

## TEST REPORT

Report No.: HA0121030737CHEM

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 : PPSU  
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"><li>- With reference to IEC 62321-2:2013, disassembly, disjointment and sample preparation were performed.</li><li>- With reference to IEC 62321-3-1:2013, screening by EDXRF Spectroscopy.</li><li>- With reference to IEC 62321-4:2013+A1:2017, determination of Mercury by ICP-OES.</li><li>- With reference to IEC 62321-5:2013, determination of Lead, Cadmium by ICP-OES.</li><li>- With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.</li><li>- With reference to IEC 62321-7-2:2017 &amp; IEC 62321-7-1:2015, determination of Hexavalent Chromium by spot test/Colorimetric using UV-Vis.</li><li>- 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.</li></ul>
Test Result	Please refer to next pages.
Test Conclusion	Based on the performed tests on the submitted samples, the results <b>comply with the</b> RoHS Directive 2011/65/EU and amend Directive (EU) 2015/863.

\*\*\*\*\* For Further Details, Please Refer to the Following Pages \*\*\*\*\*

Compiled by:

*Kevin Cheng*

Kevin Cheng / Project Engineer

Approved by:



*Tiona Zhang*

Tiona Zhang / Laboratory Supervisor

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<b>Sample Disassembly List</b>		
<b>Part No.</b>	<b>Parts/Raw material name</b>	
	<b>Component Name</b>	<b>Part Description</b>
1	Casing parts	Yellow plastic parts
2		Blue plastic parts
3		Cyan plastic parts
4		Pink plastic parts
5		Green plastic parts
6		Grey 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	Yellow plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
2	Blue plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
3	Cyan plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
4	Pink plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
5	Green plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
6	Grey plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL

**Remark:**

- BL= Below Limit, OL= Over Limit, LOD = Limit of Detection, --- = Not Regulated, / = Not Tested
- "IN" expresses the inconclusive region, and further chemical testing to confirm whether it complies with the requirement of RoHS Directive.
- mg/kg= milligram per kilogram.
- The XRF screening test for RoHS elements – the reading may be different to the actual content in the sample be of non-uniformity composition.
- N.D. = Not Detected, less than the value of Method Detection Limit.
- 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	Yellow plastic parts	/	/	/	/	/	/	P
2	Blue plastic parts	/	/	/	/	/	/	P
3	Cyan plastic parts	/	/	/	/	/	/	P
4	Pink plastic parts	/	/	/	/	/	/	P
5	Green plastic parts	/	/	/	/	/	/	P
6	Grey plastic parts	/	/	/	/	/	/	P
<b>Limit requirements:</b>								
		Pb	Cd	Hg	Cr(VI)	PBBs	PBDEs	
	<b>Maximum permissible Limit (mg/kg)</b>	1000	100	1000	1000	1000	1000	
<b>Remark:</b>								
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 Cr <sup>6+</sup> on the tested areas, the result be regarded as conflict with RoHS requirement. Negative indicates the absence of Cr <sup>6+</sup> on the tested areas, the result be regarded as no conflict with RoHS requirement.)								

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<b>DIBP, DBP, BBP, DEHP</b>						
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.	<b>P</b>
T02	4+5+6	N.D.	N.D.	N.D.	N.D.	<b>P</b>
<b>Limit requirements:</b>						
		DIBP	DBP	BBP	DEHP	
<b>Maximum permissible Limit (mg/kg)</b>		1000	1000	1000	1000	
<b>Remark:</b>						
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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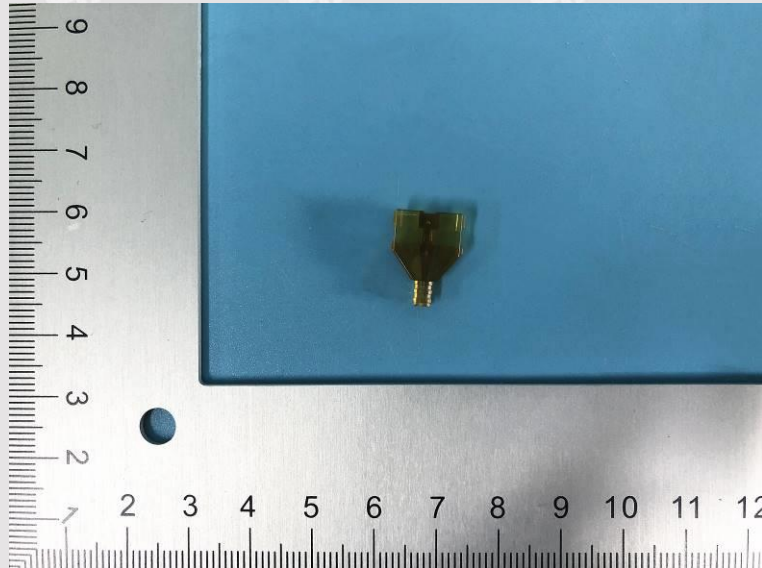
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### Test Part Photo



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### Test Part Photo



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

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