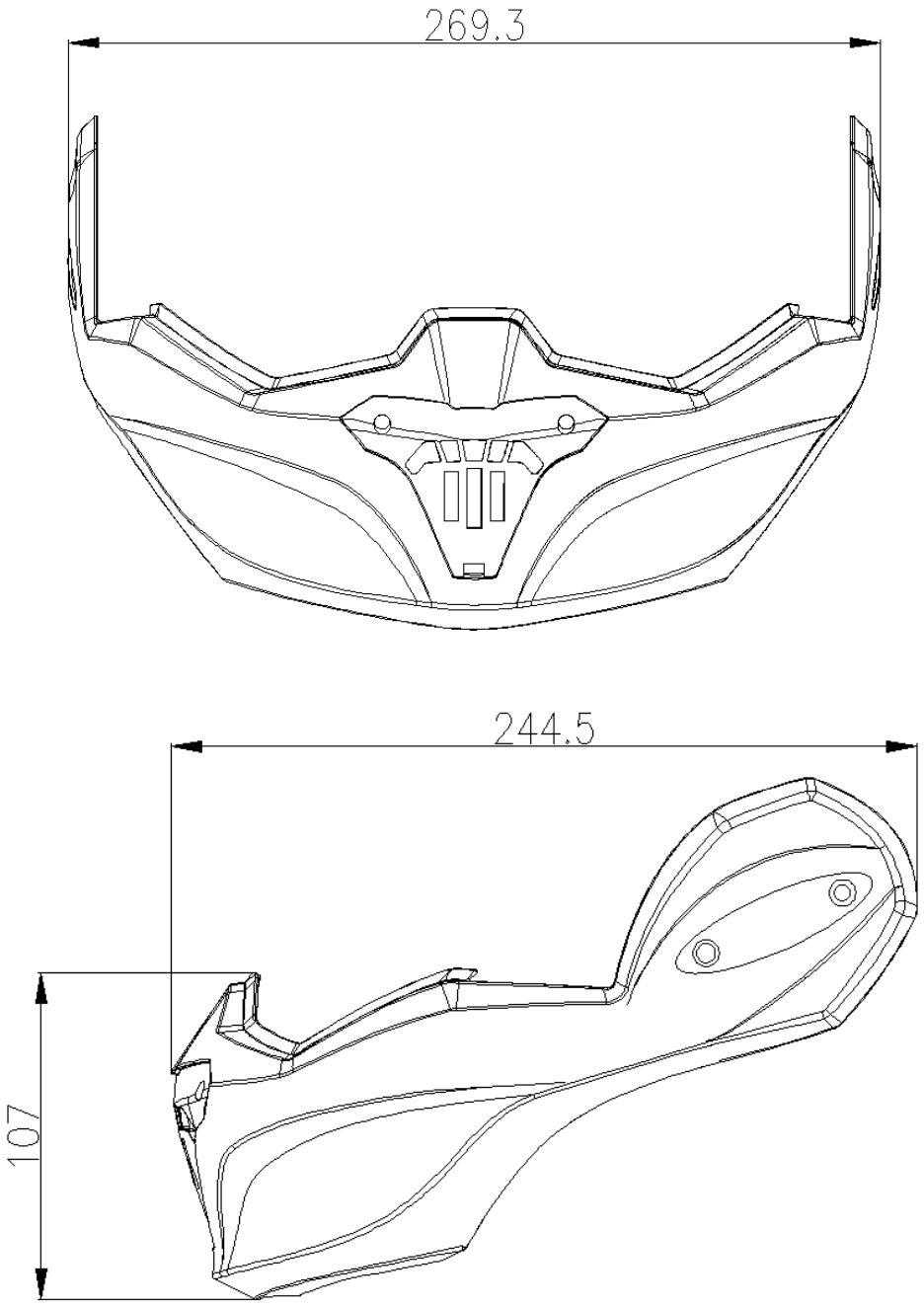
12. DRAWING OF THE SHELL(X-Large Size)





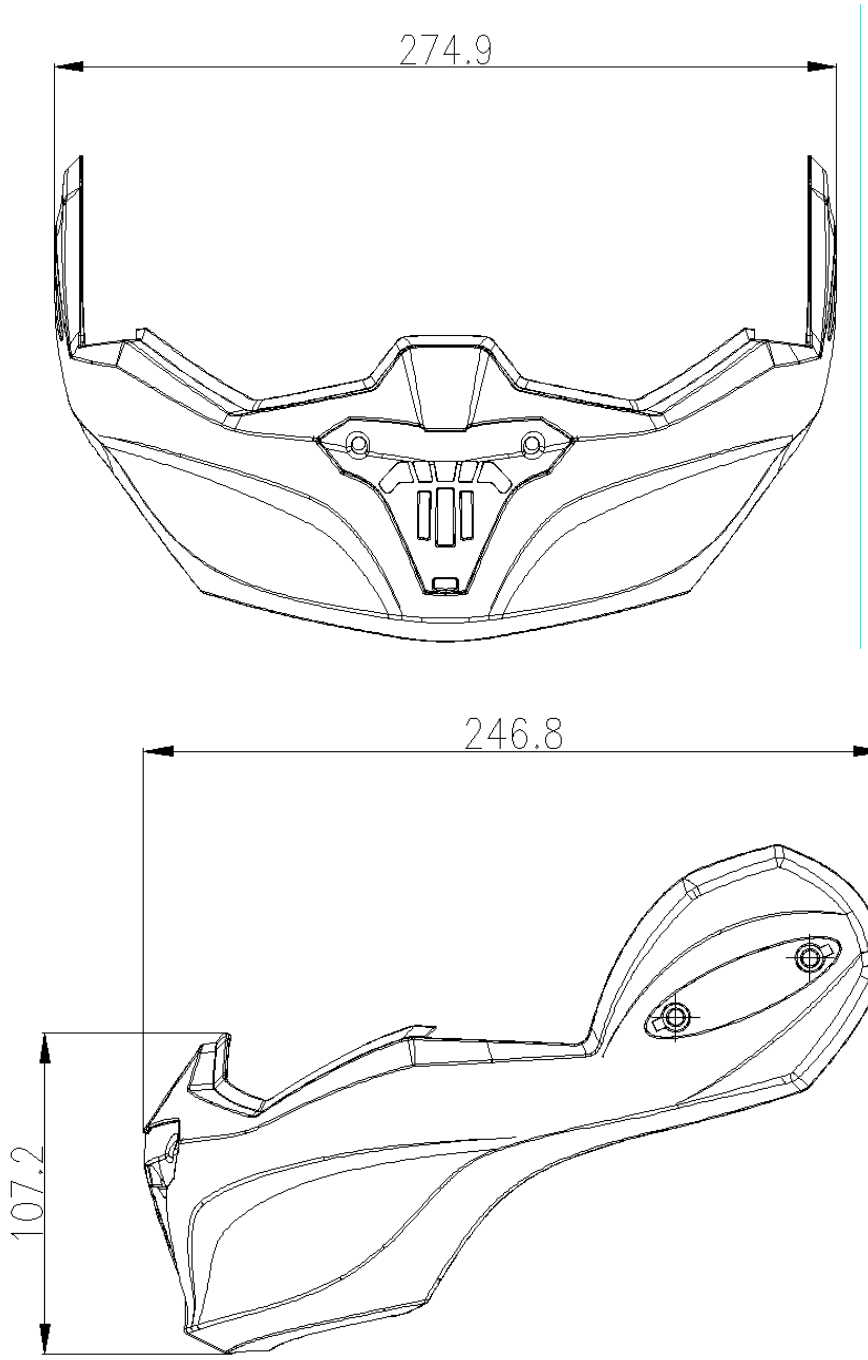
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13. DRAWING OF THE CHINBAR (Large Size)



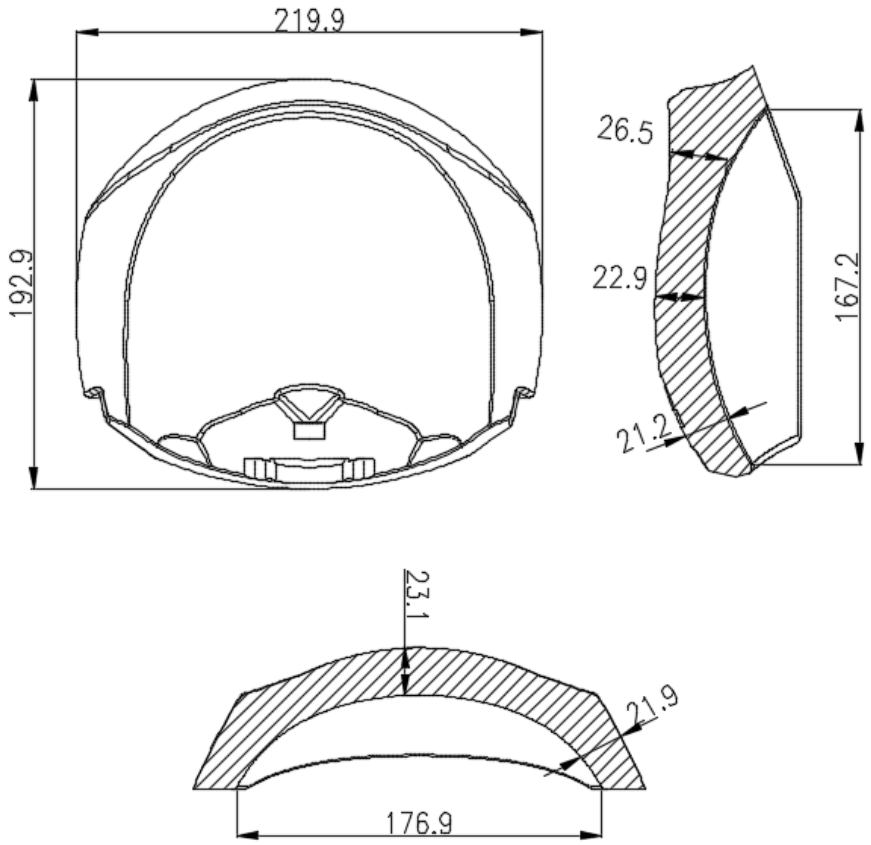
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14. DRAWING OF THE CHINBAR (X-Large Size)



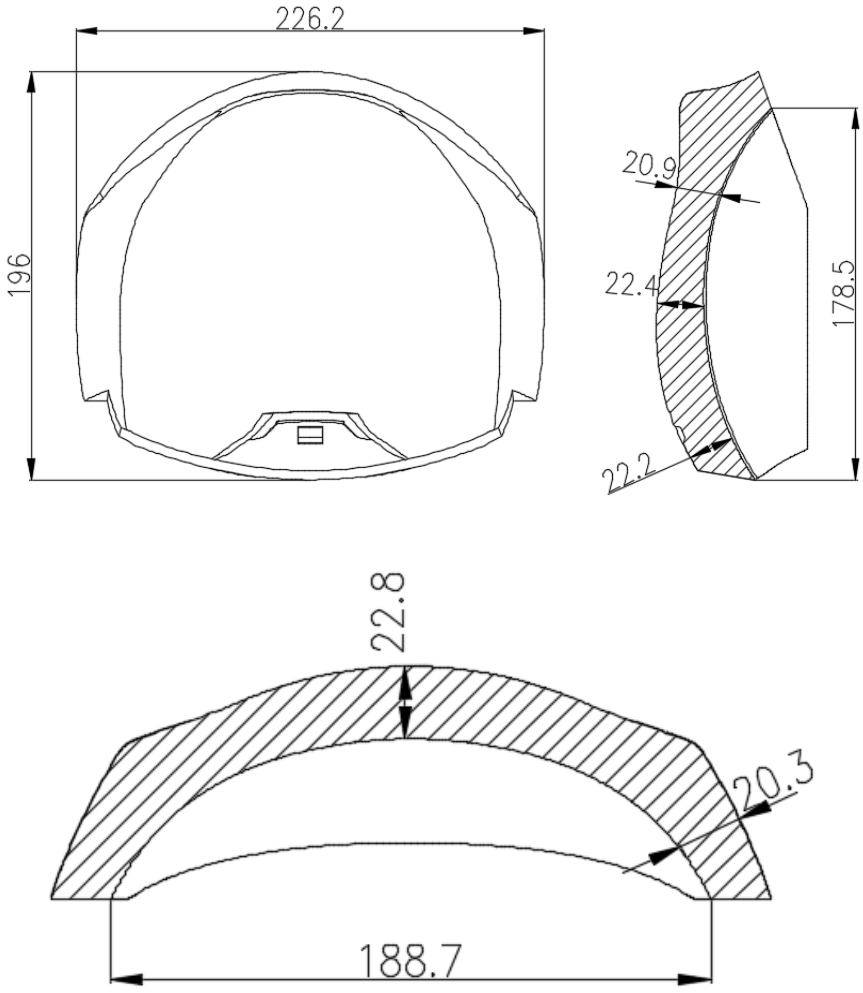
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15. *DRAWING OF THE PROTECTIVE PADDING (TOP EPS Large Size) #*



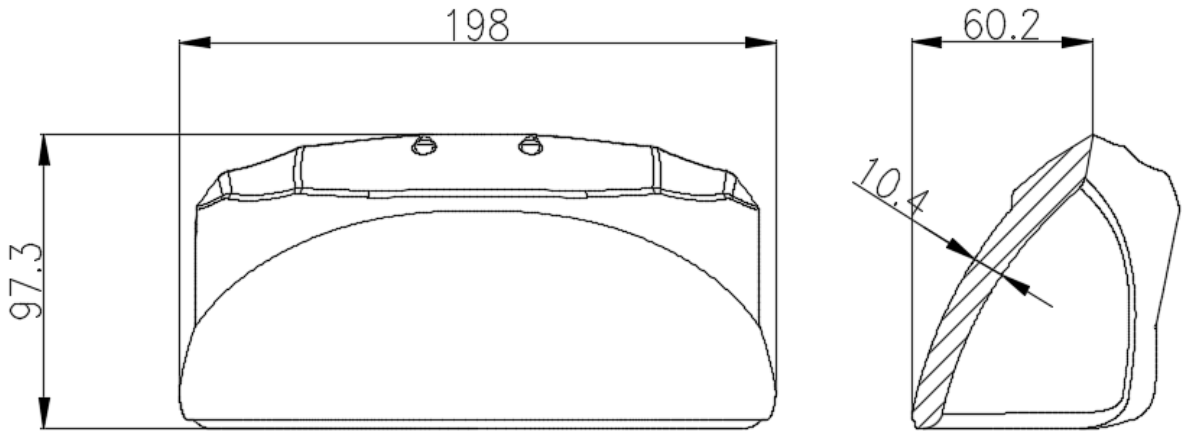
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16. *DRAWING OF THE PROTECTIVE PADDING (TOP EPS X-Large Size) #*

