



THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

COMMUNICATION CONCERNING THE APPROVAL GRANTED ⁽⁴⁾ / ~~APPROVAL EXTENDED ⁽⁴⁾ /~~
~~APPROVAL REFUSED ⁽⁴⁾ / APPROVAL WITHDRAWN ⁽⁴⁾ / PRODUCTION DEFINITELY~~
~~DISCONTINUED ⁽⁴⁾~~ OF A TYPE OF PROTECTIVE HELMET WITHOUT / WITH ⁽¹⁾ ONE / MORE ⁽¹⁾
VISOR TYPE(S) WITHOUT / WITH ⁽¹⁾ ONE / MORE ⁽¹⁾ SPECIFIC ACCESSORY TYPE(S)
PURSUANT TO UN REGULATION NO. 22.06



Approval No: E11*22R06/03*2337*00

Reason(s) for extension: Not applicable

1. Trade mark: SENA
2. Type: PHANTOM KV
3. Sizes: XXL, XL, L, M, S
4. Manufacturer's name: SENA Technologies Co., Ltd.
5. Address:
19, Heolleung-ro 569-gil
Gangnam-gu
Seoul
Republic of Korea
6. If applicable, name of manufacturer's representative: SENA Europe GmbH
7. Address:
Paul-Henri-Spaak-Str. 22
51069 Koln
Germany
8. Brief description of helmet: "P" with protective lower face cover with two visor with one Specific accessory

9. ~~Helmet without lower face cover (J) / with protective lower face cover (P) / with non protective lower face cover (NP) / with detachable or movable lower face cover (P/J)~~⁽⁴⁾
10. Type of visor or visors: SENA-FF-01, SENA-FF-01 SMOKE
11. Brief description of visor or visors and inner visor if any: See manufacturer's document
12. Helmet ready for specific accessory (SA) / ~~ready for universal accessories (UA)~~⁽⁴⁾
13. Accessories included in the helmet homologation and functionality:
Speaker, Microphone, Bluetooth intercom, Reading lamp
14. ~~If UA helmet, speakers (S or S45) / Microphone (M) / Front mounting (F) / Side mounting (L), Rear mounting (R)~~⁽⁴⁾ : Not applicable
- 14.1. ~~If S40 or S45, speaker dummy used for the homologation test deformable / rigid~~⁽⁴⁾
15. Submitted for approval on: 1 July 2026
16. Technical service responsible for conducting approval tests: Vehicle Certification Agency
17. Date of report issued by that service: 3 July 2026 and 6 July 2026
18. Number of report issued by that service: VCA041391-1, VCA041391-1(PQT) and VCA041391-1 (SUN)
19. Comments:
- Commercial name: PHANTOM KV, PHANTOM KV ANC, PHANTOM KEVLAR
20. Approval GRANTED / ~~EXTENDED / REFUSED / WITHDRAWN~~⁽⁴⁾
21. Place: BRISTOL
22. Date: 31 JULY 2026

23. Signature:



C McCABE
Chief Technical and Statutory Operations Officer

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

(1) Strike out what does not apply



Vehicle
Certification
Agency

THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

APPROVAL NUMBER: E11*22R06/03*2337*00

INFORMATION PACKAGE CONTENTS

INDEX REVISION NUMBER: 00

Conformity of Production (COP) Declaration COP Confirmed

Assessment Method COP Audit

Date of Initial Clearance August 2023

Date of Last Clearance August 2025

Total number of sheets: 18(Eighteen)

Reasons for Revision: Not applicable

Revision Date
&
Office Stamp

	Protective Helmets UN Regulation 22.06	
	Type	: PHANTOM KV
	Document No.	: PHANTOM KV_22R_00
	Date	: 12 MAY 2026
	Type-approval No.	: E11*22R06/03*2337*00
	Job No.	: VCA041391-1

Protective Helmets

UN Regulation 22.06

Type : PHANTOM KV

Total number of sheets : 18 (Eighteen)

	Protective Helmets	
	UN Regulation 22.06	
	Type	: PHANTOM KV
	Document No.	: PHANTOM KV_22R_00
	Date	: 12 MAY 2026
	Type-approval No.	: E11*22R06/03*2337*00
	Job No.	: VCA041391-1

0. GENERAL

- 0.1. Make (trade name of manufacturer)
: SENA
- 0.2. Type
: PHANTOM KV
- 0.2.1. Commercial name(s) (if available)
: PHANTOM KV, PHANTOM KV ANC,
PHANTOM KEVLAR
- 0.2.2. Variant(s) / Version(s) (if available)
: PHANTOM KV, PHANTOM KV ANC,
PHANTOM KEVLAR
- 0.3. Location of E-mark : On the label sewn to the retention system
- 0.4. Company name and address of manufacturer
: SENA Technologies Co., Ltd.
19, Heolleung-ro 569-gil, Gangnam-gu, Seoul
Republic of Korea
- 0.5. Name(s) and address(es) of assembly plant(s)
: Qingyuan SENA Smart Helmets, LLC.
Plant No.61, Hongrugu Science and Technology
Industrial Park, No.21, 253 Provincial Road
Longtang Town, Qingcheng District, Qingyuan City
Guangdong Province
China
- 0.6. Name and address of the manufacturer's representative (if any)
: SENA Europe GmbH
Paul-Henri-Spaak-Str. 22, 51069 Koln
Germany
- 0.7. Number of visor types which can be fitted
: 2

SENA	Protective Helmets <i>UN Regulation 22.06</i>	
	Type	: PHANTOM KV
	Document No.	: PHANTOM KV_22R_00
	Date	: 12 MAY 2026
	Type-approval No.	: E11*22R06/03*2337*00
	Job No.	: VCA041391-1

1. DISRIPTION OF THE HELMET

- 1.1. Style of helmet : Full face
- 1.2. Category of helmet : "P" with protective lower face cover
- 1.3. Sizes
- Large Shell : XXL (63-64), XL (61-62)
- Medium Shell : L (59-60),
- Small Shell : M (57-58), S (55-56)

1.4. Weight

PHANTOM KV

SIZE	XXL	XL	L	M	S
WEIGHT	1700g±50		1650g±50	1600g±50	

- 1.5. Helmet ready for : Specific Accessory (SA)

- 1.6. Helmet prepared for (if UA helmet)
- : NA

2. SHELL

- 2.1. Material : Fiberglass and DuPont™ Kevlar® fiber
- 2.2. Composition of the border joint on the shell
- : PVC Gasket
- 2.3. Ventilation system
- 2.3.1. Number of ventilations : 3
- 2.3.2. Positioning on the shell : Front of Crown (Crown), Rear of Crown, Chin guard (Center)

3. RETENTION SYSTEM

- 3.1. Chin strap
- 3.1.1. Material : Nylon webbing
- 3.1.2. Width : 24mm
- 3.2. Comfort padding of retention system
- : Polyester
- 3.3. Strap retainer : Double D ring
- 3.4. Anchorages : Secured to shell by means of a single rivet to each side of helmet shell

SENA	Protective Helmets <i>UN Regulation 22.06</i>	
	Type	: PHANTOM KV
	Document No.	: PHANTOM KV_22R_00
	Date	: 12 MAY 2026
	Type-approval No.	: E11*22R06/03*2337*00
	Job No.	: VCA041391-1

4. PROTECTIVE PADDING

4.1. Composition

	S-M Density (g/cm ³)	L Density (g/cm ³)	XL-XXL Density (g/cm ³)
TOP	22±5	22±5	22±5
HEAD	33±5	33±5	33±5
Chin	55±5	55±5	55±5
Mouth	55±5	55±5	55±5

5. COMFORT PADDING

5.1. Composition and material

Comfort padding	: Sponge
Comfort tissue	: Polyester
Neck curtain	: Polyurethane

6. VISOR

6.1. Make (trade name of manufacturer)

: SENA

6.2. Type

: SENA-FF-01, SENA-FF-01 SMOKE

6.3. ECE type-approval mark

: SENA-FF-01 : E11 062006-XXXXXXX
SENA-FF-01 SMOKE : E11 062162-XXXXXXX

6.4. Company name and address of manufacturer

: SENA Technologies Co., Ltd.
19, Heolleung-ro 569-gil, Gangnam-gu, Seoul,
Republic of Korea

6.5. Material

: Polycarbonate

6.6. Surface treatment

: Anti-scratch

6.7. Thickness

: 2.4mm

6.8. Colour

: SENA-FF-01 : Clear
SENA-FF-01 SMOKE : SMOKE

6.9. Manufacturing method

: Injection moulding

6.10. Transmittance

: SENA-FF-01 : ≥80%
SENA-FF-01 SMOKE : ≥35%

SENA	Protective Helmets <i>UN Regulation 22.06</i>	
	Type	: PHANTOM KV
	Document No.	: PHANTOM KV_22R_00
	Date	: 12 MAY 2026
	Type-approval No.	: E11*22R06/03*2337*00
	Job No.	: VCA041391-1

7. SUN SHIELD

- 7.1. Make (trade name of manufacturer)
: SENA
- 7.2. Type
: SENA-IV-01
- 7.2.1. Commercial name(s) (if available)
: NA
- 7.3. Company name and address of manufacturer
: SENA Technologies Co., Ltd.
19, Heolleung-ro 569-gil, Gangnam-gu, Seoul,
Republic of Korea
- 7.4. Material
: Polycarbonate
- 7.5. Surface treatment
: Anti-scratch coating
- 7.6. Thickness
: 1.6mm
- 7.7. Colour
: Smoke
- 7.8. Manufacturing method
: Injection moulding
- 7.9. Transmittance
: ≥20%

8. SPECIFIC ACCESSORY

- 8.1. Make (trade name of manufacturer)
: SENA
- 8.2. Type
: SP149
- 8.3. ECE type-approval mark
: NA
- 8.4. Company name and address of manufacturer
: Shenzhen SENA Technologies, LLC.
4G, Quanzhi Science & Technology Bldg 4
HeBinNan-lu, Baoan-qu, Shenzhen
China
- 8.5. Material
: ABS
- 8.6. Weight
: 192g±5
- 8.7. Means of attachment
: Glued
- 8.8. Composition
: Speaker, Microphone, Bluetooth intercom,
Reading lamp

9. ADDITIONAL FEATURES

- 9.1. Detachable peak
: NA
- 9.1.1. Material
: NA
- 9.2. Information for wearers
: Placed in helmet retail box

	Protective Helmets UN Regulation 22.06	
	Type	: PHANTOM KV
	Document No.	: PHANTOM KV_22R_00
	Date	: 12 MAY 2026
	Type-approval No.	: E11*22R06/03*2337*00
	Job No.	: VCA041391-1

LIST OF DRAWINGS

Drawing No.	Descriptions	Page
PHANTOM KV/22R-01	General view of the helmet	2
PHANTOM KV /22R-02	Drawing of the shell (Large size)	2
PHANTOM KV /22R-03	Drawing of the shell (Medium size)	2
PHANTOM KV /22R-04	Drawing of the shell (Small size)	2
PHANTOM KV /22R-05	Drawing of the protective padding (Large size)	2
PHANTOM KV /22R-06	Drawing of the protective padding (Medium size)	2
PHANTOM KV /22R-07	Drawing of the protective padding (Small size)	2
PHANTOM KV /22R-08	Drawing of the retention system (Double D ring)	1
PHANTOM KV /22R-09	Drawing of the visor (SENA-FF-01)	1
PHANTOM KV /22R-10	Drawing of the visor (SENA-FF-01 SMOKE)	1
PHANTOM KV /22R-11	Drawing of the sun shield (SENA-IV-01)	1
PHANTOM KV /22R-12	Drawing of the Specific Accessory (SP149)	1

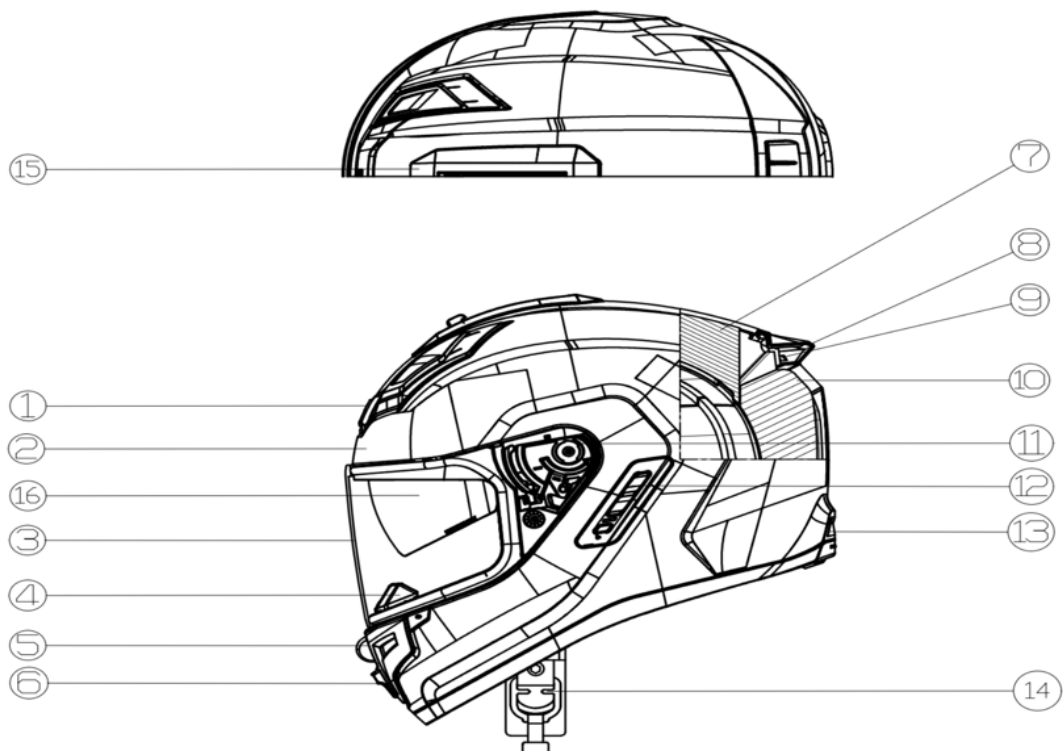
SENA

Protective Helmets
UN Regulation 22.06

Type : PHANTOM KV
Document No. : PHANTOM KV_22R_00
Date : 12 MAY 2026
Type-approval No. : E11*22R06/03*2337*00
Job No. : VCA041391-1

