



# Initial Sample Release

TITLE NO: RDD042

<b>Part Name</b>	HDMI Receptacle with wing vertical SMT type	<b>Document No</b>	ISR071008
<b>FREEPORT Part No./Rev</b>	51V019S-33WN-B-FEC	<b>Customer Part No.</b>	
<b>Reason for Initial Sample:</b>			
<input checked="" type="checkbox"/> Initial Submission <input type="checkbox"/> Engineer Change(s) <input type="checkbox"/> Change in Optional Construction or Material <input type="checkbox"/> Process Change <input type="checkbox"/> Additional, Replacement, or Refurbished Tooling <input type="checkbox"/> Change Subcontractor Source <input type="checkbox"/> Tooling tranfer <input type="checkbox"/> Correction of Discrepancy(Resubmission No. _____) <input type="checkbox"/> Parts Produced of Addition Location <input type="checkbox"/> Other, please Specify _____			
<b>Manufacturing Information:</b>			
<b>Name</b>	FREEPORT	<b>Vendor code</b>	
<b>Address</b>	Wusha the 6th Industrial Zone, Wu Sha Village, Chang-An Town, Dongguan City, Guangdong Province, China 523806		
<b>Customer Information:</b>			
<b>Name</b>		<b>Buyer</b>	
<b>Address</b>		<b>Customer code</b>	
<b>Sample Acceptance Level</b>	LEVEL 2	<b>Application</b>	
<b>Results:</b>			
The results for 1. dimensional measurements <input checked="" type="checkbox"/> 2. Material report <input checked="" type="checkbox"/> 3. E.S tests <input type="checkbox"/> Meet all drawing and specification requirement <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (see comment below)			
<b>Submission Checklist:</b>			
<input type="checkbox"/> Checked Print <input checked="" type="checkbox"/> Auxiliary Drawing/Sketches <input checked="" type="checkbox"/> Correct Number of Samples <input checked="" type="checkbox"/> Dimensional Results <input type="checkbox"/> Control plan <input checked="" type="checkbox"/> Process Capability Results <input type="checkbox"/> Process Flow Design <input checked="" type="checkbox"/> Gauge(Measurement) Studies <input checked="" type="checkbox"/> Material test Results <input checked="" type="checkbox"/> Certifications <input type="checkbox"/> (E.S) test Results <input checked="" type="checkbox"/> Product Engineering Approval			
<b>Comments:</b>			
This samples meet all drawing and specification requirement.			
<b>Declaration:</b>			
We Confirm that the samples represented by this Initial Sample Release are representative of our part and have been made to the applicable customer drawing and specification from specified material.			
<b>Supplier Authorized Signature:</b> _____		<b>Date:</b> 2007.10.31	
<b>Print Name :</b> Peterhu		<b>Title:</b> Engineer manager <b>Phone No.:</b> 86-769-5428686-2004	
<b>For Customer Only</b>			
<input type="checkbox"/> Approval <input type="checkbox"/> Reject			
<b>Part Disposition</b>		<b>Customer</b>	
<b>Customer Name:</b> _____		<b>Signature:</b> _____ <b>Date:</b> _____	



# APPROVAL SHEET

**CUSTOMER :** F E C

**PART NAME :** HDMI Receptacle With Wing SMT Type

**PART NO. :** 51V019S-33WN - B - FEC

**CUSTOMER P/N :** 1428264

MANUFACTURER SIGNATURE			CUSTOMER SIGNATURE
SALES REP.	R & D DEPT.	QA DEPT.	
John	Peterhu	Peterhu	
DATE : 10/ 31/ 07	DATE : 10/ 31/ 07	DATE : 10/ 31/ 07	DATE : / /

***FREEPORT***

Wusha the 6<sup>th</sup> Industrial Zone, Wu Sha Village, Chang-An Town,  
Dongguan City, Guangdong Province, China 523806  
Tel: 86-769-5428686 Fax: 86-769-5428700



## CONTENTS

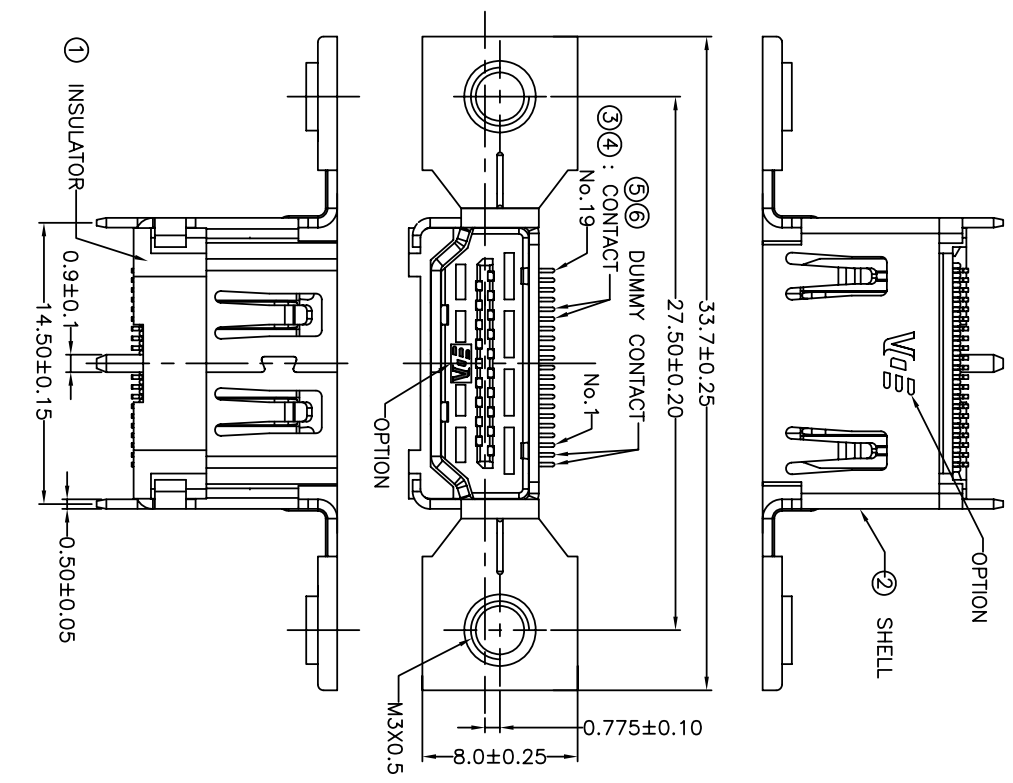
1、 Assembly Drawing .....	1
2、 Production Specification .....	3
3、 Sample Inspection Record	
Important Dimension Inspection (CPK) .....	7
Dimension Inspection .....	8
Insulation and Dielectric Withstanding Voltage Inspection .....	9
4、 Material Certification	
Thermoplastic Certification.....	17
Copper Alloy Certification .....	20
SGS Test Report .....	22
5、 ISO Certification .....	27

REV	ZONE	LTR	DESCRIPTION	DATE	REVISER	APPD

### ORDERING INFORMATION

51 V 019 S - 3 3 W N - B - FEC  
 (1) (2) (3) (4) (5) (6) (7) (8) (9) (10)  
 1. SERIES NO.

- 51: HDMI CONNECTOR
- 2. TAIL CONSTRUCTION TYPE  
V: VERTICAL SMT TYPE
- 3. NUMBER OF PIN  
019: 19 POSITIONS(CONTACT PART:19PINS  
SOLDER TAIL:21PINS)
- 4. CONTACT & CONNECTIONG TYPES:  
S: SOCKET
- 5. : COLOR CODES  
3: BLACK
- 6. CONTACT PLATING:  
0: GOLD FLASH OVER NICKEL  
2: 15u" GOLD OVER NICKEL  
3: 30u" GOLD OVER NICKEL  
6: G/F ALL PLATED THE CONNECT EARA PLATED  
30U" GOLD OVER NICKEL
- 7. SHELL CONSTRUCTION  
W: WITH WING  
SOLDER TAIL IS THRU HOLE TYPE
- 8. SHELL PLATING  
T: TIN PLATED(LEAD FREE)  
N: SOLDERABLE NICKEL PLATED  
L: GOLD FLASH PLATED
- 9. SUFFIX NO.1  
A: HOUSING WITH FREEPORT LOGO  
B: HOUSING WITHOUT FREEPORT LOGO  
C: COPPER SHELL AND HOUSING WITH FREEPORT LOGO
- 10. SUFFIX NO.2  
FEC: FOR FEC



LEAD FREE

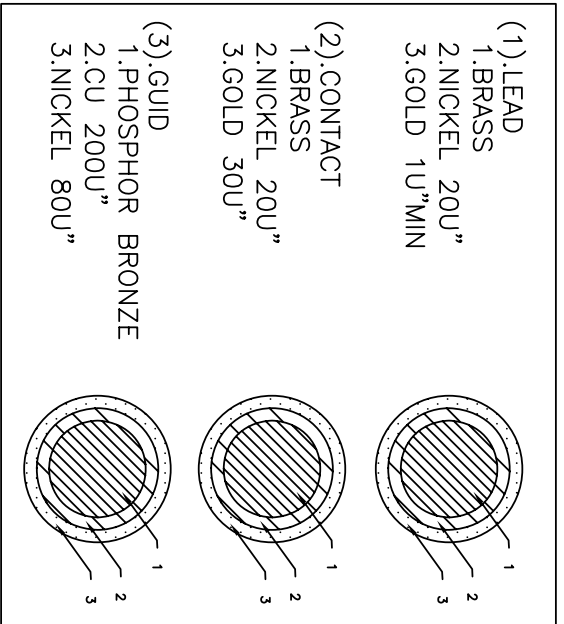
51V019S-3\*W\*-\*-FEC PART NO.

