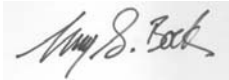
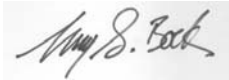


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<i>Test Report No.:</i>		<i>Page 1 of 5</i>	
Auftraggeber: <i>Client:</i>	Alien Technology Corporation 18220 Butterfield Blvd., Morgan Hill, CA 95037 US		
Gegenstand der Prüfung: <i>Test Item:</i>	Material samples for analysis See material list and attachments		
Bezeichnung: <i>Identification:</i>	ALN-9640 Squiggle Inlay, ALN-9662 Short (See test results and attachments)		
Anlieferungszustand: <i>Delivery condition:</i>	einwandfrei <i>apparent good</i>	Eingangsdatum: <i>Date of Receipt:</i>	2-15-2012
Prüfört: <i>Testing Location:</i>	TÜV Rheinland of North America 2709 SE Otis Corley Dr, Suite 11 Bentonville, AR 72712 USA		
Prüfgrundlage: <i>Test Specification:</i>	Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) Following the guidelines for Analysis IEC 62321		
Prüfergebnis: <i>Test Result:</i>	Der vorstehend beschriebene Prüfgegenstand wurde geprüft und entspricht oben genannter Prüfgrundlage. The a. m. test item result is passed.		
geprüft/ tested by:		kontrolliert/ checked by:	
 2/17/2012 Scott Sagamang Project Engineer		 2/17/2012 Geoffrey Bock Program Manager	
<u>Datum</u> <i>Date</i>	<u>Name</u> <i>Name</i>	<u>Unterschrift</u> <i>Signature</i>	<u>Datum</u> <i>Date</i>
Sonstiges/ Other Aspects:			
Test Method: IEC 62321:2008 Maximum Concentration Values (MCV's) are based on Directive 2005/618/EC . Exemptions are based on Commission Decision amendments to the 2002/95/EC. Components were evaluated using one or more of the following methods: Thermo Niton XRF screening, XOS XRF Screening, Wet chemical analysis, or Manufacturer RoHS compliance mark/documentation.			
Abkürzungen:		Abbreviations:	
ok / P = entspricht Prüfgrundlage		ok / P = passed	
fail / F = entspricht nicht Prüfgrundlage		fail / F = failed	
n.a. / N = nicht anwendbar		n.a. / N = not applicable	
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>			

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1. Testing Date(s):

2/15/12-2/17/12

2. Test Results

Material List

Material Number	Material Description
1	Squiggle Tag
2	Short Tag

XOS XRF Report matrix

Material No.	ppm [mg/kg]				
	Cd	Cr [^]	Pb	Hg	Br [^]
1a	< 5.0	< 15	< 5.0	< 4.0	< 5.0
1b	< 5.0	< 15	< 5.0	< 4.0	< 5.0
1c	< 5.0	< 15	< 5.0	< 4.0	< 5.0
2a	< 5.0	< 15	< 5.0	< 4.0	5
2b	< 5.0	36	5	< 4.0	13
2c	< 5.0	< 15	< 5.0	< 4.0	6

Remark:

- RED TEXT:** These items are inconclusive by XRF-Screening and should be retested by chemical testing.
- NT = Not Tested (Bromine in Alloys)
- ND = Not Detected (less than limits of detection)
- Refer to wet chemistry section

	Cd	Cr	Pb	Hg	Br
Limits of Detection (mg/kg)	5	15	5	4	5

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XRF Screening limits for different matrices

Materials	Unit(ppm)				
	Cd	Cr	Pb	Hg	Br
Metallic	$P \leq 70 < X \leq 130 < F$	$P \leq 700 < X$	$P \leq 700 < X \leq 1300 < F$	$P \leq 700 < X \leq 1300 < F$	--
Polymeric	$P \leq 70 < X \leq 130 < F$	$P \leq 700 < X$	$P \leq 700 < X \leq 1300 < F$	$P \leq 700 < X \leq 1300 < F$	$P \leq 300 < X$
Electronic Components	$P \leq 40 < X \leq 150 < F$	$P \leq 500 < X$	$P \leq 500 < X \leq 1500 < F$	$P \leq 500 < X \leq 1500 < F$	$P \leq 250 < X$

Main test instruments used for this method:

Instrument	Supplier/Vendor	Model / Type
X-ray Fluorescence Spectrometry	XOS	HD Prime

3. Sample Photos

See attachment

4. Exemptions

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 ($\geq 25\,000$ 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

