



# TEST REPORT

LAB NO. : (2421)116-0152(Revision)  
 DATE : January 05, 2022  
 PAGE : 1 OF 16

This report is amendment of and supersedes the previous(2421)116-0152 dated August 16, 2021

Applicant:  
**NINGBO ZHANJING OPTICAL INSTRUMENTS CO.,LTD**  
 1 XIONGJIA STREET LANGXIA STREET, YUYAO CITY, ZHEJIANG PROVINCE, CHINA

Date of Submission: 2021-04-26  
 Test Period: 2021-04-26 to 2021-07-23

Sample Description:	Astronomical telescope		
Sample Status :	Intact		
Manufacturer:	/	Buyer:	/
Style No.(s):	21064*(21061/21062/21063/21073/21074/21082/22065/22401/22402/22403)	PO No.:	/
Country of Origin:	/	Country of Destination:	/

Test Item(s): Details see attached page(s).

<b>SUMMARY OF TEST RESULTS</b>
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TEST REQUESTED	CONCLUSION
Compliance Test - Heavy Metals, Flame Retardants Content - European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendments	PASS
Compliance Test - Phthalate Test - (EU) 2015/863 amending Annex II to Directive 2011/65/EU	PASS

Note: The tested part of the sample was specified by client.  
 The composite testing was performed as per client's request.  
 The test conclusion was given based on the results of tested part.  
 \*Above sample information was provided and confirmed by customers, BV is not responsible for its accuracy or completeness.

Revised details: Revise: As per client's request, add style No.



### REMARK

If there are questions or concerns on this report, please contact the following persons:

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**BUREAU VERITAS TESTING TECHNICAL SERVICE (ZHEJIANG) CO.,LTD**

*Jane Ye*

PREPARED BY : \_\_\_\_\_ MARY \_\_\_\_\_

\_\_\_\_\_  
 Jane Ye  
 TECHNICAL MANAGER



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**Sample Description Assigned by Laboratory:**

<b>Test Item</b>	<b>Description</b>
1	Astronomical telescope

Note:

g = gram(s)

mcg = microgram(s)

mg/kg = milligram per kilogram

mg/L = milligram per litre

g/kg = gram(s) per kilogram

MDL = Method Detection Limit

ND = Not Detected (< MDL)

EX = Exempted

% = percentage

1 mg/kg = 0.0001%

"<" = less than

">" = Greater than

Req. = Requirement

"-" = Not Regulated

NA = Not applicable

**Photo of the Submitted Sample**



**24211160152**



**TEST RESULT**

**Compliance Test - Heavy Metals, Flame Retardants Content - European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendments**

Test Method : See Appendix.

