



## Test Report

Report No.: CX/2011/40146

Date: 2011/04/20

HUAWEI TECHNOLOGIES CO., LTD.  
BANTIAN, LONGGANG DISTRICT, SHENZHEN, GUANGDONG,  
P.R.CHINA

The following sample(s) was/were submitted and identified by/on behalf of the client as :

Sample Description : HSPA+MODULE  
Style/Item No. : EM820W  
SGS Ref No. : SZ13040554-3.3  
Sample Receiving Date : 2011/04/11  
Testing Period : 2011/04/11 TO 2011/04/20

Test Result(s) : Please refer to next page(s).

Conclusion : Based upon the performed tests by submitted samples, the test results comply with the limits of RoHS Directive 2002/95/EC and its subsequent amendments.

  
Ellis Wei, Ph.D. Supervisor  
Signed for and on behalf of  
SGS TAIWAN LTD.  
Chemical Laboratory - Taipei

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### 1. Material Fraction Composition

Table 1 The results of XRF screening and chemical test (Unit: mg/kg)

<div></div>											
No.	Type of Components	Description		Figure	Material	X-ray Screening		UV	ICP-AES	GC-MS	Note
					Type	Element	Data	Cr (VI)	Pb/Cd/Hg	PBB/PBDE	
1	PCBA	1.1	PCBA		Composite Material	Pb	---	---	---		Refer to Table 2~4
						Cd	---		---		
						Hg	---		---		
						Cr	---		---		
						Br	---				
						Cr(VI)					
						PBB					
						PBDE			---		
		1.2	WHITE LABEL WITH BLACK PRINT		Polymers	Pb	n.d.	---	---		
						Cd	n.d.		---		
						Hg	n.d.		---		
						Cr	n.d.		---		
						Br	n.d.				
						Cr(VI)					
						PBB					
						PBDE			---		
		1.3	WHITE LABEL WITH BLACK PRINT		Polymers	Pb	n.d.	---	---		
						Cd	n.d.		---		
						Hg	n.d.		---		
						Cr	n.d.		---		
						Br	n.d.				
						Cr(VI)					
						PBB					
						PBDE			---		

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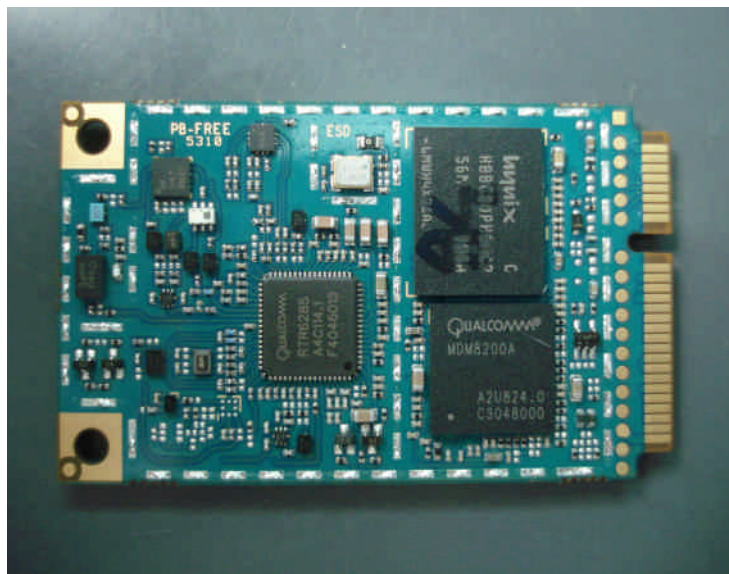
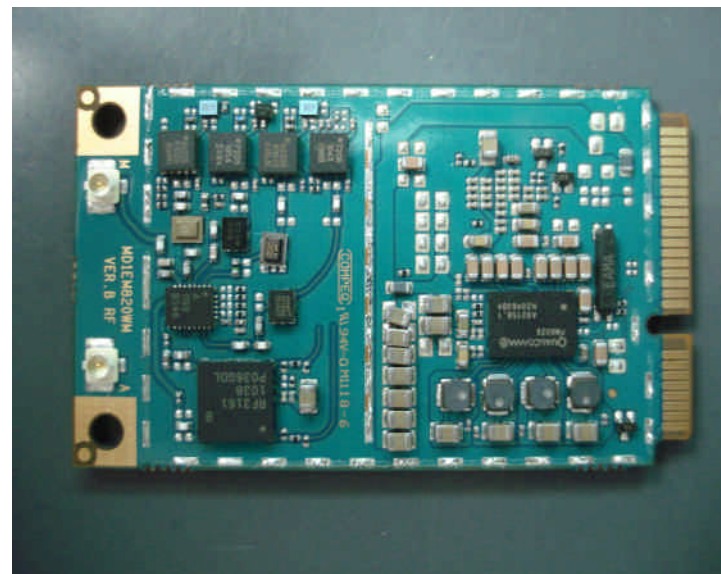
No.	Type of Components	Description		Figure	Material	X-ray Screening		UV	ICP-AES	GC-MS	Note
					Type	Element	Data	Cr (VI)	Pb/Cd/Hg	PBB/PBDE	
1	PCBA	1.4	SILVER COLORED METALLIC CAP		Metals	Pb	n.d.		---		
						Cd	n.d.		---		
						Hg	n.d.		---		
						Cr	184000				
						Br	n.d.				
						Cr(VI)		Negative			
						PBB				---	
						PBDE				---	
		1.5	SILVER COLORED METALLIC FRAME		Metals	Pb	n.d.		---		
						Cd	n.d.		---		
						Hg	n.d.		---		
						Cr	n.d.				
						Br	n.d.				
						Cr(VI)		---			
						PBB				---	
						PBDE				---	

