

# TEST REPORT

REPORT NO. : (8824)339-0114 DATE : Jan 16, 2025 PAGE : 1 OF 12

**Applicant Name:** PARTICLE INDUSTRIES,INC

Applicant Address: 325 9TH STREET, SAN FRANCISCO, CA 94103, UNITED STATES OF

**AMERICA** 

**Date of Submission:** DEC 4, 2024

**Test Period:** DEC 4, 2024 TO JAN 16, 2025

**Sample Description:** M.2 BREAKOUT BOARD

Style No.: M2BREAKOUT

Manufacturer: UMEC (SHENZHEN) COMPANY LTD.

Sample Size: 3



BUREAU VERITAS SHENZHEN CO.,LTD DONGGUAN BRANCH

Lisa Bai

Analytical lab technical ass. manager

lim Bui

RT/ Min Chen

### **REMARK**

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

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Business Contact: (86) 0769 85893595

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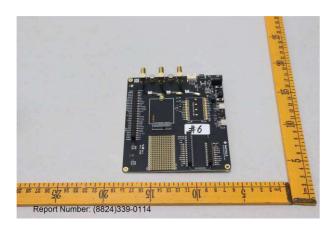
# SUMMARY OF TEST RESULTS

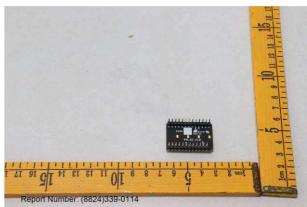
TEST REQUESTED	CONCLUSION	REMARK
European Parliament and Council Directive		
2011/65/EU on the Restriction of the Use of Certain		
Hazardous Substances in Electrical and Electronic	PASS	-
Equipment (RoHS) with its Amendment Directive		
(EU)2015/863		

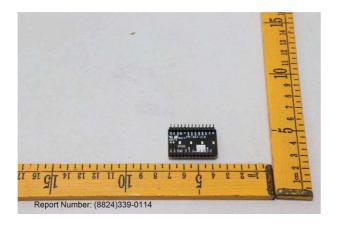


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# **Photo of the Submitted Sample**











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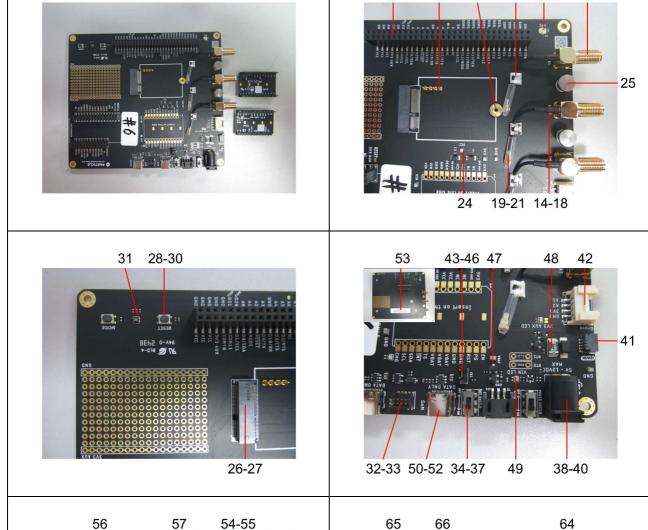
1-2

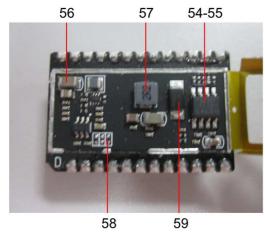
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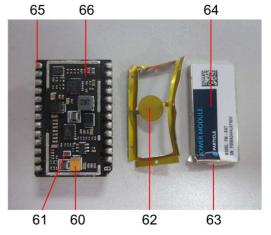
22 6-8

9-13

# **Photo of Test Item(s)**









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# **Component Description List**

Test Item(s)	Component Description(s)	Location	Style(s)
1	Black plastic	Socket, PCB	-
2	Silvery metal	Pin, socket, PCB	_
3	Golden metal	Terminal, thimble, PCB	_
4	Golden metal	Spring, thimble, PCB	-
5	Golden metal	Tube, thimble, PCB	_
6	Silvery metal	Cover, socket, PCB	-
7	White plastic	Base, socket, PCB	-
8	Silvery/golden metal	Pin, socket, PCB	-
9	Golden metal	Ring, plug, PCB	-
10	Golden metal	Holder, plug, PCB	-
11	White plastic	Pin holder, plug, PCB	-
12	Golden metal	Pin, plug, PCB	-
13	Silvery solder	Solder, plug, PCB	-
14	Golden metal	Connector, plug, PCB	-
15	Black soft plastic	Heat shrinkable tube, cable, plug, PCB	-
16	Black soft plastic	Wire jacket, cable, plug, PCB	-
17	Transparent soft plastic	Wire insulation, cable, plug, PCB	-
18	Silvery metal	Wire, cable, plug, PCB	-
19	Transparent soft plastic	Heat shrinkable tube, socket, cable, PCB	-
20	Golden metal	Socket, cable, PCB	-
21	White plastic	Socket, cable, PCB	-
22	Silvery metal	Buckle, PCB	-
23	Golden metal	Screw, PCB	-
24	Silvery metal	Ring, PCB	-
25	Silvery metal	Screw	-
26	Black plastic	Socket, PCB	-
27	Silvery metal	Pin, socket, PCB	-
28	Black plastic	Touch switch, PCB	-
29	Silvery metal	Touch switch, PCB	-
30	Beige plastic	Touch switch, PCB	
31	Black/translucent body	EC, PCB	-
32	Black plastic	Socket, PCB	-
33	Silvery metal	Pin, socket, PCB	-
34	Black plastic	Button, toggle switch, PCB	-
35	Silvery metal	Case, toggle switch, PCB	_



