Verification Report

CENTRE TESTING INTERNATIONAL

CTI RoHS VERIFICATION REPORT

Applicant : SHANGHAI SIMCOM LIMITED.
Address : BUILDING A, SIM TECHNOLOGY BUILDING,NO.633,JINZHONG ROAD,CHANGNING DISTRICT, SHANGHAI P.R. CHINA 200335
Product Name : SIM800

Conclusion:

Tested Sample	According to directive	Result
SIM800	2011/65/EU*	Pass

*2011/65/EU is a new version of RoHS Directive (2002/95/EC), which focuses on restriction of the use of certain hazardous substances (Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs),Polybrominated Diphenyl Ethers(PBDEs))in electrical and electronic equipment.
Pass means that the results shown on the report do not exceed the limits set by RoHS Directive 2011/65/EU.

Tested by Chen Lijuan Reviewed by Chen Kaimin

Approved by Su Hongwei Date Nov.27,2013

Su Hongwei
Senior Laboratory Manager

No. 1130312791

Verification Report

Report Content

Verification Report

Report on the submitted sample(s) said to be

Sample Received Date :Oct.14,2013

Testing Period : Oct.14,2013 to Oct.31,2013

Bill of Materials

No.	Part No.
1	RES MF 0R +/-5% 1/20W CH0201 RO、RES MF 0R +/-5% 1/16W CH 0402 RO、RES_MF_100R_+/5%_1/20W_CH0201 RO、RES MF 1K +/-5% 1/20W CH0201 RO、RES MF 1.5K +/-5% 1/20W CH0201 RO、RES_MF_2.2K_+/5%_1/20W_CH0201 RO、RES MF 7.5KR +/-1% 1/20W CH0201 RO
2	RES NTC 10KR +/-1% 1/10W CH 0402 RO、RES MF 10K +/-5% 1/20W CH0201 RO、RES MF 24KR +/-5% 1/20W CH0201 RO、RES MF 39K +/-1% 1/20W CH0201 RO、RES_MF_47K_+/-5%_1/20W_CH0201 RO、RES MF 330K +/-1% 1/20W CH0201 RO
3	CAP CM1 22PF +/-5% 25V CH0201 RO、CAP COG 22PF +/-5% 50V CH0201 RO、CAP COG 33PF +/-5% 25V CH0201 RO、CAP X7R 220PF +/-10% 25V CH0201 RO、CAP X5R 100NF +/-10% 10V CH0201 RO、CAP X5R 100NF +/10% 6.3V CH0201 RO、CAP COG 1.2P +/-0.1PF 50V CH0201 RO
4	CAP X5R 1UF +/-10% 16V CH0402 RO、CAP X5R 1UF +/-10% 6.3V CH0402 RO、CAP X5R 1UF +/-10% 10V CH0402 RO、CAP CM1 1UF X5R 10% 6.3V CH0402 RO、CAP X5R 2.2UF +/-20% 6.3V CH0402 RO、CAP X5R 10UF +/-20% 6.3V CH0603 RO
5	IND HIGH 4.3NH +/-3% CH0201 RO、IND_HIGH_2.7NH_+/-0.3NH_CH0201 RO、IND HIGH 2.7NH +/-0.1NH CH0201 RO
6	NPN 50V 100MA R1=4.7K R2=47K SC75 RO
7	NPN 50V 100MA R1=4.7K R2=47K EMT3F RO
8	NPN 50V 100MA R1=4.7K R2=47K EMT3F? RO
9	CRY XO 26MHZ +/-10PPM 7.4PF CH3225 RO
10	CRY 32.768K 12.5PF +-20% 3.2*1.5*0.9 RO
11	CRY XO 32KHZ 30PPM 9PF 3.2X1.5MM RO
12	CRY 32.768K 9PF +/-20PPM 3.2*1.5 RO
13	RF PA MODULE QUAD BAND 6.63*5.24 RO
14	BB GSM 8.6*9.6MM TFBGA-199 SIP(32+32) RO
15	SHIELDING FRAME 8MSA00 SIM800 100320 RO
16	PCB SIM800 MAIN HDI PCB V1.02 RO
17	SHIELDING COVER 8MSA00 SIM800 100320 RO
18	BB GSM 8.6MM*9.6MM TFBGA-199 SIP 64 RO
19	16.1*14.1 耐高温标签

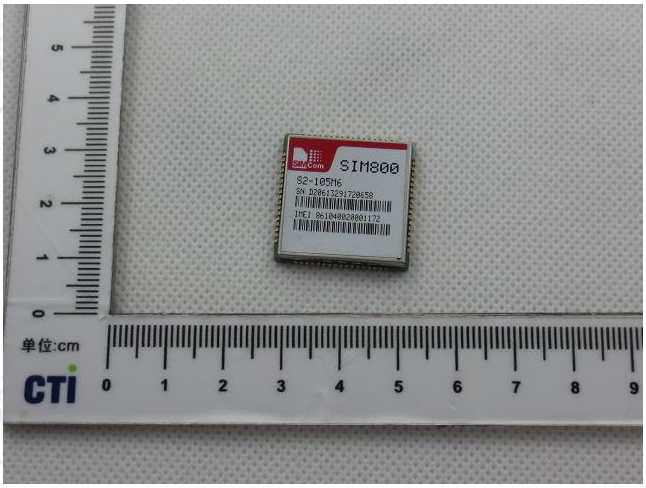
Verification Report

Test Requested 1.As specified by client, to screen the Lead, Mercury, Cadmium, Chromium and Bromine in the submitted samples by XRF Spectroscopy.