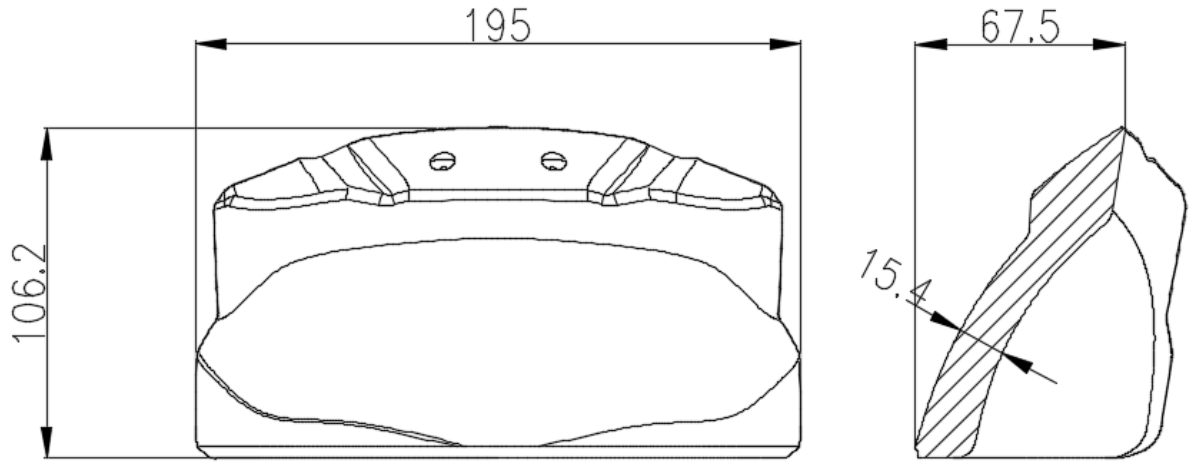


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17. *DRAWING OF THE PROTECTIVE PADDING (FRONT EPS XS-L Size) #*

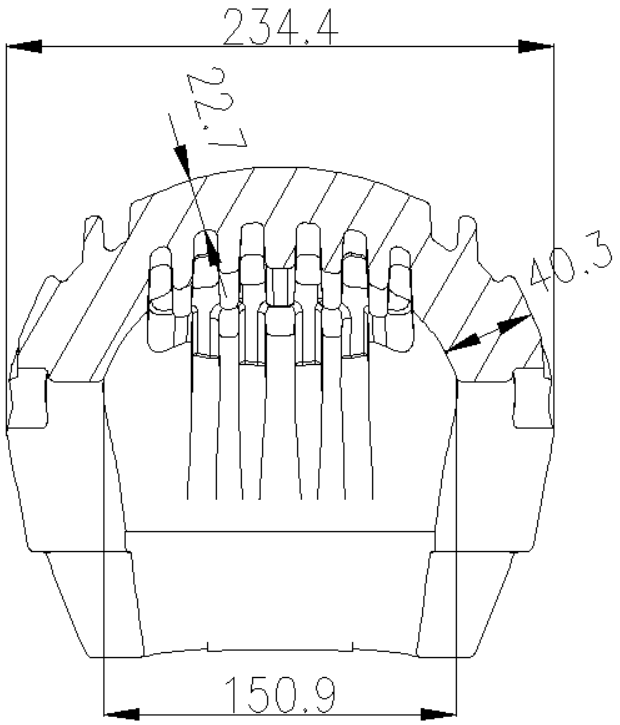


18. *DRAWING OF THE PROTECTIVE PADDING (FRONT EPS XL Size) #*

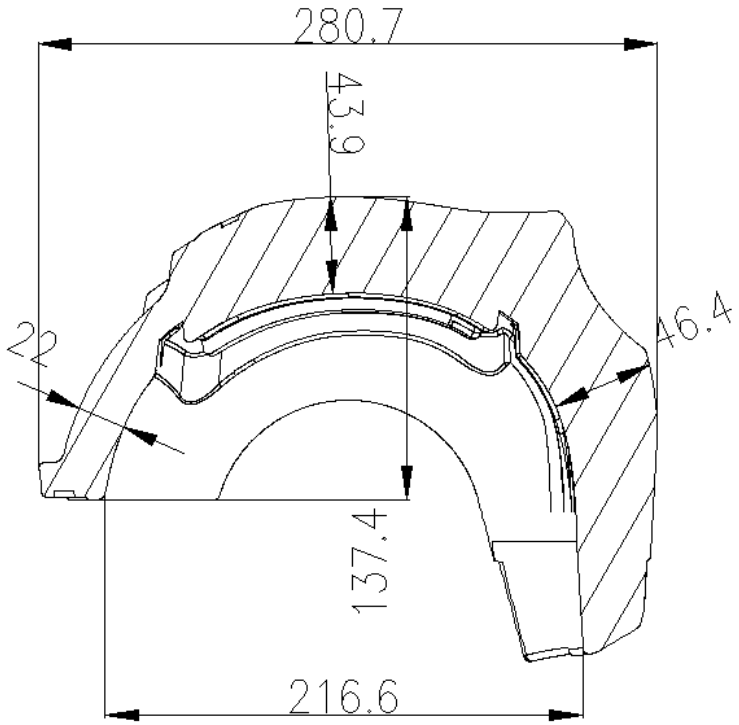


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19. *DRAWING OF THE PROTECTIVE PADDING (Bottom EPS XS-S Size) #*

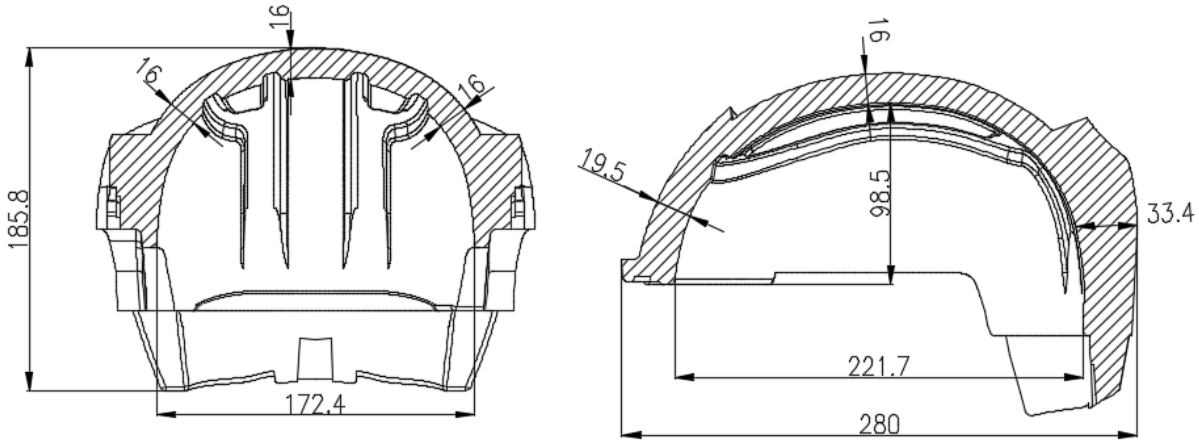


Size)#

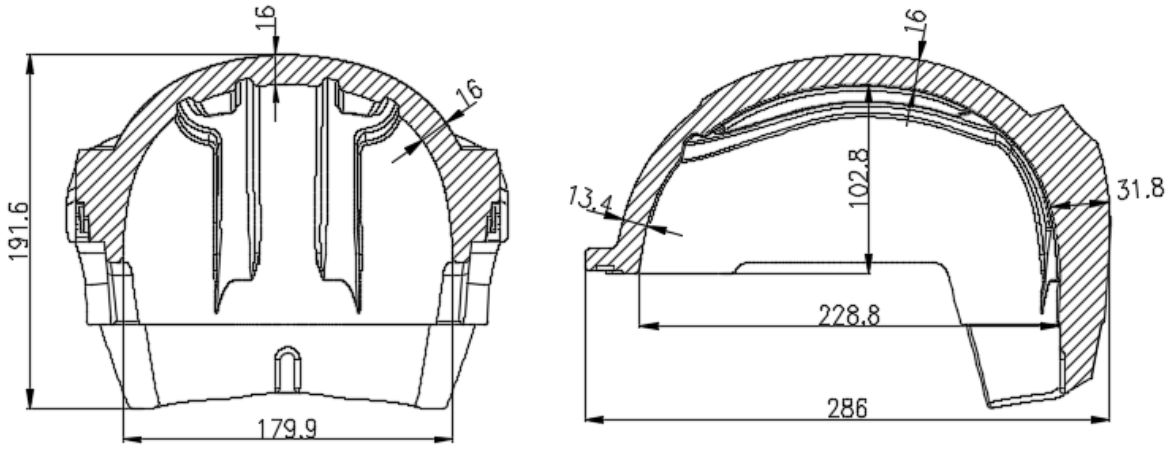


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20. *DRAWING OF THE PROTECTIVE PADDING (Bottom EPS M-L Size) #*

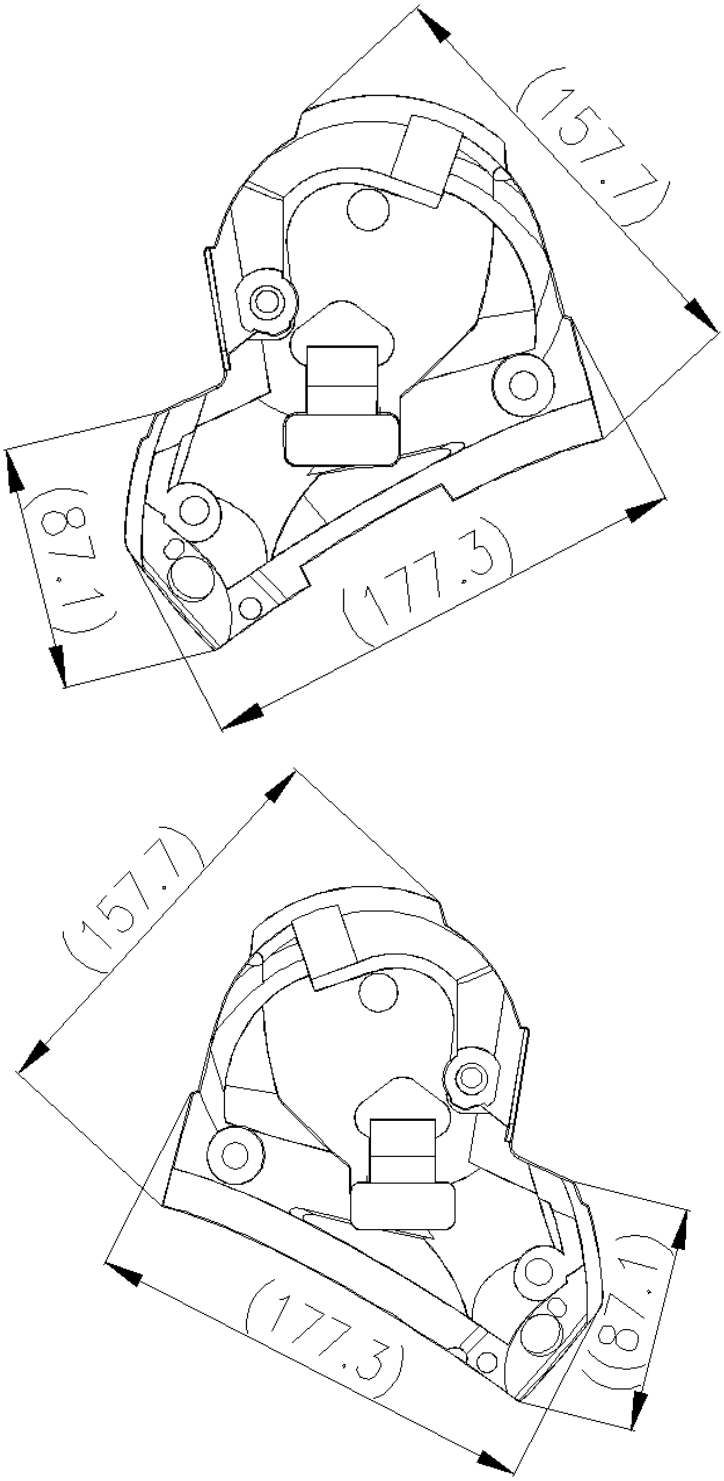


21. *DRAWING OF THE PROTECTIVE PADDING (Bottom EPS XL-XXXL Size) #*



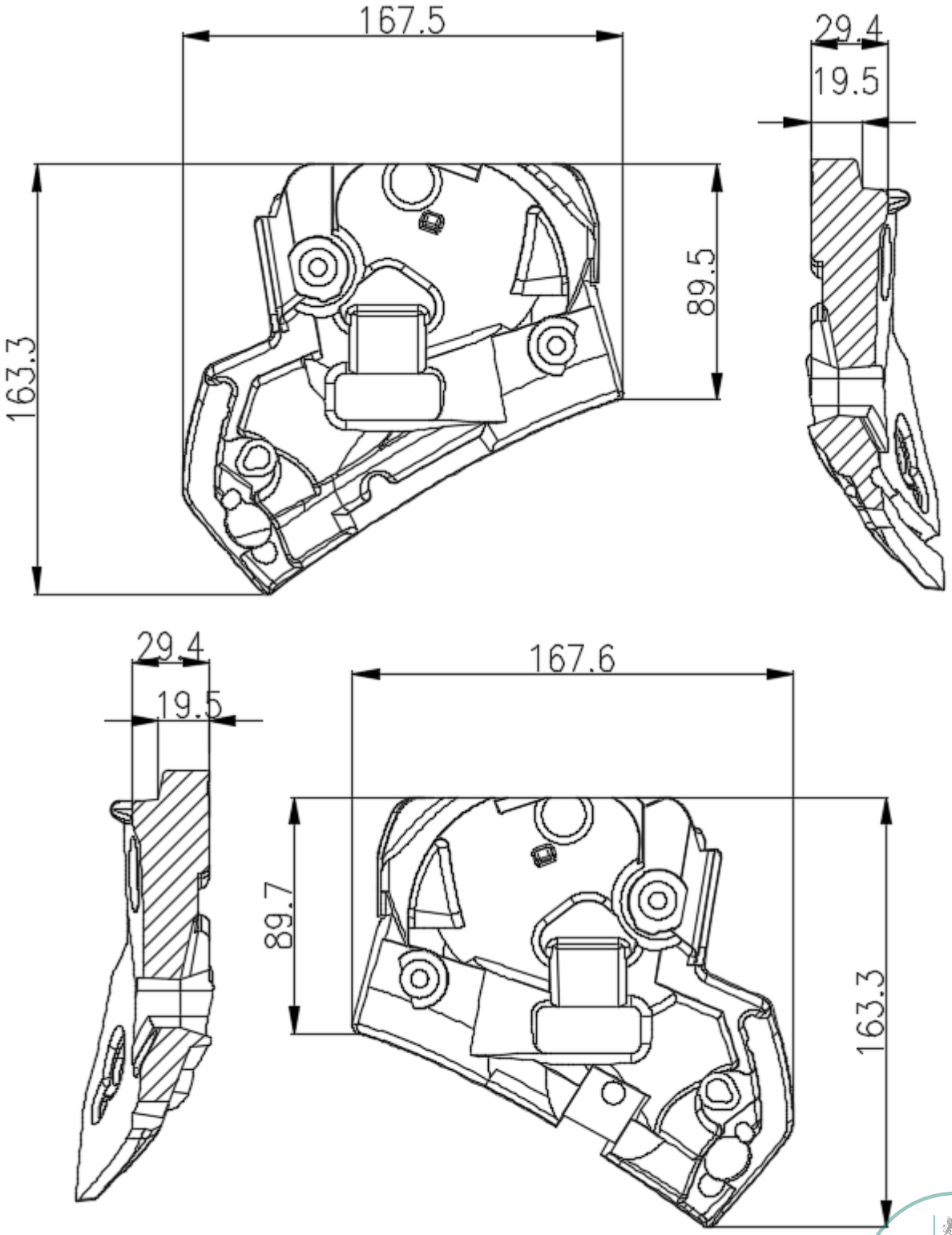
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22. DRAWING OF THE PROTECTIVE PADDING (*Ear #* EPS *XS-S #* Size)