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# **Component Description List**

Silvery metal Pin, toggle switch, PCB -  Silvery metal Shaft, plug, PCB -  Silvery metal Shaft, plug, PCB -  Unutil black plastic Socket, PCB -  Beige plastic Socket, PCB -  Silvery metal Buckle, socket, PCB -  Silvery metal Buckle, socket, PCB -  Silvery metal Buckle, socket, PCB -  Silvery/golden metal Pin, socket, PCB -  Black body SMD transistor, PCB -  Silvery metal Contact plate, plug, PCB -  Silvery/golden metal Buckle, socket, PCB -  Silvery/golden metal Pin, socket, PCB -  Silvery metal Pin, socket, PCB -  Silvery metal Contact plate, type-c plug, PCB -  Silvery metal Contact plate, type-c plug, PCB -  Silvery metal Pin holder, type-c plug, PCB -  Silvery metal Pin, type-c plug, PCB -  Silvery per pin, type-c ping, PCB -  Silvery pin, type-c ping, PCB -  Silvery per pin, type-c ping, PCB -  Silvery pin, type-c ping, PCB -  Silver	Test Item(s)	<b>Component Description(s)</b>	Location	Style(s)
38 Black plastic Case, plug, PCB - 39 Silvery metal Shaft, plug, PCB - 40 Silvery metal Contact plate, plug, PCB - 41 Dull black plastic Socket, PCB - 42 Beige plastic Socket, PCB - 43 Black plastic Socket, PCB - 44 Silvery metal Buckle, socket, PCB - 45 Black plastic Base, socket, PCB - 46 Silvery/golden metal Pin, socket, PCB - 47 Black body SMD transistor, PCB - 48 Black body SMD transistor, PCB - 50 Silvery metal Contact plate, type-c plug, PCB - 51 Black plastic Pin holder, type-c plug, PCB - 52 Silvery metal Pin, type-c plug, PCB - 53 Black/white coated yellow/transparent plastic with adhesive Sticker, PCB - 54 Black body IC, PCB - 55 Silvery/coppery metal Plate, IC, PCB - 56 Brown body SMD capacitor, PCB - 57 Black/coppery metal Inductor, PCB - 58 Black body SMD resistor, PCB - 59 Black body SMD resistor, PCB - 50 Silvery metal Plate, IC, PCB - 51 Black/coppery metal Plate, IC, PCB - 52 Silvery/coppery metal Plate, IC, PCB - 53 Black/coppery metal Plate, IC, PCB - 54 Black body SMD resistor, PCB - 55 Silvery metal Plate, IC, PCB - 56 Brown body SMD resistor, PCB - 57 Black/coppery metal Inductor, PCB - 58 Black printed white body SMD resistor, PCB - 59 Black body EC, PCB - 50 Yellow body EC, PCB - 51 Black/white/blue coated yellow/transparent plastic with adhesive Sticker, cover, PCB - 58 Silvery metal Cover, PCB - 59 Silvery metal Silvery metal Sticker, cover, PCB - 50 Silvery solder Solder, PCB - 51 Silvery solder Solder, PCB - 51 Silvery solder Solder, PCB -	36	Silvery metal	Contact plate, toggle switch, PCB	-
39 Silvery metal Shaft, plug, PCB - 40 Silvery metal Contact plate, plug, PCB - 41 Dull black plastic Socket, PCB - 42 Beige plastic Socket, PCB - 43 Black plastic Socket, PCB - 44 Silvery metal Buckle, socket, PCB - 45 Black plastic Base, socket, PCB - 46 Silvery/golden metal Pin, socket, PCB - 47 Black body SMD transistor, PCB - 48 Black body SMD LED, PCB - 50 Silvery metal Contact plate, type-c plug, PCB - 51 Black plastic Pin holder, type-c plug, PCB - 52 Silvery metal Sticker, PCB - 53 Black/white coated yellow/transparent plastic with adhesive Plate, IC, PCB - 54 Black body SMD capacitor, PCB - 55 Silvery/coppery metal Plate, IC, PCB - 56 Brown body SMD capacitor, PCB - 57 Black/coppery metal Inductor, PCB - 58 Black body Diode, PCB - 59 Black body Diode, PCB - 59 Black body SMD resistor, PCB - 50 Yellow body EC, PCB - 51 Black body EC, PCB - 52 Silvery metal Frame, cover, PCB - 53 Black/white/blue coated yellow/transparent plastic with adhesive Sticker, PCB - 58 Black body SMD resistor, PCB - 59 Black body SMD resistor, PCB - 50 Yellow plated silvery metal Frame, cover, PCB - 51 Black/white/blue coated yellow/transparent plastic with adhesive Sticker, cover, PCB - 59 Silvery metal Silvery metal Frame, cover, PCB - 50 Yellow viransparent plastic with adhesive Sticker, cover, PCB - 50 Silvery solder Solder, PCB - 51 Silvery solder Solder, PCB - 52 Yellow plated Silvery metal Sticker, cover, PCB - 53 Silvery solder Solder, PCB - 54 Silvery solder Solder, PCB - 55 Silvery solder Solder, PCB -	37	Silvery metal	Pin, toggle switch, PCB	-
