

14. Dielectric Resistance	3 G ohm / KM / 20°C min.
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## 9. Reliability Testing

Test Item	Procedure	Requirement
1. Visual inspection and Dimension Check	Applicable methods using x5 magnification	follow specification
2. Rapid Changing of Temperature	-40°C (30minutes) to 90°C (30minutes); 120 cycles	After 2 hours recovery: 1. no visible damage 2. bandwidth tolerance < ±5%
3. Damp Heat	500 hours at 60°C; 90 ~ 95% RH	After 2 hours recovery: 1. no visible damage 2. bandwidth tolerance < ±5%
4. Endurance	500 hours at 90°C	After 2 hours recovery: 1. no visible damage 2. bandwidth tolerance < ±5%

## 10. SGS Test Report



## Test Report

INVAX SYSTEM & TRADING CORP.  
CORTEC TECHNOLOGY INC.  
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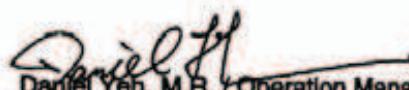
**The following merchandise was (were) submitted and identified by the client as :**

Type of Product : ANTENNA  
Style/Item No. : EM SERIES; IM SERIES; NB SERIES; AN SERIES  
Sample Received : 2004/01/05 & 2004/04/23 & 2004/06/11 & 2004/06/24 &  
2004/12/09 & 2005/01/26 & 2005/02/17  
Testing Date : 2004/01/05 TO 2004/01/06 & 2004/04/23 TO 2004/04/28 &  
2004/06/11 TO 2004/06/21 & 2004/06/24 TO 2004/07/01 &  
2004/12/09 TO 2004/12/16 & 2005/01/26 TO 2005/01/28 &  
2005/02/17 TO 2005/03/03

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**Test Result** : - Please see the next page -

\*This report is combined with reports of SZTYR050102512/LP & CE/2004/62767 &  
GZSCR040100230/LP & CE/2004/61520 & GZSCR040413274/LP & GZSCR050207531/LP\*

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

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## Test Result

PART NAME NO.1	:	BRASSY COLOR METAL BAR(SZTYR050102512/LP)
PART NAME NO.2	:	BLACK PLASTIC SHEET(GZSCR040100230/LP)
PART NAME NO.3	:	TAN TRANSPARENT LIQUID(GZSCR040413274/LP)
PART NAME NO.4	:	BLACK PLASTIC JACKET(KHCX-32AWG SB TA)(CE/2004/61520)
PART NAME NO.5	:	TRANSPARENT FEP JACKET(CE/2004/C1640)
PART NAME NO.6	:	WHITE PLASTIC(CE/2004/62767)
PART NAME NO.7	:	SILVER COLORED METAL WIRE(GZSCR050207531/LP NO. 1)
PART NAME NO.8	:	TRANSPARENT LT. BROWN PLASTIC(GZSCR050207531/LP NO. 2)

Test Item(s):	Unit	Method	MDL	Result				
				No.1	No.2	No.3	No.4	No.5
PBDEs(Polybrominated biphenyls)(CAS NO:059536-65-1)	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	---	---	---	N.D.	N.D.
PBDEs(PBDEs)(Polybrominated biphenyl ethers)	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	---	---	---	N.D.	N.D.

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Test Item (s):	Unit	Method	MDL	Result				
				No.1	No.2	No.3	No.4	No.5
Chromium VI (Cr+6)	ppm	As per US EPA 7196A and US EPA 3060A.	2	N.D.	---	N.D.	N.D.	N.D.
Cadmium (Cd)	ppm	ICP-AES after as per EN 1122, method B:2001 or other acid digestion.	2	22.0	N.D.	N.D.	N.D.	N.D.
Mercury (Hg)	ppm	ICP-AES after as per US EPA 3052 or other acid digestion.	2	N.D.	---	N.D.	N.D.	N.D.
Lead (Pb)	ppm	ICP-AES after as per US EPA 3050B or other acid digestion.	2	24600.0	6.0	N.D.	N.D.	N.D.

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
PBBs(Polybrominated biphenyls)(CAS NO:059536 63 1)	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.	---	N.D.
PBBEs(PBDEs)(Polybrominated biphenyl ethers)	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.	---	N.D.

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Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
Chromium VI (Cr+6)	ppm	As per US EPA 7196A and US EPA 3060A.	2	---	N.D.	N.D.
Cadmium (Cd)	ppm	ICP-AES after as per EN 1122, method B:2001 or other acid digestion.	2	N.D.	N.D.	---
Mercury (Hg)	ppm	ICP-AES after as per US EPA 3052 or other acid digestion.	2	---	N.D.	---
Lead (Pb)	ppm	ICP-AES after as per US EPA 3050B or other acid digestion.	2	N.D.	N.D.	---
Cadmium (Cd)	ppm	ICP-AES after as per EN 1122, method B:2001 or other acid digestion.	15	---	---	N.D.
Mercury (Hg)	ppm	ICP-AES after as per US EPA 3052 or other acid digestion.	50	---	---	N.D.
Lead (Pb)	ppm	ICP-AES after as per US EPA 3050B or other acid digestion.	15	---	---	N.D.

