



GE Nuclear Energy

**GERIS 2000 Examination  
Summary Sheet**

**Project:** TVA, Browns Ferry Nuclear Plant, Unit 3

**System:** Reactor Pressure Vessel

**Weld ID:** C-4-5

**ASME Code Category:** B-A

**Calibration Sheets:** C-001, C-004

**Supporting Data:** Examination Data Sheets E-16-00 thru E-16-12, Indication Data Sheets 16-001 thru 16-094, Indication Evaluation Sheets, Screen Prints, Exam Patch Location Map, Exam Coverage Plots and GERIS 2000 Setup Records.

**Examination Summary**

The ultrasonic examination of weld C-4-5 resulted in two (2) recorded indications that exceed the allowable standards of IWB-3500, ASME Section XI, 1986 Edition, No Addenda.

The ASME Section XI required examination volume was examined with the GERIS 2000 System from the RPV inside surface utilizing Procedure No. GE-UT-700, Rev. 2. This examination was limited due to the Guide Rods at 0° and 180°. The total examination coverage was calculated to be 93%.

The GERIS 2000 utilizes an array of search units arranged to effectively examine the weld and adjacent base material parallel and perpendicular to the weld axis in two directions. The transducer package consisted of 0° longitudinal, 45° and 60° shear wave, and 70° refracted longitudinal (RL) wave search units.

The two (2) unacceptable indications were recorded and sized in accordance with GE-UT-700, Rev. 2 and GE-UT-701, Rev. 2 with the results tabulated below:

Ind. No.	Oriented	Type	X Pos	Y Pos	Z Pos	"S"	T wall	Length	T Meas	a/l	% a/t Calculated	% a/t Allowed
16-075	circ.	subsurface	603.30"	574.70"	3.17"	2.83"	.30"	2.75"	6.6"	.055	2.27	2.23
16-076	circ.	subsurface	617.50"	574.05"	3.85"	2.53"	.44"	1.50"	6.6"	.147	3.33	2.87

Indication 16-075 was sized with 60° shear wave channel 13 utilizing the SPOT technique. This indication was also recorded with 45° shear wave channel 9 as 16-072.

Indication 16-076 was sized with 60° shear wave channel 13 utilizing the SPOT technique. This indication was also recorded with 45° shear wave channel 9 as 16-074.

The GERIS 2000 also recorded indications with the 0° weld metal scans, 70° RL, 45° and 60° shear wave scans that were evaluated and found to be acceptable per the referencing Code section. Geometric indications from the stabilizer brackets were recorded with the 0° weld metal, 45° and 60° shear wave scans. Geometric indications from the OD surface were recorded with the 45° shear wave scans.

No manual supplemental examination was performed from the RPV outside surface due to access restrictions.

Fabrication records and previous examination results were reviewed prior to the completion of this examination summary.

GERIS Analyst: *QJ Ma*

GE Reviewer: *R.O. Forman*

LEVEL: *III*

DATE: *12/20/93*

LEVEL: *II*

DATE: *12-20-93*

UTILITY Review: *222 Wood*

ANII Review:

TITLE: *#1*

DATE: *1/26/94*

TITLE: *Albert Ladd*

DATE: *7/11/94*

00364

1 of 245



## GERIS 2000 Indication Data Sheet

**Cal. ID: C-001**

**Ind. Data Sheet No.: 16-072**

**Direction: 180**

[illegible]

**Flaw dimensions from 16-075.**

**S = 3.02 with clad**

**Level:**

Date:

**Level:**

Date: 12-20-93

B1152



**GE Nuclear Energy**

## GERIS 2000 Indication Evaluation Sheet

**Project:** TVA, Browns Ferry Unit 3

**Weld ID: C-4-5**

**Patch:** BF-022

**Exam Data Sheet No.: E-16-10**

**Ind. Data Sheet No.: 16-072**

**Indication:** 16-072

**Flaw Thruwall Dimension = 0.30**

**Flaw Length "l" = 2.75**

**Separation with clad "S" = 3.02**

**Surface Separation "S" = 2.83**

***T* measured = 6.60**

**Clad T nominal = 0.19**

Flaw is unacceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition**  
**TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	2.02	2.23 Y
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed 2.02	Allowed 2.23

a = 0.150  
a/l value = 0.055  
Y = 1.000

## Flaw is Subsurface

Allowed a/t = 2.23%  
a/t = 2.27%

**Comments:**

Same as indication 16-075.

Flaw dimensions from 16-075.

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-10****Patch ID:** BF-022**Ind. Data Sheet No.: 16-074**

**Indication:** 16-074

**Channel: 9**

**Angle:** 45

**Direction: 180**

[illegible]

**Comments:** Same as indication 16-076.

Flaw dimensions from 16-076.

TW = 0.44

$$L = 1.50$$

**S = 2.53**

**Analyst:**

Analyst: CF MS

**Level:**

Level: III Date: 12/18/93

Reviewed By: R.O. Forman

Reviewed By: R.O. Forman

Level: π

Level: II Date: 12-20-93





GE Nuclear Energy

**GERIS 2000 Indication  
Evaluation Sheet**

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-022

Exam Data Sheet No.: E-16-10  
Ind. Data Sheet No.: 16-074  
Indication: 16-074

Flaw Thruwall Dimension = 0.44  
Flaw Length "l" = 1.50  
Separation with clad "S" = N/A  
Surface Separation "S" = 2.53

T measured = 6.60  
Clad T nominal = 0.19

Flaw is unacceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	2.48	2.87 Y
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.48	2.87

a = 0.220  
a/l value = 0.147  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 2.87%  
a/t = 3.33%

Comments: Same as indication 16-076.  
Flaw dimensions from 16-076.

R 1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-10**

**Patch ID:** BF-022

**Ind. Data Sheet No.: 16-075**

**Indication:** 16-075

**Channel: 13**

**Angle:** 60

**Direction:** 180

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

TW = 0.30

$$L = 2.75$$

**S = 3.02 with clad**

**with clad**

**Analyst:**

Analyst: CLM

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: III Date: 12/17/93

**Level:**

Level: II Date: 12-20-93

Date: 12-20-93

R1152



GE Nuclear Energy

# **GERIS 2000 Indication Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-022

**Exam Data Sheet No.:** E-16-10  
**Ind. Data Sheet No.:** 16-075  
**Indication:** 16-075

**Flaw Thruwall Dimension** = 0.30  
**Flaw Length "I"** = 2.75  
**Separation with clad "S"** = 3.02  
**Surface Separation "S"** = 2.83

**T measured** = 6.60  
**Clad T nominal** = 0.19

Flaw is unacceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	2.02	2.23 Y
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.02	2.23

a = 0.150  
a/l value = 0.055  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 2.23%  
a/t = 2.27%

**Comments:** Same as indication 16-072.

7 of 245

00370

R1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-10****Patch ID: BF-022**

Ind. Data Sheet No.: 16-076

**Indication:** 16-076

**Channel: 13**

**Angle:** 60

**Direction:** 180

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

Same as indication 16-074.

**TW = 0.44**

**L = 1.50**

**S = 2.53**

**Analyst:**

Analyst: CLM

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: III Date: 12/18/93

Level: *II*

Level: II Date: 12-20-93



GE Nuclear Energy

**GERIS 2000 Indication  
Evaluation Sheet**

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-022

Exam Data Sheet No.: E-16-10  
Ind. Data Sheet No.: 16-076  
Indication: 16-076

Flaw Thruwall Dimension = 0.44  
Flaw Length "l" = 1.50  
Separation with clad "S" = N/A  
Surface Separation "S" = 2.53

T measured = 6.60  
Clad T nominal = 0.19

Flaw is unacceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	2.48	2.87 Y
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.48	2.87

a = 0.220  
a/l value = 0.147  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 2.87%  
a/t = 3.33%

Comments: Same as indication 16-074.

C-4-5

573"

45°

60°

WELD

Indication 16-076

Flaw "X" location is 617.50"

Flaw "Y" location is 574.05"

TW  
LENGTH  
T MEASURED

Nominal Clad T = 3/16"

Nominal Base Metal T = 6 3/8"

10 of 245 • 00373

1106 245 00374

R1152

C-4-5

573"

45°

60°

WELD

Indication 16-075

Flaw "X" location is 603.30"

Flaw "Y" location is 574.70"

Nominal Clad T = 3/16"  
Nominal Base Metal T = 6 3/8"

1106 245 00374

GE NUCLEAR ENERGY

BROWNS FERRY UNIT 3

WELD C-4-5 IND. 16-075

SCALE: NONE

DWG. BFC45IND

REV. 0

R1152



**GE Nuclear Energy**

# GERIS 2000 Examination Data Sheet

**Project:** TVA, Browns Ferry, Unit 3  
**Weld ID:** C-4-5  
**Exam Data Sheet:** E-16-00

**Procedure No.:** GE-UT-700  
**Revision No.:** 2  
**FRR No.:** N/A

[illegible]

**Comments:** N/A

**Analyst:**

Ch. Min.

**Level:**

111

Date:

Date: 12/18/93

Reviewed By:

CPN

**Level:**

III

Date:

Date: 1/25/74



B 1152



**GE Nuclear Energy**

# GERIS 2000 Examination Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-01****Patch ID:** BF-013

**Ind. Data Sheet Series: 16-XXX**

[illegible]

**Comments:** Note 1: Ch. 4 analyzed line by line in A-scan due to store process error.

**Data Sheet Codes: G-XXX; "G" = Geometry ( may be typical), 6-XXX; "6" = Weld Sequence, XXX = Sheet Number**

Indication Codes: 1 = Flaw, 2 = OD Surface, 3 = OD Attachment, 4 = Nozzle, 5 = Other

Analyst: CE M5

Level: III Date: 12/18/93

Reviewed By: R.D. Forman

Level: II Date: 12-20-93

R1152



**GE Nuclear Energy**

# GERIS 2000 Examination Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-02****Patch ID: BF-014**

**Ind. Data Sheet Series: 16-XXX**

[illegible]

**Comments:** (3) Stabilizer bracket geometry.

**Data Sheet Codes: G-XXX; "G" = Geometry ( may be typical), 6-XXX; "6" = Weld Sequence, XXX = Sheet Number**

Indication Codes: 1 = Flaw, 2 = OD Surface, 3 = OD Attachment, 4 = Nozzle, 5 = Other

**Analyst:**

Analyst: CE Mj

**Level:**

Level: III Date: 12/18/90

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: II Date: 12-20-93

R1152



**GE Nuclear Energy**

# GERIS 2000 Examination Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-03****Patch ID:** BF-015**Ind. Data Sheet Series: 16-XXX**[illegible]

**Comments:** (3) Stabilizer bracket geometry.

**Data Sheet Codes: G-XXX; "G" = Geometry ( may be typical), 6-XXX; "6" = Weld Sequence, XXX = Sheet Number**

Indication Codes: 1 = Flaw, 2 = OD Surface, 3 = OD Attachment, 4 = Nozzle, 5 = Other

**Analyst:**

**Level:**

Date:

Reviewed By:

**Level:**

Date:

R 1152



**GE Nuclear Energy**

## ***GERIS 2000 Examination Data Sheet***

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-04****Patch ID:** BF-016**Ind. Data Sheet Series: 16-XXX**[illegible]

**Comments:** (3) Stabilizer bracket geometry.

**Data Sheet Codes: G-XXX; "G" = Geometry ( may be typical), 6-XXX; "6" = Weld Sequence, XXX = Sheet Number**

Indication Codes: 1 = Flaw, 2 = OD Surface, 3 = OD Attachment, 4 = Nozzle, 5 = Other

**Analyst:**

**Level:**

Date: 12/18/93

Reviewed By:

**Level:**

Date: 12-20-93

B 1152



**GE Nuclear Energy**

## **GERIS 2000 Examination Data Sheet**

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-05****Patch ID:** BF-017**Ind. Data Sheet Series: 16-XXX**[illegible]

**Comments:** (3) Stabilizer bracket geometry.

Note 1: Refer to indications 16-048 through 16-050 for straight beam indications.

**Data Sheet Codes: G-XXX; "G" = Geometry ( may be typical), 6-XXX; "6" = Weld Sequence, XXX = Sheet Number**

Indication Codes: 1 = Flaw, 2 = OD Surface, 3 = OD Attachment, 4 = Nozzle, 5 = Other

**Analyst:**

**Level:**

Date: 12/18/93

Reviewed By:

**Level:**

Date: 12-20-93

R1152



**GE Nuclear Energy**

## GERIS 2000 Examination Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-004**

**Exam Data Sheet No.: E-16-06****Patch ID: BF-018R****Ind. Data Sheet Series: 16-XXX**[illegible]

**Comments:** (5) Segregates Shell 4 side (non relevant).

**Data Sheet Codes: G-XXX; "G" = Geometry ( may be typical), 6-XXX; "6" = Weld Sequence, XXX = Sheet Number**

Indication Codes: 1 = Flaw, 2 = OD Surface, 3 = OD Attachment, 4 = Nozzle, 5 = Other

Analyst: (Signature)

Level: III Date: 12/15/93

Reviewed By: K.O. Forman

Level: II Date: 12-20-93



**GE Nuclear Energy**

## GERIS 2000 Examination Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-004**

**Exam Data Sheet No.: E-16-07****Patch ID:** BF-019R**Ind. Data Sheet Series: 16-XXX**[illegible]

**Comments:** N/A

**Data Sheet Codes: G-XXX; "G" = Geometry ( may be typical), 6-XXX; "6" = Weld Sequence, XXX = Sheet Number**

Indication Codes: 1 = Flaw, 2 = OD Surface, 3 = OD Attachment, 4 = Nozzle, 5 = Other

**Analyst:**

**Level:**

Date:

Reviewed By:

**Level:**

Date:



## **GERIS 2000 Examination Data Sheet**

**Cal. ID: C-004**

**Ind. Data Sheet Series: 16-XXX**[illegible]

**Comments:** (5) Segregates Shell 4 side (non relevant).  
(3) Stabilizer bracket geometry.

Indication Codes: 1 = Flaw, 2 = OD Surface, 3 = OD Attachment, 4 = Nozzle, 5 = Other

Level: III Date: 12/18/93

Level: II Date: 12-20-93





# GERIS 2000 Examination Data Sheet

R1152



**GE Nuclear Energy**

## GERIS 2000 Examination Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-10****Patch ID:** BF-022**Ind. Data Sheet Series: 16-XXX**[illegible]

**Comments:** Note 1: Recorded as 16-061.

**(3) Stabilizer bracket geometry.**

(5) Segregates Shell 4 side (non relevant).

**Data Sheet Codes: G-XXX; "G" = Geometry ( may be typical), 6-XXX; "6" = Weld Sequence, XXX = Sheet Number**

Indication Codes: 1 = Flaw, 2 = OD Surface, 3 = OD Attachment, 4 = Nozzle, 5 = Other

Analyst: CE 11/15

Level: III Date: 12/20/93

Reviewed By: R.O. Forman

Level: II Date: 12-20-93

R1152



**GE Nuclear Energy**

## GERIS 2000 Examination Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-11****Patch ID:** BF-023**Ind. Data Sheet Series: 16-XXX**[illegible]

**Comments:** (3) Segregates Shell 4 side (non relevant)

**Data Sheet Codes: G-XXX; "G" = Geometry ( may be typical), 6-XXX; "6" = Weld Sequence, XXX = Sheet Number**

Indication Codes: 1 = Flaw, 2 = OD Surface, 3 = OD Attachment, 4 = Nozzle, 5 = Other

**Analyst:**

Analyst: CLM

**Level:**

Level: III

**Date:**

Date: 12/18/93

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: II

Date:

Date: 12-20-93

R1152



**GE Nuclear Energy**

## **GERIS 2000 Examination Data Sheet**

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-12**

**Patch ID: BF-024**

**Ind. Data Sheet Series: 16-XXX**[illegible]

**Comments:** N/A

**Data Sheet Codes: G-XXX; "G" = Geometry ( may be typical), 6-XXX; "6" = Weld Sequence, XXX = Sheet Number**

Indication Codes: 1 = Flaw, 2 = OD Surface, 3 = OD Attachment, 4 = Nozzle, 5 = Other

Analyst: [Signature]

Level: III Date: 12/19/93

Reviewed By: R. Q. Forman

Level: II Date: 12-20-93

R 1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-01****Patch ID:** BF-013

**Ind. Data Sheet No.: 16-001**

**Indication:** 16-001

**Channel: 5**

**Angle:** 70

**Direction: 180**

[illegible]

**Comments:** No apparent tip signals.

Indication has no determinable thruwall dimension and is acceptable to IWB-3510-1.

**Analyst:**

Q. M.

**Level:**

11

Date:

12/15/93

Reviewed By:

R.O. Forman

**Level:**

 $\pi$ 

Date:

12-20-93

R 1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-01****Patch ID:** BF-013**Ind. Data Sheet No.: 16-002**

**Indication:** 16-002

**Channel: 5**

**Angle:** 70

**Direction:** 180

[illegible]

**Comments:** No apparent tip signals.

Indication has no determinable thruwall dimension and is acceptable to IWB-3510-1.

Analyst: U M

Level: III Date: 12/15/93

Reviewed By: R.O. Forman

Level: II Date: 12-20-93

R 1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-01****Patch ID: BF-013****Ind. Data Sheet No.: 16-003**

**Indication: 16-003**

**Channel: 5**

**Angle:** 70

**Direction:** 180

[illegible]

**Comments:** No apparent tip signals.

Indication has no determinable thruwall dimension and is acceptable to IWB-3510-1.

**Analyst:**

Analyst: CLM

**Level:**

Level: III Date: 12/15/93

Reviewed By:

Reviewed By: R. D. Forman

**Level:**

Level: II Date: 12-20-93





B 1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-01****Patch ID: BF-013****Ind. Data Sheet No.: 16-005**

**Indication:** 16-005

**Channel: 9**

**Angle:** 45

**Direction: 180**

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

**TW = 0.34**

$$L = 0.50$$
$$S = 2.66$$
**Analyst:**

Analyst: CC M<sub>4</sub>

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: III Date: 12/15/97

**Level:**

Level: II Date: 12-20-93

R1152



**GE Nuclear Energy**

# **GERIS 2000 Indication Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-013

**Exam Data Sheet No.:** E-16-01  
**Ind. Data Sheet No.:** 16-005  
**Indication:** 16-005

**Flaw Thruwall Dimension =** 0.34  
**Flaw Length "l" =** 0.50  
**Separation with clad "S" =** N/A  
**Surface Separation "S" =** 2.66

**T nominal =** 6.38  
**Clad T nominal =** 0.19

Flaw is acceptable by Table IWB-3510-1

## **ASME Section XI, 1986 Edition TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	4.28	4.96 Y
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			4.28	4.96

**a =** 0.170  
**a/l value =** 0.340  
**Y =** 1.000

Flaw is Subsurface

**Allowed a/t =** 4.96%  
**a/t =** 2.66%

**Comments:**

30 of 245



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-01****Patch ID:** BF-013

Ind. Data Sheet No.: 16-006

**Indication:** 16-006

**Channel: 9**

**Angle:** 45

**Direction:** 180

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

**TW = 0.23**

$$L = 0.50$$

**S = 3.03 with clad**

with clad

**Analyst:**

**Level:**

Date: 12/15/93

Reviewed By:

**Level:**

Date: 12-20-93

R1152



**GE Nuclear Energy**

# **GERIS 2000 Indication Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-013

**Exam Data Sheet No.:** E-16-01  
**Ind. Data Sheet No.:** 16-006  
**Indication:** 16-006

**Flaw Thruwall Dimension =** 0.23  
**Flaw Length "l" =** 0.50  
**Separation with clad "S" =** 3.03  
**Surface Separation "S" =** 2.84

**T nominal =** 6.38  
**Clad T nominal =** 0.19

Flaw is acceptable by Table IWB-3510-1

## **ASME Section XI, 1986 Edition TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	3.10	3.60 Y
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			3.10	3.60

**a =** 0.115  
**a/l value =** 0.230  
**Y =** 1.000

Flaw is Subsurface

**Allowed a/t =** 3.60%  
**a/t =** 1.80%

**Comments:**

32 of 245

R1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-01****Patch ID:** BF-013**Ind. Data Sheet No.: 16-007**

**Indication:** 16-007

**Channel: 9**

**Angle:** 45

**Direction: 180**

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

**TW = 0.23**

**L = 0.50**

**S = 2.10 with clad**

with clad

**Analyst:**

**Level:**

Date: 12/15/93

Reviewed By:

Level: II

Date: 12-20-93

B1152



**GE Nuclear Energy**

# **GERIS 2000 Indication Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-013

**Exam Data Sheet No.:** E-16-01  
**Ind. Data Sheet No.:** 16-007  
**Indication:** 16-007

**Flaw Thruwall Dimension** = 0.23  
**Flaw Length "l"** = 0.50  
**Separation with clad "S"** = 2.10  
**Surface Separation "S"** = 1.91

**T nominal** = 6.38  
**Clad T nominal** = 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	3.10	3.60 Y
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			3.10	3.60

a = 0.115  
a/l value = 0.230  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 3.60%  
a/t = 1.80%

**Comments:**

---



---



---



---



---

39 of 245

R1152



**GE Nuclear Energy**

# GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-01****Patch ID:** BF-013**Ind. Data Sheet No.: 16-008**

**Indication:** 16-008

**Channel: 9**

**Angle:** 45

**Direction:** 180

[illegible]

**Comments:** OD surface indication: crown geometry.

Indication has no determinable thruwall dimension and is acceptable to IWB-3510-1.

**15.77 dB below notch sensitivity.**

**Analyst:**

Analyst: CJ M<sub>5</sub>

**Level:**

Level: III

Date: 12/15/93

Date: 12/15/93

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: II

Date: 12-20-93

Date: 12-20-93



R1152

**Exam Data Sheet No.: E-16-01****Patch ID:** BF-013**Ind. Data Sheet No.: 16-009**

**Direction: 0**

**Comments:** Thruwall size was determined by the SPOT technique.

**S = 3.07**

Date: 12-20-93





GE Nuclear Energy

**GERIS 2000 Indication  
Evaluation Sheet**

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-013

Exam Data Sheet No.: E-16-01  
Ind. Data Sheet No.: 16-009  
Indication: 16-009

Flaw Thruwall Dimension = 0.31  
Flaw Length "l" = 1.50  
Separation with clad "S" = N/A  
Surface Separation "S" = 3.07

T nominal = 6.38  
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	2.22	2.53 Y
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.22	2.53

a = 0.155  
a/l value = 0.103  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 2.53%  
a/t = 2.43%

Comments:

B1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-01**

**Patch ID: BF-013**

**Ind. Data Sheet No.: 16-010**

**Indication:** 16-010

**Channel: 7**

**Angle:** 45

**Direction: 0**

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

TW = 0.21

**L = 1.75**

**S = 2.28 with clad**

with clad

**Analyst:**

Analyst: CL M5

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: III

Date:

Date: 12/17/93

**Level:**

Level:  $\pi$

Date:

Date: 12-20-93



GE Nuclear Energy

**GERIS 2000 Indication  
Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-013

**Exam Data Sheet No.:** E-16-01  
**Ind. Data Sheet No.:** 16-010  
**Indication:** 16-010

**Flaw Thruwall Dimension** = 0.21  
**Flaw Length "I"** = 1.75  
**Separation with clad "S"** = 2.28  
**Surface Separation "S"** = 2.09

**T nominal** = 6.38  
**Clad T nominal** = 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	2.04	2.26 Y
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.04	2.26

a = 0.105  
a/l value = 0.060  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 2.26%  
a/t = 1.65%

**Comments:**



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Exam Data Sheet No.: E-16-01****Patch ID:** BF-013**Ind. Data Sheet No.: 16-011**

**Channel: 7**

**Angle:** 45

**Direction: 0**

[illegible]

1.09 dB above notch sensitivity.

**Analyst:**

Analyst: CF M

**Level:**

Level: III Date: 12/17/93

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: II Date: 12-20-93



## GERIS 2000 Indication Data Sheet

B1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-02****Patch ID:** BF-014**Ind. Data Sheet No.: 16-013**

**Indication:** 16-013

**Channel: 5**

**Angle:** 70

**Direction:** 180

[illegible]

**Comments:** No apparent tip signals.

Indication has no determinable thruwall dimension and is acceptable to IWB-3510-1.

**Analyst:**

Analyst: CE M

**Level:**

Level: III Date: 12/17/93

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: II Date: 12-20-93



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Exam Data Sheet No.: E-16-02****Patch ID:** BF-014**Ind. Data Sheet No.: 16-014**

**Direction:** 0

[illegible]

**Comments:** OD geometry stabilizer bracket at 45°.

**Analyst:**

Q. M.

**Level:**

III

Date:

12/17/93

Reviewed By:

R.O. Forman

**Level:**

II

Date:

12-20-93



## GERIS 2000 Indication Data Sheet

**Cal. ID: C-001**

**Ind. Data Sheet No.: 16-015**

**Direction:** 0

Date: 12-20-93





## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-02****Patch ID:** BF-014**Ind. Data Sheet No.: 16-016**

**Indication:** 16-016

**Channel: 8**

**Angle:** 45

**Direction: 90**

**Comments:** OD geometry stabilizer bracket at 45°.

**Analyst:**

Ch M<sub>5</sub>

**Level:**

III

Date:

12/17/93

Reviewed By:

R.O. Forman

**Level:**

 $\pi$ 

Date:

12-20-93

R1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-02****Patch ID:** BF-014**Ind. Data Sheet No.: 16-017**

**Indication:** 16-017

**Channel: 7**

**Angle:** 45

**Direction:** 0

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

**TW = 0.20**

L = 1.00

**S = 2.04 with clad**

**Analyst:**

Analyst: CF M5

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: III Date: 12/17/93

**Level:**

Level: II Date: 12-20-93

81152



**GE Nuclear Energy**

# **GERIS 2000 Indication Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-014

**Exam Data Sheet No.:** E-16-02  
**Ind. Data Sheet No.:** 16-017  
**Indication:** 16-017

**Flaw Thruwall Dimension =** 0.20  
**Flaw Length "l" =** 1.00  
**Separation with clad "S" =** 2.04  
**Surface Separation "S" =** 1.85

**T nominal =** 6.38  
**Clad T nominal =** 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	2.20	2.50 Y
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.20	2.50

**a =** 0.100  
**a/l value =** 0.100  
**Y =** 1.000

Flaw is Subsurface

**Allowed a/t =** 2.50%  
**a/t =** 1.57%

**Comments:**

47 of 245



R1152



**GE Nuclear Energy**

# **GERIS 2000 Indication Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-014

**Exam Data Sheet No.:** E-16-02  
**Ind. Data Sheet No.:** 16-018  
**Indication:** 16-018

**Flaw Thruwall Dimension =** 0.20  
**Flaw Length "l" =** 0.50  
**Separation with clad "S" =** 2.77  
**Surface Separation "S" =** 2.58

**T nominal =** 6.38  
**Clad T nominal =** 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	2.80	3.30 Y
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.80	3.30

**a =** 0.100  
**a/l value =** 0.200  
**Y =** 1.000

Flaw is Subsurface

**Allowed a/t =** 3.30%  
**a/t =** 1.57%

**Comments:**

---



---



---



---

49 of 245



## GERIS 2000 Indication Data Sheet

**Ind. Data Sheet No.: 16-019**

**Direction: 0**

00413



GE Nuclear Energy

**GERIS 2000 Indication  
Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-014

**Exam Data Sheet No.:** E-16-02  
**Ind. Data Sheet No.:** 16-019  
**Indication:** 16-019

**Flaw Thruwall Dimension =** 0.127  
**Flaw Length "l" =** 0.75  
**Separation with clad "S" =** N/A  
**Surface Separation "S" =** 0.00

**T nominal =** 6.38  
**Clad T nominal =** 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	2.62	3.05 Y
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.62	0.00

**a =** 0.127  
**a/l value =** 0.169  
**Y =** 0.000

Flaw is Surface

**Allowed a/t =** 2.62%  
**a/t =** 1.99%

**Comments:** Evaluated to notch sensitivity assigned thruwall dimension = 2% T.

51 of 245

00414

R 1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-02****Patch ID:** BF-014**Ind. Data Sheet No.: 16-020**

**Indication:** 16-020

**Channel: 9**

**Angle:** 45

**Direction:** 180

[illegible]

**Comments:** OD geometry stabilizer bracket at 45°.

**Analyst:**

**Level:**

Date: 12/17/93

Reviewed By:

**Level:**

Date: 12-20-93





B1152

**Ind. Data Sheet No.: 16-021**

**Direction:** 180

[illegible]

**Comments:** Thruwall size was determined by the PATT technique.

**S = 1.88 with clad**

**Analyst(s)**

Reviewed By: R.O. Forman

**Level:**

Date: 12/17/93

Level: II

Date: 12-20-93



GE Nuclear Energy

**GERIS 2000 Indication  
Evaluation Sheet**

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-014

Exam Data Sheet No.: E-16-02  
Ind. Data Sheet No.: 16-021  
Indication: 16-021

Flaw Thruwall Dimension = 0.36  
Flaw Length "I" = 1.00  
Separation with clad "S" = 1.88  
Surface Separation "S" = 1.69

T nominal = 6.38  
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	2.68	3.14 Y
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.68	3.14

a = 0.180  
a/l value = 0.180  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 3.14%  
a/t = 2.82%

Comments:

54 of 245

# 00417



B 1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-02****Patch ID:** BF-014**Ind. Data Sheet No.: 16-023**

**Indication:** 16-023

**Channel: 11**

**Angle:** 60

**Direction: 0**

[illegible]

**Comments:** OD geometry stabilizer bracket at 45°.

**Analyst:**

**Level:**

**Date:**

Reviewed By:

**Level:**

Date: 12-20-93

R 1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-02****Patch ID:** BF-014**Ind. Data Sheet No.: 16-024**

**Indication:** 16-024

**Channel: 12**

**Angle:** 60

**Direction: 90**

[illegible]

**Comments:** OD geometry stabilizer bracket at 45°.

**Analyst:**

**Level:**

Date:

Reviewed By:

**Level:**

Date: 12-20-93



R1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-02****Patch ID: BF-014****Ind. Data Sheet No.: 16-026**

**Indication:** 16-026

**Channel: 14**

**Angle:** 60

**Direction: 270**

[illegible]

**Comments:** OD geometry stabilizer bracket at 45°.

**Analyst:**

**Level:**

Date: 12/17/93

Reviewed By:

**Level:**

Date:

20  
12-23-93  
Rev 12-20-93



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-03****Patch ID:** BF-015

Ind. Data Sheet No.: 16-027

**Indication:** 16-027

**Channel: 2**

**Angle:** 0

**Direction: 90**

[illegible]

**Comments:** Non-relevant straight beam indications due to plate segregates, no significant loss of back wall.

**Analyst:**

**Level:**

Date:

Reviewed By:

**Level:**

Date:





**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-03**

**Patch ID:** BF-015

**Ind. Data Sheet No.: 16-028**

**Indication:** 16-028

**Channel: 2**

**Angle:** 0

**Direction: 90**

[illegible]

**Comments:** Non-relevant straight beam indications due to plate segregates, no significant loss of back wall.

Analyst: CJ/KJS

Level: III Date: 12/17/93

Reviewed By: R.O. Forman

Level: II Date: 12-20-93





## GERIS 2000 Indication Data Sheet

**Ind. Data Sheet No.: 16-030**

**Direction: 90**

Date: 12-20-93



R1152

**Ind. Data Sheet No.: 16-031**

**Direction:** 180

[illegible]

**Comments:** No apparent tip signals.

Indication has no determinable thruwall dimension and is acceptable to IWB-3510-1.

Analyst: QJ/M/S

Level: III Date: 12/17/93

Reviewed By: R.O. Forman

Level: II Date: 12-20-93



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-03****Patch ID: BF-015****Ind. Data Sheet No.: 16-032**

**Indication:** 16-032

**Channel: 5**

**Angle:** 70

**Direction:** 180

[illegible]

**Comments:** No apparent tip signals.

Indication has no determinable thruwall and is acceptable to IWB-3510.

**Analyst:** (Signature)

Level: III Date: 12/17/93

Reviewed By: R.O. Forman

Level: 7 Date: 12-20-93

R1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-03****Patch ID:** BF-015**Ind. Data Sheet No.: 16-033**

**Indication:** 16-033

**Channel: 6**

**Angle:** 70

**Direction: 270**

[illegible]

**Comments:** No apparent tip signals.

Indication has no determinable thruwall dimension and is acceptable to IVB-3510-1.

**Analyst:**

**Level:**

Date: 12/17/93

Reviewed By:

**Level:**

Date: 12-20-93

R1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-03****Patch ID: BF-015**

Ind. Data Sheet No.: 16-034

**Indication:** 16-034

**Channel: 7**

**Angle:** 45

**Direction: 0**

[illegible]

**Comments:** Thruwall size was determined by the Delta MP technique.

**T measured = 6.85 w/ clad  $\approx$  6.66 w/o clad**

TW = 0.49

$$L = 1.00$$

**S = 2.15 with clad**

**with clad**

Analyst: QJ/VJS

Level: III Date: 12/17/93

Reviewed By: R.O. Forman

Level: II Date: 12-20-93



GE Nuclear Energy

## GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-015

Exam Data Sheet No.: E-16-03  
Ind. Data Sheet No.: 16-034  
Indication: 16-034

Flaw Thruwall Dimension = 0.49  
Flaw Length "l" = 1.00  
Separation with clad "S" = 2.15  
Surface Separation "S" = 1.96

T measured = 6.66  
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	3.25	3.75 Y
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			3.25	3.75

a = 0.245  
a/l value = 0.245  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 3.75%  
a/t = 3.68%

Comments: T measured with clad = 6.85" without = 6.66".

68af 245





**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-03****Patch ID:** BF-015**Ind. Data Sheet No.: 16-035**

**Indication:** 16-035

**Channel: 7**

**Angle:** 45

**Direction: 0**

[illegible]

**Comments:** Thruwall size determined by the Reg. Guide 20% beam spread correction method.

Indication has no determinable thruwall dimension and is acceptable to IWB-3510-1.