40 Silvery metal Contact plate, plug, PCB - 41 Dull black plastic Socket, PCB - 42 Beige plastic Socket, PCB - 43 Black plastic Socket, PCB - 44 Silvery metal Buckle, socket, PCB - 45 Black plastic Base, socket, PCB - 46 Silvery/golden metal Pin, socket, PCB - 47 Black body SMD transistor, PCB - 48 Black body SMD fuse, PCB - 49 Translucent body SMD LED, PCB - 50 Silvery metal Contact plate, type-c plug, PCB - 51 Black plastic Pin holder, type-c plug, PCB - 52 Silvery metal Pin, type-c plug, PCB - 53 Black/white coated yellow/transparent plastic with adhesive Silvery/coppery metal Plate, IC, PCB - 54 Black body IC, PCB - 55 Silvery/coppery metal Inductor, PCB - 56 Brown body SMD resistor, PCB - 57 Black/coppery metal Inductor, PCB - 58 Black pinted white body SMD resistor, PCB - 59 Black body Diode, PCB - 59 Black body Diode, PCB - 50 Yellow body EC, PCB - 51 Black/white/blue coated Prame, cover, PCB - 52 Silvery metal Frame, cover, PCB - 53 Black/winter/blue coated Prame, cover, PCB - 54 Black/winter/blue coated Prame, cover, PCB - 55 Silvery metal Slacker, cover, PCB - 56 Black/winter/blue coated Plastic with adhesive Solder, PCB - 58 Silvery solder Solder, PCB - 59 Silvery solder Solder, PCB -	38	Black plastic	Case, plug, PCB	-
41 Dull black plastic  42 Beige plastic  43 Black plastic  50cket, PCB  -  44 Silvery metal  45 Black plastic  46 Silvery/golden metal  47 Black body  48 Black body  5MD transistor, PCB  50 Silvery metal  Contact plate, type-c plug, PCB  51 Black plastic  51 Black body  51 Black plastic  52 Silvery metal  53 Black white coated yellow/transparent plastic with adhesive  54 Black body  55 Black plastic  56 Brown body  57 Black/coppery metal  58 Black printed white body  59 Cover, PCB  -  50 Silvery metal  51 Black plastic  52 Silvery metal  53 Black plastic  54 Black body  55 Silvery/coppery metal  56 Brown body  57 Black/coppery metal  58 Black printed white body  59 Black body  50 Silvery metal  50 Silvery metal  51 Black printed white body  51 Black printed white body  52 Silvery metal  53 Black printed white body  54 Black body  55 Black printed white body  56 Brown body  57 Black/coppery metal  58 Black body  59 Black body  59 Black body  50 Silvery metal  50 Silvery metal  51 Cover, PCB  52 Silvery metal  53 Silvery metal  54 Silvery metal  55 Silvery metal  56 Silvery metal  57 Cover, PCB  58 Silvery metal  59 Silvery metal  50 Silvery metal  50 Silvery metal  51 Cover, PCB  52 Silvery metal  53 Silvery metal  54 Silvery metal  55 Silvery metal  56 Silvery metal  57 Cover, PCB  58 Silvery metal  59 Silvery metal  50 Silvery metal  50 Cover, PCB  50 Silvery metal  50 Silvery metal  50 Cover, PCB  51 Silvery metal  51 Cover, PCB  52 Silvery metal  53 Silvery metal  54 Silvery metal  55 Silvery metal  56 Silvery metal  57 Silvery metal  58 Silvery metal  58 Silvery metal  59 Silvery metal  50 Silvery met	39	Silvery metal	Shaft, plug, PCB	-
42 Beige plastic Socket, PCB - 43 Black plastic Socket, PCB - 44 Silvery metal Buckle, socket, PCB - 45 Black plastic Base, socket, PCB - 46 Silvery/golden metal Pin, socket, PCB - 47 Black body SMD transistor, PCB - 48 Black body SMD fuse, PCB - 50 Silvery metal Contact plate, type-c plug, PCB - 51 Black plastic Pin holder, type-c plug, PCB - 52 Silvery metal Pin, type-c plug, PCB - 53 Black/white coated yellow/transparent plastic with adhesive SMD capacitor, PCB - 54 Black body IC, PCB - 55 Silvery/coppery metal Plate, IC, PCB - 56 Brown body SMD capacitor, PCB - 57 Black/coppery metal Inductor, PCB - 58 Black body Diode, PCB - 59 Black body EC, PCB - 59 Black body EC, PCB - 50 Yellow body EC, PCB - 51 Braght black body EC, PCB - 52 Silvery metal Frame, cover, PCB - 53 Black/white/blue coated yellow/transparent PCB - 54 Black body Frame, cover, PCB - 55 Silvery metal Frame, cover, PCB - 56 Brown body Silvery metal Frame, cover, PCB - 58 Black/white/blue coated yellow/transparent Plastic with adhesive Sticker, cover, PCB - 58 Silvery metal Cover, PCB - 59 Silvery metal Sticker, cover, PCB - 50 Silvery solder Solder, PCB - 50 Silvery solder Solder, PCB - 50 Silvery solder Solder, PCB - 51 Silvery solder Solder, PCB - 52 Silvery solder Solder, PCB - 53 Silvery solder Solder, PCB - 54 Silvery solder Solder, PCB - 55 Silvery solder Solder, PCB -	40	Silvery metal	Contact plate, plug, PCB	-