Drawing no. PHANTOM KV /22R-01-02

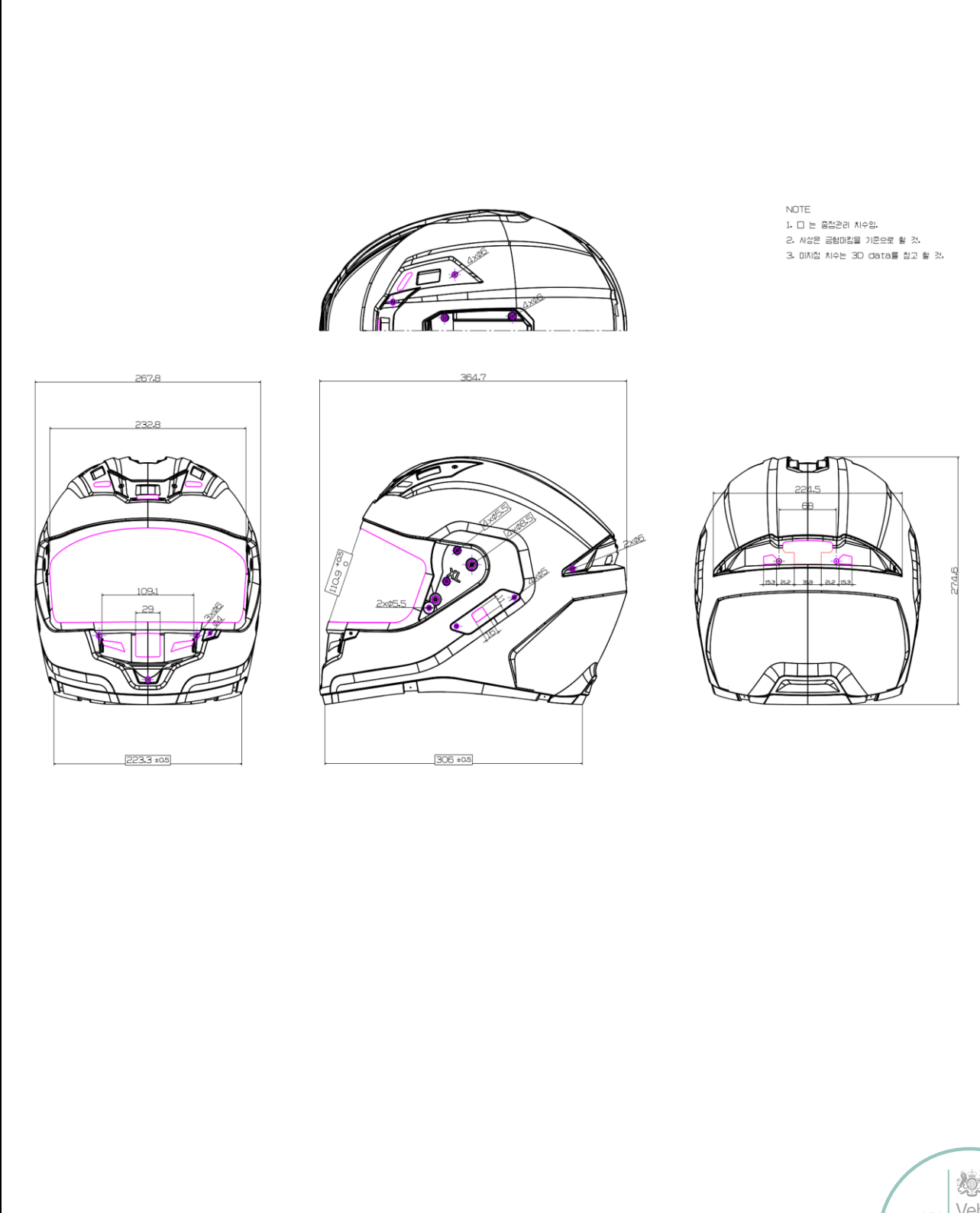
Description General view of the helmet



16	SUNVISOR	PC		1	
15	SUNSHIELD LEVER	PC/ABS		1set	
14	CHINSTRAP L/R	—		1set	
13	SMART BODY MAIN	—		1set	
12	SMART UI UNIT L/R	—		1set	
11	RATCHET	PC & POM		1set	
10	HEAD EPS	EPS		1	
9	TAIL LIGHT L/R	—		1set	
8	SPOILER VENT	PC/ABS		1	
7	TOP EPS	EPS		1	
6	MOUTH VENT	PC/ABS, POM		1set	
5	FLASH LIGHT	—		1set	
4	NOSEGUARD	TPU		1	
3	VISOR	PC		1	
2	SHELL	Fiberglass and DuPont™ Kevlar® fiber			
1	TOP VENT	PC/ABS, POM		1set	
NO	PART NAME	MATERIAL	PART NO.	Q'TY	REMARKS

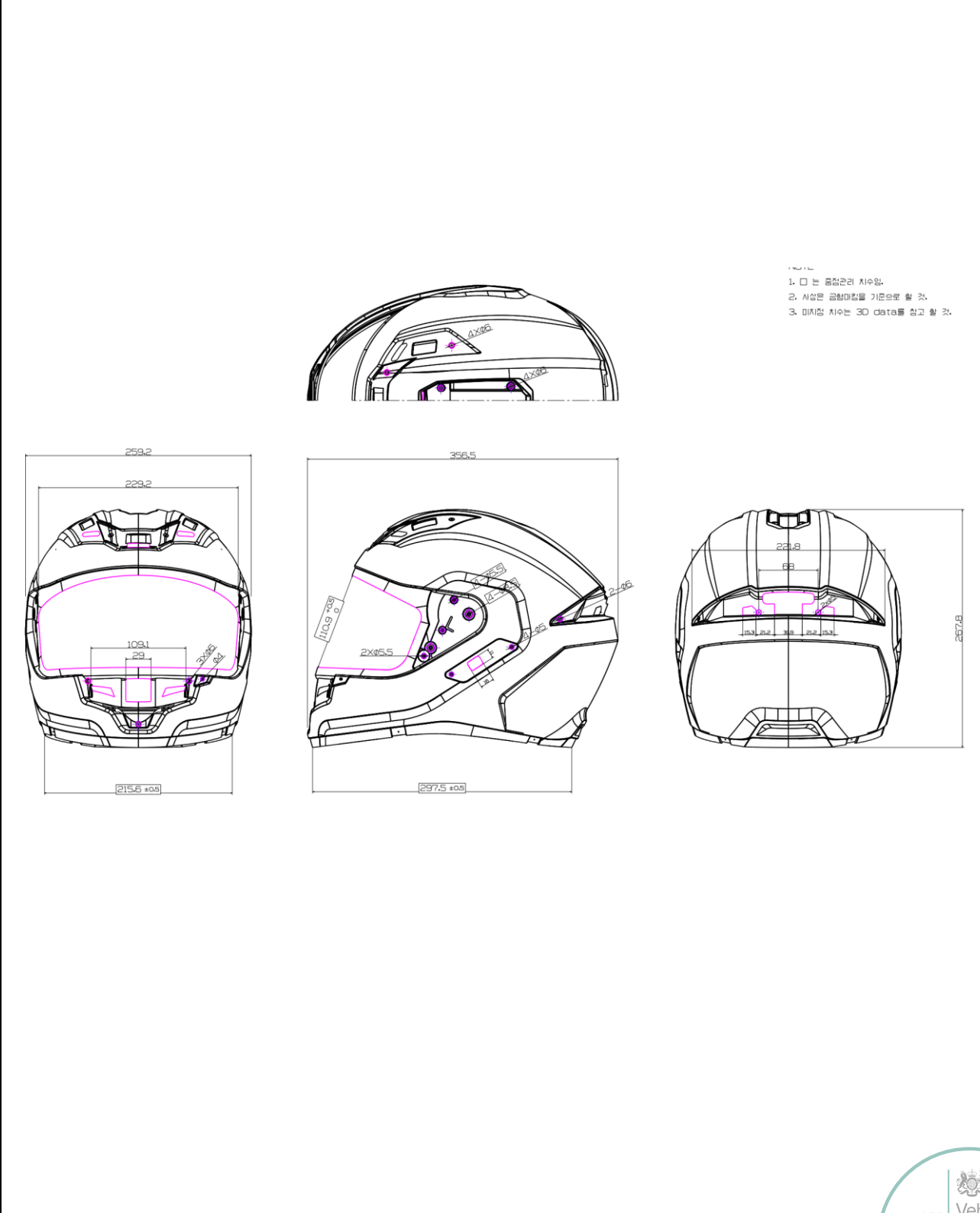
	Protective Helmets	
	UN Regulation 22.06	
	Type	: PHANTOM KV
	Document No.	: PHANTOM KV_22R_00
	Date	: 12 MAY 2026
	Type-approval No.	: E11*22R06/03*2337*00
	Job No.	: VCA041391-1

Drawing no.	PHANTOM KV /22R-02-02
Description	Drawing of the shell (Large size)



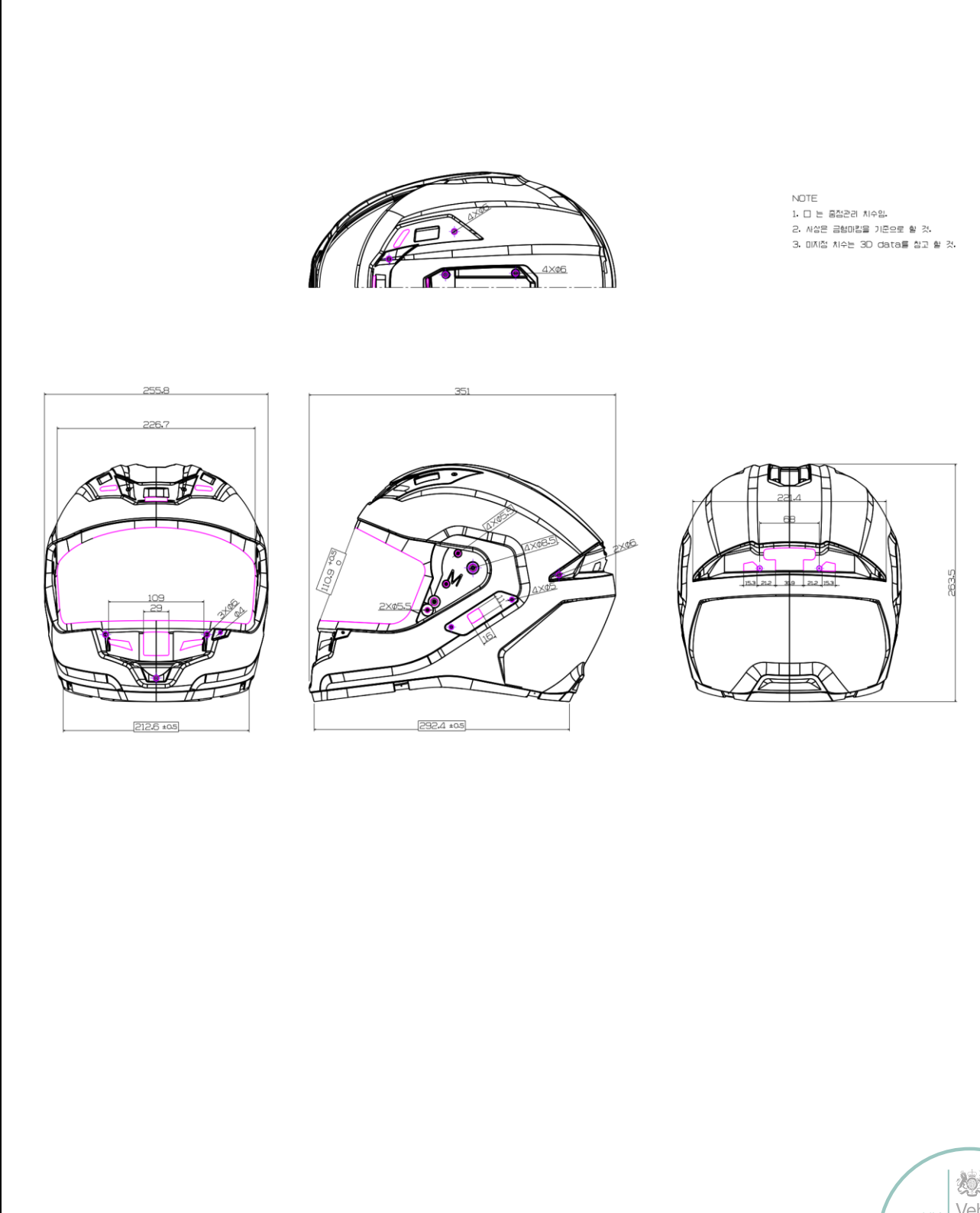
	Protective Helmets UN Regulation 22.06	
	Type	: PHANTOM KV
	Document No.	: PHANTOM KV_22R_00
	Date	: 12 MAY 2026
	Type-approval No.	: E11*22R06/03*2337*00
	Job No.	: VCA041391-1

Drawing no.	PHANTOM KV /22R-03-02
Description	Drawing of the shell (Medium size)



	Protective Helmets	
	UN Regulation 22.06	
	Type	: PHANTOM KV
	Document No.	: PHANTOM KV_22R_00
	Date	: 12 MAY 2026
	Type-approval No.	: E11*22R06/03*2337*00
	Job No.	: VCA041391-1

Drawing no.	PHANTOM KV /22R-04-02
Description	Drawing of the shell (Small size)



