

SPECIFICATION FOR APPROVAL

Customer : 友勁科技股份有限公司

Product Description : Multilayer Chip Antennas, AT3216 series

Your Part Number : _____

ACX Part Number : AT3216-B2R7HAAT/LF

File Number : _____

Date : Jul. 20, 2005

	Approved	Comments
友勁科技		
ACX	Prepared by	
	張家瑞	

環德電子工業股份有限公司

Advanced Ceramic X Corporation

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表單編號: T-S00-E007

版次: 1

依據文件: 量產零組件核准辦法

AT3216 Series

Multilayer Chip Antenna

Features

- ❖ Monolithic SMD with small, low-profile and light-weight type.
- ❖ Wide bandwidth

Applications

- ❖ Bluetooth/Wireless LAN/Home RF
- ❖ ISM band 2.4GHz applications



Specifications

Part Number	Frequency Range (MHz)	Peak Gain (XZ-V)	Average Gain (XZ-V)	VSWR	Impedance
AT3216 -B2R7HAA_	2400 ~ 2500	0.5 dBi typ.	-0.5 dBi typ.	2 max.	50 Ω

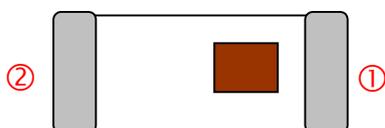
Q'ty/Reel (pcs) : 3,000pcs
 Operating Temperature Range : -40 ~ +85 °C
 Storage Temperature Range : -40 ~ +85 °C
 Power Capacity : 3W max.

Part Number

AT 3216 - B 2R7 HAA □ /LF
 ① ② ③ ④ ⑤ ⑥ ⑦

① Type	AT : Antenna	② Dimensions (L x W)	3.2x 1.6 mm
③ Material Code	B	④ Frequency Range	2R7=2700MHz
⑤ Specification Code	HAA	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	=lead-containing /LF=lead-free		

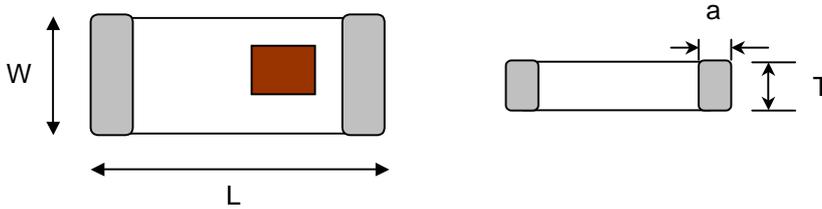
Terminal Configuration



No.	Terminal Name	No.	Terminal Name
①	Feeding Point	②	NC

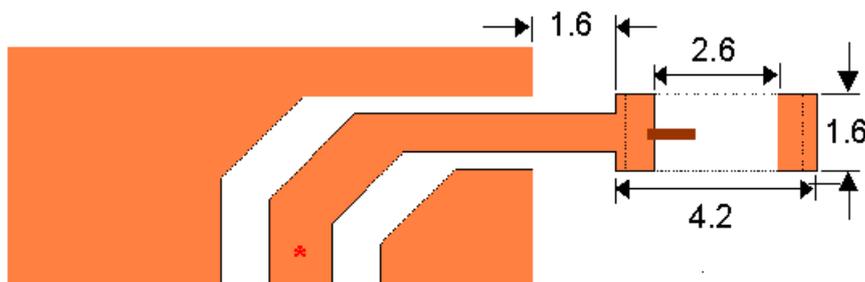
Dimensions and Recommended PC Board Pattern

