

TEST REPORT

Report No.: HA0121030739CHEM

Date: March 26, 2021

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Applicant : ZHEJIANG ORYARWA COMMUNICATION EQUIPMENT CO., LTD.
Address : NO. 1, YONGHE 3 ROAD, INDUSTRIAL FUNCTION ZONE,
CHENGDONG STREET, YUEQING CITY, ZHEJIANG PROVINCE,
CHINA
Manufacturer : ZHEJIANG ORYARWA COMMUNICATION EQUIPMENT CO., LTD.
Address : NO. 1, YONGHE 3 ROAD, INDUSTRIAL FUNCTION ZONE,
CHENGDONG STREET, YUEQING CITY, ZHEJIANG PROVINCE,
CHINA

The following samples were submitted and identified by/on behalf of the client as:

Sample Description : TPE
Model No. : /
Date of Sample Received : March 16, 2021
Sample Testing Date : March 16, 2021 to March 19, 2021

Test Requested	In accordance with the RoHS Directive 2011/65/EU and amend Directive (EU) 2015/863.
Test Method	<ul style="list-style-type: none">- With reference to IEC 62321-2:2013, disassembly, disjointment and sample preparation were performed.- With reference to IEC 62321-3-1:2013, screening by EDXRF Spectroscopy.- With reference to IEC 62321-4:2013+A1:2017, determination of Mercury by ICP-OES.- With reference to IEC 62321-5:2013, determination of Lead, Cadmium by ICP-OES.- With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.- With reference to IEC 62321-7-2:2017 & IEC 62321-7-1:2015, determination of Hexavalent Chromium by spot test/Colorimetric using UV-Vis.- With reference to IEC 62321-8:2017, determination of Diisobutyl phthalate(DIBP), Dibutyl phthalate(DBP), Benzylbutyl phthalate(BBP) and Bis(2-ethylhexyl) phthalate (DEHP) by GC-MS.
Test Result	Please refer to next pages.
Test Conclusion	Based on the performed tests on the submitted samples, the results comply with the RoHS Directive 2011/65/EU and amend Directive (EU) 2015/863.

***** For Further Details, Please Refer to the Following Page(s) *****

Compiled by:

Kevin Cheng

Kevin Cheng / Project Engineer

Approved by:

Fiona Zhang

Fiona Zhang / Laboratory Supervisor

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Sample Disassembly List

Part No.	Parts/Raw material name	
	Component Name	Part Description
1	Casing parts	Cyan plastic parts
2		Green plastic parts
3		Yellow plastic parts
4		Dark blue plastic parts
5		Dark green plastic parts
6		Black plastic parts
7		White plastic parts
8		Blue plastic parts

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Screening Test by XRF Spectroscopy											
Part No.	Part Description	Result (mg/kg)									
		Pb	screening	Cd	screening	Hg	screening	Cr	screening	Br	screening
1	Cyan plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
2	Green plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
3	Yellow plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
4	Dark blue plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
5	Dark green plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
6	Black plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
7	White plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
8	Blue plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL

Remark:

1. BL= Below Limit, OL= Over Limit, LOD = Limit of Detection, --- = Not Regulated, / = Not Tested
2. "IN" expresses the inconclusive region, and further chemical testing to confirm whether it complies with the requirement of RoHS Directive.
3. mg/kg= milligram per kilogram.
4. The XRF screening test for RoHS elements – the reading may be different to the actual content in the sample be of non-uniformity composition.
5. N.D. = Not Detected, less than the value of Method Detection Limit.
6. Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr(VI)) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013 (unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	$BL \leq (70-3\sigma) < IN < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < IN < (130+3\sigma) \leq OL$	$LOD < IN < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < IN < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq L$	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < IN < (1500+3\sigma) \leq OL$
Cr	$BL \leq (700-3\sigma) < IN$	$BL \leq (700-3\sigma) < IN$	$BL \leq (500-3\sigma) < IN$
Br	$BL \leq (300-3\sigma) < IN$	---	$BL \leq (250-3\sigma) < IN$

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Confirmation Test by Wet Chemistry								
Part No.	Part Description	Result (mg/kg)						Conclusion
		Pb	Cd	Hg	Cr(VI)	PBBs	PBDEs	
MDL		5	5	5	2^	5	5	
1	Cyan plastic parts	/	/	/	/	/	/	P
2	Green plastic parts	/	/	/	/	/	/	P
3	Yellow plastic parts	/	/	/	/	/	/	P
4	Dark blue plastic parts	/	/	/	/	/	/	P
5	Dark green plastic parts	/	/	/	/	/	/	P
6	Black plastic parts	/	/	/	/	/	/	P
7	White plastic parts	/	/	/	/	/	/	P
8	Blue plastic parts	/	/	/	/	/	/	P
Limit requirements:								
		Pb	Cd	Hg	Cr(VI)	PBBs	PBDEs	
	Maximum permissible Limit (mg/kg)	1000	100	1000	1000	1000	1000	
Remark:								
<ol style="list-style-type: none"> 1. N.D. = Not Detected, less than the value of Method Detection Limit. 2. mg/kg= milligram per kilogram. 3. MDL= Method Detection Limit in wet chemical test, --- = Not Regulated, / = Not Tested. 4. P =The result complies with the limit requirement, F =The result does not comply with the limit requirement. 5. “^”= MDL of Cr(VI) for non-metal sample is 2mg/kg, MDL of Cr(VI) for metal sample is 0.02mg/kg(Sample extraction solution). 6. Result on Cr(VI) for metal sample is shown as Positive/Negative. Positive = Presence of Cr(VI); Negative = Absence of Cr(VI). (Positive indicates the presence of Cr⁶⁺ on the tested areas, the result be regarded as conflict with RoHS requirement. Negative indicates the absence of Cr⁶⁺ on the tested areas, the result be regarded as no conflict with RoHS requirement.) 								