See Analytes and their corresponding Maximum Allowable Limit in Appendix

Parameter			Result					Conclusion
			Lead (Pb)	Cadmium (Cd)	Mercury (Hg)	Chromium VI (Cr VI)	PBBs & PBDEs	
Unit			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
Test Item	Description	Location	-	-	-	-	-	-
Tested components of 21064								
1	Silvery metal screw	Inside	ND	ND	ND	ND	NA	PASS
2	Silvery metal sheet	Part	ND	ND	ND	ND	NA	PASS
3	Silvery metal screw	Inside	ND	ND	ND	ND	NA	PASS
4	Silvery metal screw	Inside	<500	ND	ND	ND	NA	PASS
5	Hot melt glue	Part	ND	ND	ND	ND	ND	PASS
6	Black plastic block	Part	ND	ND	ND	ND	ND	PASS
7	Silvery metal block	Part	ND	ND	ND	ND	NA	PASS
8	Black metal block	Part	ND	ND	ND	ND	NA	PASS
9	Blue transparent plastic sheet	Part	ND	ND	ND	ND	ND	PASS
10	Black plastic block	Part	ND	ND	ND	ND	ND	PASS
11	Black adhesive plastic sheet	Part	ND	ND	ND	ND	ND	PASS
12	Orange plastic block	Part	ND	ND	ND	ND	ND	PASS
13	Silvery metal block	Part	<500	ND	ND	ND	NA	PASS
14	Silvery metal block	Part	ND	ND	ND	ND	NA	PASS
15	Black metal spring	Part	ND	ND	ND	ND	NA	PASS
16	Silvery metal block	Part	ND	ND	ND	ND	NA	PASS
17	Red plastic gasket	Part	ND	ND	ND	ND	ND	PASS
18	Black metal screw	Inside	ND	ND	ND	ND	NA	PASS
19	Orange metal block	Part	ND	ND	ND	ND	NA	PASS
20	Orange metal block	Part	ND	ND	ND	ND	NA	PASS
21	Black metal sheet	Part	ND	ND	ND	ND	NA	PASS
22	Silvery metal	Part	ND	ND	ND	ND	NA	PASS
23	Transparent plastic	Part	ND	ND	ND	ND	ND	PASS
24	Black plastic cover	Part	ND	ND	ND	ND	ND	PASS
25	Black metal block	Part	ND	ND	ND	ND	NA	PASS
26	Black plastic	Part	ND	ND	ND	ND	ND	PASS
27	Black plastic block	Part	ND	ND	ND	ND	ND	PASS
28	Transparent glass	Part	ND	ND	ND	ND	NA	PASS
29	Black plastic block	Part	ND	ND	ND	ND	ND	PASS



Parameter			Result					Conclusion
			Lead (Pb)	Cadmium (Cd)	Mercury (Hg)	Chromium VI (Cr VI)	PBBs & PBDEs	
Unit			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
Test Item	Description	Location	-	-	-	-	-	-
30	Transparent soft plastic cover	Part	ND	ND	ND	ND	ND	PASS
31	Transparent plastic	Part	ND	ND	ND	ND	ND	PASS
32	Black silicone	Part	ND	ND	ND	ND	ND	PASS
33	Black plastic block	Part	ND	ND	ND	ND	ND	PASS
34	Transparent glass	Part	ND	ND	ND	ND	NA	PASS
35	Black plastic block	Part	ND	ND	ND	ND	ND	PASS
36	Black plastic block	Part	ND	ND	ND	ND	ND	PASS
37	Silvery metal block	Part	ND	ND	ND	ND	NA	PASS
38	Silvery metal sheet	Part	ND	ND	ND	ND	NA	PASS
39	Beige cloth	Part	ND	ND	ND	ND	ND	PASS
40	Black plastic	Part	ND	ND	ND	ND	ND	PASS
41	Black metal screw	Inside	ND	ND	ND	ND	NA	PASS
42	White soft plastic sheet	Part	ND	ND	ND	ND	ND	PASS
43	Yellow glue	Part	ND	ND	ND	ND	ND	PASS
44	Black soft plastic wire jacket	Wire jacket	ND	ND	ND	ND	ND	PASS
45	Black plastic block	Part	ND	ND	ND	ND	PBDEs 222*	PASS
46	Silvery metal solder	Part	ND	ND	ND	ND	NA	PASS
47	Black plastic block	Part	ND	ND	ND	ND	PBDEs 235*	PASS
48	Black plastic block	Part	ND	ND	ND	ND	ND	PASS
49	Black soft plastic tube <sup>R2</sup>	Part	ND	ND	ND	ND	ND	PASS
50	Black metal wire	Part	ND	ND	ND	ND	NA	PASS
51	Blue metal block	Part	ND	ND	ND	ND	NA	PASS
52	Orange metal block	Part	ND	ND	ND	ND	NA	PASS
53	Blue plastic block	Part	ND	ND	ND	ND	ND	PASS
54	Blue plastic block	Part	ND	ND	ND	ND	ND	PASS
55	Black metal sheet	Part	ND	ND	ND	ND	NA	PASS
56	Black rubber <sup>R1</sup>	Part	ND	ND	ND	ND	ND	PASS
57	Silvery plastic block	Part	ND	ND	ND	ND	ND	PASS
58	Silvery plastic block	Part	ND	ND	ND	ND	ND	PASS
59	Black metal ring	Part	ND	ND	ND	ND	NA	PASS
60	Black plastic block	Part	ND	ND	ND	ND	ND	PASS
61	Black plastic cover	Part	ND	ND	ND	ND	ND	PASS
62	Blue plastic cover	Part	ND	ND	ND	ND	ND	PASS
63	Blue plastic block	Part	ND	ND	ND	ND	ND	PASS
64	Black plastic ring	Part	ND	ND	ND	ND	ND	PASS
65	Transparent glass	Part	ND	ND	ND	ND	NA	PASS
66	Black adhesive plastic sheet	Part	ND	ND	ND	ND	ND	PASS
67	Silvery metal ring	Part	ND	ND	ND	ND	NA	PASS
68	Blue plastic block	Part	ND	ND	ND	ND	ND	PASS
69	Blue plastic block	Part	ND	ND	ND	ND	ND	PASS
70	Silvery metal rivet	Part	ND	ND	ND	ND	NA	PASS