TW = 0.00

$$L = 0.25$$

**S = 1.64 with clad**

**with clad**

Analyst: C. J. M. S.

Level: III Date: 12/17/93

Reviewed By: R.O. Forman

Level: II Date: 12-20-93



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-03****Patch ID:** BF-015**Ind. Data Sheet No.: 16-036**

**Indication:** 16-036

**Channel: 8**

**Angle:** 45

**Direction: 90**

[illegible]

**Comments:** No apparent tip signals.

Thruwall size determined by the ASME 50% DAC method.

**TW = 0.46**

$$L = 0.75$$

**S = 2.10 with clad**

with clad

**Analyst:**

Analyst: CL M-5

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: IV Date: 12/17/93

**Level:**

Level: II Date: 12-20-93

R 1152



GE Nuclear Energy

# GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-015

Exam Data Sheet No.: E-16-03  
Ind. Data Sheet No.: 16-036  
Indication: 16-036

Flaw Thruwall Dimension = 0.46  
Flaw Length "I" = 0.75  
Separation with clad "S" = 2.10  
Surface Separation "S" = 1.91

T nominal = 6.38  
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	3.88	4.49 Y
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			3.88	4.49

a = 0.230  
a/l value = 0.307  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 4.49%  
a/t = 3.61%

Comments:

21 of 245



R1152

**Exam Data Sheet No.: E-16-03****Patch ID:** BF-015

**Ind. Data Sheet No.: 16-037**

**Direction: 90**

Date: 12-20-93



B 1152

**Ind. Data Sheet No.: 16-038**

**Direction:** 180

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

**S = 1.82 with clad**

Analyst: (Signature)

Reviewed By: R.D. Forman

Level: III Date: 12/17/93

Level: II Date: 12-20-93

73 of 245

B1152



GE Nuclear Energy

# GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-015

Exam Data Sheet No.: E-16-03  
Ind. Data Sheet No.: 16-038  
Indication: 16-038

Flaw Thruwall Dimension = 0.25  
Flaw Length "l" = 1.00  
Separation with clad "S" = 1.82  
Surface Separation "S" = 1.63

T nominal = 6.38  
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	2.35	2.70 Y
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.35	2.70

a = 0.125  
a/l value = 0.125  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 2.70%  
a/t = 1.96%

Comments:

2406 245

00437



# GERIS 2000 Indication Data Sheet

R1152



GE Nuclear Energy

# **GERIS 2000 Indication Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-015

**Exam Data Sheet No.:** E-16-03  
**Ind. Data Sheet No.:** 16-039  
**Indication:** 16-039

**Flaw Thruwall Dimension =** 0.17  
**Flaw Length "l" =** 0.75  
**Separation with clad "S" =** 1.89  
**Surface Separation "S" =** 1.70

**T nominal =** 6.38  
**Clad T nominal =** 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	2.28	2.61 Y
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.28	2.61

**a =** 0.085  
**a/l value =** 0.113  
**Y =** 1.000

Flaw is Subsurface

**Allowed a/t =** 2.61%  
**a/t =** 1.33%

**Comments:**

76 of 245

# 00439



R1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-03****Patch ID:** BF-015

**Ind. Data Sheet No.: 16-040**

**Indication:** 16-040

**Channel: 9**

**Angle:** 45

**Direction:** 180

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

TW = 0.17

$$L = 0.75$$

**S = 2.94 with clad**

with clad

**Analyst:**

Analyst: Q M

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: III Date: 12/17/93

**Level:**

Level: II Date: 12-20-93

R1152



GE Nuclear Energy

# GERIS 2000 Indication Evaluation Sheet

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-015

**Exam Data Sheet No.:** E-16-03  
**Ind. Data Sheet No.:** 16-040  
**Indication:** 16-040

**Flaw Thruwall Dimension =** 0.17  
**Flaw Length "I" =** 0.75  
**Separation with clad "S" =** 2.94  
**Surface Separation "S" =** 2.75

**T nominal =** 6.38  
**Clad T nominal =** 0.19

Flaw is acceptable by Table IWB-3510-1

## ASME Section XI, 1986 Edition TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	2.28	2.61 Y
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.28	2.61

**a =** 0.085  
**a/l value =** 0.113  
**Y =** 1.000

Flaw is Subsurface

**Allowed a/t =** 2.61%  
**a/t =** 1.33%

**Comments:**

78 of 245

00441

B1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-03****Patch ID:** BF-015**Ind. Data Sheet No.: 16-041**

**Indication: 16-041**

**Channel: 9**

**Angle:** 45

**Direction:** 180

[illegible]

**Comments:** No apparent tip signals.

Indication has no determinable thruwall dimension and is acceptable to IWB-3510-1.

Analyst: QJ/M

Level: 14 Date: 12/17/93

Reviewed By: R.D. Fournan

Level: II Date: 12-20-93

R 1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-03****Patch ID:** BF-015

Ind. Data Sheet No.: 16-042

**Indication:** 16-042

**Channel: 9**

**Angle:** 45

**Direction:** 180

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

TW = 0.28

$$L = 0.50$$

**S = 1.93 with clad**

with clad

**Analyst:**

Analyst: CE MJ

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: III Date: 12/17/93

**Level:**

Level:  $\pi$  Date: 12-20-93



GE Nuclear Energy

**GERIS 2000 Indication  
Evaluation Sheet**

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-015

Exam Data Sheet No.: E-16-03  
Ind. Data Sheet No.: 16-042  
Indication: 16-042

Flaw Thruwall Dimension = 0.28  
Flaw Length "l" = 0.50  
Separation with clad "S" = 1.93  
Surface Separation "S" = 1.74

T nominal = 6.38  
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	3.60	4.16 Y
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			3.60	4.16

a = 0.140  
a/l value = 0.280  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 4.16%  
a/t = 2.19%

Comments:

81 of 245

00444



R 1152

**Ind. Data Sheet No.: 16-043**

**Direction: 180**

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

**TW = 0.31**

$$L = 0.50$$

**S = 2.31 with clad**

**with clad**

Analyst: QJ/KJS

Reviewed By: R.O. Forman

Level: 114 Date: 12/17/93

Level: II Date: 12-20-93

R 1152



**GE Nuclear Energy**

# **GERIS 2000 Indication Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-015

**Exam Data Sheet No.:** E-16-03  
**Ind. Data Sheet No.:** 16-043  
**Indication:** 16-043

**Flaw Thruwall Dimension =** 0.31  
**Flaw Length "I" =** 0.50  
**Separation with clad "S" =** 2.31  
**Surface Separation "S" =** 2.12

**T nominal =** 6.38  
**Clad T nominal =** 0.19

Flaw is acceptable by Table IWB-3510-1

## **ASME Section XI, 1986 Edition TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	3.92	4.54 Y
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			3.92	4.54

**a =** 0.155  
**a/l value =** 0.310  
**Y =** 1.000

Flaw is Subsurface

**Allowed a/t =** 4.54%  
**a/t =** 2.43%

**Comments:**

83 of 245

00446

R 1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-03****Patch ID:** BF-015**Ind. Data Sheet No.: 16-044**

**Indication:** 16-044

**Channel: 10**

**Angle:** 45

**Direction: 270**

[illegible]

**Comments:** Multiple reflectors. No apparent tip signals.

Indication has no determinable thruwall dimension and is acceptable to IWB-3510-1.

Analyst: QJ MS

Level: III Date: 12/17/93

Reviewed By: R.O. Forman

Level: II Date: 12-20-93



81152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

Exam Data Sheet No.: E-16-04

**Patch ID: BF-016****Ind. Data Sheet No.: 16-045**

**Indication:** 16-045

**Channel: 3**

**Angle:** 70

**Direction: 0**

[illegible]

**Comments:** No apparent tip signals.

Indication has no determinable thruwall dimension and is acceptable to IWB-3510-1.

**Analyst:**

Analyst: CL M5

**Level:**

Level: III Date: 12/18/93

Date:

12/18/93

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: II Date: 12-20-93

Date:

12-20-93



R1152

**Ind. Data Sheet No.: 16-046**

**Direction: 0**



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-04****Patch ID:** BF-016

**Ind. Data Sheet No.: 16-047**

**Indication:** 16-047

**Channel: 7**

**Angle: 45**

**Direction: 0**

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

**TW = 0.20**

**L = 1.25**

**S = 3.12 with clad**

with clad

**Analyst:**

Analyst: CLM

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: IV Date: 12/18/95

**Level:**

Level: II Date: 12-20-93



GE Nuclear Energy

**GERIS 2000 Indication  
Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-016

**Exam Data Sheet No.:** E-16-04  
**Ind. Data Sheet No.:** 16-047  
**Indication:** 16-047

**Flaw Thruwall Dimension =** 0.20  
**Flaw Length "I" =** 1.25  
**Separation with clad "S" =** 3.12  
**Surface Separation "S" =** 2.93

**T nominal =** 6.38  
**Clad T nominal =** 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	2.12	2.38 Y
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.12	2.38

a = 0.100  
a/l value = 0.080  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 2.38%  
a/t = 1.57%

**Comments:**

88 of 245

\* 00451

R1152



GE Nuclear Energy

# GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3

Weld ID: C-4-5

Cal. ID: C-001

Exam Data Sheet No.: E-16-05

Patch ID: BF-017

Ind. Data Sheet No.: 16-048

Indication: 16-048

Channel: 7

Angle: 45

Direction: 0

Amp.	X	20% Min Y	MP	50% Min Y	MP	@ Max Y	MP	50% Max Y	MP	20% Max Y	MP	Remarks
88.2%	293.21	~	~	~	~	572.45	3.98	~	~	~	~	~
128.4%	293.46	~	~	570.45	4.02	572.45	3.98	572.95	4.04	~	~	~
187.1%	293.71	~	~	570.45	3.96	572.45	3.93	572.95	3.98	~	~	~
187.1%	293.96	~	~	570.45	3.85	572.45	3.85	572.95	3.87	~	~	~
155.1%	294.21	~	~	570.45	3.93	572.20	3.78	572.70	3.93	~	~	~
328.5%	294.46	~	~	570.70	3.93	572.45	3.78	572.70	2.78	~	~	~
695.8%	294.71	~	~	570.70	3.91	572.45	3.73	573.20	3.65	~	~	~
653.9%	294.96	~	~	570.70	3.85	572.20	3.72	573.20	3.60	~	~	~
478.1%	295.21	~	~	570.70	3.91	572.20	3.70	573.45	3.70	~	~	~
349.5%	295.46	~	~	570.70	3.85	572.20	3.70	573.45	3.65	~	~	~
509.3%	295.71	~	~	570.45	3.78	572.20	3.70	573.20	3.60	~	~	~
478.1%	295.96	~	~	571.45	3.65	572.45	3.57	573.20	3.58	~	~	~
289.7%	296.21	~	~	570.70	3.72	572.45	3.54	573.20	3.60	~	~	~
272.3%	296.46	~	~	571.70	3.72	572.70	3.45	572.95	3.50	~	~	~
165.0%	296.71	~	~	570.95	3.80	572.45	3.45	573.45	3.63	~	~	~
187.1%	296.96	~	~	571.70	3.67	572.45	3.47	573.20	3.45	~	~	~
155.1%	297.21	~	~	570.95	3.65	572.45	3.45	573.20	3.52	~	~	~
255.9%	297.46	~	~	570.70	3.72	572.45	3.45	573.20	3.47	~	~	~
349.5%	297.71	~	~	570.95	3.78	572.70	3.42	572.95	3.63	~	~	~
187.1%	297.96	~	~	571.70	3.89	572.95	3.65	572.95	3.60	~	~	~
211.8%	298.21	~	~	572.20	3.54	572.70	3.57	573.20	3.60	~	~	~
225.7%	298.46	~	~	572.20	3.58	572.45	3.63	573.20	3.54	~	~	~
199.1%	298.71	~	~	572.20	3.60	572.70	3.57	573.20	3.60	~	~	~
82.9%	298.96	~	~	572.20	3.52	572.70	3.52	572.95	3.54	~	~	~
73.1%	299.21	~	~	~	~	572.70	3.65	~	~	~	~	~

**Comments:** This indication is multiple aligned laminar reflectors.

Loss of backwall accompanying this indication is due to stabilizer bracket below flaw.

This indication is acceptable in accordance with IWB-3510-2, ASME Section XI, 1986 Edition, No Addenda.

Analyst: CF M<sub>15</sub>Reviewed By: R.O. FormanLevel: IIIDate: 12/17/93Level: IIDate: 12-20-93

89 of 245



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-05****Patch ID:** BF-017**Ind. Data Sheet No.:** 16-049

**Indication:** 16-049

**Channel: 1**

**Angle:** 0

**Direction:** 0

[illegible]

**Comments:** This indication evaluated as a laminar reflector and is acceptable

in accordance with IWB-3510-2, ASME Section XI, 1986 Edition, No Addenda.

**Analyst:**

Cl M<sub>2</sub>

**Level:**

[illegible]

Date:

12/17/93

Reviewed By:

R.D. Forman

**Level:**

 $\pi$ 

Date:

17-70-93





R1152

**Ind. Data Sheet No.: 16-051**

**Direction: 0**

# 00455





B1152

**Ind. Data Sheet No.: 16-052**

**Direction:** 0

**Comments:** This indication evaluated as a laminar reflector and is acceptable in accordance with IWB-3510-2, ASME Section XI, 1986 Edition, No Addenda.

12/15/9316-052.XLS  
00456



## GERIS 2000 Indication Data Sheet

**Cal. ID: C-001**

**Ind. Data Sheet No.: 16-053**

**Direction: 0**

[illegible]

**Comments:** This indication evaluated as a laminar reflector and is acceptable in accordance with IWB-3510-2, ASME Section XI, 1986 Edition, No Addenda.

**Analyst:**

Cl M<sub>5</sub>

**Level:**

14

Date:

12/17/93

Reviewed By:

R.O. Form an

**Level:**

## II

Date \_\_\_\_\_

Date: 12-21-93



## GERIS 2000 Indication Data Sheet

**Cal. ID: C-001**

**Ind. Data Sheet No.: 16-054**

**Direction: 0**

**\* 00458**

R1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-05****Patch ID: BF-017****Ind. Data Sheet No.: 16-055**

**Indication:** 16-055

**Channel: 5**

**Angle:** 70

**Direction: 180**

[illegible]

**Comments:** No apparent tip signals.

Indication has no determinable thruwall dimension and is acceptable to IWB-3510-1.

Analyst: CJ/MS

Level: 144 Date: 12/17/93

Reviewed By: R.O. Forman

Level: II Date: 12-20-93





## GERIS 2000 Indication Data Sheet

**Cal. ID: C-004**

**Ind. Data Sheet No.: 16-057**

**Direction: 180**

**Comments:** OD surface indication. No apparent tip signals.  
10.33 dB below Notch sensitivity.

**S = 0.00**

**Level:**

Date:

**Level:**

Date: 12-20-93



GE Nuclear Energy

**GERIS 2000 Indication  
Evaluation Sheet**

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-019R

Exam Data Sheet No.: E-16-07  
Ind. Data Sheet No.: 16-057  
Indication: 16-057

Flaw Thruwall Dimension = 0.127  
Flaw Length "l" = 0.75  
Separation with clad "S" = N/A  
Surface Separation "S" = 0.00

T nominal = 6.38  
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	2.62	3.05 Y
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.62	0.00

a = 0.127  
a/l value = 0.169  
Y = 0.000

Flaw is Surface

Allowed a/t = 2.62%  
a/t = 1.99%

**Comments:** Evaluated to notch sensitivity assigned thruwall dimension = 2%T.

99af 245

00462

R 1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-004**

Exam Data Sheet No.: E-16-09

**Patch ID:** BF-021R

**Ind. Data Sheet No.: 16-058**

**Indication:** 16-058

**Channel: 7**

**Angle:** 45

**Direction:** 0

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

TW = 0.23

$$L = 0.75$$

**S = 2.44 with clad**

with clac

**Analyst:**

Ch. M.

Reviewed By:

R.O. Forman

**Level:**

III

Date:

12/17/93

**Level:**

 $\pi$ 

Date:

12-20-93



R 1152



GE Nuclear Energy

# GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-021R

Exam Data Sheet No.: E-16-09  
Ind. Data Sheet No.: 16-058  
Indication: 16-058

Flaw Thruwall Dimension = 0.23  
Flaw Length "I" = 0.75  
Separation with clad "S" = 2.44  
Surface Separation "S" = 2.25

T nominal = 6.38  
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	2.50	2.91 Y
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.50	2.91

a = 0.113  
a/l value = 0.151  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 2.91%  
a/t = 1.77%

Comments:



B 1152

**Ind. Data Sheet No.: 16-059**

**Direction: 0**

[illegible]

**Comments:** OD geometric indication due to stabilizer bracket.

**Analyst:**

CL M5

**Level:**

III

Date:

12/17/93

Reviewed By:

R.O. Forman

**Level:**

II

Date \_\_\_\_\_

12-20-93



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-004**

Exam Data Sheet No.: E-16-09

**Patch ID:** BF-021R

**Ind. Data Sheet No.: 16-060**

**Indication:** 16-060

**Channel: 9**

**Angle:** 45

**Direction:** 180

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

**TW = 0.23**

$$L = 0.75$$

**S = 2.48 with clad**

with clad

**Analyst:**

Analyst: CLM

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: III Date: 12/20/93

**Level:**

Level: *II* Date: *12-20-93*

Date: 12-20-93

B1152



GE Nuclear Energy

# GERIS 2000 Indication Evaluation Sheet

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-021R

**Exam Data Sheet No.:** E-16-09  
**Ind. Data Sheet No.:** 16-060  
**Indication:** 16-060

**Flaw Thruwall Dimension** = 0.23  
**Flaw Length "I"** = 0.75  
**Separation with clad "S"** = 2.48  
**Surface Separation "S"** = 2.29

**T nominal** = 6.38  
**Clad T nominal** = 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
 TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	2.50	2.91 Y
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.50	2.91

**a** = 0.113  
**a/l value** = 0.151  
**Y** = 1.000

Flaw is Subsurface

**Allowed a/t** = 2.91%  
**a/t** = 1.77%

**Comments:**

104 of 245

00467





## GERIS 2000 Indication Data Sheet

**Cal. ID: C-001**

Ind. Data Sheet No.: 16-062

**Direction: 0**

**Comments:** Thruwall size was determined by the PATT technique.

S = 0.90 with clad

Level: IV Date: 12-20-93

B1152



**GE Nuclear Energy**

# **GERIS 2000 Indication Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-022

**Exam Data Sheet No.:** E-16-10  
**Ind. Data Sheet No.:** 16-062  
**Indication:** 16-062

**Flaw Thruwall Dimension =** 0.31  
**Flaw Length "l" =** 0.50  
**Separation with clad "S" =** 0.90  
**Surface Separation "S" =** 0.71

**T nominal =** 6.38  
**Clad T nominal =** 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	3.93	4.55 Y
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			3.93	4.55

**a =** 0.156  
**a/l value =** 0.311  
**Y =** 1.000

Flaw is Subsurface

**Allowed a/t =** 4.55%  
**a/t =** 2.44%

**Comments:**

---



---



---



---



---

107 of 245







R1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-10****Patch ID:** BF-022

**Ind. Data Sheet No.: 16-065**

**Indication:** 16-065

**Channel: 5**

**Angle:** 70

**Direction:** 180

[illegible]

**Comments:** Thruwall size was determined by the PATT technique.

**TW = 0.20**

$$L = 0.75$$

**S = 1.08 with clad**

**with clad**

**Analyst:**

Analyst: CL M<sup>5</sup>

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: III Date: 12/17/93

Level: 4

Date: 12-20-93

R1152



GE Nuclear Energy

# GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3

Weld ID: C-4-5

Patch: BF-022

Exam Data Sheet No.: E-16-10

Ind. Data Sheet No.: 16-065

Indication: 16-065

Flaw Thruwall Dimension = 0.20

Flaw Length "I" = 0.75

Separation with clad "S" = 1.08

Surface Separation "S" = 0.89

T nominal = 6.38

Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	2.40	2.77 Y
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.40	2.77

a = 0.100

a/l value = 0.133

Y = 1.000

Flaw is Subsurface

Allowed a/t = 2.77%

a/t = 1.57%

Comments:

111 of 245

00474

R1152**Exam Data Sheet No.: E-16-10****Patch ID:** BF-022**Ind. Data Sheet No.: 16-066**

**Channel: 5**

**Angle:** 70

**Direction:** 180

**Comments:** No apparent tip signals.

Indication has no determinable thruwall and is acceptable to IWB-3510-1.

Reviewed By: R.O. Forman

Level: II Date: 12-20-93



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Exam Data Sheet No.: E-16-10****Patch ID:** BF-022

**Ind. Data Sheet No.: 16-067**

**Direction: 270**

[illegible]

**Comments:** No apparent tip signals.

Indication has no determinable thruwall and is acceptable to IWB-3510-1.

Reviewed By: R.O. Furman

Level: II Date: 12-20-93





GE Nuclear Energy

**GERIS 2000 Indication  
Evaluation Sheet**

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-022

Exam Data Sheet No.: E-16-10  
Ind. Data Sheet No.: 16-068  
Indication: 16-068

Flaw Thruwall Dimension = 0.25  
Flaw Length "I" = 1.00  
Separation with clad "S" = 2.90  
Surface Separation "S" = 2.71

T nominal = 6.38  
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	2.36	2.72 Y
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.36	2.72

a = 0.127  
a/l value = 0.127  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 2.72%  
a/t = 1.99%

Comments:

115 of 245

00478



## GERIS 2000 Indication Data Sheet

**Cal. ID: C-001**

**Ind. Data Sheet No.: 16-069**

**Direction: 0**

12/17/93

12/17/93 10:39:25 **00479**



B1152



GE Nuclear Energy

# **GERIS 2000 Indication Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-022

**Exam Data Sheet No.:** E-16-10  
**Ind. Data Sheet No.:** 16-069  
**Indication:** 16-069

**Flaw Thruwall Dimension =** 0.23  
**Flaw Length "I" =** 0.50  
**Separation with clad "S" =** 2.90  
**Surface Separation "S" =** 2.71

**T nominal =** 6.38  
**Clad T nominal =** 0.19

Flaw is acceptable by Table IWB-3510-1

## **ASME Section XI, 1986 Edition TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	3.06	3.56 Y
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			3.06	3.56

**a =** 0.113  
**a/l value =** 0.226  
**Y =** 1.000

Flaw is Subsurface

**Allowed a/t =** 3.56%  
**a/t =** 1.77%

**Comments:**



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-10****Patch ID:** BF-022

Ind. Data Sheet No.: 16-070

**Indication:** 16-070

**Channel: 7**

**Angle:** 45

**Direction:** 0

[illegible]

**Comments:** Indication number assigned to typical plate segregate reflectors.

For information / reference only.

**Analyst:**

CL M<sub>5</sub>

**Level:**

III.

Date:

12/17/93

Reviewed By:

R.D. Forman

**Level:**

 $\pi$ 

Date \_\_\_\_\_

12-20-93

R 1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-10****Patch ID:** BF-022

Ind. Data Sheet No.: 16-071

**Indication:** 16-071

**Channel: 7**

**Angle:** 45

**Direction: 0**

[illegible]

**Comments:** Indication number assigned to typical plate segregate reflectors.

For information / reference only.

**Analyst:**

Q. M. J.

**Level:**

111

Date:

12/17/93

Reviewed By:

R.O. Forman

**Level:**

## II

Date \_\_\_\_\_

12-20-23



## GERIS 2000 Indication Data Sheet

R1152



**GE Nuclear Energy**

# **GERIS 2000 Indication Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-022

**Exam Data Sheet No.:** E-16-10  
**Ind. Data Sheet No.:** 16-073  
**Indication:** 16-073

**Flaw Thruwall Dimension** = 0.30  
**Flaw Length "I"** = 0.75  
**Separation with clad "S"** = 2.93  
**Surface Separation "S"** = 2.74

**T nominal** = 6.38  
**Clad T nominal** = 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	2.79	3.28 Y
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.79	3.28

**a** = 0.149  
**a/l value** = 0.198  
**Y** = 1.000

Flaw is Subsurface

**Allowed a/t** = 3.28%  
**a/t** = 2.33%

**Comments:**

121 of 245

00484



## GERIS 2000 Indication Data Sheet



GE Nuclear Energy

**GERIS 2000 Indication  
Evaluation Sheet**

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-022

Exam Data Sheet No.: E-16-10  
Ind. Data Sheet No.: 16-077  
Indication: 16-077

Flaw Thruwall Dimension = 0.32  
Flaw Length "I" = 0.25  
Separation with clad "S" = 1.70  
Surface Separation "S" = 1.51

T nominal = 6.38  
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	5.20	7.60 Y
			Allowed	Allowed
			5.20	7.60

a = 0.160  
a/l value = 0.500  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 7.60%  
a/t = 2.51%

Comments:



R 1152

**Exam Data Sheet No.: E-16-11****Patch ID:** BF-023

Ind. Data Sheet No.: 16-078

**Direction: 90**

**Comments:** This indication evaluated as a laminar reflector and is acceptable in accordance with IWB-3510-2, ASME Section XI, 1986 Edition, No Addenda.

Ch M<sub>5</sub>

III Date: 12/17/93

R.O. Forman

$\pi$  Date: 12-20-93





R 1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID:** C-4-5

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-11**

**Patch ID:** BF-023

**Ind. Data Sheet No.: 16-080**

**Indication:** 16-080

**Channel: 3**

**Angle:** 70

**Direction: 0**

[illegible]

**Comments:** No apparent tip signals.

Indication has no determinable thruwall and is acceptable to IWB-3510-1.

**Analyst:**

Ch M

**Level:**

III

Date: 12/17/93

Reviewed By:

R.O. Forman

Level: II

Date: 12-20-93

B1152



**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project:** TVA, Browns Ferry, Unit 3

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-11**

**Patch ID:** BF-023

**Ind. Data Sheet No.: 16-081**

**Indication:** 16-081

**Channel: 5**

**Angle:** 70

**Direction:** 180

[illegible]

**Comments:** Thruwall size was determined by the PATT technique.

**TW = 0.32**

$$L = 0.75$$

**S = 1.58 with clad**

with clad

**Analyst:**

Analyst: CP/M

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: III

Date:

Date: 12/17/93

**Level:**

Level: 7

Date \_\_\_\_\_

Date: 12-20-93

B1152



**GE Nuclear Energy**

# **GERIS 2000 Indication Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-023

**Exam Data Sheet No.:** E-16-11  
**Ind. Data Sheet No.:** 16-081  
**Indication:** 16-081

**Flaw Thruwall Dimension** = 0.32  
**Flaw Length "I"** = 0.75  
**Separation with clad "S"** = 1.58  
**Surface Separation "S"** = 1.39

**T nominal** = 6.38  
**Clad T nominal** = 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	2.95	3.45 Y
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.95	3.45

a = 0.161  
a/l value = 0.215  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 3.45%  
a/t = 2.52%

**Comments:**

128 of 245

00491



## GERIS 2000 Indication Data Sheet

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-11****Patch ID:** BF-023**Ind. Data Sheet No.: 16-082**

**Indication:** 16-082

**Channel: 9**

**Angle:** 45

**Direction:** 180

[illegible]

**Comments:** No apparent tip signals.

**TW = 0.43**

**L = 0.75**

**S = 2.38**

Analyst: CMS

Level: III Date: 12/17/93

Reviewed By: R.O. Forman

Level: II Date: 12-20-93

R1152



GE Nuclear Energy

## GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-023

Exam Data Sheet No.: E-16-11  
Ind. Data Sheet No.: 16-082  
Indication: 16-082

Flaw Thruwall Dimension = 0.43  
Flaw Length "I" = 0.75  
Separation with clad "S" = 2.38  
Surface Separation "S" = 2.19

T nominal = 6.38  
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

### ASME Section XI, 1986 Edition TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	3.67	4.25 Y
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			3.67	4.25

a = 0.216  
a/l value = 0.287  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 4.25%  
a/t = 3.38%

Comments:

130 of 245

00493





GE Nuclear Energy

# GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-023

Exam Data Sheet No.: E-16-11  
Ind. Data Sheet No.: 16-083  
Indication: 16-083

Flaw Thruwall Dimension = 0.17  
Flaw Length "I" = 1.00  
Separation with clad "S" = 2.09  
Surface Separation "S" = 1.90

T nominal = 6.38  
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

## ASME Section XI, 1986 Edition TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	2.14	2.41 Y
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.14	2.41

a = 0.085  
a/l value = 0.085  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 2.41%  
a/t = 1.32%

Comments:





**GE Nuclear Energy**

## GERIS 2000 Indication Data Sheet

**Project: TVA, Browns Ferry, Unit 3**

**Weld ID: C-4-5**

**Cal. ID: C-001**

**Exam Data Sheet No.: E-16-11****Patch ID:** BF-023**Ind. Data Sheet No.: 16-084**

**Indication:** 16-084

**Channel: 13**

**Angle:** 60

**Direction:** 180

[illegible]

**Comments:** No apparent tip signals.

TW = 0.37

$$L = 0.75$$

**S = 1.89 with clad**

with clad

**Analyst:**

Analyst: CL M5

Reviewed By:

Reviewed By: R.O. Forman

**Level:**

Level: III Date: 12/17/93

**Level:**

Level: II Date: 12-20-93

Date: 12-20-93

B1152



GE Nuclear Energy

# **GERIS 2000 Indication Evaluation Sheet**

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-023

Exam Data Sheet No.: E-16-11  
Ind. Data Sheet No.: 16-084  
Indication: 16-084

Flaw Thruwall Dimension = 0.37  
Flaw Length "I" = 0.75  
Separation with clad "S" = 1.89  
Surface Separation "S" = 1.70

T nominal = 6.38  
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

## **ASME Section XI, 1986 Edition TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	3.23	3.73 Y
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			3.23	3.73

a = 0.183  
a/l value = 0.243  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 3.73%  
a/t = 2.86%

Comments:

134 of 245

00497



## GERIS 2000 Indication Data Sheet

**Cal. ID: C-001**

**Ind. Data Sheet No.: 16-085**

**Direction:** 180

Indication has no determinable thruwall and is acceptable to IWB-3510-1.

Analyst: CE MS

Level: III Date: 12/17/23

Reviewed By: R. D. Forman

Level:  $\pi$  Date: 12-20-93

Date: 12-20-93



GE Nuclear Energy

# GERIS 2000 Indication Data Sheet

Project: TVA, Browns Ferry, Unit 3  
Weld ID: C-4-5  
Cal. ID: C-001

Exam Data Sheet No.: E-16-05  
Patch ID: BF-017  
Ind. Data Sheet No.: 16-086

Indication: 16-086

Channel: 7

Angle: 45

Direction: 0

Amp.	X	20% Min Y	MP	50% Min Y	MP	@ Max Y	MP	50% Max Y	MP	20% Max Y	MP	Remarks
34.5%	294.71	~	~	~	~	570.50	4.87	~	~	~	~	~
28.9%	294.96	~	~	~	~	570.05	4.90	~	~	~	~	~
34.5%	295.21	~	~	~	~	570.50	4.79	~	~	~	~	~
44.3%	295.46	~	~	~	~	570.50	4.79	~	~	~	~	~
41.6%	295.71	~	~	~	~	570.05	4.79	~	~	~	~	~
44.3%	295.96	~	~	~	~	570.50	4.82	~	~	~	~	~
30.4%	296.21	~	~	~	~	569.80	4.92	~	~	~	~	~
20.9%	296.46	~	~	~	~	569.30	5.22	~	~	~	~	~
13.5%	296.71	~	~	~	~	569.30	5.12	~	~	~	~	~
23.7%	296.96	~	~	~	~	569.55	5.03	~	~	~	~	~
32.4%	297.21	~	~	~	~	569.30	5.19	~	~	~	~	~
32.4%	297.46	~	~	~	~	569.30	5.19	~	~	~	~	~
34.5%	297.71	~	~	~	~	569.30	5.17	~	~	~	~	~
28.9%	297.96	~	~	~	~	569.30	5.17	~	~	~	~	~
34.5%	298.21	~	~	~	~	569.05	5.56	~	~	~	~	~
25.2%	298.46	~	~	~	~	569.05	5.38	~	~	~	~	~
25.2%	298.71	~	~	~	~	569.30	5.38	~	~	~	~	~
25.2%	298.96	~	~	~	~	569.30	5.22	~	~	~	~	~
~	~	~	~	~	~	~	~	~	~	~	~	~
~	~	~	~	~	~	~	~	~	~	~	~	~
~	~	~	~	~	~	~	~	~	~	~	~	~
~	~	~	~	~	~	~	~	~	~	~	~	~
~	~	~	~	~	~	~	~	~	~	~	~	~
~	~	~	~	~	~	~	~	~	~	~	~	~

Comments: No apparent tip signals. No determinable thruwall dimension. Same indication as 0° ind. 16-048.

This indication evaluated as a laminar reflector and is acceptable

in accordance with IVB-3510-2, ASME Section XI, 1986 Edition, No Addenda.

