

**CORRELATION ENTRE LE WIRE BEAM SCANNER
WBS 25 ET LE FAISCEAU LIL**

PS/LP/CD/Note 89 – 35

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Sujet: **CORRELATION ENTRE LE WIRE BEAM SCANNER WBS 25 ET LE FAISCEAU LIL**

1. *BUT DU MD:*

- Mesurer la différence de positionnement entre le WBS 25 , UMA 25 et le convertisseur.

2. *MOYENS UTILISES:*

- Déplacement du faisceau par les dipôles DQL 152 II dans le plan horizontal et DQL 153 V dans le plan vertical (fig.1).
- Avec différentes cibles (fig.2), on centre (ou on optimise) le faisceau en UMA 25 dans les deux plans , on relève WBS 25 , puis on centre le faisceau en WBS 25 et on relève UMA 25.

3. *RESULTATS:*

- Les résultats sont rassemblés dans le tableau (1)
- Courbe 1: Trou de 0.25mm.,faisceau centré en WBS 25.
- Courbe 2: Trou de 0.25mm.,faisceau centré en UMA 25.
- Courbes 2a – 2b: Valeurs des dipôles du linac V.
- Courbe 3: Trou de 5mm.,faisceau centré en UMA 25.
- Courbe 4: Trou de 2.5mm. centré par une cale 3.75mm.,faisceau centré en WBS 25. Le faisceau ne passe pas.
- Courbe 5: idem,faisceau optimisé en UMA 25. Le faisceau passe.
- Courbe 6: Trou de 5mm.,faisceau centré en UMA 25.
- Courbe 7: Essai à haute intensité (cycle e+). Pour obtenir une efficacité de production maximum de e+, on doit déplacer le faisceau de e- sur la cible de + 1.8mm. selon UMA 25 et de + 3.6mm. selon WBS 25.
- Les différences de positions entre UMA 25 et WBS 25 sont de 1,8 millimètre dans les deux plans. Pour mémoire, les mesures de juin 1989 donnaient 1,9 millimètre dans les deux plans (fig.3).

4. *CONCLUSION:*

- En tenant compte des variations de $\pm 1\text{mm.}$ autour de ces valeurs , de l'erreur sur les UMA estimée à $\pm 0,5\text{mm.}$, de la position moyenne du WBS à $\pm 0,25\text{mm.}$, nous décidons d'introduire un décalage de la position du zéro de 1,8 millimètre dans les deux plans au niveau du programme de fonctionnement de WBS 25.
- L'enregistrement (8) de la console graphique montre le programme modifié. On peut noter la bonne corrélation entre les deux instruments.

C. Dutriat

Copies à: H. Koziol , P. Têtu , Groupe L.P.

LPI-Distances en millimetres.