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DIBP, DBP, BBP, DEHP						
Test No.	Part No.	Result (mg/kg)				Conclusion
		DIBP	DBP	BBP	DEHP	
MDL		30	30	30	30	
T01	1+2+3	N.D.	N.D.	N.D.	N.D.	P
T02	4+5+6	N.D.	N.D.	N.D.	N.D.	P
T03	7+8	N.D.	N.D.	N.D.	N.D.	P
Limit requirements:						
		DIBP	DBP	BBP	DEHP	
Maximum permissible Limit (mg/kg)		1000	1000	1000	1000	
Remark:						
<ol style="list-style-type: none"> 1. DIBP= Diisobutyl phthalate, DBP= Dibutyl phthalate, BBP= Benzylbutyl phthalate, DEHP= Bis(2-ethylhexyl) phthalate 2. N.D. = Not Detected, less than the value of Method Detection Limit. 3. mg/kg= milligram per kilogram. 4. MDL= Method Detection Limit in wet chemical test. 5. P =The result complies with the limit requirement, F =The result does not comply with the limit requirement. 						

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Sample Photo



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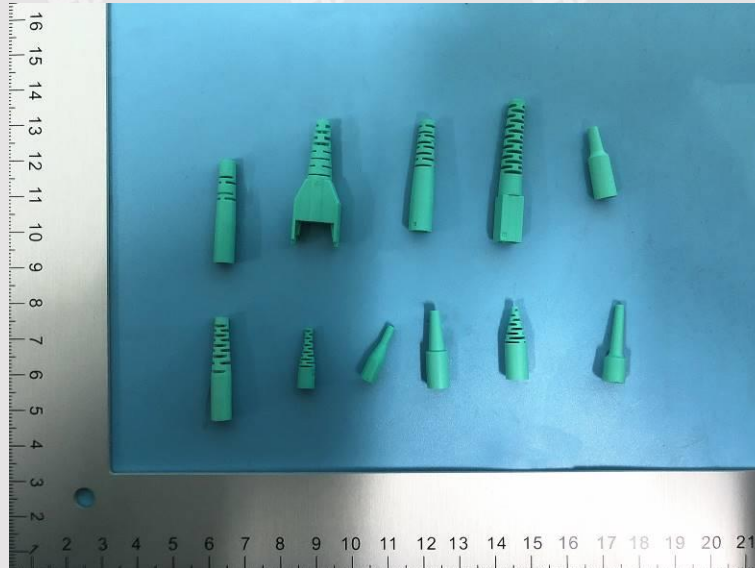
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Test Part Photo



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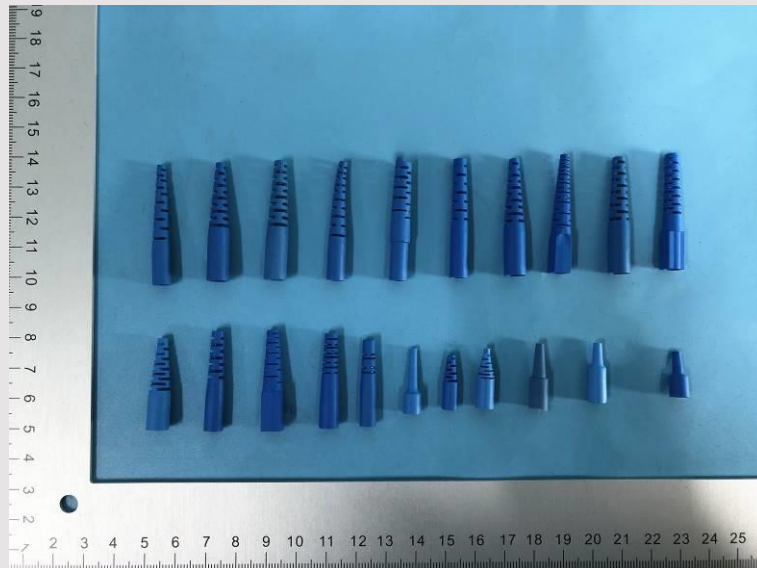
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===== End of Test Report =====

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