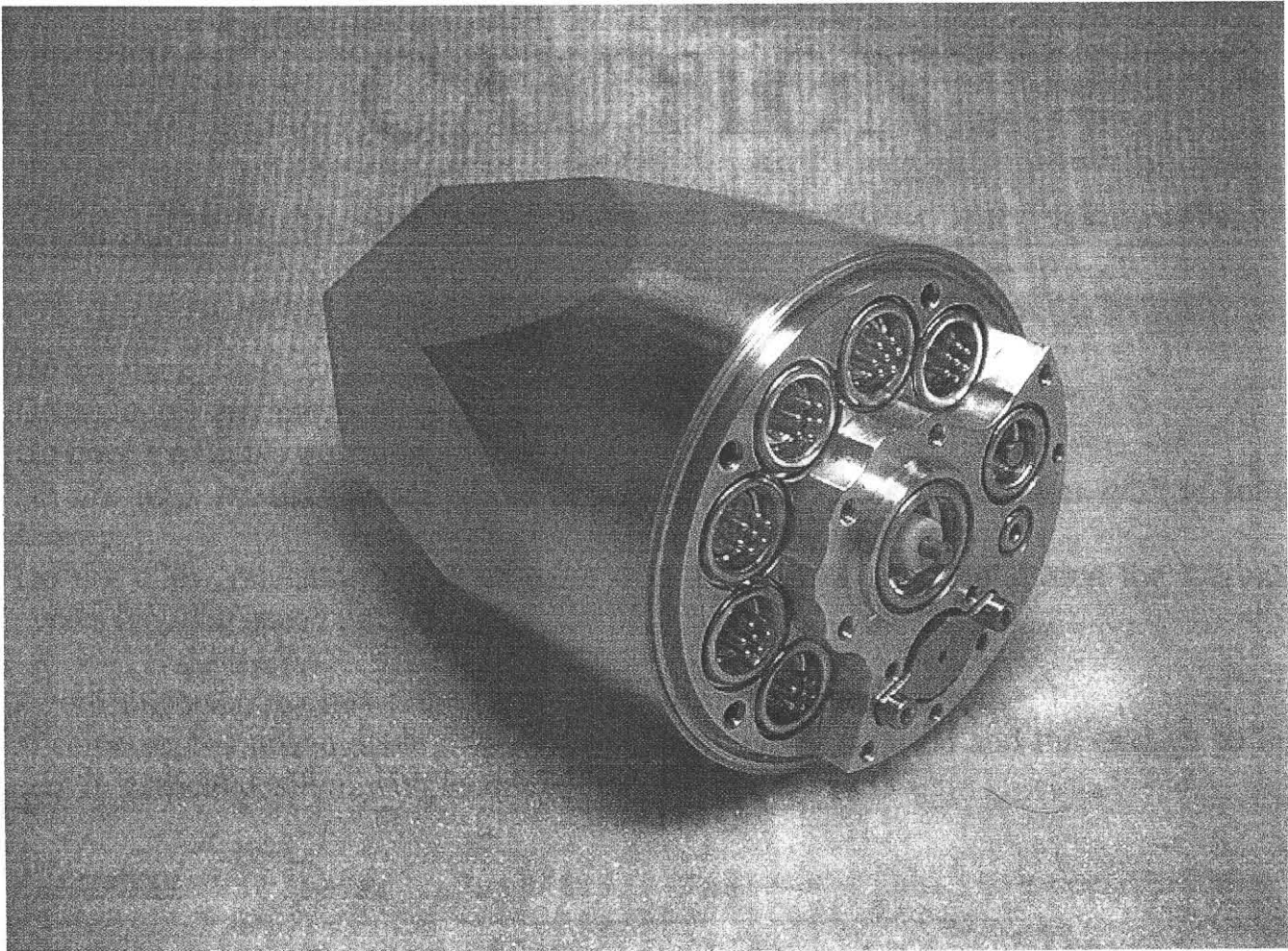


Type	Emetteur	Code Article	Indice	Format	Page
NT	010		A	4	

AGATA CANISTER N°001



Ind.	Rédigé par / Written by	Vérifié par / Verified by	Approuvé par / Approved by
	Date / Date 23/04/04	Date / Date 23-04-04	Date / Date 23.04.04
A	Nom / Name MUSTAPHA ALLALI	Nom / Name DANIEL GÜTKNECHT	Nom / Name ERIC PACHOUD
	Visa / Visa	Visa / Visa	Visa / Visa

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EURISYS ENCAPSULATED GERMANIUM DETECTOR.

OPERATING MANUAL

DIRECTIONS OF USE OF THE AGATA CANISTERS.

This sealed canister contains a high purity Germanium detector.
This detector is fragile and has to be used with the following rules.

CAUTION

Mechanical

- Do not manipulate the canister without gloves.
- Do not apply any mechanical effort on the flat walls of the canister.
- Do not hit or apply any lateral effort on the feedthroughs.
- Do not push on the bottom of the threads in the cover of the canister with too long screws.
- Do not allow reheating speed of more than 10 degrees per hour during the thermal cycles (cooling speed not limited).
- Avoid shipment by forwarding agent without absolute necessity.
- If shipment is unavoidable a special packaging has to be used and the canister to be sent in vertical position with feedthrough cover upside.

Electrical

- Do not apply more than 10 mA on the segments (like resistivity check) when detector is either hot or cold.
- Wait 24 supplementary hours after the canister is cold before applying the high voltage (because the limited thermal coupling between detector and canister)

Any non compliance of one of the above mentioned rules will cancel the warranty.

Type	Emetteur	Code Article	Indice	Format	Page
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EURISYS ENCAPSULATED GERMANIUM DETECTOR.
OPERATING MANUAL

AGATA CANISTER DETECTOR

N° 001

SERIAL NUMBER : 73838

Type	Emetteur	Code Article	Indice	Format	Page
NT	010		A	4	

EURISYS ENCAPSULATED GERMANIUM DETECTOR.
OPERATING MANUAL

Section 1 : Detector characteristics.

Section 2 : Mechanical.

Section 3 : Electrical and preamplifier.

Type	Emetteur	Code Article	Indice	Format	Page
NT	010		A	4	

EURISYS ENCAPSULATED GERMANIUM DETECTOR.
OPERATING MANUAL

Section 1 : Detector characteristics.