43 Black plastic  44 Silvery metal  45 Black plastic  46 Silvery/golden metal  47 Black body  48 Black body  49 Translucent body  50 Silvery metal  51 Black plastic  52 Silvery metal  53 Black/white coated yellow/transparent plastic with adhesive  54 Black body  55 Black/coppery metal  56 Silvery metal  57 Black/white body  58 Black plastic  59 Black plastic  50 Brown body  50 Black plastic  51 Black body  52 Silvery metal  53 Black/coppery metal  54 Black body  55 Silvery/coppery metal  56 Brown body  57 Black/coppery metal  58 Black printed white body  59 Black body  50 Silvery metal  50 Brown body  51 Black body  52 Silvery/coppery metal  53 Black body  54 Black body  55 Silvery/coppery metal  56 Brown body  57 Black/coppery metal  58 Black printed white body  59 Black body  59 Black body  50 Silvery body  50 Silvery body  50 Silvery body  51 Bright black body  52 Silvery body  53 Black body  54 Black body  55 Silvery/coppery metal  56 Brown body  57 Black/coppery metal  58 Black printed white body  59 Black body  50 Silvery body  50 Silvery body  50 Silvery body  51 Silvery body  52 Silvery body  53 Black body  54 Black body  55 Silvery body  56 Silvery body  57 Silvery body  58 Black body  59 Black body  50 Silvery body  5	41	Dull black plastic	Socket, PCB	-
44 Silvery metal Buckle, socket, PCB - 45 Black plastic Base, socket, PCB - 46 Silvery/golden metal Pin, socket, PCB - 47 Black body SMD transistor, PCB - 48 Black body SMD fuse, PCB - 50 Silvery metal Contact plate, type-c plug, PCB - 51 Black plastic Pin holder, type-c plug, PCB - 52 Silvery metal Pin, type-c plug, PCB - 53 Black/white coated yellow/transparent plastic with adhesive SMD capacitor, PCB - 55 Silvery/coppery metal Plate, IC, PCB - 56 Brown body SMD capacitor, PCB - 57 Black/coppery metal Inductor, PCB - 58 Black body SMD resistor, PCB - 59 Black body Diode, PCB - 50 Yellow body EC, PCB - 51 Black body SMD resistor, PCB - 52 Silvery/coppery metal SMD resistor, PCB - 53 Black body SMD resistor, PCB - 54 Black body SMD resistor, PCB - 55 Silvery/coppery metal Frame, cover, PCB - 58 Black body EC, PCB - 59 Black body FC, PCB - 50 Yellow body FC, PCB - 50 Yellow plated silvery metal Frame, cover, PCB - 50 Silvery metal Silvery metal Frame, cover, PCB - 50 Silvery metal Silvery metal Frame, cover, PCB - 50 Silvery metal Silvery metal Frame, cover, PCB - 50 Silvery solder Solder, PCB - 50 Silvery solder Solder, PCB - 50 Silvery solder Solder, PCB -	42	Beige plastic	Socket, PCB	-
45 Black plastic Base, socket, PCB - 46 Silvery/golden metal Pin, socket, PCB - 47 Black body SMD transistor, PCB - 48 Black body SMD fuse, PCB - 49 Translucent body SMD LED, PCB - 50 Silvery metal Contact plate, type-c plug, PCB - 51 Black plastic Pin holder, type-c plug, PCB - 52 Silvery metal Pin, type-c plug, PCB - 53 Black/white coated yellow/transparent plastic with adhesive Sticker, PCB - 54 Black body IC, PCB - 55 Silvery/coppery metal Plate, IC, PCB - 56 Brown body SMD capacitor, PCB - 57 Black/coppery metal Inductor, PCB - 58 Black printed white body SMD resistor, PCB - 59 Black body Diode, PCB - 60 Yellow body EC, PCB - 61 Bright black body EC, PCB - 62 Yellow plated silvery metal Frame, cover, PCB - 63 Silvery metal Cover, PCB - 64 yellow/transparent plastic with adhesive Sticker, cover, PCB - 65 Silvery solder Solder, PCB -	43	Black plastic	Socket, PCB	-