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
AZO		As per LMBG 8202-2				
4-AMINODIPHENYL (CAS NO.92-67-1)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
BENZIDINE (CAS NO.92-87-5)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
4-CHLORO-O-TOLUIDINE (CAS NO.95-69-2)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
2-NAPHTHYLAMINE (CAS NO.91-59-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
O-AMINOAZOTOLUENE (CAS NO.97-56-3)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.

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Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
2-AMINO-4-NITROTOLUENE (CAS NO.106-47-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
P-CHLOROANILINE (CAS NO.106-47-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
2,4 DIAMINOANISOLE (CAS NO.615-05-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
4,4-DIAMINODIPHENYLMETHANE (CAS NO.101-77-9)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
3,3-DICHLOROBENZIDINE (CAS NO.91-94-1)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
3,3-DIMETHOXYBENZIDINE (CAS NO.119-90-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
3,3-DIMETHYLBENZIDINE (CAS NO.119-93-7)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
3,3-DIMETHYL-4,4-DIAMINODIPHENYLMETHANE (CAS NO.838-88-0)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
P-CRESIDINE(2-METHOXY-5-METHYLANILINE) (CAS NO.120-71-8)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
4,4-METHYLENE BIS (2-CHLORANILINE) (CAS NO.101-14-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
4,4-OXYDIANILINE (CAS NO.101-80-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
4,4-THIODIANILINE (CAS NO.139-65-1)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
O-TOLUIDINE (CAS NO.95-53-4)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.

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Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
2,4-TOLUYLENDIAMINE (CAS NO.95-80-7)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
2,4,5-TRIMETHYLANILINE (CAS NO.137-17-7)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
O-ANISIDINE (CAS NO.90-04-0)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.
P-AMINOAZOBENZENE (CAS NO.60-09-3)	ppm	Analysis was performed by GC/MS.	3	N.D.	---	N.D.

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
Mirex(CAS NO:002385-85-5)	ppm	Analysis was performed by GC/MS.	4	N.D.	---	---

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
PCBs(Polychlorinated Biphenyls)(CAS NO:001336-36-3)	ppm	With reference to USEPA 8082A. Analysis was performed by GC/ECD/MS.	0.5	N.D.	---	---

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
Organic-tin compounds						
Triphenyl Tin(TPT)(CAS NO:000668-34-8)	ppm	With reference to 83/677/EEC & DIN 38407. Analysis was performed by GC/PPD.	0.03	---	---	N.D.
Tributyl Tin(TBT)	ppm	With reference to 83/677/EEC & DIN 38407. Analysis was performed by GC/PPD.	0.03	---	---	N.D.

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Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
Asbestos						
Anthrophyllite(CAS NO.017068-78-9)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	-	---	---	Negative
Crocodolite(CAS NO.012001-28-4)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	-	---	---	Negative
Amosite(CAS NO.012172-73-5)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	-	---	---	Negative
Tremolite(CAS NO.014567-73-8)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	-	---	---	Negative
Chrysotile(CAS NO.012001-29-5)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	-	---	---	Negative
Actinolite(CAS NO.013768 00-8)	**	As per NIOSH 9000 method. Analysis was performed by XRD.	-	---	---	Negative

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
PCBs(Polychlorinated Biphenyls)(CAS NO:001336 36-3)	ppm	With reference to USEPA 8082A. Analysis was performed by GC/ECD/MS.	0.5	---	---	N.D.

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
Polychlorinated Naphthalene	ppm	With reference to USEPA 8081B. Analysis was performed by GC/MS.	5	---	---	N.D.

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Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
PVC (CAS No:9002-86-2)	**	Analysis was performed by FTIR/ATR and Pyro GC/MS.	-	---	---	N.D.

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
Chlorinated Paraffin (C10-C13) (CAS No:010871-26-2)	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by GC/MS or GC/ECD.	0.01	---	---	N.D.

Test Item (s):	Unit	Method	MDL	Result		
				No.6	No.7	No.8
Formaldehyde(CAS No:000050-00-0)	ppm	With reference to DIN 53315 & USEPA 8315A method. Analysis was performed by HPLC/DAD/MS	0.2	---	---	N.D.

NOTE: (1) N.D. = Not detected (<MDL)  
 (2) ppm = mg/kg  
 (3) MDL = Method Detection Limit  
 (4) " --- " = Not Applicable  
 (5) " - " = No Regulation  
 (6) \* = Results shown are of the adjusted analytical results  
 (7) \*\* = Qualitative analysis (No Unit)  
 (8) Negative = Undetectable / Positive = Detectable  
 (9) The MDL is 5ppm for the single compound of CP

## ◆ 鎘 (Cadmium) :

- 電接點(electrical contacts)的鎘及鎘化合物以及 91/338/EEC 指令限制範圍以外的  
鎘鍍層中的鎘。(2005/747/EC)
- 光學玻璃及濾光玻璃(optical and filter glass)中所用的鎘。(2005/747/EC)