MATERIAL	TOLERANCE UNSPECIFIED	SCALE	UNIT
	±	1:1	mm
	±0.10		
	±0.15		
	±		
	± 1°		

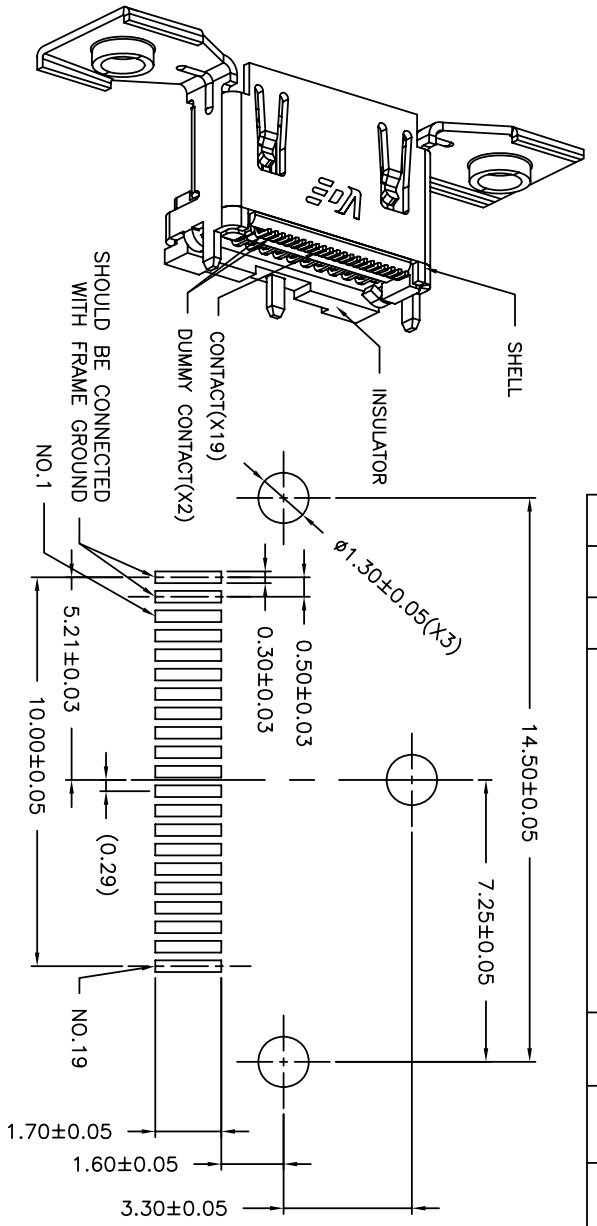
FINISH	ANGLE	NAME	SHEET
		HDMI RECEPTACLE WITH WING	1/2
		VERTICAL SMT TYPE	
		DRAWING NO. R-S251V-20	REV 0.1

1 2 3 4 5 6 7 8

REV	ZONE	LTR	DESCRIPTION	DATE	REVISER	APPD



PLATING SECTION



RECOMMENDED P.C.B. LAYOUT(T=1.6mm)

- REMARKS:
- MATERIAL:
    - INSULATOR: THERMOPLASTIC UL 94V-0 RATED
    - CONTACT: COPPER ALLOY
    - SHELL: COPPER ALLOY
  - PLATING:
    - CONTACT: GOLD PLATED OVER NICKEL ON CONTACT AREA AND 100u" MIN. TIN PLATED OVER NICKEL ON SOLDER TAILS
    - SHELL: SOLDERABLE NICKEL PLATED OVER NICKEL
    - THIS PART SHOULD CONTAIN ANY SUBSTANCES WHICH ARE SPECIFIED IN KOA-2V03

LEAD FREE

QTY'S	SPECIFICATION	SUPPLIER	PART	ITEM
1	COPPER ALLOY,T=0.25mm	TONGXIANG	SHORT DUMMY	6
1	COPPER ALLOY,T=0.25mm	TONGXIANG	LONG DUMMY	5
10	COPPER ALLOY,T=0.25mm	TONGXIANG	SHORT CONTACT	4
9	COPPER ALLOY,T=0.25mm	TONGXIANG	LONG CONTACT	3
1	COPPER ALLOY,T=0.50mm	TONGXIANG	SHELL	2
1	THERMOPLASTIC	KINGFA	INSULATOR	1

MATERIAL	TOLERANCE UNSPECIFIED	SCALE	UNIT
	± 0.10	1:1	mm
	± 0.15		
	± 1°		

FINISH	ANGLE	DESIGNER	NAME
	± 1°	Anthony	Anthony
		Lihaidong	HDMI RECEPTACLE WITH WING
		Peterhu	VERTICAL SMT TYPE

APPROVED	DRAWING NO.	REV
Peterhu	R-S251V-20	0.1

A4 RS251V202

## **PRODUCT SPECIFICATION**

1. Scope

1.1 Content

This specification is designated the Performance, Tests and quality requirements for High-Definition Multimedia Interface(HDMI) Connector.

1.2 Design and Construction

Product shall be conformed the Design, Construction and Physical dimensions shown as product drawing.

2. Material

2.1 Connector

Contact : Copper alloy , Selective gold plated on contact area  
and Tin plated on solder tail , Nickel underplate.

Housing : High Temperature Thermoplastic, UL94V-0 rated.

Shell : Copper alloy, Tin plated over Nickel.

3. Current Rating : 0.5A per contact minimum

Voltage Rating : 40V AC(RMS)

Operating temperature : -25°C ~ +85°C

 <span style="font-weight: bold; color: red; font-size: 1.2em; vertical-align: middle;">FREEPORT</span>															
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center;">REV.</td> <td style="width: 33%; text-align: center;">ECN. NO.</td> <td style="width: 33%; text-align: center;">APPO.</td> </tr> <tr> <td style="height: 20px;"> </td> <td> </td> <td> </td> </tr> </table>	REV.	ECN. NO.	APPO.				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">TITLE : HDMI Receptacle</td> <td style="width: 40%;">APPO. : Peterhu 03/23/04</td> </tr> <tr> <td>PART NO. : 51***S-****.*</td> <td>CHKD. : Peterhu 03/23/04</td> </tr> <tr> <td>DOC NO. : PSF-51S002</td> <td>DR : <i>Winder Wang</i> 03/23/04</td> </tr> <tr> <td> </td> <td>REV. : 1 SHEET : 1/4</td> </tr> </table>	TITLE : HDMI Receptacle	APPO. : Peterhu 03/23/04	PART NO. : 51***S-****.*	CHKD. : Peterhu 03/23/04	DOC NO. : PSF-51S002	DR : <i>Winder Wang</i> 03/23/04		REV. : 1 SHEET : 1/4
REV.	ECN. NO.	APPO.													
TITLE : HDMI Receptacle	APPO. : Peterhu 03/23/04														
PART NO. : 51***S-****.*	CHKD. : Peterhu 03/23/04														
DOC NO. : PSF-51S002	DR : <i>Winder Wang</i> 03/23/04														
	REV. : 1 SHEET : 1/4														

4. Test description

ITEM	TEST DESCRIPTION	REQUIREMENT	PROCEDURE
1	Visual Inspection Refer to 1. RS-364-18	The inspection results should be compliant with the individual specification.	Before the qualification test, all these components shall be examined the Features, Construction as per applicable specification and documents.
2	Low Level Contact Resistance (Contact): Refer to: 1. RS-364-23	Contact: 30 mΩ maximum	Mate connectors: Measure by dry circuit, 20mV maximum, 10mA.
	Contact Resistance(shell) Refer to: 1.RS-364-06A-83	Shell: 50 mΩ maximum	Shell: Measure by open circuit, 5V maximum, 100mA
3	Insulation Resistance Refer to: 1. RS-364-21 2. MIL-STD-202F 3. MIL-STD-1344A 3001.1	100 Mohms minimum (unmated)  10Mohms minimum (mated)	Unmated connectors, Apply 500Volts AC (RMS.) between adjacent terminal or ground. Mated connectors, Apply 150Volts DC between adjacent terminal or ground.
4	Dielectric Withstanding Voltage Refer to: 1. RS-364-20 2. MIL-STD-202F 301 3. MIL-STD-1344A 3001.1	no evidence of Flashover or break-down.	Unmated: Unmated connector, apply 500Volts AC(RMS.) between adjacent terminal or ground.  Mated: mated connector, apply 300Volts AC(RMS.) between adjacent terminal or ground.
5	Solderability Refer to: MIL-STD-202F-208F	The tail of contact is covered by continuous new solder. and the area of "Voids Solder" cannot exceed 5% of total area.	Immersed the contact of connector into the molten-Tin oven as below condition, -Temp of Tin Oven: 245°C -Speed: 25.4mm/sec -Time: 5 seconds
6	Durability Refer to : 1.RS – 364 – 09 2.MIL – STD – 1344A 2016	Contact resistance change from initial requirement: Contact: 30 milliohm maximum. Shell: 50 milliohm maximum.	The mated specimen are tested 10,000 cycles between mating and unmating at a rate of 100±50 cycles per hour.