2.As specified by client, when screening results exceed the XRF screening limit in IEC62321: 2008 Edition 1.0, further use of chemical methods are required to test the Lead, Mercury, Cadmium, Hexavalent Chromium and PBBs&PBDEs in the submitted samples

Photo of the Product

SIM800



Verification Report

Test Result(s)

Sample No.	Sample Description	Tested Items	XRF Screening Test	Chemical Test (mg/kg)	Conclusion
1	Electronic components	Pb	OL	621	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	OL	N.D.	
		Br(PBBs&PBDEs)	BL	/	
2	Electronic components	Pb	OL	42	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	OL	N.D.	
		Br(PBBs&PBDEs)	BL	/	
3	Electronic components	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	BL	/	
		Br(PBBs&PBDEs)	BL	/	
4	Electronic components	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	BL	/	
		Br(PBBs&PBDEs)	BL	/	
5	Electronic components	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	BL	/	
		Br(PBBs&PBDEs)	BL	/	
6	Electronic components	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	BL	/	
		Br(PBBs&PBDEs)	OL	N.D.	

Verification Report

Sample No.	Sample Description	Tested Items	XRF Screening Test	Chemical Test (mg/kg)	Conclusion
7	Electronic components	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	BL	/	
		Br(PBBs&PBDEs)	BL	/	
8	Electronic components	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	BL	/	
		Br(PBBs&PBDEs)	OL	N.D.	
9	Electronic components	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	OL	N.D.	
		Br(PBBs&PBDEs)	BL	/	
10	Electronic components	Pb	OL	$^{\#}4.52\times10^{4}$	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	OL	N.D.	
		Br(PBBs&PBDEs)	BL	/	
11	Electronic components	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	OL	N.D.	
		Br(PBBs&PBDEs)	BL	/	
12	Electronic components	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	OL	N.D.	
		Br(PBBs&PBDEs)	BL	/	

Verification Report

Sample No.	Sample Description	Tested Items	XRF Screening Test	Chemical Test (mg/kg)	Conclusion
13	Electronic components	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	BL	/	
		Br(PBBs&PBDEs)	BL	/	
14	Electronic components	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	BL	/	
		Br(PBBs&PBDEs)	BL	/	
15	Silvery metal	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	BL	/	
		Br(PBBs&PBDEs)	BL	/	
16	PCB	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	BL	/	
		Br(PBBs&PBDEs)	OL	N.D.	
17	Silvery metal	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	OL	Negative	
		Br(PBBs&PBDEs)	BL	/	
18	Electronic components	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	BL	/	
		Br(PBBs&PBDEs)	BL	/	
19	White label with black, red ink	Pb	BL	/	Pass
		Cd	BL	/	
		Hg	BL	/	
		Cr（Cr(VI)）	BL	/	
		Br(PBBs&PBDEs)	BL	/	

Verification Report

Note: -MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million
-BL = Under the XRF screening limit
-OL = Further chemical test will be conducted while the result is above the screening limit.
-Negative=Absence of Cr (VI). The Cr (VI) concentration detected in the boiling water extraction solution is less than 0.02 mg/kg with 50cm^2 sample surface area used.
-X= The symbol "X" marks the region where further investigation is necessary.

Remark: **1.The screening results are only used for reference.**
2.When conducting the test for PBBs&PBDEs, XRF was introduced to screen Br Exclusively; When conducting the test for Hexavalent Chromium, XRF was introduced to screen Chromium exclusively.
3. According to directive 2011/65/EUand 2011/534/EU:
 # Lead in glass of cathode ray tubes
The test result(s) of this report of sample No.20 is presented in reference to the result(s) that reported in RHS05F018202001.
This testing report displaces the original report of No. RHS05F017014003, and the original one No. RHS05F017014003 was invalid since the date of this testing report released. The end sign of report number R1 represents the revised version.

Verification Report

Test Method

A.Screening test by XRF spectroscopy:

XRF screening limits in mg/kg for regulated elements according to IEC 62321:2008 Ed.1 Sec.6&Annex D

Element	Limit of IEC 62321:2008 Ed.1 Sec.6&Annex D (unit:mg/kg)		MDL	
	Polymers and metals	Composite material	Polymers	Other material
Pb	BL≤700-3σ <X <1300 +3σ≤ OL	BL≤500 -3σ<X <1500 +3σ≤ OL	10 mg/kg	50 mg/kg
Cd	BL≤70 -3σ<X <130 +3σ≤ OL	LOD≤50 -3σ<X <150 +3σ≤ OL	10 mg/kg	50 mg/kg
Hg	BL≤700 -3σ<X <1300 +3σ≤ OL	BL≤500 -3σ<X <1500+3σ≤ OL	10 mg/kg	50 mg/kg
Cr	BL≤700 -3σ<OL	BL≤500 -3σ<OL	10 mg/kg	50 mg/kg
Br	BL≤300 -3σ<OL	BL≤250 -3σ<OL	10 mg/kg	50 mg/kg

Note: -BL = Under the XRF screening limit

-OL = Further chemical test will be conducted while result is above the screening limit.