Unit : mm

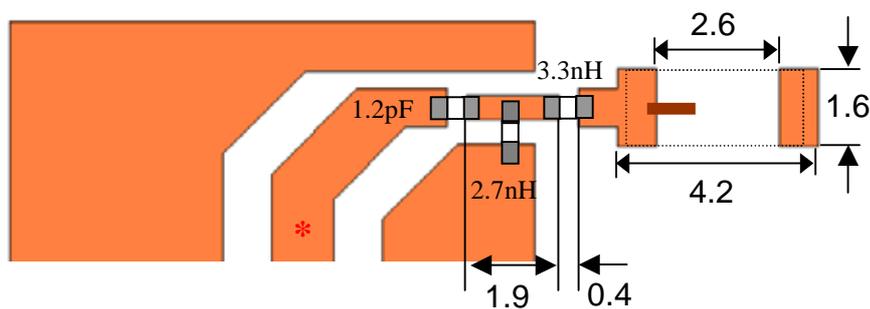


Mark	L	W	T	a
Dimensions	3.2±0.2	1.6±0.2	1.3+ 0.1/-0.2	0.5±0.3

(a) Without Matching Circuits



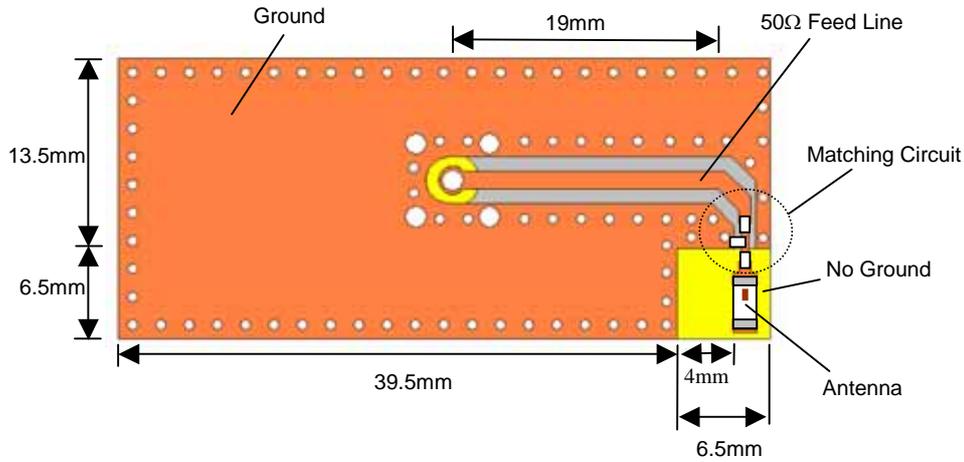
(b) With Matching Circuits



*Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

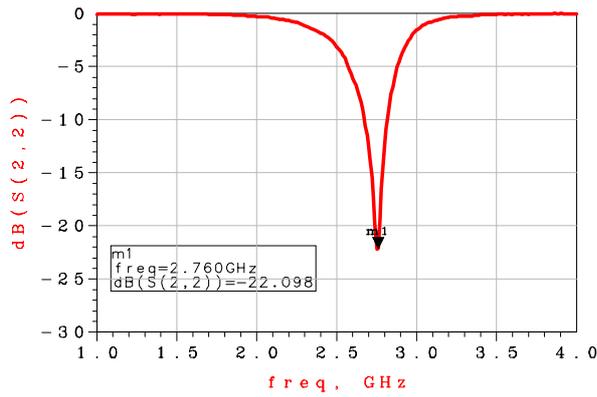
Typical Electrical Characteristics (T=25°C)

❖ Test Board

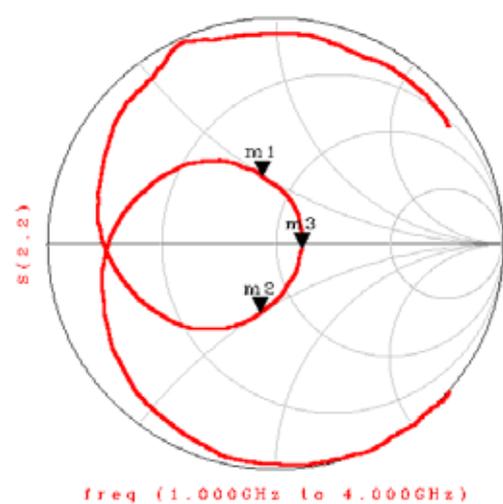
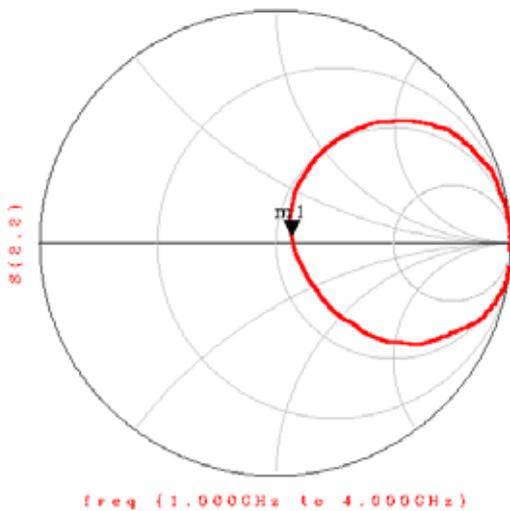
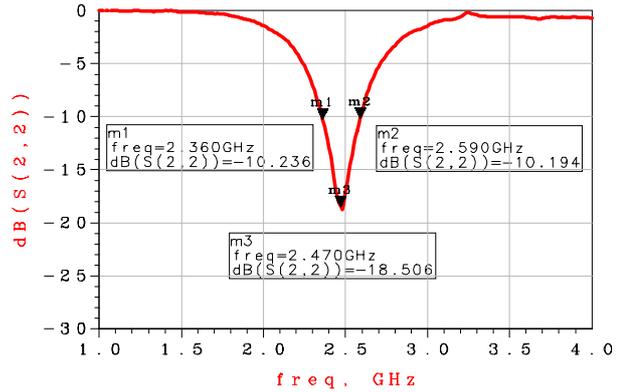