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Parameter			Result					Conclusion
			Lead (Pb)	Cadmium (Cd)	Mercury (Hg)	Chromium VI (Cr VI)	PBBs & PBDEs	
Unit			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
Test Item	Description	Location	-	-	-	-	-	-
71	Silvery metal tube	Part	ND	ND	ND	ND	NA	PASS
72	Blue plastic block	Part	ND	ND	ND	ND	ND	PASS
73	Golden metal block <sup>R1</sup>	Part	2.17x10 <sup>4</sup> *	31.1*	ND	ND	NA	EX <sup>#</sup>
74	Blue plastic sheet	Part	ND	ND	ND	ND	ND	PASS
75	Silvery metal nut	Part	ND	ND	ND	ND	NA	PASS
76	Blue plastic block	Part	ND	ND	ND	ND	ND	PASS
77	White paper sheet with black printed	Part	ND	ND	ND	ND	ND	PASS
78	Blue plastic block	Part	ND	ND	ND	ND	PBDEs 648*	PASS

Note / Key :

ND = Not detected

NR = Not requested

Detection Limit: See Appendix.

">" = Greater than

mg/kg = milligram(s) per kilogram = ppm = part(s) per million

NA = Not applicable

"<" = Less than

EX= Exempted

Remark :

- The testing approach is listed in table of Appendix.
- \* denotes as reported result(s) was (were) performed by wet chemistry method. Others were screened by XRF. For XRF screening, the result(s) of Cr VI was (were) reported as total chromium and the result(s) of PBBs and PBDEs was (were) reported as total bromine. Also, the XRF result(s) may be different to the actual content based on various factors including, but not limit to, sample size, thickness, area, non-uniformity composition, surface flatness.
- Only selected example(s) is (are) indicated on the photograph(s) in Comment.

For item 73:

#According to Annex III of European Council Directive 2011/65/EU with Amendment (EU)2018/741, exemptions were granted a few materials and Clause 6(c) is reiterated here "Copper alloy containing up to 4 % lead by weight.". Test Item(s) was (were) claimed as is by client (received as is). Therefore, this (these) Test Item(s) containing the found lead level should be exempted.

R1=Second Submission

R2=Third Submission



**TEST RESULT**

**Compliance Test - Phthalate Test – (EU) 2015/863 amending Annex II to Directive 2011/65/EU**

**Test Method** : Reference to IEC 62321-8: 2017.

**Maximum Allowable Limit : 0.1% (Each)**

Parameter	CAS No.	Unit	MDL	Result			
				5	6+10+12	9	11
Dibutyl phthalate (DBP)	84-74-2	%	0.005	ND	ND	ND	ND
Butyl benzyl phthalate (BBP)	85-68-7	%	0.005	ND	ND	ND	ND
Di-2-ethylhexyl phthalate (DEHP)	117-81-7	%	0.005	ND	ND	ND	ND
Diisobutyl phthalate (DIBP)	84-69-5	%	0.005	ND	ND	ND	ND
<b>Conclusion</b>	-	-	-	PASS	PASS	PASS	PASS