Analyst: CS MS

Level: III

Date: 12/18/93

Reviewed By: R.D. Forman

Level: II

Date: 12-20-93



## GERIS 2000 Indication Data Sheet

Ind. Data Sheet No.: 16-087

**Direction: 180**

[illegible]

**Comments:** Thruwall size was determined by the SPOT technique.

**S = 1.92 with clad**

Level: II Date: 12-20-93



GE Nuclear Energy

## GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3  
Weld ID: C-4-5  
Patch: BF-017

Exam Data Sheet No.: E-16-05  
Ind. Data Sheet No.: 16-087  
Indication: 16-087

Flaw Thruwall Dimension = 0.44  
Flaw Length "I" = 0.50  
Separation with clad "S" = 1.92  
Surface Separation "S" = 1.73

T nominal = 6.38  
Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	5.08	6.48 Y
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			5.08	6.48

a = 0.219  
a/l value = 0.438  
Y = 1.000

Flaw is Subsurface

Allowed a/t = 6.48%  
a/t = 3.43%

Comments:



R1152



GE Nuclear Energy

# GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3

Weld ID: C-4-5

Patch: BF-017

Exam Data Sheet No.: E-16-05

Ind. Data Sheet No.: 16-088

Indication: 16-088

Flaw Thruwall Dimension = 0.24

Flaw Length "I" = 0.25

Separation with clad "S" = 2.80

Surface Separation "S" = 2.61

T nominal = 6.38

Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	5.16	7.24 Y
0.50	5.20	7.6	~	~
			Allowed	Allowed
			5.16	7.24

a = 0.120

a/l value = 0.480

Y = 1.000

Flaw is Subsurface

Allowed a/t = 7.24%

a/t = 1.88%

Comments:

140 of 245

\* 00503





## GERIS 2000 Indication Data Sheet

**Cal. ID: C-001**

**Ind. Data Sheet No.: 16-089**

**Direction: 180**

00504







## GERIS 2000 Indication Data Sheet

R1152



GE Nuclear Energy

# GERIS 2000 Indication Evaluation Sheet

Project: TVA, Browns Ferry Unit 3

Weld ID: C-4-5

Patch: BF-018R

Exam Data Sheet No.: E-16-06

Ind. Data Sheet No.: 16-092

Indication: 16-092

Flaw Thruwall Dimension = 0.127

Flaw Length "I" = 1.50

Separation with clad "S" = N/A

Surface Separation "S" = 0.00

T nominal = 6.38

Clad T nominal = 0.19

Flaw is acceptable by Table IWB-3510-1

## ASME Section XI, 1986 Edition TABLE IWB-3510-1 for 4" to 12"

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	2.14	2.41 Y
0.10	2.20	2.5	~	~
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.14	0.00

a = 0.127

a/l value = 0.085

Y = 0.000

Flaw is Surface

Allowed a/t = 2.14%

a/t = 1.99%

### Comments:

Evaluated to notch sensitivity assigned thruwall dimension = 2%T.

14506 245

00508



## GERIS 2000 Indication Data Sheet

Ind. Data Sheet No.: 16-093

**Direction: 90**

[illegible]

For information / reference only.

Level: II Date: 12-20-93



## GERIS 2000 Indication Data Sheet

**Cal. ID: C-004**

**Ind. Data Sheet No.: 16-094**

**Direction:** 180

EXAM-DS3 V.2 10/22/83



GE Nuclear Energy

**GERIS 2000 Indication  
Evaluation Sheet**

**Project:** TVA, Browns Ferry Unit 3  
**Weld ID:** C-4-5  
**Patch:** BF-018R

**Exam Data Sheet No.:** E-16-06  
**Ind. Data Sheet No.:** 16-094  
**Indication:** 16-094

**Flaw Thruwall Dimension =** 0.127  
**Flaw Length "I" =** 1.25  
**Separation with clad "S" =** N/A  
**Surface Separation "S" =** 0.00

**T nominal =** 6.38  
**Clad T nominal =** 0.19

Flaw is acceptable by Table IWB-3510-1

**ASME Section XI, 1986 Edition  
TABLE IWB-3510-1 for 4" to 12"**

a/l	Surface %	Subsurface %	Surface %	Subsurface %
0.00	1.90	2	~	~
0.05	2.00	2.2	~	~
0.10	2.20	2.5	2.21	2.51 Y
0.15	2.50	2.9	~	~
0.20	2.80	3.3	~	~
0.25	3.30	3.8	~	~
0.30	3.80	4.4	~	~
0.35	4.40	5.1	~	~
0.40	5.00	5.8	~	~
0.45	5.10	6.7	~	~
0.50	5.20	7.6	~	~
			Allowed	Allowed
			2.21	0.00

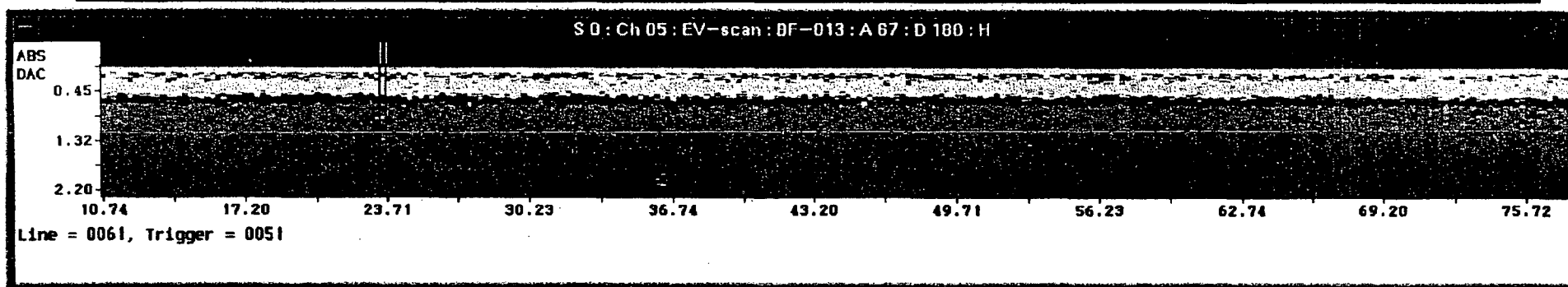
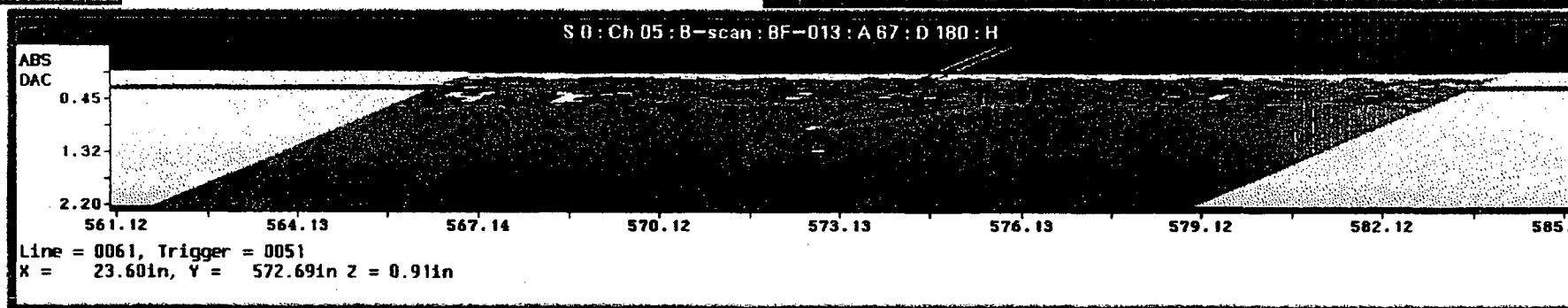
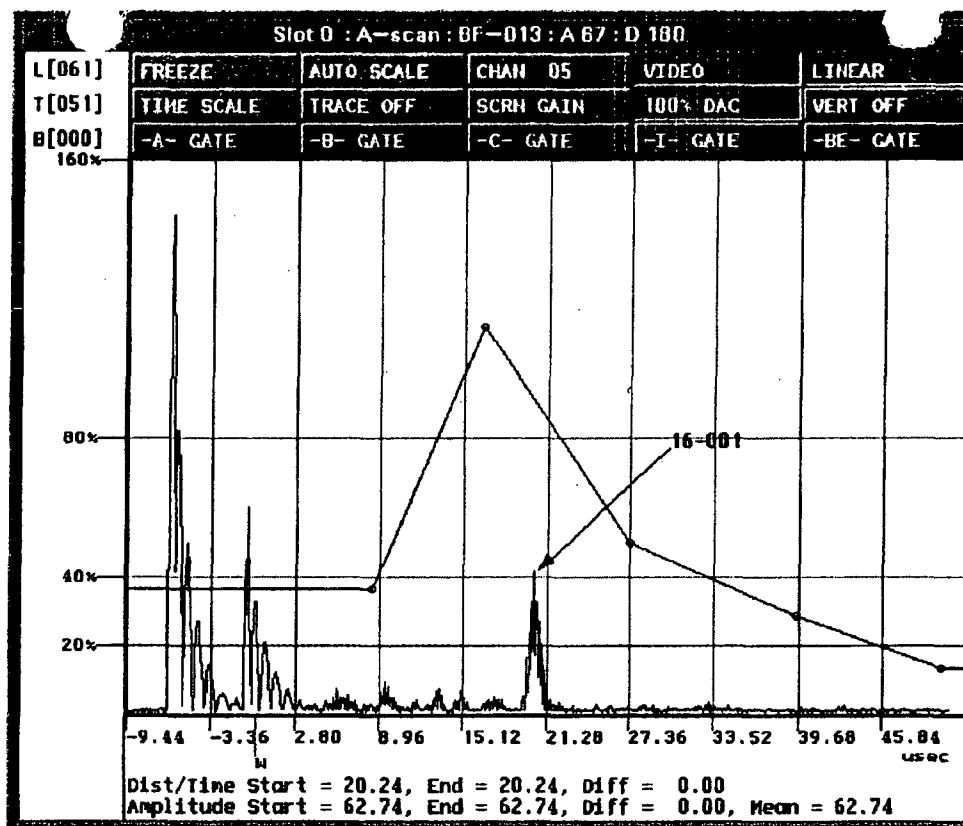
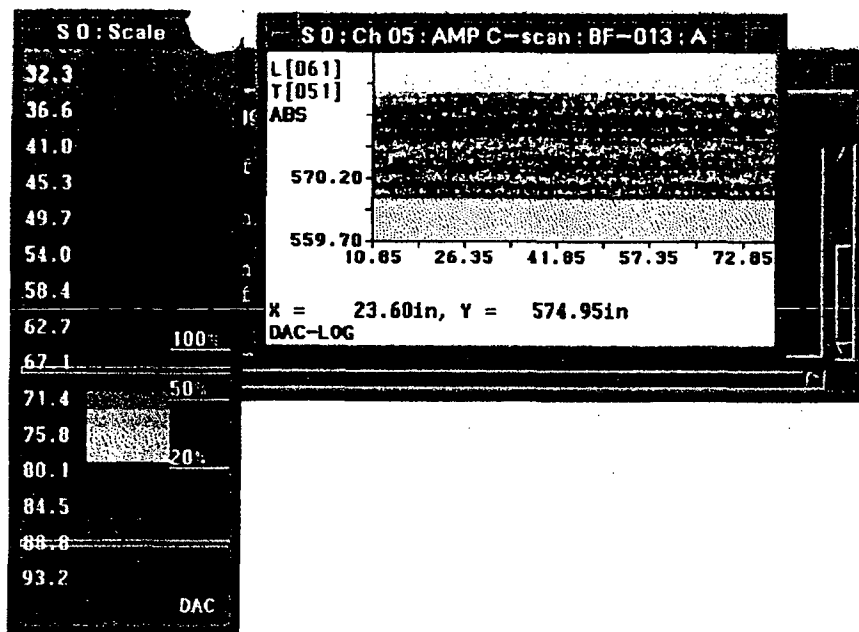
a = 0.127  
a/l value = 0.102  
Y = 0.000

Flaw is Surface

Allowed a/t = 2.21%  
a/t = 1.99%

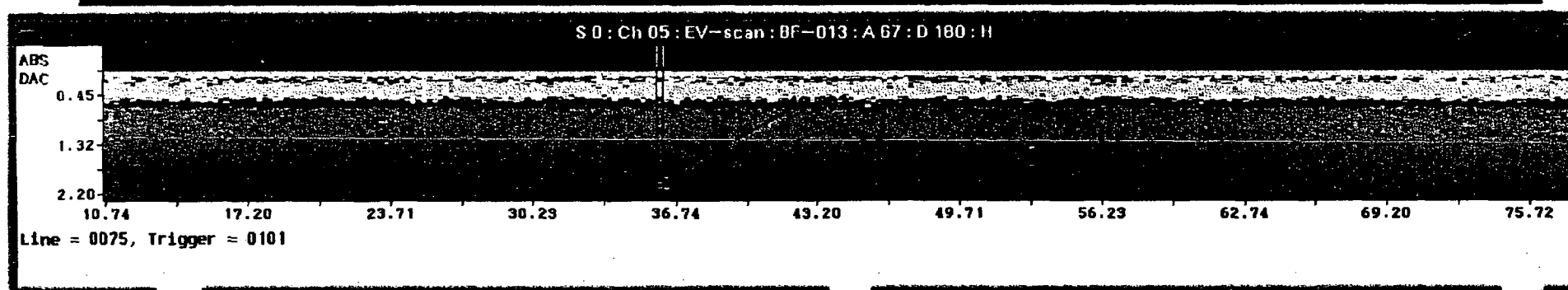
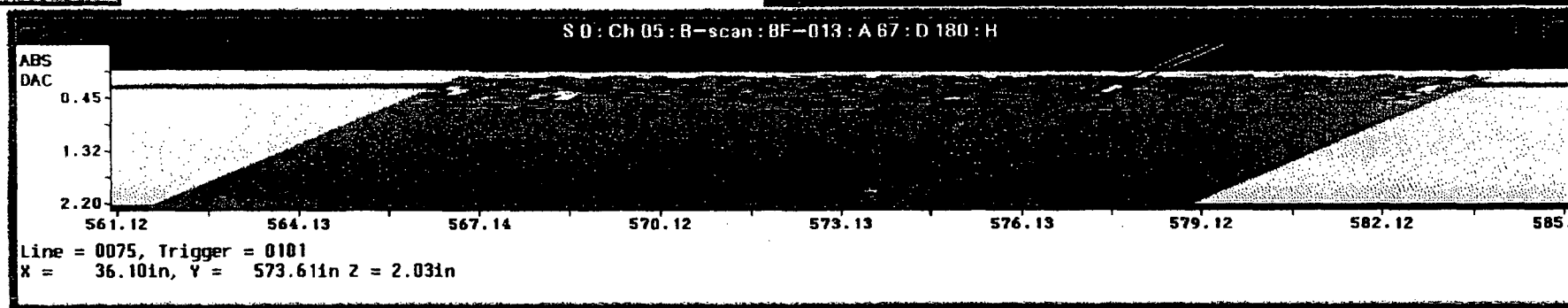
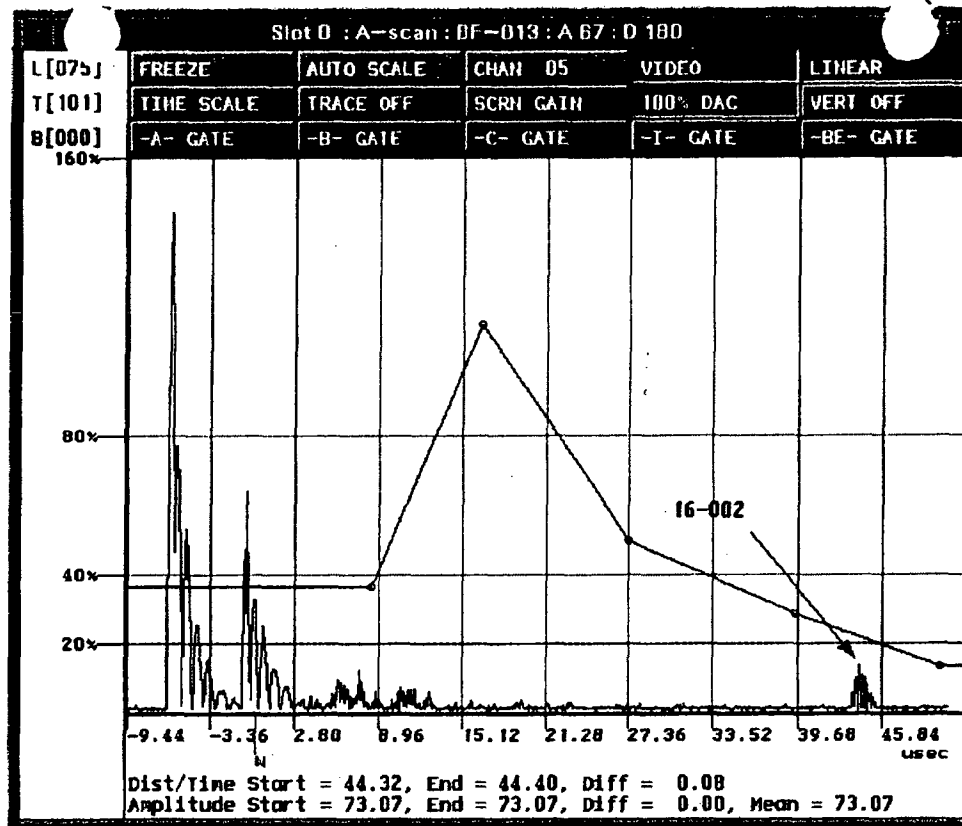
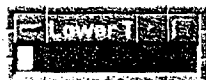
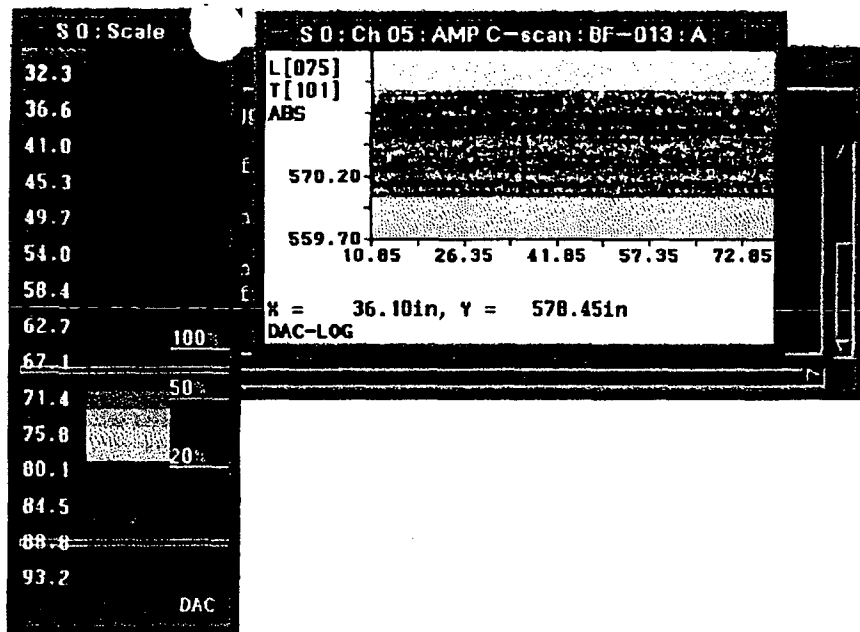
**Comments:** Evaluated to notch sensitivity assigned thruwall dimension = 2%T.

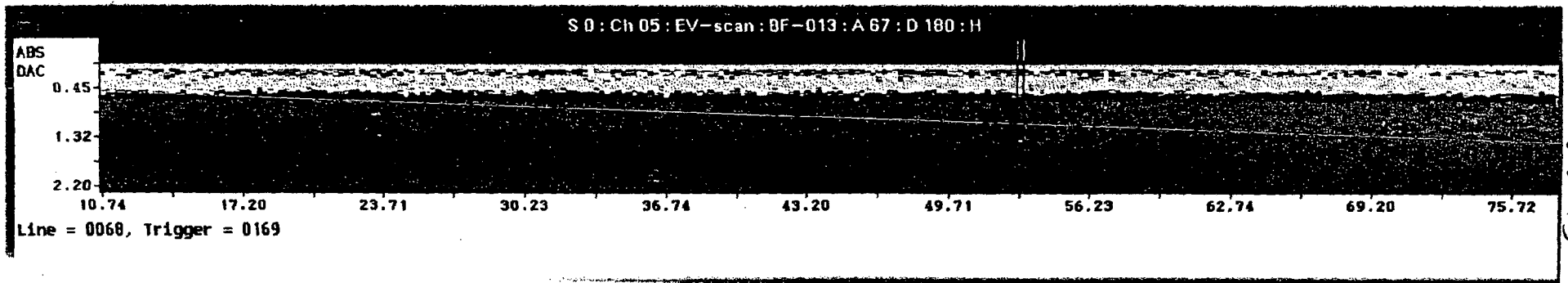
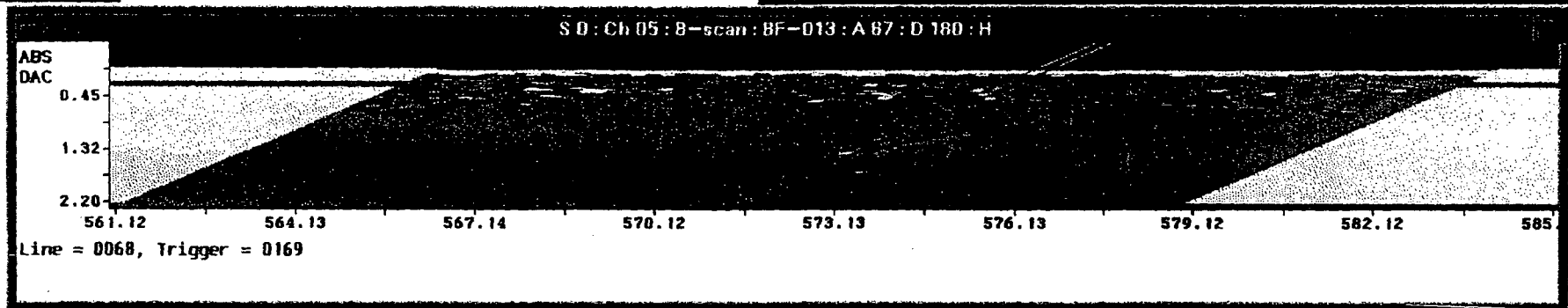
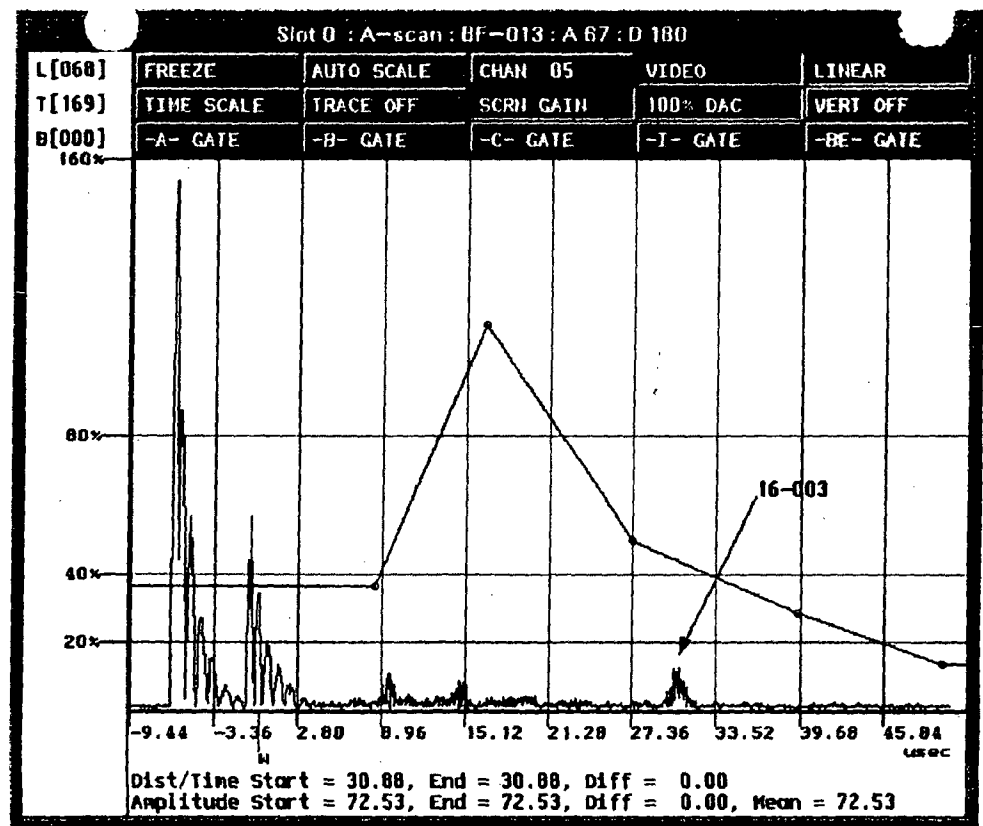
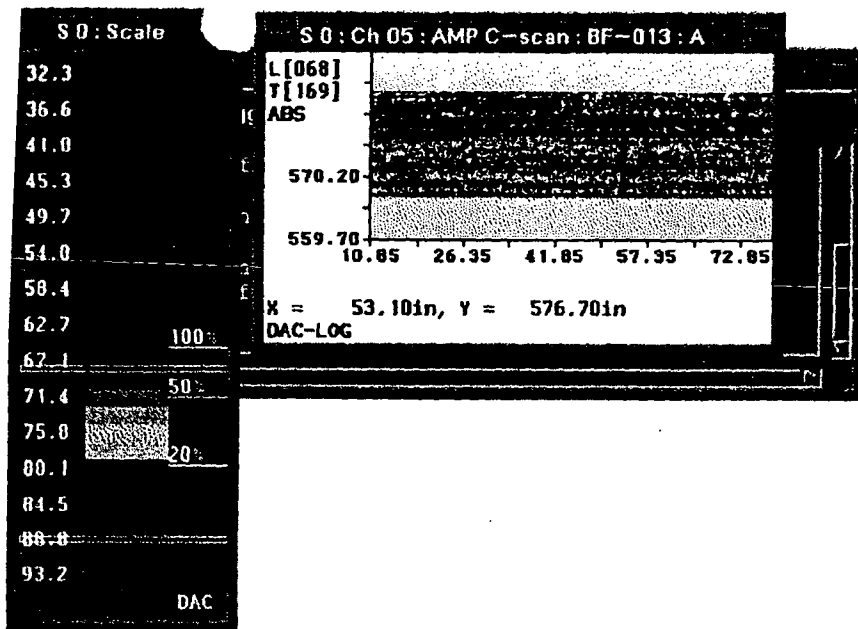


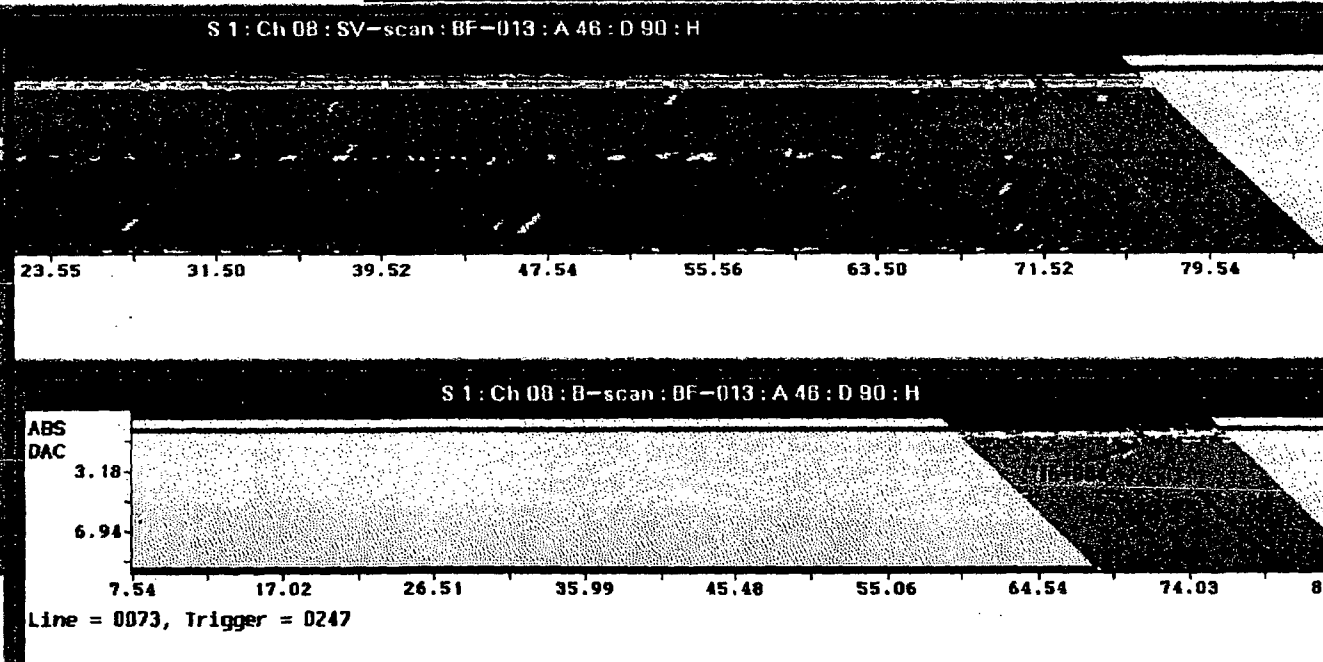
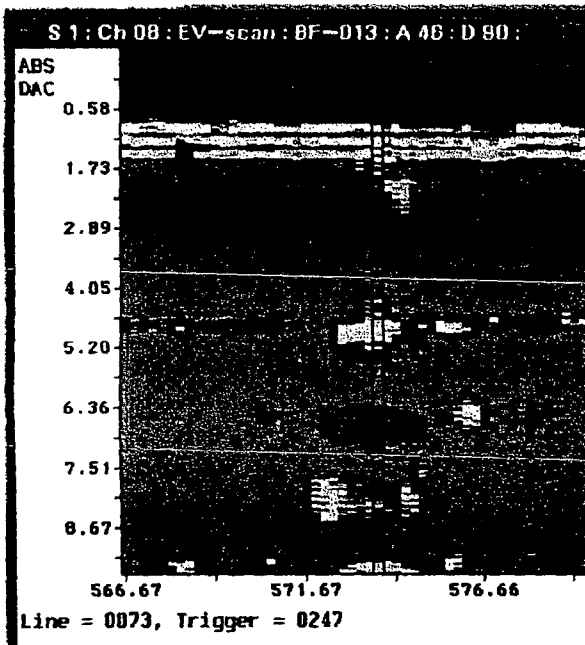
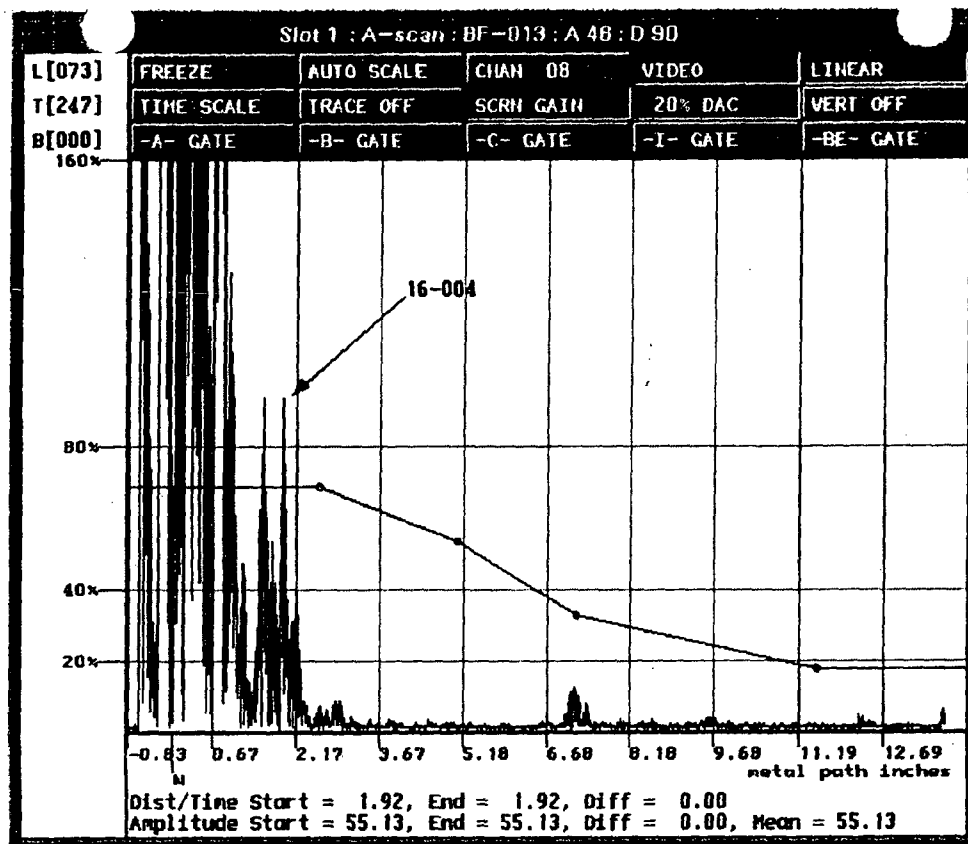
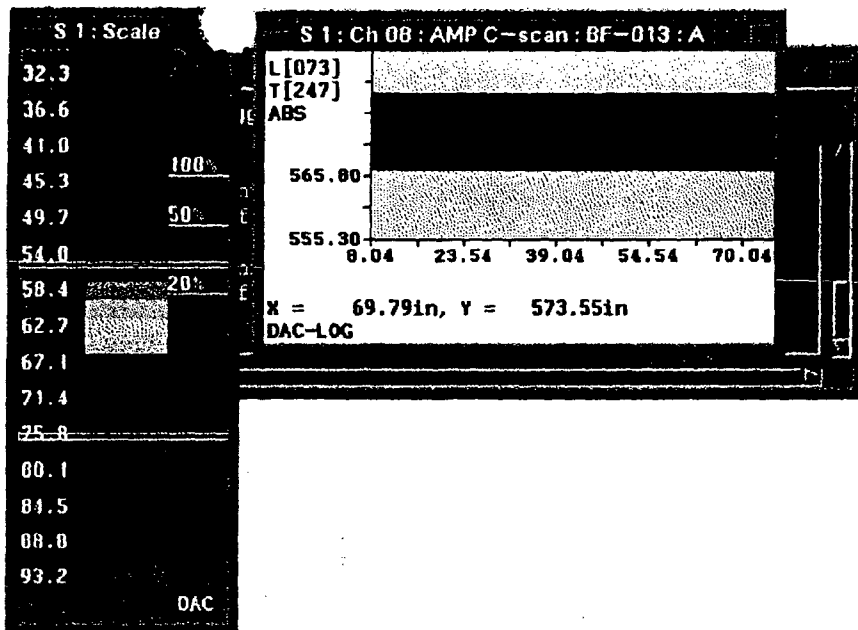