46 Silvery/golden metal Pin, socket, PCB - 47 Black body SMD transistor, PCB - 48 Black body SMD fuse, PCB - 49 Translucent body SMD LED, PCB - 50 Silvery metal Contact plate, type-c plug, PCB - 51 Black plastic Pin holder, type-c plug, PCB - 52 Silvery metal Pin, type-c plug, PCB - 53 Black/white coated yellow/transparent plastic with adhesive Sticker, PCB - 54 Black body IC, PCB - 55 Silvery/coppery metal Plate, IC, PCB - 56 Brown body SMD capacitor, PCB - 57 Black/coppery metal Inductor, PCB - 58 Black printed white body SMD resistor, PCB - 59 Black body Diode, PCB - 60 Yellow body EC, PCB - 61 Bright black body EC, PCB - 62 Yellow plated silvery metal Frame, cover, PCB - 63 Silvery metal Cover, PCB - 64 Usellow/transparent plastic with adhesive Sticker, cover, PCB - 65 Silvery solder Solder, PCB -	44	Silvery metal	Buckle, socket, PCB	-
47 Black body SMD transistor, PCB - 48 Black body SMD fuse, PCB - 49 Translucent body SMD LED, PCB - 50 Silvery metal Contact plate, type-c plug, PCB - 51 Black plastic Pin holder, type-c plug, PCB - 52 Silvery metal Pin, type-c plug, PCB - 53 Black/white coated yellow/transparent plastic with adhesive Sticker, PCB - 54 Black body IC, PCB - 55 Silvery/coppery metal Plate, IC, PCB - 56 Brown body SMD capacitor, PCB - 57 Black/coppery metal Inductor, PCB - 58 Black printed white body SMD resistor, PCB - 59 Black body Diode, PCB - 60 Yellow body EC, PCB - 61 Bright black body EC, PCB - 62 Yellow plated silvery metal Frame, cover, PCB - 63 Silvery metal Cover, PCB - 64 Black/white/blue coated yellow/transparent plastic with adhesive Solder, PCB -	45	Black plastic	Base, socket, PCB	-
48 Black body 49 Translucent body 50 Silvery metal 50 Silvery metal 51 Black plastic 52 Silvery metal 53 Black/white coated yellow/transparent plastic with adhesive 54 Black body 55 Silvery/coppery metal 56 Brown body 57 Black/coppery metal 58 Black printed white body 59 Black body 50 Silvery/coppery metal 51 Black body 52 Silvery/coppery metal 53 Black printed white body 54 Black printed white body 55 Silvery/coppery metal 56 Brown body 57 Black/coppery metal 58 Black printed white body 59 Black body 59 Black body 59 Black body 50 Silvery Black body 50 Silvery Black body 50 Silvery Black body 50 Silvery Black body 51 Silvery Black body 52 Silvery Black body 53 Silvery Black body 54 Silvery Black body 55 Silvery Black body 56 Silvery Black	46	Silvery/golden metal	Pin, socket, PCB	-
49 Translucent body 50 Silvery metal Contact plate, type-c plug, PCB - 51 Black plastic Pin holder, type-c plug, PCB - 52 Silvery metal Pin, type-c plug, PCB - 53 Black/white coated yellow/transparent plastic with adhesive  54 Black body IC, PCB - 55 Silvery/coppery metal Plate, IC, PCB - 56 Brown body SMD capacitor, PCB - 57 Black/coppery metal Inductor, PCB - 58 Black printed white body SMD resistor, PCB - 59 Black body Diode, PCB - 60 Yellow body EC, PCB - 61 Bright black body EC, PCB - 62 Yellow plated silvery metal Frame, cover, PCB - 63 Silvery metal Cover, PCB - 64 gellow/transparent plastic with adhesive  65 Silvery solder Solder, PCB	47	Black body	SMD transistor, PCB	-
50 Silvery metal Contact plate, type-c plug, PCB 51 Black plastic Pin holder, type-c plug, PCB 52 Silvery metal Pin, type-c plug, PCB 53 Black/white coated yellow/transparent plastic with adhesive 54 Black body IC, PCB 55 Silvery/coppery metal Plate, IC, PCB 56 Brown body SMD capacitor, PCB 57 Black/coppery metal Inductor, PCB 58 Black printed white body SMD resistor, PCB 59 Black body Diode, PCB 60 Yellow body EC, PCB 61 Bright black body EC, PCB 62 Yellow plated silvery metal Frame, cover, PCB 63 Silvery metal Cover, PCB 64 Get Silvery solder Solder, PCB 65 Silvery solder Solder, PCB 66 Solder, PCB 67 Solder, PCB 68 Solder, PCB 69 Solder, PCB 69 Solder, PCB 60 Solder, PCB 60 Solder, PCB 61 Solder, PCB 62 Solder, PCB 63 Silvery solder Solder, PCB	48	Black body	SMD fuse, PCB	-
51 Black plastic Pin holder, type-c plug, PCB - 52 Silvery metal Pin, type-c plug, PCB - 53 Black/white coated yellow/transparent plastic with adhesive Sticker, PCB - 54 Black body IC, PCB - 55 Silvery/coppery metal Plate, IC, PCB - 56 Brown body SMD capacitor, PCB - 57 Black/coppery metal Inductor, PCB - 58 Black printed white body SMD resistor, PCB - 59 Black body Diode, PCB - 60 Yellow body EC, PCB - 61 Bright black body EC, PCB - 62 Yellow plated silvery metal Frame, cover, PCB - 63 Silvery metal Cover, PCB - 64 Black/white/blue coated yellow/transparent plastic with adhesive Solder, PCB - 65 Silvery solder Solder, PCB -	49	Translucent body	SMD LED, PCB	-