Parameter	CAS No.	Unit	MDL	Result			
				17	23+26+27	24+61	29+31+33
Dibutyl phthalate (DBP)	84-74-2	%	0.005	ND	ND	ND	ND
Butyl benzyl phthalate (BBP)	85-68-7	%	0.005	ND	ND	ND	ND
Di-2-ethylhexyl phthalate (DEHP)	117-81-7	%	0.005	ND	ND	ND	ND
Diisobutyl phthalate (DIBP)	84-69-5	%	0.005	ND	ND	ND	ND
<b>Conclusion</b>	-	-	-	PASS	PASS	PASS	PASS

Parameter	CAS No.	Unit	MDL	Result			
				30	32	35+36+40	39
Dibutyl phthalate (DBP)	84-74-2	%	0.005	ND	ND	ND	ND
Butyl benzyl phthalate (BBP)	85-68-7	%	0.005	ND	ND	ND	ND
Di-2-ethylhexyl phthalate (DEHP)	117-81-7	%	0.005	ND	ND	ND	ND
Diisobutyl phthalate (DIBP)	84-69-5	%	0.005	ND	ND	ND	ND
<b>Conclusion</b>	-	-	-	PASS	PASS	PASS	PASS

Parameter	CAS No.	Unit	MDL	Result			
				42	43	44	45+47+48
Dibutyl phthalate (DBP)	84-74-2	%	0.005	ND	ND	ND	ND
Butyl benzyl phthalate (BBP)	85-68-7	%	0.005	ND	ND	ND	ND
Di-2-ethylhexyl phthalate (DEHP)	117-81-7	%	0.005	ND	ND	0.058	ND
Diisobutyl phthalate (DIBP)	84-69-5	%	0.005	ND	ND	ND	ND
<b>Conclusion</b>	-	-	-	PASS	PASS	PASS	PASS



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Parameter	CAS No.	Unit	MDL	Result			
				49 <sup>R2</sup>	53+54+ 57	56 <sup>R1</sup>	58+60+ 62
Dibutyl phthalate (DBP)	84-74-2	%	0.005	ND	ND	ND	ND
Butyl benzyl phthalate (BBP)	85-68-7	%	0.005	ND	ND	ND	ND
Di-2-ethylhexyl phthalate (DEHP)	117-81-7	%	0.005	ND	ND	0.058	ND
Diisobutyl phthalate (DIBP)	84-69-5	%	0.005	ND	ND	ND	ND
<b>Conclusion</b>	-	-	-	PASS	PASS	PASS	PASS

Parameter	CAS No.	Unit	MDL	Result			
				63+64+ 68	69+72+ 74	76+78	77
Dibutyl phthalate (DBP)	84-74-2	%	0.005	ND	ND	ND	ND
Butyl benzyl phthalate (BBP)	85-68-7	%	0.005	ND	ND	ND	ND
Di-2-ethylhexyl phthalate (DEHP)	117-81-7	%	0.005	ND	ND	ND	ND
Diisobutyl phthalate (DIBP)	84-69-5	%	0.005	ND	ND	ND	ND
<b>Conclusion</b>	-	-	-	PASS	PASS	PASS	PASS

Parameter	CAS No.	Unit	MDL	Result			
				66			
Dibutyl phthalate (DBP)	84-74-2	%	0.005	ND			
Butyl benzyl phthalate (BBP)	85-68-7	%	0.005	ND			
Di-2-ethylhexyl phthalate (DEHP)	117-81-7	%	0.005	ND			
Diisobutyl phthalate (DIBP)	84-69-5	%	0.005	ND			
<b>Conclusion</b>	-	-	-	PASS			