SPECIFICATIONS SHEET OF REGULAR AGATA DETECTOR

CANISTER NB :

A001

CRISTAL NB :

73838

FULL VOLUME PERFORMANCES

GARANTEED
SPECIFICATIONS

OPERATING HIGH VOLTAGE (POSITIVE)

+4000 V / 4 μ S

Fwhm at 1.33 MeV (⁶⁰Co)

2.25

< 2.35 keV

Efficiency

71.1 %

Fwtm/Fwhm at ⁶⁰Co

1.93

< 2

Peak / Compton

62.9

Fwhm at 122 keV (⁵⁷Co)

1.15

< 1.35

OUTER CONTACTS PERFORMANCES

< 1.2 keV at ²⁴¹Am
< 2.1 keV at ⁶⁰Co

		4 μ s	1	2	3	4	5	6
α	60 keV					0.95		
	1.33 MeV		1.99			1.87		2.14
β	60 keV					0.93		
	1.33 MeV		1.87			1.77		1.8
γ	60 keV			1.02		1.01		
	1.33 MeV		1.93			1.91		1.95
	122 keV – 2 μ s							1.26
	122 keV – 4 μ s							1.06
	122 keV – 6 μ s							1.12
δ	60 keV				1.16	1.12	0.985	
	1.33 MeV					1.95		
ϵ	60 keV					1.07		0.982
	1.33 MeV					1.92		
ϕ	60 keV		1.04			1.04		
	1.33 MeV					2.09		

Date : 15-04-04

Measured By

Pierre Benthif-Syllas

Approved by

Daniel Gutknecht

Customer
representant

Dr Eberth

Visa :

Visa :

Visa :

SPECIFICATIONS SHEET OF REGULAR AGATA DETECTOR

CANISTER NB :

01

CRISTAL NB :

73838

FULL VOLUME PERFORMANCES

GARANTEED
SPECIFICATIONS

OPERATING HIGH VOLTAGE (POSITIVE)

+4000 V / 4 μ s

+ 4000V / 2 μ s

Fwhm at 1.33 meV (⁶⁰Co)

2.19

< 2.35 keV

Efficiency

72.8 %

71.6 %

Fwtm/Fwhm at ⁶⁰Co

1.93

< 2

Peak / Compton

63.6

Fwhm at 122 keV (⁵⁷Co)

1.16

< 1.35

OUTER CONTACTS PERFORMANCES

< 1.2 keV at ²⁴¹Am
< 2.1 keV at ⁶⁰Co

4 μ s		1	2	3	4	5	6
α	60 keV	0.99	0.99	0.98	0.965	1.04	1.06
	1.33 MeV					2.0	
β	60 keV	0.94	1.0	0.915	0.89	0.94	0.95
	1.33 MeV					1.9	
γ	60 keV	1.0	0.99	0.96	0.975	1.0	1.02
	1.33 MeV	2.0				1.9	
δ	60 keV	1.05	0.97	1.09	0.97	0.95	0.93
	1.33 MeV	2.16	2.0				
ϵ	60 keV	1.13	1.55	1.06	1.05	0.97	0.98
	1.33 MeV	2.1	2.5				
ϕ	60 keV	1.07	1.06	1.13	0.94	1.05	1.0
	1.33 MeV		2.15				

$$\pi_{\text{eau}/35} = 1,00 \text{ keV}$$

$$\pi_{\text{eau}/36} = 1,015 \text{ keV}$$

Date : 13-04-04

Measured By

Pierre Bendhif-
Syllas

Approved by

Daniel Gutknecht

Customer
representant

Traitement du spectre voie 1.SPE

Full Volume ⁶⁰Co

Chemin d'accès: 1
Détecteur: 2934.65 s
Temps actif: 2979.88 s
Temps réel: 1.52 %
Temps mort: 744.112 cps
Taux de comptage: 04/11/1991 00:00:00
Date d'origine: 4546.35 jours
Age de la source: 15/04/2004 08:30:27
Date d'acq.: 1.000 kg
Quantité échantillon: STANDARD.ISO du 09/06/1993 17:43:16
Table d'isotopes: 2.0 keV
Fenêtre d'ident.: -----
Courbe d'efficacité: 10 périodes max.
Décroissance: 0.00 - 0.00
Résolution: 3.00 / 3.00
Paramètres recherche de pics:

Commentaire:

Date de traitement: 15/04/2004 09:20:08
Version 4.1 (Build 1054) - GAMMA/Séparation (3.00*SIGMA)
Traitement:

Pic N° 1
Canaux: 10071-10242 (172 canaux)
Intégrale: 183582
Aire nette: 173952
Centroïde: 1173.5 keV
FWHM (1/2): 2.11+- 0.05 keV
FWTM (1/10): 4.03+- 0.05 keV 1/ 10 : 1/2 = 1.91 +- 0.05
FWFM (1/50): 5.64+- 0.09 keV 1/ 50 : 1/2 = 2.67 +- 0.07
FWHM (1/100): 6.39+- 0.06 keV 1/100 : 1/2 = 3.03 +- 0.07

Pic N° 2
Canaux: 11434-11672 (239 canaux)
Intégrale: 163873
Aire nette: 161098
Centroïde: 1332.9 keV
FWHM (1/2): 2.25+- 0.05 keV
FWTM (1/10): 4.34+- 0.05 keV 1/ 10 : 1/2 = 1.93 +- 0.04
FWFM (1/50): 5.95+- 0.06 keV 1/ 50 : 1/2 = 2.65 +- 0.06
FWHM (1/100): 6.64+- 0.10 keV 1/100 : 1/2 = 2.95 +- 0.07

Plateau supérieur
Canaux: 11611-11871 (261 canaux)
Intégrale: 1455
Moyenne: 5.58

Plateau Compton
Canaux: 9008-9494 (487 canaux)
Intégrale: 60604
Moyenne: 124.44
Moyenne nette: 118.87

Données Détecteur

Résolution: 2.25 keV
Rapport pic/compton: 63.0:1
Activité source: 3.294E+05 Bq
Activité corrigée: 6.388E+04 Bq
Efficacité: 71.76 %

***** Eurisys *****
*** EVALUATION VERSION - NOT FOR SALE ***

Traitement du spectre FULL VOLUME CO57.SPE

Chemin d'accès: C:\RECETTE AGAT
Décteur: 1
Temps actif: 301.50 s
Temps réel: 314.12 s
Temps mort: 4.02 %
Taux de comptage: 1870.672 cps
Date d'origine: 04/11/1991 00:00:00
Age de la source: 4546.40 jours
Date d'acq.: 15/04/2004 09:33:04
Quantité échantillon: 1.000 kg
Table d'isotopes: STANDARD.ISO du 09/06/1993 17:43:16
Fenêtre d'ident.: 2.0 keV
Courbe d'efficacité: -----
Décroissance: 10 périodes max.
Résolution: 0.00 - 0.00
Paramètres recherche de pics: 3.00 / 3.00

Commentaire:

Date de traitement: 15/04/2004 09:38:20
Traitement: Version 4.1 (Build 1054) - GAMMA/Séparation (3.00*SIGMA)