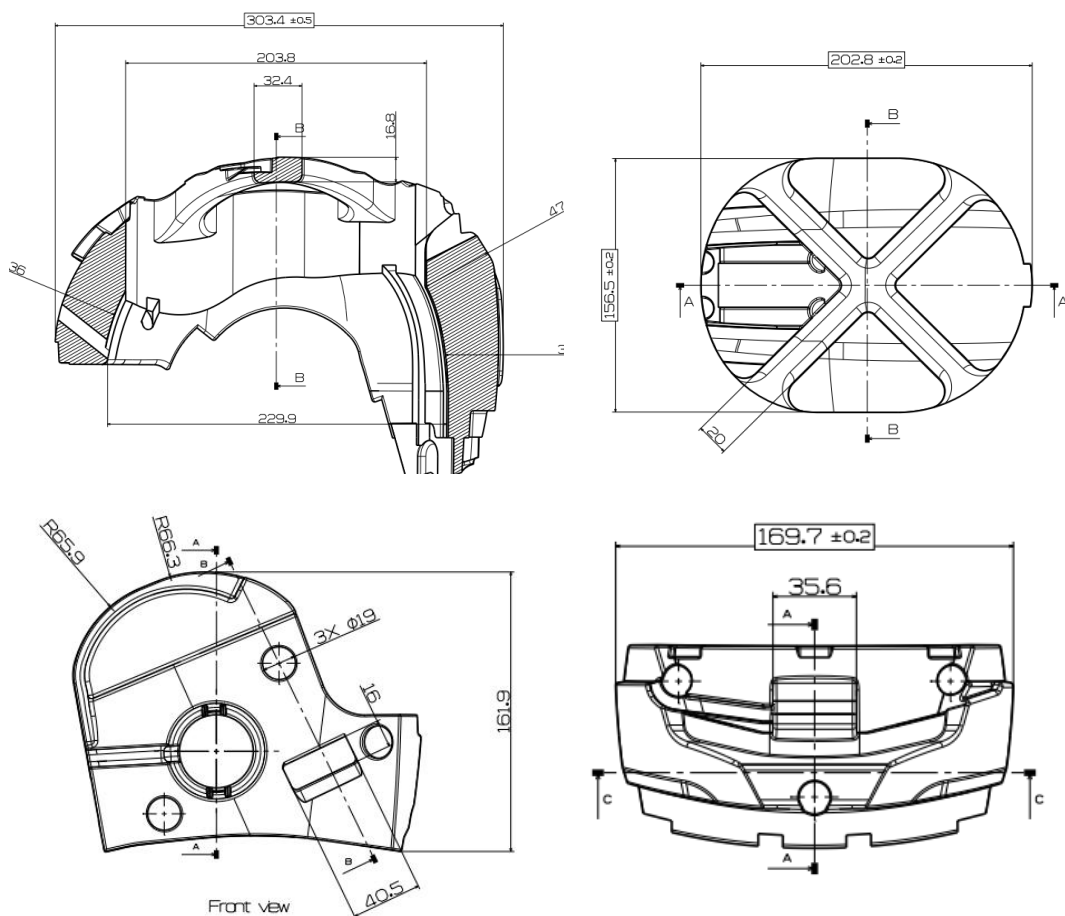
SENA

Protective Helmets
UN Regulation 22.06

Type : PHANTOM KV
Document No. : PHANTOM KV_22R_00
Date : 12 MAY 2026
Type-approval No. : E11*22R06/03*2337*00
Job No. : VCA041391-1

Drawing no. PHANTOM KV /22R-05-02

Description Drawing of the protective padding (Large size)



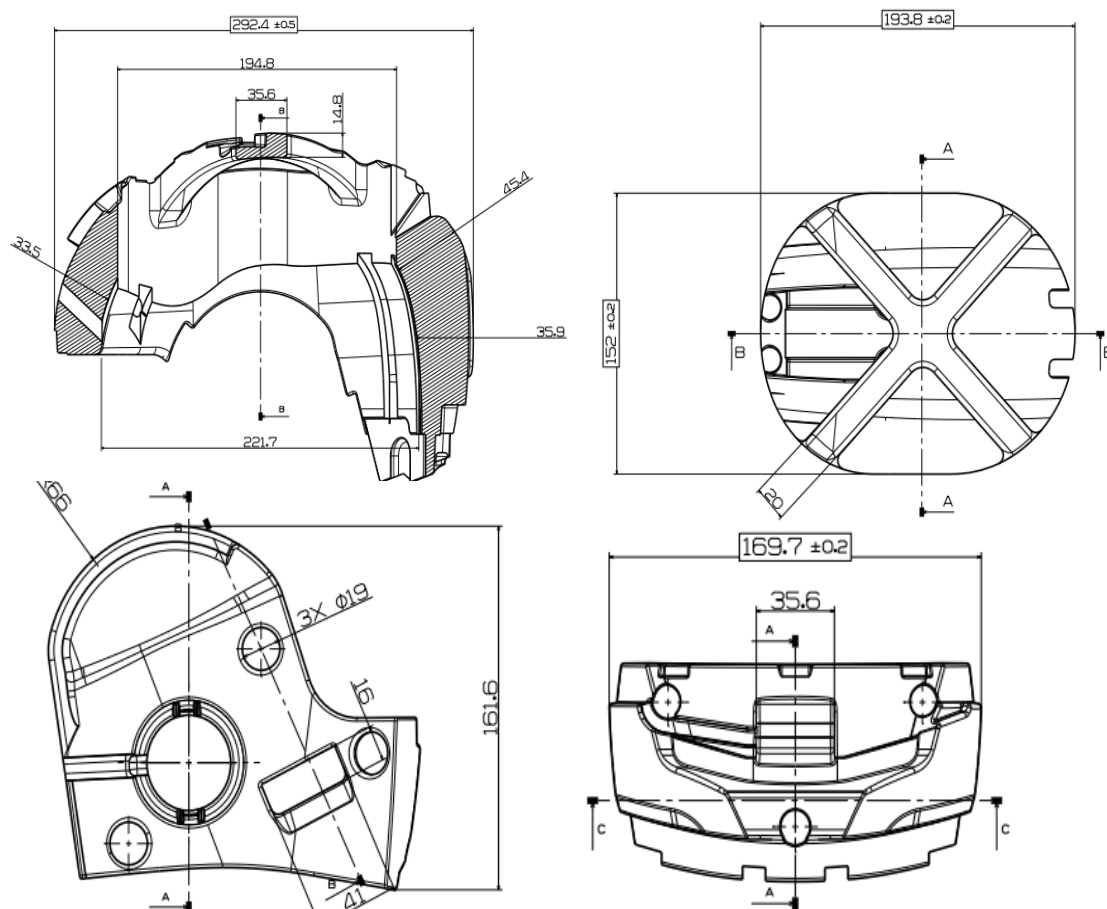
SENA

Protective Helmets
UN Regulation 22.06

Type : PHANTOM KV
Document No. : PHANTOM KV_22R_00
Date : 12 MAY 2026
Type-approval No. : E11*22R06/03*2337*00
Job No. : VCA041391-1

Drawing no. PHANTOM KV /22R-06-02

Description Drawing of the protective padding (Medium size)



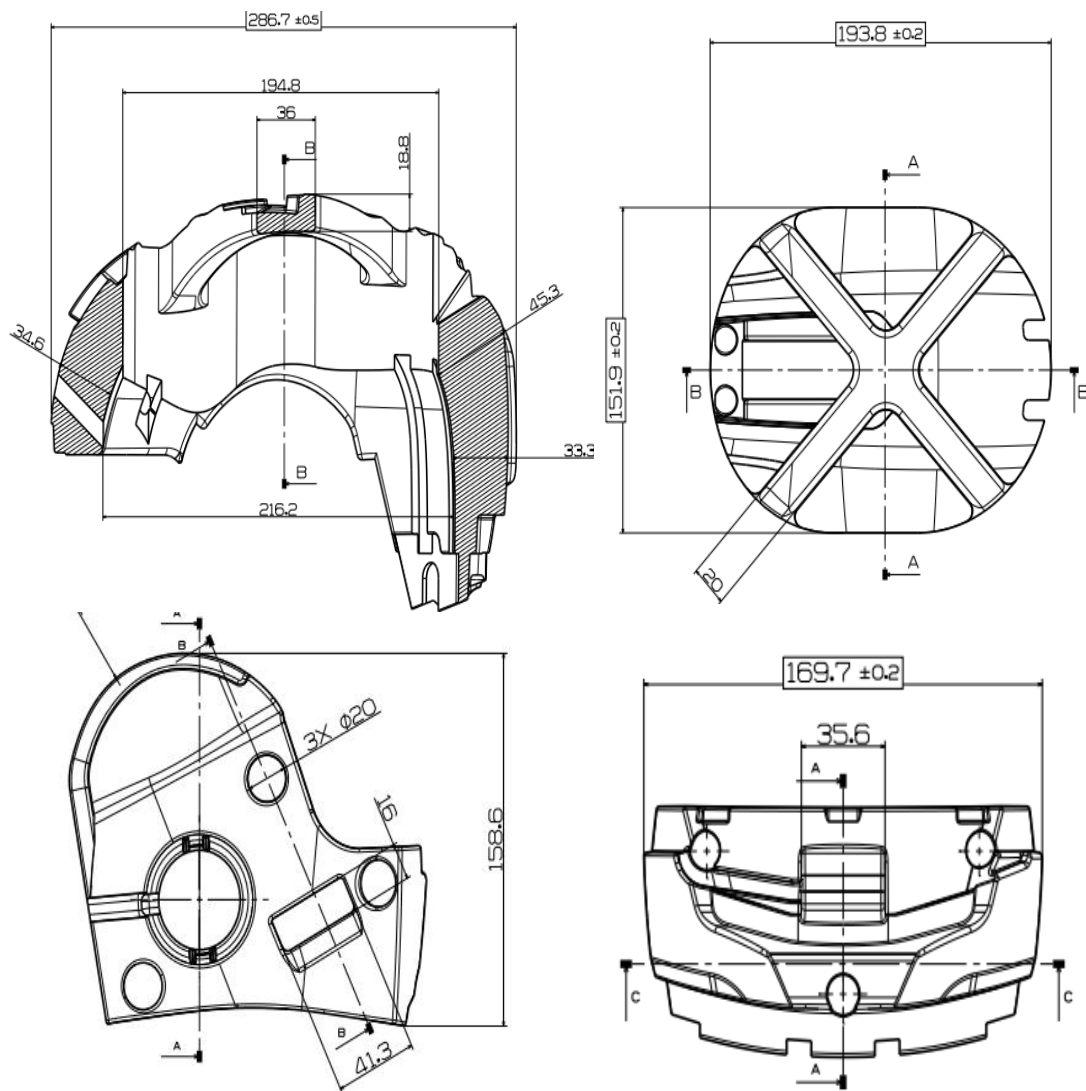
SENA

Protective Helmets
UN Regulation 22.06

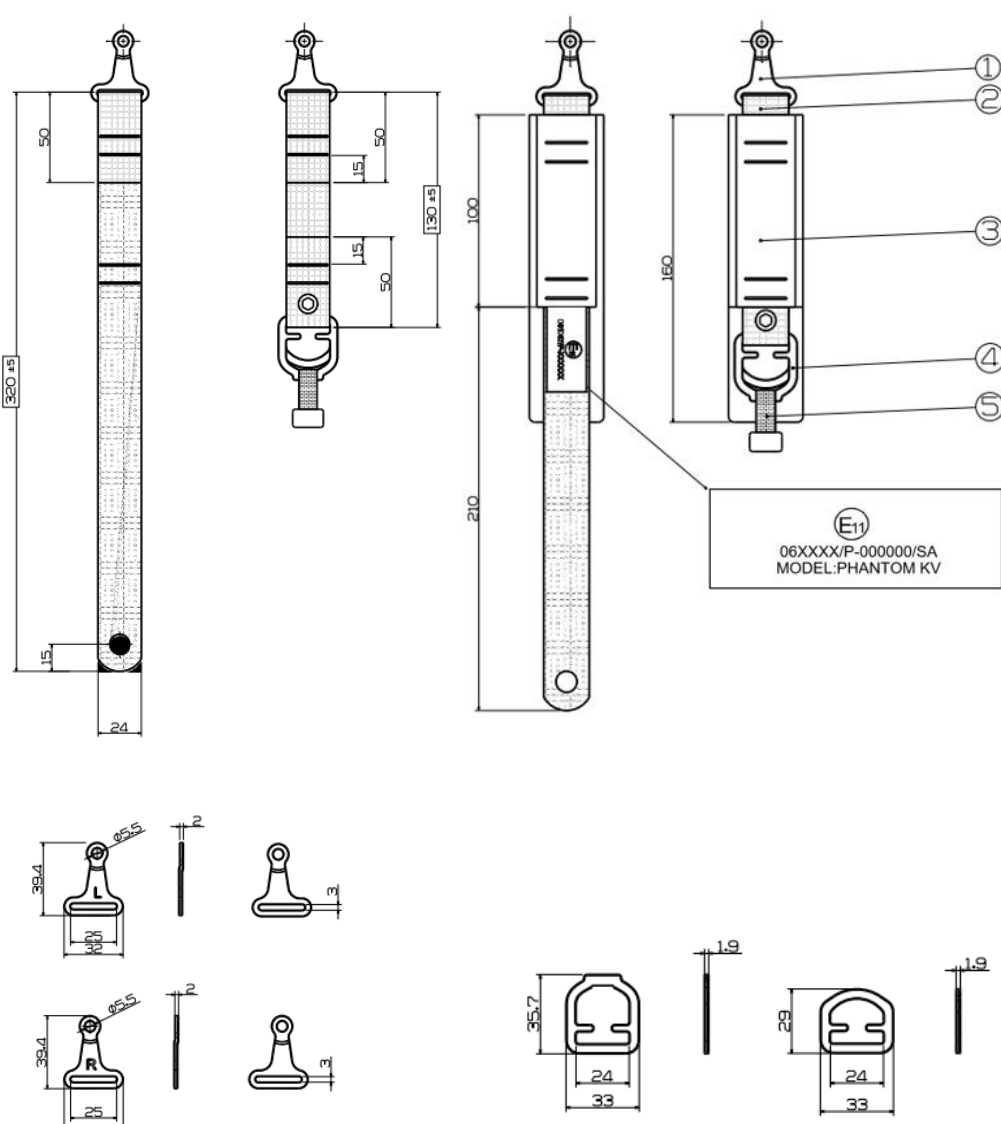
Type : PHANTOM KV
Document No. : PHANTOM KV_22R_00
Date : 12 MAY 2026
Type-approval No. : E11*22R06/03*2337*00
Job No. : VCA041391-1

Drawing no. PHANTOM KV /22R-07-02

Description Drawing of the protective padding (Small size)