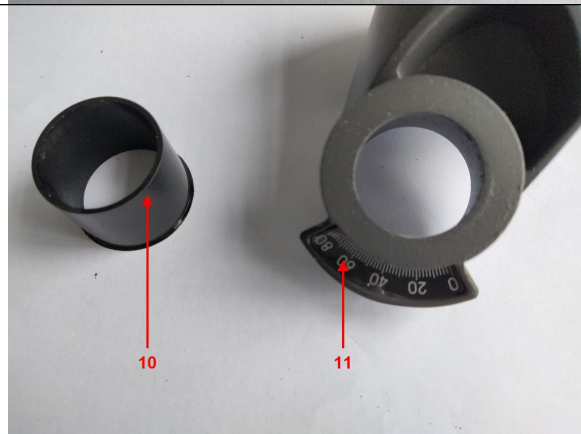
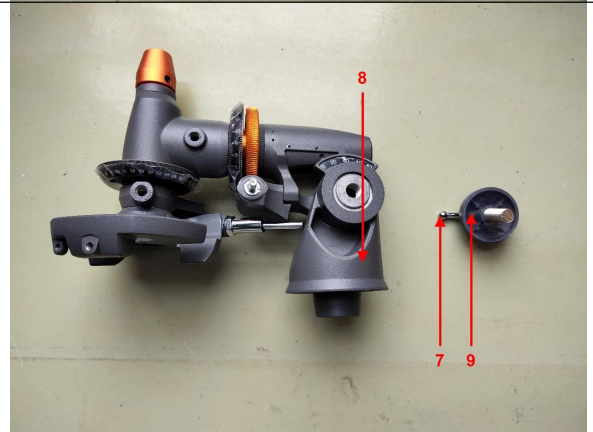
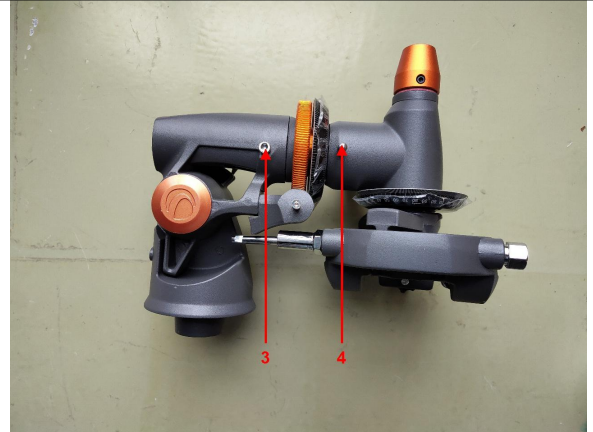
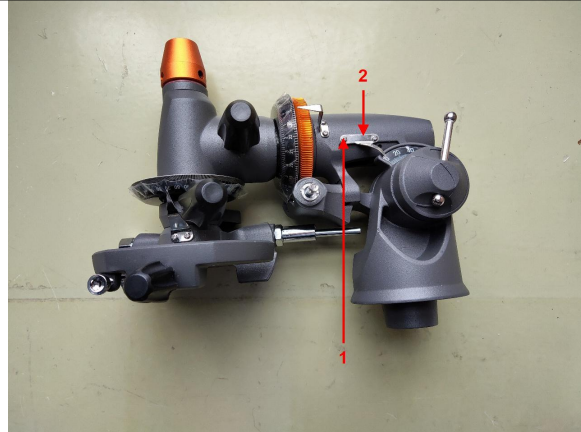
Note: mg/kg= milligram per kilogram      % = percentage      1 mg/kg = 0.0001%  
MDL = Method Detection Limit      ND = Not Detected (< MDL)      “-“ = Not Regulated

R1=Second Submission

R2=Third Submission

Comment :

**Photograph(s) | Compliance Test for European Parliament and Council Directive 2011/65/EU | :**  
**Photograph depicting Test Item(s)**