149 of 245

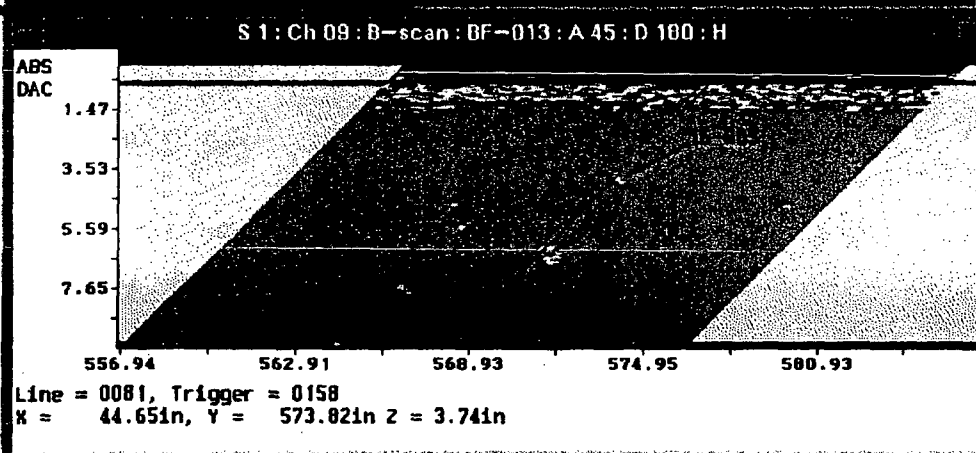
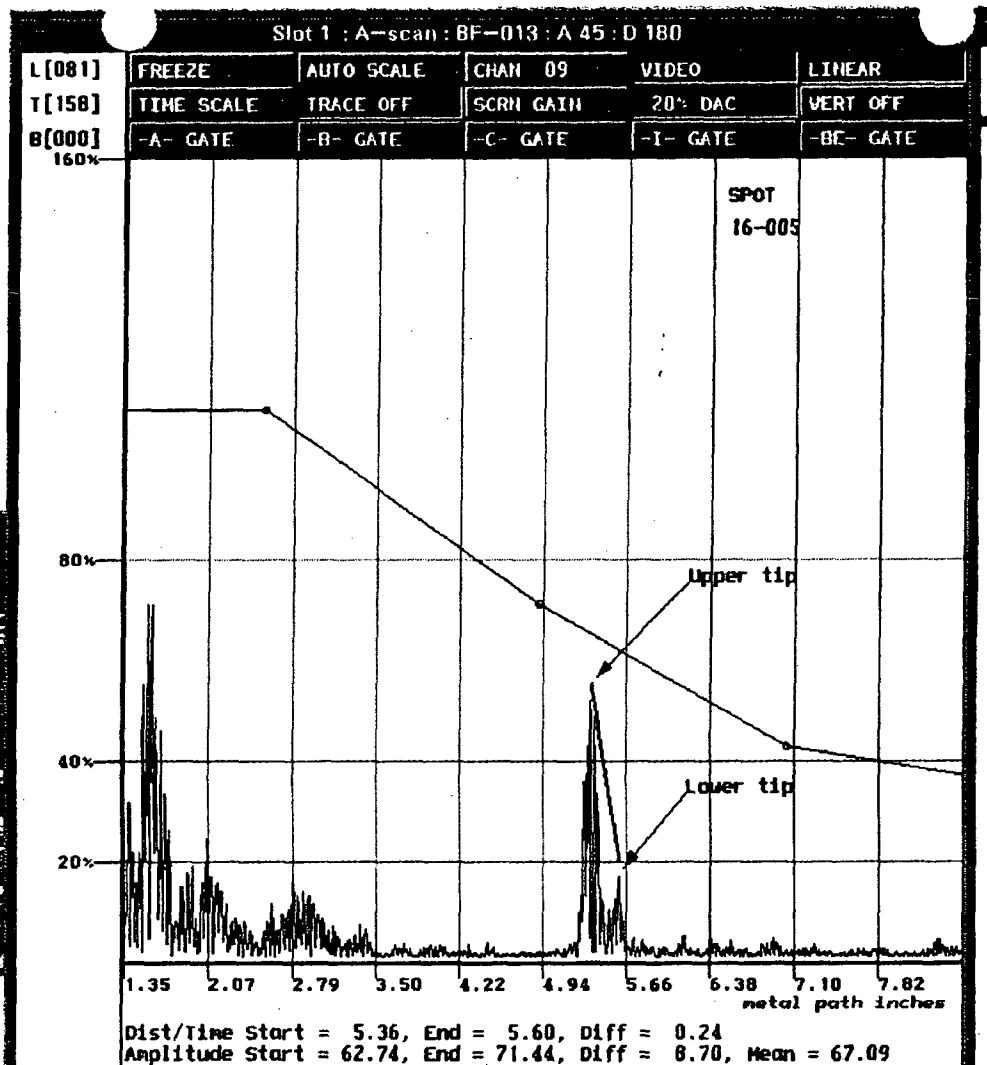
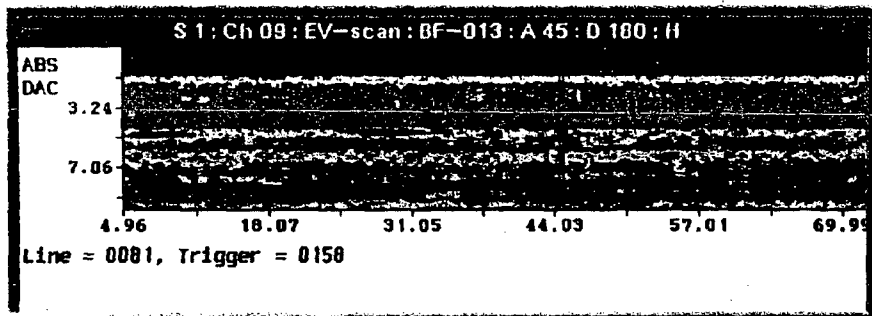
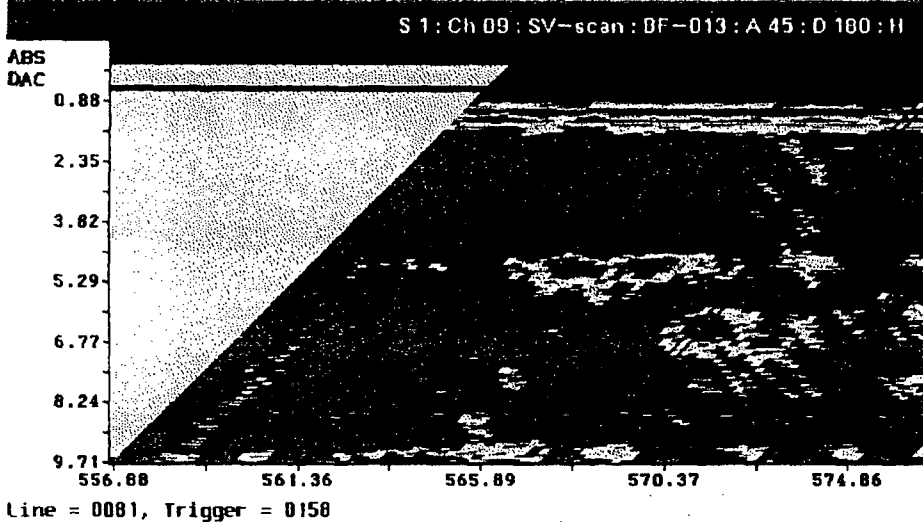
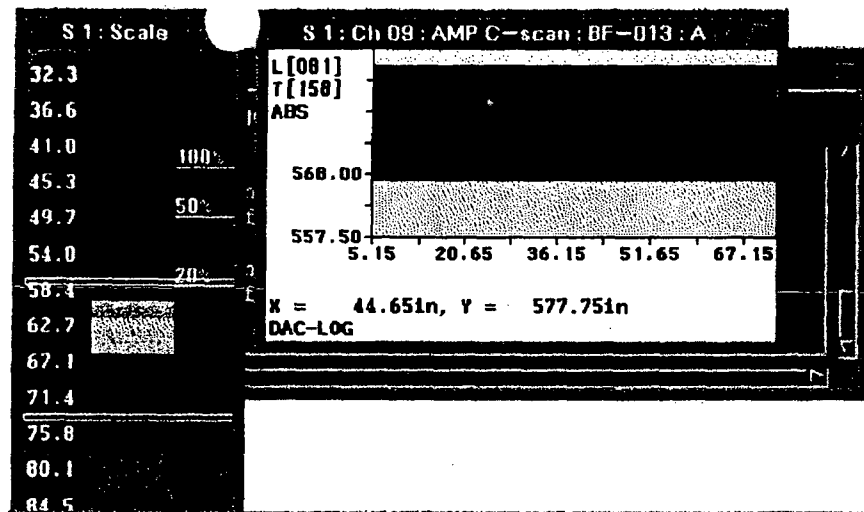
# 00512  
R 1152



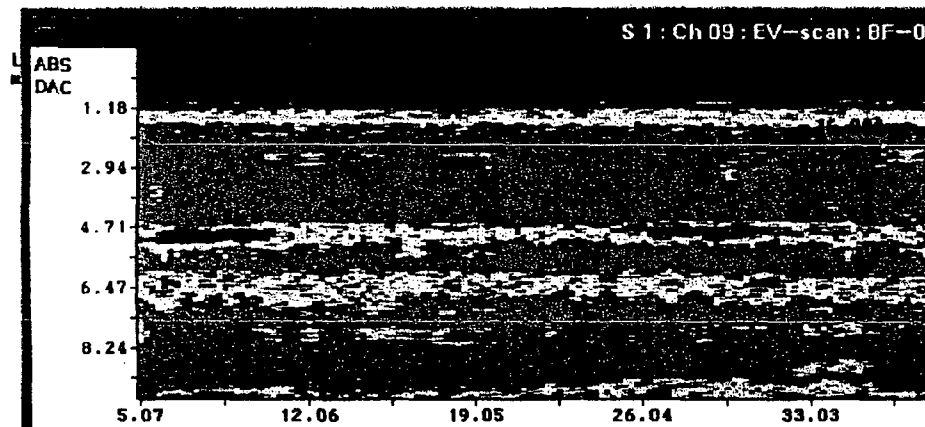
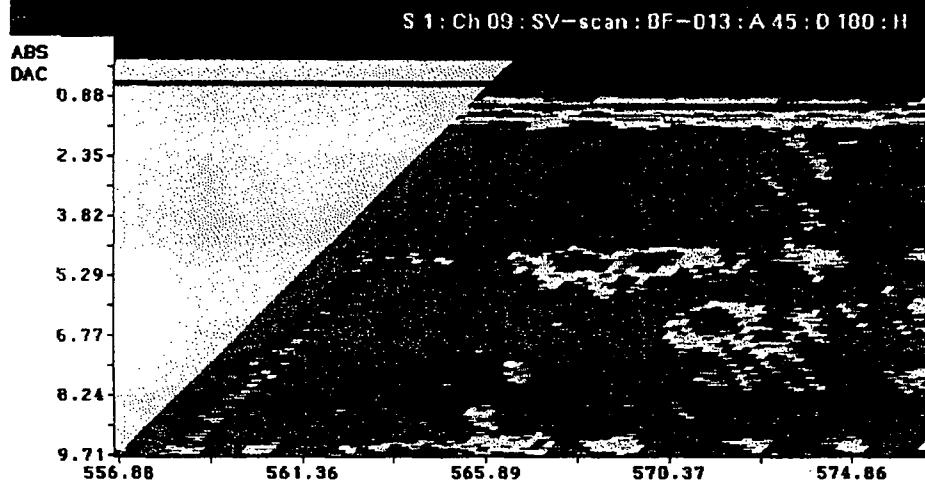
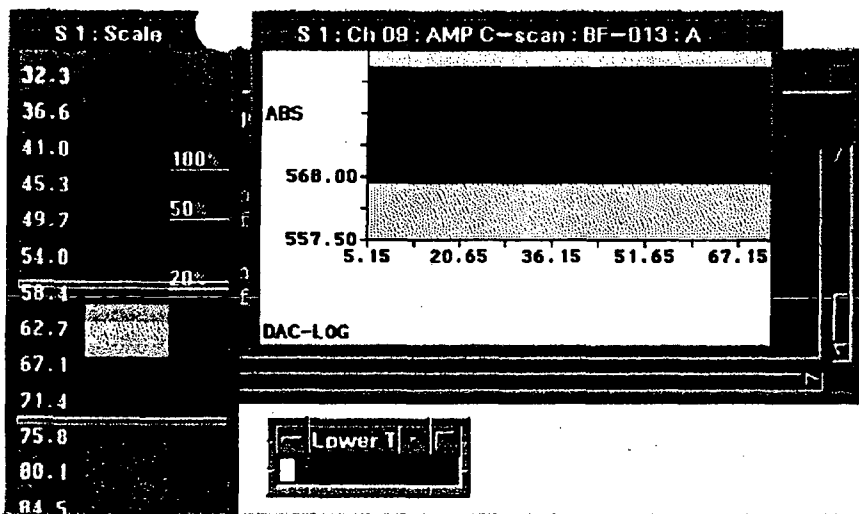




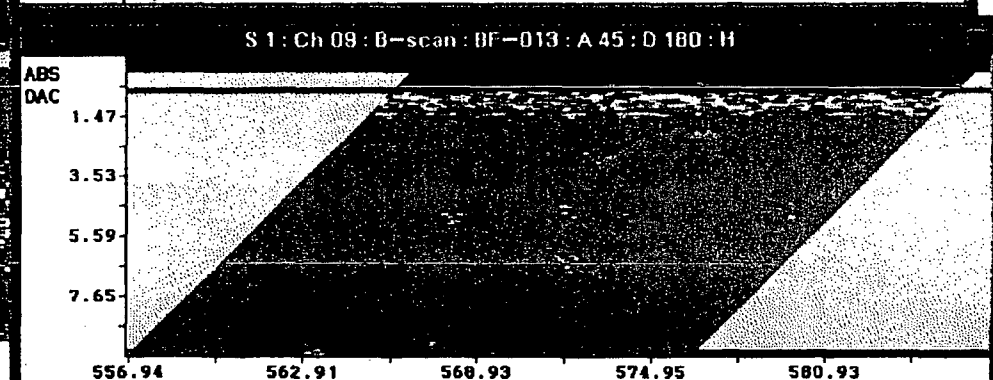
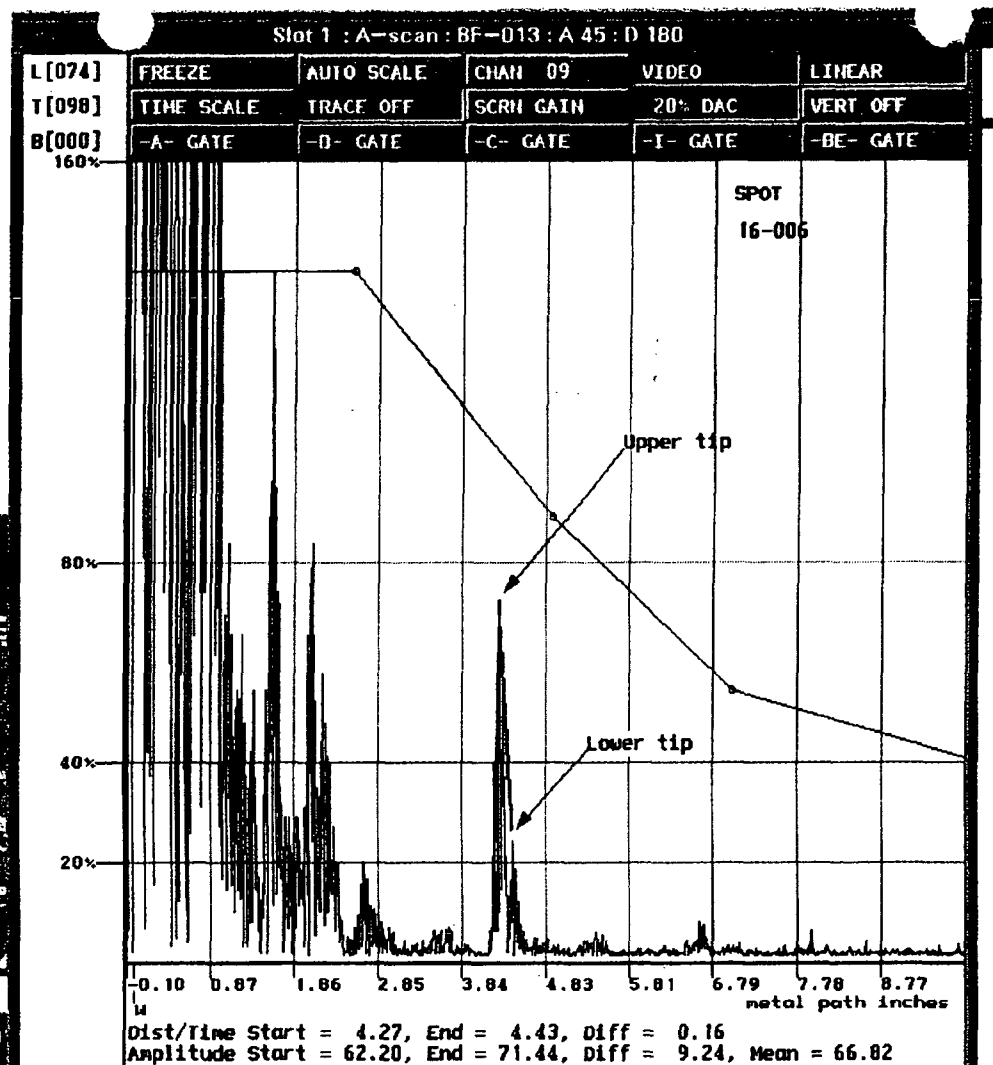
15208245  
21152  
\*UVC10



15306245  
R1152  
0051

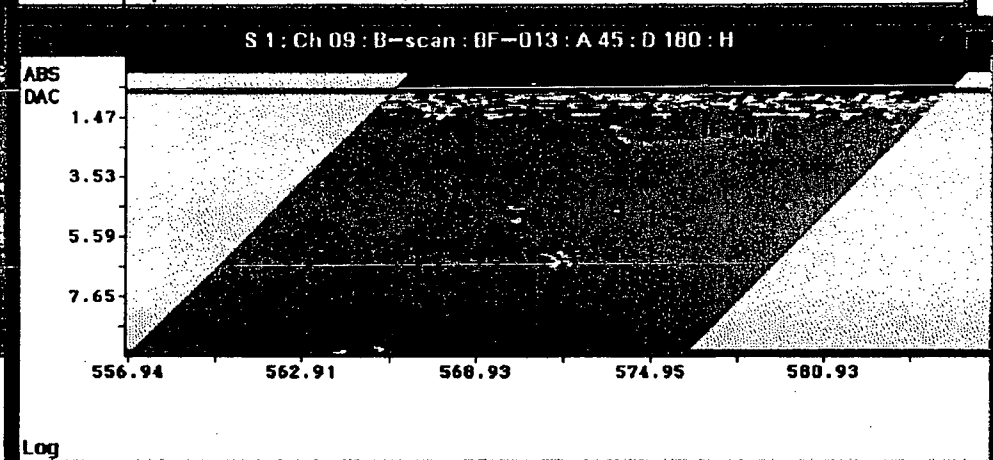
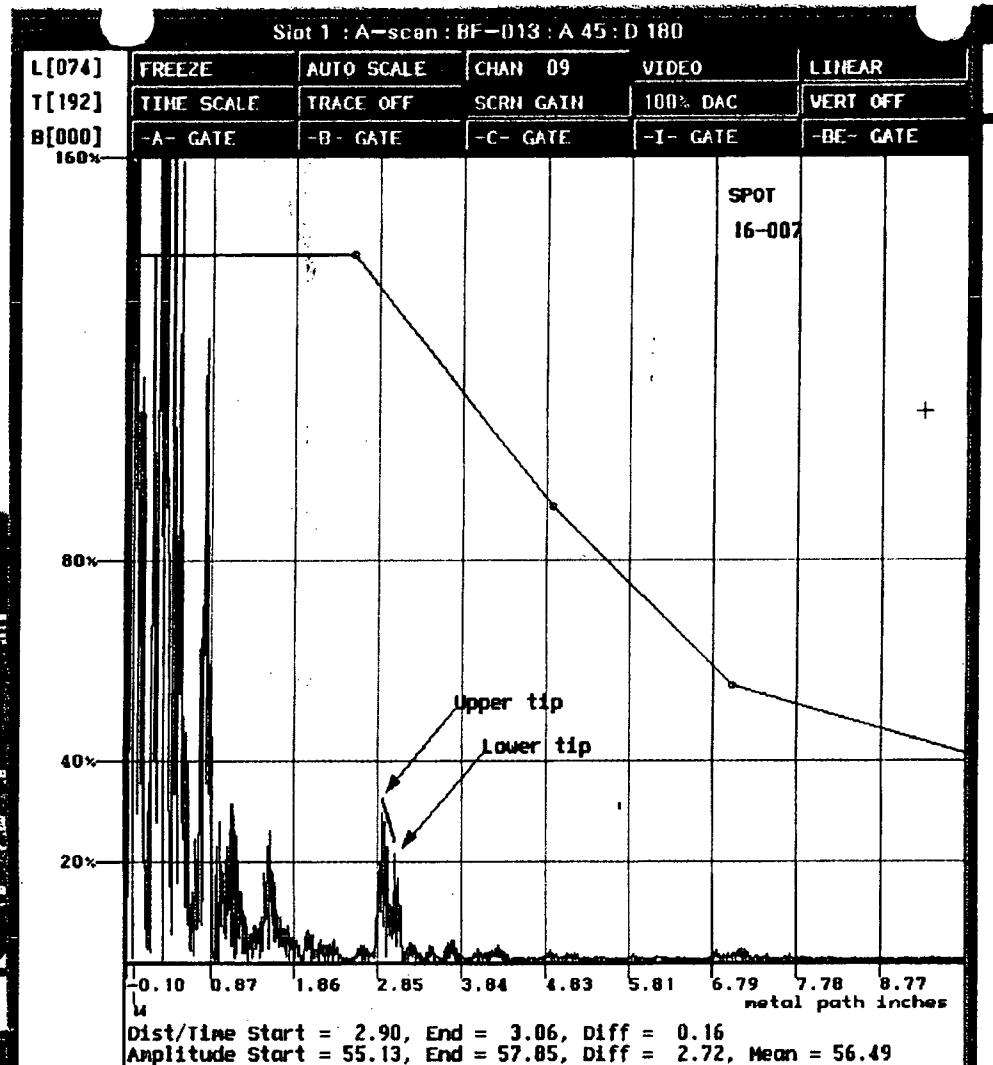
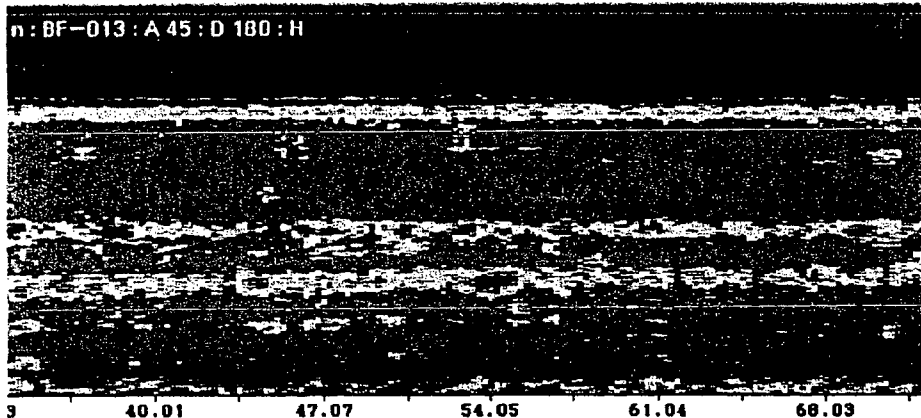
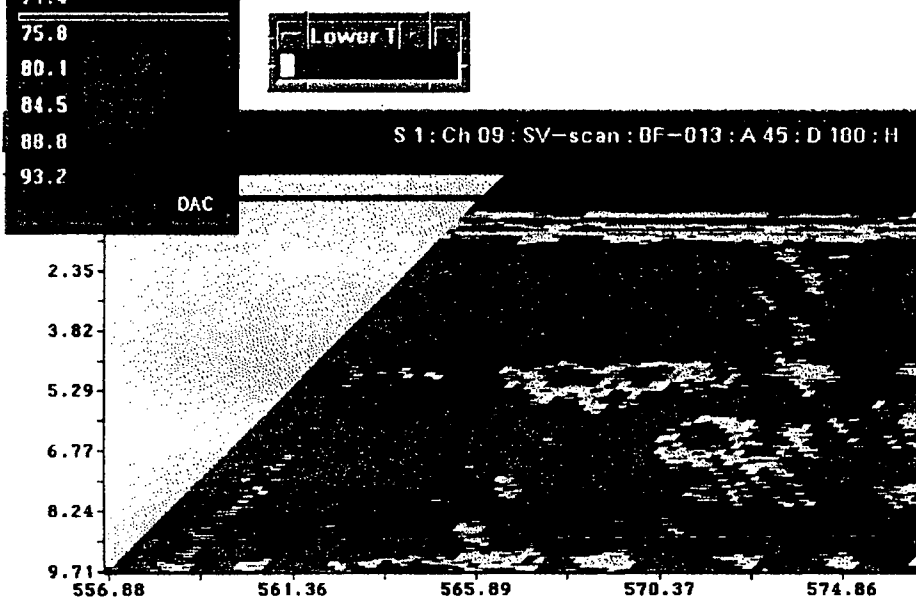
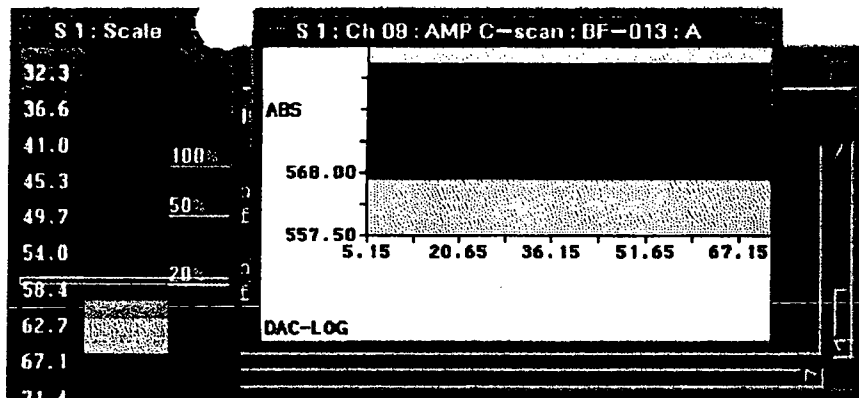


Log



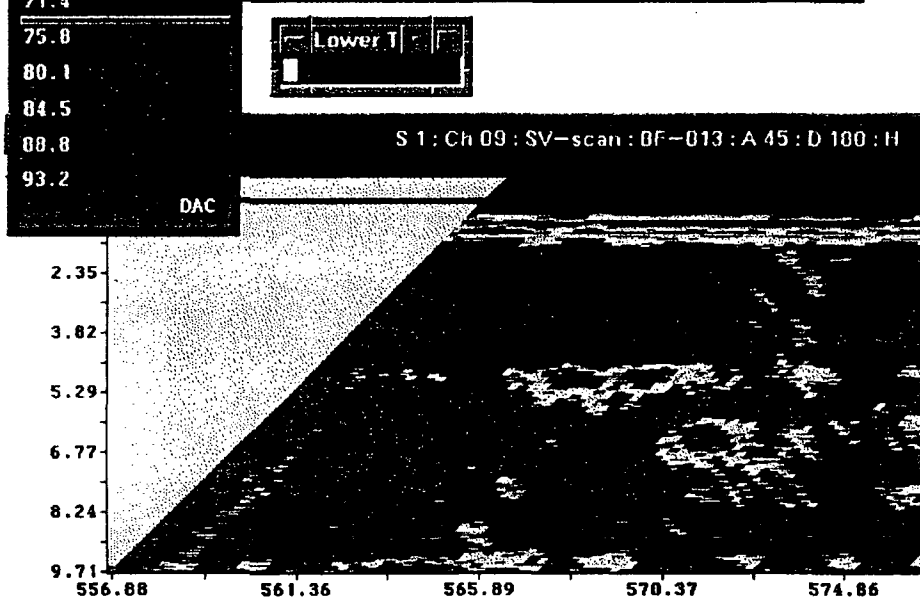
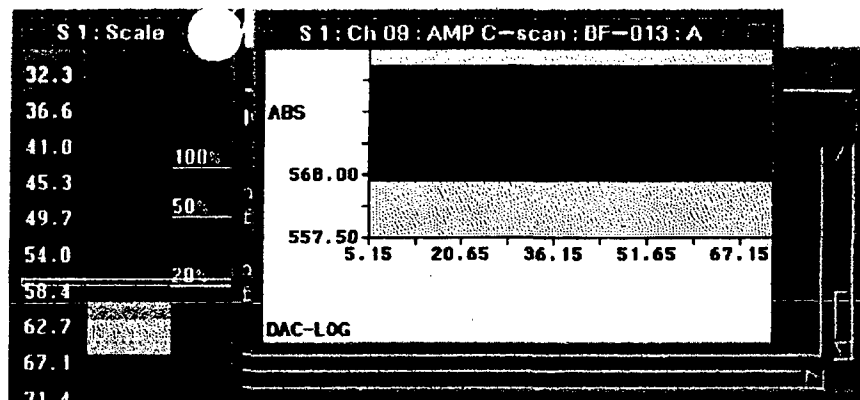
Log

15408245  
R 115Z  
0051

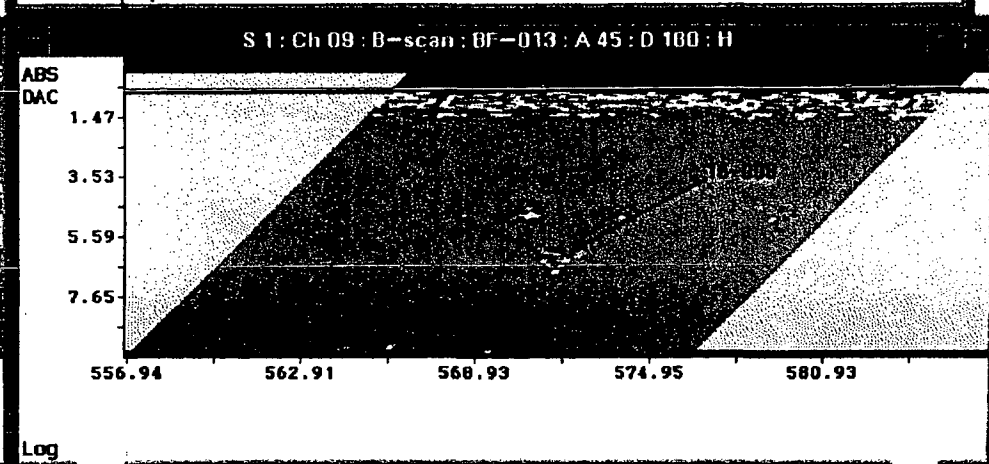
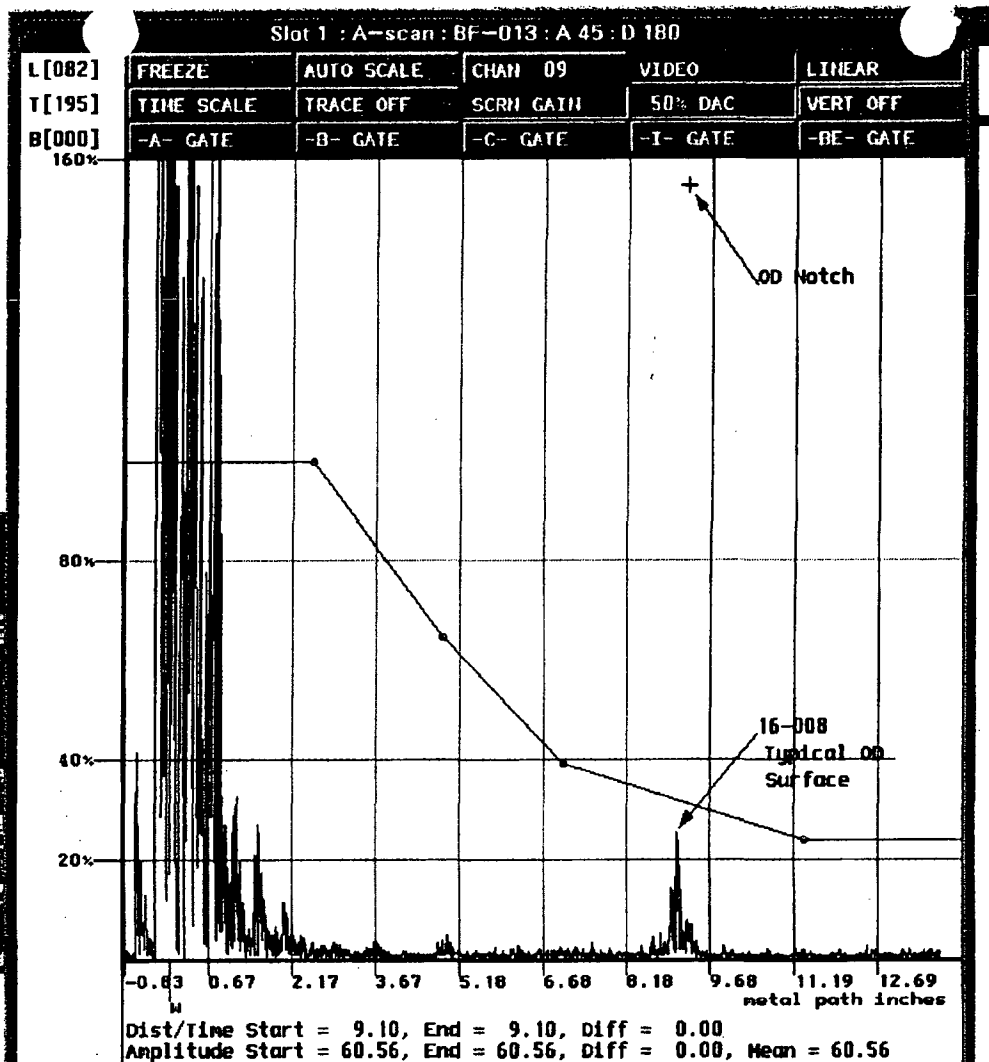
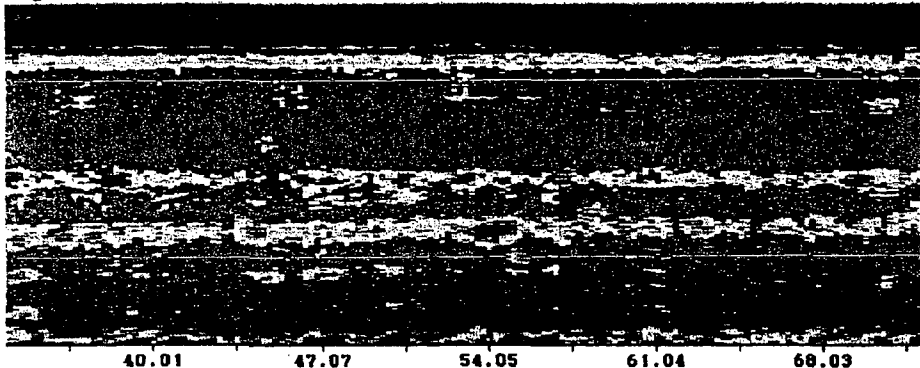