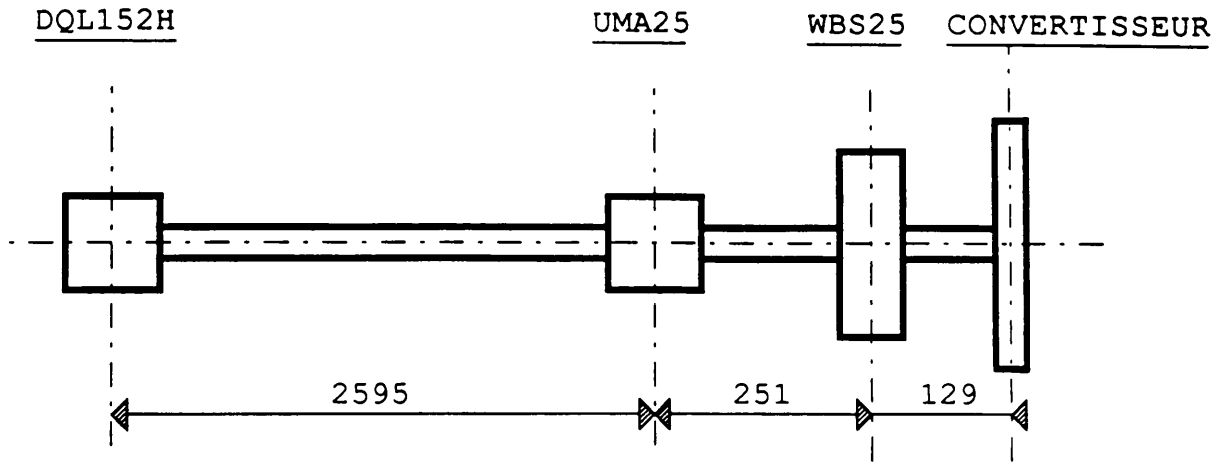


fig.1

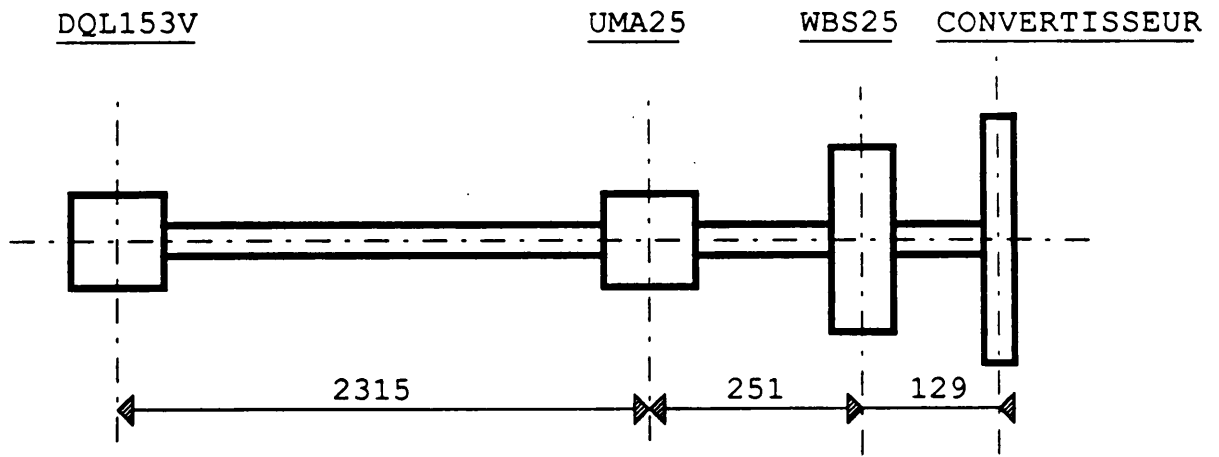


fig.1bis

LPI-CONVERTISSEUR e-/e+ au 20-10-89

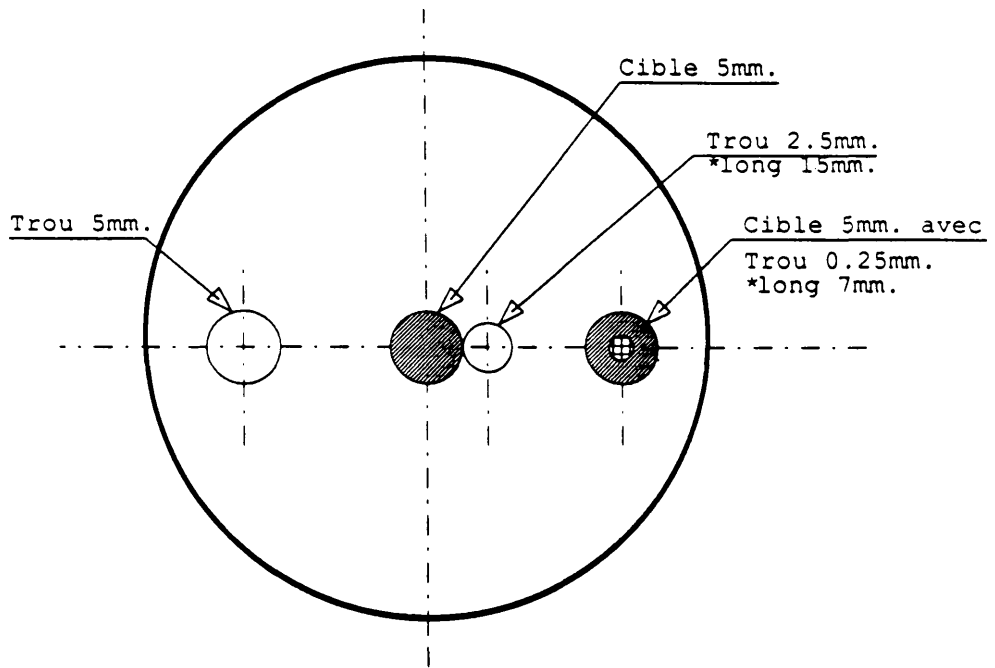


fig.2

W B S 2 5 - POSITIONS DU FAISCEAU

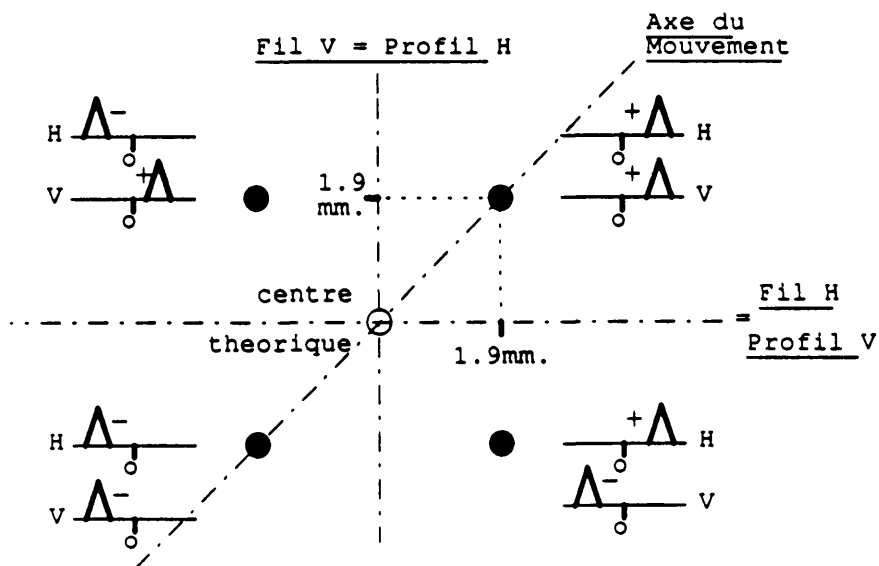


fig.3

L P I - T E S T S D U 6 N O V E M B R E 1 9 8 9

Courbe No	Trou mm.	Intensite E8	Cycle Part.	H o r i z o n t a l			V e r t i c a l			Faisceau :
				WBS 25 mm.	UMA 25 mm.	W - U mm.	WBS 25 mm.	UMA 25 mm.	W - U mm.	
1	0.25	38.8	e-	-0.2	-1.5	1.3	-0.1	-1.6	1.5	centre en WBS 25
2	0.25	39.1	e-	2.25	0.2	2.05	3.4	0.7	2.7	centre en UMA 25
3	5	39.5	e-	1.9	-0.1	2	2.7	0.1	2.6	centre en UMA 25
4	2.5+Cale 3.75	39.1	e-	-0.1	-1.8	1.7	-0.1	-1.2	1.1	centre en WBS 25
5	2.5+Cale 3.75	69.5	e-	3.5	1.5	2	1	-0.8	1.8	optimise en UMA 25