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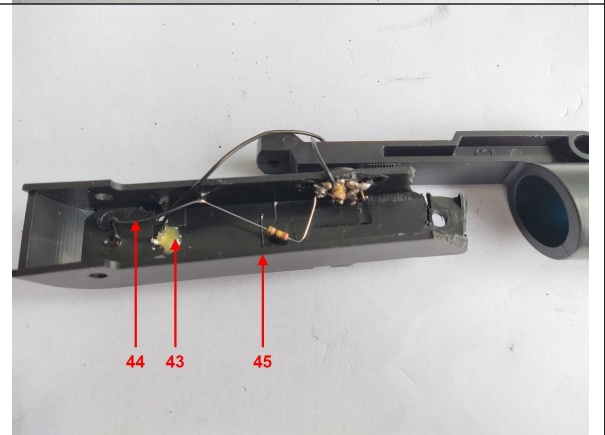
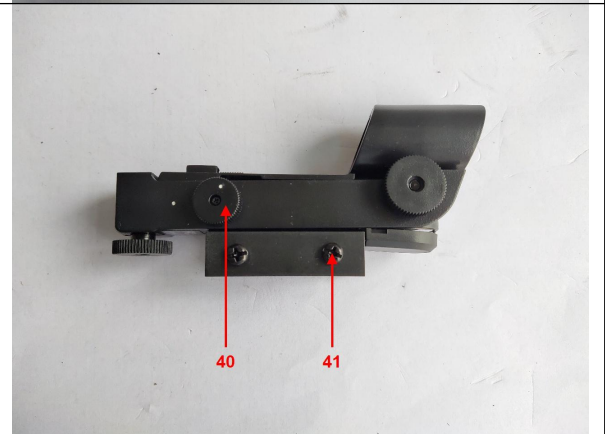
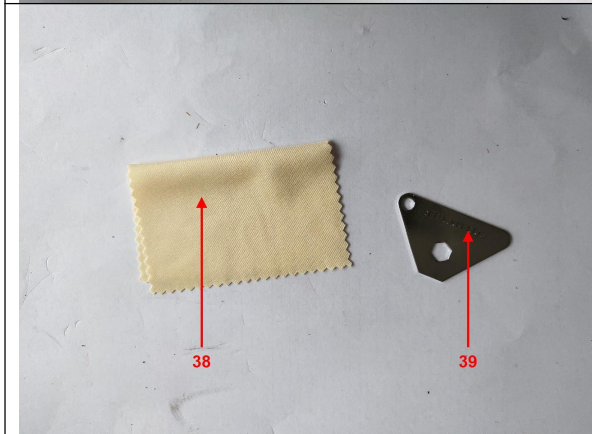
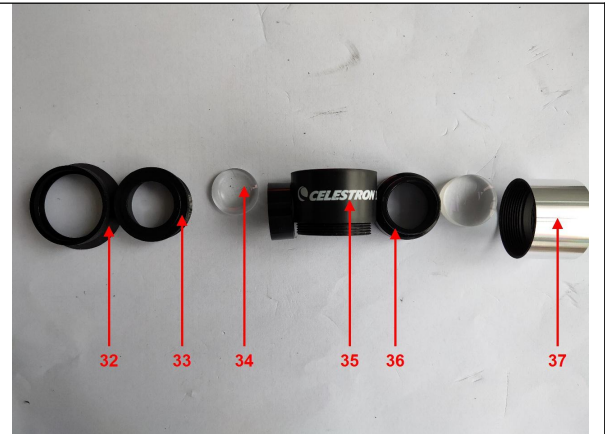
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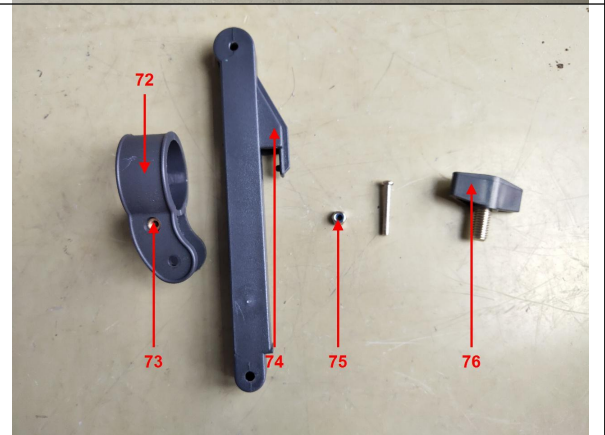
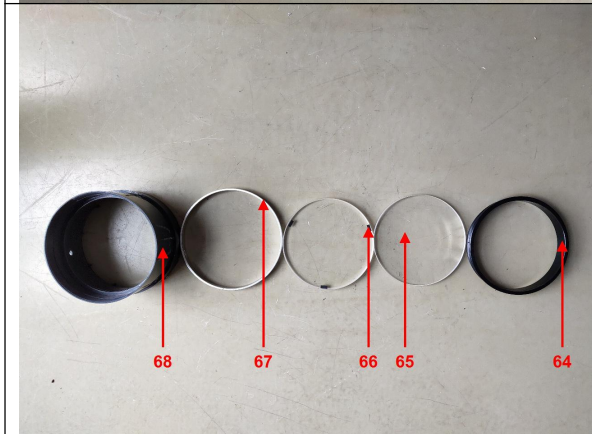
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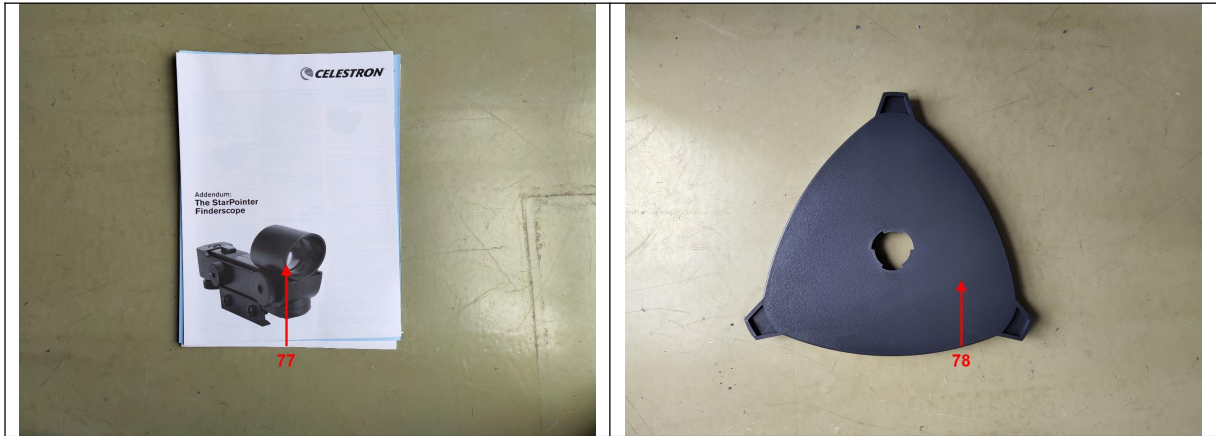
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**APPENDIX**