155 of 245

R 1152 00516



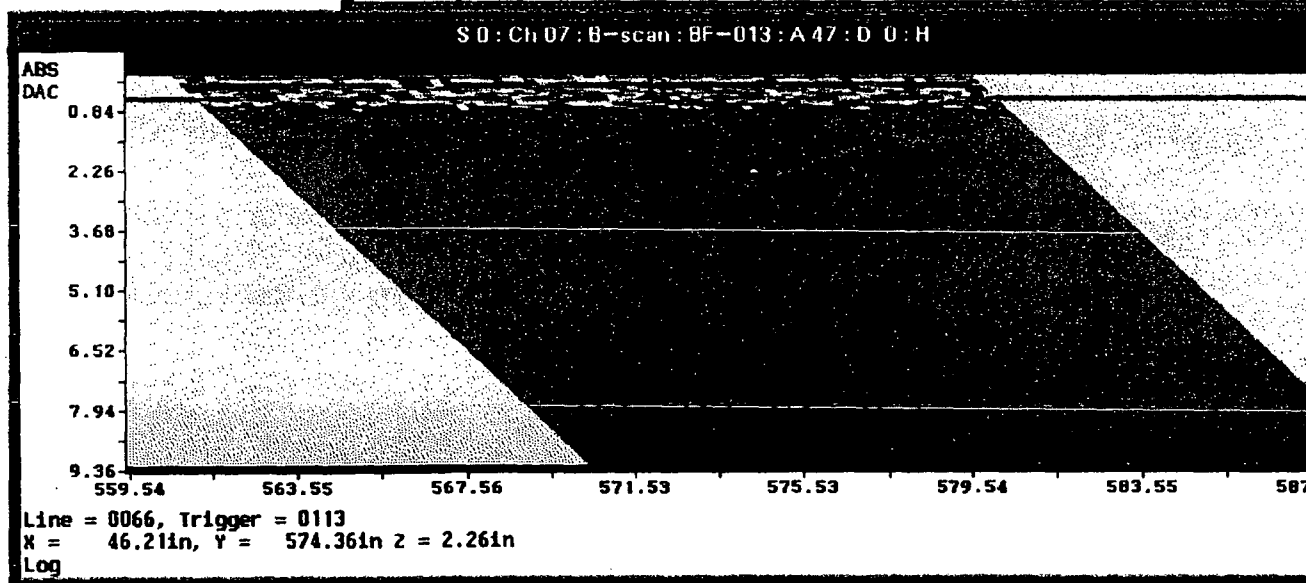
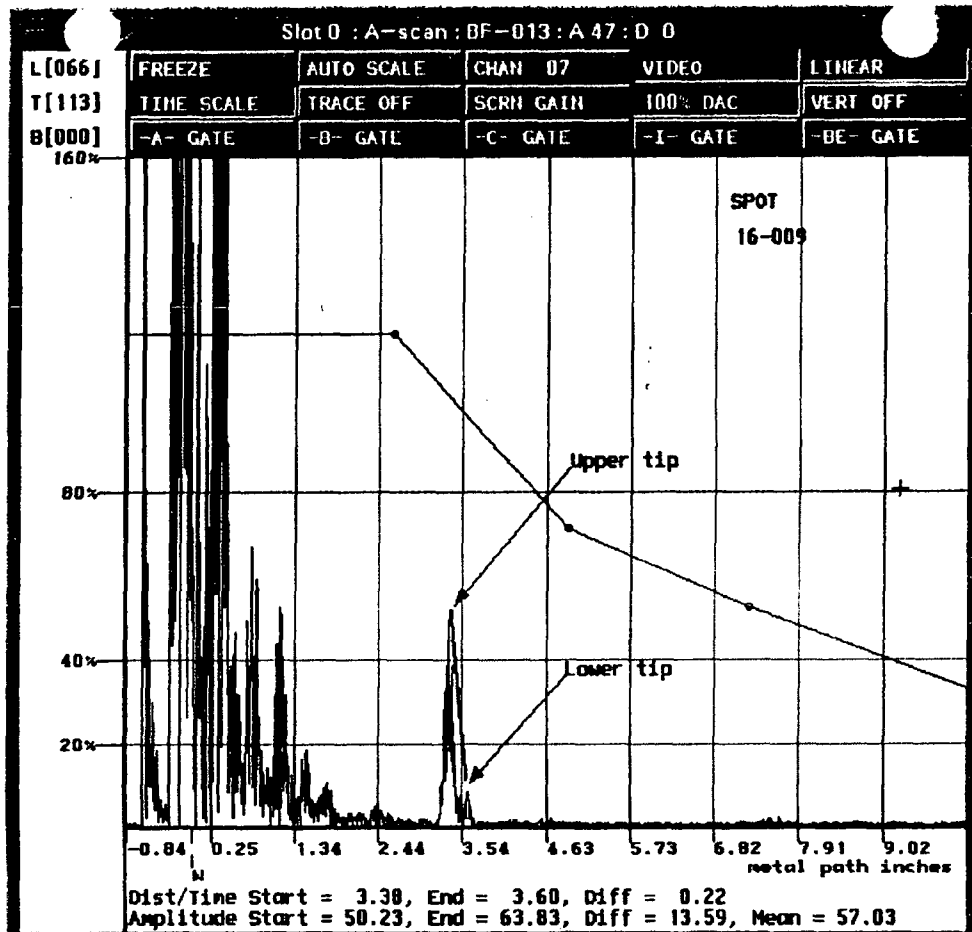
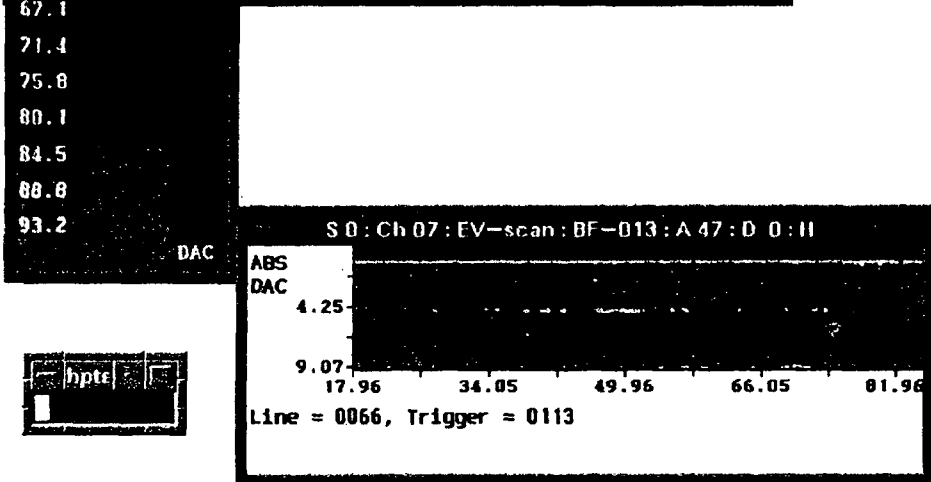
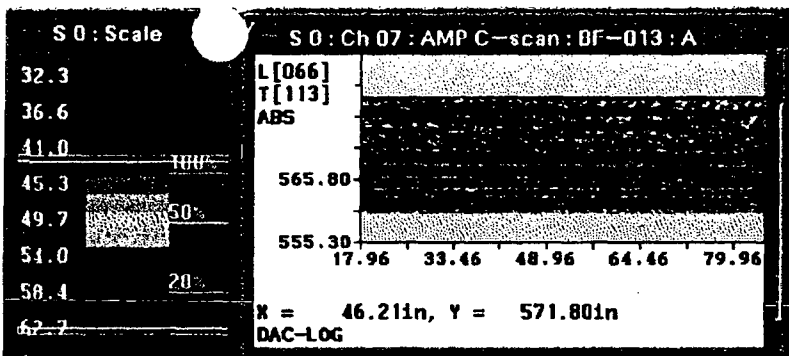
Log



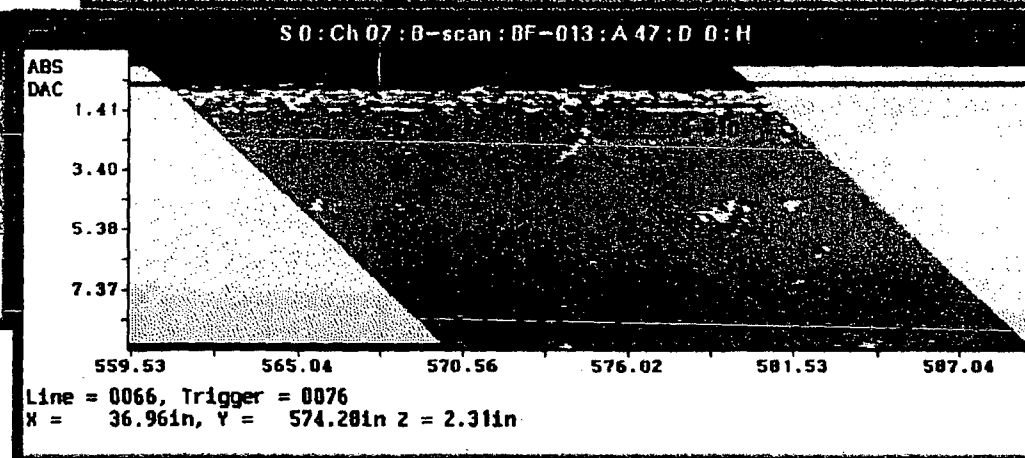
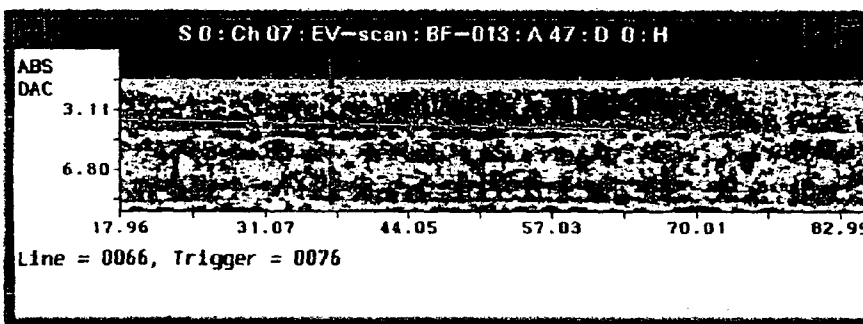
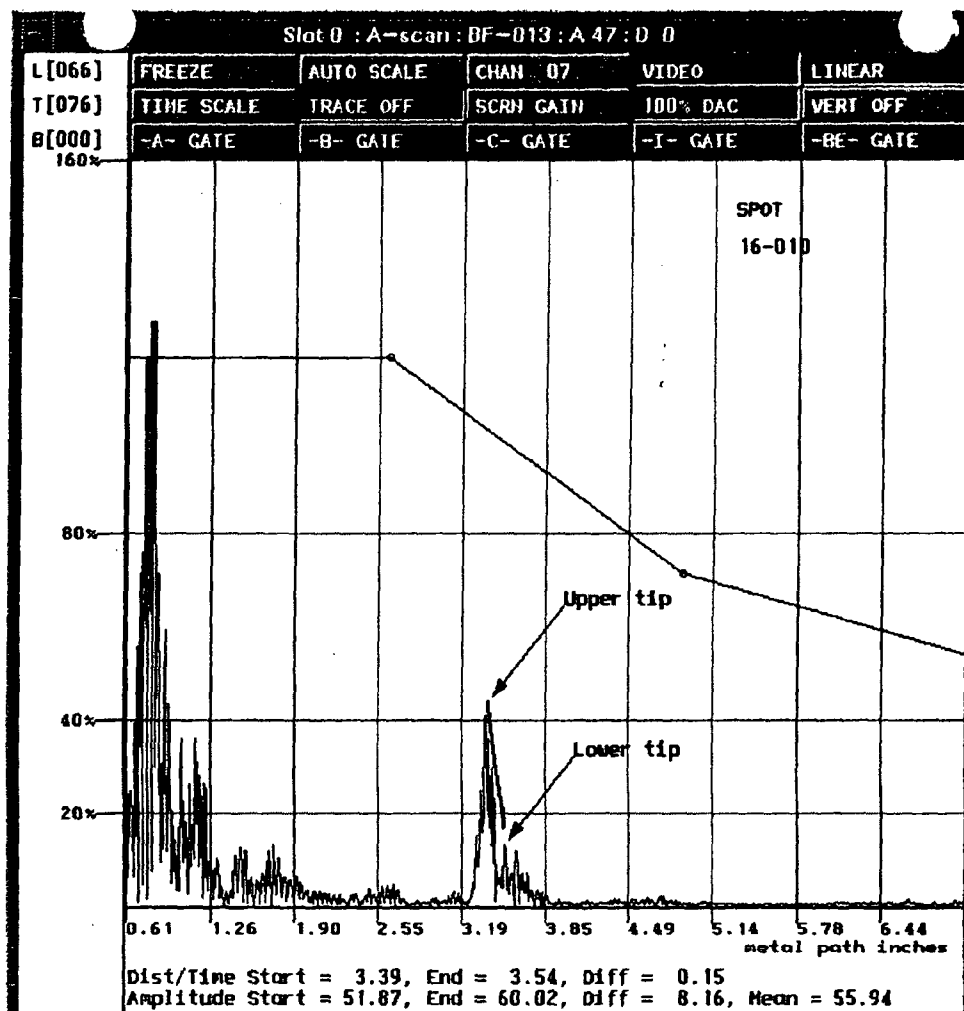
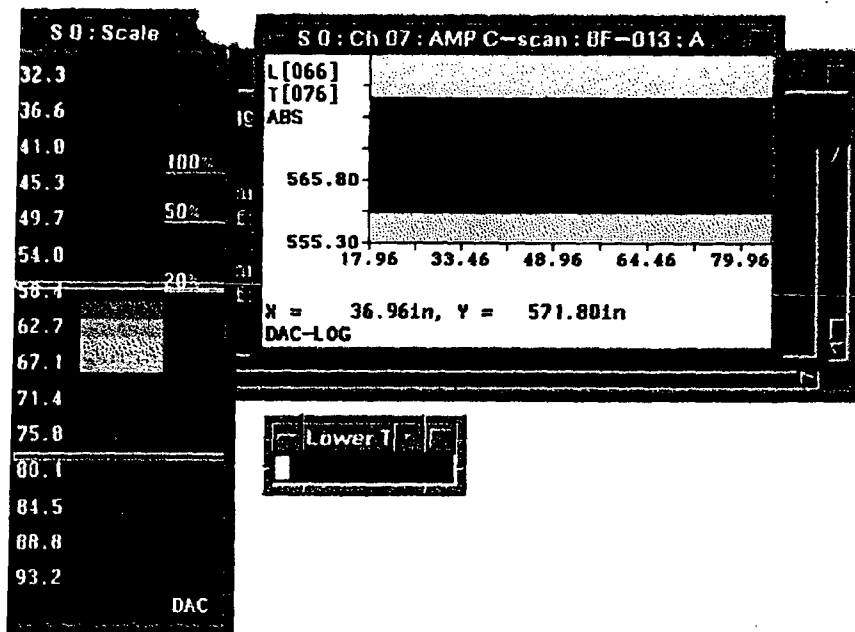
15607245

R1152 06519





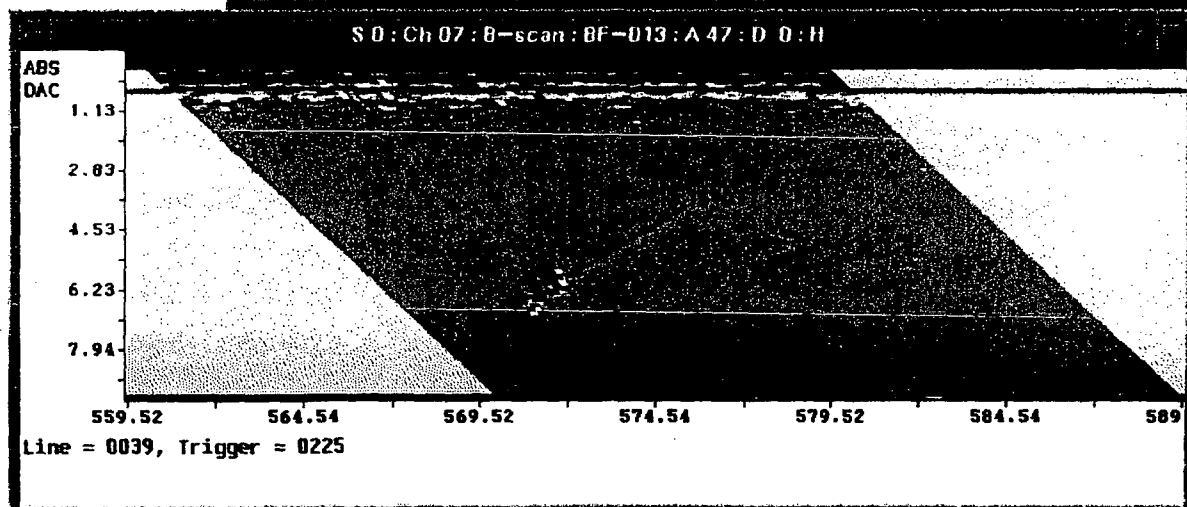
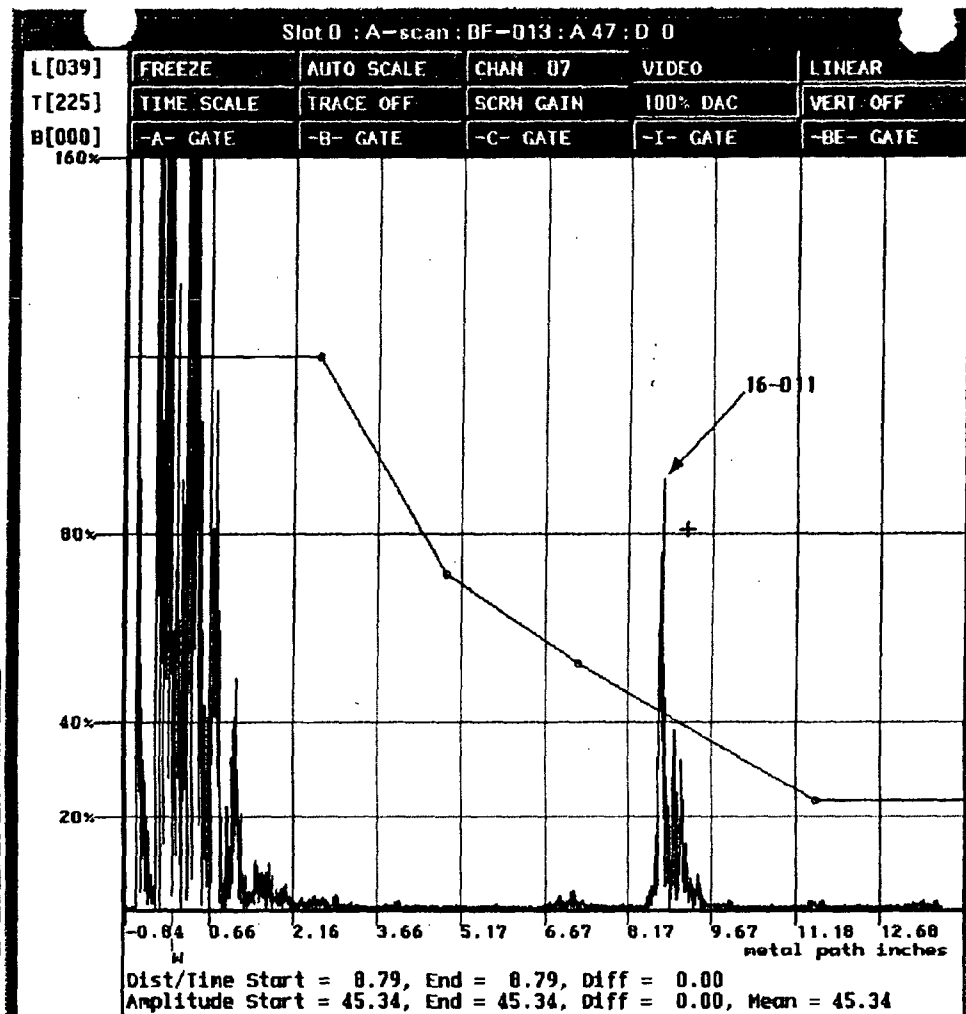
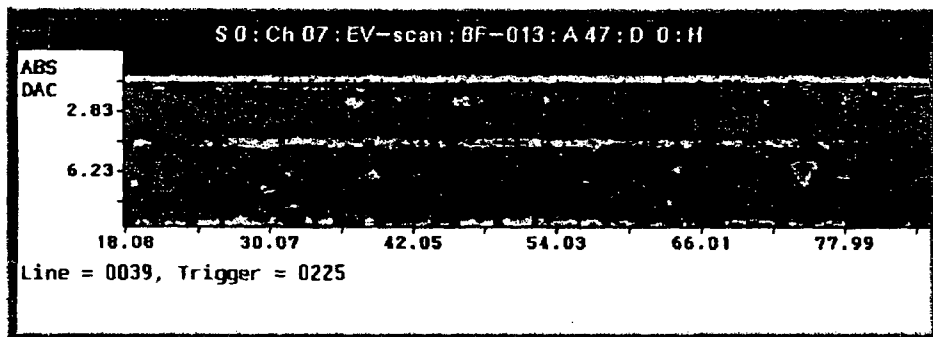
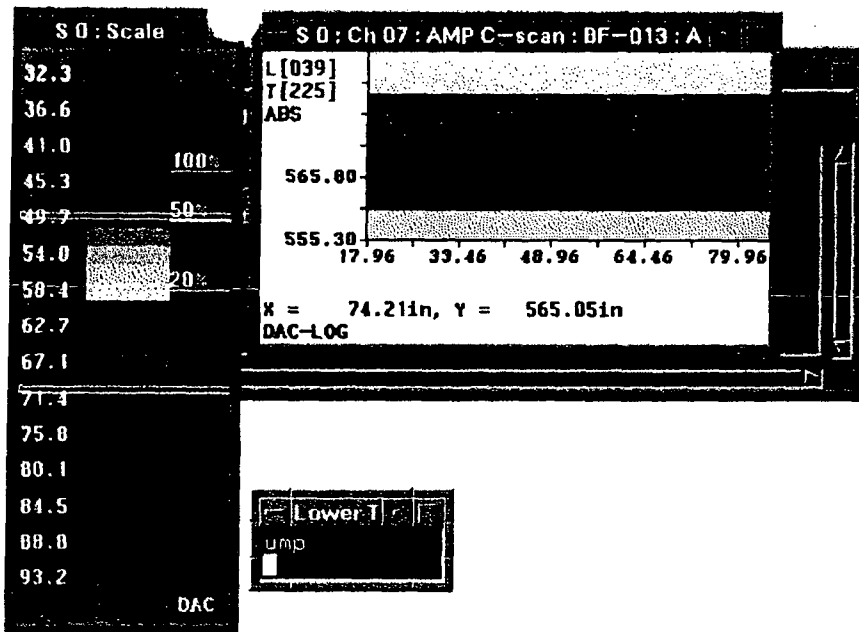
15706245-  
R115200520



15808245

R1152

00521



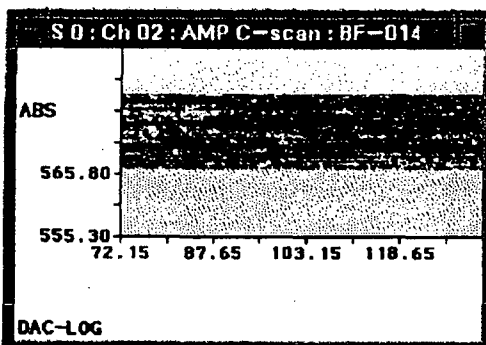
00522

159 of 245  
R1152

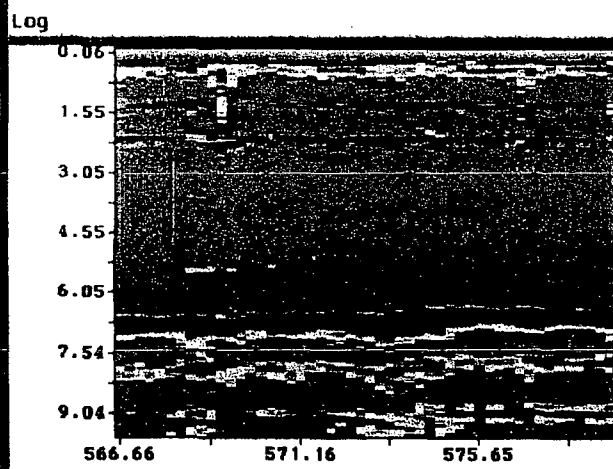
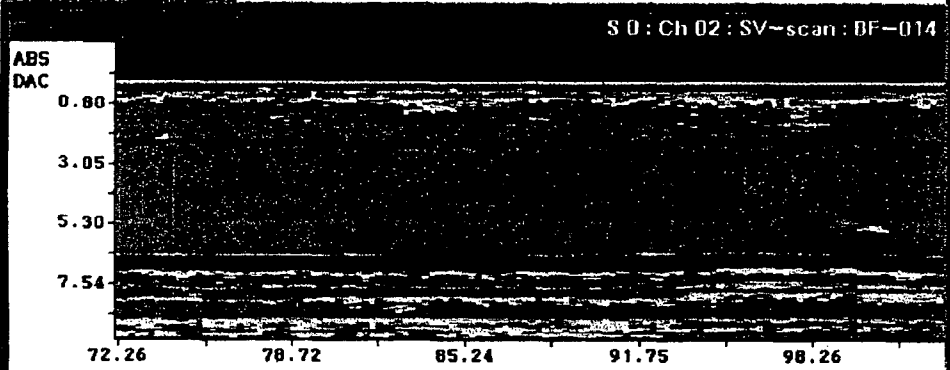
S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
92.2

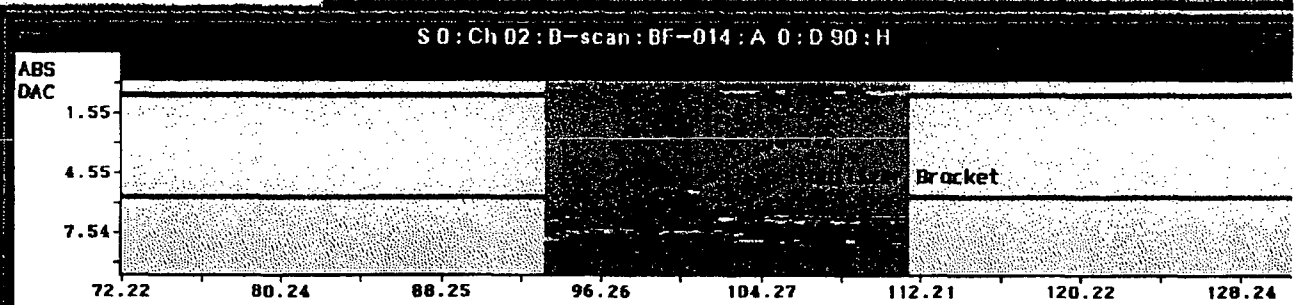
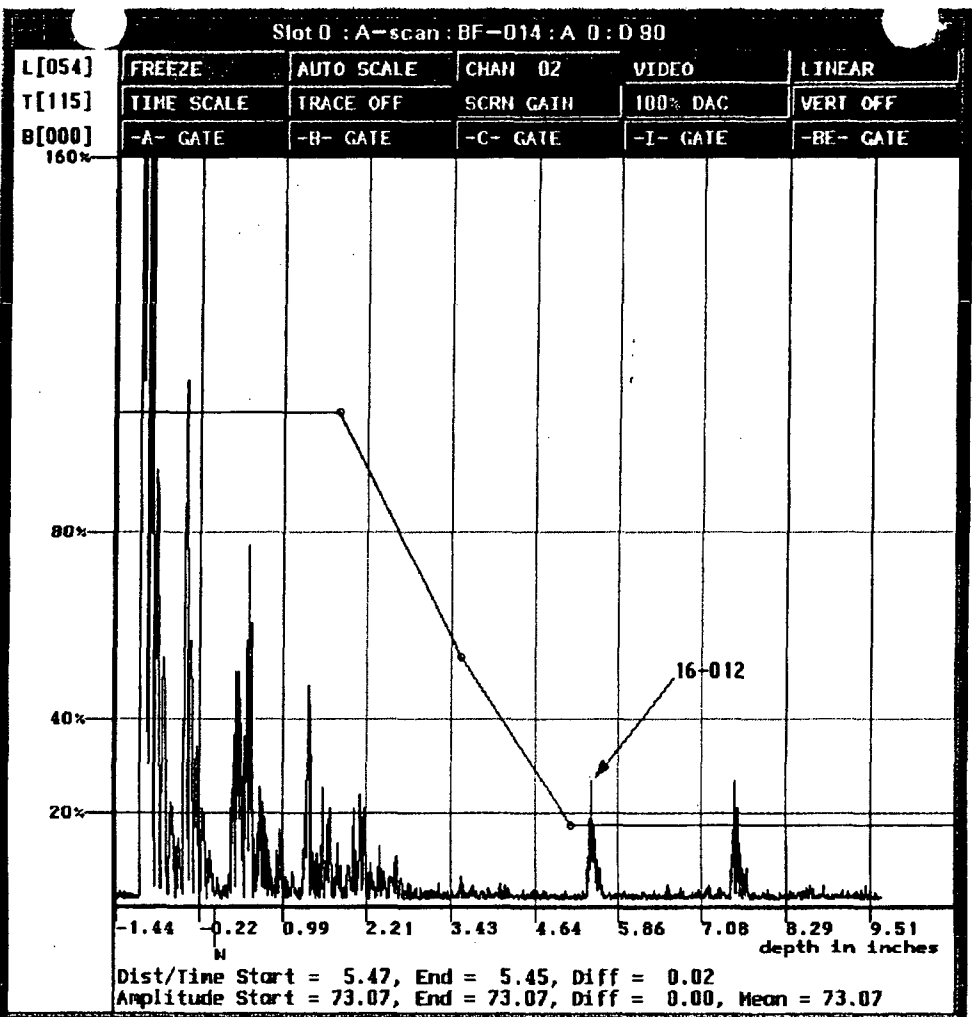
100%  
50%  
20%