❖ Return Loss

(a) Without Matching Circuits

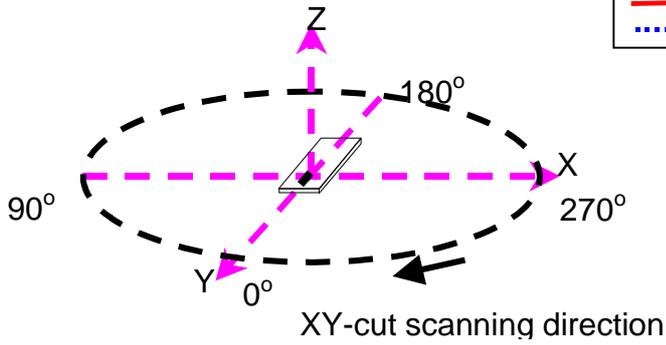


(b) With Matching Circuits

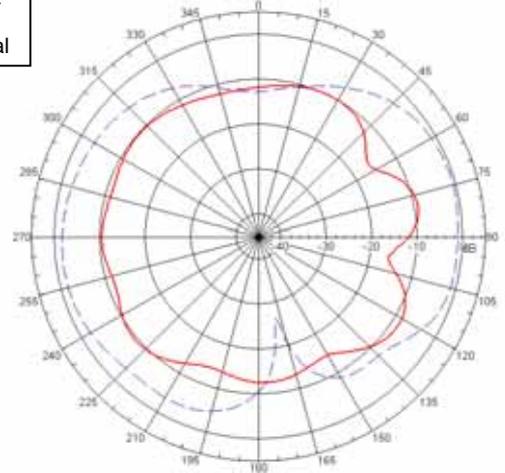


Radiation Patterns

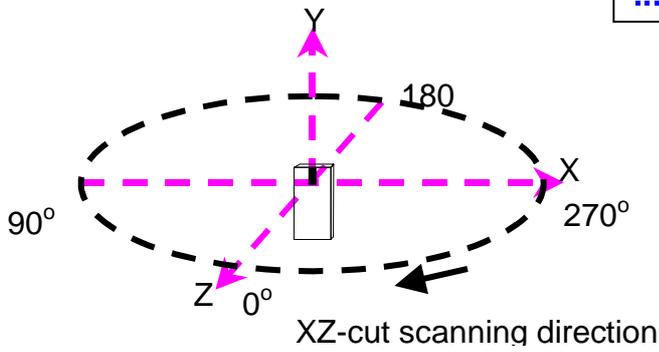
XY-V/XY-H



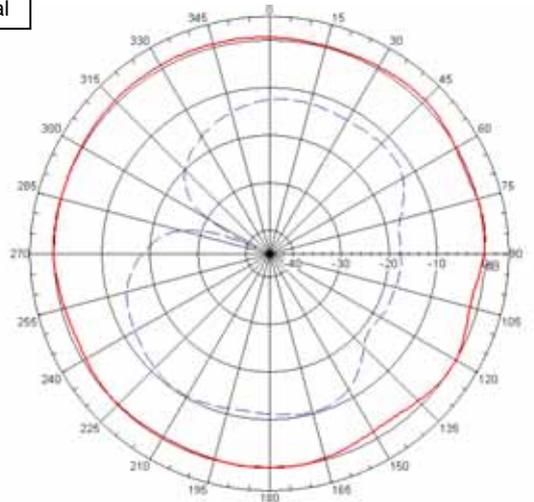
XY cut @2.45GHz
— Vertical
⋯ Horizontal



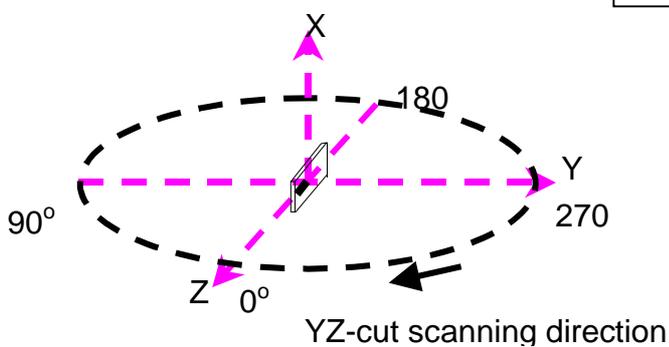