<b>List of Analytes and their Corresponding Test Methods, Detection Limit and Maximum Allowable Limit [ Compliance Test for European Parliament and Council Directive 2011/65/EU ] :</b>							
No.	Name of Analyte(s)	Detection Limit (mg/kg)				Wet Chemistry	Maximum Allowable Limit (mg/kg)
		X-ray fluorescence (XRF) <sup>[a]</sup>					
		Plastic	Metallic / glass / ceramic	Others			
1	Lead (Pb)	100	200	200	10 <sup>[b]</sup>	1 000	
2	Cadmium (Cd)	50	50	50	10 <sup>[b]</sup>	100	
3	Mercury (Hg)	100	200	200	10 <sup>[c]</sup>	1 000	
4	Chromium (Cr)	100	200	200	NA	NA	
5	Chromium VI (Cr VI)	NA	NA	NA	3 <sup>[e, h]</sup> / 10 <sup>[d]</sup> / Sec <sup>[e, i]</sup>	1 000 / Negative <sup>[i]</sup>	
6	Bromine (Br)	200	NA	200	NA	NA	
7	Polybromobiphenyls (PBBs) - Bromobiphenyl (MonoBB) - Dibromobiphenyl (DiBB) - Tribromobiphenyl (TriBB) - Tetrabromobiphenyl (TetraBB) - Pentabromobiphenyl (PentaBB) - Hexabromobiphenyl (HexaBB) - Heptabromobiphenyl (HeptaBB) - Octabromobiphenyl (OctaBB) - Nonabromobiphenyl (NonaBB) - Decabromobiphenyl (DecaBB)	NA	NA	NA	Each 50 <sup>[f]</sup>	Sum 1 000	
8	Polybromodiphenyl ethers (PBDEs) - Bromodiphenyl ether (MonoBDE) - Dibromodiphenyl ether (DiBDE) - Tribromodiphenyl ether (TriBDE) - Tetrabromodiphenyl ether (TetraBDE) - Pentabromodiphenyl ether (PentaBDE) - Hexabromodiphenyl ether (HexaBDE) - Heptabromodiphenyl ether (HeptaBDE) - Octabromodiphenyl ether (OctaBDE) - Nonabromodiphenyl ether (NonaBDE) - Decabromodiphenyl ether (DecaBDE)	NA	NA	NA	Each 50 <sup>[f]</sup>	Sum 1 000	