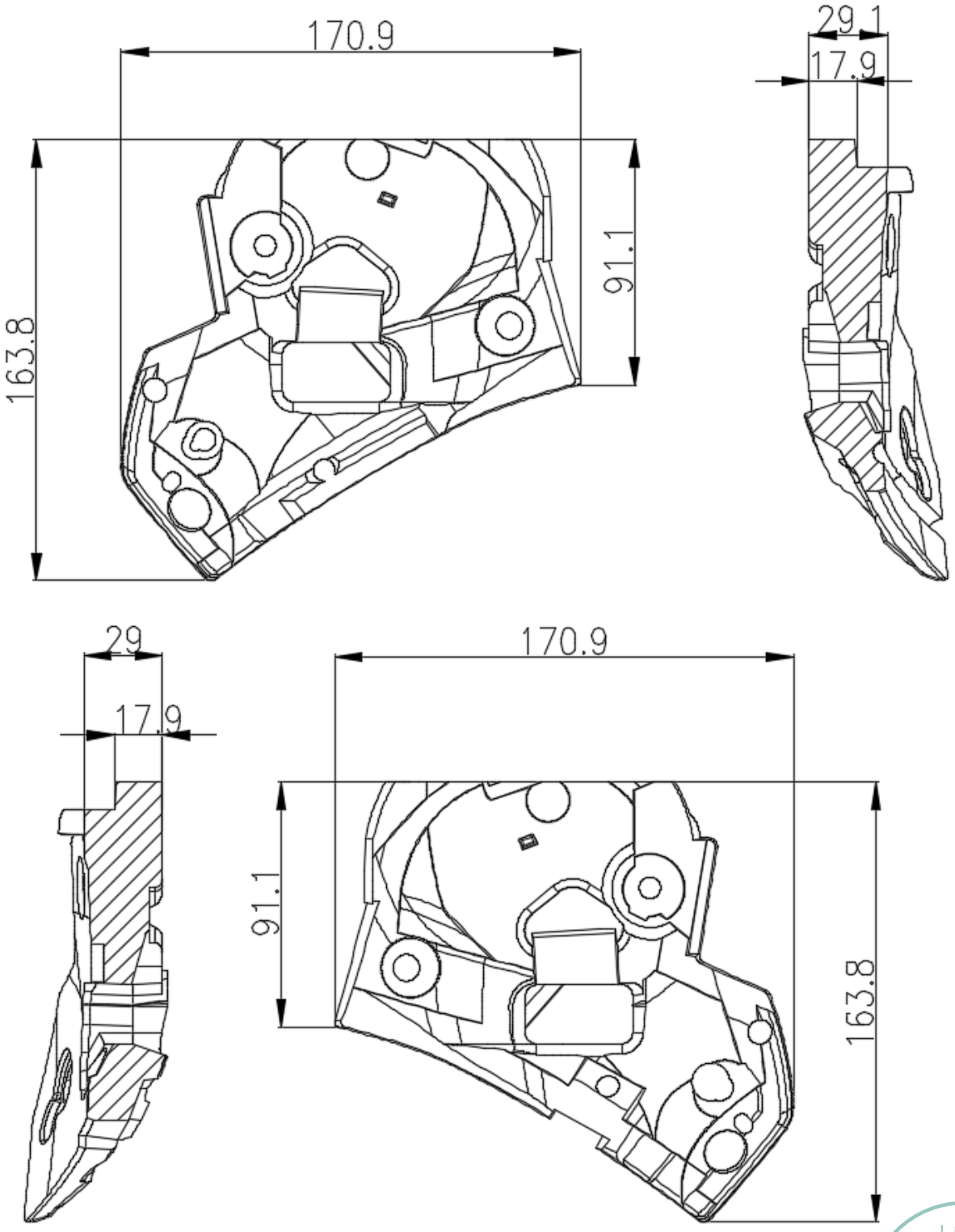
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23. *DRAWING OF THE PROTECTIVE PADDING (Ear EPS M-L Size) #*



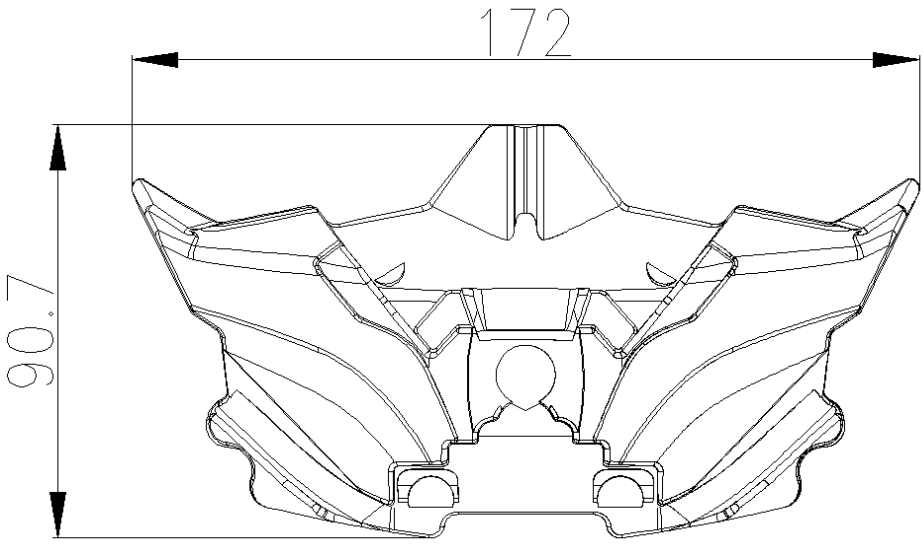
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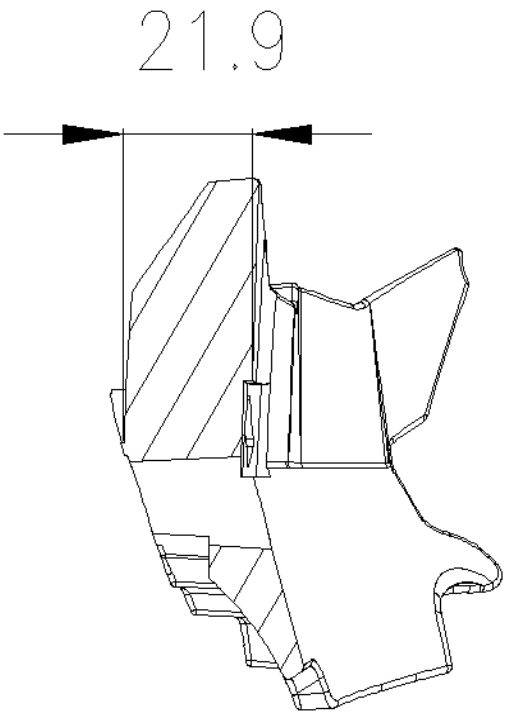
24. *DRAWING OF THE PROTECTIVE PADDING (Ear EPS XL-XXXL Size) #*



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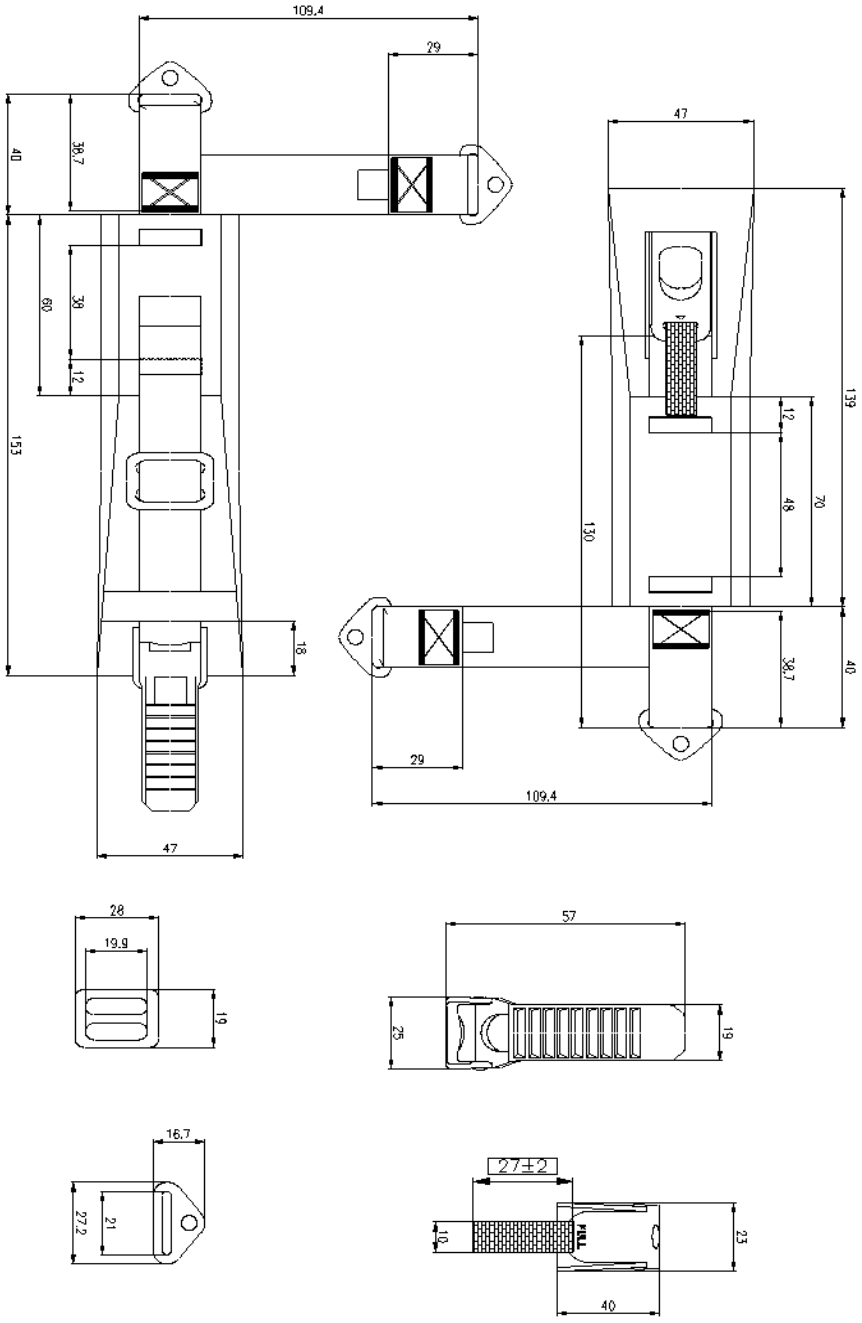
25. DRAWING OF THE PROTECTIVE PADDING (Mouth EPS)





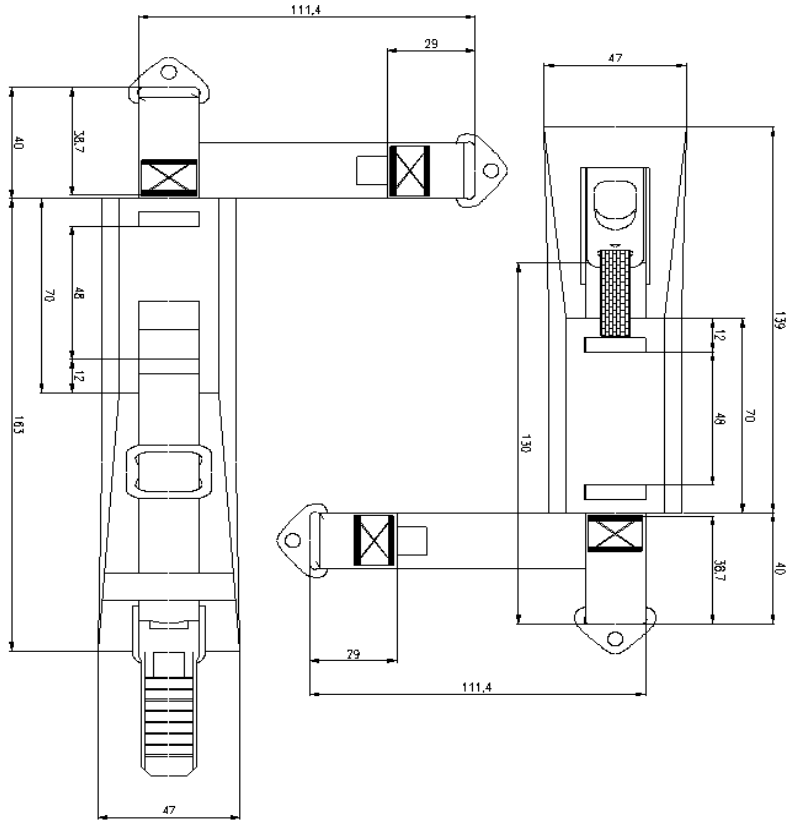
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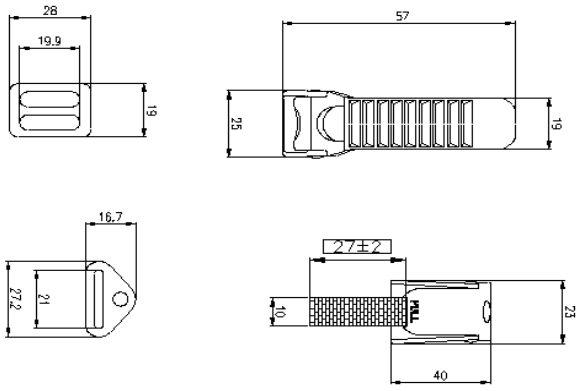
26. DRAWING OF THE RETENTION SYSTEM (one touch buckle)