6	5	115.1	e-	1.3	-0.3	1.6	1.6	0.1	1.5	centre en UMA 25
7	2.5	2047	e+	3.6	1.8	1.8	1.6	0.1	1.5	optimise en UMA 25
				MOY.		1.78		MOY.	1.81	

Rappel: tests de Juin 1989

MOY. 1.93

MOY. 1.91

T a b l e a u (1)

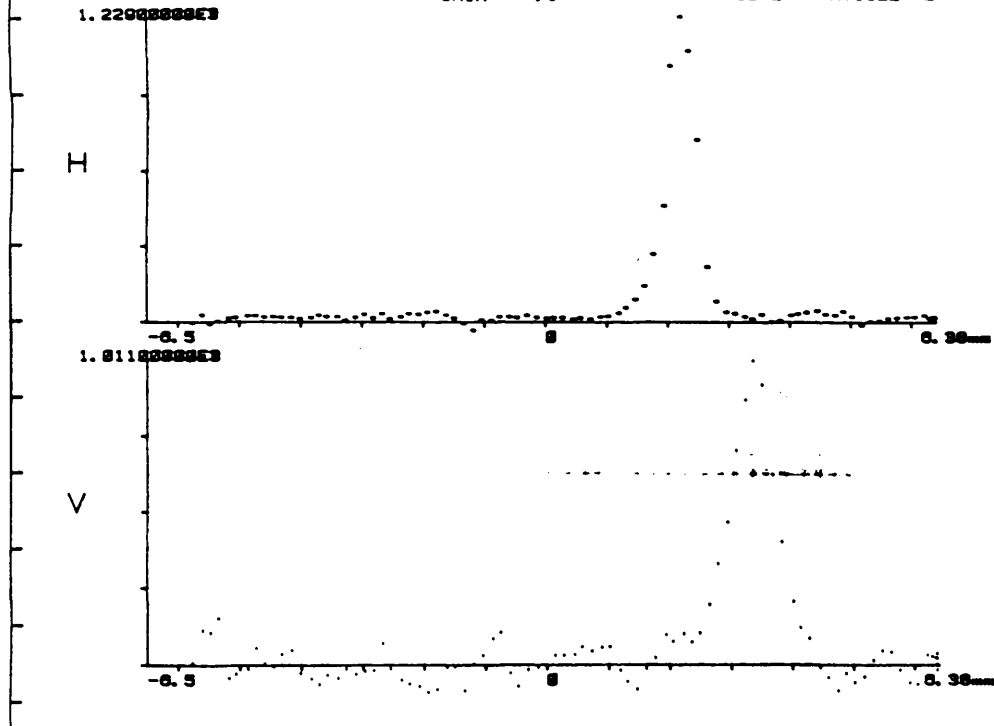
ELECT

WL. WBS25 (2)

1989-11-06-13:57:53

POS. NEEDED 0.30 POS. EFFECTIVE 0.30

GAIN= .1 FREQUENCY= 100HZ PARTICLE= E-



LIL UMA

1989-11-06-13:55:01

TRAJ. ELECTRONS

	Intensite(EB)	Horizontal(mm)	Vertical(mm)
UMA 13	-35.9	.2	-1.8
UMA 15	-37.2	1.8	-.8
UMA 22	-39.1	2.1	.7
UMA 25	-39.1	.2	.7
UMA 27	0.0	111.1	111.1
UMA 29	-.3	111.1	111.1
UMA 30	0.0	111.1	111.1
UMA 31	0.0	111.1	111.1
UMA 32	0.0	111.1	111.1
UMA 33	0.0	111.1	111.1
UMA 34	0.0	111.1	111.1
UMA 35	0.0	111.1	111.1
UMA 36	0.0	111.1	111.1
UMA 37	0.0	111.1	111.1
HIM 00	0.0	111.1	111.1
HIE 22	0.0	111.1	111.1
HIP 22	0.0	111.1	111.1