NA = Not applicable      IEC = International Electrotechnical Commission

[a] Test method with reference to International Standard IEC 62321-3-1: 2013.  
 [b] Test method with reference to International Standard IEC 62321-5: 2013.  
 [c] Test method with reference to International Standard IEC 62321-4: 2013+AMD1: 2017 CSV.  
 [d] Polymers and Electronics - Test method with reference to International Standard IEC 62321-7-2: 2017.  
 [e] Metal - Test method with reference to International Standard IEC 62321-7-1: 2015.  
 [f] Test method with reference to International Standard IEC 62321-6: 2015.  
 [g] Leather - Test method International Standard ISO 17075: 2017.  
 [h] Other Than Metal, Leather, Polymers and Electronics - Test method with reference to International Standard ISO 17075: 2017.  
 [i] Result(s) of Cr VI for metallic material(s) was (were) expressed in term of positive and negative. Negative means the absence of Cr VI on the tested areas and the result(s) was (were) regarded as in compliance with European Parliament and Council Directive 2011/65/EU, Article 4(1). While, positive means the presence of Cr VI on tested areas and the result(s) was (were) regarded as in conflict with European Parliament and Council Directive 2011/65/EU, Article 4(1).

<b>Testing Approach [ Compliance Test for European Parliament and Council Directive 2011/65/EU ] :</b>	
The testing approach was with reference to the following document(s).	
1	International Standards IEC 62321-1: 2013 and IEC 62321-2: 2013
2	“RoHS Enforcement Guidance Document Version 1” by EU RoHS Enforcement Authorities Informal Network. (May 2006)
3	“RoHS Regulations - Government Guidance Notes” by United Kingdom Department for Business Innovation & Skills. (February 2011)
4	“Final Report to RoHS substances (Hg, Pb, Cr(VI), Cd, PBB and PBDE) in electrical and electronic equipment in Belgium” by Belgium Federal Public Service Health, Food Chain Safety and Environment. (November 2005)



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**Appendix**  
**Additional Model**

2106/21062/21063/21073/21074/21082/22065/22401/22402/22403

Note: The information in this Appendix is provided by client. Since the client was not able to provide the sample of additional Style, above additional Style(s) hasn't been tested, but only based on the guarantee letter provided by the client. Bureau Veritas-CPS takes no responsibility for any mistakes and the problems of product consistency caused by inaccurate and/or invalid information submitted by the client. The client will take the responsibility of all discrepancy and risk.