



## TEST REPORT

Report No : JB1201-0036

To : ASJ COMPONENTS (M) SDN.BHD.  
Plo 37440 Jalan Perindustrian Senai 3,  
Kawasan Perindustrian Senai Fasa II,  
81400 Senai,  
Johor Darul Takzim.  
Attn : Ms.Noraini

Page No : 1 of 3

Date Of Issue : 16/01/2012

Customer's Sample Description :  
CHIP RESISTOR ARRAY 0603



Date Of Sample Received : 10/01/2012  
Date Of Testing : 10/01/2012 To 16/01/2012

### **Objective of Test**

- (i) To determine the concentration of Cadmium, Lead, Mercury, Hexavalent Chromium, Polybrominated Biphenyl (PBBs) and Polybrominated Diphenyl Ethers (PBDEs) in accordance with EU Directive 2011/65/EU (RoHS).
- (ii) Determination of Bromine, Chlorine, Iodine and Fluorine content for the above sample.

### **Standard Method / Equipment / Technique Description**

Standard Method	Method Description / Title	Flow Chart
USEPA Method 3052	Microwave assisted acid digestion of siliceous and organically based matrices	Appendix A3
USEPA Method 6010B	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)	
USEPA Method 3060A	Alkaline digestion for Hexavalent Chromium	Appendix B2
USEPA Method 7196A	Colorimetric by UV/Vis Spectroscopy	Appendix C2
USEPA Method 3540C	Soxhlet Extraction	
GC-MS	Gas Chromatography-Mass Spectrometry	
BS EN 14582 : 2007	Characterization of waste - Halogen and sulfur content - oxygen combustion in closed systems and determination methods.	Appendix G2
Ion Chromatography	Direct Injection Ion Chromatography analysis	

For NM LABORATORY SDN. BHD.

Test performed by : Bong Shin Yuan  
Fitriyah  
Ng Hun Chow

Yeap Cheo Mooi, M.Sc., AMIC  
Consulting Chemist  
IKM No. A/1913/4300/2002



# NM LABORATORY SDN. BHD. (563645-P)

80, LORONG PERDA SELATAN 1, BANDAR PERDA,  
14000 BUKIT MERTAJAM, PULAU PINANG, MALAYSIA.  
TEL: 04-5388081 (HUNTING LINE) FAX: 04-5378084  
Website: www.nmlab.com.my E-mail: enquiry@nmlab.com.my  
**LABORATORY TESTINGS AND ANALYSIS CONSULTANCY**



MS ISO/IEC 17025  
TESTING  
SMM NO. 188

Report No. : JB1201-0036  
Date of Issue : 16/01/2012  
Customer : ASJ COMPONENTS (M) SDN.BHD.

Page No. : 2 of 3

## Analysis Result

Parameters Analysed	Analysis Results	Unit	Standard Method/Technique/ Equipment Used	MDL; mg/kg	RoHS Limit; mg/kg
Cadmium (as Cd)	Not Detectable (<0.5)	mg/kg	USEPA Method 3052 USEPA Method 6010B	0.5	100
Lead (as Pb)	471			1	1000
Mercury (as Hg)	Not Detectable (<2)			2	1000
Chromium Hexavalent (as Cr <sup>6+</sup> )	Not Detectable (<1)		USEPA Method 3060A USEPA Method 7196A	1	1000

Chemical compound	Analysis Result	Unit	Standard Method/Technique/ Equipment Used	MDL; mg/kg	RoHS Limit; mg/kg
Polybrominated Biphenyls (PBBs)	Monobromobiphenyl	mg/kg	USEPA Method 3540C GC-MS	5	-
	Dibromobiphenyl				
	Tribromobiphenyl				
	Tetrabromobiphenyl				
	Pentabromobiphenyl				
	Hexabromobiphenyl				
	Heptabromobiphenyl				
	Octabromobiphenyl				
	Nonabromobiphenyl				
	Decabromobiphenyl				
	<b>Total PBBs</b>				

Chemical compound	Analysis Result	Unit	Standard Method/Technique/ Equipment Used	MDL; mg/kg	RoHS Limit; mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	Monobromodiphenyl ether	mg/kg	USEPA Method 3540C GC-MS	5	-
	Dibromodiphenyl ether				
	Tribromodiphenyl ether				
	Tetrabromodiphenyl ether				
	Pentabromodiphenyl ether				
	Hexabromodiphenyl ether				
	Heptabromodiphenyl ether				
	Octabromodiphenyl ether				
	Nonabromodiphenyl ether				
	Decabromodiphenyl ether				
	<b>Total PBDEs</b>				

**Note** : The test portion was ashed before the pre-conditioning method for Cadmium & Lead test as mentioned above.

**Conclusion** : The analysis results **not exceeded** the maximum concentration values for Cd, Pb, Hg, Cr<sup>6+</sup>, PBB and PBDE as stipulated in EU Directive 2011/65/EU (RoHS).



# NM LABORATORY SDN. BHD. (563645-P)

80, LORONG PERDA SELATAN 1, BANDAR PERDA,  
14000 BUKIT MERTAJAM, PULAU PINANG, MALAYSIA.  
TEL: 04-5388081 (HUNTING LINE) FAX: 04-5378084  
Website: www.nmlab.com.my E-mail: enquiry@nmlab.com.my  
**LABORATORY TESTINGS AND ANALYSIS CONSULTANCY**



MS ISO/IEC 17025  
TESTING  
SAMM NO. 188

Report No. : JB1201-0036  
Date of Issue : 16/01/2012  
Customer : ASJ COMPONENTS (M) SDN.BHD.

Page No. : 3 of 3

## Analysis Result

Parameters Analysed		Analysis Results	Unit	Standard Method/Technique/ Equipment Used	MDL; mg/kg
Halogen content	Bromine (as Br)	Not Detectable (<5)	mg/kg	BS EN 14582 : 2007 (Ion Chromatography)	5
	Chlorine (as Cl)	Not Detectable (<5)			5
	Iodine (as I <sup>-</sup> )	Not Detectable (<5)			5
	Fluorine (as F <sup>-</sup> )	Not Detectable (<5)			5

- End of Report -