(2)

WCM Intens.(EB)

EDM01	-66.3
WCM11	-43.0
WCM12	-30.8
WCM14	-34.4
WCM37	-.2
HIP00	.3

NEWS 97

PLS ELECT

1989-11-06-13:48:26

POWER SUPPLIES FOR LPI OPERATION

FEC	EQN	OB.NAME	STATUS	CCV	AGN
LIL	6	VL.DHG031	ON	2.50	2.48
LIL	8	VL.DHG032	ON	2.70	2.69
LIL	41	VL.DHZ11	ON	.69	.70
LIL	43	VL.DHG1199	ON	-.50	-.50
LIL	49	VL.DQS121H	ON	5.20	5.20
LIL	53	VL.DHZ25	ON	1.00	1.00
LIL	57	VL.DQS132H	ON	-.20	-.20
LIL	63	VL.DQS141H	ON	6.58	6.57
LIL	65	VL.DHZ14	ON	5.90	5.89
LIL	67	VL.BOP15	STBY	264.48	.42
LIL	68	VL.DQL152H	ON	-3.99	-4.03
LIL	76	WL.DHG251	ON	-5.00	-4.82
LIL	78	WL.DHG252	ON	-17.98	-17.83
LIL	81	WL.DHG261	ON	-19.49	-19.45
LIL	83	WL.DHG262	ON	-9.99	-9.84
LIL	92	HL.BSH00	ON	173.50	173.65
LIL	96	WL.DQL272H	ON	0	0
LIL	98	WL.DQNF271H	XXXXX	0	0
LIL	102	WL.REC27	ON	0	0
LIL	103	WL.DQL28H	XXXXX	0	-.01

*val. de
reference*

(2a)

PLS ELECT

1989-11-06-13:52:30

POWER SUPPLIES FOR LPI OPERATION

FEC	EQN	OB.NAME	STATUS	CCV	AGN
LIL	7	VL.DVG031	ON	.20	.20
LIL	9	VL.DVG032	ON	.20	.20
LIL	42	VL.DVT11	ON	-.50	-.50
LIL	44	VL.DVG1199	ON	0	0
LIL	47	VL.DQL12V	ON	0	0
LIL	54	VL.DVT25	ON	0	0
LIL	55	VL.DQL13V	ON	0	0
LIL	61	VL.DQL14V	ON	0	0
LIL	66	VL.DVT14	ON	4.00	3.99
LIL	69	VL.DQL153V	ON	.30	.29
LIL	77	WL.DVG251	ON	0	0
LIL	79	WL.DVG252	ON	17.40	17.36
LIL	82	WL.DVG261	ON	8.99	8.81
LIL	84	WL.DVG262	ON	8.50	8.33
LIL	95	WL.DQL271V	ON	0	0
LIL	97	WL.DQNM273V	XXXXX	0	0
LIL	99	WL.DQNF274V	XXXXX	0	0
LIL	102	WL.REC27	ON	0	0
LIL	104	WL.DQNF283V	XXXXX	0	0
LIL	106	WL.DQNF291V	XXXXX	0	0

*val. de
reference*

(2b)