Pic N° 1
Canaux: 5228-5416 (189 canaux)
Intégrale: 257009
Aire nette: 247883
Centroïde: 122.1 keV
FWHM (1/2): 1153.74+-13.45 eV
FWTM (1/10): 2169.01+-12.79 eV 1/ 10 : 1/2 = 1.88 +- 0.02
FWFM (1/50): 2893.20+-22.12 eV 1/ 50 : 1/2 = 2.51 +- 0.03
FWHM (1/100): 3154.18+-11.31 eV 1/100 : 1/2 = 2.73 +- 0.03

Pic N° 2
Canaux: 5881-6105 (225 canaux)
Intégrale: 32471
Aire nette: 31280
Centroïde: 136.5 keV
FWHM (1/2): 1107.02+-21.87 eV
FWTM (1/10): 2126.09+-19.45 eV 1/ 10 : 1/2 = 1.92 +- 0.04
FWFM (1/50): 2916.14+-68.31 eV 1/ 50 : 1/2 = 2.63 +- 0.08
FWHM (1/100): 3139.34+-15.68 eV 1/100 : 1/2 = 2.84 +- 0.06

Traitement du spectre 5 - DELTA - AM241.SPE

Chemin d'accès: C:\RECETTE AGAT
Décteur: 2
Temps actif 104.40 s
Temps réel 110.34 s
Temps mort: 5.39 %
Taux de comptage: 2774.747 cps
Date d'origine: 04/11/1991 00:00:00
Age de la source: 4546.42 jours
Date d'acq.: 15/04/2004 10:00:13
Quantité échantillon: 1.000 kg
Table d'isotopes: STANDARD.ISO du 09/06/1993 17:43:16
Fenêtre d'ident.: 2.0 keV
Courbe d'efficacité: -----
Décroissance: 10 périodes max.
Résolution: 0.00 - 0.00
Paramètres recherche de pics: 3.00 / 3.00

Commentaire:

Date de traitement: 15/04/2004 10:02:04
Traitement: Version 4.1 (Build 1054) - GAMMA/Séparation (3.00*SIGMA)

Pic N° 1

Canaux: 2900-3251 (352 canaux)
Intégrale: 266370
Aire nette: 263998
Centroïde: 59.6 keV
FWHM (1/2): 984.98+-14.73 eV
FWTM (1/10): 1787.59+-11.57 eV 1/ 10 : 1/2 = 1.81 +- 0.03
FWFM (1/50): 2369.60+-15.71 eV 1/ 50 : 1/2 = 2.41 +- 0.04
FWHM (1/100): 2702.18+-15.75 eV 1/100 : 1/2 = 2.74 +- 0.04

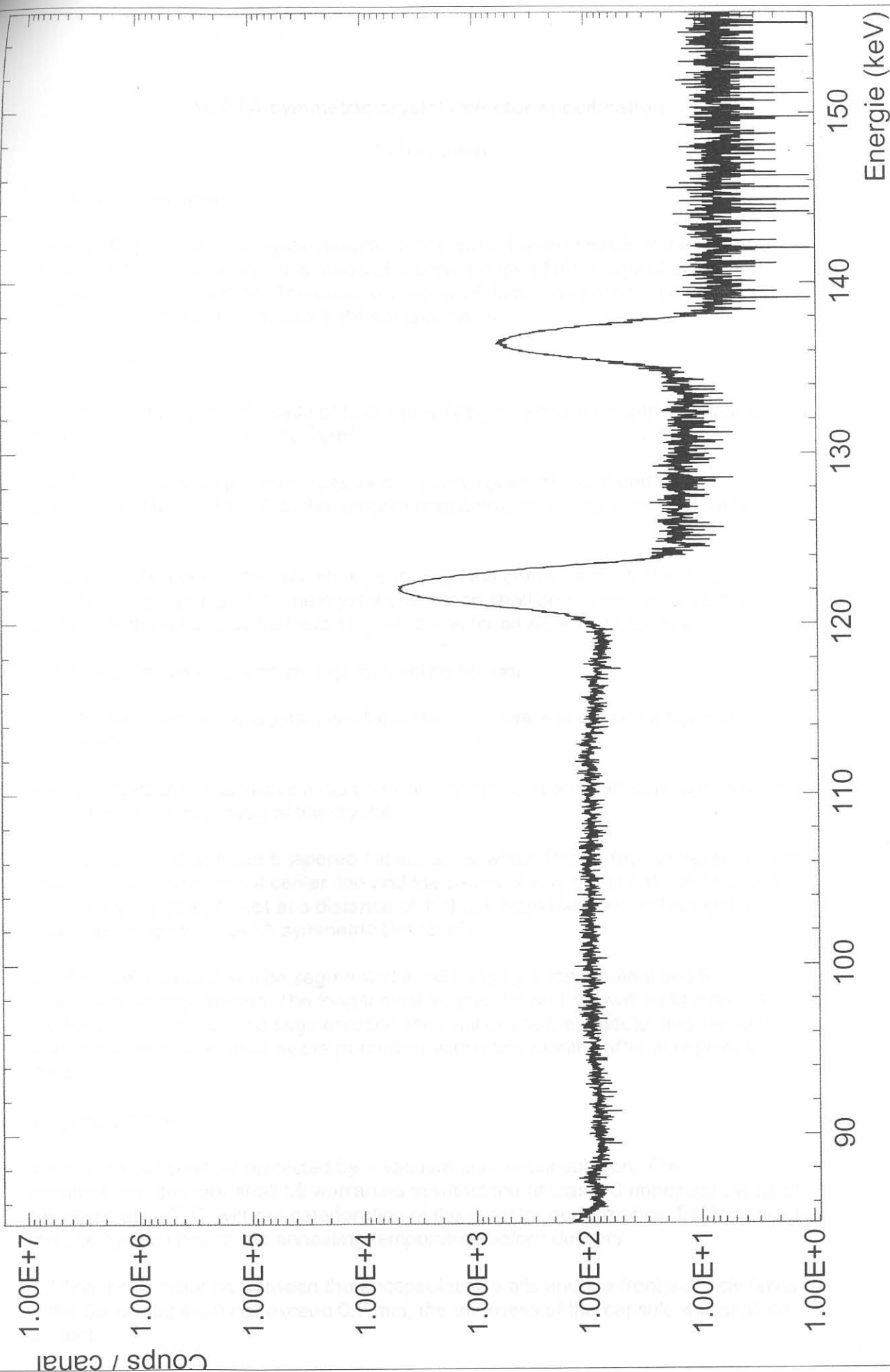
Pic N° 2

Canaux: 6202-6420 (219 canaux)
Intégrale: 217
Aire nette: 219
Centroïde: 122.6 keV
FWHM (1/2): 54.60+-16.23 eV
FWTM (1/10): 202.09+-12.97 eV 1/ 10 : 1/2 = 3.70 +- 1.13
FWFM (1/50): 212.52+- 7.25 eV 1/ 50 : 1/2 = 3.89 +- 1.16
FWHM (1/100): 213.82+- 7.00 eV 1/100 : 1/2 = 3.92 +- 1.17