Silvery metal   Pin, type-c plug, PCB   -	50	Silvery metal	Contact plate, type-c plug, PCB	-
Black/white coated yellow/transparent plastic with adhesive  Sticker, PCB  -  Sticker, Cover, PCB	51	Black plastic	Pin holder, type-c plug, PCB	-
plastic with adhesive  54 Black body  IC, PCB  -  55 Silvery/coppery metal  Plate, IC, PCB  -  56 Brown body  SMD capacitor, PCB  -  57 Black/coppery metal  Inductor, PCB  -  58 Black printed white body  SMD resistor, PCB  -  59 Black body  Diode, PCB  -  60 Yellow body  EC, PCB  -  61 Bright black body  EC, PCB  -  62 Yellow plated silvery metal  Frame, cover, PCB  -  63 Silvery metal  Cover, PCB  -  Black/white/blue coated yellow/transparent plastic with adhesive  65 Silvery solder  Sticker, cover, PCB  -  Solder, PCB  Solder, PCB  -  Solder, PCB  Solder, PCB  Solder, PCB  Solder, PCB  Solder, PCB  Solder, PCB  S	52	Silvery metal	Pin, type-c plug, PCB	-
55 Silvery/coppery metal Plate, IC, PCB - 56 Brown body SMD capacitor, PCB - 57 Black/coppery metal Inductor, PCB - 58 Black printed white body SMD resistor, PCB - 59 Black body Diode, PCB - 60 Yellow body EC, PCB - 61 Bright black body EC, PCB - 62 Yellow plated silvery metal Frame, cover, PCB - 63 Silvery metal Cover, PCB - 64 Black/white/blue coated yellow/transparent plastic with adhesive Solder, PCB - 65 Silvery solder Solder, PCB -	53		Sticker, PCB	-
SMD capacitor, PCB   -	54	Black body	IC, PCB	-
57 Black/coppery metal Inductor, PCB - 58 Black printed white body SMD resistor, PCB - 59 Black body Diode, PCB - 60 Yellow body EC, PCB - 61 Bright black body EC, PCB - 62 Yellow plated silvery metal Frame, cover, PCB - 63 Silvery metal Cover, PCB - 64 Black/white/blue coated yellow/transparent plastic with adhesive Sticker, cover, PCB - 65 Silvery solder Solder, PCB -	55	Silvery/coppery metal	Plate, IC, PCB	-
58Black printed white bodySMD resistor, PCB-59Black bodyDiode, PCB-60Yellow bodyEC, PCB-61Bright black bodyEC, PCB-62Yellow plated silvery metalFrame, cover, PCB-63Silvery metalCover, PCB-64Black/white/blue coated yellow/transparent plastic with adhesiveSticker, cover, PCB-65Silvery solderSolder, PCB-	56	Brown body	SMD capacitor, PCB	-
59 Black body Diode, PCB - 60 Yellow body EC, PCB - 61 Bright black body EC, PCB - 62 Yellow plated silvery metal Frame, cover, PCB - 63 Silvery metal Cover, PCB -  Black/white/blue coated yellow/transparent plastic with adhesive Sticker, cover, PCB - 65 Silvery solder Solder, PCB -	57	Black/coppery metal	Inductor, PCB	-
60 Yellow body EC, PCB - 61 Bright black body EC, PCB - 62 Yellow plated silvery metal Frame, cover, PCB - 63 Silvery metal Cover, PCB -  Black/white/blue coated yellow/transparent plastic with adhesive Sticker, cover, PCB - 65 Silvery solder Solder, PCB -	58	Black printed white body	SMD resistor, PCB	-
61 Bright black body EC, PCB - 62 Yellow plated silvery metal Frame, cover, PCB - 63 Silvery metal Cover, PCB -  Black/white/blue coated yellow/transparent plastic with adhesive Sticker, cover, PCB - 65 Silvery solder Solder, PCB -	59	Black body	Diode, PCB	-
62 Yellow plated silvery metal Frame, cover, PCB -  63 Silvery metal Cover, PCB -  Black/white/blue coated yellow/transparent plastic with adhesive Sticker, cover, PCB -  65 Silvery solder Solder, PCB -	60	Yellow body	EC, PCB	-
63 Silvery metal Cover, PCB -  Black/white/blue coated yellow/transparent plastic with adhesive Sticker, cover, PCB -  65 Silvery solder Solder, PCB -	61	Bright black body	EC, PCB	-
Black/white/blue coated yellow/transparent plastic with adhesive  Sticker, cover, PCB - Solder, PCB -	62	Yellow plated silvery metal	Frame, cover, PCB	-
<ul> <li>yellow/transparent plastic with adhesive</li> <li>Silvery solder</li> <li>Solder, PCB</li> <li>Solder, PCB</li> </ul>	63	1 · · · · · · · · · · · · · · · · · · ·	Cover, PCB	-
	64	yellow/transparent plastic with	Sticker, cover, PCB	
66 Black PCB PCB -	65	Silvery solder	Solder, PCB	-
	66	Black PCB	PCB	-