-X= The symbol "X" marks the region where further investigation is necessary.

-3σ = The reproducibility of analytical instruments

-LOD= Detection limit

B.Chemical Test

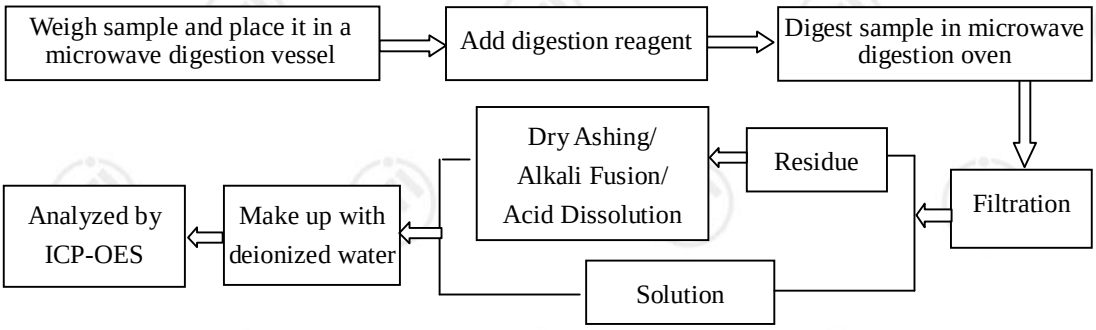
Tested Item(s)	Test Method	Measured Equipment(s)	MDL
Lead (Pb)	IEC 62321:2008 Ed.1	ICP-OES	2 mg/kg
		ICP-OES	2 mg/kg
Cadmium (Cd)	IEC 62321:2008 Ed.1	ICP-OES	2 mg/kg
		ICP-OES	2 mg/kg
Mercury (Hg)	IEC 62321:2008 Ed.1	ICP-OES	2 mg/kg
		ICP-OES	2 mg/kg
Hexavalent Chromium Cr(Ⅵ)	IEC 62321:2008 Ed.1	UV-Vis	/
		UV-Vis	2 mg/kg
Polybrominated Biphenyls (PBBs)	IEC 62321:2008 Ed.1	GC-MS	5 mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321:2008 Ed.1	GC-MS	5 mg/kg