XZ-V/XZ-H



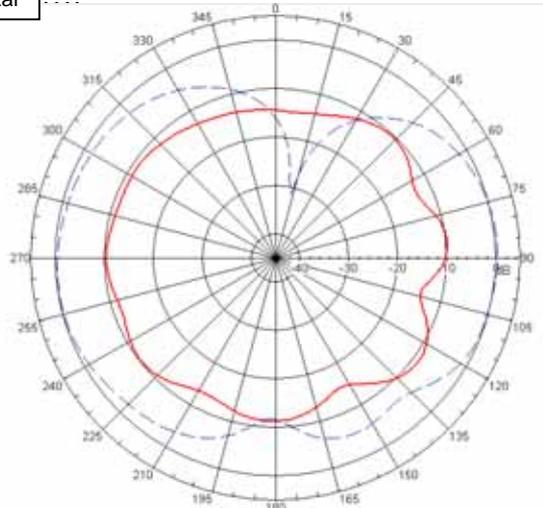
XZ cut @2.45GHz
— Vertical
⋯ Horizontal



YZ-V/YZ-H



YZ cut @2.45GHz
— Vertical
⋯ Horizontal



Advanced Ceramic X Corp.

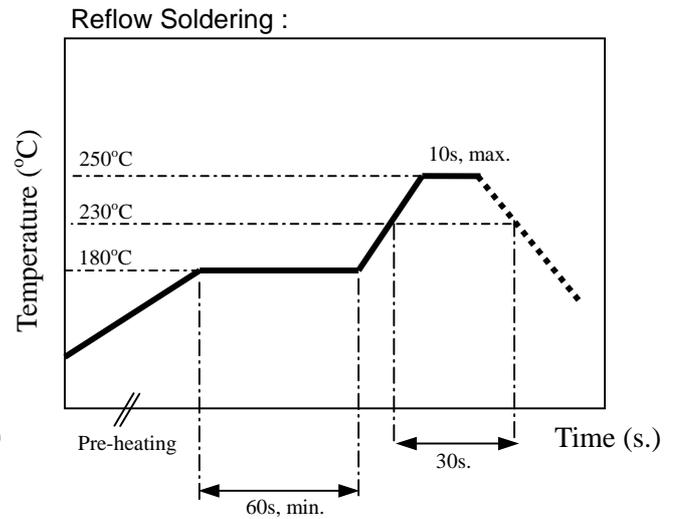
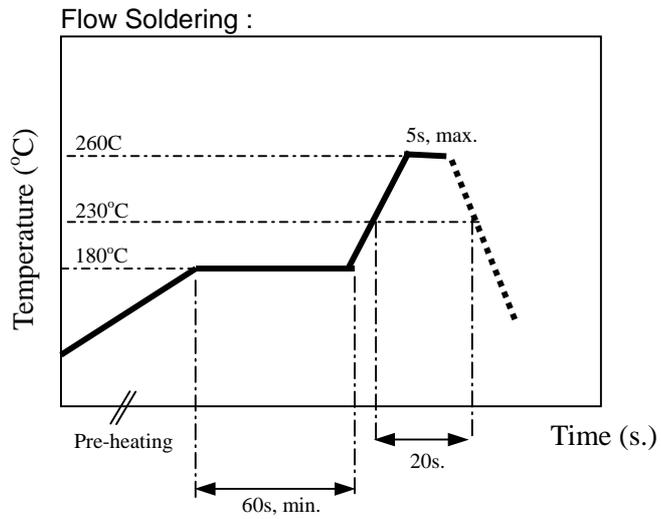
16 Tzu Chiang Road, Hsinchu Industrial District Hsinchu Hsien 303, Taiwan