ELECT

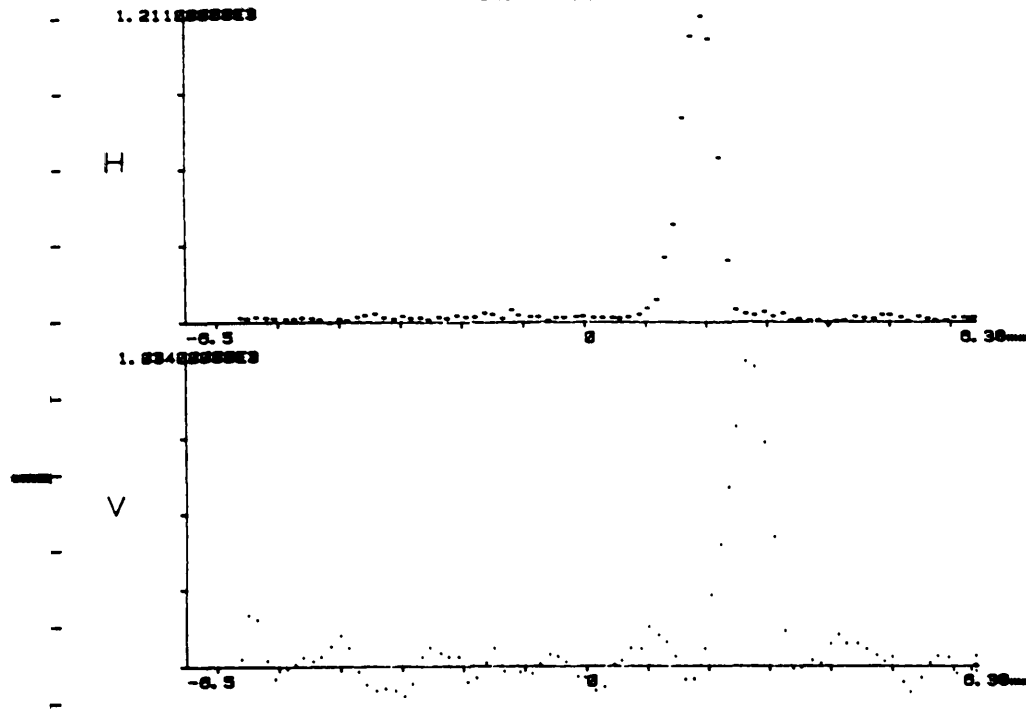
1989-11-06-14:22:29

WL. WBS25

3

POS. NEEDED 6.38 POS. EFFECTIVE 6.38

GAIN= .1 FREQUENCY= 100HZ PARTICLE= E-



LIL UMA

1989-11-06-14:21:09

TRAJ. ELECTRONS

	Intensite(EB)	Horizontal(mm)	Vertical(mm)		
UMA 13	-36.2	.2	-1.8		
UMA 15	-37.6	1.8	-1.1		
UMA 22	-39.1	2.1	.1		
UMA 25	-39.5	-1.1	.1		
UMA 27	-35.6	-1.2	2.3		
UMA 29	-34.5	.4	.2		
UMA 30	-33.1	.4	0.0	WCH Intens.(EB)	
UMA 31	-33.4	-.4	.8		
UMA 32	-34.9	-1.8	.7	EDM01	-66.3
UMA 33	-34.4	.1	-.6	WCH11	-43.0
UMA 34	-34.6	2.2	0.0	WCH12	-30.8
UMA 35	-34.5	-.3	.8	WCH14	-38.7
UMA 36	-34.0	-1.5	2.3	WCH37	-34.8
UMA 37	-34.9	-1.1	1.5	HIP00	.3
HIM 00	-35.2	-.6	1.3		
HIE 22	0.0	111.1	111.1		
HIP 22	0.0	111.1	111.1	NMEAS	94

3

ELECT

WL. WBS25

4

POS. NEEDED

0.30 POS.

EFFECTIVE

1989-11-06 15:06:48

0.30

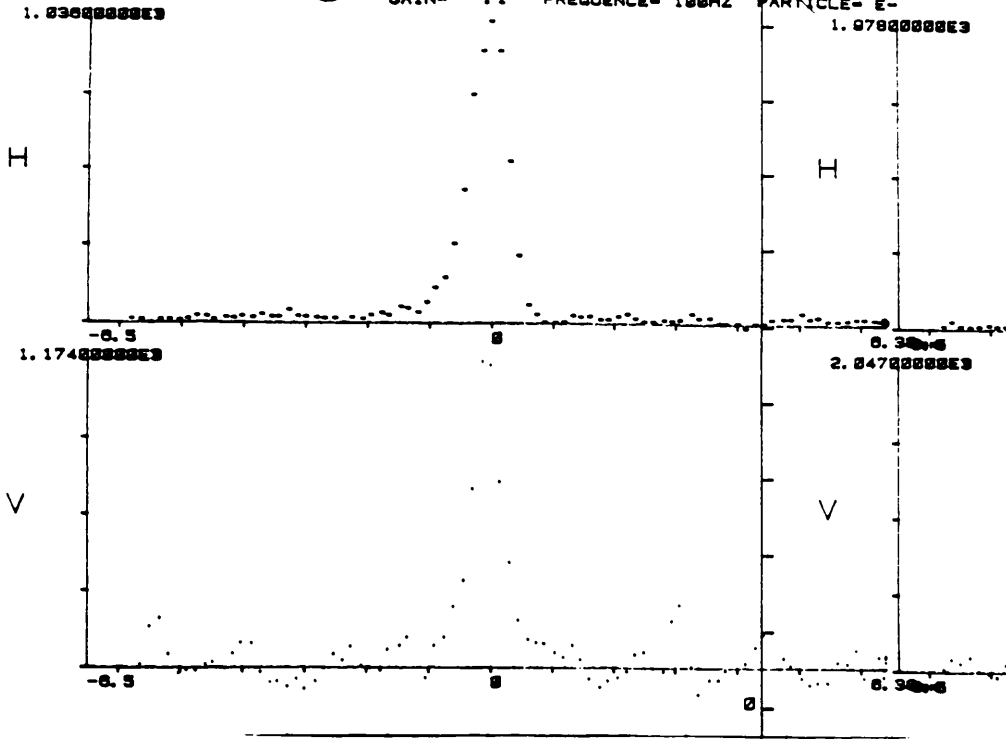
WL. WB

GAIN= .1

FREQUENCY= 100HZ

PARTICLE= E-

1.07000000E3



LIL UHA

1989-11-06 15:07:15

TRAJ. ELECTRONS

	Intensite(EB)	Horizontal(mm)	Vertical(mm)
UHA 13	-36.2	-0.4	-1.8
UHA 15	-37.2	2.2	-0.8
UHA 22	-39.1	2.1	-0.5
UHA 25	-39.1	-1.8	-1.2
UHA 27	0.0	111.1	111.1
UHA 29	-0.3	111.1	111.1
UHA 30	0.0	111.1	111.1
UHA 31	0.0	111.1	111.1
UHA 32	0.0	111.1	111.1
UHA 33	0.0	111.1	111.1
UHA 34	0.0	111.1	111.1
UHA 35	0.0	111.1	111.1
UHA 36	0.0	111.1	111.1
UHA 37	0.0	111.1	111.1
HCH 00	0.0	111.1	111.1
HIE 22	0.0	111.1	111.1
HIP 22	0.0	111.1	111.1