Verification Report

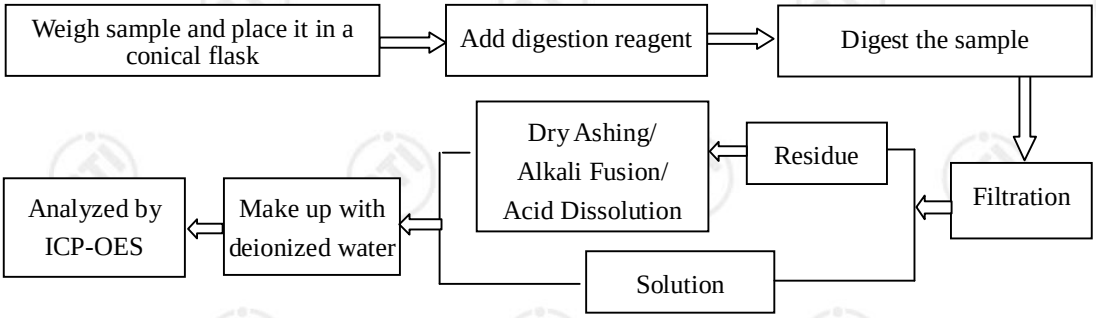
Test Process

1).Test for Pb/Cd Content

Non-metal samples

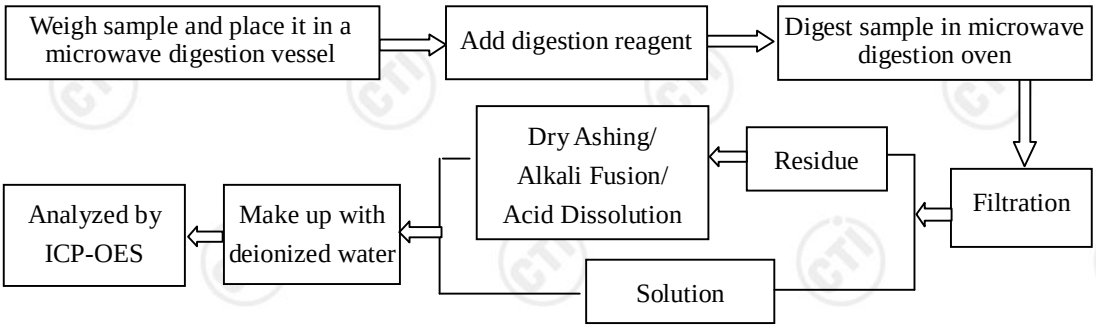


Metal samples



2).Test for Hg Content

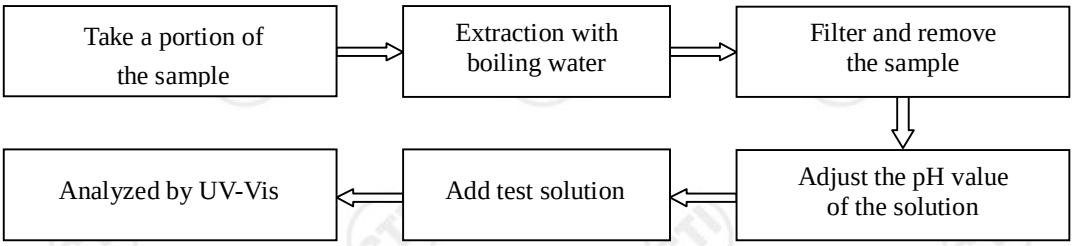
Non-plating samples



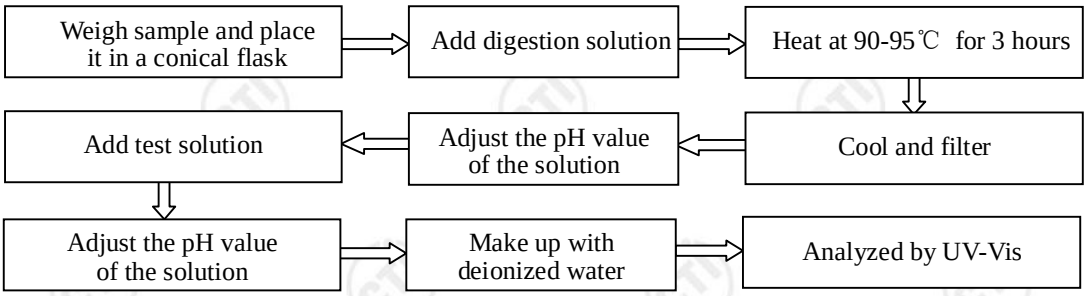
Verification Report

3).Test for Chromium(Ⅵ) Content

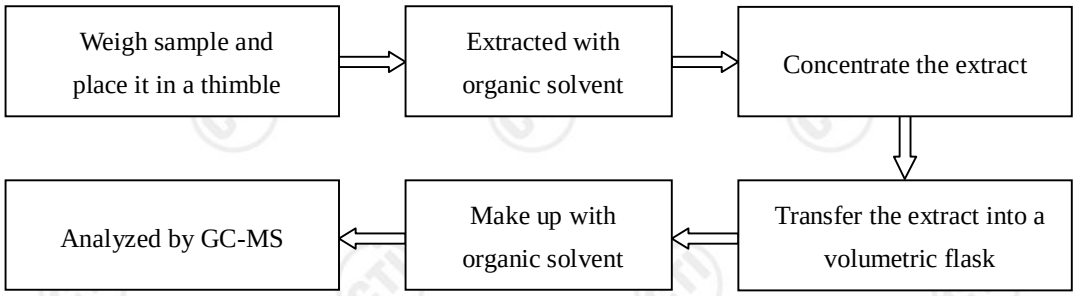
Plating /Metal samples



Non-metal samples

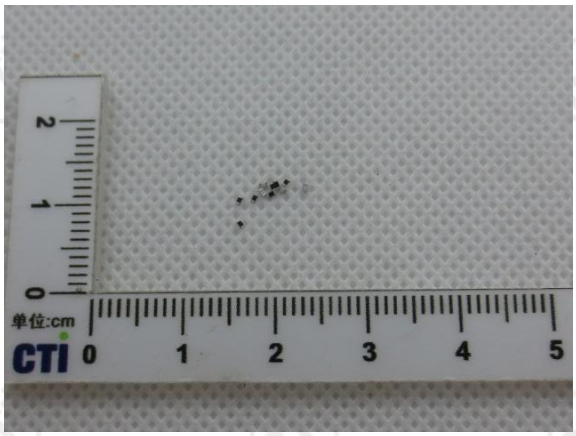


4).Test for PBBs/PBDEs Content

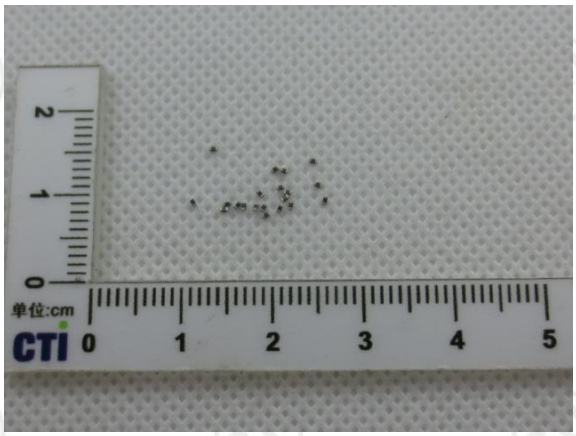


Verification Report

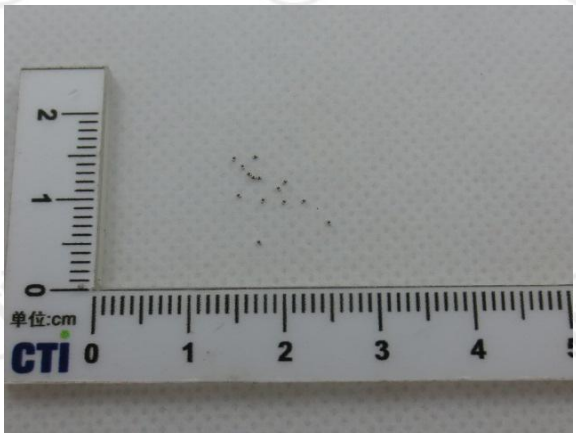
Photo(s) of the tested component(s)