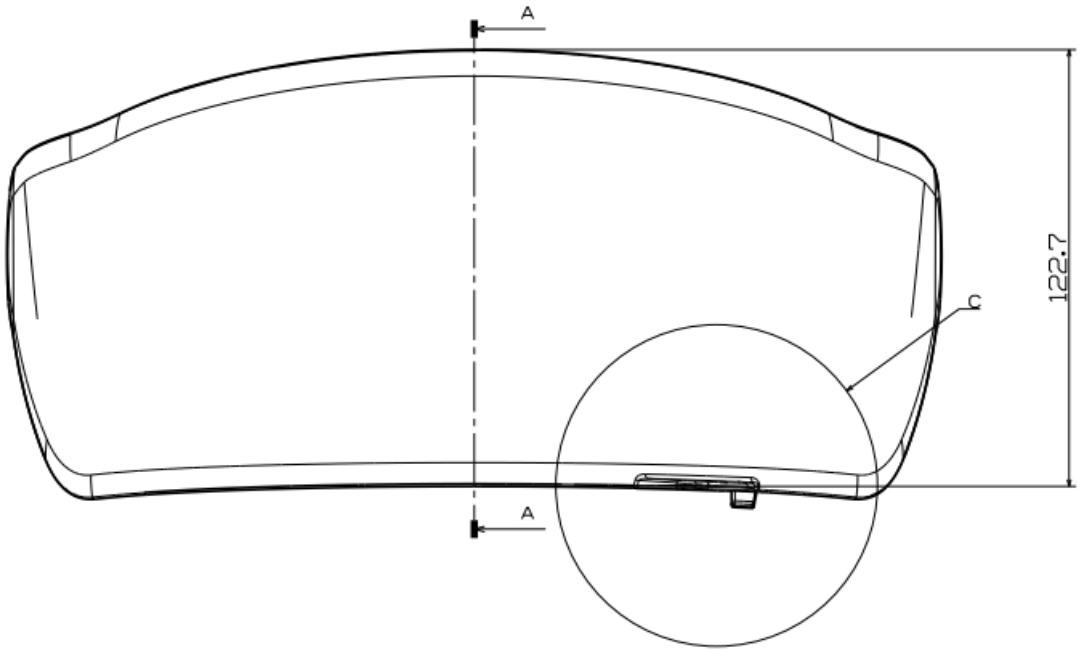


	Protective Helmets UN Regulation 22.06
	Type : PHANTOM KV
	Document No. : PHANTOM KV_22R_00
	Date : 12 MAY 2026
	Type-approval No. : E11*22R06/03*2337*00
	Job No. : VCA041391-1

Drawing no.	PHANTOM KV /22R-08
Description	Drawing of the retention system (Double D ring)
 ① TRIANGLE METAL LH/RH ④ DOUBLE D-RING	

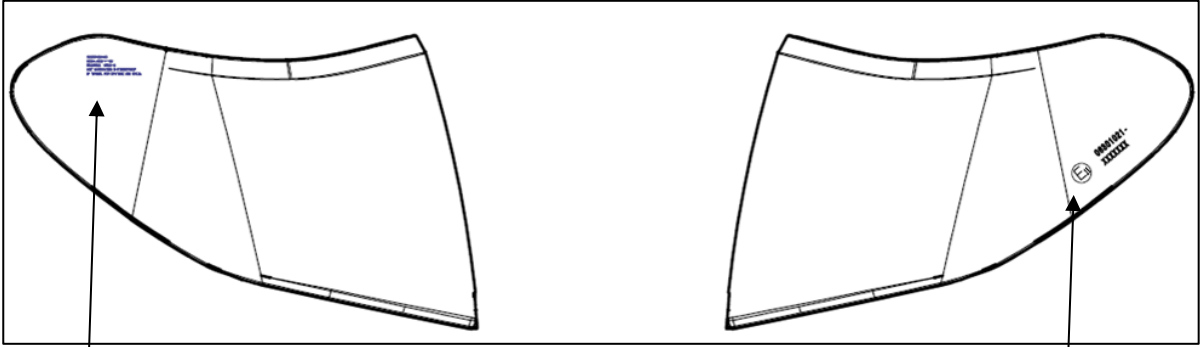
	Protective Helmets	
	UN Regulation 22.06	
	Type	: PHANTOM KV
	Document No.	: PHANTOM KV_22R_00
	Date	: 12 MAY 2026
	Type-approval No.	: E11*22R06/03*2337*00
	Job No.	: VCA041391-1

Drawing no.	PHANTOM KV /22R-09
Description	Drawing of the visor (SENA-FF-01)



THICKNESS : 2.4mm

COLOR : CLEAR

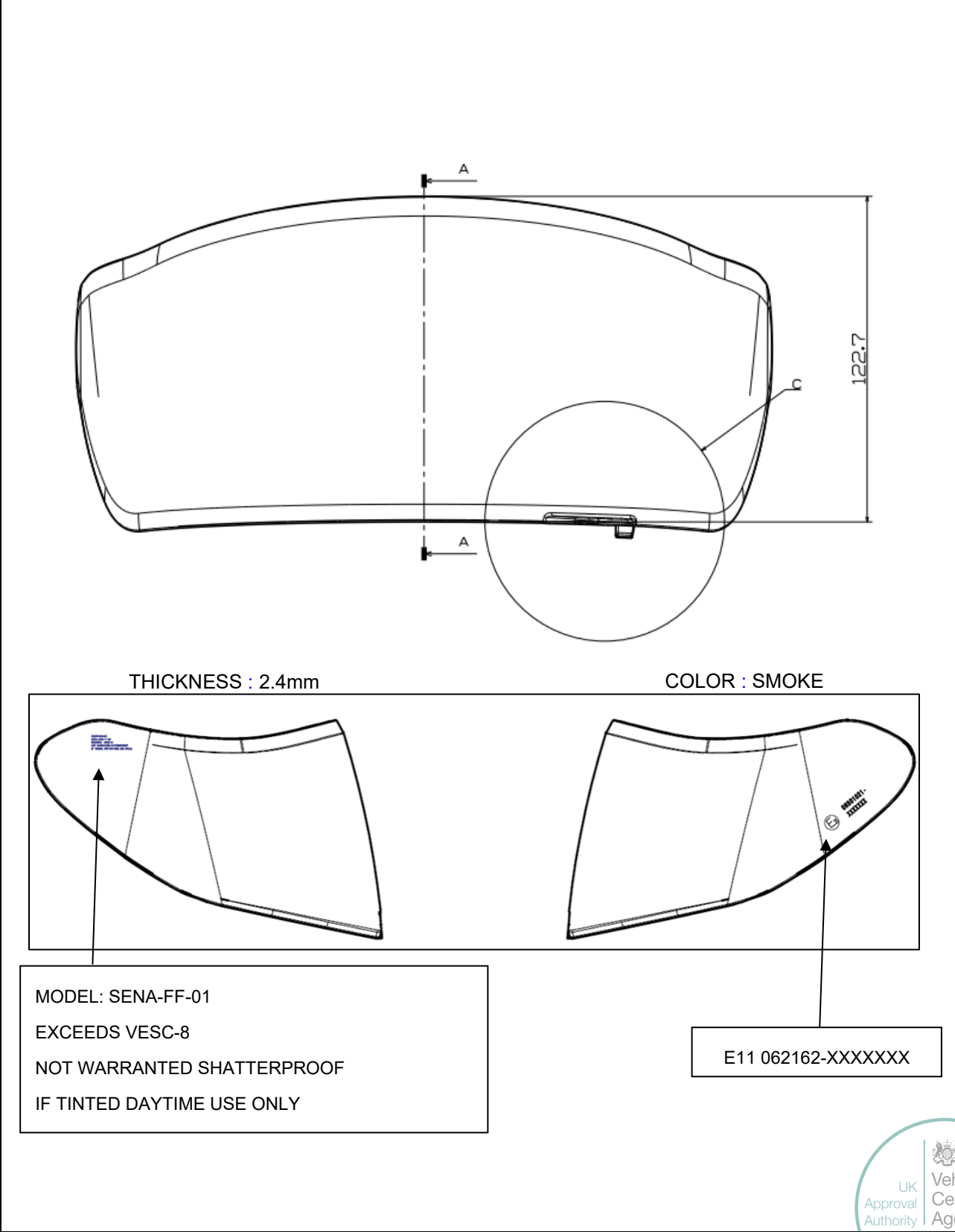


MODEL: SENA-FF-01
 EXCEEDS VESC-8
 NOT WARRANTED SHATTERPROOF
 IF TINTED DAYTIME USE ONLY

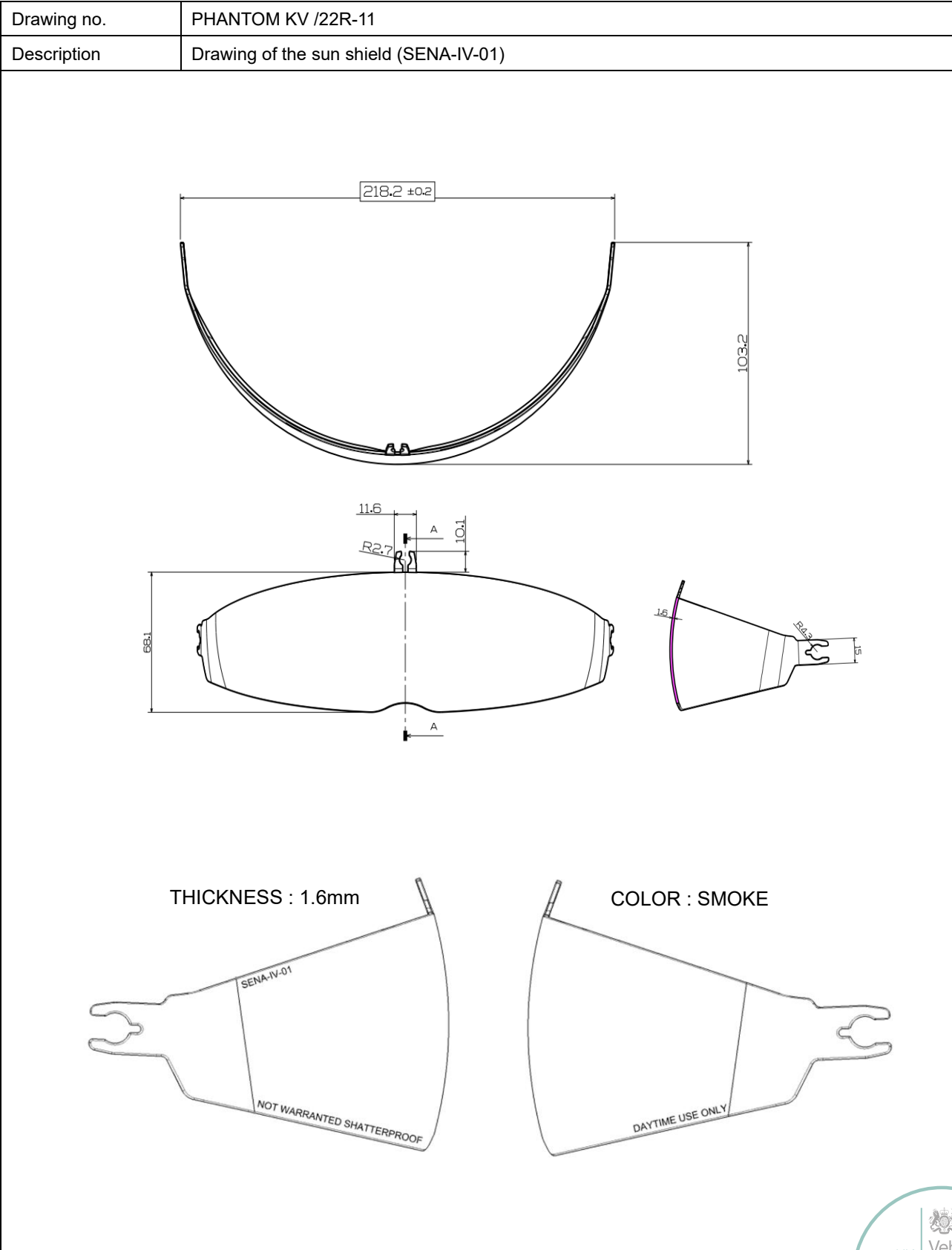
E11 062006-XXXXXXX

	Protective Helmets	
	UN Regulation 22.06	
	Type	: PHANTOM KV
	Document No.	: PHANTOM KV_22R_00
	Date	: 12 MAY 2026
	Type-approval No.	: E11*22R06/03*2337*00
	Job No.	: VCA041391-1

Drawing no.	PHANTOM KV /22R-10
Description	Drawing of the visor (SENA-FF-01 SMOKE)



	Protective Helmets	
	UN Regulation 22.06	
	Type	: PHANTOM KV
	Document No.	: PHANTOM KV_22R_00
	Date	: 12 MAY 2026
	Type-approval No.	: E11*22R06/03*2337*00
	Job No.	: VCA041391-1

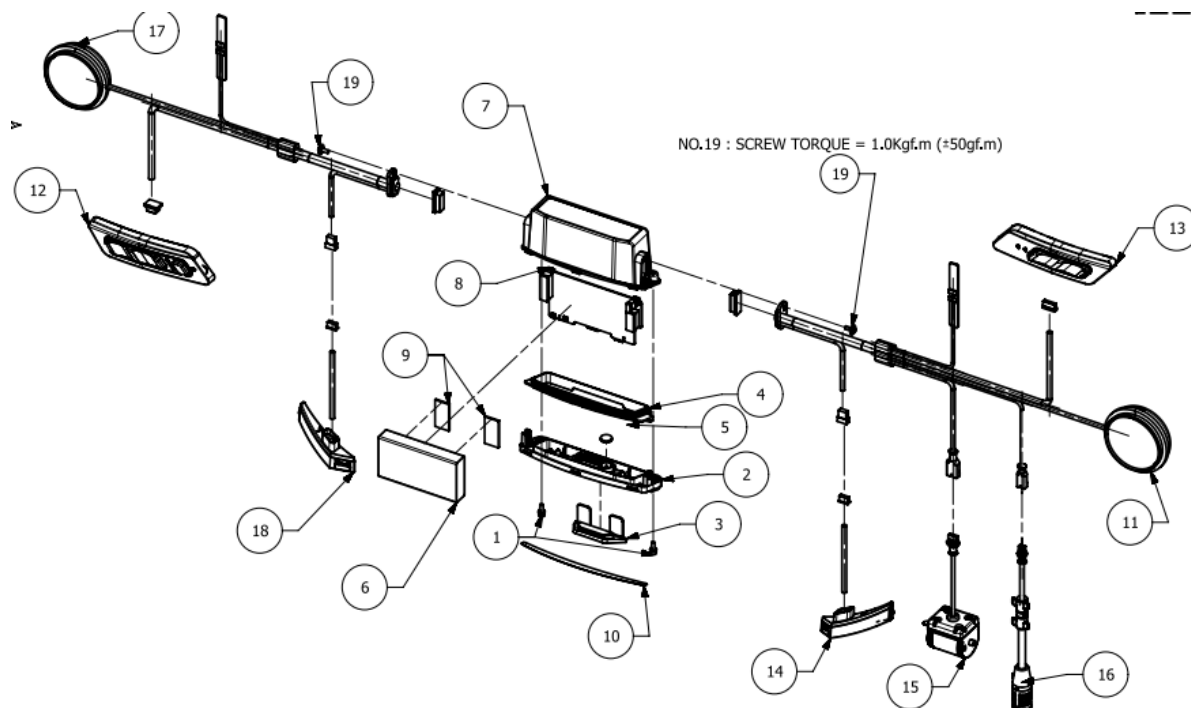


SENA**Protective Helmets**
UN Regulation 22.06

Type : PHANTOM KV
Document No. : PHANTOM KV_22R_00
Date : 12 MAY 2026
Type-approval No. : E11*22R06/03*2337*00
Job No. : VCA041391-1