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- 2(b)(4) - Lamps for other general lighting and special purposes (e.g. induction lamps). No limitation of use until 31 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 $\leq 1\,500$ mm). No limitation of use until 31 December 2011; 5 mg may be used per lamp after 31 December 2011
- 3(c) - Long length ($> 1\,500$ 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 $R_a > 60$:
- 4(b)-I $P \leq 155$ 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 $< P \leq 405$ 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 $P \leq 155$ 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 $< P \leq 405$ 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

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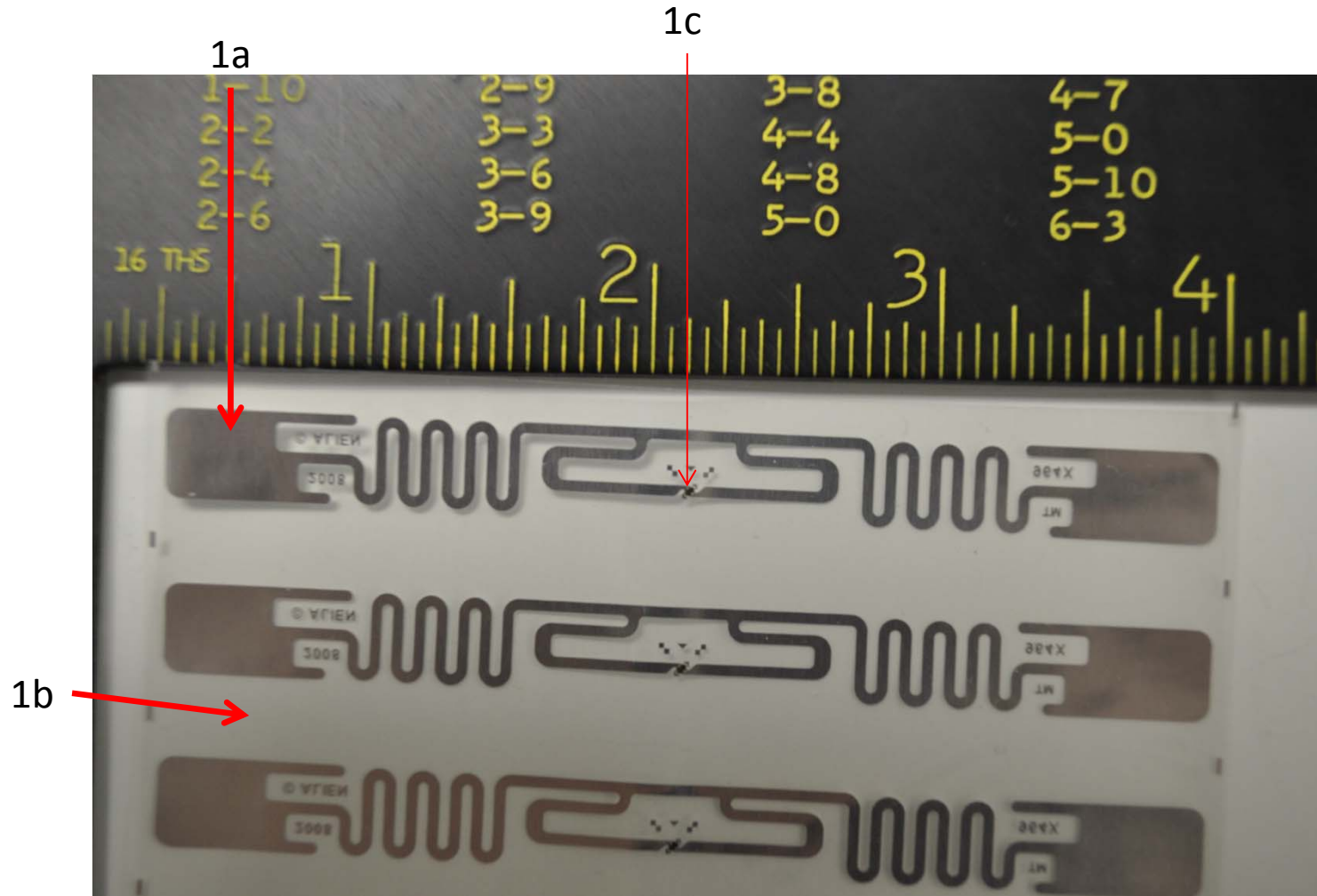
- 9 - Hexavalent chromium as an anticorrosion agent of the carbon steel cooling system in absorption refrigerators up to 0,75 % by weight in the cooling solution
- 9(b) - Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (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 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(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 2 O 5 :Pb)
- 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
- 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
- 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-

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ROHS Testing Points

Attachment



File: 31270372.001-
31270373.001

ROHS Testing Points