1

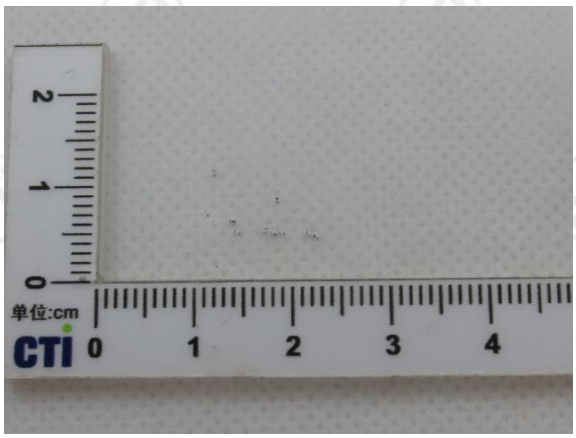


2

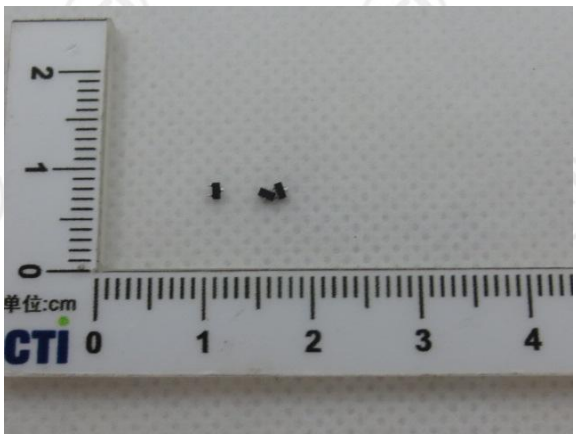


3

4

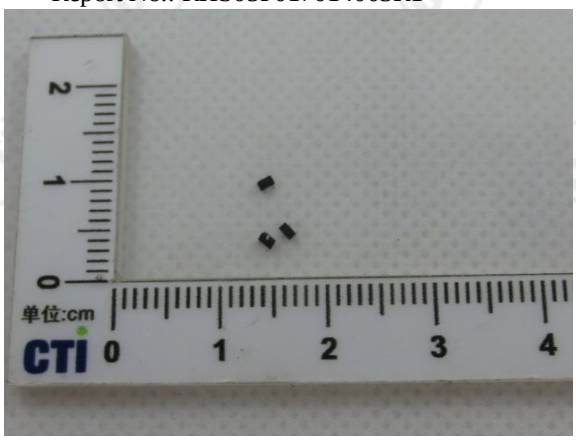


5

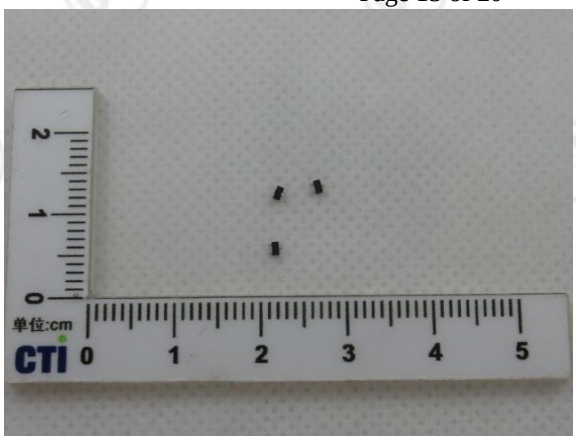


6

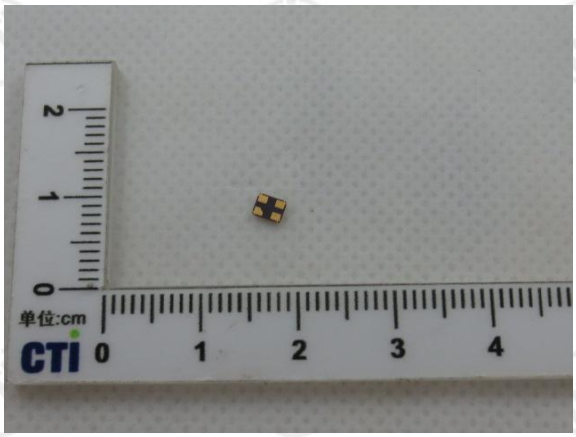
Verification Report



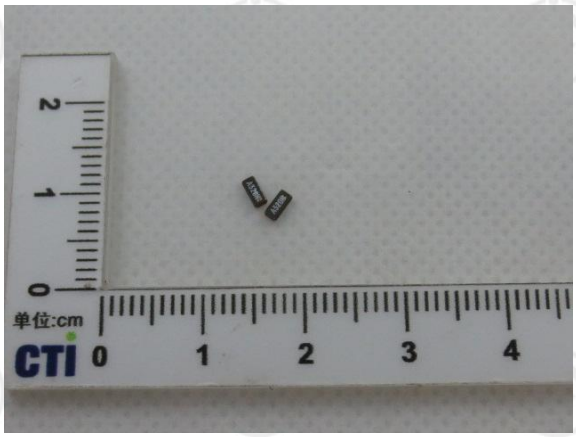
7



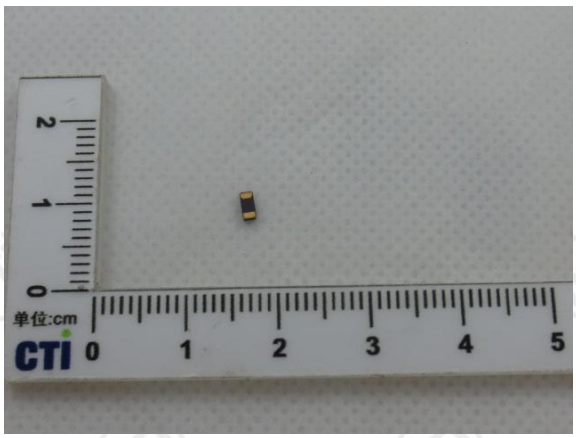
8



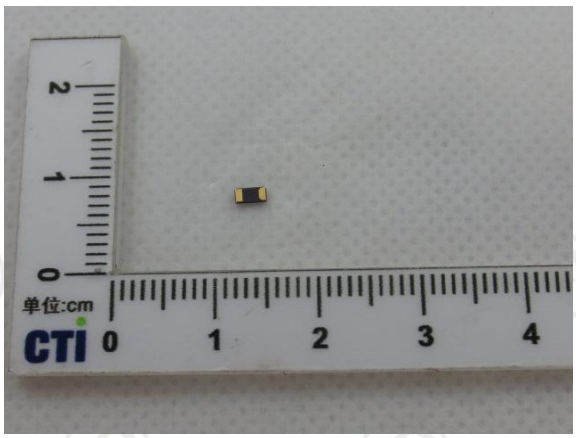
9



10

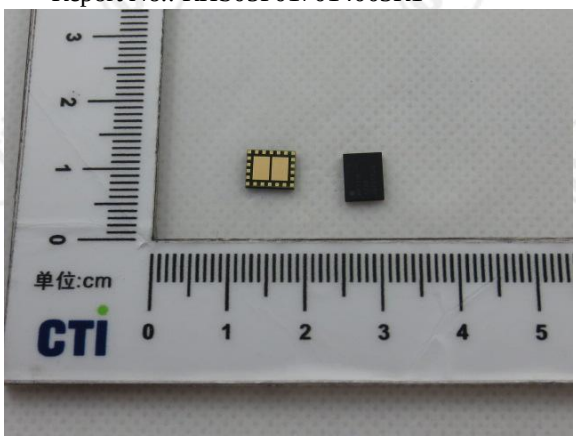


11

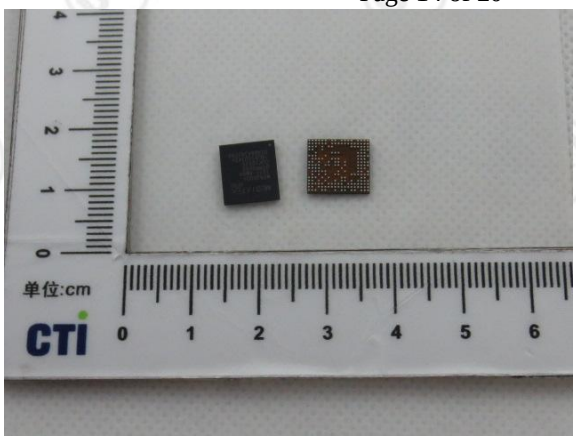


12

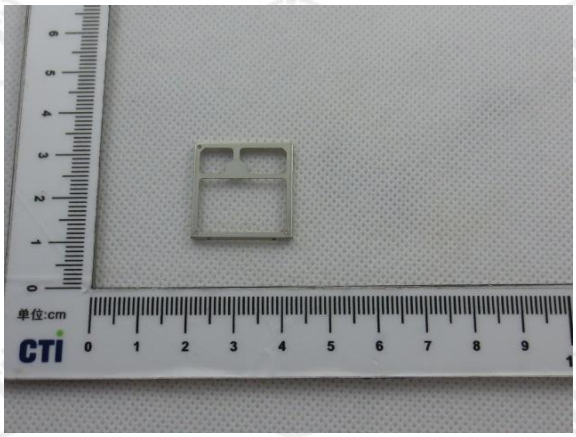
Verification Report



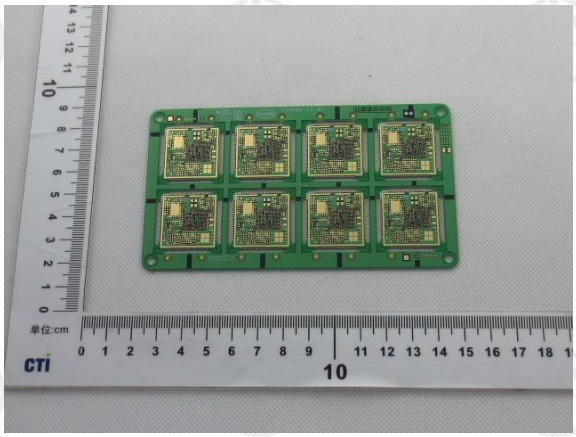
13



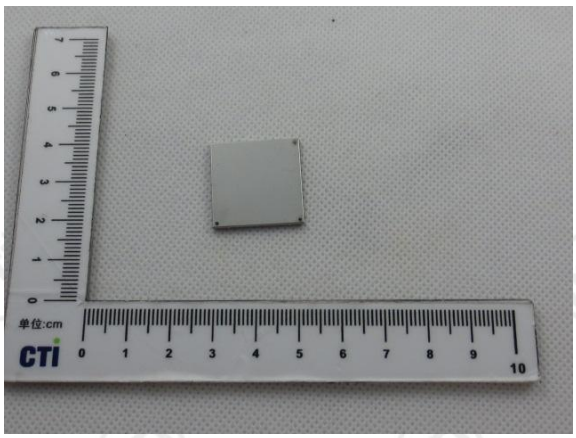
14



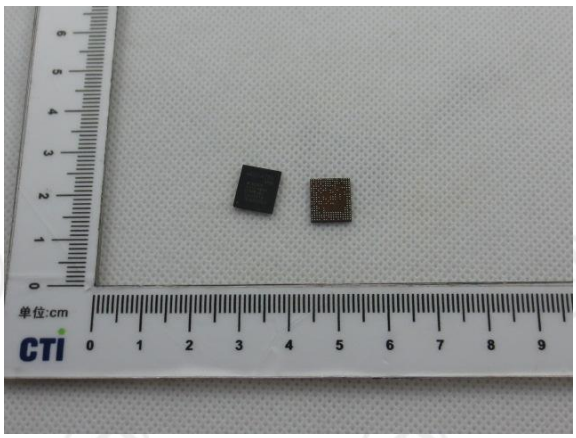
15



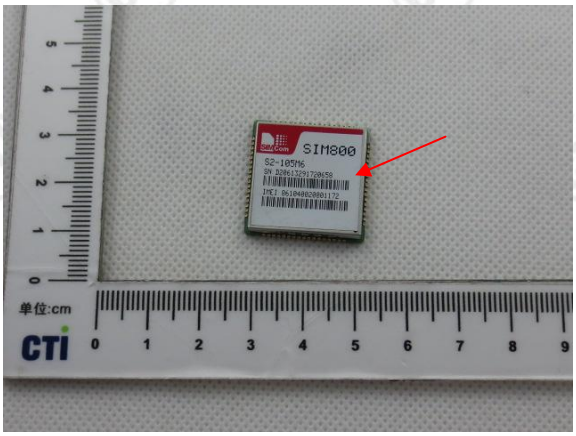
16



17



18



19

Exempted Items of RoHS Directive

According to directive 2011/65/EU and 2011/534/EU, there are 40 exemption items altogether.

	Exemption	Scope and dates of applicability
1	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	