Figure 1 The pictures of the PCB (CX/2011/40146-1.1)



Top side of the PCB (CX/2011/40146-1.1)



Bottom side of the PCB (CX/2011/40146-1.1)

Figure 2 The figure with letter and frame shows the mapping areas on top side of the PCB (CX/2011/40146-1.1)

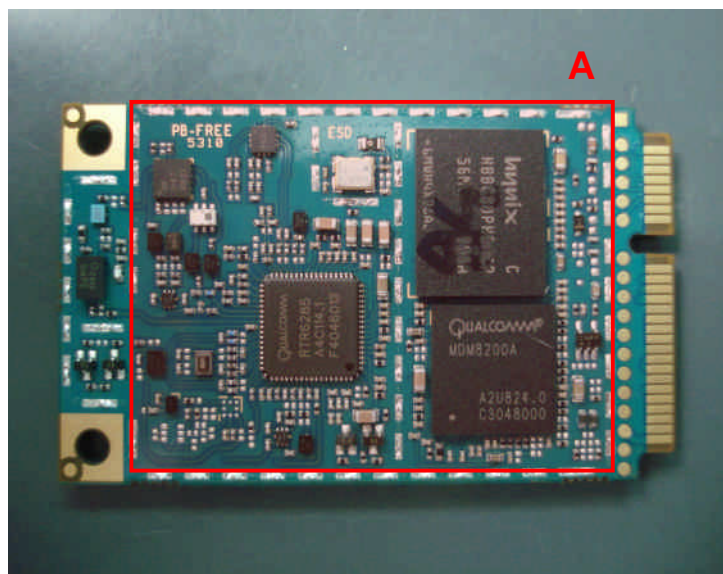


Figure 3 The figure with letter and frame shows the mapping areas on bottom side of the PCB (CX/2011/40146-1.1)

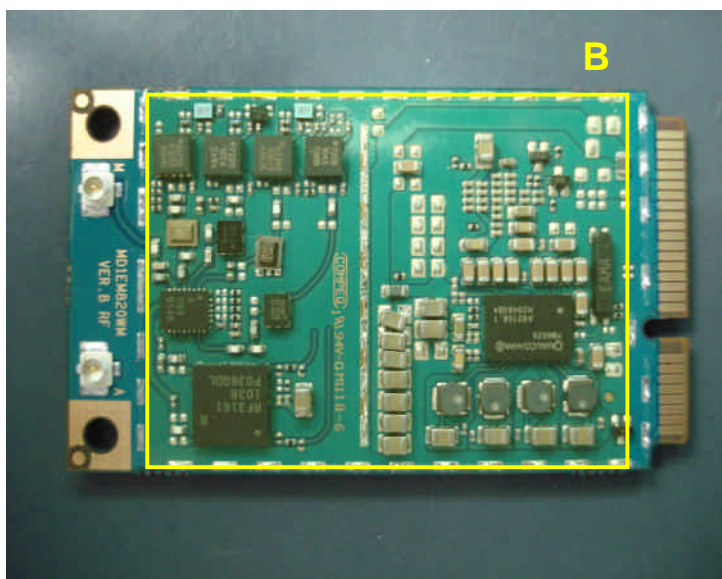




Figure 4 The figure shows the selected positions of the PCB (CX/2011/40146-1.1) for point analysis