< M - L >

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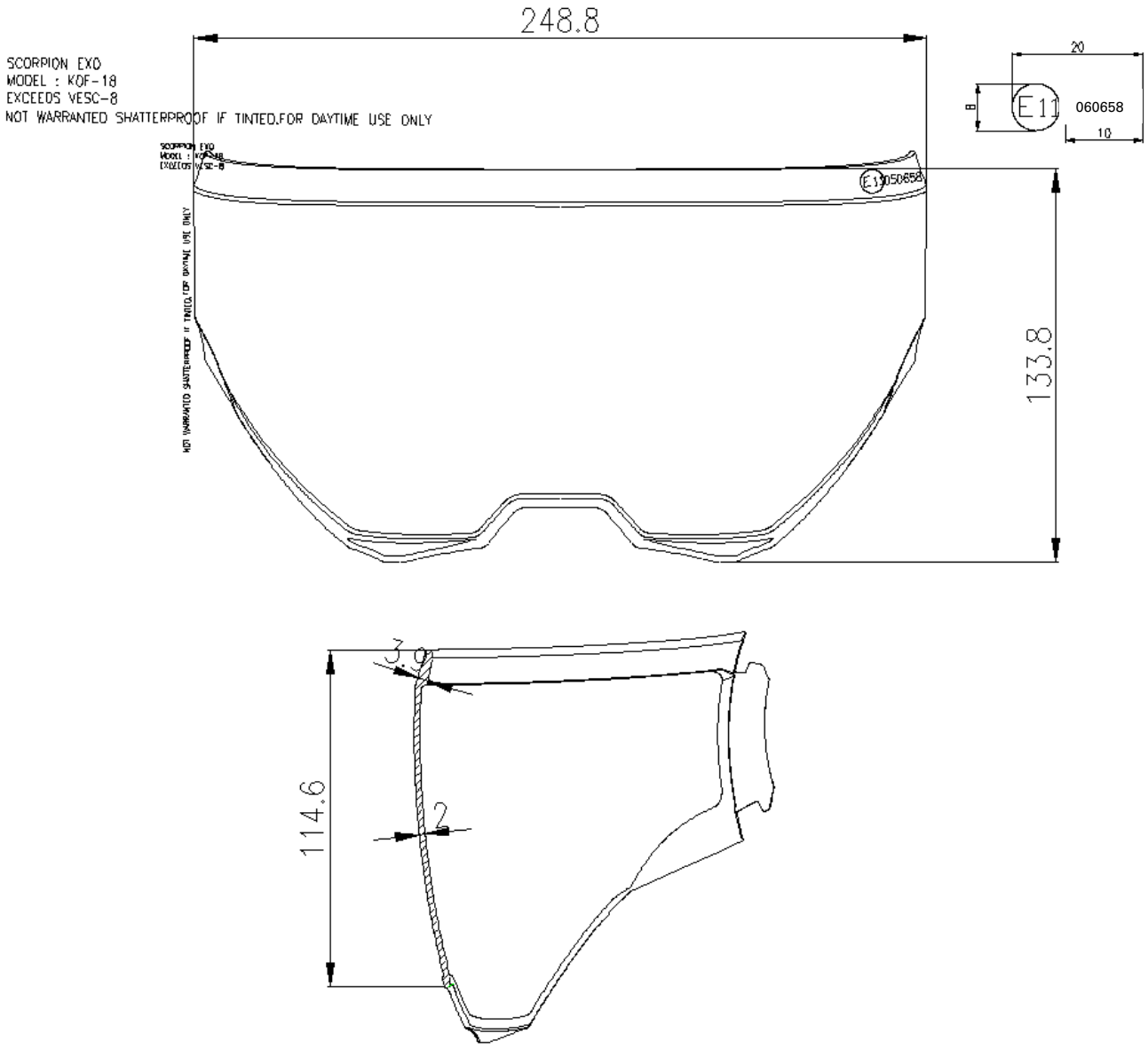


< XL – XXXL >

Webbing width can be two size, 20mm.
This chin strap can be adjusted the length.

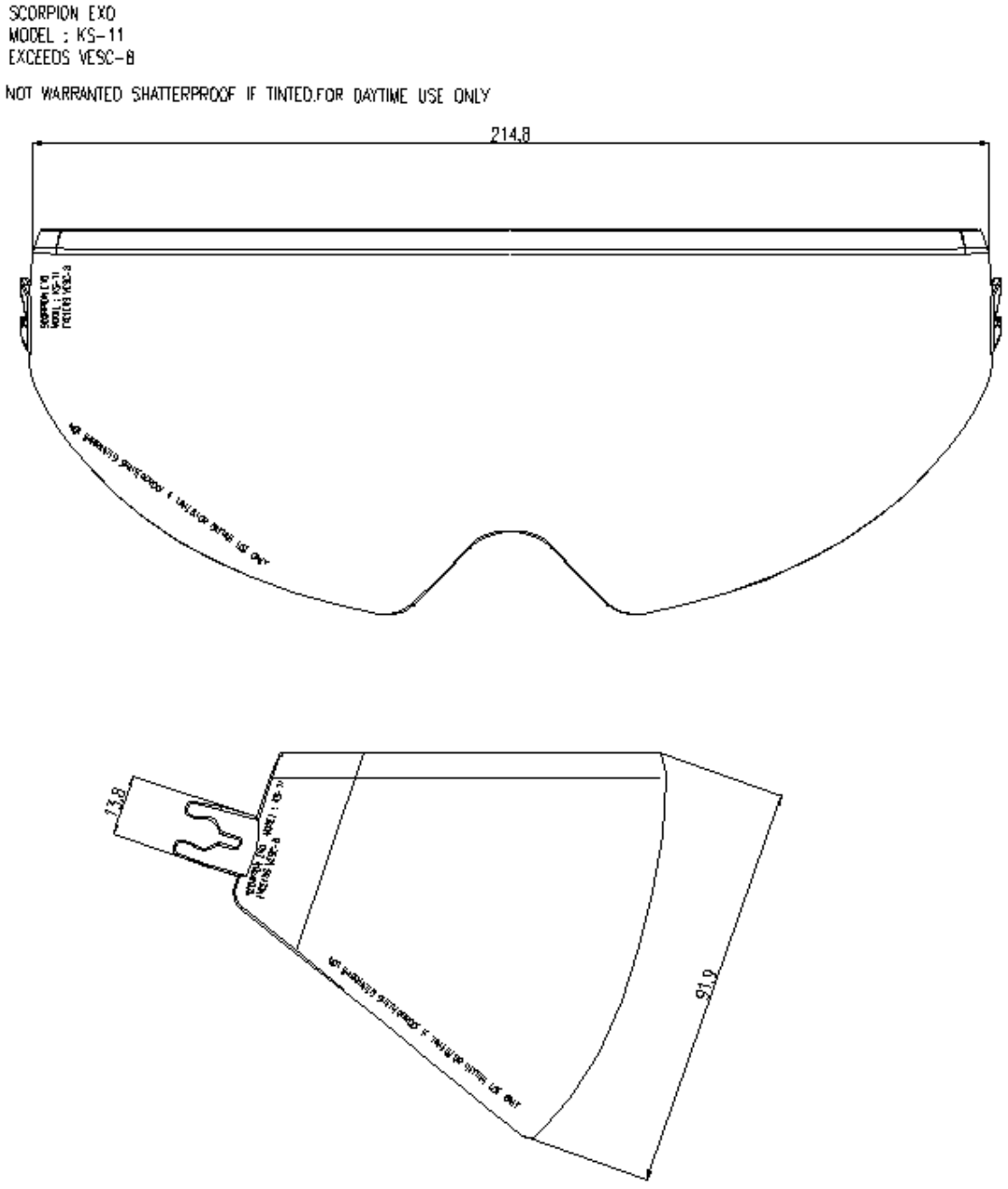
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27. DRAWING OF THE VISOR



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28. DRAWING OF THE *SUN SHIELD #*



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06-Jan-23

VCA, 1 Eastgate Office Centre,
Eastgate Road, Bristol, BS5 6XX, United Kingdom
enquiries@vca.gov.uk |
www.vehicle-certification-agency.gov.uk |
+44(0) 300 330 5797

Vehicle Certification Agency

Report Number: KSA588056
(0657/PJ ext.02)

Issue: 0

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Inspection/Test Report: Protective Helmets and their Visors for Drivers and Passengers of Motorcycles and Mopeds

Legislation

UNECE Regulation 22.06 (Revision 4 Amendment 3)

Inspection/Test Details

Location of Inspection/Test:	KIDO SPORTS VINA CO., LTD.
Date of Inspection/Test:	16, 26 November 2022 and 12 December 2022
VCA Representative(s):	Donghwa Woo
Inspectors Home Office Location:	VCA Korea
Manufacturer's Representative(s):	Junbeom Park
Reason for Test Report:	Extension of approval

Manufacturer Details

Name and Address:	KIDO SPORTS CO., LTD. 395, Gonghang-daero, Gangseo-gu, Seoul, 07590, Rep. of KOREA
Type:	EXO-TECH
Commercial Description:	EXO-TECH, EXO-TECH EVO, TECH EVO, TECH
Category:	"P/J" with movable or detachable protective lower face cover

Conclusion

The above mentioned component was tested in accordance with the above mentioned legislation and was found to comply in all respects. This report relates only to the items tested

Witness Engineer Signature:

Name:	Donghwa Woo
Position:	Type Approval Engineer
Date:	12 December 2022

List of Annexes

Annex	No of Pages	Subject
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Issue Record

Issue 0 is original report

Worst Case Rationale

The test was conducted to update the approval from 05 to 06 series of amendments under the condition as follows:

Number of helmet samples for each test														
Shell Size	X-Large						Large							
Consumer Size	XXXL		XXL		XL		L		M		S		XS	
Headform Size	-		625		605		575		-		535			
Face cover configuration	P	J	P	J	P	J	P	J	P	J	P	J	P	J
General Specifications check					1							1		
Impact Absorption			2	3	2		2	3						2
Impact Absorption Extra Point						2								2
Hi/Low Energy Impact						2								2
Projection and Surface Friction									1	1				
Rigidity				2										
Retention System (Dynamic)						1								1
Retention (Detaching)					1									1
Tests for Oblique impact and measurement of rotational acceleration				2			2							

The following test results were carried over from test reports issued based on the test result performed under the same test condition with this helmet type as below:

Test	Test Report Number
Resistance to Abrasion of the Chin Strap	KSQ313406 (0555/P)
Retention Systems Relying on Quick Release Mechanism	KSQ313406 (0555/P)
Sun shield	KSY554641 (0789/PJ-SUN)

Note: Include information on variants and versions this report covers, as applicable. Supporting documents may be annexed to this report

Significant Interpretations, Alternative Test Methods, New Technologies

NA

Inspection/Tests Required

	Yes, NA, See Report … / Approval … / Annex …
Markings:	Yes

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General Specifications:	Yes
Impact Absorption:	Yes
Projection and Surface Friction:	Yes
Rigidity:	Yes
Retention System (Dynamic):	Yes
Retention (Detaching):	Yes
Micro-slip of the Chin Strap:	NA
Resistance to Abrasion of the Chin Strap:	See Report KSQ313406 (0555/P)
Retention Systems Relying on Quick Release Mechanism:	See Report KSQ313406 (0555/P)
Tests for Oblique impact and measurement of rotational acceleration:	Yes

Helmet Specification

Style of Helmet:	"P/J" with movable protective lower face cover						
Size							
Shell Size:	X-Large			Large			
Consumer Size:	XXXL	XXL	XL	L	M	S	XS
Weight:	860 g			760 g		750 g	
Materials							
Shell:	PC/ABS (Polycarbonate and Acrylonitrile Butadiene Styrene Plastic)						
Padding:	Polyester, Sponge						
Liner:	EPS (Expanded Polystyrene Styrofoam)						
Chin Strap:	Nylon						
Retention System							
Type:	Two section system						
Buckle:	Quick release mechanism (model reference: KD-01)						
Strap Retainer:	In-line buckle						
Anchorages:	Secured to shell by means of a single rivet to each side of helmet shell						
Ventilation System:	Number of ventilations: 2 Positioning on the shell: front, lower						
Type of Shell Edging:	PVC gasket						
Accessories:	Visor (model reference: KDF-18) Sun shield (model reference: KS-11)						
Reflecting Band:	NA						
Conspicuity marking:	NA						
Additional Features:	NA						

Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the component tested, and covers all variants and versions agreed in the worst case rationale. Information document uploaded to job folder and identified by job number. Yes

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Facility and Equipment Checks

Facility Appraisal reference and date *(Reference and date if formal; state if ad-hoc appraisal).*

FAK174 and KCY534850
16 July 2021

Calibration certificates checked and valid, recorded in the following table: Yes

Equipment

Description	Make	Model	Serial number	Calibration due date*
Impact test apparatus	AD Engineering	MAV 1006 STD	2020-16	01/10/2022 + 6 months
UV & Moisture conditioning system	AD Engineering	12SB APL1107/STC/H	APL/H-Cm22/06	01/10/2022 + 6 months
Heat conditioning unit	OTS	XB-OTS-800A	XB21031201	01/10/2022 + 6 months
Low temperature conditioning unit	ALASKA	HB-1100C	04220BA6841	01/10/2022 + 6 months
Projection & Surface Friction test apparatus	AD Engineering	ARC 1380/CE	2020/054	01/10/2022 + 6 months
Rigidity test apparatus	AD Engineering	CTE 1068/ALU	2020/054	01/10/2022 + 6 months
Retention System (Dynamic) test apparatus	AD Engineering	MSD 1009/E/ALU	2020-16	01/10/2022 + 6 months
Retention (Detaching) test apparatus	AD Engineering	ROL 1103 ECE/EN	-	01/10/2022 + 6 months