1(a)	For general lighting purposes < 30 W: 5 mg	Expires on 31 December 2011; 3,5 mg may be used per burner after 31 December 2011 until 31 December 2012; 2,5 mg shall be used per burner after 31 December 2012
1(b)	For general lighting purposes ≥ 30 W and < 50 W: 5 mg	Expires on 31 December 2011; 3,5 mg may be used per burner after 31 December 2011
1(c)	For general lighting purposes ≥ 50 W and < 150 W: 5 mg	
1(d)	For general lighting purposes ≥ 150 W: 15 mg	
1(e)	For general lighting purposes with circular or square structural shape and tube diameter ≤17 mm	No limitation of use until 31 December 2011; 7 mg may be used per burner after 31 December 2011
1(f)	For special purposes: 5 mg	
2(a)	Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):	
2(a)(1)	Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2): 5 mg	Expires on 31 December 2011; 4 mg may be used per lamp after 31 December 2011
2(a)(2)	Tri-band phosphor with normal lifetime and a tube diameter ≥ 9 mm and ≤ 17 mm (e.g. T5): 5 mg	Expires on 31 December 2011; 3 mg may be used per lamp after 31 December 2011
2(a)(3)	Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and ≤ 28 mm (e.g. T8): 5 mg	Expires on 31 December 2011; 3,5 mg may be used per lamp after 31 December 2011
2(a)(4)	Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12): 5 mg	Expires on 31 December 2012; 3,5 mg may be used per lamp after 31 December 2012
2(a)(5)	Tri-band phosphor with long lifetime (≥ 25 000 h): 8 mg	Expires on 31 December 2011; 5 mg may be used per lamp after 31 December 2011
2(b)	Mercury in other fluorescent lamps not exceeding (per lamp):	
2(b)(1)	Linear halophosphate lamps with tube > 28 mm (e.g. T10 and T12): 10 mg	Expires on 13 April 2012
2(b)(2)	Non-linear halophosphate lamps (all diameters): 15 mg	Expires on 13 April 2016
2(b)(3)	Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9)	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011
2(b)(4)	Lamps for other general lighting and special	No limitation of use until 31