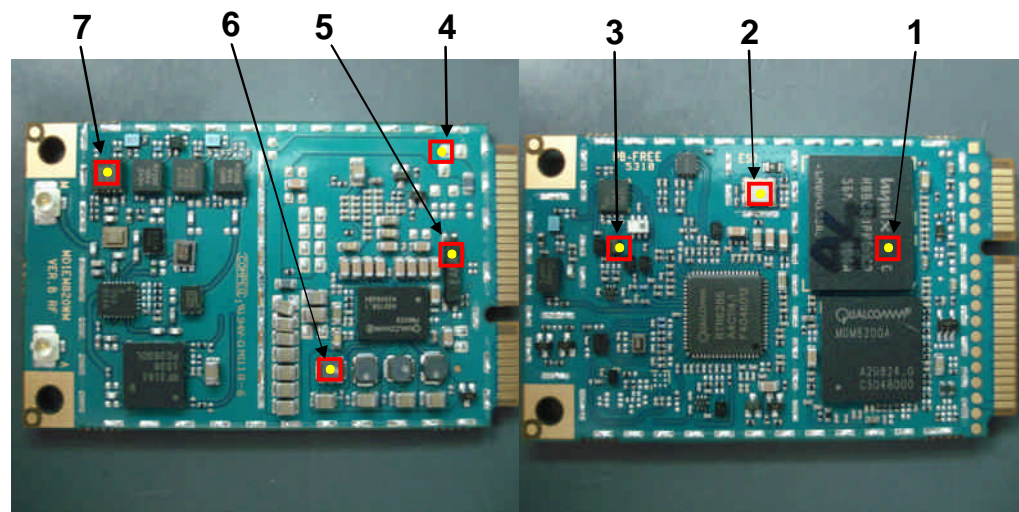


Table 2 Mapping results of area A of the PCB (CX/2011/40146-1.1)