4

WCH Intens.(EB)

EDM01	-66.3
WCH11	-43.0
WCH12	-35.2
WCH14	-38.7
WCH37	-0.2
HIP00	0.2

NMEAS 96

⑤

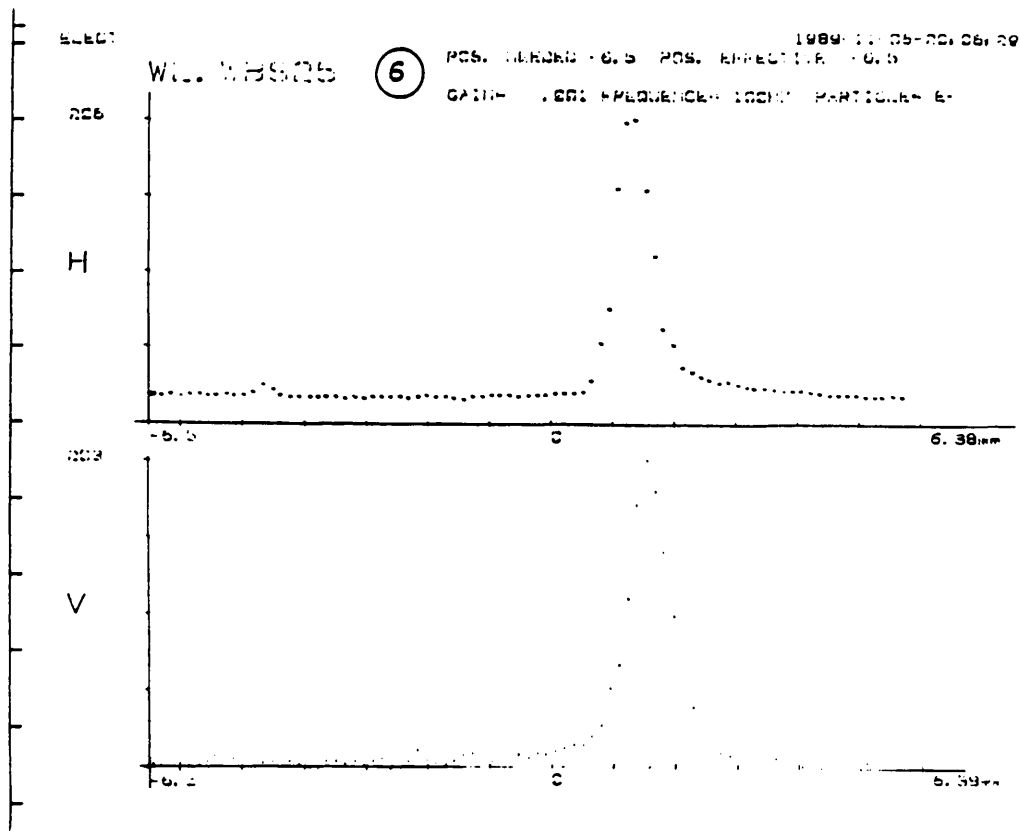
pas d'enregistrement graphique

LIL UMA

1989-11-06-15:22:13

TRAJ. ELECTRONS

	Intensite(EB)	Horizontal(mm)	Vertical(mm)	
UMA 13	-63.6	-.2	-1.7	
UMA 15	-66.5	2.3	-.9	
UMA 22	-69.3	3.8	-.4	
UMA 25	-69.5	1.5	-.8	⑤
UMA 27	-58.7	-2.2	3.4	
UMA 29	-58.1	1.3	-.8	
UMA 30	-56.5	-.8	.2	WCH Intens.(EB)
UMA 31	-56.9	-.5	1.5	
UMA 32	-59.5	-.4	.3	EDM01 -121.5
UMA 33	-58.2	0.0	-.8	WCH11 -77.4
UMA 34	-58.6	.2	.7	WCH12 -61.5
UMA 35	-58.1	-1.2	1.3	WCH14 -64.5
UMA 36	-57.4	.1	-.1	WCH37 -59.7
UMA 37	-59.0	1.4	.2	HIP00 .3
HIM 00	-59.4	-.6	1.2	
HIE 22	0.0	111.1	111.1	
HIP 22	0.0	111.1	111.1	NMERS 94