**Specify calibrated date + (interval) or calibration due date.*

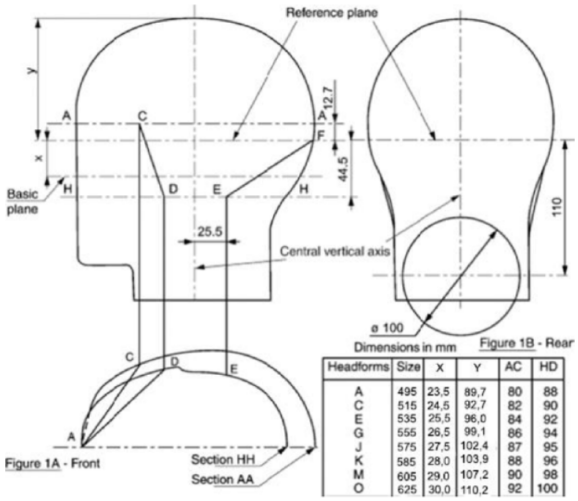
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Inspection/Test Requirements		Complies Yes / NA
Markings		
4.1.1.	On the helmet, it bears the applicant's trade name or mark, and an indication of the size and, if appropriate, an indication of the unsuitability of the lower face cover to offer any protection against impacts to the chin.	Yes
4.3.	Marking is not placed within the main visibility area.	Yes
4.4.	Marking is indelible, clearly legible and in a readily accessible place.	Yes
8.2	Raw data of test paragraph 7.13. stored by the technical service and available to the approval authority. (for the purpose of improvement of the Regulation at a later stage.)	Yes
General Specifications		
6.1.	Basic construction of the helmet is in the form of a hard outer shell, containing additional means of absorbing impact energy and a retention system.	Yes
6.2.	Protective helmet may be fitted with ear flaps and a neck curtain. It may also have a detachable peak, a visor, additional sun shield, electronic equipment or accessories and a lower face cover. If fitted with a non-protective lower face cover, the outer surface of the cover is marked 'Does not protect chin from impacts' and/or with the symbol shown in Figure 1 below, indicating the unsuitability of the lower face cover to offer any protection against impacts to the chin.  Note: this symbol or indication must be visible and extend over at least 2 cm^2	Yes
6.3.	No component or device is fitted to or incorporated in the protective helmet, unless it is designed in such a way that it will not cause injury and that, when it is fitted to or incorporated in the protective helmet, the helmet still complies with the requirements of this regulation.	Yes

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6.4.1.	Shell covers all areas above plane AA' and extends downwards at least as far as the lines 'CDEF' on both sides of the headform. *Note: See Annex 4, Figure 1A.*	Yes



Headforms	Size	X	Y	AC	HD
A	495	23,5	89,7	80	88
C	515	24,5	92,7	82	90
E	535	25,5	96,0	84	92
G	555	26,5	99,1	86	94
J	575	27,5	102,4	87	95
K	585	28,0	103,9	88	96
M	605	29,0	107,2	90	98
O	625	30,0	110,2	92	100

6.4.2.	At the rear, the rigid parts and, in particular, the shell, are not within a cylinder, defined as follows: - Diameter: 100 mm; - Axis situated at the intersection of the medium plane of symmetry of the headform and of a plane parallel to and 110 mm below the reference plane. *Note: See Annex 4, Figure 1B.*	Yes
6.4.3.	Protective padding covers all the areas defined in paragraph 6.4.1, with account being taken of the requirements of paragraph 6.5.	Yes
6.5.	Helmet does not dangerously affect the wearer's ability to hear.	Yes
6.5.	Temperature in the space between the head and the shell does not rise inordinately. *Note: To prevent this, ventilation holes may be provided in the shell.*	Yes
6.5.	Where means for attaching a visor are not provided, the profile at the front edge does not prevent the wearing of goggles.	NA
6.6.	All projections from, or irregularities in the outer surface of the shell greater than 2 mm, are tested for shear assessment according to paragraphs 7.4.1 or 7.4.2. The outer surface of the helmet is tested for friction assessment, according to paragraphs 7.4.1 or 7.4.2. This applies in particular to a movable lower face cover in all positions intended by the manufacturer.	Yes
6.7.	All external projections are radiused and any external projections other than press-fasteners are smooth and adequately faired.	Yes
6.7.1.	All external projections not more than 2 mm above the outer surface	Yes

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	of the shell (e.g. rivet heads) have a radius of a minimum of 1 mm.		
6.7.2.	All external projections more than 2 mm above the outer surface of the shell have a radius of a minimum of 2 mm. *Note: Latter specific requirements do not apply if a projection satisfies the requirements in paragraphs 7.4.1 or 7.4.2 below.*		Yes
6.8.	There are no inward-facing sharp edges on the inside of the helmet; rigid, projecting internal parts are covered with padding so that any stresses transmitted to the head are not highly concentrated.		Yes
6.9.	Various components of the protective helmet are so assembled that they are not liable to become easily detached as a result of an impact.		Yes
6.9	In the case of visor and movable or detachable lower face cover, only when in not protective position, the detachment is acceptable provided that it is complete and not to cause possible injuries to the user		Yes
6.10.	Retention systems are protected from abrasion.		Yes
6.11.	Helmet is held in place on the wearer's head by means of a retention system, which is secured under the lower jaw. All parts of the retention system are permanently attached to the system or to the helmet.		Yes
6.11.1.	If the retention system includes a chin-strap, the strap is not less than 20 mm wide under a load of 150 N ± 5 N, applied under the condition prescribed in paragraph 7.6.2:	20 mm	Yes
6.11.2.	Chin strap does not include a chin cup.		Yes
6.11.3.	Chin straps are fitted with a device to adjust and maintain tension in the strap.		Yes
6.11.4.	Chin strap fastening and tensioning devices are positioned on the straps so that: - There are no rigid parts extending more than 130 mm vertically below the headform reference plane, with the helmet mounted on the appropriate sized headform* - ~~The whole of the device is between the bony projections of the underside of the lower jaw~~* **Strikethrough, as appropriate.*		Yes
6.11.5.	If the retention system includes either a double-D ring or sliding bar fastening device ("roller buckle"), then means are provided to prevent the retention system being completely undone and also to retain the free end of the strap when the retention system is		NA

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	adjusted. (If the retaining system can be opened completely, it must be possible only with voluntary action. To prevent any possible misuse, the helmet must be provided with detailed instructions on the use of the buckle if required.)	
6.11.6.	Sliding bar and double-D ring fastening devices are fitted with a pulling flap to be used for releasing the retention system. Its colour is red and its minimum dimensions are 10 x 20 mm.	NA
6.11.7.	If a retention system includes a quick-release mechanism, then the method of release of this mechanism is self-evident. Any levers, tabs, buttons or other components that need to be operated to release the mechanism are coloured red; those parts of the rest of the system that are visible when closed are not similarly coloured, and the mode of operation is permanently indicated.	Yes
6.11.8.	Retention system remains closed when the tests described in paragraphs 7.3, 7.6 and 7.7 are carried out.	Yes
6.11.9.	Buckle of the retention system is designed so as to preclude any possibility of incorrect manipulation. This means inter alia (among other things) that it is not possible for the buckle to be left in a partially closed position.	Yes
6.12.	If the lower face cover is detachable or movable, the lower face cover is fitted with a device that maintains the intended position even during the complete series of impacts and retention (detaching) test. The device is such that incorrect handling is impossible. The control/actuating device must be of red colour. The helmet must comply with the requirements for helmet categories "J","P" or both.	Yes
6.13.	Characteristics of the materials used in the manufacture of helmets are known not to undergo appreciable alteration under the influence of ageing or of the circumstances of use to which the helmet is normally subjected, such as exposure to sun, extremes of temperature and rain. For those parts of the helmet coming into contact with the skin, the materials used are known not to undergo appreciable alteration through the effect of perspiration or of toilet preparations. The manufacturer does not use materials known to cause skin troubles. The suitability of a proposed new material is established by the manufacturer.	Yes
6.14.	After the performance of one of the prescribed tests, the protective helmet does not exhibit any breakage or deformation dangerous to the wearer. Note: As example visor sunshield and shell significant cracks or any part partially detached (spoiler, lower face cover, accessories) that can hurt the user while he's rolling on the road.	Yes

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Peripheral Vision

6.15.1 *6.15.2*	The technical service has selected from among the existing sizes of a helmet type the size it considers likely to yield the least favourable result and helmet placed on the headform corresponding to its size by the procedure set out in Annex 5 to this Regulation;	Yes
6.15.3.	There is no occultation in the field of vision bounded by:	Yes
6.15.3.1.	- Horizontally: Two segments of dihedral angles symmetrical in relation to the median longitudinal vertical plane of the headform and situated between the reference and the basic planes. Each of these dihedral angles is defined by the median longitudinal vertical plane of the headform and the vertical plane forming an angle of not less than 105° with the median longitudinal vertical plane and whose edge is the straight line LK;	
6.15.3.2.	- Upwards: Dihedral angle defined by the reference plane of the headform and a plane forming an angle of not less than 7° with the reference plane and whose edge is the straight line L_1 L_2, the points L_1 and L_2 representing the eyes;	
6.15.3.3.	- Downwards: Dihedral angle defined by the basic plane of the headform and a plane forming an angle of not less than 45° with the basic plane, and whose edge is the straight line K_1 K_2.	

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Visors

6.16.1.	Systems of attachment of a visor to a helmet is such that the visor is removable. It is possible to manoeuvre the visor out of the field of vision with a simple movement of one hand. (However, the latter prescription may not be required for helmets which do not provide chin protection provided that a label is attached to the helmet to the effect of warning the purchaser that the visor cannot be manoeuvred.)		Yes
6.16.2.	Angle opening (see annex 9) ≥ 5°:	33 °	Yes

Sun Shield

6.17.1	Sun shield does not restrain or prevent the movement of the visor. On opening the visor, the sun shield can pivot in the working position. By means of a simple movement the sun shield is able to be moved separately from the visor out of the visual field.		Yes
6.17.2.1	Sun shield does not restrict the field of vision given in paragraph 6.15. in the working or parking position. If the sun shield is fixed outside of the visor, the surface may include fixings or devices to make movement possible. The total surface of the fixings or devices does not exceed 2cm^2; they can be distributed on both sides of the field of vision.		Yes

Conspicuity Marking

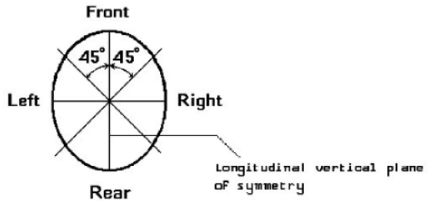
6.18.1.	In order to comply with national requirements for use, the helmet may be required by individual Contracting Parties to contribute to the conspicuity of the user both during the daytime and at night from the front, rear, right and left, by means of parts made of reflective materials that conform to the specifications laid down in paragraphs 6.16.2 to 16.6.6 of this regulation.		NA
6.18.1.	It is allowed that the helmet is equipped with reflective materials in the box, with proper indications to the user on where and how to apply them on the helmet. *Note: Mandating of conspicuity marks is left to the discretion of individual Contracting Parties. Article 3 of the Agreement to which this regulation is annexed does not prevent the Contracting Parties from prohibiting the use of helmets not meeting the conspicuity requirements.*		NA

6.18.2 **Reflective Parts**

6.18.2.1.	Total surface area and shape of the reflective part used is such that in each direction, corresponding to one of the areas defined in the		NA

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figure below, visibility is ensured by a surface area of at least 18 cm^2 of simple shape and measured by application on a plane.



6.18.2.1. In each surface area of minimum 18 cm^2, it is possible to mark either a: — NA

- Circle of 40 mm diameter*
- Rectangle of at least 12.5 cm^2 in surface area and at least 20 mm in width*

6.18.2.1. Each of these surfaces are situated as near as possible to the point of contact with the shell of a vertical plane parallel to the longitudinal vertical plane of symmetry, to the right and to the left, and as near as possible to the point of contact with the shell of a vertical plane perpendicular to the longitudinal plane of symmetry, to the front and to the rear. — NA

6.18.3. Each of the retro-reflective areas emit white light when it is illuminated with standard illuminant A, with an observation angle of 1/3° and an illumination angle $\beta 1 = \beta 2 = 0°$ (or $\beta 1 = \pm 5°$, $\beta 2 = 0°$). — NA

6.18.4. Minimum value of the luminous intensity coefficient of a surface area of 18 cm^2 of material, when revolved, is not less than the values specified in the table below, expressed in millicandelas per lux. — NA

Angle of Divergence (')	Angle of Illumination (°)		
	0	20	40
20	100	60	25

6.18.5. After each conditioning as described in paragraph 7.2, the helmet is visually inspected. There are no signs of cracking or appreciable distortion of the retro-reflective material. — NA

6.18.6. Neither the adhesive nor the retro-reflective material affects the mechanical performance of the helmet according to the related tests in this regulation. — NA

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Tests

Each helmet type, fitted with its visor if placed on the market with a visor, conditioned as shown below.

7.1

Test	Number of helmets to be conditioned				Total
	ambient-temperature and hygrometry conditioning	Heat conditioning	low-temperature conditioning	ultra- violet radiation conditioning and moisture conditioning	
Impact absorption	2	1	1	1	5
Imp. Abs. extra point	2				2
Hi/Low energy impact	2				2
Rotational	2				2
Projection and surface friction	1				1
Rigidity	2				2
Retention system	1				1
					15

Yes

Testing Notes:
The largest size of each combination shell size and protective padding of each helmet type shall be tested for impact absorption, rotational and rigidity. For impact absorption on extra point, Hi and Low energy impacts and tests of the retention system, helmet sizes shall be chosen such that the helmet to be tested shall be that offering the likely least favorable conditions (such as thickest padding, etc).

7.1 All the types of retention systems available for the helmet must be tested. Supplementary samples could be necessary.
Additionally, for each smaller headform size within the size range of the helmet type two helmets shall undergo the impact absorption test. One helmet shall be heat conditioned, and the other low temperature conditioned. The conditioned helmets shall be impacted against either anvil, in equal numbers if possible, at the choice of the laboratory.