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# **TEST RESULT**

Compliance Test – 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 Amendment Directive 2015/863/EU

Test Method: See Appendix.

See Analytes and their corresponding Maximum Allowable Limit in Appendix

-	Result						
Parameter	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Chromium VI (Cr VI)	PBBs	PBDEs	Conclusion
Limit (mg/kg):	1000	1000	100	1000/ Negative	1000	1000	-
Test Item(s)	-	-	-	-	-	-	-
1	BL	BL	BL	BL	BL*	BL*	PASS
2	BL	BL	BL	BL	NA	NA	PASS
3	23670*	BL	BL	BL	NA	NA	EXEMPTED#
4	BL	BL	BL	Negative*	NA	NA	PASS
5	BL	BL	BL	BL	NA	NA	PASS
6	BL	BL	BL	BL	NA	NA	PASS
7	BL	BL	BL	BL	BL	BL	PASS
8	BL	BL	BL	BL	NA	NA	PASS
9	29460*	BL	BL	BL	NA	NA	EXEMPTED#
10	28140*	BL	BL	BL	NA	NA	EXEMPTED#
11	BL	BL	BL	BL	BL	BL	PASS
12	22330*	BL	BL	BL	NA	NA	EXEMPTED#
13	BL	BL	BL	BL	NA	NA	PASS
14	22330*	BL	BL	BL	NA	NA	EXEMPTED#
15	BL	BL	BL	BL	BL	BL	PASS
16	BL	BL	BL	BL	BL	BL	PASS
17	BL	BL	BL	BL	BL	BL	PASS
18	BL	BL	BL	BL	NA	NA	PASS
19	BL	BL	BL	BL	BL	BL	PASS
20	BL	BL	BL	BL	NA	NA	PASS
21	BL	BL	BL	BL	BL	BL	PASS
22	BL	BL	BL	BL	NA	NA	PASS
23	21360*	BL	BL	BL	NA	NA	EXEMPTED#
24	BL	BL	BL	BL	NA	NA	PASS
25	BL	BL	BL	Negative*	NA	NA	PASS



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# **TEST RESULT**

-	Result						
	Lead	Mercury	Cadmium	Chromium VI	DDD	DDDE	G 1 .
Parameter	(Pb)	(Hg)	(Cd)	(Cr VI)	PBBs	PBDEs	Conclusion
Limit (mg/kg):	1000	1000	100	1000/ Negative	1000	1000	-
Test Item(s)	-	-	-	-	-	-	-
26	BL	BL	BL	BL	BL	BL	PASS
27	BL	BL	BL	BL	NA	NA	PASS
28	BL	BL	BL	BL	BL	BL	PASS
29	BL	BL	BL	Negative*	NA	NA	PASS
30	BL	BL	BL	BL	BL	BL	PASS
31	BL	BL	BL	BL	BL	BL	PASS
32	BL	BL	BL	BL	BL*	BL*	PASS
33	BL	BL	BL	BL	NA	NA	PASS
34	BL	BL	BL	BL	BL	BL	PASS
35	BL	BL	BL	Negative*	NA	NA	PASS
36	BL	BL	BL	BL	NA	NA	PASS
37	BL	BL	BL	BL	NA	NA	PASS
38	BL	BL	BL	BL	BL*	BL*	PASS
39	BL	BL	BL	BL	NA	NA	PASS
40	BL	BL	BL	BL	NA	NA	PASS
41	BL	BL	BL	BL	BL	BL	PASS
42	BL	BL	BL	BL	BL*	BL*	PASS
43	BL	BL	BL	BL	BL*	BL*	PASS
44	BL	BL	BL	BL	NA	NA	PASS
45	BL	BL	BL	BL	BL*	BL*	PASS
46	BL	BL	BL	BL	NA	NA	PASS
47	BL	BL	BL	BL	BL	BL	PASS
48	15*	BL	BL	BL	BL	BL	PASS
49	BL	BL	BL	BL	BL	BL	PASS
50	BL	BL	BL	BL	NA	NA	PASS
51	BL	BL	BL	BL	BL	BL	PASS
52	BL	BL	BL	BL	NA	NA	PASS
53	BL	BL	BL	BL	BL	BL	PASS
54	BL	BL	BL	BL	BL	BL	PASS
55	BL	BL	BL	BL	NA	NA	PASS
56	BL	BL	BL	BL	BL	BL	PASS
57	BL	BL	BL	BL	NA	NA	PASS



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### **TEST RESULT**

-	Result						
Parameter	Lead	Mercury	Cadmium	Chromium VI	PBBs	PBDEs	Conclusion
Parameter	(Pb)	(Hg)	(Cd)	(Cr VI)	PDDS		
Limit (mg/kg):	1000	1000	100	1000/ Negative	1000	1000	-
Test Item(s)	1	-	-	-	-	1	-
58	BL	BL	BL	BL	BL	BL	PASS
59	27*	BL	BL	BL	BL	BL	PASS
60	BL	BL	BL	BL	BL	BL	PASS
61	BL	BL	BL	BL	BL	BL	PASS
62	BL	BL	BL	BL	NA	NA	PASS
63	BL	BL	BL	BL	NA	NA	PASS
64	BL	BL	BL	BL	BL	BL	PASS
65	BL	BL	BL	BL	NA	NA	PASS
66	BL	BL	BL	BL	BL*	BL*	PASS

#### Note / Key:

ND = Not detected ">" = Greater than "<" = Less than NR = Not requested mg/kg = milligram(s) per kilogram = ppm = part(s) per million NA = Not applicable "= percent 10000 mg/kg = 1 %

BL = Below limit OL = Over limit

Detection Limit : See Appendix.