LIL UHA

TRAJ. ELECTRONS

1989-11-05-20:07:06

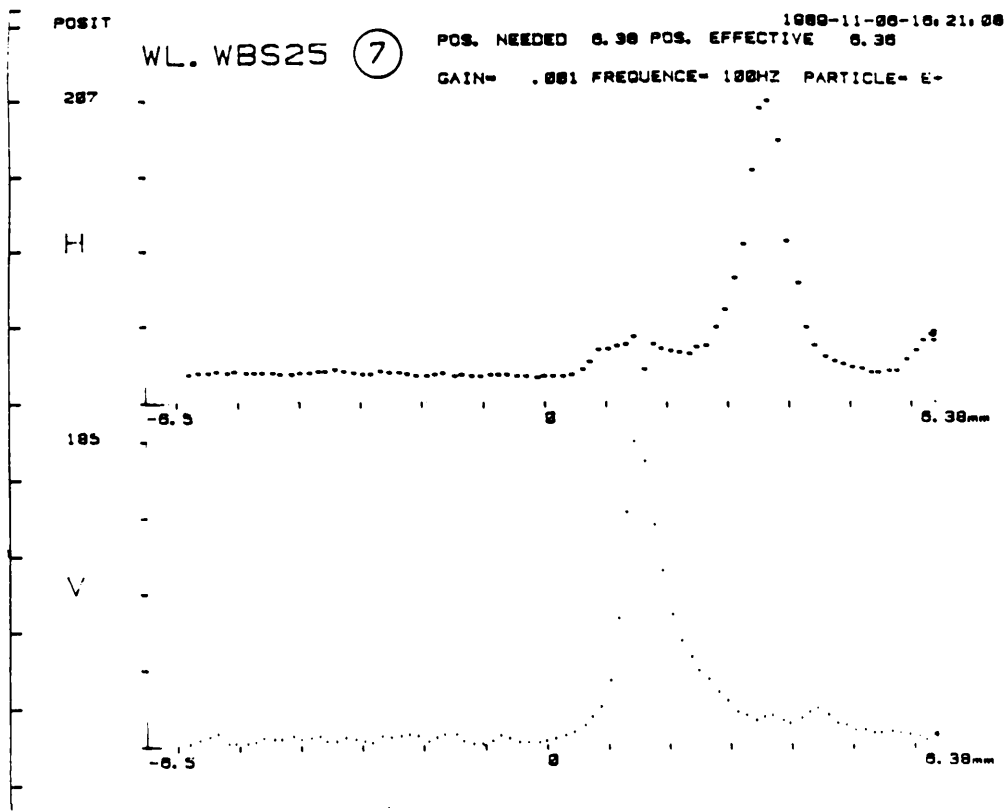
	Intensite(EB)	Horizontal(mm)	Vertical(mm)
UMA 13	-102.7	-.3	-.4
UMA 15	-111.4	.1	-.3
UMA 22	-108.8	.8	.9
UMA 25	-115.1	-.3	.1
UMA 27	-7.3	1.6	-2.5
UMA 29	-6.6	.1	2.4
UMA 30	-5.8	-1.0	-1.5
UMA 31	-5.4	3.8	-1.5
UMA 32	-6.0	-2.4	2.8
UMA 33	-5.7	-.2	-1.6
UMA 34	-6.4	.6	-3.4
UMA 35	-5.8	2.0	-1.6
UMA 36	-5.3	.1	4.5
UMA 37	-5.9	-1.4	4.6
HID 00	0.0	111.1	111.1
HIE 22	-4.4	10.9	2.8
HIP 22	0.0	111.1	111.1

6

WCH Intens.(EB)

ECH01	-3248.1
WCH11	-2119.9
WCH12	-1740.0
WCH14	-1767.3
WCH37	-5.1
HIP00	.3

NUMS 96



LIL UMA

1989-11-06-16:24:14

TRAJ. POSITRONS

	Intensite(EB)	Horizontal(mm)	Vertical(mm)	
UMA 13	-2888.6	-.2	-.4	
UMA 15	-2849.1	2.2	-.9	
UMA 22	-2845.7	3.7	-.4	
UMA 25	-2847.9	1.8	.1	(7)
UMA 27	-11.3	-2.0	-1.5	
UMA 29	5.3	-6.6	2.9	
UMA 30	7.4	-1.0	-2.9	WCH Intens.(EB)
UMA 31	8.0	-2.9	.5	
UMA 32	7.7	4.5	-2.5	EDM01 -3811.6
UMA 33	8.2	-.2	-3.9	WCH11 -2489.7
UMA 34	8.3	-6.5	-2.5	WCH12 -2882.8
UMA 35	7.7	-3.2	-1.2	WCH14 -2851.1
UMA 36	8.3	.1	.1	WCH37 8.1
UMA 37	9.7	.6	1.7	HIP00 12.3
HIM 00	.3	111.1	111.1	
HIE 22	-1.3	111.1	111.1	
HIP 22	11.4	6.1	-.9	NHEPS 0