Lower T



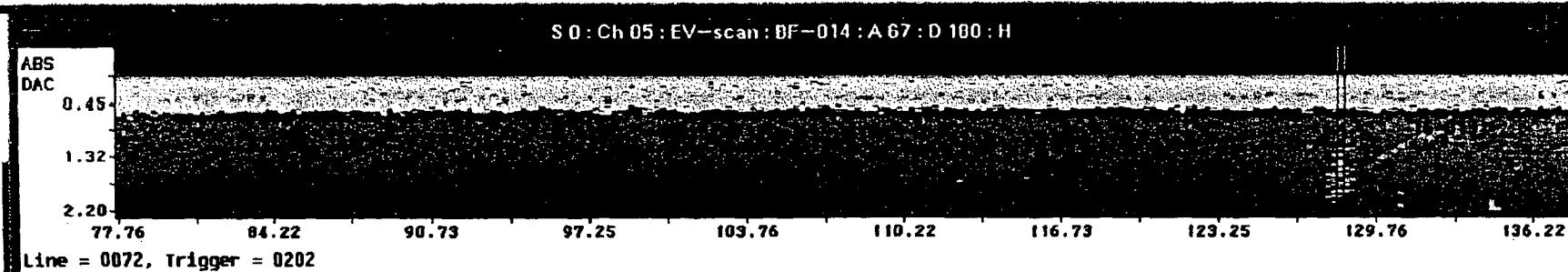
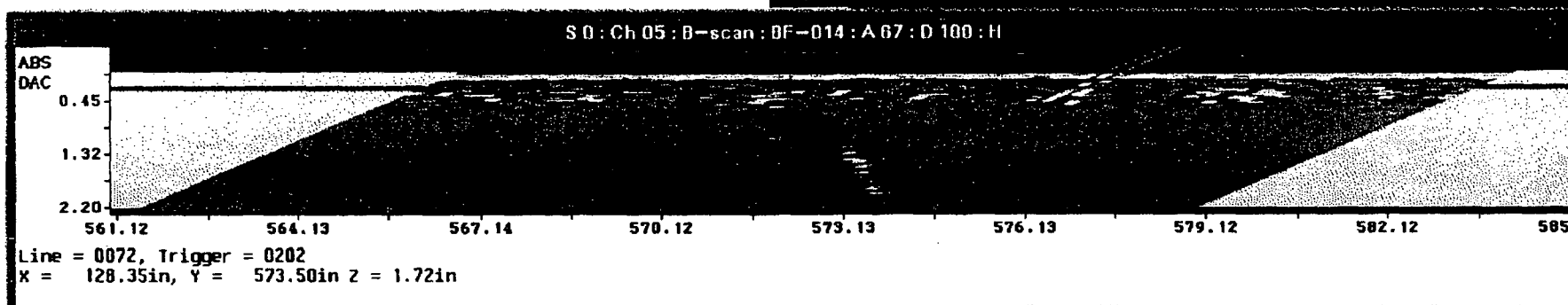
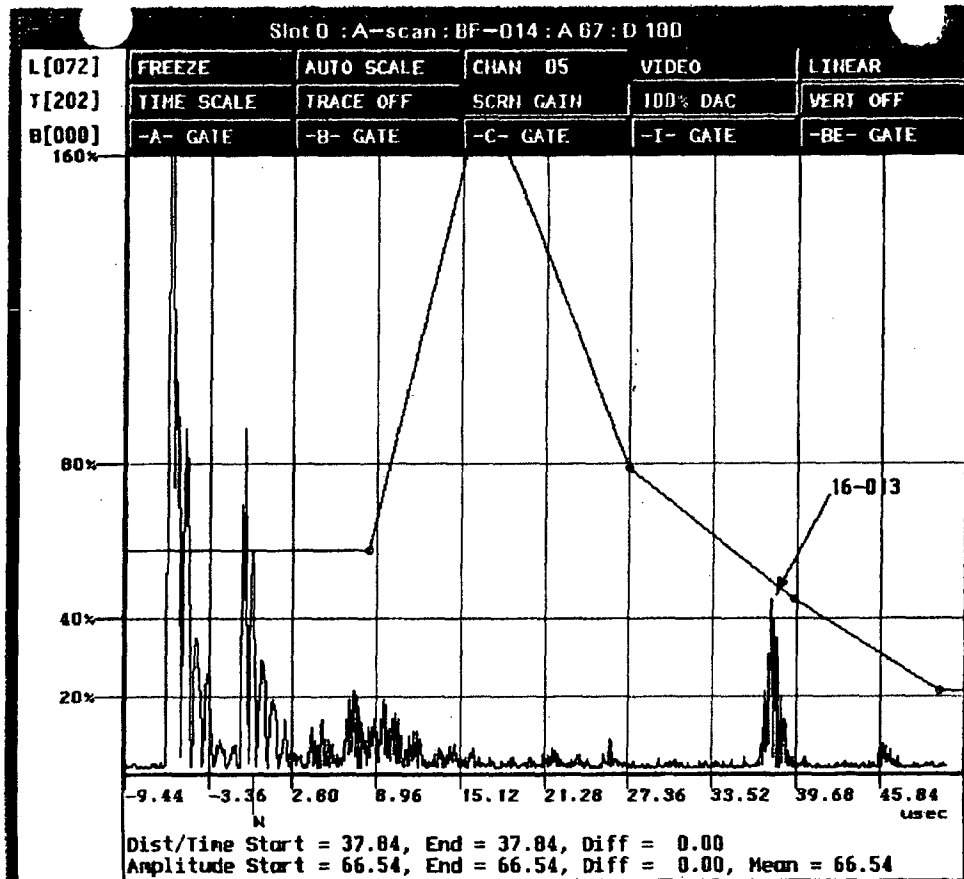
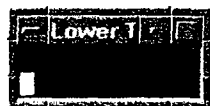
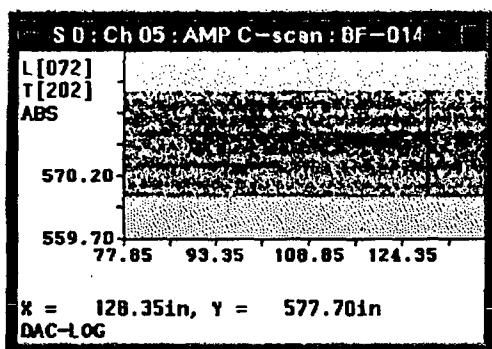
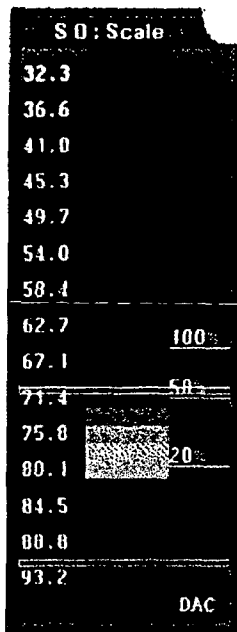
Log



Log

00523

160 of 245  
R1152



00524

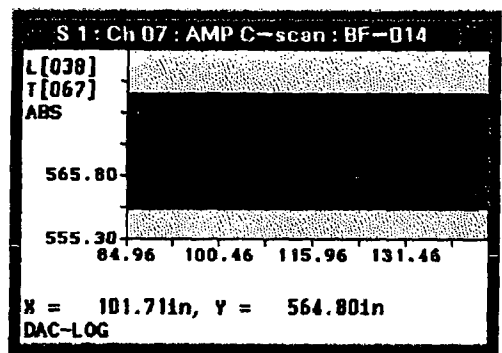
R1152  
161 of 245

S 1: Scale

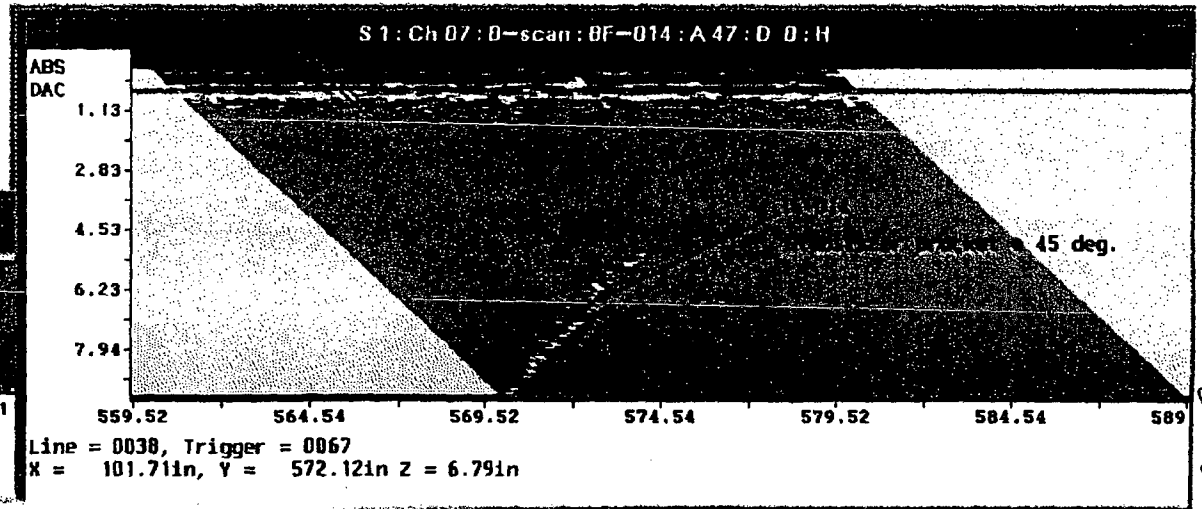
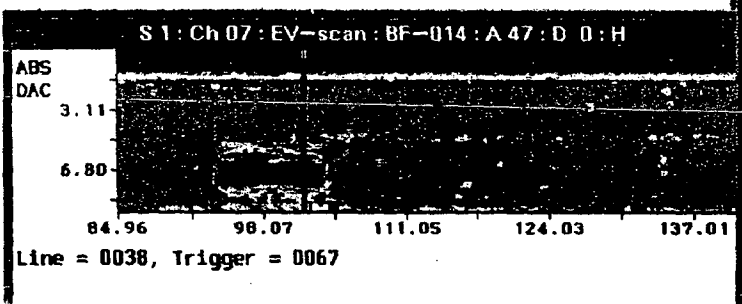
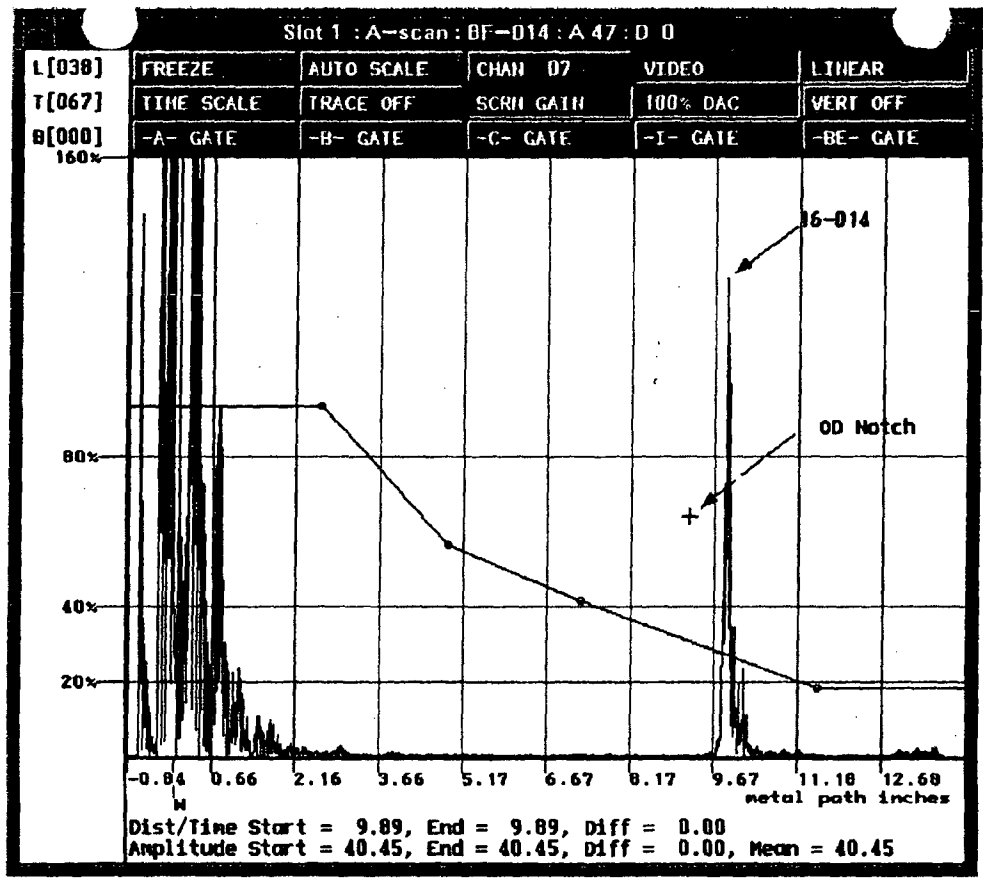
32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC

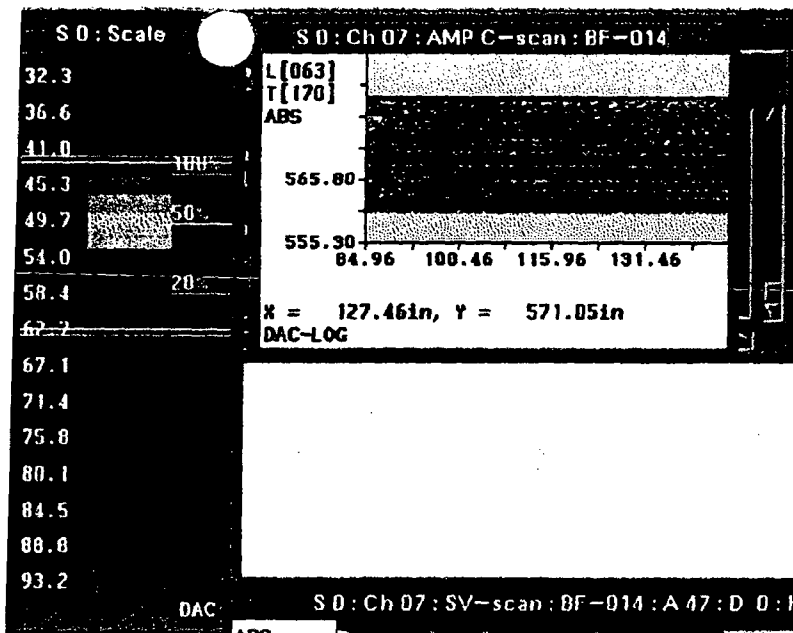


Lower T

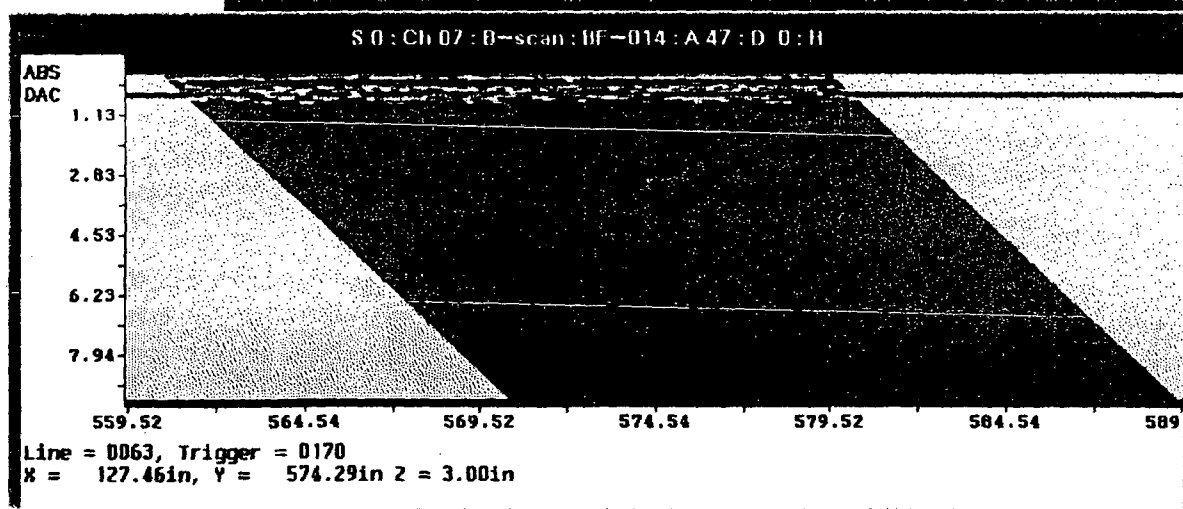
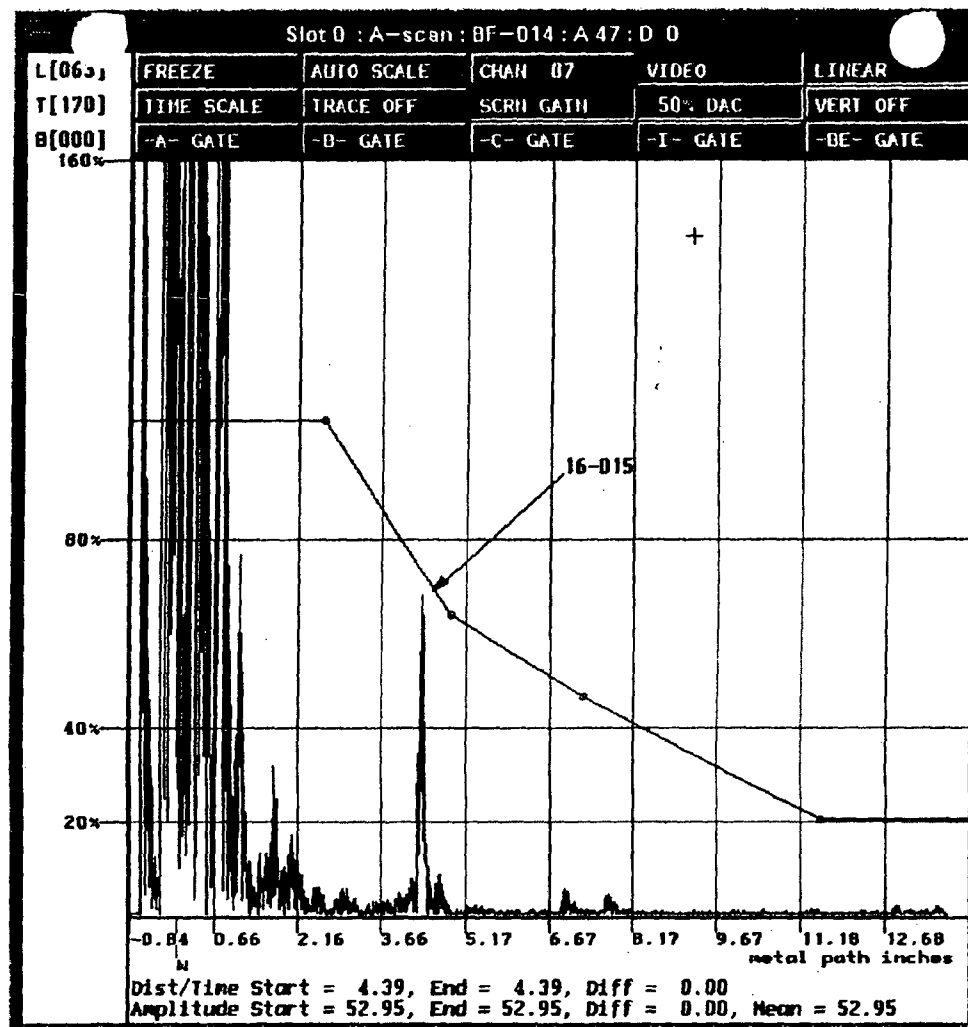
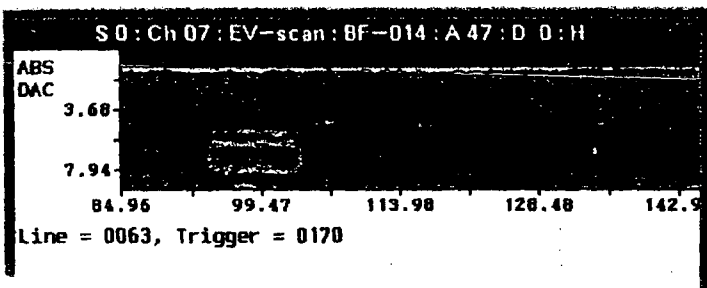


R1152  
162 of 245

00525



00526



R1152  
163 of 245

S 2 : Scale

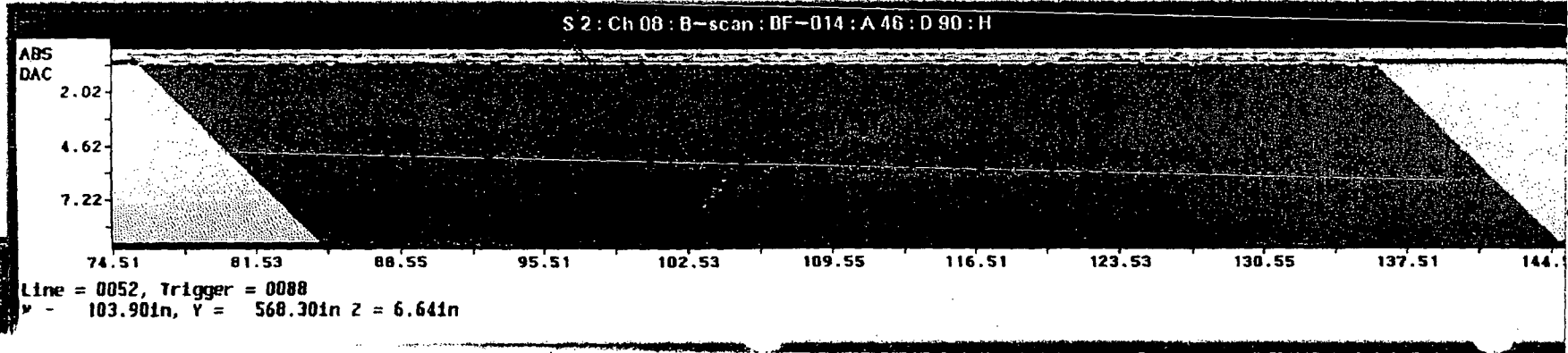
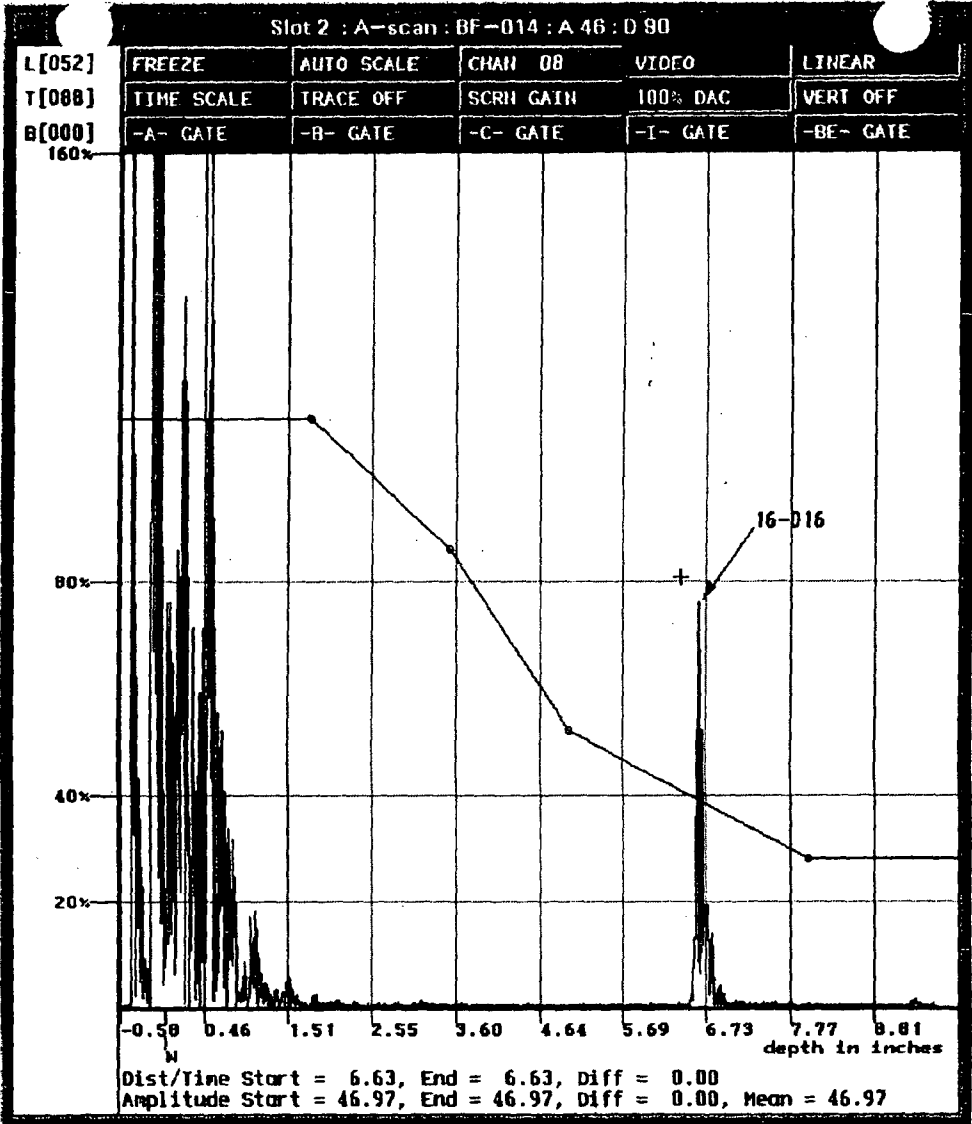
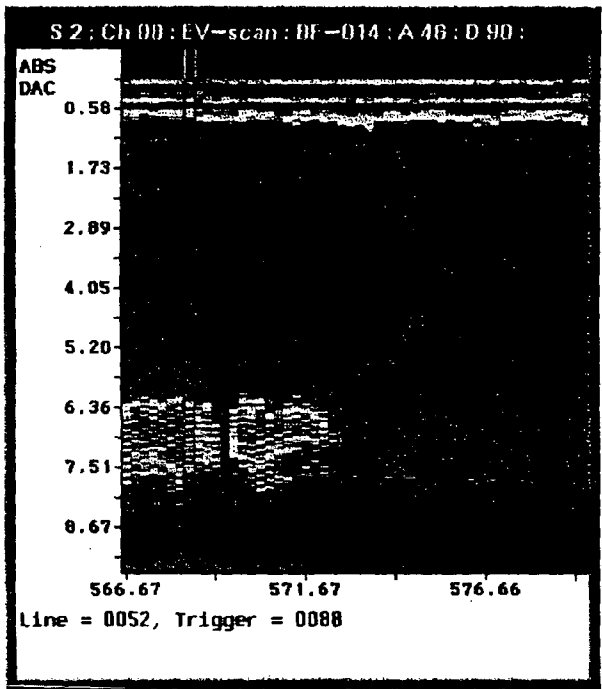
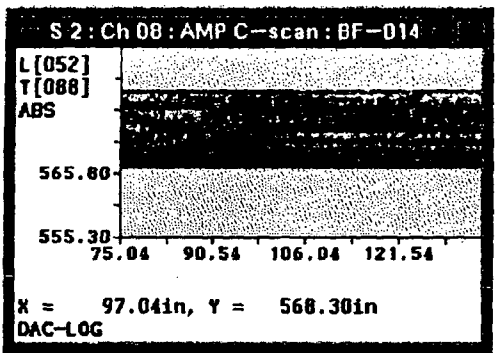
32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC

Lower T

00527



2.152  
1646245

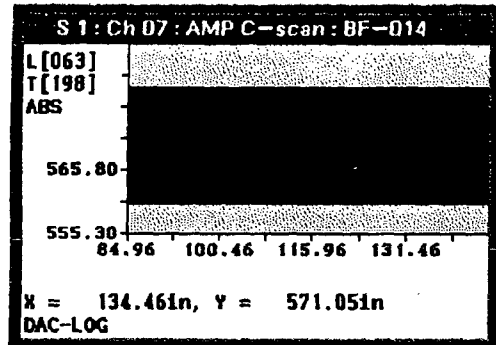


S 1: Scale

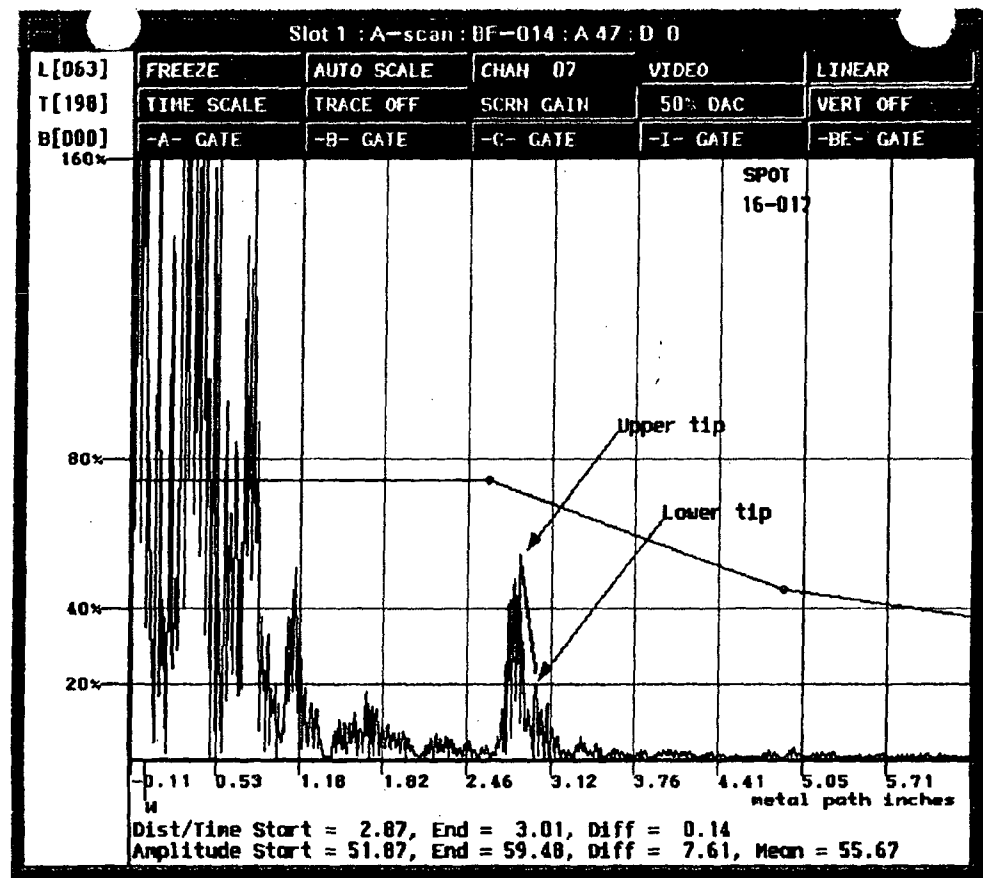
32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

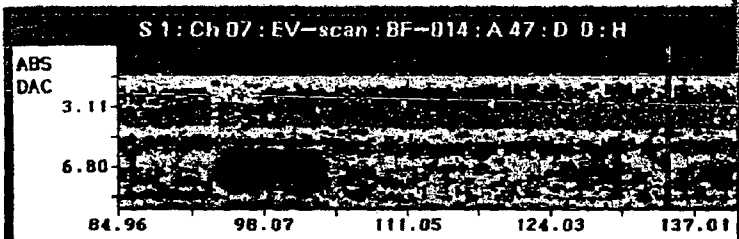
DAC



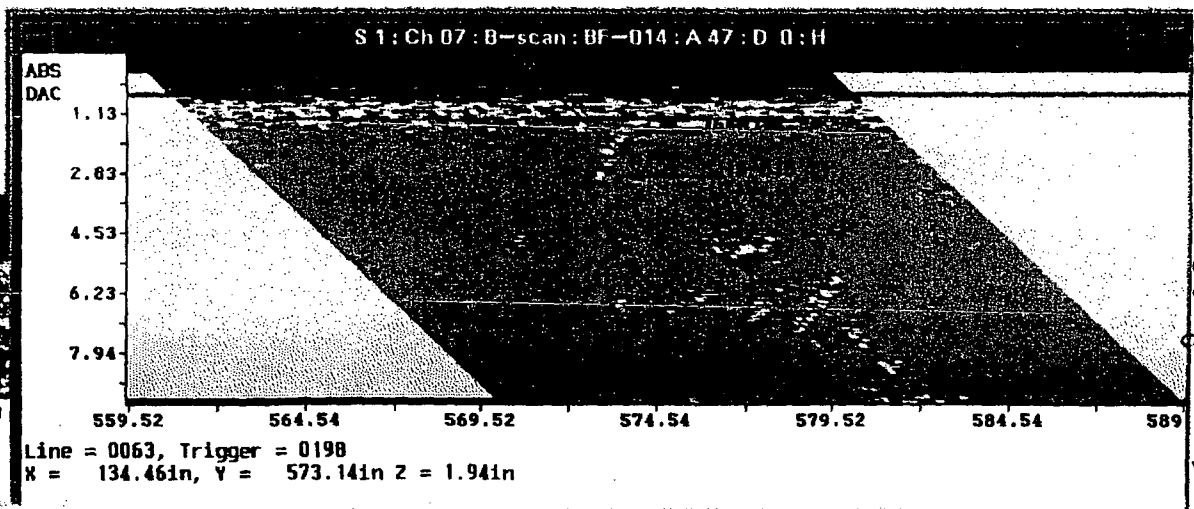
Lower T  
16-017



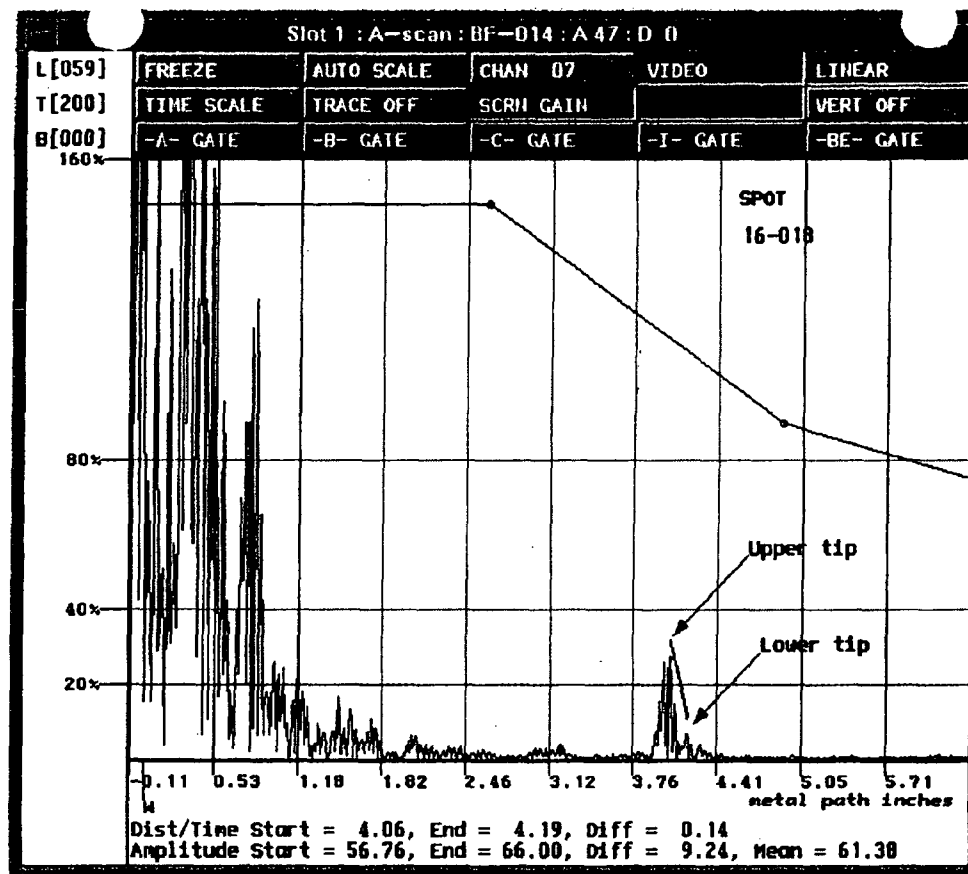
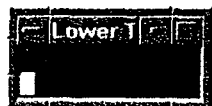
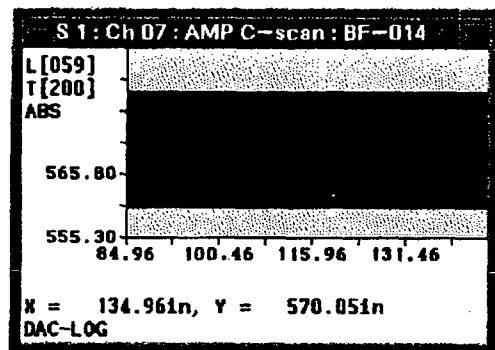
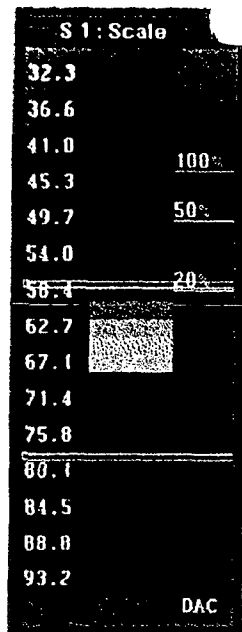
00528