### Remark:

- \*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.
- \*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 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 Council Directive 2011/65/EU, Article 4(1).
- According to European Council Directive 2011/65/EU, Article 5 "Adaptation of the Annexes to scientific and technical progress", exemption(s) should be granted to the materials and components of Test Item(s) in the lists in Annexes III and IV of this directive.
- #According to Annex III of European Council Directive 2011/65/EU, 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) 3, 9, 10, 12, 14, 23 was (were) claimed as is by client (received as is). Therefore, this (these) Test Item(s) containing the found lead level should be exempted.



Nonabromodiphenyl ether (NonaBDE)Decabromodiphenyl ether (DecaBDE)

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### **APPENDIX**

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 ] : Detection Limit (mg/kg) Maximum X-ray fluorescence  $(XRF)^{[a]}$ Allowable No. Name of Analytes Wet Metallic / Limit Chemistry Plastic glass / Others (mg/kg) ceramic 10<sup>[b]</sup> 1 Lead (Pb) 100 200 200 1000  $10^{[b]}$ 2 Cadmium (Cd) 50 50 50 100  $10^{[c]}$ 100 200 200 1000 3 Mercury (Hg) 4 Chromium (Cr) 100 200 200 NA NA  $3^{[g, h]} / 10^{[d]} /$ 1000 / 5 Chromium VI (Cr VI) NA NA NA See [e, j] Negative<sup>[j]</sup> 6 Bromine (Br) 200 NA 200 NA NA Polybromobiphenyls (PBBs) - Bromobiphenyl (MonoBB) - Dibromobiphenyl (DiBB) - Tribromobiphenyl (TriBB) - Tetrabromobiphenyl (TetraBB) 7 NA NA NA Each 50<sup>[f]</sup> Sum 1000 - Pentabromobiphenyl (PentaBB) - Hexabromobiphenyl (HexaBB) - Heptabromobiphenyl (HeptaBB) - Octabromobiphenyl (OctaBB) - Nonabromobiphenyl (NonaBB) - Decabromobiphenyl (DecaBB) Polybromodiphenyl ethers (PBDEs) - Bromodiphenyl ether (MonoBDE) - Dibromodiphenyl ether (DiBDE) - Tribromodiphenyl ether (TriBDE) - Tetrabromodiphenyl ether (TetraBDE) 8 - Pentabromodiphenyl ether (PentaBDE) NA NA NA Each 50<sup>[f]</sup> Sum 1000 - Hexabromodiphenyl ether (HexaBDE) - Heptabromodiphenyl ether (HeptaBDE) - Octabromodiphenyl ether (OctaBDE)



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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]:

- NA = Not applicable
- [a] Test method with reference to International Standard IEC 62321-3-1: 2013.
- Test method with reference to International Standard IEC 62321-5: 2013.
- [c] Test method with reference to International Standard IEC 62321-4:2013+A1:2017.
- [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.
- Test method with reference to International Standard IEC 62321-6: 2015.
- [g] Leather Test method International Standard ISO 17075-1:2017.
- Other Than Metal, Leather, Polymers and Electronics Test method with reference to International Standard ISO 17075-1:2017.
- The principle of this method was evaluated and supported by two studies organized by IEC TC 111 WG3. These studies were focused on detecting the presence of Cr VI in the corrosion protection coatings on metallic samples.
- 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).

### Testing Approach [ Compliance Test for European Parliament and Council Directive 2011/65/EU ]:

The testing approach was with reference to the following document(s).

- 1 International Standards IEC 62321-1: 2013 and IEC 62321-2: 2021
- 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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10000 mg/kg = 1 %

### **TEST RESULT**

BBP/DBP/DEHP/DIBP 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 Amendment Directive 2015/863/EU

Test Method : With reference to International Standard IEC 62321-8:2017

Test Parameter:	BBP	DBP	DEHP	DiBP	-
Limit (%):	0.1	0.1	0.1	0.1	-
Test Item(s)		Resu	lt (%)		Conclusion
15+16	ND	ND	ND	ND	PASS
17+19	ND	ND	ND	ND	PASS
53+64	ND	ND	ND	ND	PASS
1+7+11	ND	ND	ND	ND	PASS
21+26+28	ND	ND	ND	ND	PASS
30+31+32	ND	ND	ND	ND	PASS
34+38+41	ND	ND	ND	ND	PASS
42+43+45	ND	ND	ND	ND	PASS
47+48+49	ND	ND	ND	ND	PASS
51+54+56	ND	ND	ND	ND	PASS
58+59+60	ND	ND	ND	ND	PASS
61+66	ND	ND	ND	ND	PASS

### Note / key:

BBP = Butyl benzyl phthalate (CAS No: 85-68-7)

DBP = Dibutyl phthalate (CAS No: 84-74-2)

DEHP = Di(2-ethylhexyl) phthalate (CAS No: 117-81-7)

DiBP = Diisobutyl phthalate (CAS No: 84-69-5)

ND = Not detected % = percent

BL = Below limit OL = Over limit

mg/kg = milligram(s) per kilogram Detection Limit (%) : Each 0.005

### Remark:

- The amendment will be effective on 22 July 2019. For medical devices and control instruments, effective date will be 22 July 2021.
- The composite test sample(s) of the submitted samples was prepared in the manner requested by the client, when subject to the test performed.

\*\*\* End of Report \*\*\*

<sup>\*</sup> denotes as reported result(s) was (were) performed by wet chemistry method.