Drawing no. PHANTOM /22R-12

Description Drawing of the Specific Accessory (SP149)



PC NO	PART NAME	PART NAME	QTY
[ASSY]	SUB ASSY PHANTOM MAIN UNIT (BLACK)	SUB ASSY PHANTOM MAIN UNIT (WHITE)	[1]
1	SCREW-MC-M2-L6-OD3,8-H2	SCREW-MC-M2-L6-OD3,8-H2	2
2	MOLD-COVER-MAIN	MOLD-COVER-MAIN	1
3	RUBBER-CAP-USB	RUBBER-CAP-USB	1
4	RUBBER-PACKING-BODY-MAIN	RUBBER-PACKING-BODY-MAIN	1
5	TAPE-RESET-OD7X1T	TAPE-RESET-OD7X1T	1
6	103057-1700MAH	103057-1700MAH	1
7	MOLD-BODY-MAIN	MOLD-BODY-MAIN	1
8	SUB-ASSY-PCB-MAIN-ST_HELMET	SUB-ASSY-PCB-MAIN-ST_HELMET	1
9	TAPE-20X10X1T	TAPE-20X10X1T	2
10	LABEL-BD-PHANTOM	LABEL-BD-PHANTOM	1
11	SUB-ASSY-CABLE-MAIN-R	SUB-ASSY-CABLE-MAIN-R	1
12	SUB-ASSY-UI-UNIT-L	SUB-ASSY-UI-UNIT-L	1
13	SUB-ASSY-UI-UNIT-R	SUB-ASSY-UI-UNIT-R	1
14	SUB ASSY TAILLIGHT UNIT R	SUB ASSY TAILLIGHT UNIT R	1
15	SUM-ASSY READING LAMP	SUM-ASSY-FLASHLIGHT-UNIT	1
16	SUB-ASSY-WIRED-BOOM-MIC-HARMAN	SUB-ASSY-WIRED-BOOM-MIC-HARMAN	1
17	SUB-ASSY-CABLE-MAIN-L	SUB-ASSY-CABLE-MAIN-L	1
18	SUB ASSY TAILLIGHT UNIT L	SUB ASSY TAILLIGHT UNIT L	1
19	SCREW-TAPPING-M2-L5-PW-OD6-T1_5	SCREW-TAPPING-M2-L5-PW-OD6-T1_5	2



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

Legislation

UNECE Regulation 22.06 Consolidated to Supplement 3 (Revision 5 Amendment 3)

Inspection/Test Details

Location of Inspection/Test: Qingyuan SENA Smart Helmets, LLC.
Plant No.61, Hongrundu Science and Technology Industrial
Park, No.21, 253 Province Road, Logtang Town, Qingcheng
District, Qingyuan City, CHINA
Date(s) of Inspection/Test: 1, 2 July 2026
VCA Representative(s): Jongduk Lee, Taeha Kim
Engineers Home Office Location: VCA Korea
Manufacturer's Representative(s): Soohan Kim
Reason for Report: New Approval

Manufacturer Details

Name and Address: SENA Technologies Co., Ltd.
19, Heolleung-ro 569-gil, Gangnam-gu, Seoul
Republic of Korea
Type: PHANTOM KV
Commercial Description: PHANTOM KV, PHANTOM KV ANC, PHANTOM KEVLAR
Category: "P" with protective lower face helmet

Conclusion

The above-mentioned vehicle / engine / component was tested in accordance with the above mentioned legislation and was found to comply in all respects listed in this report. This report relates only to the items tested.

Inspection Report Engineer
Signature:

Name: Jongduk Lee
Position: Principal Type Approval
Engineer
Date: 3 July 2026

List of Annexes

Annex	No of Pages	Subject
I		Test photos (EU/GB and UN when needed)
II		



Vehicle
Certification
Agency

VCA, 1 Eastgate Office Centre,
Eastgate Road, Bristol, BS5 6XX, United Kingdom
enquiries@vca.gov.uk |
www.vehicle-certification-agency.gov.uk

Report Number: VCA041391-1
Issue: 0

This test report shall not be reproduced except in full, without
written approval of the technical service.

III
IV





Issue Record

Issue	Reason for re issue	Name of competent engineer re issuing and signature	Date of re-issue	Technical Manager – <i>Name and signature</i> (VCAE and ISO17025 only)
0	Issue 0 is the original			

Worst Case Rationale

This protective helmet(E11*22R06 2337*00) is “P” with protective lower face cover in new approval.

Test carried out under the condition as follows: Number of samples tested

Shell size	Large		Medium	Small	
Size	XXL	XL	L	M	S
Rigidity	2	-	2	2	-
Impact	5	2	5	5	2
Retention	-	1	1	-	1
Projection & Surface	1				
Oblique	2	-	2	2	-
Field of vision	-	1	1	-	1
Extra	-	1	1	-	1
Hi/Low	-	2	2	-	2
Total	50				

See inspection/Tests Required section below for test not mention above.

Test results of Resistance to Abrasion of the Chin Strap and Retention Systems Relying on Quick Release Mechanism carried over from KSB625781 due to the same specification.

Unused sections are removed for clarity.

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

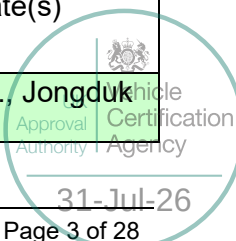
Significant Interpretations, Alternative Test Methods, New Technologies

Not applicable

Inspection/Tests Required

Markings:

Yes, NA, See Report ... / Approval ... / Annex ...	Test location, Engineer(s) & Date(s)
Yes	Qingyuan SENA Smart Helmets, LLC., Jongduk Lee, Taeha Kim & 1 July 2026





General Specifications:	Yes	Qingyuan SENA Smart Helmets, LLC., Jongduk Lee, Taeha Kim & 1 July 2026
Impact Absorption:	Yes	Qingyuan SENA Smart Helmets, LLC., Jongduk Lee, Taeha Kim & 1, 2 July 2026
Projection and Surface Friction:	Yes	Qingyuan SENA Smart Helmets, LLC., Jongduk Lee, Taeha Kim & 1 July 2026
Rigidity:	Yes	Qingyuan SENA Smart Helmets, LLC., Jongduk Lee, Taeha Kim & 1 July 2026
Retention System (Dynamic):	Yes	Qingyuan SENA Smart Helmets, LLC., Jongduk Lee, Taeha Kim & 1 July 2026
Retention (Detaching):	Yes	Qingyuan SENA Smart Helmets, LLC., Jongduk Lee, Taeha Kim & 1 July 2026
Micro-slip of the Chin Strap:	NA	-
Resistance to Abrasion of the Chin Strap:	See Report KSB625781	-
Retention Systems Relying on Quick Release Mechanism:	See Report KSB625781	-
Tests for Oblique impact and measurement of rotational acceleration:	Yes	Qingyuan SENA Smart Helmets, LLC., Jongduk Lee, Taeha Kim & 2 July 2026



Component Specification Tested

Style of Helmet:	“P” with protective lower face cover				
Size					
Shell Size:	Large		Medium	Small	
Consumer Size:	XXL	XL	L	M	S
Weight:	1700g±50		1650g±50	1600g±50	
Materials					
Shell:	Fiberglass and DuPont™ Kevlar® fiber				
Padding:	Sponge, Polyester, Polyurethane				
Liner:	EPS (Expanded Polystyrene type foam)				
Chin Strap:	Nylon webbing				
Retention System					
Type:	Two section system				
Buckle:	Double D ring				
Strap Retainer:	Plastic press stud				
Anchorage:	Secured to shell by means of a single rivet to each side of helmet shell				
Ventilation System:	Number of ventilations: 3 Front of Crown (Crown), Rear of Crown, Chin guard (Centre)				
Type of Shell Edging:	PVC gasket				
Accessories:	Visor: SENA-FF-01 Sun shield: SENA-IV-01 Specific Accessory: SP149				
Reflecting Band:	Not applicable				
Conspicuity marking:	Not applicable				
Additional Features:	Not applicable				

Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the vehicle / engine / component tested and covers all variants and versions agreed in the worst case rationale.

Yes

Information document uploaded to the job folder or work order documents and identified by the job number or work order number.

Yes

Facility and Equipment Checks

Facility Appraisal reference number and date:

FAK178 and VCA028471-1
30 August 2025

Calibration certificates are traceable to national or international standards of measurement, and stored in job folder or work order documents:

Yes

Calibration checked and valid, recorded in the below table:

Yes



Equipment

Description	Make	Model	Serial number and/or equipment ID	Calibration due date
TwinWire Impact Test Machine	CADEX	1000-01-TWA01	050123-04	30 March 2026 +1 year
ICP Triaxial Accelerometer	CADEX	1000-01-TWA01	LW369985	4 April 2026 +1 year
DTS Wireless Voltage Gain	CADEX	1000-01-TWA01	DAQ-DTS-012 &6DXA0025	8 April 2026 +1 year
Angle Gauge	CADEX	1000-02-ROESV	855292	2 September 2025 +1 year
Projection and Surface Friction (Method B)	CADEX	1000-04-PSF01	050123-10	30 March 2026 +1 year
UV Chamber Machine	HOTOTECH	HT-6014	HB22430	22 August 2025 +1 year
High Temperature Chamber	HOTOTECH	HT-5012	HB22431	22 August 2025 +1 year
Low Temperature Chamber	HOTOTECH	HT-5013	HB22432	22 August 2025 +1 year
Helmet Rigidity Testing Bench	CADEX	1000-09-RTCSM	050123-09	30 March 2026 +1 year
Chinstrap Multipurpose Machine	CADEX	1000-01-CMM01	050123-08	30 March 2026 +1 year
Dynamic Test of Retention System	CADEX	1000_03_RSM22	040323-09	30 March 2026 +1 year
Roll Off Dynamic Machine	CADEX	1000-02-ROESV	050123-03	30 March 2026 +1 year
Projection and Surface Friction (Method B)	CADEX	1000-04-PSF01	050123-10	30 March 2026 +1 year
Field and Vision Gauge Kit	CADEX	1588	051523-01	2 September 2025 +1 year

Equipment Remarks

None

Note: VCA apply measurement uncertainty to calibrated items and require pass results including equipment uncertainty.



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

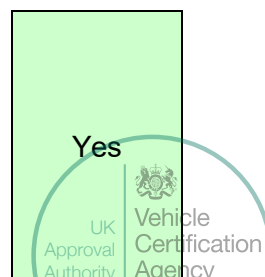
General Specifications

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.	Yes



Note: this symbol or indication must be visible and extend over at least 2 cm²

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
	Accessories are fitted in accordance with the helmet manufacturer's instructions and, if it is the case, also in accordance with the accessory manufacturer's instructions.	Yes





	Only approved helmets and approved accessories according to this Regulation can guarantee the performance of the combination of them.	
	Helmets may be prepared for fitting universal accessories:	
6.3.1.1	Helmet has markings on the exterior of the helmet shell or any visible component as a reference for the installation of the universal accessories main external components. Area where the universal accessories are fitted is at least 30 mm of distance from any point of any impact affected area to the lower edge of the helmet shell (the lower rubber rim is considered to be helmet shell for this purpose).	NA
6.3.1.2	Installation of exterior accessories is done in such a way that no part of a universal accessory, whose maximum main unit(s) dimensions are as defined in Annex 20, are located in an impact affected area. Helmet designed to be fitted with universal accessory has either appropriate space for attaching the device or clamp fixation system as foreseen in Annex 20. A space or clamp fixation has been provided on both sides of the helmet for each declared position symmetrically located with respect to the longitudinal vertical plane. At least one position for accessories fixation has been declared.	NA
6.3.1.3	If the helmet fulfils the requirements of 6.3.1.1. and 6.3.1.2. it has been marked as ready for Universal Accessories "UA". Helmets marked as "UA" have also fulfilled the additional requirements and tests prescribed by this Regulation.	NA
6.3.1.4	If the helmet is prepared for speakers, the helmet has a dedicated space of at least 41 mm diameter and a depth of at least 8 mm. Optionally, the helmet may be prepared for bigger speakers and, in this case, the related diameter shall be increased to at least 46 mm diameter. Helmet has been prepared to accommodate the wires for the speakers, if there is no special arrangement for the wires, the above-mentioned diameters have been increased by 2 mm. Helmet has been tested to assess that the appropriate speaker simulators, as defined in Annex 20, have no adverse effect and that in any case the helmet still complies with all the requirements as set forth in Chapter 7.3. In this case, the helmet shall be marked as "S" or "S45" depending on the assessment done.	NA



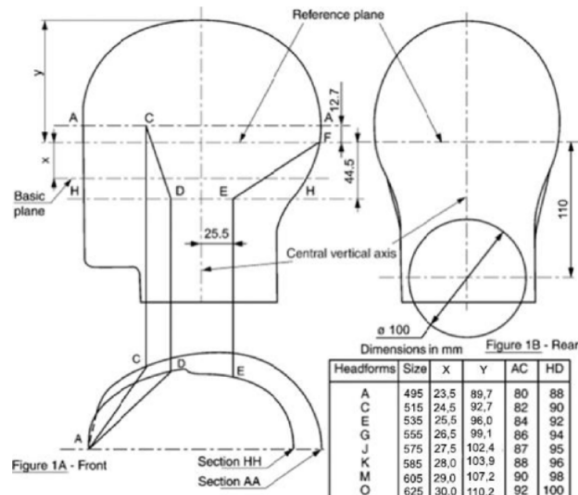
6.3.1.5	For helmets designed for fitting speakers, minimum distance between the speakers allows a headform of the appropriate size to pass through them. This requirement has to be met for a speaker of 12mm thickness and the maximum declared diameter.	NA
6.3.1.6	If the helmet is prepared to fit microphone and the helmet is of type P or P/J, the helmet has been tested to assess that the microphone simulator defined in Annex 20, located in a specific location foreseen on the helmet for the microphone or, if there is not such a specific location perfectly marked, the worst case position at the discretion of the Technical Service, has no adverse effect and that in any case the protective helmet still complies with all the requirements as set forth in Chapter 7.3. In this case, the helmet is marked as "M". Any helmet ready for universal accessories of type J or NP shall be marked as "M".	NA
6.3.1.7	If the helmet has the accessory space or clamping fixation in the front-side position, the helmet is marked as "F".	NA
6.3.1.8	If the helmet has the accessory space or clamping fixation in the side position, the helmet is marked as "L".	NA
6.3.1.9	If the helmet is prepared to fit a rear mounted accessory, the helmet is marked as "R".	NA
6.3.1.10	If the helmet has different declared positions to fit accessories, they are positioned in such a way that universal accessories can be fitted in all declared positions at the same time.	NA
6.3.1.11	When all the accessory positions declared by the helmet manufacturer are in use, the accessories do not prevent the use of any helmet mechanism.	NA
6.3.2.1	Helmets that can be placed on the market with specific accessories, or for which specific accessories will exist, have been tested to assess that the supplementary equipment has no adverse effect and that in any case the protective helmet and/or visor still complies with all the requirements as set forth in Chapter 7. The evaluation has been done with and without the accessory and their support.	Yes
6.3.2.2	Helmets declared as ready to fit specific accessories and has been evaluated as per the previous paragraph, are marked as "SA".	Yes



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

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.