**FREEPORT**

TITLE: HDMI Receptacle	APPO. : Peterhu 02/23/04
PART NO. : 51***S-****-*	CHKD. : Peterhu 02/23/04
DOC NO. : PSF-51S002	DR. : <i>Winder Wang</i> 02/23/04
REV. : 1	SHEET : 2/4

REV.	ECN. NO.	APPO.
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ITEM	TEST DESCRIPTION	REQUIREMENT	PROCEDURE
7	Humidity Refer to: 1.RS – 364 – 31 2.MIL – STD – 202F 103B 3.MIL – STD – 1344A 1002.2	Appearance: No Damage  Contact Resistance change from initial requirement: Contact: 30 milliohm maximum. Shell: 50 milliohm maximum	A : Mate connectors together and repeat the test specified in illustration I up to 4 cycles. Upon completion of the test, specimens shall be conditioned at ambient room conditions for 24 hours, after which the specified measurements shall be preformed. Temperature: +25°C ~+85°C Relative Humidity: 80%~95% Duration: 4 cycles(96hours)
		Appearance: No Damage Contact resistance change from initial requirement: Contact: 30 milliohm maximum. Shell: 50 milliohm maximum Insulation Resistance: Must meet Item 3	B : Unmate each connectors and repeat the test specified in illustration I up to 4 cycles. Upon completion of the test, specimens shall be conditioned at ambient room conditions for 24 hours, after which the specified measurements shall be preformed. Temperature: +25°C ~+85°C Relative Humidity: 80%~95% Duration: 4 cycles(96hours)
8	Insertion Force & Withdrawal Force Refer to: 1.RS-364-37 2.MIL-STD-1344A-2013.1	Insertion force is 4.5kgf maximum. Withdrawal force is 1.0~4.0kgf after 2,000 cycles and 0.5~4.0kgf after 2001~10000 cycles	The specimen are mounted to mounting fixtures by the normal mounting menas. The peak force shall be recorded at the maximum rate of 25±3mm per minute
9	Salt Spray Refer to: 1.RS – 364 – 26 2.MIL – STD – 202F 101D 3.MIL – STD – 1344A 1001.1	After the Salt Spray test , The connectors shall meet the requirements of contact resistance and insulation resistance , etc.	The connector specimen are testing with the 5% Salt Water (NaCl) , 6.5 – 7.2 PH , for 48 hours of Salt Spray test.
10	Temperature Life Refer to: 1. RS-364-17	Appearance: No Damage Contact resistance change from initial requirement: Contact: 30 milliohm max. Shell: 50 milliohm max.	Mate connectors and expose to 105±2°C for 240 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed.



**FREEPORT**

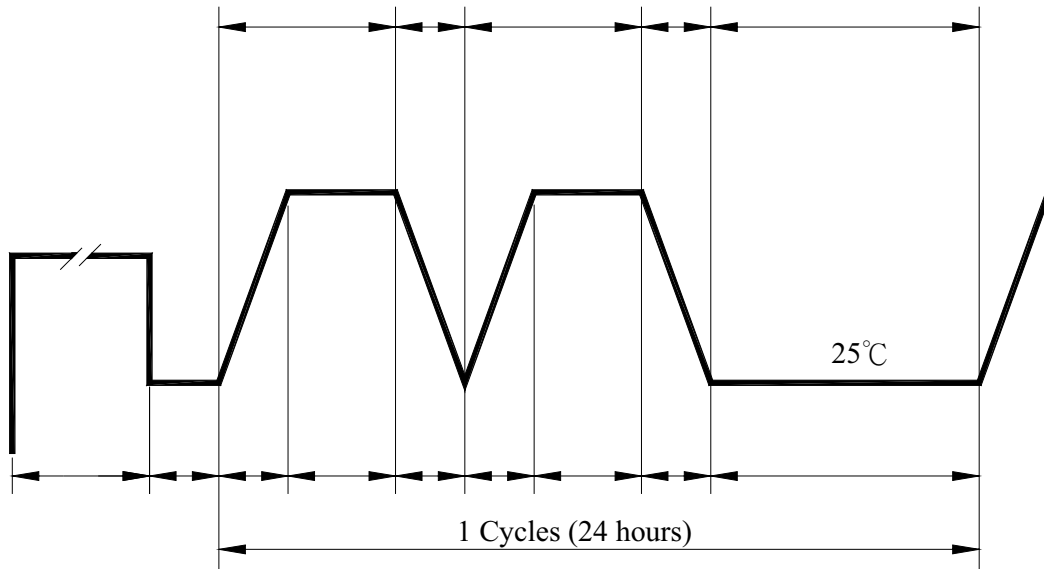
TITLE: HDMI Receptacle	APPO. : Peterhu 02/23/04
PART NO. : 51***S-***.*	CHKD. : Peterhu 02/23/04
DOC NO. : PSF-51S002	DR. : <i>Winder Wang</i> 02/23/04
REV. : 1	SHEET : 3/4

REV.	ECN. NO.	APPO.
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5. Test sequences:

Test of Examination	Test Group				
	A	B	C	D	E
	Test Sequence				
Visual Inspection	1, 7	1,7	1,5	1,5	1,3
Low Level Contact Resistance	2, 6		2,4	2,4	
Insulation Resistance		2,5			
Dielectric Withstanding Voltage		3,6			
Solderability					2
Durability	4				
Humidity		4			
Mating & Unmating Force	3, 5				
Salt Spray			3		
Temperature Life				3	



**ILLUSTRATION I**



**FREEPORT**

TITLE : HDMI Receptacle		APPO. : Peterhu 02/23/04
PART NO. : 51***S-****-*		CHKD. : Peterhu 02/23/04
DOC NO. : PSF-51S002		DR. : <i>Winder Wang</i> 02/23/04
REV. :	ECN. NO. :	APPO. :
		REV. : 1   SHEET : 4/4

REV. :	ECN. NO. :	APPO. :





Report No.	TR05121901/LAB	Tatal Pages	8
報告編號	TR05121901/LAB	總 頁 數	8

# TEST REPORT

## 測 試 報 告

Client : \_\_\_\_\_  
 客 戶 : \_\_\_\_\_  
 Model/Type : HDMI 51V  
 型號/規格 : HDMI 51V成品  
 Category : Reliability Test  
 測試類別 : 信賴度測試  
 Date : 2007-10-04  
 日 期 : 2007年10月04日

東莞長安聯基電業制品厂 QA 部實驗室  
 DongGuan ChangAn FREEMPORT Resources Enterprise Corp QA Laboratory

6<sup>th</sup> Industrial Area, Wu Sha, ChangAn Town,  
 DongGuan City, GuangDong China 523857  
 TEL:86-7695428686 FAX:86-7695428700

中國,廣東省,東莞市.  
 長安鎮烏沙第六工業區 郵編: 523857  
 電話:86-7695428686 傳真:86-7695428700

**Applicant** : R&D Department  
**申請者** : 研發部

**Sample Model/Type** :  
**樣品型號/規格** : 51V019S

**Sample of Receiving Date** :  
**收件日期** : 2007年09月20日

**Testing Period** :  
**測試時間** : 2007年09月20日至2007年09月29日

**Test Requested** : To determination the Reliability of the submitted sample.  
**測試要求** : 對送測試樣品進行信賴度測試。

**Test Method** : As Product Specification,with reference to RS-364&MIL-STD-1344A/202F.  
**測試方法** : 根據產品規格書，參照RS-364及MIL-STD-1344A/202F測試標準。

**Results** : 1.Electrical Test OK  
**測試結果** 電氣性測試 合格

2.Mechanical Test OK  
機械性能測試 合格

a.Mating and Unmating Force test  
插拔力試驗

b.Durability test  
耐久性壽命試驗

3.Environmental Test  
環境測試

a.Temperature Life test OK  
高溫老化試驗 合格

b.Salt Spray test OK  
鹽水噴霧試驗 合格

c.Soldering test OK  
焊接附著性試驗 合格

d.Humidity Test OK  
恆溫恆濕試驗 合格

Please refer to next page  
請參見下頁。

**Conclusion** : When test as specified, the submitted samples comply with the stated requirement of the Product Specification .  
**結論** : 按規定要求完成測試后，送檢樣品符合產品規格書的要求。

核 准: Aben

APPROVED BY :

審 核: Sean

CHECKED BY :

作 成: Baosen

OPERATED BY :