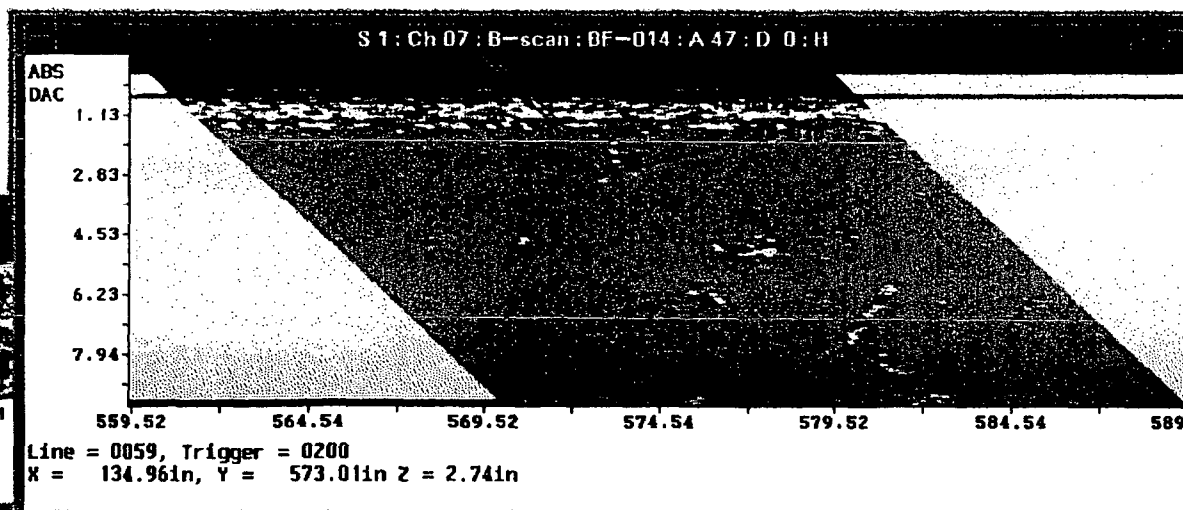
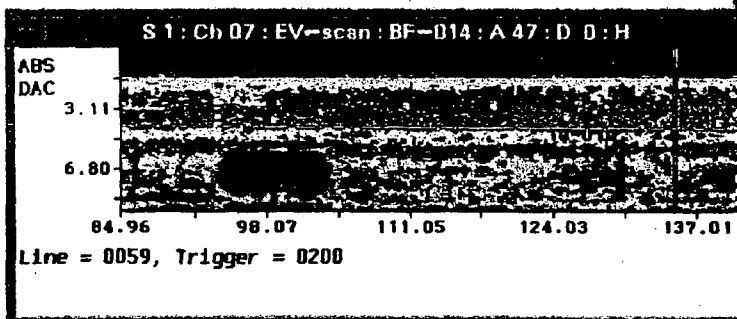
Line = 0063, Trigger = 0198



R1152  
1654 245



00529

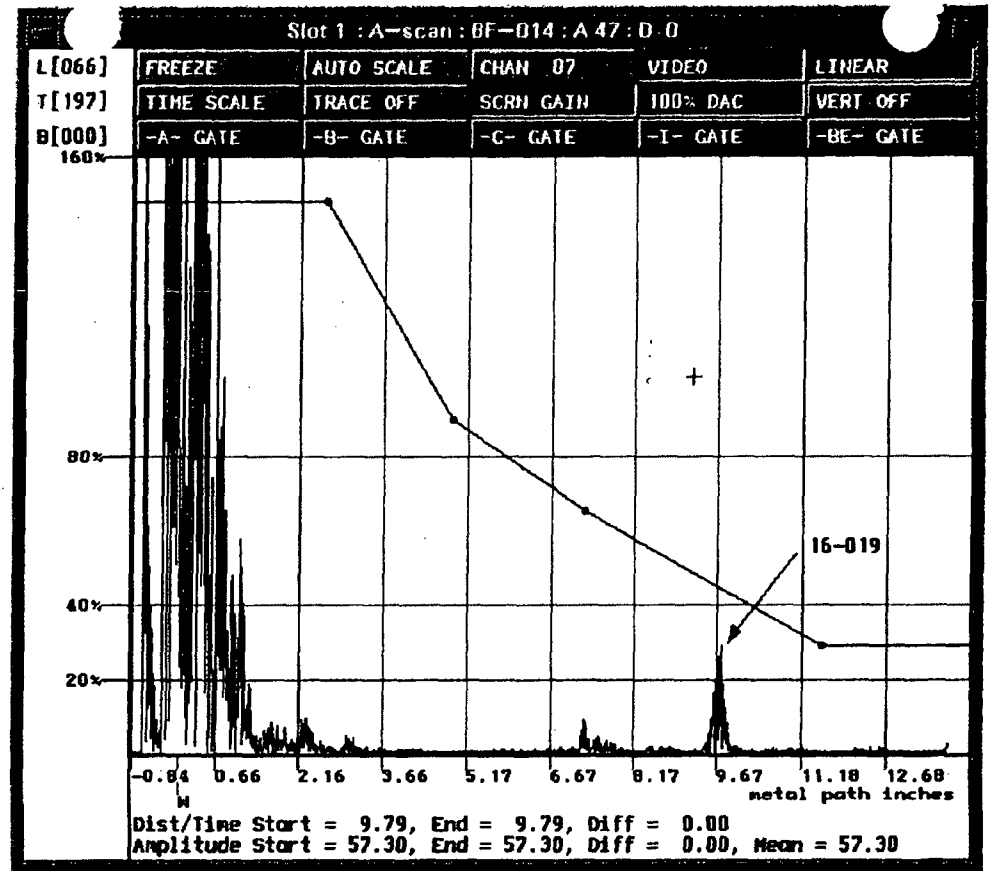
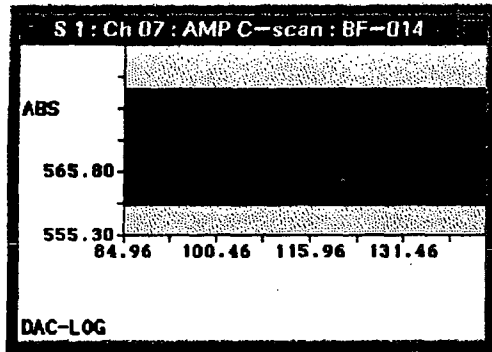


166 of 295  
R1152

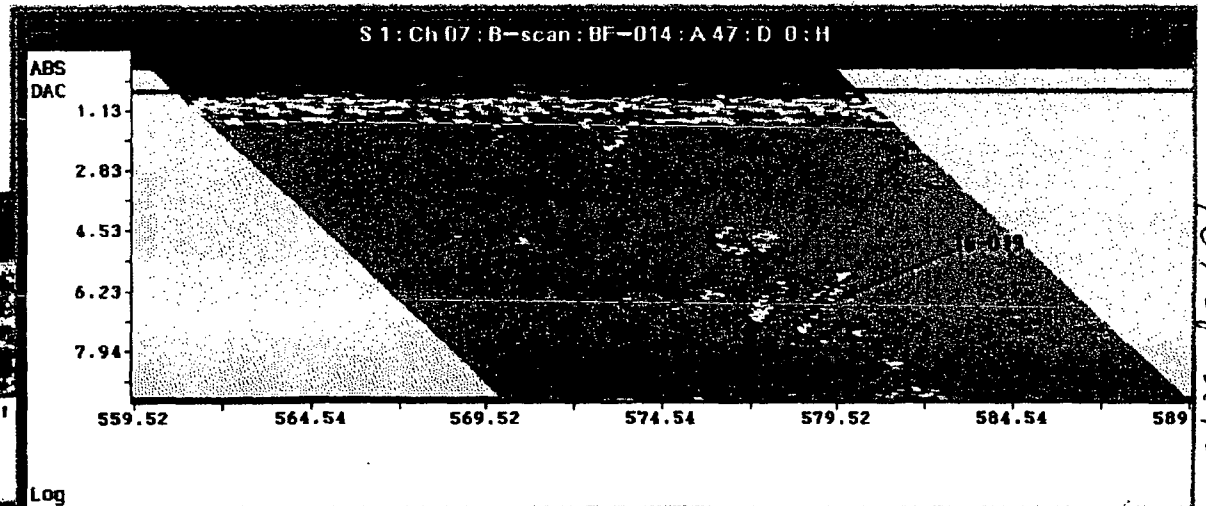
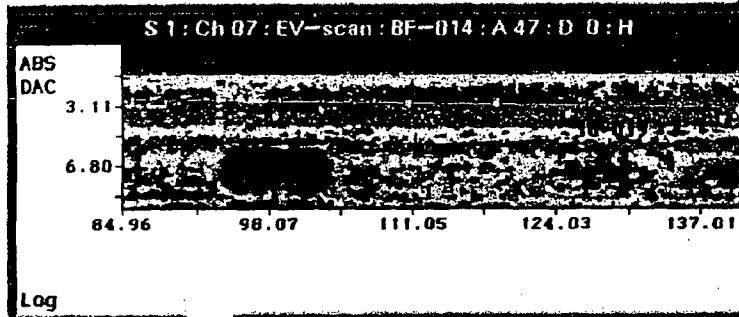
S 1: Scale

32.3	
36.6	
41.0	100%
45.3	
49.7	50%
54.0	
58.4	20%
62.7	
67.1	
71.4	
75.8	
80.1	
84.5	
88.8	
93.2	

DAC



00530



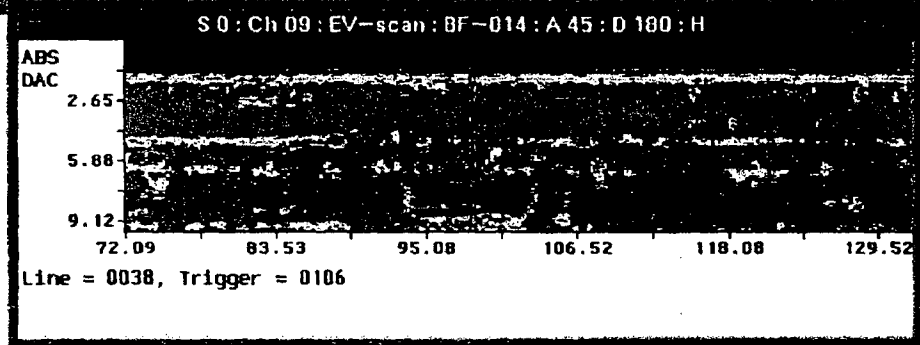
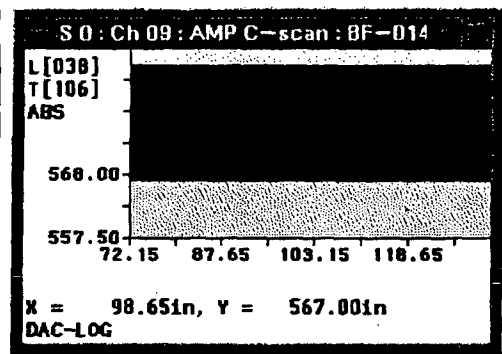
R 1152  
167 of 245

S 0 : Scale

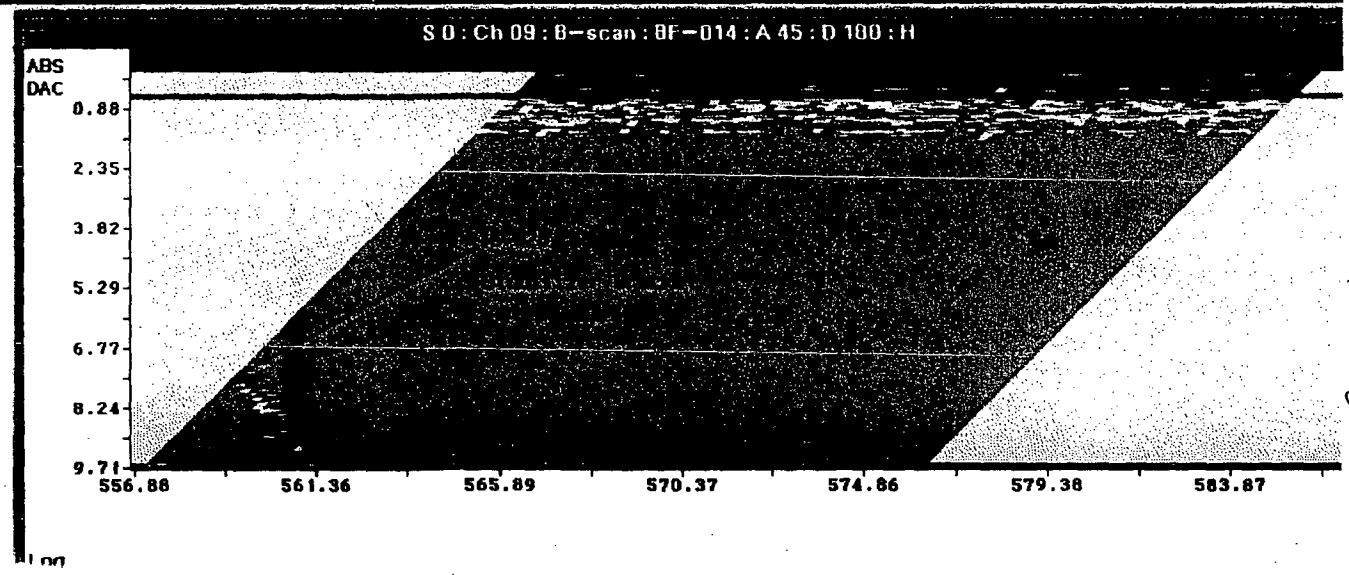
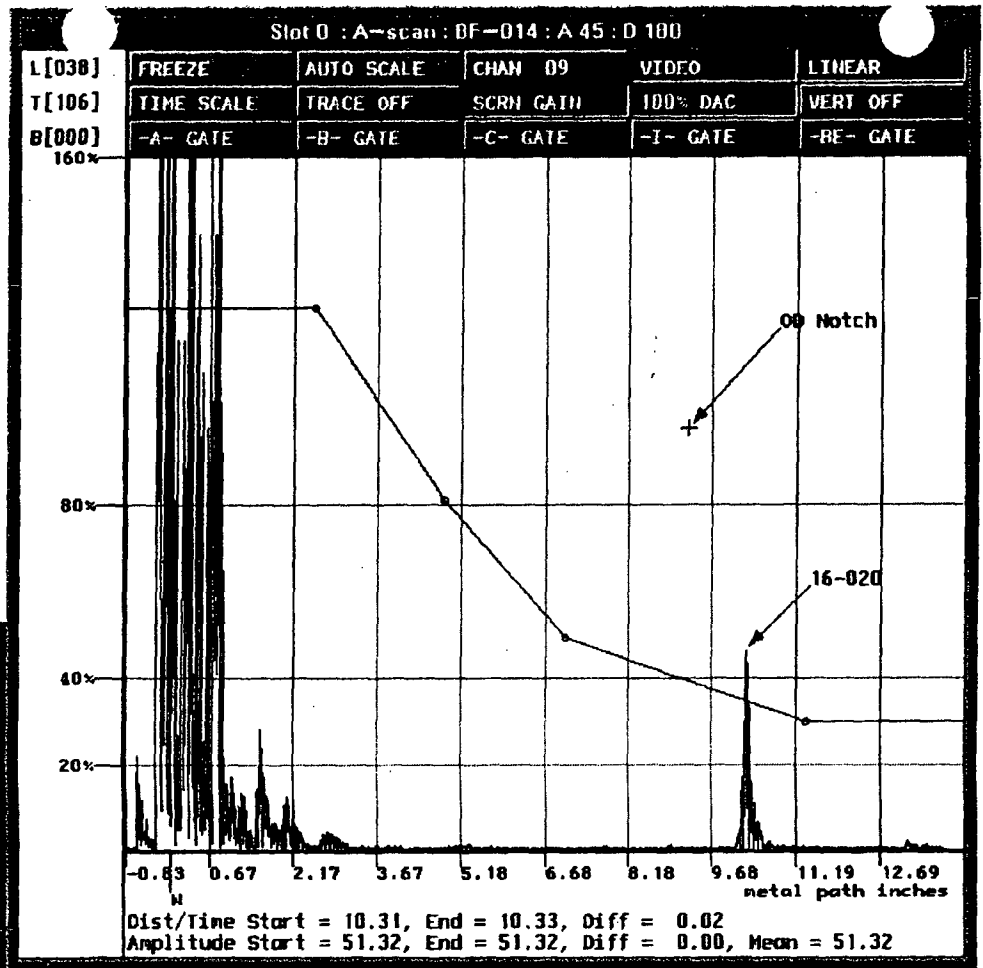
32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC



Lower  
/test>dumpe



00531

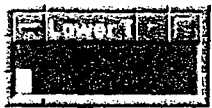
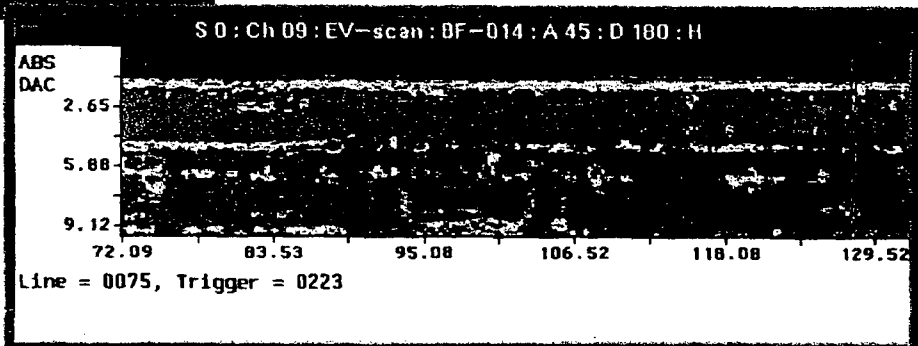
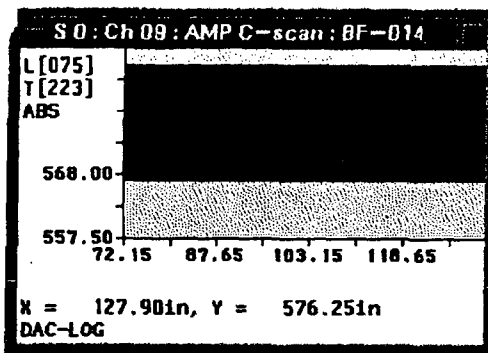


168 of 245  
R1152

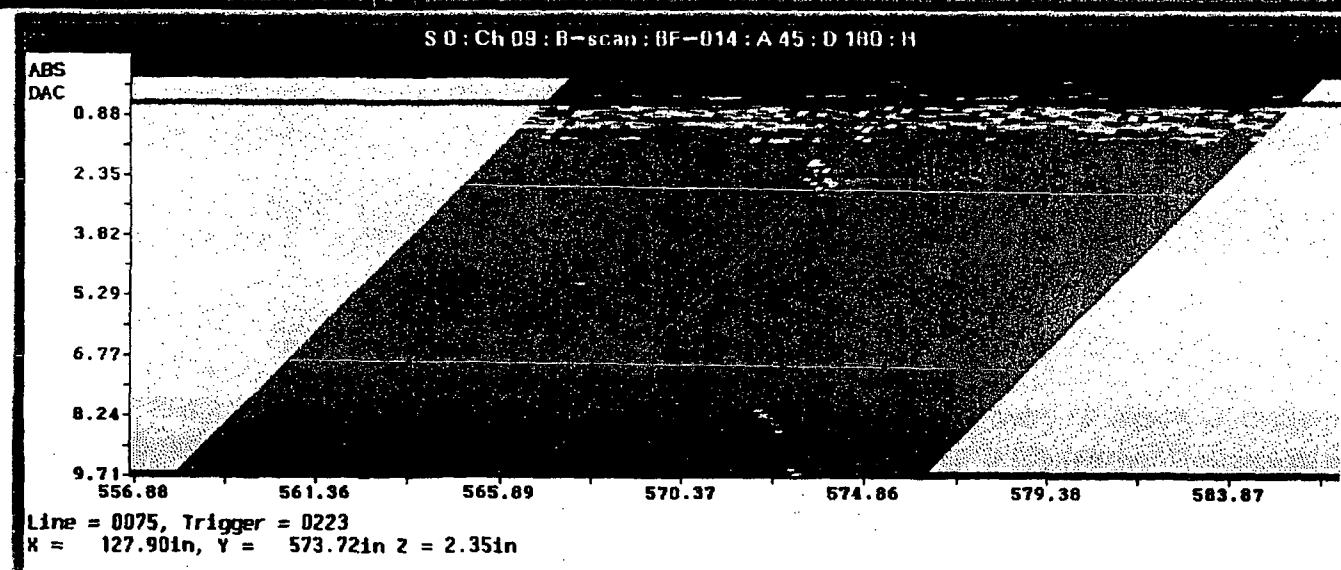
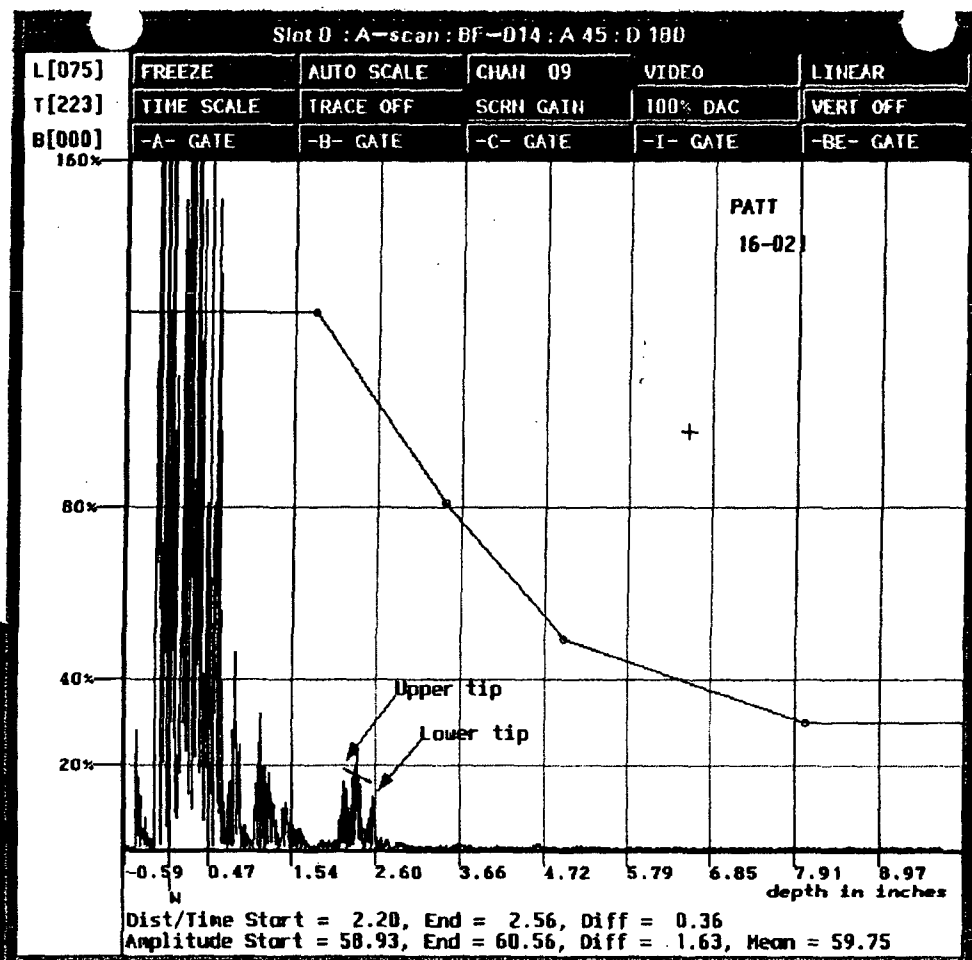
S O : Scale

32.3
36.6
41.0
45.3
49.7
54.0
58.4
62.7
67.1
71.4
75.8
80.1
84.5
88.0
93.2

100%  
50%  
20%



00532

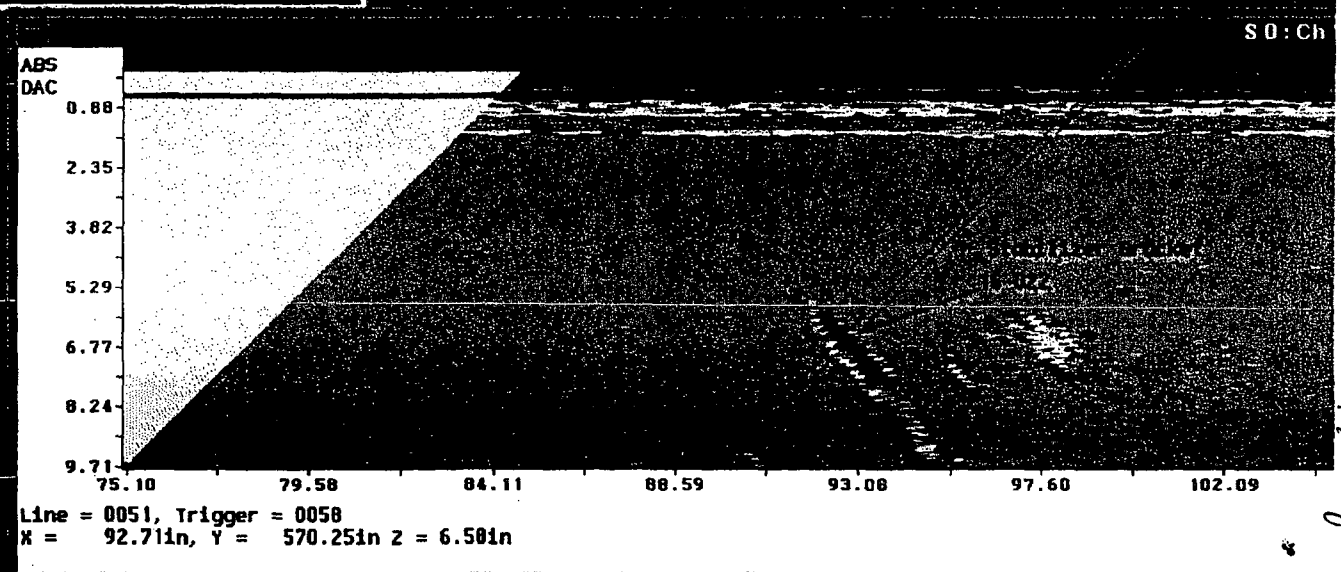
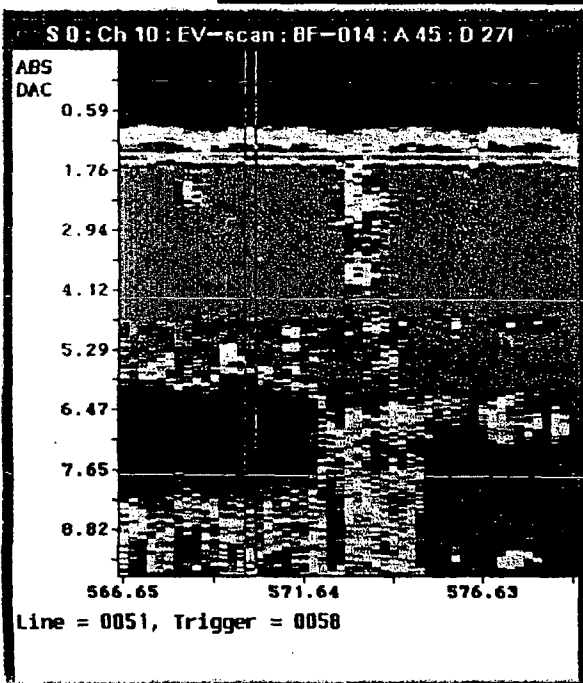
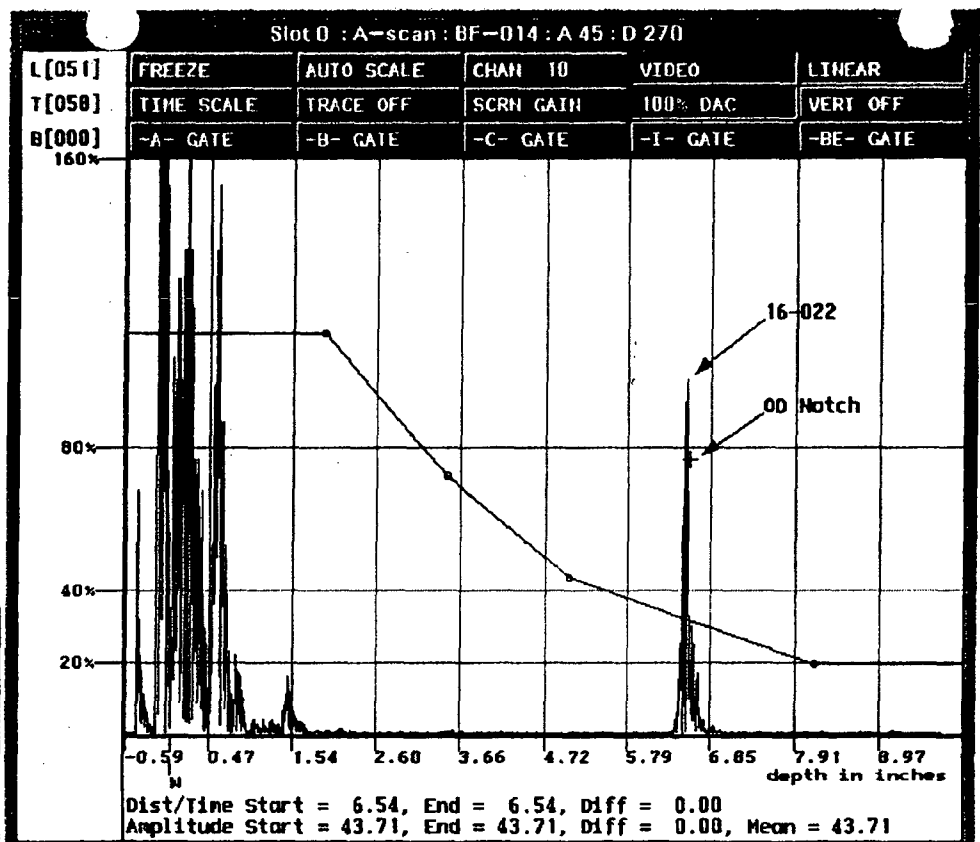
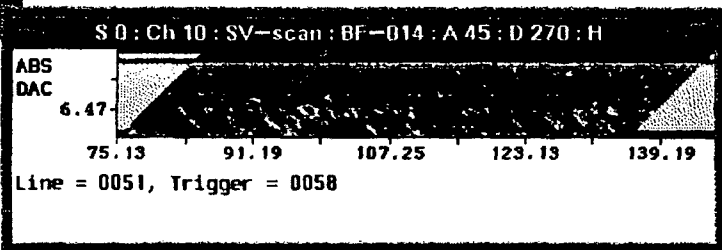
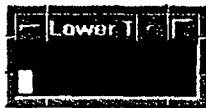
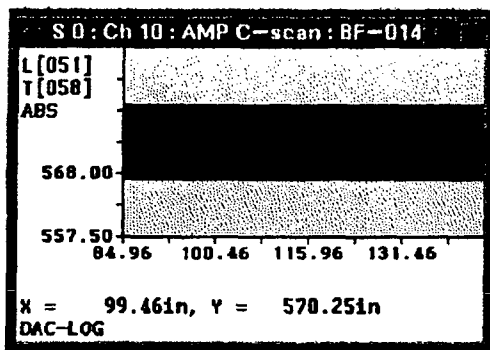