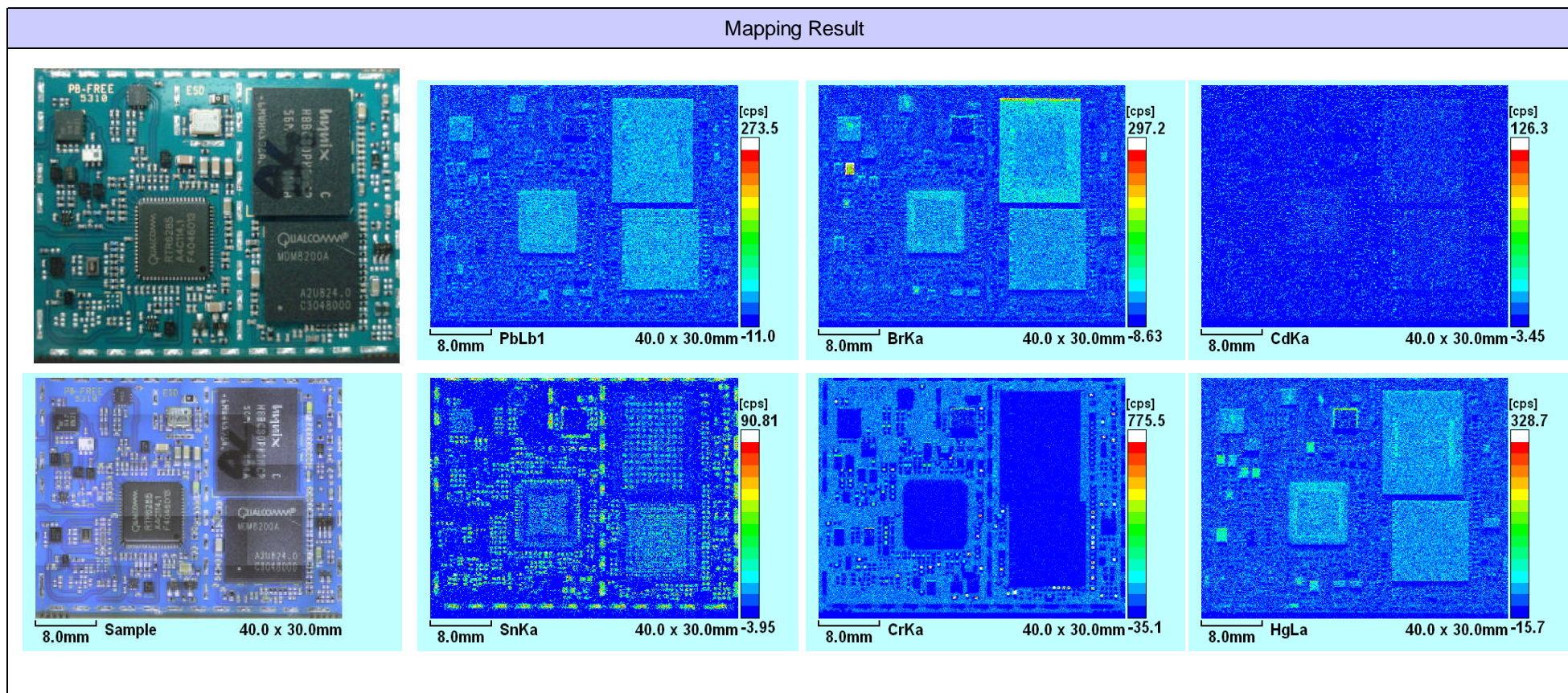
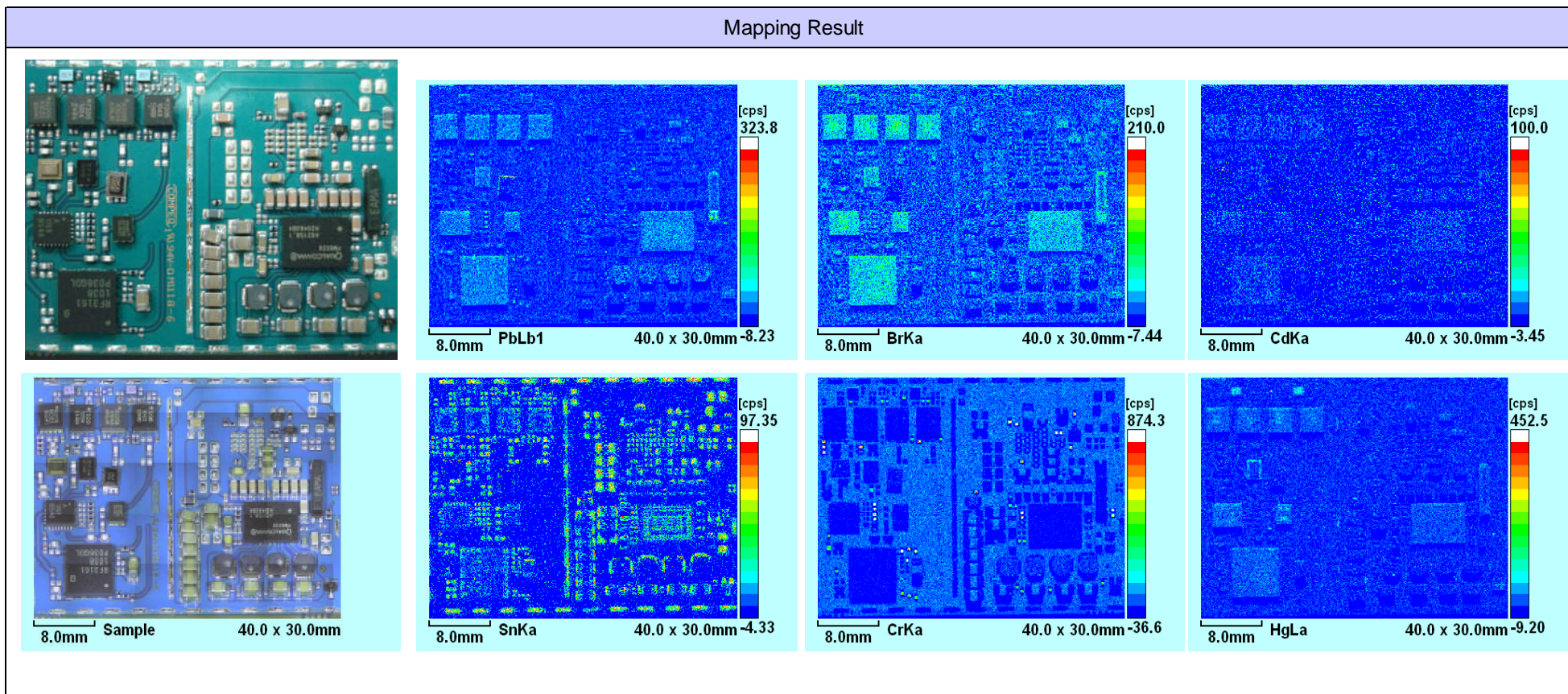