TEL:886-3-5987008 FAX:886-3-5987001

E-mail: acx@acxc.com.tw <http://www.acxc.com.tw>

Soldering Conditions

❖ Typical Soldering Profile for Lead-free Process

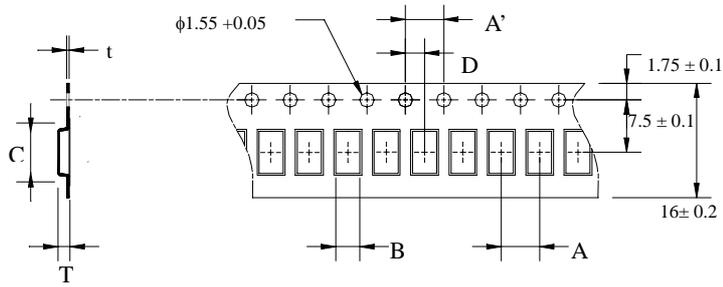


Notes

❖ The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.

Taping Specifications

❖ Tape Dimensions (Unit: mm)

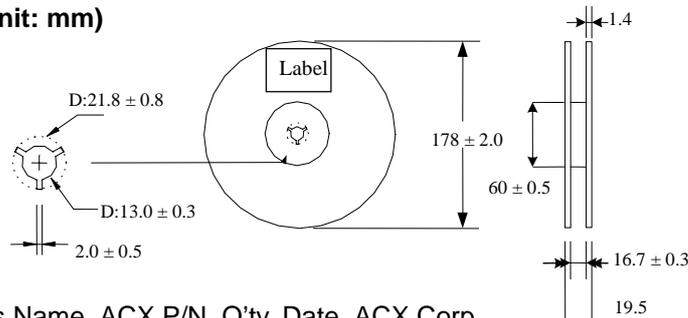


Tvne		A'	B	C	D	t	T
3216	4.0± 0.1	4.0± 0.1	1.9± 0.1	3.5± 0.1	2.0± 0.1	0.20± 0.05	Max. 1.4
5020	4.0± 0.1	4.0± 0.1	2.4± 0.1	5.5± 0.1	2.0± 0.1	0.20± 0.05	Max. 1.4
7020	4.0± 0.1	4.0± 0.1	2.4± 0.1	7.3± 0.1	2.0± 0.1	0.22± 0.05	Max. 1.55
7635	8.0± 0.1	4.0± 0.1	3.75± 0.1	7.85± 0.1	2.0± 0.1	0.30± 0.05	Max. 1.40
9520	4.0± 0.1	4.0± 0.1	2.3± 0.1	9.7± 0.1	2.0± 0.1	0.22± 0.05	Max. 1.45
R130	8.0± 0.1	4.0± 0.1	3.35± 0.1	10.35 ±0.1	2.0± 0.1	0.25± 0.05	Max. 1.40

❖ Quantity

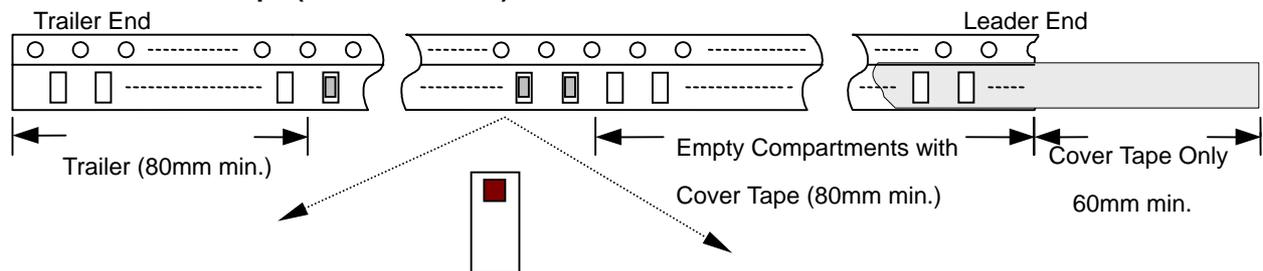
Type	3216	5020	7020	7635	9520	R130
Quantity/per reel	3,000pcs	2,000	1,000 pcs	1,000 pcs	1,000 pcs	1,000 pcs