## ◆ 六價鉻 (Hexavalent - Chromium) :

- 電冰箱中作為碳鋼冷卻系統防腐劑的六價鉻。(2002/95/EC)

## ◆ 鉛 (Lead) :

- 陰極射線管(cathode ray tubes)、電子部件(electronic components)和發光管  
(fluorescent tubes)等玻璃內的鉛含量。(2002/95/EC)
- 銅合金中的鉛含量不超過 0.35%、鋁合金中的鉛含量不超過 0.4%、**銅合金中的  
鉛含量不超過 4%**。(2002/95/EC)
- 高熔點鋅鎘中的鉛 (例如鉛含量 ≥85 % 的合金中的鉛)。(2005/747/EC)
- 用於伺服器(servers)、記憶體(storage)和存儲系統(storage array systems)和交換、  
信號和傳輸，以及電信網路管理的網路基礎設施設備(network infrastructure  
equipment for switching, signalling, transmission as well as network management for  
telecommunications)中焊料的鉛。(2005/747/EC)
- 電子陶瓷產品中的鉛。(2005/747/EC)
- 用於鉛青銅軸承外殼(lead-bronze bearing shells and bushes)的鉛。(2005/717/EC)
- 光學玻璃及濾光玻璃(optical and filter glass)中所用的鉛。(2005/747/EC)
- 順應針連接系統(compliant pin connector systems)中使用的鉛。(2005/747/EC)
- 热導槍釘模組(thermal conduction module o-ring)墊層中所用的鉛。(2005/747/EC)
- 微處理器針腳及封裝連接所使用含鉛量佔 80%-85%的焊接劑(含有超過兩種成  
份)中的鉛。(2005/747/EC)
- 用於焊接半導體終端和集成電路板載體的焊料中含鉛量。(2005/747/EC)
- 管狀白熾燈硅酸鹽塗層燈管(linear incandescent lamps with silicate coated tubes)中  
的鉛。(2006/310/EC)
- 專業複印設備用的高強度放電燈中作為發光劑的鹵化鉛。(Lead halide as radiant  
agent in High Intensity Discharge (HED) lamps used for professional reprography  
applications)(2006/310/EC)
- 當放電燈被用作含磷防日曬燈(例如 BSP)、或二氯化合物列印、平版印刷、捕蟲  
器，以及含磷化學和含磷食物加工過程的專業燈時(例如 SMS)，放電燈中的螢光  
粉觸媒劑的鉛(鉛含量 1% 以下) (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 (BaSi2O5:Pb) as well as when used as specialty lamps for  
diazo-printing reprography, lithography, insect traps, photochemical and curing  
processes containing phosphors such as SMS ((Sr, Ba) 2MgSi2O7:Pb)) (2006/310/EC)

- 緊縮節能燈中作為汞的特定成分中 PbBiSn-Hg 及 PbInSn-Hg 中的鉛以及作為輔助汞合金中 PbSn-Hg 中的鉛。(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)) (2006/310/EC)
- 液晶顯示器中焊接前後半版螢光燈基質的玻璃中的氧化鉛。(Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCD)) (2006/310/EC)

#### ◆ 汞 (Mercury) :

- 小型日光燈中不超過 5 mg / 燈管者。(2002/95/EC)
- 一般用途的直管日光燈管不超過(2002/95/EC) :
  - Halophosphate < 10 mg 。
  - Triphosphate with normal lifetime < 5 mg 。
  - Triphosphate with long lifetime < 8 mg 。
- 特殊用途的直管日光燈管。(2002/95/EC)
- 附件中未特別提及用於其他照明燈具的含汞量。(2002/95/EC)

#### ◆ 十溴聯苯醚 (Deca-BDE) :

- 應用於高分子類(Polymeric)之十溴聯苯醚之含量。(2005/717/EC)

註:以上翻譯若有誤差，應以原文法規為準。(請參考 2002/95/EC, 2005/717/EC, 2005/717/EC, 2006/310/EC)

#### 聯絡方式 :

SGS 台北化學實驗室

地址：248 台北縣五股工業區五權路 33 號

電話：+886-2-2299-3279 業務客服組 Ext.3102~3124

傳真：+886-2-2299-3237 行政報告組 Ext.3150~3169

## 限用物質不使用聲明書

本公司（包括協力廠商）特此保證：

提供給貴公司，貴公司之子公司或協力廠商的所有產品或零組件中，絕不包含以下所列物質。如果有違背此聲明，本公司將會負責賠償貴公司的損失。

### 【符合RoHS 2002/95/EC指令所規定的六項禁用物質】

1. 鉛及其化合物 < 1000 ppm
2. 鍍及其化合物 < 100 ppm
3. 水及其化合物 < 1000 ppm
4. 六價鉻 < 1000 ppm
5. 多氯聯苯（PBB）< 1000 ppm
6. 多溴二苯醚（PBDE）< 1000 ppm

公司名稱：臺灣大富有限公司 (印)  
負責人：陳林 (印)

聲明日期：95年5月20日