## Test Recording Sheet

### 測試記錄表

<b>Product Name</b> 產品名稱	Connector 連接器	<b>Client</b> 客戶		<b>Sample Group</b> 試樣群組	A																																																																																																							
<b>Model/Type</b> 型號/規格	51V019S	<b>Manufacture</b> 製造商	FREEPORT	<b>Test Date</b> 測試時間	2007/9/21																																																																																																							
<b>Instrument &amp; Calibration due date</b> 測試設備及校正有效期	Auto-Mating&Unmating Force Tester (2007/10/30) Digital Low Resisittance Ohmmeter (2007/10/30)			<b>Test Environment</b> 測試環境	65 %RH 25 °C																																																																																																							
<b>Test Item</b> 測試項目	Mating&Unmating Force Test and Durability Test 插拔力測試及耐久性壽命測試			<b>Sample Q'ty</b> 樣品數量	1																																																																																																							
<b>Requirement</b> 測試要求	1.Low Level Contact Resistance (20mV ≤10mA) Initial: Contact ≤30mΩ Shell ≤50mΩ After Test: Contact△15mΩ max 2. Recorded the peak force at the rate of 25±3mm per minute 3.Mated and unmated 10000 cycles at a rate of 100±50 cycles per hour Initial test : Mating force ≤ 4.5Kgf, Unmating force 1~4Kgf After test: Mating force < 4.0Kgf Unmating force > 0.5Kgf																																																																																																											
<b>Result of measurement</b> 測試結果	1. L.L.C.R. 單位:mΩ <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th>Pin No.</th> <th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th><th>12</th><th>13</th><th>14</th><th>15</th><th>16</th><th>17</th><th>18</th><th>19</th><th>Shell</th><th>Judgement</th> </tr> </thead> <tbody> <tr> <td>R<sub>i</sub></td> <td>24</td><td>23</td><td>24</td><td>24</td><td>23</td><td>24</td><td>24</td><td>24</td><td>23</td><td>23</td><td>24</td><td>25</td><td>25</td><td>24</td><td>27</td><td>26</td><td>25</td><td>25</td><td>26</td><td>7</td><td>OK</td> </tr> <tr> <td>R<sub>f</sub></td> <td>24</td><td>23</td><td>23</td><td>24</td><td>26</td><td>25</td><td>24</td><td>23</td><td>23</td><td>23</td><td>25</td><td>24</td><td>27</td><td>25</td><td>24</td><td>24</td><td>25</td><td>25</td><td>25</td><td>6</td><td>OK</td> </tr> </tbody> </table> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;">           2.Mating&amp;Unmating Force 單位:Kgf           <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th></th> <th colspan="3">Initial</th> <th colspan="3">Final</th> </tr> </thead> <tbody> <tr> <td>Mating Force</td> <td>2.30</td><td>2.40</td><td>2.33</td> <td>1.03</td><td>1.04</td><td>1.03</td> </tr> <tr> <td>Unmating Force</td> <td>1.57</td><td>1.59</td><td>1.60</td> <td>1.12</td><td>1.14</td><td>1.14</td> </tr> <tr> <td>Judgement</td> <td colspan="3">OK</td> <td colspan="3">OK</td> </tr> </tbody> </table> </div> <div style="width: 45%;">           3.Visual Inspection           <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th></th> <th>Initial</th> <th>Final</th> </tr> </thead> <tbody> <tr> <td>Result</td> <td colspan="2">No appearance defects</td> </tr> <tr> <td>Judgement</td> <td colspan="2">OK</td> </tr> </tbody> </table> </div> </div>					Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Shell	Judgement	R <sub>i</sub>	24	23	24	24	23	24	24	24	23	23	24	25	25	24	27	26	25	25	26	7	OK	R <sub>f</sub>	24	23	23	24	26	25	24	23	23	23	25	24	27	25	24	24	25	25	25	6	OK		Initial			Final			Mating Force	2.30	2.40	2.33	1.03	1.04	1.03	Unmating Force	1.57	1.59	1.60	1.12	1.14	1.14	Judgement	OK			OK				Initial	Final	Result	No appearance defects		Judgement	OK	
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Shell	Judgement																																																																																							
R <sub>i</sub>	24	23	24	24	23	24	24	24	23	23	24	25	25	24	27	26	25	25	26	7	OK																																																																																							
R <sub>f</sub>	24	23	23	24	26	25	24	23	23	23	25	24	27	25	24	24	25	25	25	6	OK																																																																																							
	Initial			Final																																																																																																								
Mating Force	2.30	2.40	2.33	1.03	1.04	1.03																																																																																																						
Unmating Force	1.57	1.59	1.60	1.12	1.14	1.14																																																																																																						
Judgement	OK			OK																																																																																																								
	Initial	Final																																																																																																										
Result	No appearance defects																																																																																																											
Judgement	OK																																																																																																											
<b>Note:</b> 備注:																																																																																																												

## Test Recording Sheet

### 測試記錄表

<b>Product Name</b> 產品名稱	Connector 連接器	<b>Client</b> 客戶		<b>Sample Group</b> 試樣群組	B																		
<b>Model/Type</b> 型號/規格	51V019S	<b>Manufacture</b> 製造商	FREEPORT	<b>Test Date</b> 測試時間	2007/09/26																		
<b>Instrument &amp; Calibration due date</b> 測試設備及校正有效期	Withstanding Voltage Tester High Resistance Meter HORAD Humibility Tester	(2007/10/30) (2007/10/30) (2007/12/10)		<b>Test Environment</b> 測試環境	65 %RH 25 °C																		
<b>Test Item</b> 測試項目	Withstanding Voltage Test & Temperature-Humidity Test 耐電壓測試及恒溫恒濕測試			<b>Sample Q'ty</b> 樣品數量	1																		
<b>Requirement</b> 測試要求	1. Tested with the duration of 96 hours in cycling Temperature-Humidity test. 2. Using 500V AC RMS(mated 300V) dielectric withstanding voltage for one minute to test between adjacent contacts. 3. Using 500 VDC(mated 300V) for one minute to test the Insulation Resistance between adjacent contacts, 100 MΩ Min(mated 10MΩ Min).																						
<b>Result of measurement</b> 測試結果	1. Withstanding Voltage & Resistance Test <table border="1" style="margin-left: 40px; border-collapse: collapse; width: 60%;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 35%;">Initial</th> <th style="width: 35%;">Final</th> </tr> </thead> <tbody> <tr> <td>Withstanding Voltage(Unmated)</td> <td>No evidence of flash marks is over or break-down .</td> <td>No evidence of flash marks is over or break-down .</td> </tr> <tr> <td>Withstanding Voltage(Mated)</td> <td>No evidence of flash marks is over or break-down .</td> <td>No evidence of flash marks is over or break-down .</td> </tr> <tr> <td>Resistance(Unmated)</td> <td>100MΩ Min</td> <td>100MΩ Min</td> </tr> <tr> <td>Resistance(Mated)</td> <td>10MΩ Min</td> <td>10MΩ Min</td> </tr> <tr> <td>Judgement</td> <td style="text-align: center;">OK</td> <td style="text-align: center;">OK</td> </tr> </tbody> </table>						Initial	Final	Withstanding Voltage(Unmated)	No evidence of flash marks is over or break-down .	No evidence of flash marks is over or break-down .	Withstanding Voltage(Mated)	No evidence of flash marks is over or break-down .	No evidence of flash marks is over or break-down .	Resistance(Unmated)	100MΩ Min	100MΩ Min	Resistance(Mated)	10MΩ Min	10MΩ Min	Judgement	OK	OK
	Initial	Final																					
Withstanding Voltage(Unmated)	No evidence of flash marks is over or break-down .	No evidence of flash marks is over or break-down .																					
Withstanding Voltage(Mated)	No evidence of flash marks is over or break-down .	No evidence of flash marks is over or break-down .																					
Resistance(Unmated)	100MΩ Min	100MΩ Min																					
Resistance(Mated)	10MΩ Min	10MΩ Min																					
Judgement	OK	OK																					
<b>Note:</b> 備注:																							

## Test Recording Sheet

### 測試記錄表

<b>Product Name</b> 產品名稱	Connector 連接器	<b>Client</b> 客戶		<b>Sample Group</b> 試樣群組	C																																																																		
<b>Model/Type</b> 型號/規格	51V019S	<b>Manufacture</b> 製造商	FREEPORT	<b>Test Date</b> 測試時間	2007/09/26																																																																		
<b>Instrument &amp; Calibration due date</b> 測試設備及校正有效期	Salt Spray Tester (2007/10/30) Digital Low Resistance Ohmmeter (2007/11/30)			<b>Test Environment</b> 測試環境	65 %RH 25 °C																																																																		
<b>Test Item</b> 測試項目	Salt spray test 鹽水噴霧測試			<b>Sample Q'ty</b> 樣品數量	1																																																																		
<b>Requirement</b> 測試要求	1.Low Level Contact Resistance (20mV ≤10mA) Initial: Contact ≤30mΩ Shell ≤50mΩ After Test: Contact△30mΩ max Shell△50mΩ max 2. Salt spray test <ul style="list-style-type: none"> <li>• Salt solution : 5% salt water, PH 6.5~7.2</li> <li>• Corrosion time : 48 hours</li> <li>• Temperature of test chamber : 35±2 °C</li> <li>• Temperature of air supply : 47±2 °C</li> <li>• Compressed air pressure : 1.0 Kg/cm<sup>2</sup></li> <li>• Collected rate : 1~2 ml/80 cm<sup>2</sup>/hour</li> </ul>																																																																						
<b>Result of measurement</b> 測試結果	1. L.L.C.R. 單位:mΩ <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th>Pin No.</th> <th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th><th>12</th><th>13</th><th>14</th><th>15</th><th>16</th><th>17</th><th>18</th><th>19</th><th>Shell</th><th>Judgement</th> </tr> </thead> <tbody> <tr> <td>R<sub>i</sub></td> <td>24</td><td>25</td><td>24</td><td>24</td><td>23</td><td>24</td><td>25</td><td>24</td><td>24</td><td>23</td><td>25</td><td>26</td><td>25</td><td>25</td><td>26</td><td>25</td><td>25</td><td>25</td><td>24</td><td>6</td><td>OK</td> </tr> <tr> <td>R<sub>f</sub></td> <td>24</td><td>24</td><td>23</td><td>23</td><td>23</td><td>24</td><td>23</td><td>23</td><td>24</td><td>24</td><td>28</td><td>25</td><td>26</td><td>25</td><td>27</td><td>24</td><td>26</td><td>26</td><td>27</td><td>6</td><td>OK</td> </tr> </tbody> </table> 2.Visual Inspection Before test, the specimens is compliant with the specification.After test, Inspecting the specimen at 10x magnification,there's no corrosion on the contact, It's OK. 測試前樣品外觀符合規格要求, 鹽霧實驗后, 在10倍放大鏡下觀察,樣品觸點表面無不良, 判定合格。					Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Shell	Judgement	R <sub>i</sub>	24	25	24	24	23	24	25	24	24	23	25	26	25	25	26	25	25	25	24	6	OK	R <sub>f</sub>	24	24	23	23	23	24	23	23	24	24	28	25	26	25	27	24	26	26	27	6	OK
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Shell	Judgement																																																		
R <sub>i</sub>	24	25	24	24	23	24	25	24	24	23	25	26	25	25	26	25	25	25	24	6	OK																																																		
R <sub>f</sub>	24	24	23	23	23	24	23	23	24	24	28	25	26	25	27	24	26	26	27	6	OK																																																		
<b>Note:</b> 備注:																																																																							