Pic N° 3

Canaux: 6976-7191 (216 canaux)
Intégrale: 65
Aire nette: 38
Centroïde: 136.0 keV
FWHM (1/2): 19.56+-15.46 eV
FWTM (1/10): 35.20+- 7.45 eV 1/ 10 : 1/2 = 1.80 +- 1.47
FWFM (1/50): 38.33+- 6.94 eV 1/ 50 : 1/2 = 1.96 +- 1.59
FWHM (1/100): 38.72+- 6.92 eV 1/100 : 1/2 = 1.98 +- 1.60

voie 1 - FULL VOLUME CO57.SPE



AGATA symmetric crystal detector specification

(23rd Oct. 2002)

1. General description

The AGATA symmetric crystal detector is the basic building block of the first AGATA triple cluster detector unit. It is made of a closed-ended HPGe crystal of tapered regular hexagonal shape. The outer contact is 36-fold segmented. The detector crystal is mounted in a vacuum tight encapsulation.

2. Detector

2.1 The crystals shall be made of high-purity N-type germanium with an impurity concentration of $0.6 - 1.6 \times 10^{10}/\text{cm}^3$.

2.2 The vendor shall provide measured impurity concentrations and a parameterisation to calculate the impurity concentration variation throughout the crystal.

2.3 One of the Ge crystal axis shall go through the center of one flat with an accuracy of better than 5° . The crystal orientation shall be marked on the front surface of the encapsulation and stay the same for all AGATA detectors.

2.4 The minimum length of the crystal shall be 90 mm.

2.5 The diameter of the crystal shall be 80 mm (before it is cut into a tapered hexagon).

2.6 The inner core shall have a diameter of <10 mm and an inner core extension to 15 mm from the front face of the crystal.

2.7 The crystal shall have 6 tapered flat surfaces, which form a regular hexagon. The angle between the crystal center line and the centre of any of the flat surfaces is 10° , and the two lines intercept at a distance of 150 mm from the front surface of the crystal (see figure "AGATA symmetric Detector").

2.8 The outer contact will be segmented in 36 parts by 6 longitudinal and 5 transverse segmentations. The longitudinal segmentation lines will be at the center of the flat and the transverse segmentation lines will divide the detector into sections with widths to be specified by the purchaser within two months after acceptance of the order.

3. Encapsulation

3.1 The crystal shall be protected by a vacuum tight encapsulation. The encapsulated detector shall be warranted to withstand at least 10 annealing cycles of five hours at 110°C without deterioration of the detector performance. Each detector shall be cycled once to the annealing temperature before delivery.

3.2 The mean distance between the encapsulation walls and the front and side faces of the Ge crystal must not exceed 0.7 mm, the thickness of the capsule wall shall be 0.7 mm.

3.3 The vendor will submit, for approval by the AGATA collaboration, a drawing of the capsule and the capsule lid showing the positions of the vacuum feedthroughs and of the threads for mounting of the detector and the electronics board.

3.4 The vendor will submit, for approval by the AGATA collaboration, a plan of the cabling of the segment signals to the vacuum feedthroughs.

3.5 Any material containing Fluorine should be avoided within the capsule.

4. Performance of the detector elements

4.1 The operating voltage V_{op} must be equal or exceed a value given by the following relation: $V_{op} > (10 \times V_{depl} + 7500) / 11$ [U in Volt] V_{depl} : depletion voltage. The maximum operating voltage shall be limited to $V_{op} = 5000$ V. The maximum leakage current of the detector shall not exceed 100 pA at V_{op} .

4.2 The efficiency of the detector (relative to 76 mm x 76 mm NaI detector measured at a source distance of 25 cm) shall be ≥ 90 % at $E_{\gamma} = 1.33$ MeV.

4.3 The cross-talk between the different segments shall be $< 10^{-3}$.

4.4 The following parameters should be measured in a test cryostat using a preamp with cold FET's agreed to by vendor and purchaser and a Gaussian shape amplifier with a shaping time of 6 μ s :

<2.3 keV FWHM at 1.33 MeV for the core signal (segments grounded)

<1.2 keV FWHM at 0.12 MeV for the core signal (segments grounded)

<2.0 keV FWHM at 1.33 MeV for each of the 36 segments (other segments grounded)

<1.0 keV FWHM at 0.12 MeV for each of the 36 segments (other segments grounded)

FWTM/FWHM <2.0 at 1.33 MeV

FWFM/FWHM <3.0 at 1.33 MeV

6. Warranty

The detector shall be warranted to perform within specifications for a period of one year following its acceptance by the AGATA collaboration. Terms of the warranty and for detector repairs are to be specified by the vendor.

SALES DEPARTMENT

Parc des Tanneries - 1, Chemin de la Roseraie
67380 LINGOLSHEIM (FRANCE)

For Mail

B.P. 311

67834 TANNERIES CEDEX (FRANCE)

Tel.+33 3 88 77 43 59

Fax+33 3 88 78 68 22

e-mail : pquirin@canberraeurisys.com**Dr EBERTH**

Univ Koln

QUOTATION N° 03-027PQ/GR

Date : 18/02/03

Dear Sirs,

We thank you for your inquiry and have the pleasure to send you the following offer. Should you need any further information and assistance, please do not hesitate to contact us.

AGATA Symmetric Encapsulated Germanium Crystal SPECIFICATIONS :

Your requirements :	Our comments :
1. GENERAL DESCRIPTION	OK
2. DETECTOR :	
2.1 The crystals shall be made of high purity N-Type germanium with an impurity concentration of $0.6-1.6 \times 10^{10}/\text{cm}^3$	The impurity concentration will be: $0,4 - 1,8 \times 10^{10}/\text{cm}^3$
2.2	OK
2.3	OK
2.4	OK
2.5	OK
2.6 The inner core shall have a diameter of < 10 mm	The core diameter will be =10mm
2.7	OK
2.8 Longitudinal and transverse segmentation lines	Subject to acceptance by CANBERRA EURISYS. 8mm will be 10mm for the front transverse segmentation line
3. ENCAPSULATION :	
3.1 Annealing cycles	One cycle at 100° for 24h with customers attending. No other commitment, because customer annealing cycle is not under CANBERRA EURISYS control.
3.2 The mean distance between the encapsulation walls and the front and side faces of the Ge crystal must not exceed 0.7mm, the thickness of the capsule wall shall be 0,7mm	NO. The capsule wall will be 0,8mm.
3.3	OK
3.4	OK
3.5	OK
4. PERFORMANCE OF THE DETECTOR ELEMENTS	
4.1	OK