	purposes (e.g. induction lamps)	December 2011; 15 mg may be used per lamp after 31 December 2011
3	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp):	
3(a)	Short length (≤500 mm)	No limitation of use until 31 December 2011; 3,5 mg may be used per lamp after 31 December 2011
3(b)	Medium length (> 500 mm and ≤ 1 500 mm)	No limitation of use until 31 December 2011; 5 mg may be used per lamp after 31 December 2011
3(c)	Long length (> 1500 mm)	No limitation of use until 31 December 2011; 13 mg may be used per lamp after 31 December 2011
4(a)	Mercury in other low pressure discharge lamps (per lamp)	No limitation of use until 31 December 2011; 15 mg may be used per lamp after 31 December 2011
4(b)	Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra > 60:	
4(b)-I	P ≤ 155 W	No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011
4(b)-II	155 W < P≤405 W	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011
4(b)-III	P > 405 W	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011
4(c)	Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):	
4(c)-I	P ≤ 155 W	No limitation of use until 31 December 2011; 25 mg may be used per burner after 31 December 2011
4(c)-II	155 W < P ≤ 405 W	No limitation of use until 31 December 2011; 30 mg may be used per burner after 31 December 2011
4(c)-III	P > 405 W	No limitation of use until 31 December 2011; 40 mg may be used per burner after 31 December 2011
4(d)	Mercury in High Pressure Mercury (vapour) lamps (HPMV)	Expires on 13 April 2015
4(e)	Mercury in metal halide lamps (MH)	
4(f)	Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex	
5(a)	Lead in glass of cathode ray tubes	
5(b)	Lead in glass of fluorescent tubes not	

	exceeding 0,2 % by weight	
6(a)	Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0,35 % lead by weight	
6(b)	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight	
6(c)	Copper alloy containing up to 4% lead by weight	
7(a)	Lead in high melting temperature type solders (i.e. lead- based alloys containing 85 % by weight or more lead)	
7(b)	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications	
7(c)-I	Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound	
7(c)-II	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	
7(c)-III	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC	Expires on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013
7(c)-IV	Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors	
8(a)	Cadmium and its compounds in one shot pellet type thermal cut-offs	Expires on 1 January 2012 and after that date may be used in spare parts for EEE placed on the market before 1 January 2012
8(b)	Cadmium and its compounds in electrical contacts	
9	Hexavalent chromium as an anticorrosion agent of the carbon steel cooling system in absorption refrigerators up to 0,75 % by weight in the cooling solution	
9(b)	Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications	
11(a)	Lead used in C-press compliant pin connector systems	May be used in spare parts for EEE placed on the market before 24 September 2010
11(b)	Lead used in other than C-press compliant pin connector systems	Expires on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before

Verification Report

		1 January 2013
12	Lead as a coating material for the thermal conduction module C-ring	May be used in spare parts for EEE placed on the market before 24 September 2010
13(a)	Lead in white glasses used for optical applications	
13(b)	Cadmium and lead in filter glasses and glasses used for reflectance standards	
14	Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80 % and less than 85 % by weight	Expires on 1 January 2011 and after that date may be used in spare parts for EEE placed on the market before 1 January 2011
15	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages	
16	Lead in linear incandescent lamps with silicate coated tubes	Expires on 1 September 2013
17	Lead halide as radiant agent in high intensity discharge (HID) lamps used for professional reprography applications	
18(a)	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as speciality lamps for diazoprinting reprography, lithography, insect traps, photochemical and curing processes containing phosphors such as SMS ($(Sr,Ba)_2MgSi_2O_7$:Pb)	Expires on 1 January 2011
18(b)	Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP ($BaSi_2O_5$:Pb)	
19	Lead with PbBiSn-Hg and PbInSn-Hg in specific compositions as main amalgam and with PbSn-Hg as auxiliary amalgam in very compact energy saving lamps (ESL)	Expires on 1 June 2011
20	Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCDs)	Expires on 1 June 2011
21	Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	
23	Lead in finishes of fine pitch components other than connectors with a pitch of 0, 65 mm and less	May be used in spare parts for EEE placed on the market before 24 September 2010
24	Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors	
25	Lead oxide in surface conduction electron	

	emitter displays (SED) used in structural elements, notably in the seal frit and frit ring	
26	Lead oxide in the glass envelope of black light blue lamps	Expires on 1 June 2011
27	Lead alloys as solder for transducers used in high-powered (designated to operate for several hours at acoustic power levels of 125 dB SPL and above) loudspeakers	Expired on 24 September 2010
29	Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC(1)	
30	Cadmium alloys as electrical/mechanical solder joints to electrical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more.	
31	Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting)	
32	Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes	
33	Lead in solders for the soldering of thin copper wires of 100 μm diameter and less in power transformers	
34	Lead in cermet-based trimmer potentiometer elements	
36	Mercury used as a cathode sputtering inhibitor in DC plasma displays with a content up to 30 mg per display	Expired on 1 July 2010
37	Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body	
38	Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide	
39	Cadmium in colour converting II-VI LEDs (< 10 μg Cd per mm 2 of light-emitting area) for use in solid state illumination or display systems	Expires on 1 July 2014
40	Cadmium in photoresistors for analogue optocouplers applied in professional audio equipment	Expires on 31 December 2013

*** End of Report ***