FREEPORT

聯基

## Test Recording Sheet

### 測試記錄表

<b>Product Name</b> 產品名稱	Connector 連接器	<b>Client</b> 客戶		<b>Sample Group</b> 試樣群組	D																
<b>Model/Type</b> 型號/規格	51V019S	<b>Manufacture</b> 製造商	FREEPORT	<b>Test Date</b> 測試時間	2007/09/25																
<b>Instrument &amp; Calibration due date</b> 測試設備及校正有效期	SM04 Heat Chamber (2007/11/15) Digital Low Resisistance Ohmmeter (2007/12/10)			<b>Test Environment</b> 測試環境	65 %RH 25 °C																
<b>Test Item</b> 測試項目	Temperature Life test 高溫老化測試			<b>Sample Q'ty</b> 樣品數量	1																
<b>Requirement</b> 測試要求	1.Low Level Contact Resistance (20mV $\leq$ 10mA) Initial: Contact $\leq$ 30m $\Omega$ Shell $\leq$ 50m $\Omega$ After Test: Contact $\Delta$ 15m $\Omega$ max 2.Store the mated specimens to temperature environment at 105°C for 240 hours.																				
<b>Result of measurement</b>																					
測試結果																					
1. L.L.C.R. 單位:m $\Omega$																					
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Shell	Judgement
R <sub>i</sub>	24	23	24	24	23	24	25	24	24	25	24	24	25	24	25	25	26	24	25	7	OK
R <sub>f</sub>	22	24	23	24	22	27	23	25	22	25	24	26	23	25	23	27	21	25	22	6	OK
2. Visual Inspection																					
	Initial			Finial																	
Result	No appearance defects			No appearance defects																	
Judgement	OK			OK																	
<b>Note:</b>																					
備注:																					

FREEPORT Resources Enterprise Corp  
Quality Department Laboratory

中國.廣東省.東莞市.長安鎮烏沙第六工業區 郵編: 523857 電話:86-7695428686 傳真:86-7695428700  
6th Industrial Area, Wu Sha, ChangAn Town, DongGuan China 523857 TEL:86-7695428686 FAX:86-7695428700

## Test Recording Sheet 測試記錄表

<b>Product Name</b> 產品名稱	Connector 連接器	<b>Client</b> 客戶		<b>Sample Group</b> 試樣群組	E
<b>Model/Type</b> 型號/規格	51V019S	<b>Manufacture</b> 製造商	FREEPORT	<b>Test Date</b> 測試時間	2007/09/20
<b>Instrument &amp; Calibration due date</b> 測試設備及校正有效期	CT-41A Solderport DM-6902 Temperature Meter	(NCR) (2007/10/30)		<b>Test Environment</b> 測試環境	65 %RH 25 °C
<b>Test Item</b> 測試項目	Solderability test 焊錫附著性測試			<b>Sample Q'ty</b> 樣品數量	1
<b>Requirement</b> 測試要求	<p>1.Immersed the contact of the connector into the molten-Tin oven sa below condition: *Temp. of Tin oven: 245°C *Speed: 25.4mm/sec. *Time: 5 seconds</p> <p>2.The tail of contact is covered by continuous new solder and the area of "Voids Solder" cannot exceed 5 % of total area.</p>				
<b>Result of measurement</b> 測試結果	<p>1.Afer test the solder coating is adherent, bright, smooth and uniform over more than 99% of the test total area, It's OK. 沾錫測試后，試樣沾錫緊密、光滑、均勻且沾錫面積超過測試總面積的99%，判定為合格。</p>				
<b>Note:</b> 備注：					

**Test Result**

**測試結果**

The test sequence/group and result of TABLE I is based on the Product Specification of the received samples and have been using in this test.

本次測試的測試群組、順序及結果如表I，該表基于送檢樣品的產品規格書制定。

**TABLE I : Test Sequence/Group & Result**

Test of Examination	Test Group									
	A		B		C		D		E	
	Sequence	Result	Sequence	Result	Sequence	Result	Sequence	Result	Sequence	Result
Visual Inspection 外觀檢查	1, 7	OK	1, 7	OK	1, 5	OK	1, 5	OK	1, 3	OK
Low Level Contact Resistance 低階接觸阻抗測試	2, 6	OK			2, 4	OK	2, 4	OK		
Insulation Resistance 絕緣阻抗測試			2, 5	OK						
Dielectric Withstanding Voltage 耐電壓測試			3, 6	OK						
Mating and unmating force 插拔力測試	3, 5	OK								
Durability 耐久性壽命測試	4	OK								
Temperature-Humidity Test 恒溫恒濕測試			4	OK						
Salt Spray 鹽水噴霧測試					3	OK				
Solderability 焊錫附著性測試									2	OK
Temperature Life 高溫老化測試							3	OK		
<b>Note</b> <b>備注</b>	See Affix A for details		See Affix B for details		See Affix C for details		See Affix D for details		See Affix E for details	

塑膠  
: LCP

REV: 1

**MatWeb.com, The Online Materials Database**

**DuPont Zenite™ LCP 6130(L) BK & WT Liquid Crystal Polymer, 30% Glass Reinforced**

**Subcategory:** Fiber Reinforced Composite; Liquid Crystal Polymer (LCP); Polymer, Thermoplastic; TP LCP Composite

**Material Notes:**

Excellent toughness - well suited for automotive, electrical/electronic, telecommunications, and aerospace industries.

Data provided by the manufacturer.

Physical Properties	Metric	English	Comments
Density	1.63 g/cc	0.0589 lb/in <sup>3</sup>	ASTM D792
Linear Mold Shrinkage	-0.0007 cm/cm	-0.0007 in/in	Flow Direction
Linear Mold Shrinkage, Transverse	0.005 cm/cm	0.005 in/in	
Linear Mold Shrinkage, Transverse	0.005 cm/cm	0.005 in/in	3.2 mm; ASTM D955

**Mechanical Properties**

Tensile Strength, Ultimate	130 MPa	18900 psi	ASTM D638
Elongation @ break	2.5 %	2.5 %	ASTM D638
Tensile Modulus	15 GPa	2180 ksi	ASTM D638
Flexural Modulus	15 GPa	2180 ksi	ASTM D790
Flexural Yield Strength	195 MPa	28300 psi	ASTM D790
Compressive Yield Strength	105 MPa	15200 psi	ASTM D695
Izod Impact, Notched	2 J/cm	3.75 ft-lb/in	Notched; ASTM D256
Izod Impact, Unnotched	6.85 J/cm	12.8 ft-lb/in	ASTM D256
Izod Impact, Unnotched Low Temp	4.4 J/cm	8.24 ft-lb/in	3.2 mm; -40°C; ASTM D256
Izod Impact, Notched Low Temp	1.1 J/cm	2.06 ft-lb/in	3.2 mm; -40°C; ASTM D256

**Electrical Properties**

Electrical Resistivity	1E+17 ohm-cm	1E+17 ohm-cm	ASTM D257
Dielectric Constant	3.6	3.6	at 1 MHz; ASTM D150
Dielectric Constant, Low Frequency	4.4	4.4	at 1 kHz; ASTM D150
Dielectric Strength	29 kV/mm	737 kV/in	ASTM D149
Dissipation Factor	0.026	0.026	at 1 MHz; ASTM D150
Dissipation Factor, Low Frequency	0.013	0.013	at 1 kHz; ASTM D150
Surface Resistance	1E+16 ohm	1E+16 ohm	ASTM D257
Comparative Tracking Index	175 V	175 V	

**Thermal Properties**

CTE, linear 20°C	5 µm/m-°C	2.78 µin/in-°F	Flow Direction
------------------	-----------	----------------	----------------

<http://www.matls.com/SpecificMaterial.asp?bassnum=PDU372&p=1> 2002/5/28

CTE, linear 20°C Transverse to Flow	49 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	27.2 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
CTE, linear 100°C	5 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	2.78 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	Flow Direction. Value Cross-Flow Is 49 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ .
Heat Capacity	0.8 J/g-°C	0.191 BTU/lb-°F	
Thermal Conductivity	0.27 W/m-K	1.87 BTU-in/hr-ft <sup>2</sup> -°F	
Melting Point	335 °C	635 °F	ASTM D3418
Maximum Service Temperature, Air	240 °C	464 °F	UL746B Mechanical w/o impact.
Deflection Temperature at 0.46 MPa	277 °C	531 °F	ASTM D648
Deflection Temperature at 1.8 MPa	260 °C	500 °F	ASTM D648
Glass Temperature	120 °C	248 °F	ASTM D3418
UL RTI, Electrical	240 °C	464 °F	UL746B at 3.0 mm
UL RTI, Mechanical with Impact	220 °C	428 °F	UL746B at 3.0 mm
UL RTI, Mechanical without Impact	240 °C	464 °F	UL746B at 3.0 mm
Flammability, UL94	V-0	V-0	V-0 1.5 mm; UL94 (Black/unlubricated <1.5 mm)
Oxygen Index	38 %	38 %	ASTM D2863
<b>Processing Properties</b>			
Processing Temperature	350 °C	662 °F	soften temperature

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塑膠  
: LCP

TRADIN COMPPA LTD  
143105 TELIOW ard

PHONE NO. : 0755 7810434

文件編號: CZB01002

REV: 1



QMF22 Component - Plastics

Wednesday, April 10, 2002

E123598

**E I DUPONT DE NIEMOURS & CO INC**

DUPONT POLYMERS, ENGINEERING POLYMERS LCP RESINS PO BOX 80713, CHESTNUT RUN PLAZA  
WILMINGTON DE 19880

Material Designation: **6130L+**

Product Description: Liquid Crystal Polymer (LCP), designated "ZENITE" furnished as pellets.

Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
BK	0.38	V-0	-	-	130	130	130	-	-
	0.75	V-0	3	4	240	220	240	850	960
WT	1.0	V-0	3	4	240	220	240	825	960
ALL	1.5	V-0	1	4	240	220	240	825	960
	3.0	V-0	0	4	240	220	240	875	960

**CTI: 3**

**HVTR: 4**

**D495: -**

**IEC BP: -**

+ Virgin and regrind from 1 to 50% have the same basic characteristics.

Report Date: 10/11/1989

Underwriters Laboratories Inc®

324299142

UL94 small-scale test data does not pertain to building materials, furnishings and related contents. UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in components and parts of end-product devices and appliances, where the acceptability of the combination is determined by ULI.



# REPORT OF MATERIAL TEST

DATE: OCT. 14, 2012

Customer: 國豐五金有限公司  
 Applied Standard: CNS 3503 Phosphor Bronze Sheets, Plates and Strips  
 Commodity: C 5191 R PHOSPHOR BRONZE STRIP (H)  
 CE ISO 9002:4MSY035-00  
 台正字第 3545 號

Work No.	Size of Product		P(%)	Sn(%)	Cu+Sn+P(%)	2419	2189
	Thickness (mm)	Width (mm)					
19C118A	0.200	610.000	0.030 - 0.050	5.50 - 7.00	min. 99.50		
19C118H	0.200	610.000	0.145	6.050	99.983		
			0.145	6.050	99.983		

## Chemical Analysis Test

Work No.	Size of Product		Dimension Test		Tension Test		Hardness Test HV	Grain Size (mm)	Electric Conductivity (%)
	Thickness (mm)	Width (mm)	Thickness (mm)	Width (mm)	Tensile Strength (kgf/mm <sup>2</sup> )	Elongation (%)			
19C118A	0.200	610.000		6000.	59.51	23.50	min. 170	-	15.1
19C118B	0.200	610.000		6000.	59.51	23.50	191.0 - 192.0	-	15.1
							191.0 - 192.0	-	15.1

## Mechanical & Physical Test

9/10/14306  
 MINCHALI METAL INDUSTRY CO., LTD.  
 11 Pei Yuan Road, Chung Li City, Taiwan R.O.C.

AP Submission



# REPORT OF MATERIAL TEST

DATE: APR 17, 2003

Customer: 鈺翔五金製品廠	Commodity: C 5191 R PHOSPHOR BRONZE STRIP ( H )	ISO 9002:4M8Y035-00 台正字第 3545 號
Applied Standard: CNS 9503 Phosphor Bronze Sheets, Plates and Strips		


### Chemical Analysis Test

Work No.	Size of Product			P(%)	Sn(%)	Cu+Sn+P(%)	Hardness Test HV	Grain Size (mm)	Electric Conductivity (%)
	Thickness (mm)	Width (mm)	Length (mm)						
	Standard			0.030 - 0.350	5.50 - 7.00	min. 99.50			
24C002B	0.500	610.000		0.160	6.066	99.959			

### Mechanical & Physical Test

Work No.	Size of Product			Dimension Test		Tension Test		Hardness Test HV	Grain Size (mm)	Electric Conductivity (%)
	Thickness (mm)	Width (mm)	Length (mm)	Thickness (mm)	Width (mm)	Tensile Strength (kgf/mm <sup>2</sup> )	Elongation (%)			
	Standard									
24C002B	0.500	610.000		GOOD.	GOOD.	min. 58	20.34	min. 170		



<b>Customer:</b> 統翔五金製品廠	<b>Commodity:</b> C2680 R BRASS STRIP(H)	
<b>Applied Standard:</b> CNS 4383 Brass Sheets, plates and Strips		

Chemical Analysis Test								
Work No.	Size of Product		Thickness (mm)	Width (mm)	Length (mm)	Tension Test	Hardness Test HV	Grain Size (mm)
	Thickness (mm)	Width (mm)						
02A371A	0.250	609.000				64.00-68.00 Max. 0.050 Max. 0.070 REM.	REM.	
<u>02A371B</u>	0.200	609.000				64.00-68.00 Max. 0.050 Max. 0.070 REM.	REM.	
02A088B	0.300	618.000				64.00-68.00 Max. 0.050 Max. 0.070 REM.	REM.	
01A203B	0.400	618.000				64.00-68.00 Max. 0.050 Max. 0.070 REM.	REM.	

Work No.	Size of Product			Thickness (mm)	Width (mm)	Length (mm)	Tension Test	Hardness Test HV	Grain Size (mm)
	Thickness (mm)	Width (mm)	Length (mm)						
02A371A	0.250	609.000					min. 53	-	-
<u>02A371B</u>	0.200	609.000					56.00	169.0-170.0	22.8
02A088B	0.300	618.000					55.73	171.0-172.0	22.6
01A203B	0.400	618.000					58.41	175.0-177.0	22.3
							56.61	171.0-174.0	23.2

# Test Report

No. : CE/2006/C5496 Date : 2006/12/29

Page : 1 of 4

FREEDPORT RESOURCES ENTERPRISES CORP  
6TH INDUSTRIAL AREA WUSHA, CHANGAN TOWN, DONGGUAN CITY,  
GUANGDONG CHINA



## Report on the submitted sample said to be CONNECTOR.

Style/Item No : PLASTIC (LCP BLACK)  
Sample Receiving Date : 2006/12/22  
Testing Period : 2006/12/22 TO 2006/12/29

=====  
**Test Requested** : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

**Test Method** : With reference to IEC 62321, Ed.1 111/54/CDV  
Procedures for the Determination of Levels of Regulated  
Substances in Electrotechnical Products.  
(1) Determination of Cadmium by ICP-AES.  
(2) Determination of Lead by ICP-AES.  
(3) Determination of Mercury by ICP-AES.  
(4) Determination of Hexavalent Chromium for non-metallic  
samples by UV/Vis Spectrometry.  
(5) Determination of PBB and PBDE by GC/MS.

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

  
Daniel Yeh, M.R. / Operation Manager  
Signed for and on behalf of  
SGS TAIWAN LTD.

# Test Report

No. : CE/2006/C5496 Date : 2006/12/29

Page : 2 of 4

FREEDPORT RESOURCES ENTERPRISES CORP  
6TH INDUSTRIAL AREA WUSHA, CHANGAN TOWN, DONGGUAN CITY,  
GUANGDONG CHINA



Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	n.d.	2
Mercury (Hg)	(3)	n.d.	2
Hexavalent Chromium (CrVI) by alkaline extraction	(4)	n.d.	2
<b>Sum of PBBs</b>	(5)	n.d.	-
Monobromobiphenyl		n.d.	5
Dibromobiphenyl		n.d.	5
Tribromobiphenyl		n.d.	5
Tetrabromobiphenyl		n.d.	5
Pentabromobiphenyl		n.d.	5
Hexabromobiphenyl		n.d.	5
Heptabromobiphenyl		n.d.	5
Octabromobiphenyl		n.d.	5
Nonabromobiphenyl		n.d.	5
Decabromobiphenyl		n.d.	5
<b>Sum of PBDEs (Mono to Nona) (Note 4)</b>		n.d.	-
Monobromobiphenyl ether		n.d.	5
Dibromobiphenyl ether		n.d.	5
Tribromobiphenyl ether		n.d.	5
Tetrabromobiphenyl ether		n.d.	5
Pentabromobiphenyl ether		n.d.	5
Hexabromobiphenyl ether		n.d.	5
Heptabromobiphenyl ether		n.d.	5
Octabromobiphenyl ether		n.d.	5
Nonabromobiphenyl ether	n.d.	5	
Decabromobiphenyl ether	n.d.	5	
<b>Sum of PBDEs (Mono to Deca)</b>	n.d.	-	

### Test Part Description:

NO.1 : BLACK PLASTIC

- Note :
1. mg/kg = ppm
  2. n.d. = Not Detected
  3. MDL = Method Detection Limit
  4. Sum of Mono to NonaBDE & according to 2005/717/EC DecaBDE is exempt.
  5. "-" = Not Regulated