4.2 Relative efficiency of the detector.	We can not guarantee any theoretical efficiency. The efficiency of the detector will be given by the shape.
4.3	OK
4.4 Resolution measurement	<p>All measurements will be performed with our electronics in our test cryostat</p> <p>SEGMENTS RESOLUTION :</p> <p>Guaranteed resolution at 122keV : All 36 channels less than 1.4 keV Mean value less than 1,2keV</p> <p>Expected resolution at 122keV: Mean value less than 1.05keV</p> <p>Guaranteed resolution at 1.33MeV : All 36 channels less than 2.3keV Mean value less 2.1keV</p> <p>Expected resolution at 1.33keV Mean value less than 2.05keV</p> <p>CENTRAL CHANNEL RESOLUTION (core signal):</p> <p>Guaranteed resolution at 122keV : Less than 1.35keV</p> <p>Guaranteed resolution at 1.33MeV : Less than 2.35keV</p> <p>PEAK SHAPE:</p> <p>FWTM/FWHM < 2.0 at 1.33MeV for all 37 channels of the detector.</p>
6. WARRANTY.	<p>OK</p> <p>The acceptance of the detector will occur within one month after shipment.</p>

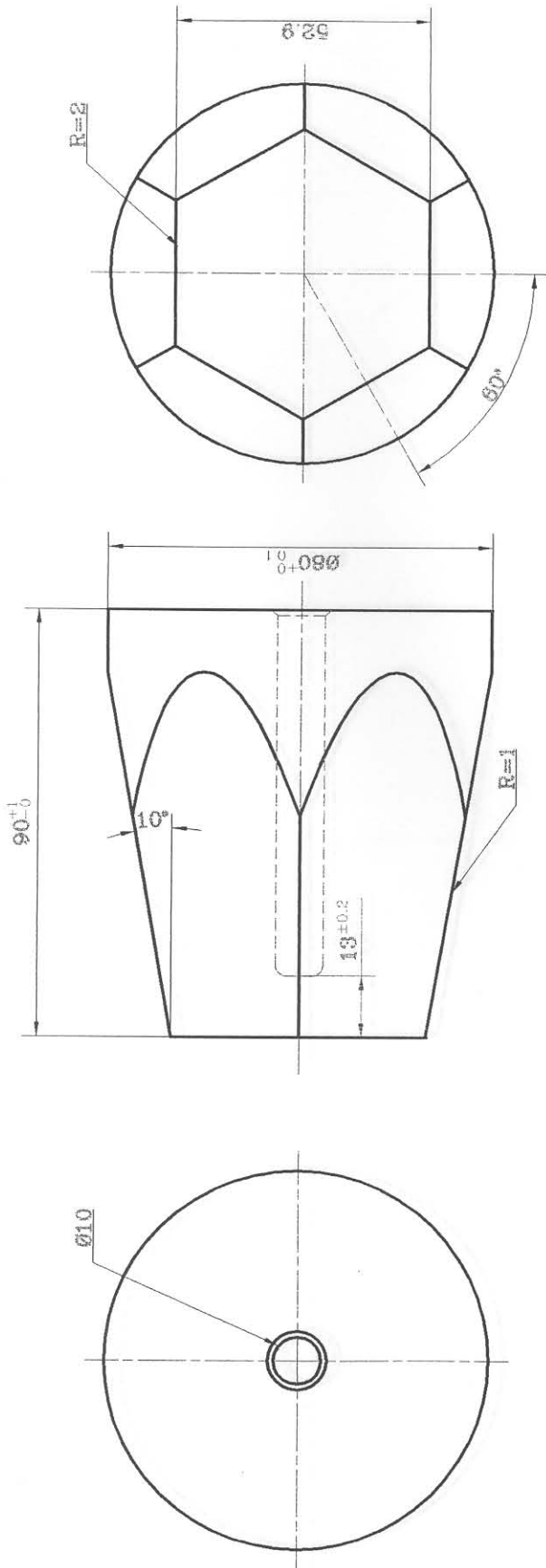
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Type	Emetteur	Code Article	Indice	Format	Page
NT	010		A	4	

EURISYS ENCAPSULATED GERMANIUM DETECTOR.
OPERATING MANUAL

Section 2 : Mechanical.

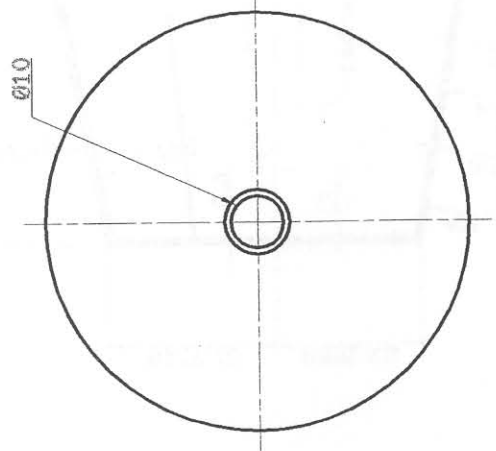
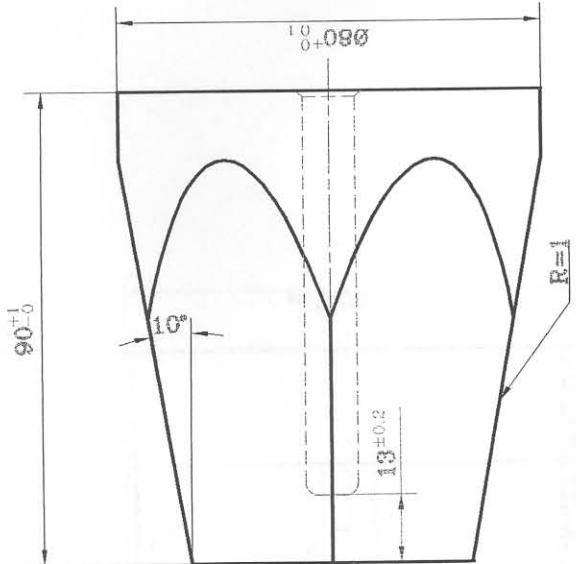
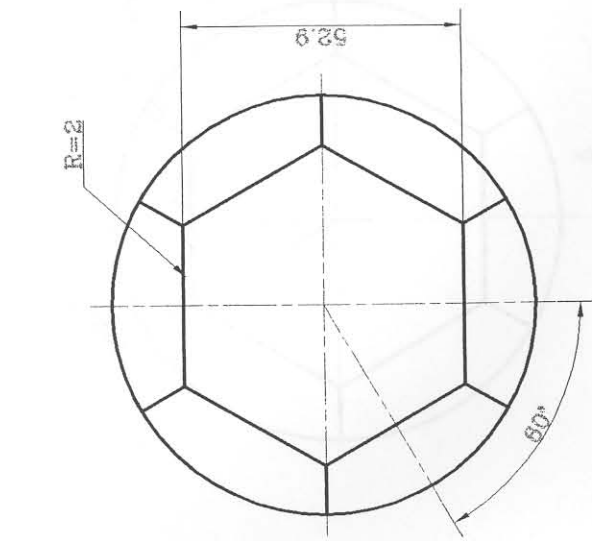
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A	25.02.04	First issue	
Index	Date	Modifications	
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		Generates tolerances: /	
Customer :			
Ref :			
Customer approval		/ Signature	
Date			
A CANBERRA This document is property of CANBERRA ELECTRONICS S.A. and must not be copied without our authorization.			
AGATA DETECTOR Crystal size		10PC376764-A	
Activity	Type	Brand	Reference n°