Types of Conditioning

7.2 Prior to any type of further conditioning for mechanical tests, as specified in paragraph 7.1., each helmet shall be subject:

7.2.1. Ambient-temperature and hygrometry conditioning:
The helmet shall be exposed to a temperature of 25 °C ± 5 °C and a relative humidity of 50 per cent ± 10 per cent for at least 4 hours.

Yes

7.2.2. Heat conditioning:
The helmet shall be exposed to a temperature of 50 °C ± 2 °C for not less than 4 hours and not more than 8 hours.

Yes

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7.2.3.	Low-temperature conditioning: The helmet shall be exposed to a temperature of -10 °C ± 2 °C for not less than 4 hours.	Yes
7.2.4.	Ultraviolet-radiation conditioning and moisture conditioning. The outer surface of the protective helmet shall be exposed successively to: ultraviolet irradiation by a 150-watt xenon-filled quartz lamp for 48 hours at a range of 25 cm; spraying for 4 to 8 hours with water at ambient temperature at the rate of 1 litre per minute.	Yes

Test Results

Impact Absorption Tests

7.3.1.4.	The tests completed not more than five minutes after the helmet is taken from the conditioning chamber.	Yes

7.3. Helmet size: XXL

Configuration "P"

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC *(≤ 2,400)*	Deceleration *(≤ 275 g)*
1	O	B	F	-10	7.59	1935	222
		X	F		7.59	1859	224
		P	F		7.59	1876	218
		R	F		7.55	2170	222
		S	F		6.08	229	110
2	O	B	K	+50	7.59	1690	224
		X	K		7.59	1388	188
		P	K		7.59	1054	141
		R	K		7.62	1204	151

**F = Flat; K = Kerbstone*

Configuration "J"

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC *(≤ 2,400)*	Deceleration *(≤ 275 g)*
3	O	B	F	AMB	7.62	1839	210
		X	F		7.59	2115	248
		P	F		7.59	2088	233
		R	F		7.52	840	142
4	O	B	K	AMB	7.59	1449	220
		X	K		7.51	1456	192
		P	K		7.52	1087	155
		R	K		7.52	745	125

**F = Flat; K = Kerbstone*

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Vehicle Certification Agency

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7.3. Helmet size: XL

Configuration "P"

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC *(≤ 2,400)*	Deceleration *(≤ 275 g)*
5	M	B	F	-10	7.55	2222	239
		X	F		7.59	1997	231
		P	F		7.59	2176	241
		R	F		7.59	2006	205
		S	F		6.08	1696	263
6	M	B	K	+50	7.55	1424	179
		X	K		7.59	1709	212
		P	K		7.59	1290	177
		R	K		7.62	1273	148
7	M	B	F	UV + H2O	7.55	1437	185
		X	F		7.55	1949	229
		P	K		7.59	2045	232
		R	K		7.59	1856	230

**F = Flat; K = Kerbstone*

7.3. Helmet size: XL

Extra Impact points:

Configuration "P"

Helmet ID Number	H.F. Size Number	Impact Point	Anvil[1]	Cond. (°C)	Required Speed (m/s)	Measured Speed (m/s)	HIC requirement	Measured HIC	Decel requirement	Measured Decel
8	M	(Extra point): BXR[2]	F	AMB	7.5	7.52	*≤ 2,400*	1526	*≤ 275 g*	182
		(Extra point): RXL[2]	F		7.5	7.52	*≤ 2,400*	2034	*≤ 275 g*	216
		(Extra point): BXPL[2]	F		7.5	7.52	*≤ 2,400*	2090	*≤ 275 g*	223
		(Extra point): BXPR[2]	F		7.5	7.52	*≤ 2,400*	1835	*≤ 275 g*	215
9	M	(Extra point): XPL[2]	K		7.5	7.52	*≤ 2,400*	1749	*≤ 275 g*	199
		(Extra point): BP[2]	K		7.5	7.55	*≤ 2,400*	1461	*≤ 275 g*	172
		(Extra point): XPR[2]	K		7.5	7.55	*≤ 2,400*	1361	*≤ 275 g*	170

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		(Extra point): RP[2]	K		7.5	7.52	≤ 2,400	1080	≤ 275 g	178

[1] : F = Flat; K = Kerbstone
[2] : Extra test locations to be selected from the 12 listed in section 7.3.4.2.1

7.3. Helmet size: XL

Hi/Low Energy Impact points:

Configuration "P"

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Required Speed (m/s)	Measured Speed (m/s)	HIC requirement	Measured HIC	Decel requirement	Measured Decel
10	M	(Hi Energy): B	F	AMB	8.2	8.22	≤ 2,880	2384	≤ 275 g	247
		(Hi Energy): X	F		8.2	8.22	≤ 2,880	2668	≤ 275 g	265
		(Hi Energy): P	F		8.2	8.26	≤ 2,880	2630	≤ 275 g	258
		(Hi Energy): R	F		8.2	8.26	≤ 2,880	2624	≤ 275 g	241
11	M	(Low Energy): B	F		6.0	6.08	≤ 1,300	1172	≤ 180 g	177
		(Low Energy): X	F		6.0	6.08	≤ 1,300	1250	≤ 180 g	174
		(Low Energy): P	F		6.0	6.08	≤ 1,300	1201	≤ 180 g	162
		(Low Energy): R	F		6.0	6.08	≤ 1,300	1225	≤ 180 g	167

* F = Flat; K = Kerbstone

Helmet size: L

Configuration "P"

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC (≤ 2,400)	Deceleration (≤ 275 g)
12	J	B	F	-10	7.59	2302	262
		X	F		7.52	1764	220
		P	F		7.55	2245	241
		R	F		7.59	1927	192
		S	F		6.08	1129	240
13	J	B	K	+50	7.59	1352	180
		X	K		7.52	1745	222
		P	K		7.55	1184	174
		R	K		7.55	1230	145

*F = Flat; K = Kerbstone

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Configuration "J"

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC *(≤ 2,400)*	Deceleration *(≤ 275 g)*
14	J	B	F	AMB	7.59	2205	236
		X	F		7.55	1708	227
		P	F		7.59	2295	240
		R	F		7.59	376	127
15	J	B	K	AMB	7.62	1320	162
		X	K		7.52	1850	229
		P	K		7.59	1174	168
		R	K		7.55	898	144

**F = Flat; K = Kerbstone*

7.3. Helmet size: XS

Configuration "J"

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC *(≤ 2,400)*	Deceleration *(≤ 275 g)*
16	E	B	F	AMB	7.55	2175	237
		X	F		7.55	1967	231
		P	F		7.55	2032	215
		R	F		7.59	406	123
17	E	B	K	AMB	7.55	1402	191
		X	K		7.59	1570	206
		P	K		7.59	1069	174
		R	K		7.55	1070	141
18	E	B	F	UV + H2O	7.59	1399	157
		X	F		7.62	1876	226
		P	K		7.59	2128	213
		R	K		7.59	1178	164

**F = Flat; K = Kerbstone*

7.3. Helmet size: XS

Extra Impact points:

Configuration "P"

Helmet ID Number	H.F. Size Number	Impact Point	Anvil[1]	Cond. (°C)	Required Speed (m/s)	Measured Speed (m/s)	HIC requirement	Measured HIC	Decel requirement	Measured Decel
19	E	(Extra point): XPL[2]	F	AMB	7.5	7.59	*≤ 2,400*	1847	*≤ 275 g*	189
		(Extra point): BP[2]	F		7.5	7.55	*≤ 2,400*	2082	*≤ 275 g*	222

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		(Extra point): XPR[2]	F		7.5	7.52	≤ 2,400	1707	≤ 275 g	176
		(Extra point): RP[2]	F		7.5	7.55	≤ 2,400	1742	≤ 275 g	202
20	E	(Extra point): BXL[2]	K		7.5	7.55	≤ 2,400	894	≤ 275 g	146
		(Extra point): BXPR[2]	K		7.5	7.55	≤ 2,400	1279	≤ 275 g	169
		(Extra point): RXPL[2]	K		7.5	7.59	≤ 2,400	1018	≤ 275 g	160
		(Extra point): RXR[2]	K		7.5	7.55	≤ 2,400	946	≤ 275 g	152

[1] : *F = Flat; K = Kerbstone*
[2] : *Extra test locations to be selected from the 12 listed in section 7.3.4.2.1*

7.3. Helmet size: XS

Hi/Low Energy Impact points:

Configuration "J"

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Required Speed (m/s)	Measured Speed (m/s)	HIC requirement	Measured HIC	Decel requirement	Measured Decel
21	E	(Hi Energy): B	F	AMB	8.2	8.22	≤ 2,880	2376	≤ 275 g	242
		(Hi Energy): X	F		8.2	8.22	≤ 2,880	2167	≤ 275 g	232
		(Hi Energy): P	F		8.2	8.22	≤ 2,880	2530	≤ 275 g	230
		(Hi Energy): R	F		8.2	8.22	≤ 2,880	2221	≤ 275 g	209
22	E	(Low Energy): B	F		6.0	6.08	≤ 1,300	1279	≤ 180 g	169
		(Low Energy): X	F		6.0	6.06	≤ 1,300	943	≤ 180 g	158
		(Low Energy): P	F		6.0	6.06	≤ 1,300	1207	≤ 180 g	161
		(Low Energy): R	F		6.0	6.08	≤ 1,300	1051	≤ 180 g	149

[*] *F = Flat; K = Kerbstone*

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Test for Projection and Surface Friction (Method B)

Configuration "P"

	Helmet ID Number	Test	Tested Point	Results
7.4.2.1.3.1.	23	Projection	Front air vent and rear top edge	Pass
7.4.2.1.3.2.	24	Surface	Main outer shell area (front LH side and top)	Pass

Test for projections of the category P/J with movable lower face cover:

7.4.3.1	Strength assessment of the movable face cover in the position "J", the helmet placed on the appropriate test head form selected from Annex 4 in compliance with paragraph 7.3.1.3.1.	Yes
7.4.3.2	Falling mass of 4 kg ± 0.01 kg released in guided free fall from a height of 600 ± 5 mm hooked on to the front part of the chin section in the position "J" in the median vertical plane of the helmet.	Yes
7.4.3.3	Test apparatus used to apply a shock load to a helmet secured to the headform by its own retention system. Headform secured in a test fixture with its vertical axis pointing upward at 45° to the direction of gravity. Equipment allows drop weight to slide in a guided free fall to impact a rigid stop anvil. Mass of the guide is 1.0 -0.0 +0.2 kg. Impact speed not less than 95 per cent of the theoretical speed.	Yes
7.4.3.4	Movement such to avoid any possible interference of the chin guard with 100 mm cylinder as defined in paragraph 6.4.2. (Partial detachment is not acceptable.)	Yes

Rigidity Tests

7.5.1.	The test helmets have undergone ambient-temperature and hygrometry conditioning.	Yes

Configuration "J"

Helmet ID Number	Helmet Size	Load Direction	Deformation (mm)		
			Initial *(load 30 N)*	Max *(load 630 N) (≤ 40 mm)*	Final *(load 30 N) (≤ 15 mm)*
25	XXL	Longitudinal	1	20.0	2.0
26	XXL	Transversal	1	26.0	5.0

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Dynamic Test of the Retention System

7.6.1	Helmet is positioned as prescribed in paragraph 7.3.1.3.1.	Yes
7.6.2	Set up is as per 7.6.2 and Annex 8, Figure 2	Yes
7.6.3	Falling mass of 10 kg ± 0.1 kg released drops in guided free fall from a height of 750 ± 5 mm.	Yes
7.6.4	During the test, the dynamic displacement of the point of application of the force shall not exceed 35 mm	Yes
7.6.5	After two minutes, the residual displacement of the point of application of the force, as measured under a mass of 15 kg ± 0.5 kg, does not exceed 25 mm.	Yes

Helmet ID Number	Helmet Size	Chin Strap	Extension Dynamic *(≤ 35 mm)*	Extension Residual *(≤ 25 mm)*
27	XL	QRM	28	17
28	XS	QRM	28	11

Retention (Detaching) Test

7.7.1.	The test helmets have undergone ambient-temperature and hygrometry conditioning.	Yes
7.7.6.	Modular helmets tested in J and P configuration.	Yes

Helmet ID Number	Helmet Size	Chin Strap	After the Test *(Angle ≤ 30°)*
29(P)	XL	QRM	23
30(J)	XS	QRM	23

Micro-slip Test of the Chin Strap: Not applicable; section removed for clarity
Note: See Annex 8, Figure 4)

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Test for Resistance to Abrasion of the Chin Strap: See Report KSQ313406 (0555/P)
Note: See Annex 8, Figure 5.

7.11.5	Strap tested to a tension of 3 kN without breaking.	Yes

Chin Strap	Tension of 3 kN
Quick Release Mechanism	Yes

Tests for Retention Systems Relying on Quick Release Mechanism: See Report KSQ313406 (0555/P)

7.12.2	Tests carried out as per the procedures of 7.12.2 in the order given.	Yes

	Helmet ID Number	Test	Results
7.12.1.		Inadvertent release by pressure	Yes
7.12.2.		Ease of release *(Max. load ≤ 30 N or ≤ 60 N)*	L: 18 N, XS: 16 N
7.12.3.2.		Durability of quick release mechanisms *(Release after 5,000 cycles)*	Yes
7.12.3.3.		Durability of quick release mechanisms *(Saline spray)*	Yes
7.12.3.4.		Durability of quick release mechanisms *(Traction 2 kN ± 50 N)*	Yes

Tests for Oblique impact and measurement of rotational acceleration

7.13	The test helmets have undergone ambient-temperature and hygrometry conditioning.	Yes
Annex 7, 2.4.	Coefficient of friction (m) 0.3 ± 0.05 between the outer surface of the head form and the common fabric used in the comfort padding of the helmet.	Yes
Annex 7, 2.5.	Chin strap force controller "Tightened as for normal use". (This means that the helmet must be tightened before each test after having applied below the chin a rigid cylinder 10 mm diameter at least 30 mm long that will be removed before the test. According paragraph 7.3.1.3.)	Yes

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Annex 7, 2.6.	Instrumentation for measuring the head kinematics during impact calibrated in line with Annex 7, 2.6.	Yes
Annex 7, 2.7.	Headform coefficient of friction calibrated in line with Annex 7, 2.7.	Yes
Annex 7, 3.1	Helmet placed on a headform of appropriate size in accordance with the requirements of Annex 5. Helmet positioned in accordance to the HPI (helmet positioning index) provided by the manufacturer. If it is not available, the helmet shall be tipped towards the rear so that the front edge of the helmet in the median plane is displaced by 25 mm.	Yes
Annex 7, 3.2.2	Anvil (A) as per Annex 7, 3.2.2 and figure 2	Yes
Annex 7, 3.	Test method in accordance with Annex 7, 3.	Yes

Helmet ID Number	H.F. Size Number	Impact Point	Cond. (°C)	Speed (8.0m/s)	Peak Resultant Acceleration (PRA) ≤ *10,400 rad/s²*	Brain Injury Criterion (BrIC) *≤ 0.78*
31	O	Front lateral right (45°)	AMB	8.07	1891	0.16
		Rear (180°)		8.07	2286	0.10
		Lateral left (270°)		8.03	1775	0.13
32	O	Front (0°)	AMB	8.03	1563	0.12
		Rear-lateral right (135°)		8.03	3071	0.32
33	J	Front lateral right (45°)	AMB	8.07	2643	0.23
		Rear (180°)		8.00	3271	0.45
		Lateral left (270°)		8.07	2738	0.18
34	J	Front (0°)	AMB	8.07	1073	0.11
		Rear-lateral right (135°)		8.07	2985	0.42

Remarks

None

Note: VCA apply measurement uncertainty to calibrated items but not test results.