❖ Reel Dimensions (Unit: mm)

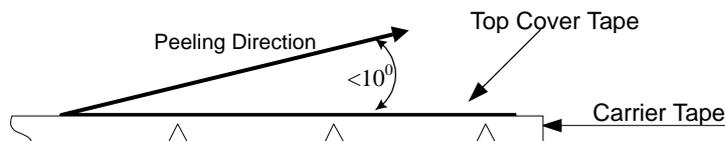


Label: Customer's Name, ACX P/N, Q'ty, Date, ACX Corp.

❖ Leader and Trailer Tape (Plastic material)



❖ Peel-off Force



Peel-off force should be in the range of 0.1 – 0.6 N at a peel-off speed of 300±10 mm/min .

❖ Storage Conditions

(1) Temperature: 15 ~ 35 , relative humidity (RH): 45~75%.

- (2) Non-corrosive environment
- (3) Products should be used within six months of receipt.

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Test Report

ADVANCED CERAMIC X CORPORATION.

16 TZU CHIANG ROAD, HSINCHU INDUSTRIAL DISTRICT,
HSINCHU HSIEN, TAIWAN 30316

Report No. : CE/2005/61217

Date : 2005/06/13

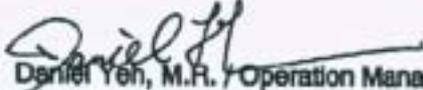
Page : 1 of 3

The following merchandise was (were) submitted and identified by the client as :

Type of Product : TERMINATION MATERIAL
Style/Item No : ALL PRODUCT
Sample Received : 2005/06/06
Testing Date : 2005/06/06 TO 2005/06/13

=====

Test Result : - Please see the next page -


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

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Test Report

ADVANCED CERAMIC X CORPORATION.
16 TZU CHIANG ROAD, HSINCHU INDUSTRIAL DISTRICT,
HSINCHU HSIEN, TAIWAN 30316

Report No. : CE/2005/61217
Date : 2005/06/13
Page : 2 of 3

Test Result

PART NAME NO.1 : MIXED ALL PARTS

Test Item (s):	Unit	Method	MDL	Result
				No. 1
Monobromobiphenyl	%	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.
Dibromobiphenyl	%		0.0005	N.D.
Tribromobiphenyl	%		0.0005	N.D.
Tetrabromobiphenyl	%		0.0005	N.D.
Pentabromobiphenyl	%		0.0005	N.D.
Hexabromobiphenyl	%		0.0005	N.D.
Heptabromobiphenyl	%		0.0005	N.D.
Octabromobiphenyl	%		0.0005	N.D.
Nonabromobiphenyl	%		0.0005	N.D.
Decabromobiphenyl	%		0.0005	N.D.
Total PBBs (Polybrominated biphenyls)/Sum of above	%		-	N.D.
Monobromobiphenyl ether	%	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.
Dibromobiphenyl ether	%		0.0005	N.D.
Tribromobiphenyl ether	%		0.0005	N.D.
Tetrabromobiphenyl ether	%		0.0005	N.D.
Pentabromobiphenyl ether	%		0.0005	N.D.
Hexabromobiphenyl ether	%		0.0005	N.D.
Heptabromobiphenyl ether	%		0.0005	N.D.
Octabromobiphenyl ether	%		0.0005	N.D.
Nonabromobiphenyl ether	%		0.0005	N.D.
Decabromobiphenyl ether	%		0.0005	N.D.
Total PBBEs (PBDEs)(Polybrominated biphenyl ethers)/Sum of above	%		-	N.D.

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Report No. : CE/2005/61217
Date : 2005/06/13
Page : 3 of 3

Test Item (s):	Unit	Method	MDL	Result
				No. 1
Chromium VI (Cr+6)	ppm	UV-VIS after reference to US EPA 3060A.	2	N.D.
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122, method B:2001 or other acid digestion.	2	N.D.
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	N.D.
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3050B or other acid digestion.	2	12.8

NOTE: (1) N.D. = Not detected (<MDL)
(2) ppm = mg/kg
(3) MDL = Method Detection Limit
(4) " - " = No Regulation