Drawn by / Verified by / Approved by

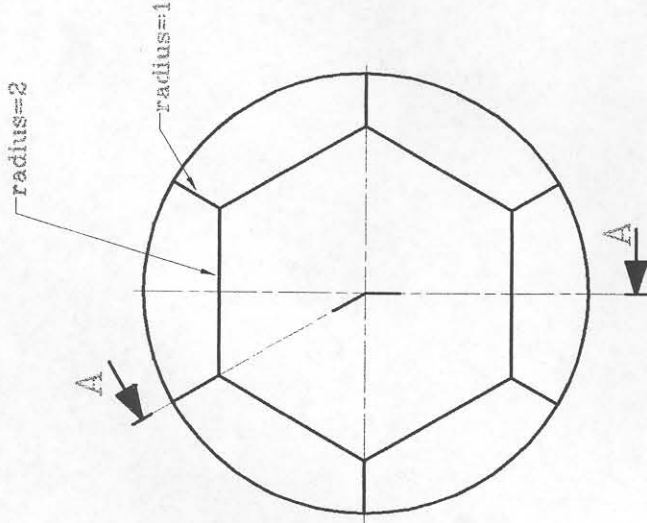
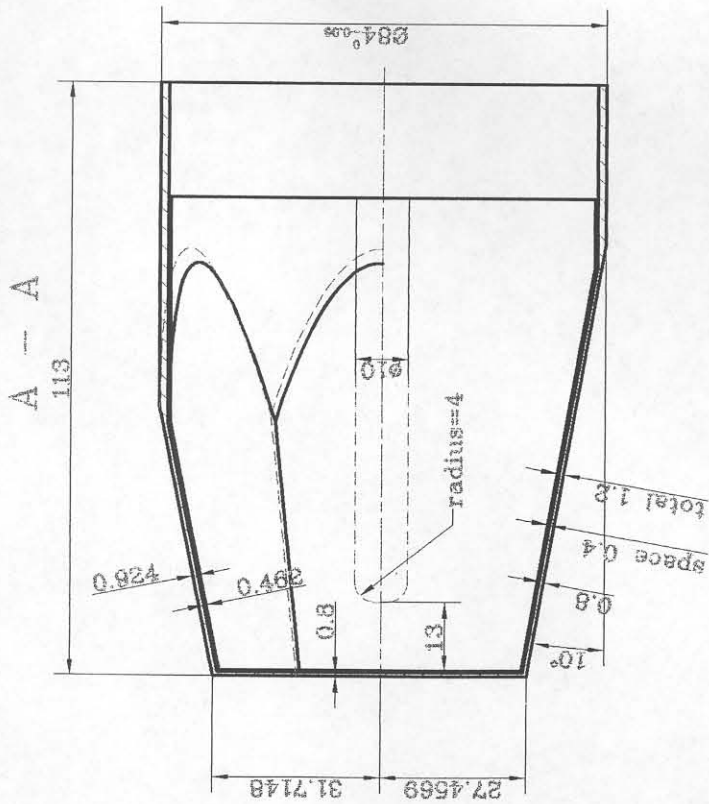
CANBERRA ELECTRONICS SA
 B.P. 911
 P-67694 TANNIERS CEDEX
 Tel: 051 62.67.41.61 - Fax: 051 62.67.41.22



A 125.02.04	First issue	Modifications
Index	Date	
	Scale: 1: Mass: /	<p>A CANBERRA <small>Canberra EURYSYS SA E.P. 311 P-67894 TANPERRIS CEDREX Tel: 33 49 16 34 77 65 - Fax: 33 49 16 34 77 62</small></p>
	Geometrical tolerances: /	
Customer: /		<p>AGATA DETECTOR Crystal size</p>
Réf: /		<p>10PC376764-A</p>
Customer approval Date: /		<p>Customer Signature: /</p>