Table 3 Mapping results of area B of the PCB (CX/2011/40146-1.1)

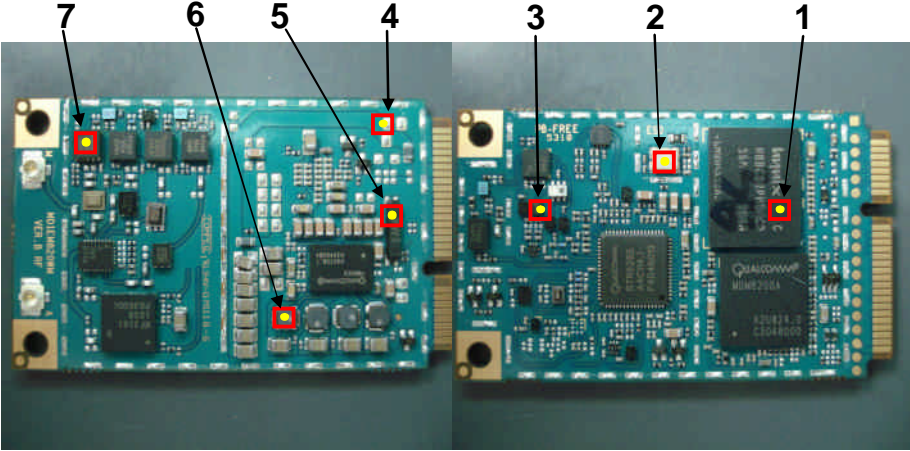

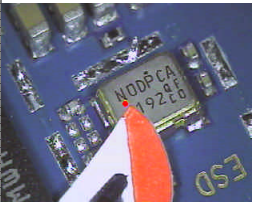
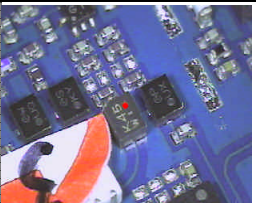
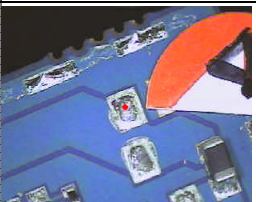


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Table 4 The test results of the PCB (CX/2011/40146-1.1) by point analysis

Point Analysis	No.	Figure	Material	X-ray Screening		
			Type	Element	Data	Note
	1		Composite Material	Pb	n.d.	
				Cd	n.d.	
				Hg	n.d.	
				Cr	n.d.	
				Br	n.d.	
	2		Composite Material	Pb	n.d.	
				Cd	n.d.	
				Hg	n.d.	
				Cr	n.d.	
				Br	n.d.	
	3		Composite Material	Pb	n.d.	Refer to No.1 of Table 5
				Cd	n.d.	
				Hg	n.d.	
				Cr	n.d.	
				Br	8000	
	4		Metals	Pb	n.d.	
				Cd	n.d.	
				Hg	n.d.	
				Cr	n.d.	
				Br	n.d.	

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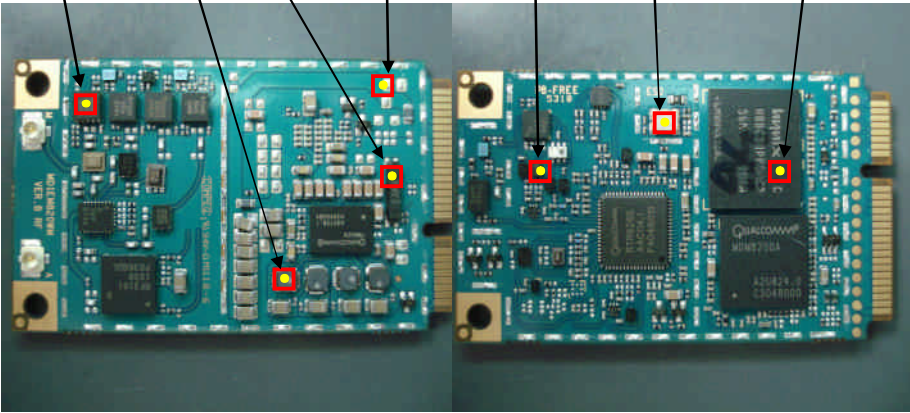
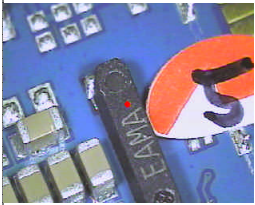
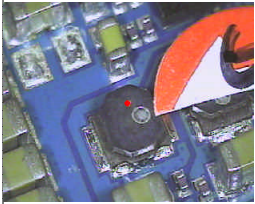
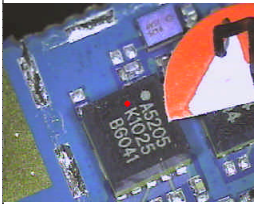