# Test Report

No. : CE/2006/C5496 Date : 2006/12/29

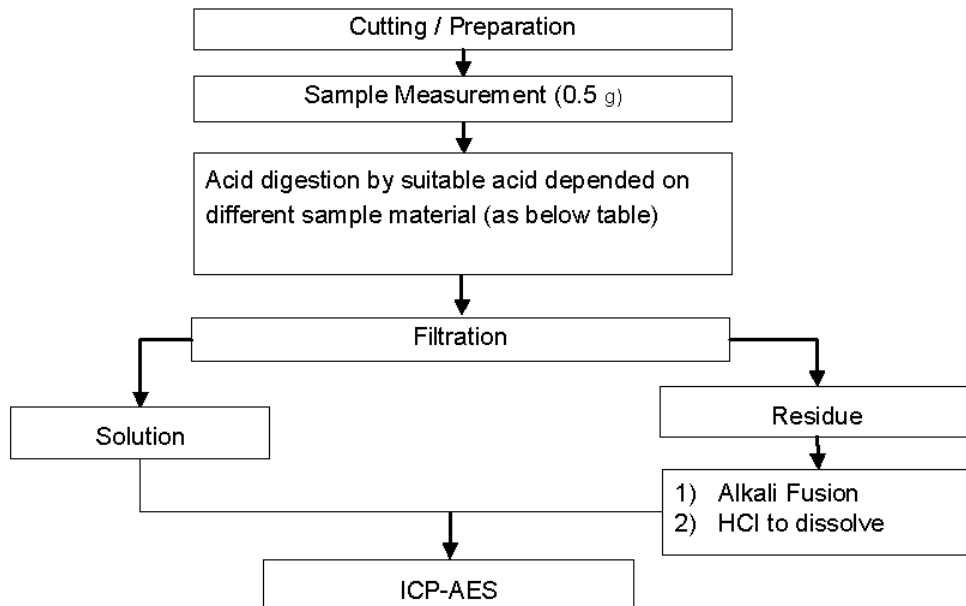
Page : 3 of 4

FREEMPORT RESOURCES ENTERPRISES CORP  
6TH INDUSTRIAL AREA WUSHA, CHANGAN TOWN, DONGGUAN CITY,  
GUANGDONG CHINA



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
- 2) Name of the person who made measurement: Anren Lee
- 3) Name of the person in charge of measurement: Daniel Yeh

### Method 1: Flow Chart of Digestion for Cd · Pb analysis



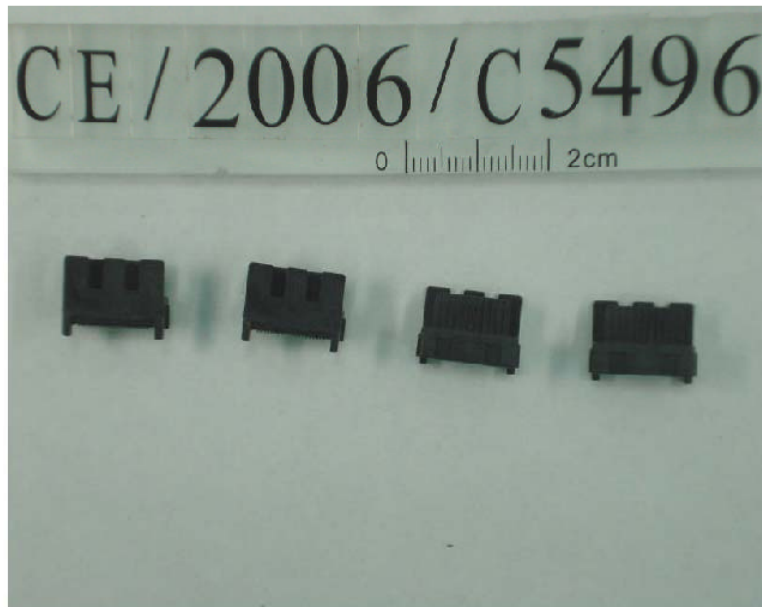
Steel, copper, aluminum, solder	Aqua regia, HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>
Glass	HNO <sub>3</sub> /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO <sub>3</sub>
Plastic	H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl
Others	Any acid to total digestion

## Test Report

No. : CE/2006/C5496 Date : 2006/12/29

Page : 4 of 4

FREEPOR T RESOURCES ENTERPRISES CORP  
6TH INDUSTRIAL AREA WUSHA, CHANGAN TOWN, DONGGUAN CITY,  
GUANGDONG CHINA



\*\* End of Report \*\*

# Test Report

No. : CE/2006/C5533 Date : 2006/12/29

Page : 1 of 4

FREEPORT RESOURCES ENTERPRISES CORP  
6TH INDUSTRIAL AREA WUSHA, CHANGAN TOWN, DONGGUAN  
CITY, GUANGDONG CHINA



## Report on the submitted sample said to be CONNECTOR.

Style/Item No : TERMINAL  
Sample Receiving Date : 2006/12/22  
Testing Period : 2006/12/22 TO 2006/12/29

=====  
**Test Requested** : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

**Test Method** : With reference to IEC 62321, Ed.1 111/54/CDV  
Procedures for the Determination of Levels of Regulated  
Substances in Electrotechnical Products.  
(1) Determination of Cadmium by ICP-AES.  
(2) Determination of Lead by ICP-AES.  
(3) Determination of Mercury by ICP-AES.  
(4) Determination of Hexavalent Chromium for metallic samples  
by Spot test / Colorimetric Method.

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

Daniel Yeh, M.R. / Operation Manager  
Signed for and on behalf of  
SGS TAIWAN LTD.

# Test Report

No. : CE/2006/C5533 Date : 2006/12/29

Page : 2 of 4

FREEPORT RESOURCES ENTERPRISES CORP  
6TH INDUSTRIAL AREA WUSHA, CHANGAN TOWN, DONGGUAN  
CITY, GUANGDONG CHINA



Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result		MDL
		No.1	No.2	
Cadmium (Cd)	(1)	n.d.	---	2
Lead (Pb)	(2)	33.4	---	2
Mercury (Hg)	(3)	n.d.	---	2
Hexavalent Chromium (CrVI) by Spot test / boiling water extraction	(4)	---	Negative	See Note 4

**Test Part Description:**

NO.1 : SILVER/GOLDEN COLORED METAL  
NO.2 : PLATING LAYER OF SILVER/GOLDEN COLORED METAL

Note : 1. mg/kg = ppm

2. n.d. = Not Detected

3. MDL = Method Detection Limit

4. Spot-test:

Negative = Absence of CrVI coating, Positive = Presence of CrVI 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 CrVI coating

Positive = Presence of CrVI 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.

5. "---" = Not Conducted

# Test Report

No. : CE/2006/C5533 Date : 2006/12/29

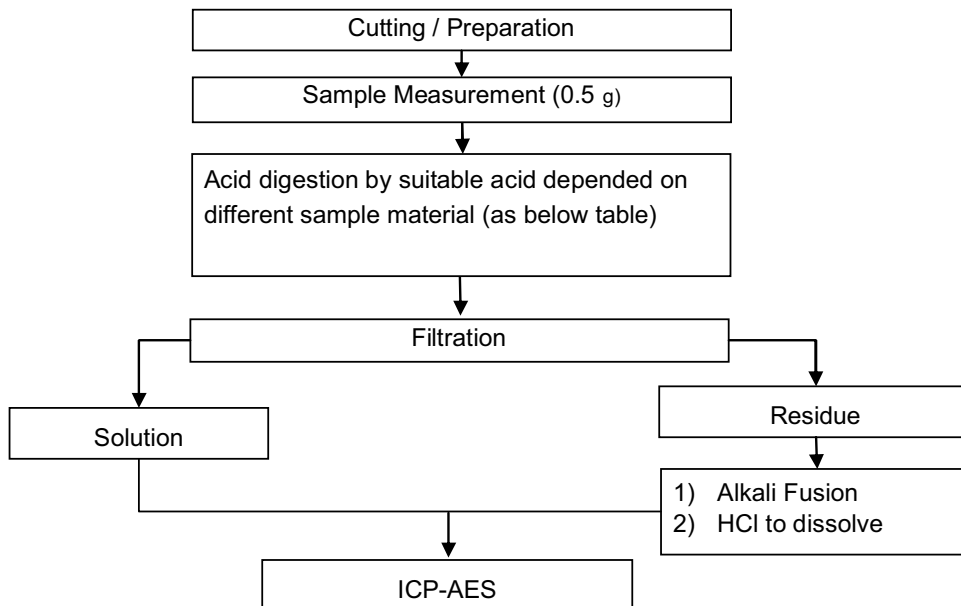
Page : 3 of 4

FREPORT RESOURCES ENTERPRISES CORP  
6TH INDUSTRIAL AREA WUSHA, CHANGAN TOWN, DONGGUAN  
CITY, GUANGDONG CHINA



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
- 2) Name of the person who made measurement: Anren Lee
- 3) Name of the person in charge of measurement: Daniel Yeh

### Method 1: Flow Chart of Digestion for Cd · Pb analysis



Steel, copper, aluminum, solder	Aqua regia, HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>
Glass	HNO <sub>3</sub> /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO <sub>3</sub>
Plastic	H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl
Others	Any acid to total digestion