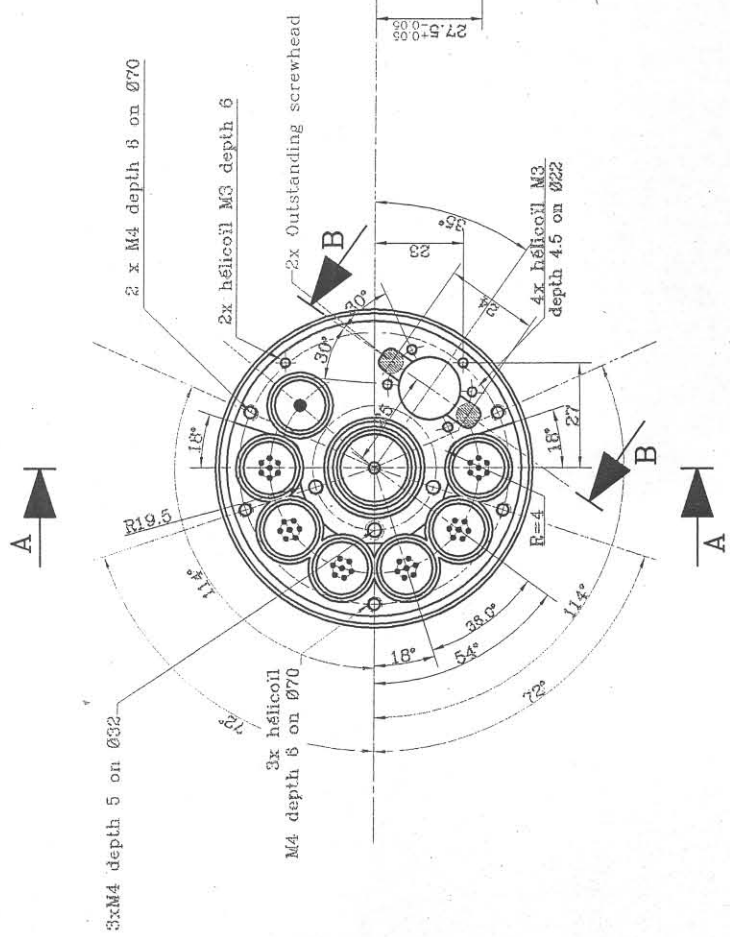
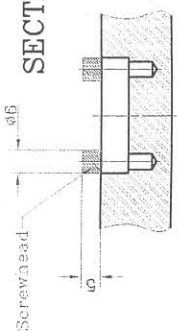
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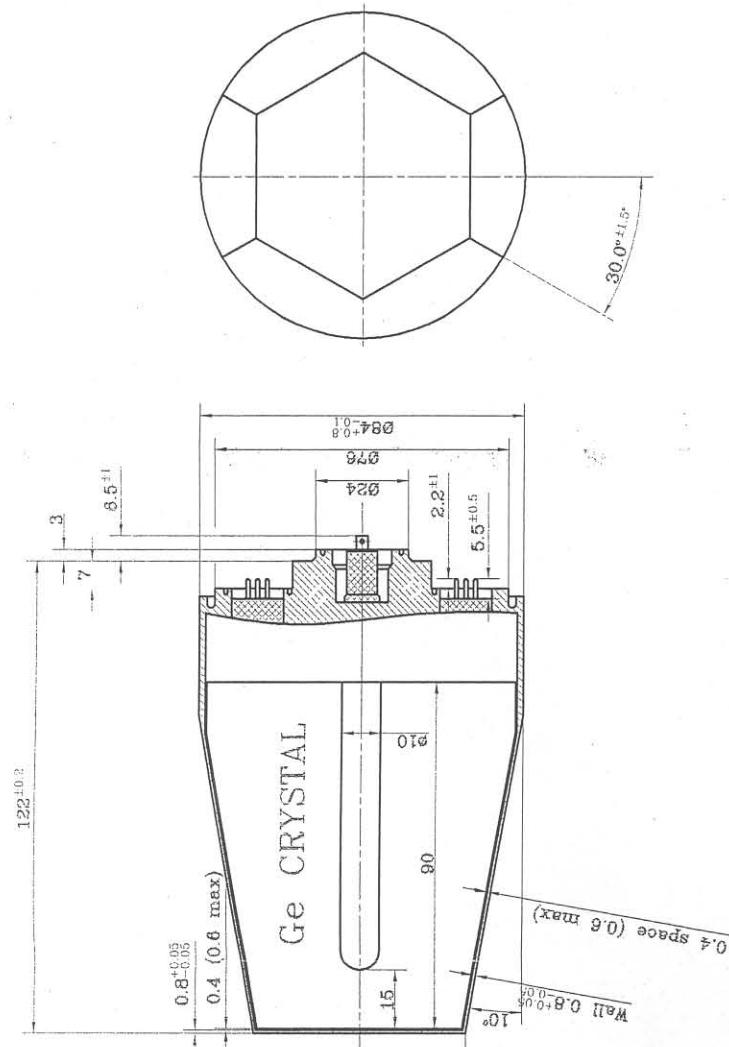


A	21/4/04	First issue	Modifications
Index	Date		
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Customer :			
Réf :			
<p style="text-align: center;">A</p> <p style="text-align: center;">CANBERRA</p> <p style="text-align: center;">REGULAR AGATA</p> <p style="text-align: center;">Detector + Canister</p>			
<p style="text-align: center;">CANBERRA EURISTS SA</p> <p style="text-align: center;">B.P. 311</p> <p style="text-align: center;">F-67634 TAMNÉRES CEDEX</p> <p style="text-align: center;">Tel (33) 03.87.74.16 - Fax (33) 03.87.74.22</p>		<p style="text-align: center;">This document is property of CANBERRA EURISTS SA and must not be copied without our authorization</p>	
<p style="text-align: center;">L. S. I. G. / T. A. R. R. I. N. I. C. H. O. U.</p> <p style="text-align: center;">Drawn by / Verified by / Approved by</p>		<p style="text-align: center;">10PC376763-A</p>	
Activity	Type	Revision	Page

SECTION B-B



SECTION A-A



A 16/10/08	First issue	L.A.A.S. SCHNEIDERBERG	
Index	Date	Drawn by / Verified by / Approved by	
	Scale:	CANBERRA	CANBERRA EURISYS SA B.P. 311 F-67834 TANNERIES CEDEX Tel (33) 03.88.77.43.50 - Fax (33) 03.88.78.02.22
	Mass:		
Customer :		REGULAR AGATA CANISTER	
Réf :		Manufacturing draft	
		Activity	Formal
		Type	Reference n°
		10PC375731-A	
		Index	Folios

Final tolerances to be validated after prototype manufacturing

DIODE n¹/₂ 73838

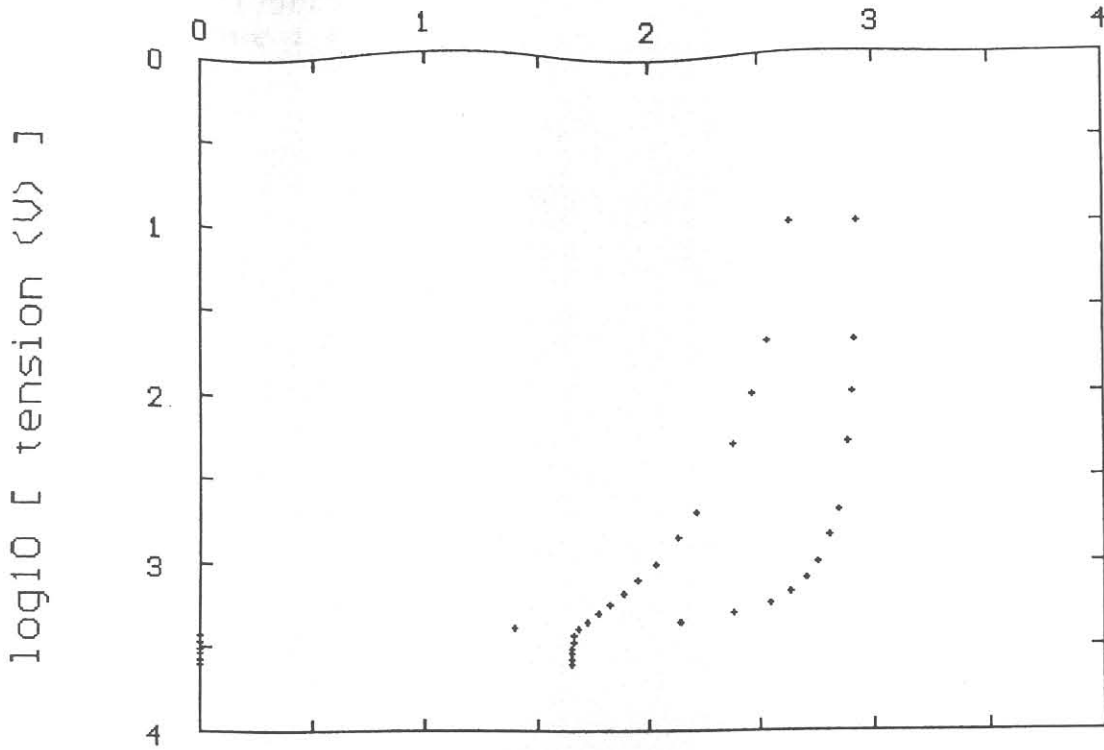
n¹/₂ de commande : 121103
 n¹/₂ d'ordre de fabrication : 20716
 date de reception : 19/11/03
 fichier [DEC03]