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.

Yes

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 of the shell (e.g. rivet heads) have a radius of a minimum of 1 mm.

Yes



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. <i>Note: Latter specific requirements do not apply if a projection satisfies the requirements in paragraphs 7.4.1 or 7.4.2 below.</i>		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 $150\text{ N} \pm 5\text{ N}$, applied under the condition prescribed in paragraph 7.6.2:	24 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* <i>*Strikethrough, as appropriate.</i>		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 adjusted. (If the retaining system can be opened completely, it must be possible only with voluntary action. To prevent any possible		Yes



	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.	Yes
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.	NA
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.	NA
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



Peripheral Vision

- 6.15.1 The technical service has selected from among the existing sizes of
6.15.2 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;
- 6.15.3. There is no occultation in the field of vision bounded by:
- 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
6.15.3.1. 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;
 - Upwards: Dihedral angle defined by the reference plane of the
headform and a plane forming an angle of not less than 7° with the
6.15.3.2. reference plane and whose edge is the straight line L₁ L₂, the
points L₁ and L₂ representing the eyes;
 - Downwards: Dihedral angle defined by the basic plane of the
headform and a plane forming an angle of not less than 45° with
6.15.3.3. the basic plane, and whose edge is the straight line K₁ K₂.

Yes

Yes

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.)
- 6.16.2. Angle opening (see annex 9) $\geq 5^\circ$:

Yes

Yes

Sun Shield

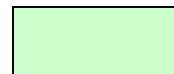
- 6.17.1 Sun shield does not restrain or prevent the movement of the visor.
On opening the visor, the sun shield can pivot in the working
position.
By means of a simple movement the sun shield is able to be moved
separately from the visor out of the visual field.
- 6.17.2.1 Sun shield does not restrict 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

Yes

Yes



does not exceed 2cm²; they can be distributed on both sides of the field of vision.



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 6.16.6 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.

NA

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.

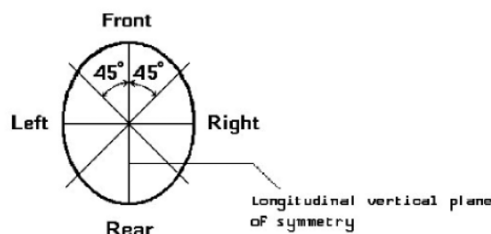
6.18.2

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 figure below, visibility is ensured by a surface area of at least 18 cm² of simple shape and measured by application on a plane.

NA



6.18.2.1.

In each surface area of minimum 18 cm², it is possible to mark either a:

NA

- Circle of 40 mm diameter*
- Rectangle of at least 12.5 cm² 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 $\beta_1 = \beta_2 = 0^\circ$ (or $\beta_1 = \pm 5^\circ$, $\beta_2 = 0^\circ$).





- 6.18.4. Minimum value of the luminous intensity coefficient of a surface area of 18 cm² 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

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.

Yes



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:	Yes
7.2.1.	Ambient-temperature and hygrometry conditioning: The helmet shall be exposed to a temperature of $25\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ and a relative humidity of 50 per cent $\pm$ 10 per cent for at least 4 hours.	Yes
7.2.2.	Heat conditioning: The helmet shall be exposed to a temperature of $50\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ for not less than 4 hours and not more than 8 hours.	Yes
7.2.3.	Low-temperature conditioning: The helmet shall be exposed to a temperature of $-10\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ 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

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (7.5m/s) ²	HIC (≤ 2,400)	Deceleration (≤ 275 g)
1	O/625	B	F	AMB	7.58	1600.97	182.71
		X	F		7.56	1842.03	216.83
		P	F		7.56	1992.96	212.39
		R	F		7.59	1497.57	173.79
2	O/625	B	K	AMB	7.59	1042.47	136.93
		X	K		7.60	1244.55	169.01
		P	K		7.55	1413.46	174.44
		R	K		7.59	1103.67	158.64
3	O/625	B	F	-10	7.55	1431.64	169.27
		X	F		7.57	2147.27	264.07
		P	F		7.57	2288.61	230.72
		R	F		7.57	1390.02	180.45
		S ²	F		6.12	906.79	196.75
4	O/625	B	K	+50	7.58	991.53	131.63
		X	K		7.59	1398.85	199.49
		P	K		7.58	1391.23	168.02
		R	K		7.59	1089.96	151.28
5	O/625	B	F	UV + H2O	7.59	1283.86	161.02
		X	F		7.59	2082.48	247.89
		P	F		7.57	2187.71	227.28
		R	F		7.58	1597.46	184.66

*F = Flat; K = Kerbstone

²: Test speed of only "S" point required 6.0m/s

7.3.

Helmet size:

XL

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (7.5m/s) ²	HIC (≤ 2,400)	Deceleration (≤ 275 g)
6	O/625	B	F	-10	7.58	1148.01	146.14
		X	F		7.53	1919.84	229.29
		P	F		7.57	2348.29	236.53
		R	F		7.59	1324.74	172.59
		S ²	F		6.10	849.15	143.37
7	O/625	B	K	+50	7.54	978.7	127.68
		X	K		7.59	1369.8	186.25
		P	K		7.58	1388.63	168.5
		R	K		7.59	983.78	139.08

*F = Flat; K = Kerbstone



²: Test speed of only "S" point required 6.0m/s

7.3.

Helmet size:

L

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (7.5m/s) ²	HIC (≤ 2,400)	Deceleration (≤ 275 g)
8	M/605	B	F	AMB	7.59	1645.31	195.06
		X	F		7.58	2105.39	251.18
		P	F		7.56	2120.3	219.9
		R	F		7.59	1461.91	170.35
9	M/605	B	K	AMB	7.57	1129.18	144.29
		X	K		7.60	1554.74	236.94
		P	K		7.54	1423.19	175.44
		R	K		7.59	954.84	148.19
10	M/605	B	F	-10	7.59	1542.46	187.71
		X	F		7.59	2135.38	258.19
		P	F		7.59	2103.39	216.58
		R	F		7.58	1118.54	146.16
		S ²	F		6.08	804.05	146.85
11	M/605	B	K	+50	7.59	1287.48	166.98
		X	K		7.57	1489.03	215.32
		P	K		7.56	1508.09	187.49
		R	K		7.59	937.77	137.33
12	M/605	B	K	UV + H2O	7.57	1244.07	159.44
		X	K		7.57	1357.98	186.42
		P	K		7.57	1579.12	197.27
		R	K		7.60	907.21	142.38

*F = Flat; K = Kerbstone

²: Test speed of only "S" point required 6.0m/s

7.3.

Helmet size:

M

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (7.5m/s) ²	HIC (≤ 2,400)	Deceleration (≤ 275 g)
13	J/575	B	F	AMB	7.55	1668.1	199.9
		X	F		7.53	1970.19	234.11
		P	F		7.58	2000.58	220.57
		R	F		7.57	1663.18	186.16
14	J/575	B	K	AMB	7.56	1243.68	161.28
		X	K		7.58	1304.71	170.91
		P	K		7.52	1638.82	203.92
		R	K		7.53	1038.67	160.39
15	J/575	B	F	-10	7.55	1618.87	197.39
		X	F		7.59	2132.69	247.85
		P	F		7.57	2089.78	210.87
		R	F		7.57	1566.02	191.74
		S ²	F		6.07	779.18	140.7
16	J/575	B	K	+50	7.52	1183.72	162.84
		X	K		7.56	1326.89	170.43



17	J/575	P	K	UV + H2O	7.52	1509.04	191.29
		R	K		7.54	929.03	150.64
		B	K		7.53	1664.29	209.22
		X	K		7.54	1972.75	234.43
		P	K		7.56	2031.72	219.99
		R	K		7.60	1539.04	179.13

*F = Flat; K = Kerbstone

²: Test speed of only "S" point required 6.0m/s

7.3. Helmet size:

S

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (7.5m/s) ²	HIC (≤ 2,400)	Deceleration (≤ 275 g)
18	E/535	B	F	-10	7.56	1965.14	210.56
		X	F		7.57	2284.47	270.28
		P	F		7.56	2352.47	237.38
		R	F		7.58	1264.08	157.88
		S ²	F		6.07	832.95	149.55
19	E/535	B	K	+50	7.58	1239.27	169.93
		X	K		7.57	1352.2	180.39
		P	K		7.50	1431.83	169.84
		R	K		7.55	995.56	148.53

*F = Flat; K = Kerbstone

²: Test speed of only "S" point required 6.0m/s

7.3. Helmet size:

XL

Extra Impact points (Worst Case Size Selected):

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (7.5m/s)	HIC (≤ 2,400)	Deceleration (≤ 275 g)
20	O/625	BXL	F	AMB	7.55	1440.69	183.17
		XPR	F		7.58	1317.14	178.6
		RXL	F		7.56	1463.18	179.25
21	O/625	BXR	K	AMB	7.57	941.2	135.77
		XPL	K		7.55	1079.57	149.16
		RXR	K		7.59	859.23	127.88

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:

L

Extra Impact points (Worst Case Size Selected):

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (7.5m/s)	HIC (≤ 2,400)	Deceleration (≤ 275 g)
------------------	------------------	--------------	--------	------------	----------------	---------------	------------------------



22	M/605	BXL	F	AMB	7.57	1303.46	168.41
		XPR	F		7.59	1378.02	166.98
		RXL	F		7.56	1253.39	164.11
23	M/605	BXR	K	AMB	7.60	1274.95	154.96
		XPL	K		7.56	1423.68	198.67
		RXR	K		7.60	798.36	123.52

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:

S

Extra Impact points (Worst Case Size Selected):

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (7.5m/s)	HIC (≤ 2,400)	Deceleration (≤ 275 g)
24	E/535	BXL	F	AMB	7.54	1493.84	188.01
		XPR	F		7.54	1681.17	213.42
		RXL	F		7.57	1609.23	188.29
25	E/535	BXR	K	AMB	7.53	1238.8	176.89
		XPL	K		7.51	1063.46	162.03
		RXR	K		7.56	924.76	146.54

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 Energy Impact points:

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (8.2m/s)	HIC (≤ 2,880)	Deceleration (≤ 275 g)
26	O/625	B	F	AMB	8.23	1789.47	184.84
		X	F		8.20	2379.95	245.16
		P	F		8.22	2788.9	257.75
		R	F		8.25	2058.26	211.16

7.3. Helmet size:

XL

Low Energy Impact points:



Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (6.0m/s)	HIC (≤ 1,300)	Deceleration (≤ 180 g)
27	O/625	B	F	AMB	6.08	815.17	138.74
		X	F		6.10	1087.81	174.04
		P	F		6.07	1211.96	161.92
		R	F		6.09	784.92	125.22

7.3. Helmet size:

L

Hi Energy Impact points:

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (8.2m/s)	HIC (≤ 2,880)	Deceleration (≤ 275 g)
28	M/605	B	F	AMB	8.20	2069.00	219.50
		X	F		8.22	2287.09	254.06
		P	F		8.23	2843.35	247.18
		R	F		8.22	1414.81	180.04

7.3. Helmet size:

L

Low Energy Impact points:

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (6.0m/s)	HIC (≤ 1,300)	Deceleration (≤ 180 g)
29	M/605	B	K	AMB	6.07	708.32	127.34
		X	K		6.08	734.83	140.62
		P	K		6.06	862.09	150.15
		R	K		6.09	527.48	107.00

7.3. Helmet size:

S

Hi Energy Impact points:

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (8.2m/s)	HIC (≤ 2,880)	Deceleration (≤ 275 g)
30	E/535	B	F	AMB	8.21	1929.15	220.87
		X	F		8.20	2393.08	258.52
		P	F		8.20	1618.69	193.10
		R	F		8.22	1553.96	185.25

7.3. Helmet size:

S

Low Energy Impact points:

Helmet ID Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (6.0m/s)	HIC (≤ 1,300)	Deceleration (≤ 180 g)
31	E/535	B	K	AMB	6.06	700.43	126.78
		X	K		6.07	701.66	132.38
		P	K		6.08	904.58	157.41
		R	K		6.04	558.89	111.67



Test for Projection and Surface Friction (Method B)

	Helmet ID Number	Test	Tested Point	Results
7.4.2.1.3.1.	32	Projection	Spoiler	PASS
7.4.2.1.3.2.	32	Surface	Top	PASS

Test for projections of the category P/J with movable lower face cover: Not applicable

Rigidity Tests

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

Yes

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)
33	XXL	Longitudinal	1	16	3
34	XXL	Transversal	1	9	4
35	L	Longitudinal	1	15	4
36	L	Transversal	1	10	5
37	M	Longitudinal	1	13	3
38	M	Transversal	1	9	3

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)
39	S	Double D ring	30.65	12.8
40	L	Double D ring	28.54	12.1



41	XL	Double D ring	24.28	12.8
----	----	---------------	-------	------

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 $\leq 30^\circ$)
42	XL	Double D ring	20
43	L	Double D ring	20
44	S	Double D ring	23

Micro-slip Test of the Chin Strap: Carried over KSB625781(1067/P)

Note: See Annex 8, Figure 4)

Chin strap	Total Slip (≤ 10 mm)
Double D ring	4.5

Test for Resistance to Abrasion of the Chin Strap: Test exempted based on the micro-slip test result Note: See Annex 8, Figure 5.