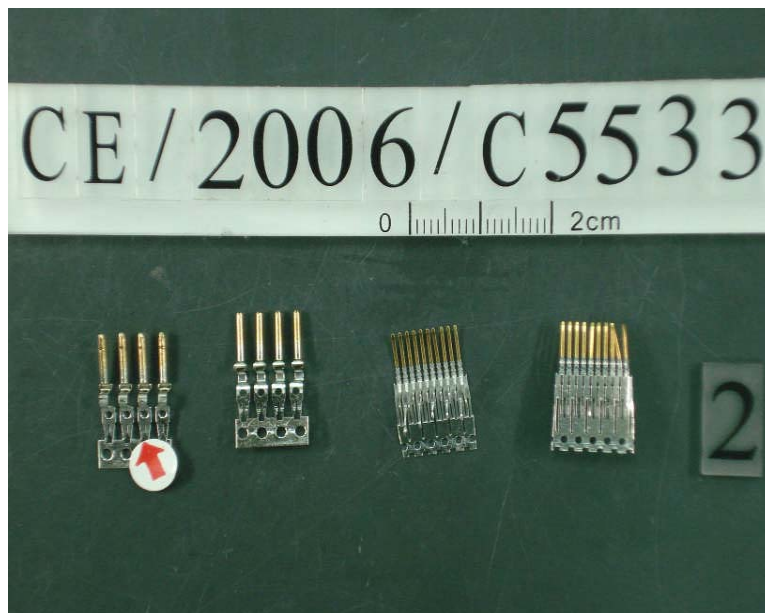
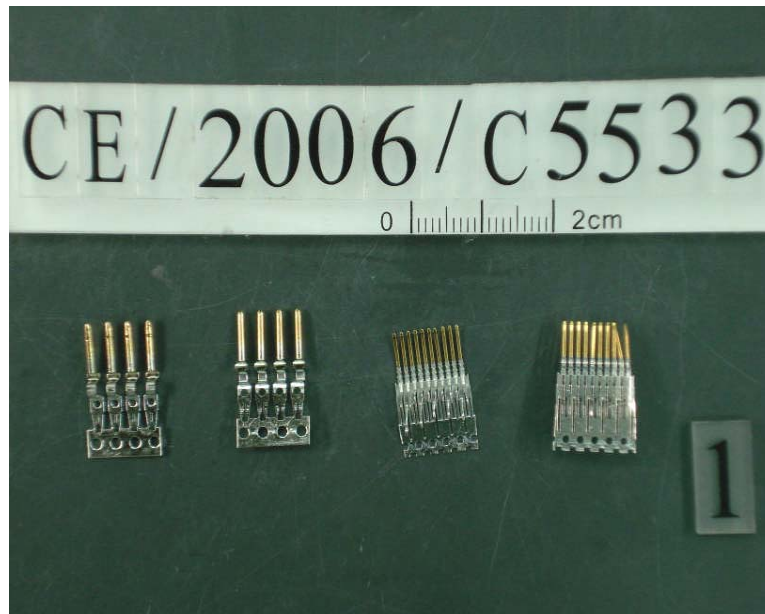


## Test Report

No. : CE/2006/C5533    Date : 2006/12/29

Page : 4 of 4

FREEPORT RESOURCES ENTERPRISES CORP  
6TH INDUSTRIAL AREA WUSHA, CHANGAN TOWN, DONGGUAN  
CITY, GUANGDONG CHINA



\*\* End of Report \*\*

# Test Report

No. : CE/2006/C5536 Date : 2006/12/29

Page : 1 of 4

FREEMPORT RESOURCES ENTERPRISES CORP  
6TH INDUSTRIAL AREA WUSHA, CHANGAN TOWN, DONGGUAN  
CITY, GUANGDONG CHINA



## Report on the submitted sample said to be CONNECTOR.

Style/Item No : SHELL  
Sample Receiving Date : 2006/12/22  
Testing Period : 2006/12/22 TO 2006/12/29

=====  
**Test Requested** : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

**Test Method** : With reference to IEC 62321, Ed.1 111/54/CDV  
Procedures for the Determination of Levels of Regulated  
Substances in Electrotechnical Products.  
(1) Determination of Cadmium by ICP-AES.  
(2) Determination of Lead by ICP-AES.  
(3) Determination of Mercury by ICP-AES.  
(4) Determination of Hexavalent Chromium for metallic samples  
by Spot test / Colorimetric Method.

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

  
Daniel Yen, M.R. / Operation Manager  
Signed for and on behalf of  
SGS TAIWAN LTD.

# Test Report

No. : CE/2006/C5536 Date : 2006/12/29

Page : 2 of 4

FREEPORT RESOURCES ENTERPRISES CORP  
6TH INDUSTRIAL AREA WUSHA, CHANGAN TOWN, DONGGUAN  
CITY, GUANGDONG CHINA



Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result		MDL
		No.1	No.2	
Cadmium (Cd)	(1)	n.d.	---	2
Lead (Pb)	(2)	34.7	---	2
Mercury (Hg)	(3)	n.d.	---	2
Hexavalent Chromium (CrVI) by Spot test / boiling water extraction	(4)	---	Negative	See Note 4

**Test Part Description:**

NO.1 : SILVER COLORED METAL  
NO.2 : PLATING LAYER OF SILVER COLORED METAL

Note : 1. mg/kg = ppm

2. n.d. = Not Detected

3. MDL = Method Detection Limit

4. Spot-test:

Negative = Absence of CrVI coating, Positive = Presence of CrVI 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 CrVI coating

Positive = Presence of CrVI 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.

5. "---" = Not Conducted

# Test Report

No. : CE/2006/C5536 Date : 2006/12/29

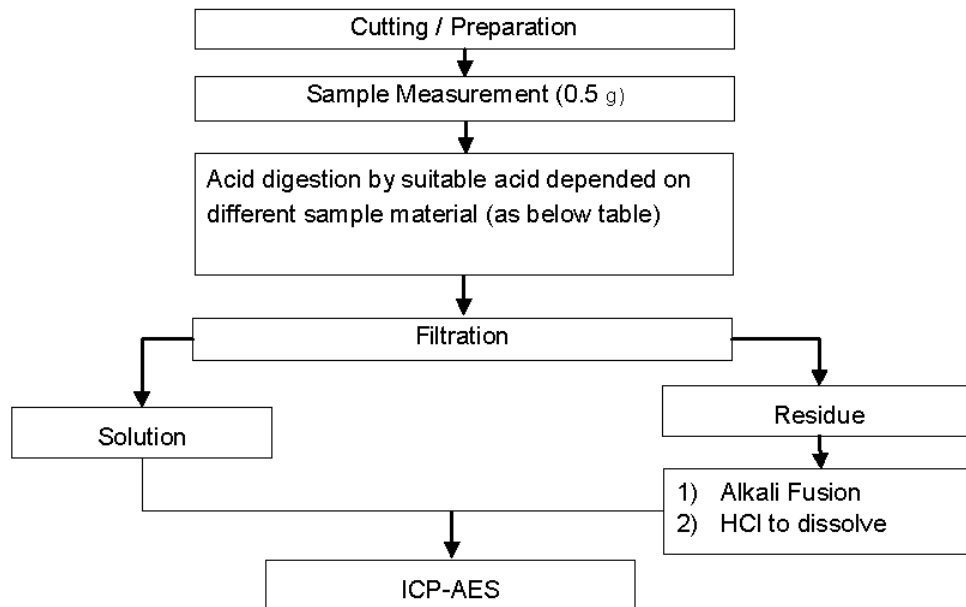
Page : 3 of 4

FREEPORT RESOURCES ENTERPRISES CORP  
6TH INDUSTRIAL AREA WUSHA, CHANGAN TOWN, DONGGUAN  
CITY, GUANGDONG CHINA



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
- 2) Name of the person who made measurement: Anren Lee
- 3) Name of the person in charge of measurement: Daniel Yeh

### Method 1: Flow Chart of Digestion for Cd · Pb analysis



Steel, copper, aluminum, solder	Aqua regia, HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>
Glass	HNO <sub>3</sub> /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO <sub>3</sub>
Plastic	H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl
Others	Any acid to total digestion

## Test Report

No. : CE/2006/C5536 Date : 2006/12/29

Page : 4 of 4

FREEPOR T RESOURCES ENTERPRISES CORP  
6TH INDUSTRIAL AREA WUSHA, CHANGAN TOWN, DONGGUAN  
CITY, GUANGDONG CHINA



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



Certificate HK98/12127

The management system of

# Freeport Resources Enterprises Corp.

6<sup>th</sup> Industrial Area, Wu Sha, Chang An Town  
Dongguan City, Guangdong Province, China



has been assessed and certified as meeting the requirements of

## ISO 9001:2000

For the following activities

### Design and manufacture of connectors and cables

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2000 requirements may be obtained by consulting the organization.

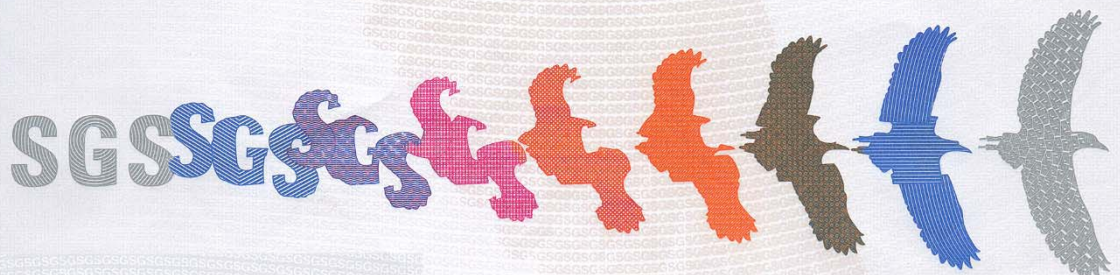
This certificate is valid from 16 April 2004 until 16 April 2007  
Issue 4. Certified with SGS since January 1998

Authorised by



SGS United Kingdom Ltd Systems & Services Certification  
Rossmore Business Park Ellesmere Port Cheshire CH65 3EN UK  
t +44 (0)151 350-6666 f +44 (0)151 350-6600 www.sgs.com

Page 1 of 1



# SGS

Certificate GB05/64648

The management system of

## Freeport Resources Enterprises Corp.

6<sup>th</sup> Industrial Area, Wu Sha, Chang An Town,  
Dongguan City, Guangdong Province, China



has been assessed and certified as meeting the requirements of

### ISO 14001:2004

For the following activities

**Design and assembly of connectors and cables for activities  
confined to the production and office of premises**

This certificate is valid from 09 December 2005 until 18 April 2008  
Issue 2. Certified since 18 April 2005

Authorised by

A handwritten signature in black ink that reads 'P. Earl'.

SGS United Kingdom Ltd Systems & Services Certification  
Rossmore Business Park Ellesmere Port Cheshire CH65 3EN UK  
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Page 1 of 1