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Vehicle Certification Agency

Report Number: KSY554641
(0789/PJ-SUN)

Issue: 0

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Inspection/Test Report: Approval of a Visor Type for Protective Helmets for Drivers and Passengers of Motorcycles and Mopeds

Legislation

UNECE Regulation 22.06 (Revision 4 Amendment 3)

Inspection/Test Details

Location of Inspection/Test:	Guangzhou Botai Optical Technology Co., Ltd.
Date of Inspection/Test:	26 November 2021
VCA Representative(s):	Donghwa Woo
Inspectors Home Office Location:	VCA Korea
Manufacturer's Representative(s):	Junbeom Park
Reason for Test:	New approval

Manufacturer Details

Name and Address:	KIDO SPORTS CO., LTD. 395, Gonghang-daero, Gangseo-gu, Seoul, 07590, Rep. of KOREA
Type:	KS-11
Commercial Description:	KS-11
Category:	Sun shield

Conclusion

The above mentioned component was tested in accordance with the above mentioned legislation and was found to comply in all respects. This report relates only to the items tested.

Witness Engineer Signature:

Name:	Donghwa Woo
Position:	Type Approval Engineer
Date:	26 November 2021

List of Annexes

Annex	No of Pages	Subject
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II		
III		

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Vehicle Certification Agency

Report Number: KSY554641 (0789/PJ-SUN)

Issue: 0

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Issue Record

Issue 0 is original report

Worst Case Rationale

All applicable sun shield tests would be carried out for new approval.

Note: Include information on variants and versions this report covers, as applicable. Supporting documents may be annexed to this report

Significant Interpretations, Alternative Test Methods, New Technologies

NA

Inspection/Tests Required

	Yes, NA, See Report … / Approval … / Annex …
Markings:	NA
General Specifications:	Yes
Field of vision:	Yes
Luminous transmittance:	Yes
Light diffusion:	NA
Recognition of signal lights:	Yes
Spectral transmittance:	Yes
Refractive powers:	Yes
Mechanical characteristics:	NA
Optical quality and scratch resistance:	NA
Mist retardant visor (optional)	NA
Sun Shield	Yes
Photochromic visors, liquid crystal or equivalent visors	NA

List of helmets to which the visor may be fitted:	ADX-2
Structure of visor:	Tinted sun shield with 1.6 mm thickness
Material of visor:	Polycarbonate

Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the component tested, and covers all variants and versions agreed in the worst case rationale. Information document uploaded to job folder and identified by job number.	Yes

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Facility and Equipment Checks

Facility Appraisal reference and date *(Reference and date if formal; state if ad-hoc appraisal).*	NA
Calibration certificates checked and valid, recorded in the following table:	Yes

Equipment

Equipment	Serial / Certificate No.	Calibration due*
Refractive power	OBP17/015-3	15/03/2021 + 1 year
Light diffusion	LDM17/059	15/03/2021 + 1 year
Spectral transmittance	UVM51-HE1805009	21/06/2021 + 1 year
Sand spray	LY-20180410912	17/11/2021 + 1 year

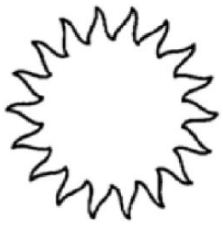
**Specify calibrated date + (interval) or calibration due date.*

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Inspection/Test Requirements		Complies Yes / NA
Markings: Not applicable; section removed for clarity		
General Specifications		
6.16.1.	The systems of attachment of a visor to a helmet shall be such that the visor is removable.	NA
.	It must be possible to manoeuvre the visor out of the field of vision with a simple movement of one hand.	NA
.	However, the latter prescription may not be required for helmets which do not provide chin protection provided that a label is attached to the helmet to the effect of warning the purchaser that the visor cannot be manoeuvred.	NA
6.16.2.	Angle opening (See Annex 9)	NA
6.16.3.	Field of vision	
6.16.3.1.	The visor shall not comprise any part liable to impair the user's peripheral vision as defined in paragraph 6.15. when the visor is in the totally opened position.	NA
	Furthermore, the lower edge of the visor shall not be situated in the downward field of vision of the user as defined in paragraph 6.15. when the visor is in closed position.	NA
6.16.3.1.	The surface of the visor in the peripheral field of vision of the helmet may however include:	NA
6.16.3.1. (i)	The lower edge of the visor, provided that it is made of a material with at least the same transmittance as the rest of the visor.	NA
(ii)	A device to allow the visor to be manoeuvred or locked in the closed position. (However, if this device is situated within the field of vision of the visor defined in paragraph 6.16.3.2. It shall be at the lower edge and present a maximum height (h) of 10 mm and its width (l) shall be such that the product (h x l) at the most is equal to 1.5 cm2 if bigger it must be made of a material with at least the same transmittance as the visor and it must be free of any engraving, paint or other covering feature)	NA
(iii)	Fixings and devices to allow the visor to be manoeuvred if they are situated outside of the field of vision of the visor and if the total surface of these parts, including devices, if any, to allow the visor to	NA

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	be manoeuvred does not exceed 2 cm^2, possibly distributed on each side of the field of vision.	
6.16.3.4.	Luminous transmittance.	
	Visors shall have a luminous transmittance $\tau_v \geq 80\%$, relative to the standard illuminant D65.	NA
	A luminous transmittance $80\% > \tau_v \geq 35\%$, - or 20 per cent only in case of photochromic and/or liquid crystal visor - measured by the method given in paragraph 7.8.3.2.1.1., is also permissible if the visor is marked with the symbol shown in figure 2 and/or with the English words “DAYTIME USE ONLY”.	NA
	 Figure 2: **Symbol "Daytime use only"**	
	Note: this symbol or indication must be visible and extend over at least 1 cm^2	
	When describing the transmittance properties of photochromic, liquid crystal or equivalent visors, two values are to be considered: one corresponds to the faded state, the other to the darkened state. The luminous transmittance shall be measured before the abrasion test.	NA
6.16.3.5.	Visors shall be free from any significant defects likely to impair the vision, such as bubbles, scratches, inclusions, dull spots, holes, mould marks, scratches or other defects originating from the manufacturing process in the field of vision.	NA
	The light diffusion shall not exceed the limit in accordance with paragraph 7.8.3.2.1.2. when measured in accordance with one of the methods specified in annex 11.	NA
	If different results arise when this is assessed, the requirements on scattered light shall be measured and assessed over an area 5 mm in diameter which includes the presumed error.	NA
6.16.3.6.	Visors shall in addition be sufficiently transparent, shall not cause any noticeable distortion of object as seen through the visor, shall be resistant to abrasion, resistant to impact and shall not give rise to any confusion between the colour used in road traffic sign and signals.	NA

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	The relative visual attenuation quotient (Q) shall not be less than:	
	(Q) ≥ 0.80 for red signal lights;	NA
	(Q) ≥ 0.60 for yellow signal light;	NA
	(Q) ≥ 0.60 for green signal light;	NA
	(Q) ≥ 0.60 for blue signal light.	NA
	The relative attenuation quotient shall be measured by the method given in paragraph 7.8.3.2.1.1., before the abrasion test.	NA
6.16.3.7	In the range 475 nm to 650 nm, the spectral transmittance, measured by the method given in paragraph 7.8.3.2.1.1., of the visor shall not be less than 0.2 τ_v.	NA
	The spectral transmittance shall be measured before the abrasion test.	NA
6.16.3.8	Permissible Refractive Power values for visors:	
	Spherical effect : $(D_1+D_2)/2$ = +/- 0.12 m^{-1}	NA
	Astigmatic effect : $\lvert D1-D2 \rvert$ = 0.12 m^{-1}	NA
	Prismatic effect difference	
	Horizontal Base Out **:** = 1.00 cm/m	NA
	Horizontal Base In **:** = 0.25 cm/m	NA
	Vertical **:** = 0.25 cm/m	NA
	The refractive powers shall be measured according to method specified in annex 15.	NA
6.16.3.9	Mist Retardant Visor (Optional requirements)	
	The internal face of the visor is regarded as having a mist retardant facility if the square of the specular transmittance has not fallen below 80 per cent of the initial value without misting within 20 s when tested as described in annex 16.	NA
	Such facility may be indicated by the English words: “MIST RETARDANT”	NA
6.17	**Sun Shield**	
6.17.1.	Sun shield shall not restrain or prevent the movement of the visor. On opening the visor, the sun shield can pivot in the working position. By means of a simple movement the sun shield shall be able to be moved separately from the visor out of the visual field.	Yes
6.17.2.	Field of vision	

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6.17.2.1.	Sun shield shall not restrict the field of vision given in paragraph 6.15. in the working or parking position. (If the sun shield is fixed outside of the visor, the surface may include fixings or devices to make movement possible. The total surface of the fixings or devices shall not exceed 2cm^2; they can be distributed on both sides of the field of vision.)	Yes
6.17.2.2.	Sun shield shall have a luminous transmittance $\tau_v \geq 20\%$, relative to the standard illuminant D65.	Yes
6.17.2.3.	Sun shield shall be free from any significant defects likely to impair the vision, such as bubbles, scratches, inclusions, dull spots, holes, mould marks, scratches or other defects originating from the manufacturing process in the field of vision.	Yes
6.17.2.4.	Sun shield shall not cause any noticeable distortion of object as seen through the visor, resistant to impact and shall not give rise to any confusion between the colour used in road traffic sign and signals. The relative visual attenuation quotient (Q) shall not be less than:	Yes
	(Q) ≥ 0.80 for red signal lights;	Yes
	(Q) ≥ 0.60 for yellow signal light;	Yes
	(Q) ≥ 0.60 for green signal light;	Yes
	(Q) ≥ 0.60 for blue signal light.	Yes
	The relative attenuation quotient shall be measured by the method given in paragraph 7.8.3.2.1.1	Yes
6.17.2.5.	In the range 475 nm to 650 nm, the spectral transmittance, measured by the method given in paragraph 7.8.3.2.1.1., of the sun shield shall not be less than 0.2 τ_v.	Yes
6.17.2.6.	Permissible refractive powers at the sight points.	
	Permissible refractive power values for sun shields; measured without a combination with the visor.	Yes
	Spherical effect : (D1+D2)/2 = +/- 0.12 m-1	Yes
	Astigmatic effect : |D1-D2| = 0.12 m-1	Yes
	Prismatic effect difference	Yes
	Horizontal Base Out : = 1.00 cm/m	Yes
	Horizontal Base In : = 0.25 cm/m	Yes
	Vertical : = 0.25 cm/m	Yes
	The refractive powers shall be measured according to method specified in annex 15.	Yes
	The requirements for the prismatic effect apply to the difference	

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	between the values at the two sight points.	
TEST		
7.8.	VISOR TESTS	
7.8.1.	Sampling and use of samples The 7 (+3 if optional test) visors are used as shown below in Tab 1	NA
	The test for recognition of signal lights may be dispensed with in the case of visors with luminous transmittance $\tau_v \geq 80$ %	NA
7.8.1.1.	Prior to any type of further conditioning for mechanical or optical test, as specified in paragraph 7.8.1., each visor shall be subject to the ultraviolet conditioning in accordance with the provision of paragraph 7.2.4.1.	NA
7.8.2.	Mechanical characteristics	
7.8.2.1.	The helmet, fitted with its visor and previously conditioned in accordance with the provisions of paragraph 7.2.3., shall be placed in accordance with the provisions of paragraph 7.3.1.3.1. on a test headform of suitable size.	NA
	The test headform selected from among those shown in annex 4 shall be so placed that the basic plane is vertical.	NA
7.8.2.2.1.	Test apparatus is as per 7.8.2.2. and 7.8.2.2.1.	NA
7.8.2.2.2.	When the drop-hammer falls from a height of 1 + 0.005 m, measured between the top face of the punch and the lower face of the hammer it shall be ascertained that:	
7.8.2.2.3.	No sharp splinters are produced if the visor is shattered. (Any segment having an angle less than 60° shall be considered as a sharp splinter.)	NA
7.8.2.3.	High Speed particle test	
7.8.2.3.1.	Visors tested in accordance with the method specified in Annex 17	NA
Annex 17, 2.1.	Appropriate headform, as defined in 7.3.3.	NA
Annex 17, 2.2.	Propulsion equipment as per Annex 17, 2.2.	NA
Annex 17, 3.	Two samples conditioned in air at 50 °C for 2 h and two additional samples shall be conditioned in air at -10 °C for 2 h;	NA
-	Eye-protector to be tested placed on the headform in the position	NA