Tests for Retention Systems Relying on Quick Release Mechanism: Not applicable

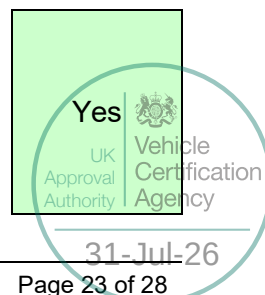
Tests for Oblique impact and measurement of rotational acceleration

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
-----	--	-----

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
---------------	---	-----





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) $\leq 10,400 \text{ rad/s}^2$	Brain Injury Criterion (BrIC) ≤ 0.78
45	O/625	Front lateral right (45°)	AMB	8.04	5536.82	0.326
		Rear (180°)		8.06	3282.27	0.305
		Lateral left (270°)		8.06	5258.55	0.579
46	O/625	Front (0°)	AMB	8.07	2051.25	0.302
		Rear-lateral right (135°)		8.10	2806.40	0.319



Helmet ID Number	H.F. Size Number	Impact Point	Cond. (°C)	Speed (8.0m/s)	Peak Resultant Acceleration (PRA) $\leq 10,400 \text{ rad/s}^2$	Brain Injury Criterion (BrIC) ≤ 0.78
47	M/605	Front lateral right (45°)	AMB	8.1	4525.05	0.292
		Rear (180°)		8.04	3373.13	0.531
		Lateral left (270°)		8.03	3917.23	0.369
48	M/605	Front (0°)	AMB	8.03	1513.46	0.119
		Rear-lateral right (135°)		8.06	2584.79	0.336

Helmet ID Number	H.F. Size Number	Impact Point	Cond. (°C)	Speed (8.0m/s)	Peak Resultant Acceleration (PRA) $\leq 10,400 \text{ rad/s}^2$	Brain Injury Criterion (BrIC) ≤ 0.78
49	J/575	Front lateral right (45°)	AMB	8.05	2085.76	0.336
		Rear (180°)		8.06	5063.68	0.303
		Lateral left (270°)		8.02	3403.1	0.391
50	J/575	Front (0°)	AMB	8.08	3343.54	0.288
		Rear-lateral right (135°)		8.08	5399	0.535

Additional Tests for the Helmet ready for Universal Accessories: Not applicable



Photographs





Notes

*[Notes can be provided at the bottom if it is useful to provide additional information that is not covered by
a compliance statement, for example glazing markings.]*

Remarks

None



Annex I

[Annexes can be used if additional information should be recorded that would be inappropriate in the main body of the report. Annex numbering should use roman numerals.]



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

Legislation

UNECE Regulation 22.06 Consolidated to Supplement 3 (Revision 5 Amendment 3)

Inspection/Test Details

Location of Inspection/Test: Qingyuan SENA Smart Helmets, LLC.
Plant No.61, Hongrugu Science and Technology Industrial
Park, No.21, 253 Province Road, Logtang Town, Qingcheng
District, Qingyuan City, CHINA
Date(s) of Inspection/Test: 3 July 2026
VCA Representative(s): Jongduk Lee, Taeha Kim
Engineers Home Office Location: VCA Korea
Manufacturer's Representative(s): Soohan Kim
Reason for Report: New Approval

Manufacturer Details

Name and Address: SENA Technologies Co., Ltd.
19, Heolleung-ro 569-gil, Gangnam-gu, Seoul
Republic of Korea
Type: PHANTOM KV
Commercial Description: PHANTOM KV, PHANTOM KV ANC, PHANTOM KEVLAR
Category: "P" with protective lower face helmet

Conclusion

The above-mentioned vehicle / engine / component was tested in accordance with the above mentioned legislation and was found to comply in all respects listed in this report. This report relates only to the items tested.

Inspection Report Engineer
Signature:

Name: Jongduk Lee
Position: Principal Type Approval
Engineer
Date: 6 July 2026

List of Annexes

Annex	No of Pages	Subject
I		Test photos (EU/GB and UN when needed)





Vehicle
Certification
Agency

VCA, 1 Eastgate Office Centre,
Eastgate Road, Bristol, BS5 6XX, United Kingdom
enquiries@vca.gov.uk |
www.vehicle-certification-agency.gov.uk

Report Number: VCA041391-1(PQT)
Issue: 0

This test report shall not be reproduced except in full, without
written approval of the technical service.

II
III
IV





Issue Record

Issue	Reason for re issue	Name of competent engineer re-issuing and signature	Date of re-issue	Technical Manager – Name and signature
0	Issue 0 is the original			

Worst Case Rationale

Replace Batch Test No.1 by Production Qualification Test.

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

Not applicable

Inspection/Tests Required

	Yes, NA, See Report ... / Approval ... / Annex ...	Test location	Dates	Engineer
Information for wearers:	Yes	Qingyuan SENA Smart Helmets, LLC.	3 July 2026	Jongduk Lee, Taeha Kim
Impact Absorption Tests:	Yes	Qingyuan SENA Smart Helmets, LLC.	3 July 2026	Jongduk Lee, Taeha Kim
Dynamic Test of the Retention System:	Yes	Qingyuan SENA Smart Helmets, LLC.	3 July 2026	Jongduk Lee, Taeha Kim

Specification Tested

Number of Samples

Shell Size:

Consumer Size:

Sample Quantity:

Production Batch Quantity:

Production Batch Serial Number

Materials

Shell:

Padding:

Liner:

Chin Strap:

Retention System

Large		Medium	Small	
XXL	XL	L	M	S
20	10	30	20	10
3200				
1~3200				
Fiberglass and DuPont™ Kevlar® fiber				
Sponge, Polyester, Polyurethane				
EPS (Expanded Polystyrene type foam)				
Nylon webbing				



Report Number: VCA041391-1(PQT)
Issue: 0

This test report shall not be reproduced except in full, without
written approval of the technical service.

Type:	Two section system
Buckle:	Double D ring
Strap Retainer:	Plastic press stud
Anchorage:	Secured to shell by means of a single rivet to each side of helmet shell
Ventilation System:	Number of ventilations: 3 Front of Crown (Crown), Rear of Crown, Chin guard (Centre)
Type of Shell Edging:	PVC gasket
Accessories:	Visor: SENA-FF-01 Sun shield: SENA-IV-01 Specific Accessory: SP149
Reflecting Band:	NA
Additional Feature:	NA

Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the vehicle / engine / component tested and covers all variants and versions agreed in the worst case rationale.

Yes

Information document uploaded to job folder or work order documents and identified by the job number or work order number.

Yes

Facility and Equipment Checks

Facility Appraisal reference number and date:

FAK178 and VCA028471-1
30 August 2025

Calibration certificates are traceable to national or international standards of measurement, and stored in job folder or work order documents:

Yes

Calibration checked and valid, recorded in the below table:

Yes



Equipment

Description	Make	Model	Serial number	Calibration due date
TwinWire Impact Test Machine	CADEX	1000-01-TWA01	050123-04	30 March 2026 +1 year
ICP Triaxial Accelerometer	CADEX	1000-01-TWA01	LW369985	4 April 2026 +1 year
DTS Wireless Voltage Gain	CADEX	1000-01-TWA01	DAQ-DTS-012 &6DXA0025	8 April 2026 +1 year
Low Temperature Conditioning Chamber	HOTOTECH	HT-5013	HB22432	22 August 2025 +1 year
Heat Conditioning Chamber	HOTOTECH	HT-5012	HB22431	22 August 2025 +1 year
Dynamic Test of Retention System	CADEX	1000_03_RSM22	040323-09	30 March 2026 +1 year
Roll Off Dynamic Machine	CADEX	1000-02-ROESV	050123-03	30 March 2026 +1 year

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

Equipment Remarks

None

Note: VCA apply measurement uncertainty to calibrated items and require pass results including equipment uncertainty.

Software used in Testing

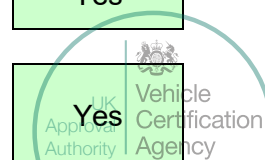
Description	Make	Version	Validation method
Impact test apparatus	CADEX	200_04_CSOF V8.68	Covered in FA
Heat conditioning unit	HOTOTECH	SW Ver. X1TK8070IHLTYC10MV103.05A X2WP1M20RTHLTYC10CV103.05G	Validation by equipment manufacturer
Low temperature conditioning unit	HOTOTECH	SW Ver. X1TK8070IHLTYC10MV103.05A X2WP1M20RTHLTYC10CV103.05G	Validation by equipment manufacturer



Inspection/Test Requirements

Qualifying the Production of Helmets

	The production of each new approved type of helmet must be subjected to production qualification tests.	
9.2	The first batch is considered to be the production of the first tranche containing a minimum of 200 helmets and a maximum of 3,200 helmets.	
-	Random sample of helmets taken from the first batch, divided into homogenous lots of 10, choosing the biggest helmet sizes for each shell size.	Yes
-	At least two lots among those subjected to the shock-absorption test shall consist of maximum size helmets.	Yes
9.2.1.	Test on the system of retention	
9.2.1.1.	The 10 helmets of the smallest size of each shell subjected to the test of the retention system described in paragraph 7.6.	Yes
-	All the types of retention system available for the helmet checked.	Yes
9.2.2.	Shock absorption test	
-	From every shell size of helmet type take two groups each with 10 helmets of the largest size.	Yes
9.2.2.2.	All of the helmets in a group subjected to the same conditioning treatment and then subjected to the shock absorption test described in paragraph 7.3. at the same point of impact.	Yes
-	The conditioning and the anvil for each group chosen by the technical service which conducted the approval tests.	Yes
-	The location of the points must be the same for all the helmets of the same batch.	Yes
-	The helmets of the same batch can be submitted to test up to three different impact point.	Yes
9.2.2.3.	All the shell sizes of a type of helmet submitted to standard linear impact test on the BXPR and S points if present.	Yes





Information for wearers

14.1.	Every protective helmet placed on the market shall bear a clearly visible label with the following inscription in the national language, or at least one of the national languages of the country of destination. This information shall contain: "For adequate protection, this helmet must fit closely and be securely attached. Any helmet that has sustained a violent impact should be replaced" and, if fitted with a non-protective lower face cover: "Does not protect chin from impacts" together with the symbol indicating the unsuitability of the lower face cover to offer any protection against impacts to the chin.	Yes
14.2.	Additionally where hydrocarbons, cleaning fluids, paints, transfers or other extraneous additions affect the shell material adversely a separate and specific warning shall be emphasized in the above-mentioned label and worded as follows: " 'Warning' - Do not apply paint, stickers, petrol or other solvents to this helmet".	Yes
14.3.	Every protective helmet shall be clearly marked with its size and its maximum weight, to the nearest 50 grams, as placed on the market. The maximum weight quoted should include all the accessories that are supplied with the helmets, within the packaging, as it is placed on the market, whether or not those accessories have actually been fitted to the helmet.	Yes
14.4.	Every protective helmet offered for sale shall bear a label showing the type or types of visor that have been approved at the manufacturer's request.	Yes



Inspection/Test Results

Impact Absorption Tests

7.3.

Helmet size:

XXL

Group	Sample Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC (≤ 2,640)	Deceleration (≤ 302.5 g)
1	1	O/625	B	F	-10	7.54	1592	176
	2		B	F		7.50	1195	169
	3		B	F		7.53	1295	167
	4		B	F		7.55	1434	188
	5		B	F		7.54	1169	167
	6		B	F		7.54	1414	168
	7		B	F		7.59	1193	187
	8		B	F		7.54	1143	148
	9		B	F		7.56	1128	161
	10		B	F		7.55	1178	156
2	11	O/625	X	K	+50	7.59	1272	183
	12		X	K		7.55	1207	173
	13		X	K		7.57	1124	167
	14		X	K		7.54	1416	204
	15		X	K		7.57	1465	205
	16		X	K		7.53	1114	166
	17		X	K		7.55	1054	157
	18		X	K		7.54	1266	177
	19		X	K		7.57	1192	169
	20		X	K		7.53	1204	175
2	11	O/625	P	F	+50	7.59	984	137
	12		P	F		7.54	907	136
	13		P	F		7.52	879	136
	14		P	F		7.56	1290	151
	15		P	F		7.56	895	132
	16		P	F		7.53	994	142
	17		P	F		7.55	1187	154
	18		P	F		7.53	1346	161
	19		P	F		7.56	1134	164
	20		P	F		7.56	1059	151

*F = Flat; K = Kerbstone



Helmet size:

XXL

Group	Sample Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC (≤ 2,640)	Deceleration (≤ 302.5 g)
1	1	O/625	R	K	-10	7.52	1404	179
	2		R	K		7.55	1342	169
	3		R	K		7.58	1397	171
	4		R	K		7.56	1358	172
	5		R	K		7.55	1383	174
	6		R	K		7.57	1217	159
	7		R	K		7.56	1385	168
	8		R	K		7.58	1103	156
	9		R	K		7.57	1280	169
	10		R	K		7.50	1208	163
1	1	O/625	S	F	-10	6.05	719	165
	2		S	F		6.04	938	160
	3		S	F		6.08	899	155
	4		S	F		6.05	889	153
	5		S	F		6.08	632	134
	6		S	F		6.08	607	129
	7		S	F		6.07	639	121
	8		S	F		6.08	561	116
	9		S	F		6.09	667	122
	10		S	F		6.05	639	130

*F = Flat; K = Kerbstone

Statistical Analysis

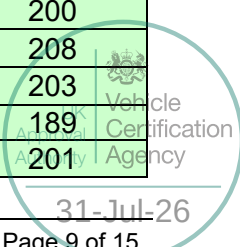
Group	Sample Number	Impact Point	S (Standard deviation of the values)	2.4 S	X (Mean of the values)	X + 2.4 S
1	1 - 10	B	12.5	29.9	169.6	199.5
2	11 - 20	X	15.6	37.5	177.6	215.1
2	11 - 20	P	11.4	27.3	146.3	173.6
1	1 - 10	R	6.9	16.6	168.2	184.8
1	1 - 10	S	18.1	43.3	138.6	181.9

7.3.