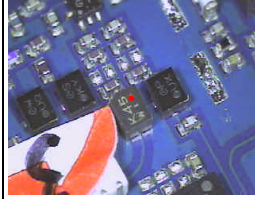
Point Analysis	No.	Figure	Material Type	X-ray Screening		
				Element	Data	Note
	5		Composite Material	Pb	318	
				Cd	n.d.	
				Hg	n.d.	
				Cr	n.d.	
				Br	n.d.	
	6		Composite Material	Pb	n.d.	
				Cd	n.d.	
				Hg	n.d.	
				Cr	n.d.	
				Br	n.d.	
	7		Composite Material	Pb	n.d.	
				Cd	n.d.	
				Hg	n.d.	
				Cr	n.d.	
				Br	n.d.	



Table 5 The confirming test results for point analysis on PCBA (Unit: mg/kg)

Type of Components	Description		Figure	Material	Substance	UV	ICP-AES	GC-MS	Note
				Type		Cr (VI)	Pb/Cd/Hg	PBB/PBDE	
	1	ELECTRONIC COMPONENT		Composite Material	Pb		---		
					Cd		---		
					Hg		---		
					Cr				
					Br	---			
					Cr(VI)		n.d.		
					PBB		n.d.		
					PBDE				

Test Item :	MDL (mg/kg)				XRF screening threshold (mg/kg)	Test method
XRF (X-ray fluorescence)	Element	Polymers	Composite Material	Metals		With reference to IEC 62321: 2008
	Pb	50	100	100	500	
	Cd	50	50	50	50	
	Hg	50	100	100	500	
	Cr	50	100	100	500	
	Br	50	100	n.a.	250	

Test Item (s):	Test method	MDL (mg/kg)	Facilities
Cr(VI)	With reference to IEC 62321: 2008 (For Polymers and Electronics)	2	UV
	With reference to IEC 62321: 2008 (For Coatings on Metals)	- *	-
Pb/Cd/Hg	With reference to IEC 62321: 2008	2	ICP-AES

Test Item (s):	Unit	Method	MDL
<b>PBBs</b>		With reference to IEC 62321: 2008. Determination of PBB and PBDE by GC/MS.	
Monobromobiphenyl	mg/kg		5
Dibromobiphenyl	mg/kg		5
Tribromobiphenyl	mg/kg		5
Tetrabromobiphenyl	mg/kg		5
Pentabromobiphenyl	mg/kg		5
Hexabromobiphenyl	mg/kg		5
Heptabromobiphenyl	mg/kg		5
Octabromobiphenyl	mg/kg		5
Nonabromobiphenyl	mg/kg		5
Decabromobiphenyl	mg/kg		5
<b>PBDEs</b>			
Monobromodiphenyl ether	mg/kg		5
Dibromodiphenyl ether	mg/kg		5
Tribromodiphenyl ether	mg/kg		5
Tetrabromodiphenyl ether	mg/kg		5
Pentabromodiphenyl ether	mg/kg		5
Hexabromodiphenyl ether	mg/kg		5
Heptabromodiphenyl ether	mg/kg		5
Octabromodiphenyl ether	mg/kg		5
Nonabromodiphenyl ether	mg/kg		5
Decabromodiphenyl ether	mg/kg		5





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1. mg/kg = ppm
2. n.d. = not detected or lower than MDL
3. MDL = Method detection limit
4. "---" = not conducted
5. n.a. = not applicable
6. \_\*:

### Spot-test:

Negative = Absence of Cr(VI) coating,

Positive = Presence of Cr(VI) coating;

(The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.)

### Boiling-water-extraction:

Negative = Absence of Cr(VI) coating

Positive = Presence of Cr(VI) coating; the detected concentration in boiling-water-extraction solution is equal or greater than

0.02 mg/kg with 50 cm<sup>2</sup> sample surface area.

7. The XRF result of Br for metal sample is conducted from semi-quantitative method of polymer.
8. Magnetic samples can not be located on test position and there are breakdown risks on XRF equipment. Therefore, this kind of sample will be conducted chemical test directly.

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