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	corresponding to normal use and with the tension of the headband, if fitted, adjusted according to the manufacturer's instructions.	
-	Sheet of carbon paper on top of a sheet of white paper, between the eye-protector and the head-form inserted.	NA
-	Eye-protector/headform assembly positioned in front of the propulsion equipment so that the point of impact is not more than 250 mm from the exit end of the speed sensing equipment.	NA
	Project the steel ball at 60 m/s. The points of impact are (L1 and L2).	
-	(a) Left eye frontal;	NA
	(b) Right eye frontal;	
-	The impact of the steel ball on the goggles within 30 s after the removal of the sample from the corresponding atmosphere;	NA
-	Test made at an ambient temperature of (23 ± 5) °C;	NA
-	New specimens shall be used for this test and each specimen shall only be subjected to two impacts.	
7.8.2.3.2.	After testing, the following defects shall not occur:	
	(a) Visor fracture: a visor shall be considered to have fractured if it cracks through its entire thickness into two or more pieces, or visor material becomes detached from the surface away from the one struck by the ball, or if the ball passes through the visor;	NA
	(b) Visor deformation: a visor shall be considered to have been deformed if a mark appears on the white paper on the opposite side to that struck by the ball;	NA
	(c) Visor housing failure: a visor housing shall be considered to have failed if it separates into two or more pieces, or if it is no longer capable of holding a visor in position.	NA
7.8.3.	Optical qualities and scratch resistance	
7.8.3.1	Test procedure:	NA
7.8.3.1.1	Test piece taken from the flattest part of the visor in the area specified in paragraph 6.16.3.2. and its minimum dimensions shall be 50 mm x 50 mm. The test shall be carried out on the face corresponding to the outside of the visor.	
7.8.3.1.2	The test piece shall undergo ambient-temperature and hygrometry conditioning in accordance with paragraph 7.2.2.	NA
7.8.3.1.3	Test sequence of operations is as follows:	
7.8.3.1.3.1	- The surface of the test piece shall be washed in water containing 1 per cent detergent and rinsed with distilled or	NA

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7.8.3.1.3.2	demineralized water, then carefully dried with a grease-free and dust-free linen cloth.	
7.8.3.1.3.3	- Immediately after drying and before abrasion, the luminous transmittance shall be measured using the method given in paragraph 7.8.3.2.1.1., and the light diffusion shall be measured according to one of the methods specified in Annex 11.	
7.8.3.1.3.4		
7.8.3.1.3.5	- The test piece shall then be subjected to the abrasion test described in Annex 10, during which 3 kg ± 0,01 kg of abrasive material shall be projected at the sample.	
	- Following the test, the test piece shall again be cleaned in accordance with paragraph 7.8.3.1.3.1.	
	- Immediately after drying the light diffusion after abrasion shall be measured by using again the same method used in accordance with paragraph 7.8.3.1.3.2	
7.8.3.2.1.1.	In a parallel beam, with the test specimens being irradiated vertically, determine the spectral transmittance values between 380 nm and 780 nm and then the transmittance and the visual attenuation quotient in accordance with the equations given in annex 13.	NA
7.8.3.2.1.2.	The light diffusion shall not exceed the following values for each method:	
	Before abrasion: 0.65/m²/l (a/ c/), 2.5 % (b/)	NA
	After abrasion: 5.0/m²/l (a/ c/), 10 % (b/)	NA
7.9	Sun shield tests	
7.9.1.	Sampling and use of samples The 7 sun shield are used as shown below in Tab 8	Yes
7.9.1.1.	Prior to any type of further conditioning for optical test, as specified in paragraph 7.9.1., each sun shield shall be subject to the ultraviolet conditioning in accordance with the provision of paragraph 7.2.4.1.	Yes
7.14.	Test of photochromic visors, liquid crystal or equivalent visors	
7.14.1	The photochromic visor is characterized by its luminous transmittance that shall be determined in faded state τ_{vo} and in darkened state τ_{v1} achieved after 15 min irradiation according with the method specified in Annex 18.	NA
7.14.1	For photochromic visors, T_{vo}/T_{v1} is ≥ 1.25.	NA

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7.14.2.	Visors tested in accordance with the method specified in Annex 18.	NA
Annex 18, 2.1.3	Conditioning for luminous transmittance in the faded state.	
	Unless the manufacturer specifies a different procedure to reach the faded state in the information supplied with the product, photochromic visors shall be conditioned as per Annex 18, 2.1.3	NA

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TABLES

Tab 1 – SAMPLING AND USE OF SAMPLES (7.8.1):
Not applicable; section removed for clarity

Tab 2 – VISOR MECHANICAL CHARACTERISTICS (7.8.2):
Not applicable; section removed for clarity

VISOR HIGH SPEED PARTICLE TEST (7.8.2.3.):
Not applicable; section removed for clarity

Tab 3 – VISOR OPTICAL QUALITIES AND SCRATCH RESISTANCE (7.8.3):
Not applicable; section removed for clarity

Tab. 4 – VISOR LUMINOUS TRANSMITTANCE (6.16.3.4)
RELATIVE VISUAL ATTENUATION QUOTIENT (6.16.3.6) :
Not applicable; section removed for clarity

Tab 5 – VISOR SPECTRAL TRANSMITTANCE (6.16.3.7)
LIGHT DIFFUSION (6.16.3.5):
Not applicable; section removed for clarity

Tab. 6 – VISOR REFRACTIVE POWERS (6.16.3.8):
Not applicable; section removed for clarity

Tab. 7 – MIST RETARDANT VISOR (Optional requirements) (6.16.3.9)

Tab. 8 – SUN SHIELD SAMPLING AND USE OF SAMPLES (7.9.1)

Paragraph	Test	1	2	3	4	5	6	**7**	Total
6.17.2	Field of vision of the sun shield	X							1
6.17.2.2	Luminous transmittance	X	X	X					3
6.17.2.4	Recognition of signal lights								
6.17.2.5	Spectral transmittance								
6.17.2.6	Refractive powers				X	X	X		3

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Tab. 9 – SUN SHIELD LUMINOUS TRANSMITTANCE (6.17.2.2)
RELATIVE VISUAL ATTENUATION QUOTIENT (6.17.2.4)

Sample ID Number	Luminous transmittance	Relative visual attenuation quotient				Note
	τ_v > 20 %	Q Red ≥ 0.8	Q Yellow ≥ 0.6	Q Green ≥ 0.6	Q Blue ≥ 0.6	
1	20	1.016	1.015	0.983	0.961	(1)
2	20.1	1.013	1.009	0.979	0.966	(1)
3	20.3	1.014	1.016	0.967	0.953	(1)

(1) For details see annex Laboratory Test

Tab 10. – SUN SHIELD SPECTRAL TRANSMITTANCE (6.17.2.5)

Sample ID Number	Spectral transmittance		Note
	τ_f Results [475-650]	Limits τ_f > 0,2 τ_v	
1	0.228	0.04	(1)
2	0.222	0.04	(1)
3	0.214	0.041	(1)

(1) For details see annex Laboratory Test

Tab. 11 – SUN SHIELD REFRACTIVE POWERS (6.17.2.6)

Sample ID Number	Side	Spherical Power +/- 0.12 [m^{-1}]	Astigmatic Power 0.12 [m^{-1}]	Prismatic Power			Note
				Base IN/ OUT	Horizontal Limits Base IN < 0.25 Base OUT < 1.00 [cm/m]	Vertical Limits < 0.25 [cm/m]	
4	Dx	-0.035	0.054	OUT	0.3	0.18	(1)
	Sx	-0.047	0.06	-	-	-	
5	Dx	-0.032	0.056	OUT	0.3	0.18	(1)
	Sx	-0.051	0.07	-	-	-	
6	Dx	-0.037	0.052	OUT	0.3	0.17	(1)
	Sx	-0.049	0.09	-	-	-	

(1) For details see annex Laboratory Test

Tab. 12 –PHOTOCHROMIC VISORS, LIQUID CRYSTAL OR EQUIVALENT (7.14):
Not applicable; section removed for clarity

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Remarks

None

Note: VCA apply measurement uncertainty to calibrated items but not test results.

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Vehicle Certification Agency

Report Number: KSY554641
(0789/PJ-SUN)

Issue: 0

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Inspection/Test Report: Approval of a Visor Type for Protective Helmets for Drivers and Passengers of Motorcycles and Mopeds

Legislation

UNECE Regulation 22.06 (Revision 4 Amendment 3)

Inspection/Test Details

Location of Inspection/Test:	Guangzhou Botai Optical Technology Co., Ltd.
Date of Inspection/Test:	27 November 2021
VCA Representative(s):	Donghwa Woo
Inspectors Home Office Location:	VCA Korea
Manufacturer's Representative(s):	Junbeom Park
Reason for Test Report:	Production Qualification

Manufacturer Details

Name and Address:	KIDO SPORTS CO., LTD. 395, Gonghang-daero, Gangseo-gu, Seoul, 07590, Rep. of KOREA
Type:	KS-11
Commercial Description:	KS-11
Category:	Sun shield

Conclusion

The above mentioned component was tested in accordance with the above mentioned legislation and was found to comply in all respects. This report relates only to the items tested

Witness Engineer Signature:

Name:	Donghwa Woo
Position:	Type Approval Engineer
Date:	27 November 2021

List of Annexes

Annex	No of Pages	Subject
I		
II		
III		

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Vehicle Certification Agency

Report Number: KSY554641 (0789/PJ-SUN)

Issue: 0

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Issue Record

Issue 0 is original report

Worst Case Rationale

All applicable sun shield tests would be carried out for production qualification.

Note: Include information on variants and versions this report covers, as applicable. Supporting documents may be annexed to this report

Significant Interpretations, Alternative Test Methods, New Technologies

NA

Inspection/Tests Required

	Yes, NA, See Report … / Approval … / Annex …
Markings:	NA
Luminous transmittance:	Yes
Light diffusion:	NA
Recognition of signal lights:	Yes
Spectral transmittance:	Yes
Refractive powers:	Yes
Mechanical characteristics:	NA
Optical quality and scratch resistance:	NA
Mist retardant visor (optional)	NA

List of helmets to which the visor may be fitted:	ADX-2
Structure of visor:	Tinted sun shield with 1.6 mm thickness
Material of visor:	Polycarbonate

Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the component tested, and covers all variants and versions agreed in the worst case rationale. Information document uploaded to job folder and identified by job number.	Yes

Facility and Equipment Checks

Facility Appraisal reference and date *(Reference and date if formal; state if ad-hoc appraisal).*	NA

Calibration certificates checked and valid, recorded in the following table: Yes

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Report Number: KSY554641 (0789/PJ-SUN)

Issue: 0

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Equipment

Equipment	Serial / Certificate No.	Calibration due*
Refractive power	OBP17/015-3	15/03/2021 + 1 year
Light diffusion	LDM17/059	15/03/2021 + 1 year
Spectral transmittance	UVM51-HE1805009	21/06/2021 + 1 year
Sand spray	LY-20180410912	17/11/2021 + 1 year

**Specify calibrated date + (interval) or calibration due date.*

Inspection/Test Requirements	Complies Yes / NA

Qualifying the production of visors.: Not applicable; section removed for clarity

Markings/Information for wearers.: Not applicable; section removed for clarity

Tab 1-Test sample: Not applicable; section removed for clarity

Tab 2 – MECHANICAL CHARACTERISTICS (7.8.2):
Not applicable; section removed for clarity

Tab 3 – OPTICAL QUALITIES AND SCRATCH RESISTANCE (7.8.3):
Not applicable; section removed for clarity

Tab. 4 – LUMINOUS TRANSMITTANCE (6.15.3.4)
RELATIVE VISUAL ATTENUATION QUOTIENT (6.15.3.6)

Tab 5 – SPECTRAL TRANSMITTANCE (6.16.3.7)
LIGHT DIFFUSION (6.16.3.5):
Not applicable; section removed for clarity

Tab. 6 – REFRACTIVE POWERS (6.16.3.8)

Tab. 7 – MIST RETARDANT VISOR (Optional requirements) (6.16.3.9)

Not Applicable

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Tab. 8 – Sun shield test sample

Test Group	Test	Sun shields Sample
A	Light transmission	10
	Recognition of light signals	
	Spectral transmission	
B	Refractive powers	10

Tab. 9 – SUN SHIELD LUMINOUS TRANSMITTANCE (6.17.2.2)
RELATIVE VISUAL ATTENUATION QUOTIENT (6.17.2.4)

Sample ID Number	Luminous transmittance	Relative visual attenuation quotient				Note
	τ_v > 20 %	Q Red ≥ 0.8	Q Yellow ≥ 0.6	Q Green ≥ 0.6	Q Blu ≥ 0.6	
1	0.202	1.012	1.011	0.977	0.961	
2	0.201	1.008	1.008	0.981	0.958	
3	0.203	1.012	1.004	0.974	0.969	
4	0.200	1.013	1.009	0.972	0.957	
5	0.204	1.015	1.010	0.964	0.952	
6	0.202	1.008	1.005	0.974	0.958	
7	0.200	1.014	1.004	0.972	0.963	
8	0.203	1.017	1.009	0.972	0.969	
9	0.201	1.014	1.010	0.964	0.958	
10	0.202	1.012	1.006	0.981	0.957	

Tab 10. – SUN SHIELD SPECTRAL TRANSMITTANCE (6.17.2.5)

Sample ID Number	Spectral transmittance		Note
	τ_f Results [475-650]	Limits τ_f > 0,2 τ_v	
1	0.221	0.04	
2	0.226	0.04	
3	0.222	0.041	
4	0.229	0.04	
5	0.214	0.041	
6	0.227	0.04	
7	0.203	0.04	
8	0.206	0.041	
9	0.207	0.04	
10	0.213	0.04	

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Tab. 11 – SUN SHIELD REFRACTIVE POWERS (6.17.2.6)

Sample ID Number	Side	Spherical Power +/- 0.12 [m^{-1}]	Astigmatic Power 0.12 [m^{-1}]	Prismatic Power			Note
				Base IN/ OUT	Horizontal Limits Base IN < 0.25 Base OUT < 1.00 [cm/m]	Vertical Limits < 0.25 [cm/m]	
11	Dx	-0.034	0.051	OUT	0.3	0.17	
	Sx	-0.049	0.05	-	-	-	
12	Dx	-0.03	0.053	OUT	0.3	0.17	
	Sx	-0.052	0.07	-	-	-	
13	Dx	-0.033	0.052	OUT	0.3	0.17	
	Sx	-0.051	0.09	-	-	-	
14	Dx	-0.029	0.049	OUT	0.3	0.18	
	Sx	-0.053	0.07	-	-	-	
15	Dx	-0.031	0.052	OUT	0.3	0.17	
	Sx	-0.049	0.06	-	-	-	
16	Dx	-0.034	0.051	OUT	0.3	0.18	
	Sx	-0.05	0.08	-	-	-	
17	Dx	-0.031	0.048	OUT	0.3	0.18	
	Sx	-0.051	0.08	-	-	-	
18	Dx	-0.033	0.052	OUT	0.3	0.18	
	Sx	-0.051	0.07	-	-	-	
19	Dx	-0.031	0.051	OUT	0.3	0.18	
	Sx	-0.051	0.06	-	-	-	
20	Dx	-0.033	0.049	OUT	0.3	0.17	
	Sx	-0.049	0.07	-	-	-	

Remarks

None

Note: VCA apply measurement uncertainty to calibrated items but not test results.

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