CARACTERISTIQUES DU CRISTAL

DIODE : 73838		CRISTAL : 4544		TYPE : N EFF : 80		
longueur (mm)	poids (g)		diamtre (mm)	impurets (1e10 cm-3)	mobilit (m2/Vs)	dens. disl. (cm-2)
90.0	2428	T	80.2	0.43	2.39	2783.0
		Q	80.2	1.50	2.50	3000.0

IMPRESSION DONNEES

$\log_{10} [C \text{ (pF)} - R \text{ (}\Omega\text{)}]$



$$V_{op} = \frac{10 \times 2750 + 7500}{11}$$

$$V_{op} = 3180 \text{ V}$$

MESURE CAPACITE / RESISTIVITE

DIODE n¹/₂ : 73838 [JAN.2004]
 23/1/2004 15:05
 Manipulateur : KL

Tension (V)	Capacit (pF)	Rsistivit (ō)
10	443.50	867.0
50	354.00	847.0
100	299.50	828.0
200	240.00	791.0
x 500	164.00	717.0
700	135.90	655.0
λ 1000	107.36	580.0
1250	90.70	520.0
∫ 1500	77.86	445.0
1750	68.17	355.0
+ 2000	60.69	245.0
2250	54.46	140.0
x 2500	49.36	25.0
2750	46.93	0.0
x 3000	46.79	0.0
3250	46.75	0.0
∫ 3500	46.73	0.0
3750	46.67	0.0
λ 4000	46.67	0.0

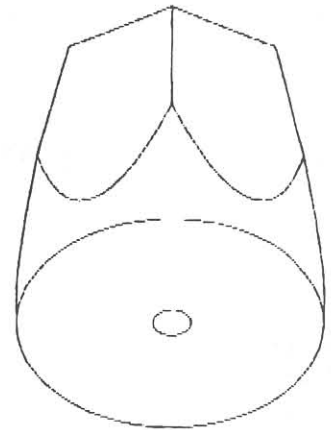
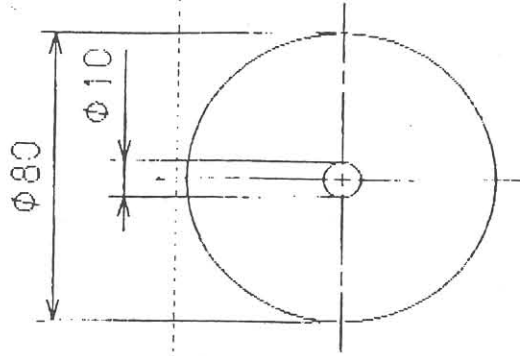
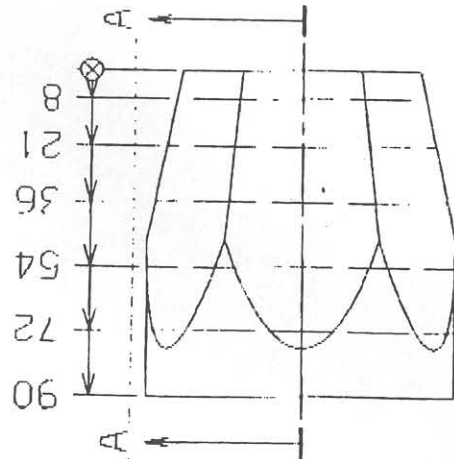
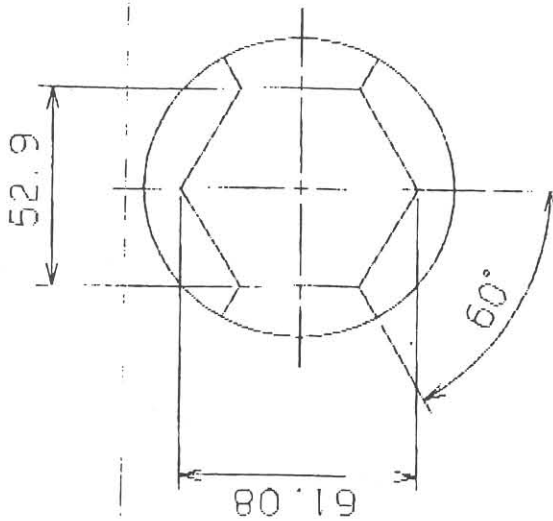
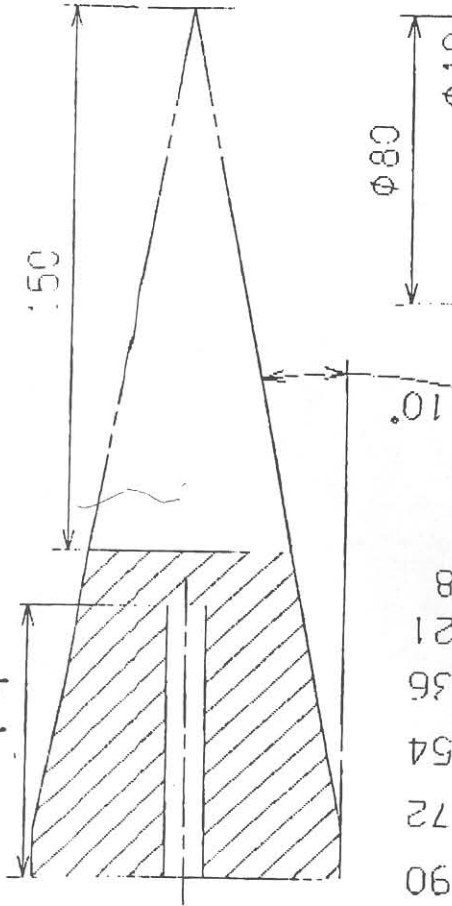
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SECTION A/A

Vol. m. Bohrung 353 390,983 mm³

Vol. o. Bohrung 359 281,472 mm³



Teil	Benennung	Werkst.	Stck.
gez.: 24.10.02	Schieweck	INSTITUT FLUR KERNPHYSIK UNIVERSITAET ZU KOELN	
gepr.:		Gruppe:	
Masstab: 1:2	AGATA		
Zeichn.: 01	symmetric Detector		
Kartei Nr.: 1099	CAD Name : 1099 AGATA	Auftrag Nr.:	Auftraggeber: AGATA
	01 symmetric Detektor		

A4