Helmet size:

L

Group	Sample Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC (≤ 2,640)	Deceleration (≤ 302.5 g)
3	21	M/605	B	F	-10	7.55	1670	173
	22		B	F		7.55	1766	200
	23		B	F		7.54	1701	208
	24		B	F		7.53	1898	203
	25		B	F		7.55	1668	189
	26		B	F		7.55	1818	201





	27		B	F		7.55	1994	208
	28		B	F		7.55	1962	204
	29		B	F		7.55	1643	191
	30		B	F		7.52	1626	215
4	31	M/605	X	K	+50	7.50	1285	167
	32		X	K		7.54	1270	181
	33		X	K		7.57	1402	176
	34		X	K		7.54	1357	175
	35		X	K		7.55	1391	173
	36		X	K		7.53	1246	171
	37		X	K		7.53	1416	174
	38		X	K		7.56	1609	219
	39		X	K		7.55	1401	185
	40		X	K		7.51	1202	167
4	31	M/605	P	F	+50	7.52	1356	164
	32		P	F		7.53	1620	196
	33		P	F		7.53	1384	163
	34		P	F		7.50	1681	195
	35		P	F		7.55	1245	150
	36		P	F		7.52	1298	167
	37		P	F		7.50	1255	167
	38		P	F		7.50	1304	149
	39		P	F		7.54	1425	168
	40		P	F		7.51	1429	160

*F = Flat; K = Kerbstone

Helmet size:

L

Group	Sample Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC ($\leq 2,640$)	Deceleration ($\leq 302.5 g$)
3	21	M/605	R	K	-10	7.53	1234	180
	22		R	K		7.52	1645	195
	23		R	K		7.54	1433	186
	24		R	K		7.56	1614	195
	25		R	K		7.55	1409	177
	26		R	K		7.54	1447	183
	27		R	K		7.54	1531	192
	28		R	K		7.56	1565	192
	29		R	K		7.51	1420	176
	30		R	K		7.51	1502	183
3	21	M/605	S	F	-10	6.07	1051	223
	22		S	F		6.06	989	156
	23		S	F		6.06	957	201
	24		S	F		6.05	1003	221
	25		S	F		6.04	1138	178
	26		S	F		6.05	904	183
	27		S	F		6.04	999	166
	28		S	F		6.02	939	161



	29	S	F	6.04	1144	231
	30	S	F	6.05	1070	171

*F = Flat; K = Kerbstone

Statistical Analysis

Group	Sample Number	Impact Point	S (Standard deviation of the values)	2.4 S	X (Mean of the values)	X + 2.4 S
3	21 - 30	B	12.0	28.9	197.8	226.7
4	31 - 40	X	15.2	36.4	178.9	215.3
4	31 - 40	P	15.9	38.1	168.1	206.1
3	21 - 30	R	7.2	17.2	186.0	203.2
3	21 - 30	S	27.9	67.0	189.3	256.2

7.3.

Helmet size:

M

Group	Sample Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC (≤ 2,640)	Deceleration (≤ 302.5 g)
4	41	J/575	B	F	-10	7.55	1886	207
	42		B	F		7.54	1602	191
	43		B	F		7.55	1837	196
	44		B	F		7.57	1972	219
	45		B	F		7.59	1811	209
	46		B	F		7.60	1646	201
	47		B	F		7.58	1940	213
	48		B	F		7.58	1804	207
	49		B	F		7.58	1807	209
	50		B	F		7.56	1941	213
5	51	J/575	X	K	+50	7.54	1252	165
	52		X	K		7.57	1354	175
	53		X	K		7.56	1117	149
	54		X	K		7.55	1192	157
	55		X	K		7.55	1157	155
	56		X	K		7.53	1285	168
	57		X	K		7.58	1178	158
	58		X	K		7.52	1153	163
	59		X	K		7.55	1117	147
	60		X	K		7.59	1184	157
5	51	J/575	P	F	+50	7.53	1681	206
	52		P	F		7.53	1618	188
	53		P	F		7.51	1483	179
	54		P	F		7.54	1419	180
	55		P	F		7.53	1458	181
	56		P	F		7.53	1067	157
	57		P	F		7.54	1499	180
	58		P	F		7.55	1301	161
	59		P	F		7.53	1143	167



	60		P	F		7.56	1360	161
--	----	--	---	---	--	------	------	-----

*F = Flat; K = Kerbstone

Helmet size:

M

Group	Sample Number	H.F. Size Number	Impact Point	Anvil*	Cond. (°C)	Speed (m/s)	HIC (≤ 2,640)	Deceleration (≤ 302.5 g)
4	41	J/575	R	K	-10	7.55	1443	179
	42		R	K		7.56	1314	164
	43		R	K		7.55	1078	160
	44		R	K		7.56	1028	173
	45		R	K		7.58	1449	186
	46		R	K		7.58	1323	184
	47		R	K		7.60	1409	180
	48		R	K		7.55	1078	166
	49		R	K		7.58	1125	173
	50		R	K		7.58	1531	190
4	41	J/575	S	F	-10	6.05	914	157
	42		S	F		6.05	717	169
	43		S	F		6.09	868	152
	44		S	F		6.07	621	125
	45		S	F		6.05	659	122
	46		S	F		6.04	773	139
	47		S	F		6.05	716	139
	48		S	F		6.06	793	146
	49		S	F		6.08	722	135
	50		S	F		6.04	837	148

*F = Flat; K = Kerbstone

Statistical Analysis

Group	Sample Number	Impact Point	S (Standard deviation of the values)	2.4 S	X (Mean of the values)	X + 2.4 S
4	41 - 50	B	8.5	20.3	202.9	223.1
5	51 - 60	X	8.6	20.6	159.3	179.9
5	51 - 60	P	15.2	36.4	175.9	212.3
4	41 - 50	R	10.1	24.2	175.5	199.7
4	41 - 50	S	14.4	34.6	143.1	177.8

Dynamic Test of the Retention System

Note: See Annex 8, Figure 2.

7.6.

Helmet size:

S

Sample Number	Extension Dynamic (≤ 38.5 mm)	Extension Residual (≤ 27.5 mm)	Note
---------------	-------------------------------	--------------------------------	------



31-Jul-26



61	31.0	15.3	-
62	31.2	12.1	-
63	31.4	17.7	-
64	30.7	16.9	-
65	29.9	19.5	-
66	29.6	15.8	-
67	31.0	15.5	-
68	31.1	13.6	-
69	29.6	19.4	-
70	31.7	15.3	-

Statistical Analysis

Sample Number	Displacement	S (Standard deviation of the values)	2.4 S	X (Mean of the values)	X + 2.4 S Extension dynamic (≤ 35 mm) Extension residual (≤ 25 mm)
61 - 70	Extension dynamic	0.8	1.8	30.7	32.6
61 - 70	Extension residual	2.3	5.6	16.1	21.7

7.6. Helmet size:

L

Sample Number	Extension Dynamic (≤ 38.5 mm)	Extension Residual (≤ 27.5 mm)	Note
71	31.36	14.8	-
72	31.02	13.9	-
73	32.28	15.5	-
74	29.82	12.4	-
75	30.79	14.4	-
76	30.16	13.8	-
77	32.84	16.1	-
78	30.95	14.6	-
79	31.76	15.0	-
80	31.65	15.3	-

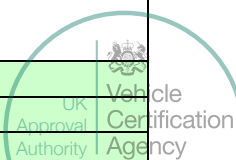
Statistical Analysis

Sample Number	Displacement	S (Standard deviation of the values)	2.4 S	X (Mean of the values)	X + 2.4 S Extension dynamic (≤ 35 mm) Extension residual (≤ 25 mm)
71 - 80	Extension dynamic	0.9	2.2	31.3	33.5
71 - 80	Extension residual	1.0	2.5	14.6	17.1

7.6. Helmet size:

XL

Sample Number	Extension Dynamic (≤ 38.5 mm)	Extension Residual (≤ 27.5 mm)	Note
81	32.53	13.4	-
82	31.05	12.4	-
83	32.75	14.4	-





84	32.58	15.8	-
85	32.76	14.9	-
86	32.47	14.1	-
87	32.28	17.1	-
88	31.11	18.7	-
89	30.66	14.4	-
90	31.69	17.5	-

Statistical Analysis

Sample Number	Displacement	S (Standard deviation of the values)	2.4 S	X (Mean of the values)	X + 2.4 S Extension dynamic (≤ 35 mm) Extension residual (≤ 25 mm)
81 - 90	Extension dynamic	0.8	1.9	32.0	33.9
81 - 90	Extension residual	2.0	4.7	15.3	20.0

Notes

[Notes can be provided at the bottom if it is useful to provide additional information that is not covered by a compliance statement, for example glazing markings.]

Remarks

None



Annex I

[Annexes can be used if additional information should be recorded that would be inappropriate in the main body of the report. Annex numbering should use roman numerals.]



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

Legislation

UNECE Regulation 22.06 Consolidated to Supplement 3 (Revision 5 Amendment 3)

Inspection/Test Details

Location of Inspection/Test: Guangzhou Botai Optical Technology, China
Date(s) of Inspection/Test: 5 August 2024
VCA Representative(s): Jongduk Lee
Engineers Home Office Location: VCA Korea
Manufacturer's Representative(s): Soohan Kim
Reason for Report: New Approval

Manufacturer Details

Name and Address: SENA Technologies Co., Ltd.
19, Heolleung-ro 569-gil, Gangnam-gu, Seoul
Republic of Korea
Type: SENA-IV-01
Commercial Description: SENA-IV-01
Category: Sun shield

Conclusion

The above-mentioned vehicle / engine / 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.

Test Report Engineer
Signature:

Name: Jongduk Lee
Position: Principal Type Approval
Engineer
Date: 3 July 2026

List of Annexes

Annex	No of Pages	Subject
I		Test photos (EU/GB and UN when needed)
II		
III		



Issue Record

	Issue 0 is original report
Reason for re issue	-
Name of competent engineer re issuing	-
Date of re issue	-

Worst Case Rationale

The PHANTOM KV helmet used the SENA-IV-01 sun shield type.
Test results were carried over from KSC631198 (SUN) due to the same specification.

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

None

Inspection/Tests Required

	Yes, NA, See Report ... / Approval ... / Annex ...	Test location	Dates	Engineer
Markings:	NA			
General Specifications:	Yes, Carried over from KSC631198 (SUN)			
Field of vision of the visor:				
Luminous transmittance:	NA			
Light diffusion:	Yes, Carried over from KSC631198 (SUN)			
Recognition of signal lights:				
Spectral transmittance:	NA			
Refractive powers:				
Mechanical characteristics:	Yes, Carried over from KSC631198 (SUN)			
Optical quality and scratch resistance:				
Mist retardant visor (optional)	NA			
Sun Shield	Yes, Carried over from KSC631198 (SUN)			
Photochromic visors, liquid crystal or equivalent visors				



Specification

List of helmets to which the visor
may be fitted:

Structure of visor:

Material of visor:

PHANTOM KV

Tinted sun shield with anti-scratch coating and 1.6 mm
thickness

Polycarbonate

Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the
vehicle / engine / component tested and covers all variants and versions agreed in the
worst case rationale.

Yes

Information document uploaded to job folder and identified by job number.

Yes

Facility and Equipment Checks

Facility Appraisal reference number and date:

Facilities suitable

Calibration certificates are traceable to national or international standards of
measurement, and stored in job folder:

Yes

Calibration checked and valid, recorded in the below table:

Yes

Equipment

Description	Make	Model	Serial number	Calibration due date
Optical Test Bench	AD Engineering	12SBDBP1046/ PLUS/CAM	OBP17/015- 03	14/10/2025
Light transmission Test Equipment	AD Engineering	UV-M51	UVM51- HE1805009	13/10/2025

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

Equipment Remarks

None

Note: VCA apply measurement uncertainty to calibrated items and require pass results including equipment
uncertainty.

Software used in Testing

Description	Make	Version	Validation method
Refractive power	AD Engineering	Ver. 6.0.1	Validation by equipment manufacturer
Transmittance	AD Engineering	Jen 4.1	Validation by equipment manufacturer



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	NA
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.	
	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.	
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 cm ² 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 be manoeuvred does not exceed 2 cm ² , possibly distributed on each side of the field of vision.	NA



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

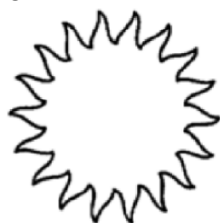


Figure 2: Symbol "Daytime use only"

Note: this symbol or indication must be visible and extend over at least 1 cm²

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

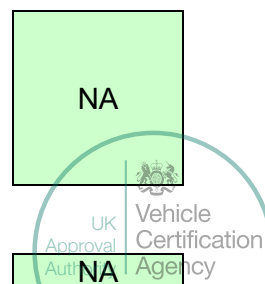
6.16.3.6.

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

The relative visual attenuation quotient (Q) shall not be less than:

(Q) ≥ 0.80 for red signal lights;





	(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 : $(D_1 + D_2)/2 = \pm 0.12 \text{ m}^{-1}$	NA
	Astigmatic effect : $ D_1 - D_2 = 0.12 \text{ 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	
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 $0.2 \tau_v$.	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 : $(D1+D2)/2 = +/- 0.12 \text{ m}^{-1}$	Yes
	Astigmatic effect : $ D1-D2 = 0.12 \text{ m}^{-1}$	Yes
	Prismatic effect difference	Yes
	Horizontal Base Out : $= 1.00 \text{ cm/m}$	Yes
	Horizontal Base In : $= 0.25 \text{ cm/m}$	Yes
	Vertical : $= 0.25 \text{ cm/m}$	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 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



	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 corresponding to normal use and with the tension of the headband, if fitted, adjusted according to the manufacturer's instructions.	NA
-	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;	
	- Test made at an ambient temperature of $(23 \pm 5) ^\circ\text{C}$;	NA
	- New specimens shall be used for this test and each specimen shall only be subjected to two impacts.	NA
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. Test sequence of operations is as follows:	NA
7.8.3.1.3	- The surface of the test piece shall be washed in water containing 1 per cent detergent and rinsed with distilled or demineralized water, then carefully dried with a grease-free and dust-free linen cloth. - 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. - The test piece shall then be subjected to the abrasion test described in Annex 10, during which $3 \text{ kg} \pm 0,01 \text{ kg}$ of abrasive material shall be projected at the sample.	NA
7.8.3.1.3.1		
7.8.3.1.3.2		
7.8.3.1.3.3		
7.8.3.1.3.4		
7.8.3.1.3.5		



	- 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/m ² /l (a/ c/), 2.5 % (b/)	NA
	After abrasion: 5.0/m ² /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, τ_{vo}/τ_{v1} is ≥ 1.25 .	NA
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

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

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)

Not applicable, section removed for clarity



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

**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
	$\tau_v > 20 \%$	Q Red	Q Yellow	Q Green	Q Blue	
		≥ 0.8	≥ 0.6	≥ 0.6	≥ 0.6	
1	43.6	0.92	0.93	1.05	1.11	
2	44.1	0.94	0.95	1.04	1.09	
3	43.6	0.94	0.95	1.04	1.09	

Tab 10. – SUN SHIELD SPECTRAL TRANSMITTANCE (6.17.2.5)

Sample ID Number	Spectral transmittance		Note
	τ_f Results [475-650]	Limits $\tau_f > 0,2 \tau_v$	
1	22.24	8.72	
2	38.39	8.82	
3	38.39	8.81	

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	0.03	0.10	OUT	0.25	0.00	
	Sx	-0.01	0.06				
5	Dx	0.05	0.10	OUT	0.30	0.00	
	Sx	-0.01	0.06				



6	Dx	0.04	0.10	OUT	0.30	0.00	
	Sx	-0.01	0.06				

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

Notes

[Notes can be provided at the bottom if it is useful to provide additional information that is not covered by a compliance statement, for example glazing markings.]

Remarks

None