NO TIMING

Line 118

1988-12-15-08:13:44

WL.WBS25

8

POS. NEEDED -8.5 POS. EFFECTIVE -8.5

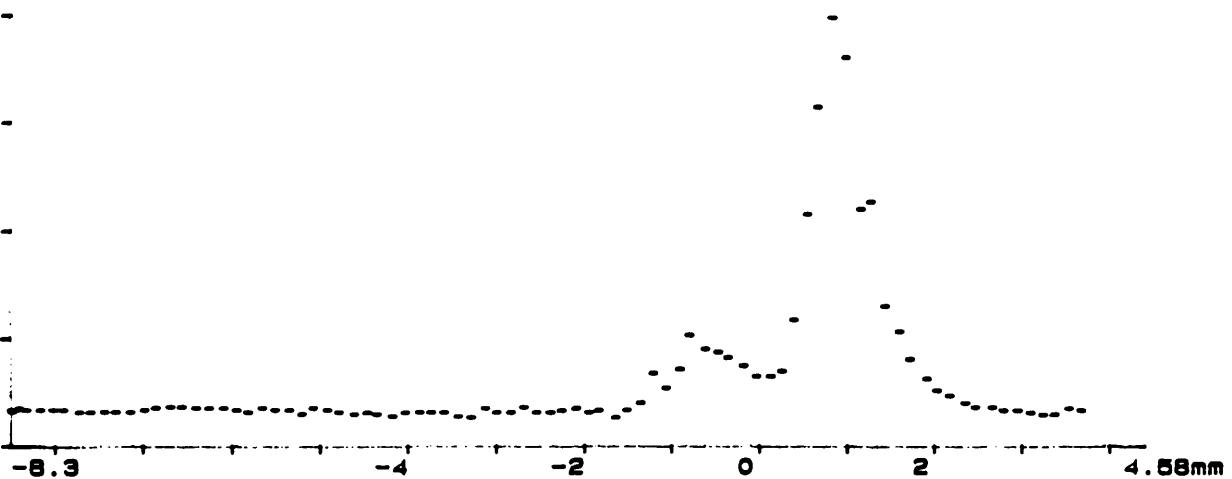
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225

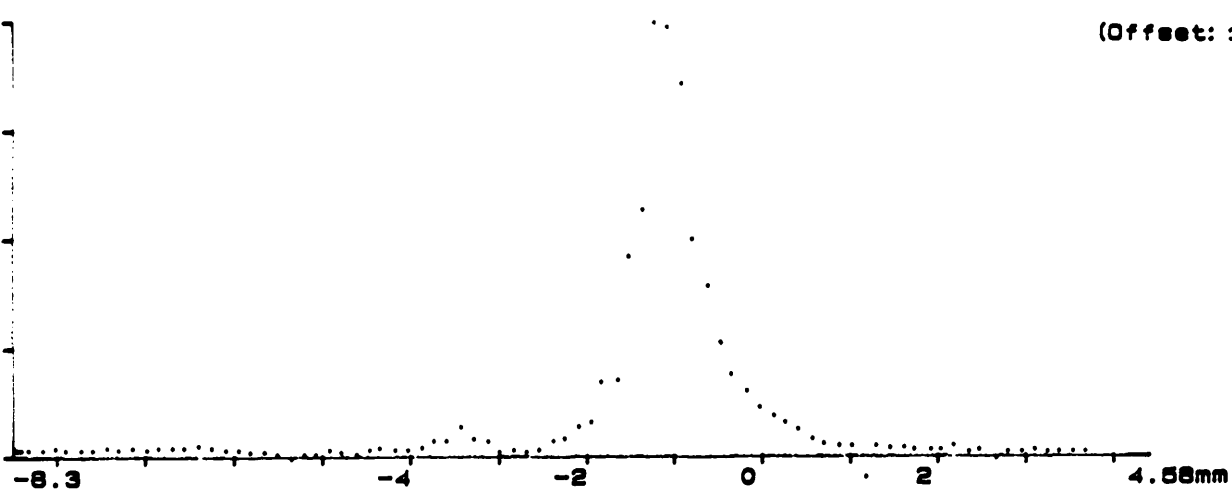
H

184

V



(Offset: 1.8)



LIL UWA

1988-12-15-08:13:44

TRAJ. POSITIONS

	Intensity (ED)	Horizontal (mm)	Vertical (mm)	
UWA 13	1888.8	-1.8	.1	
UWA 15	1786.1	.7	.3	
UWA 22	1745.9	2.5	.5	
UWA 25	1763.7	1.2	-1.8	8
UWA 27	12.9	.1	-2.9	
UWA 29	2.6	-4.8	4.5	
UWA 30	5.5	-1.8	-3.6	HEE Intens. (ED)
UWA 31	6.3	-3.5	.5	
UWA 32	5.9	3.6	.7	HEE03 -3152.9
UWA 33	5.7	-2	-3.4	HEE01 -2882.7
UWA 34	5.7	-3.2	-3.7	HEE02 -1788.4
UWA 35	4.8	-18.8	2.9	HEE04 -1777.6
UWA 36	6.3	.1	.1	HEE05 5.8
UWA 37	6.6	2.8	2.3	HEE06 9.3
HEE 08	8.8	111.1	111.1	
HEE 22	-3	111.1	111.1	
HFP 22	8.2	18.8	-1.2	HEE05 94