169 of 245  
R1152

S O : Scale

32.3
36.6
41.0
45.3
49.7
54.0
58.4
62.7
67.1
71.4
75.8
80.1
84.5
88.8
93.2

DAC



R1152

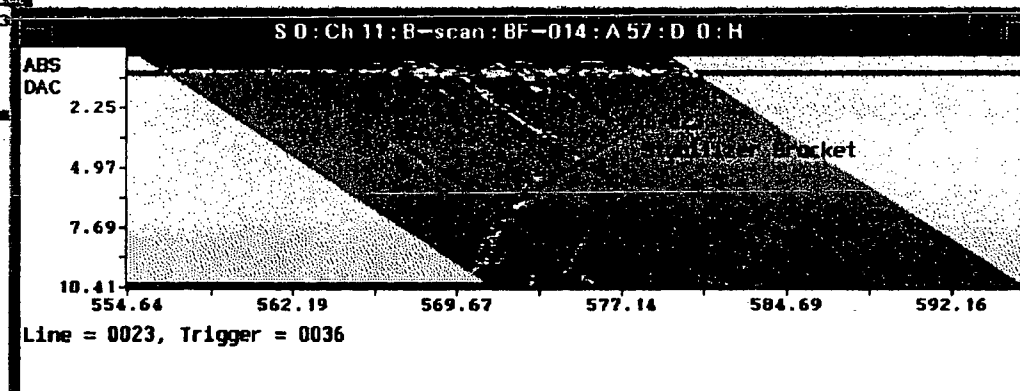
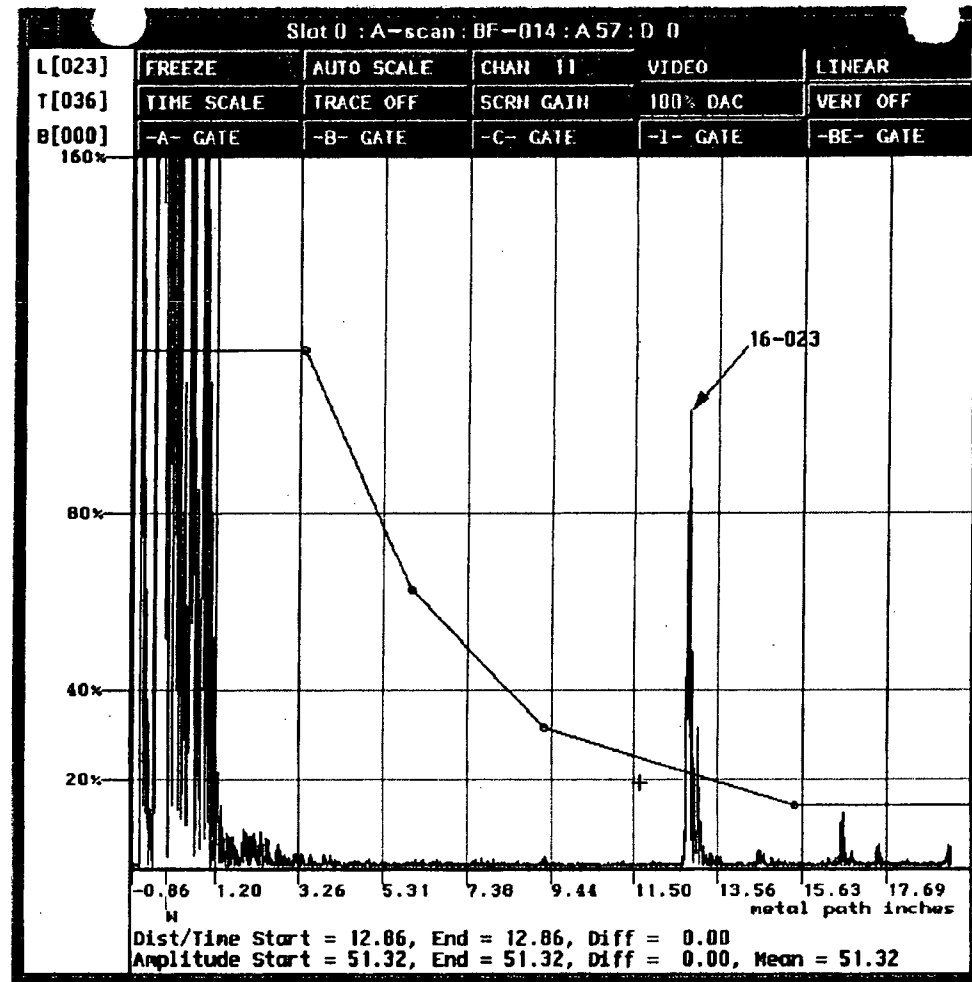
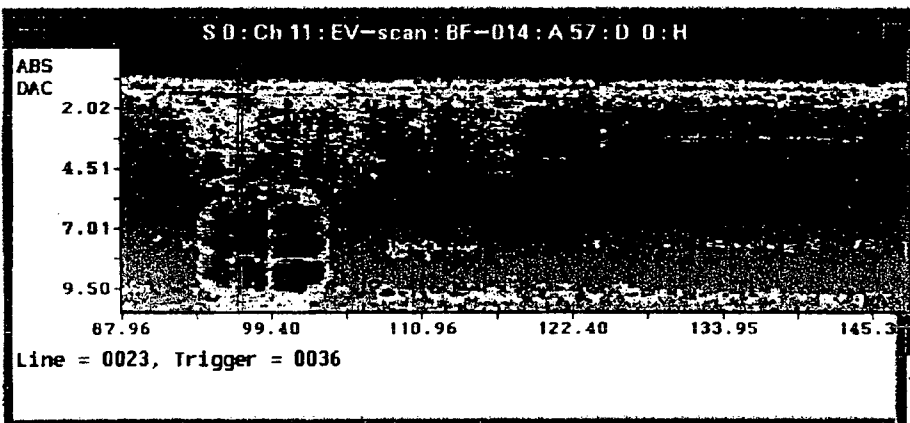
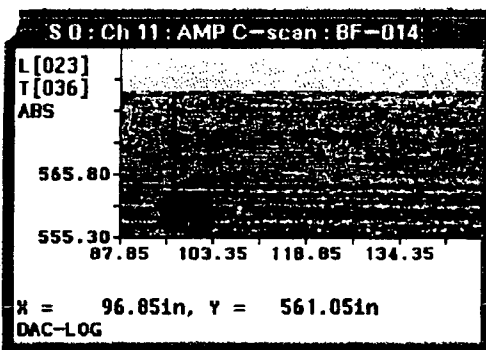
170 of 245

0053

S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7 100%  
54.0 50%  
58.4  
62.7 20%  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

DAC



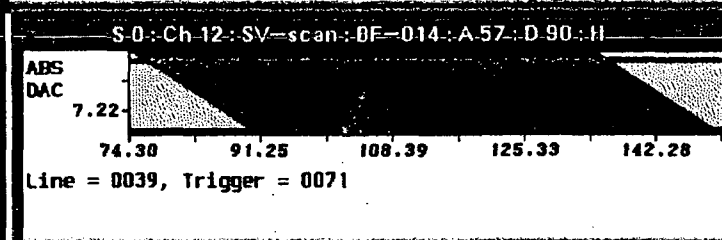
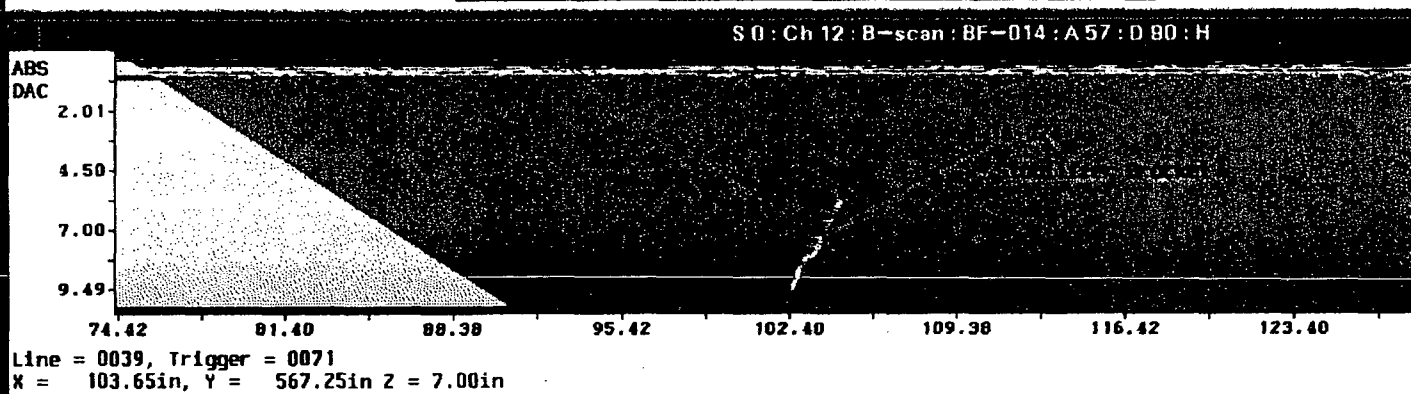
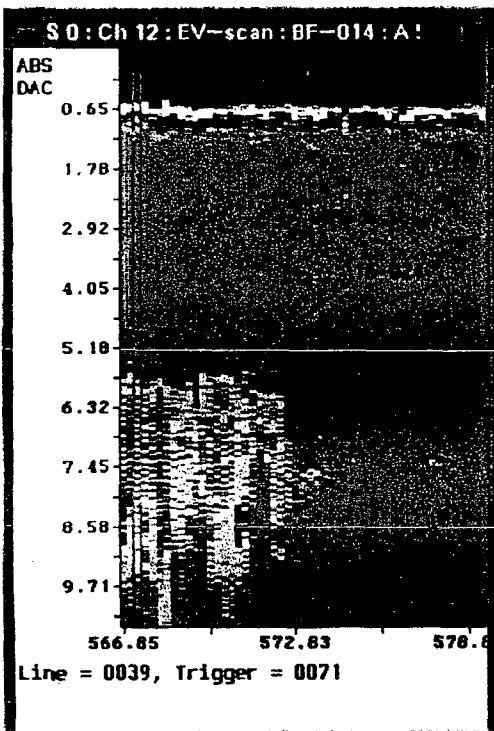
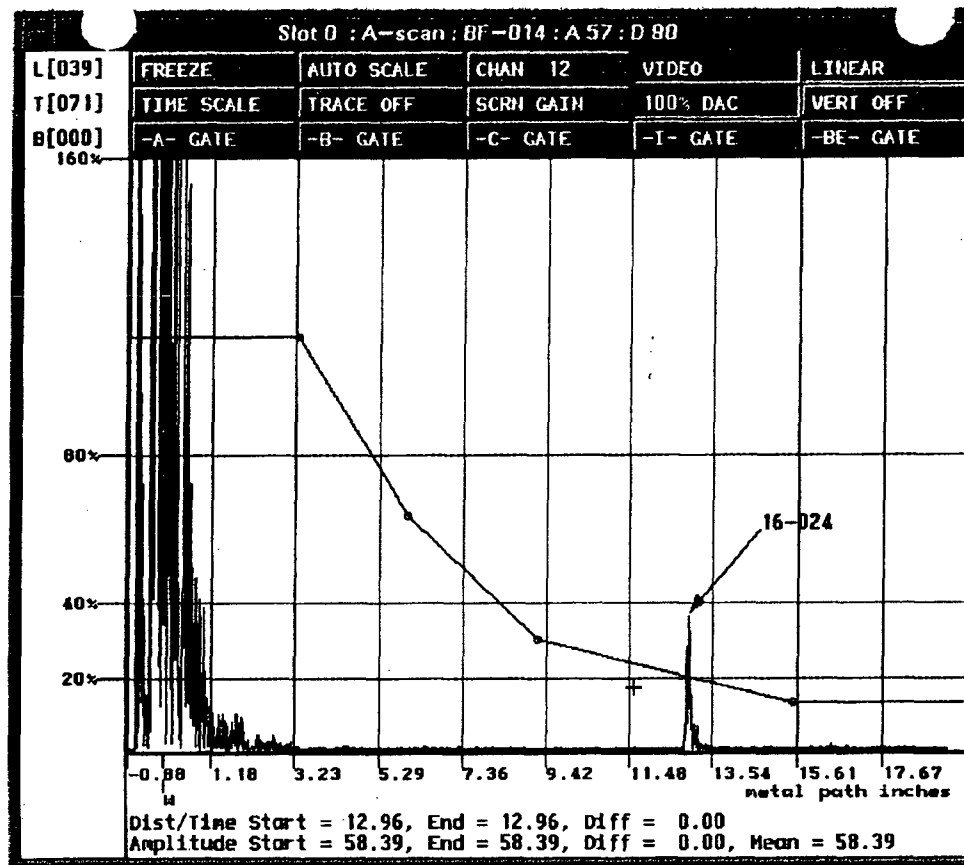
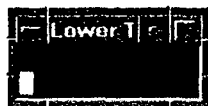
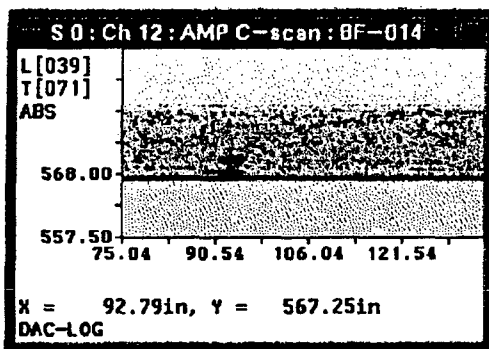
00534  
R1152  
17106245

S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

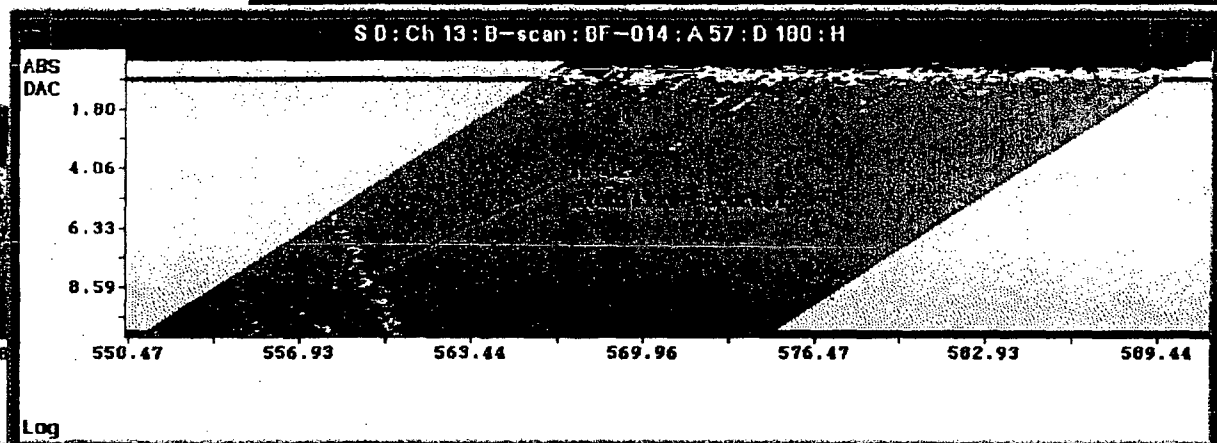
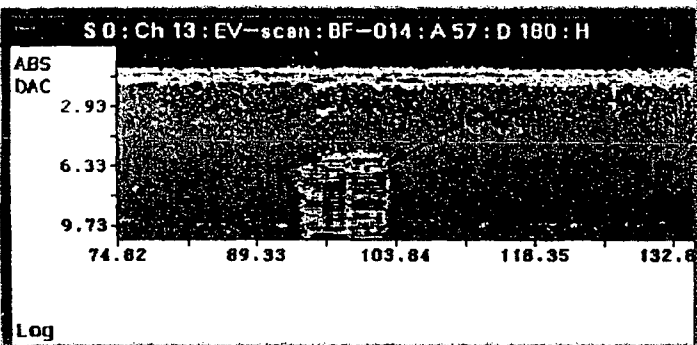
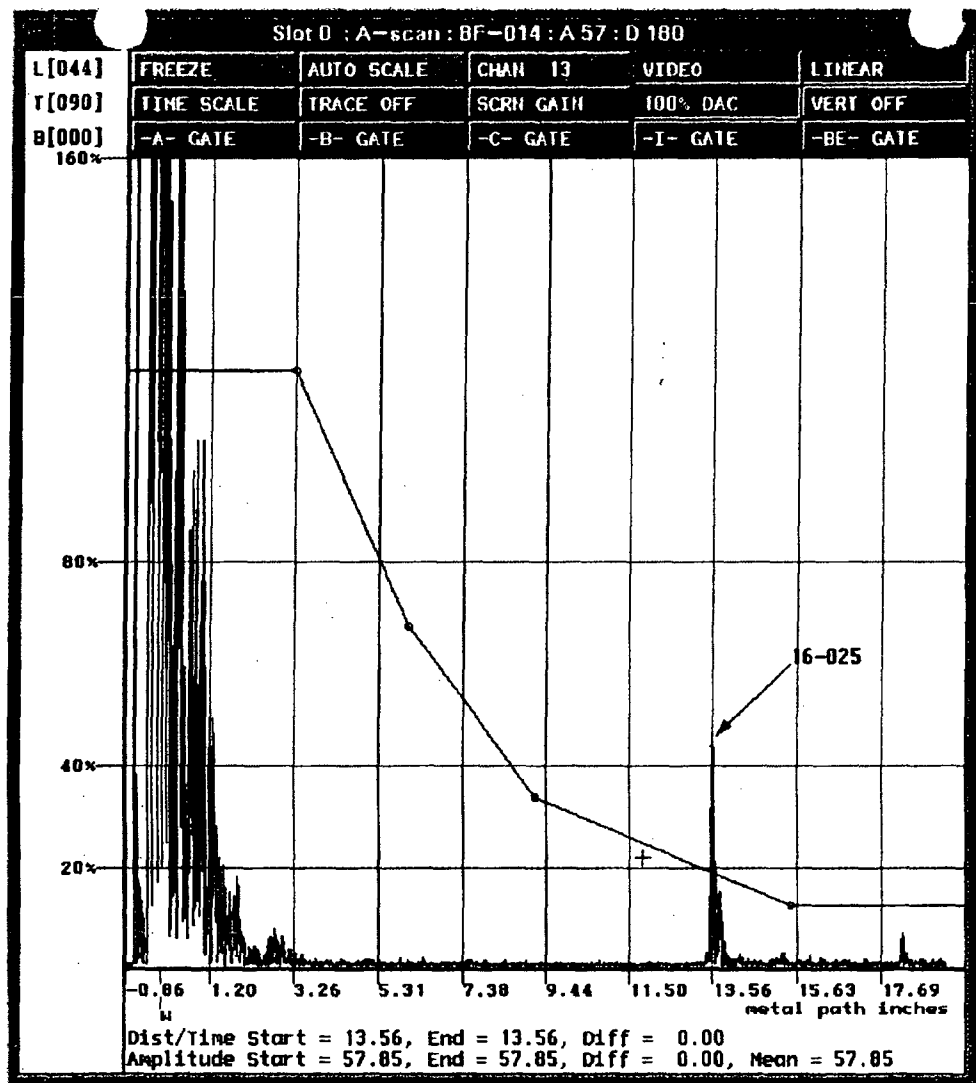
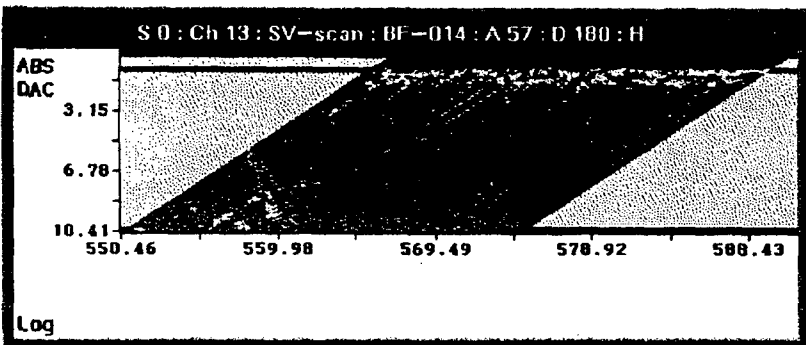
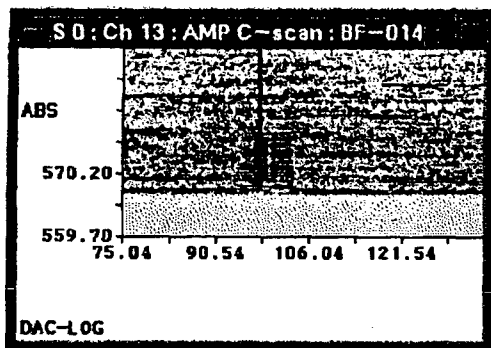
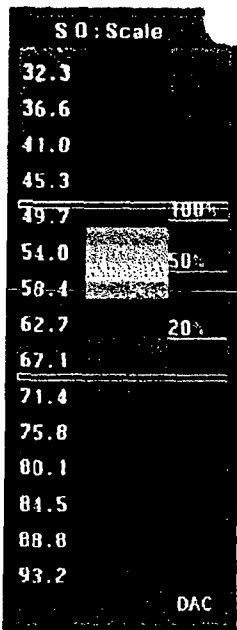
100%  
50%  
20%

DAC



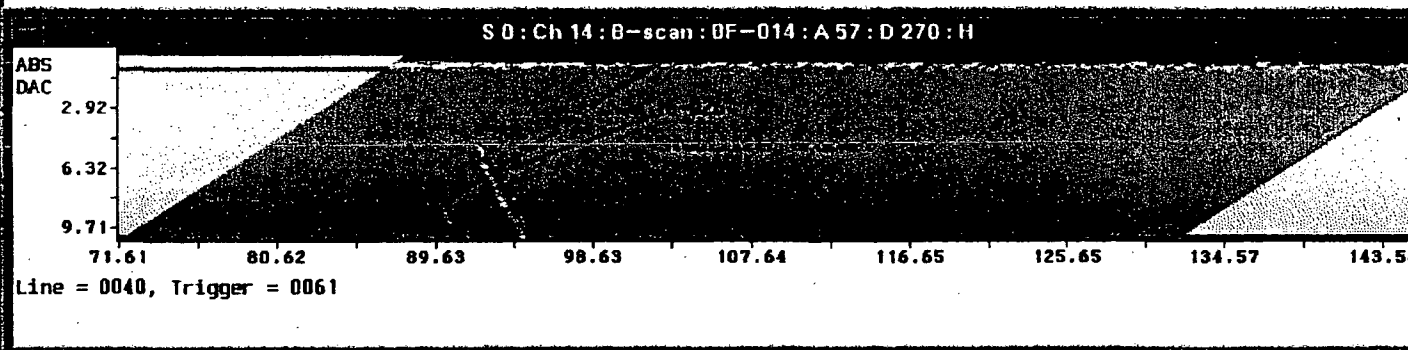
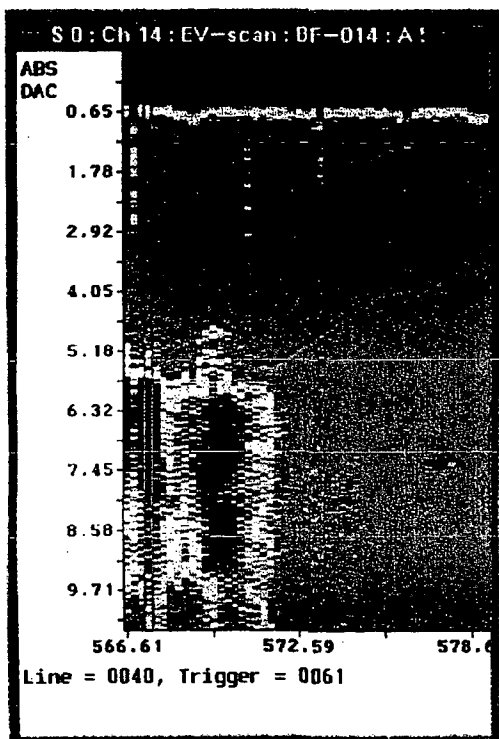
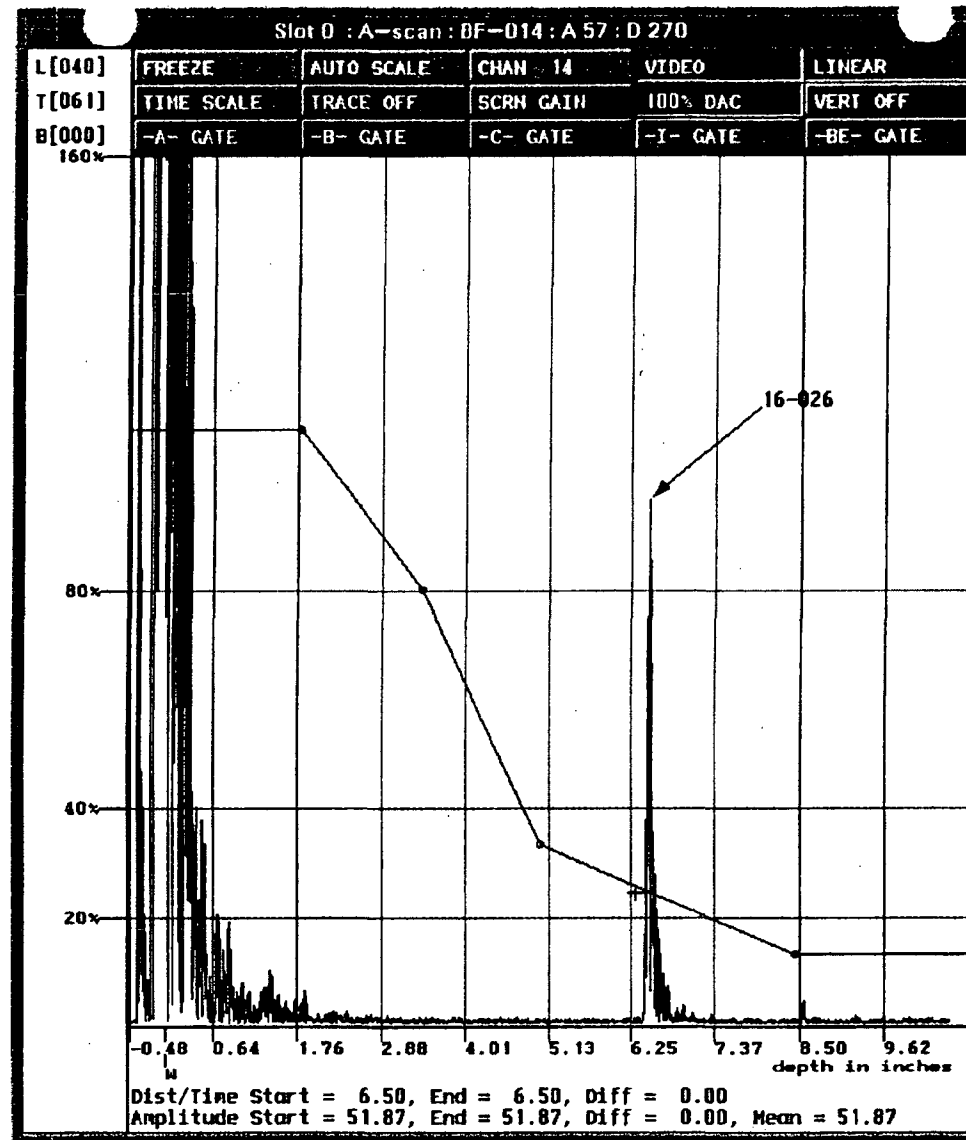
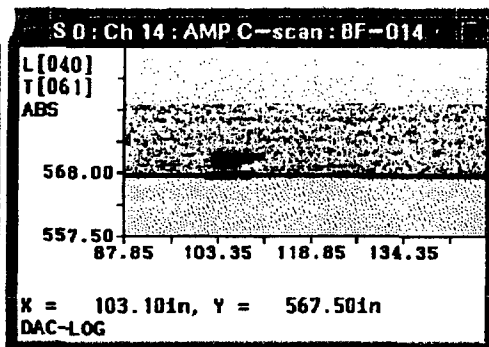
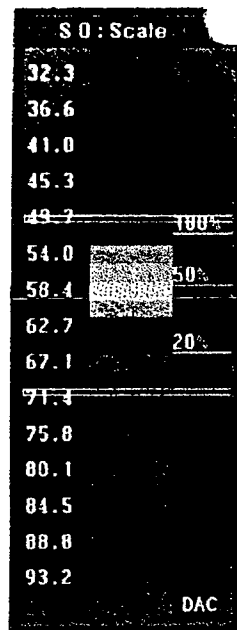
R 1152  
122 of 245  
\* 00535





12304 245

R 1150536



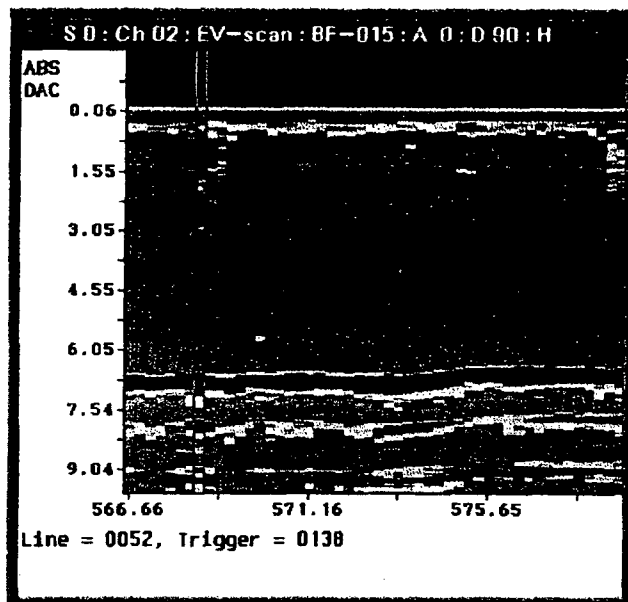
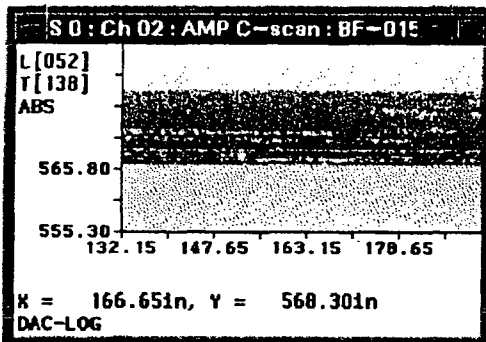
R115-20537  
773 1746-245

S 0 : Scale

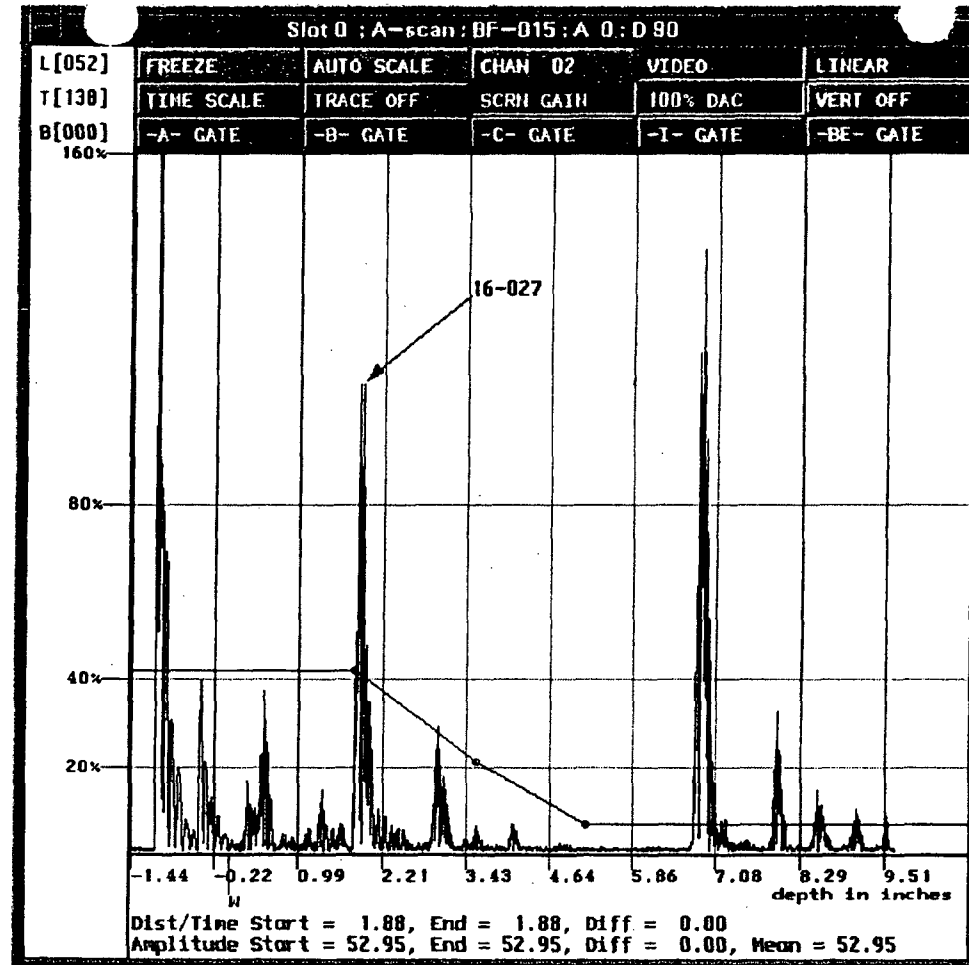
32.3
36.6
41.0
45.3
49.7
54.0
58.4
62.7
67.1
71.4
75.8
80.1
84.5
88.8
93.2

100%  
50%  
20%

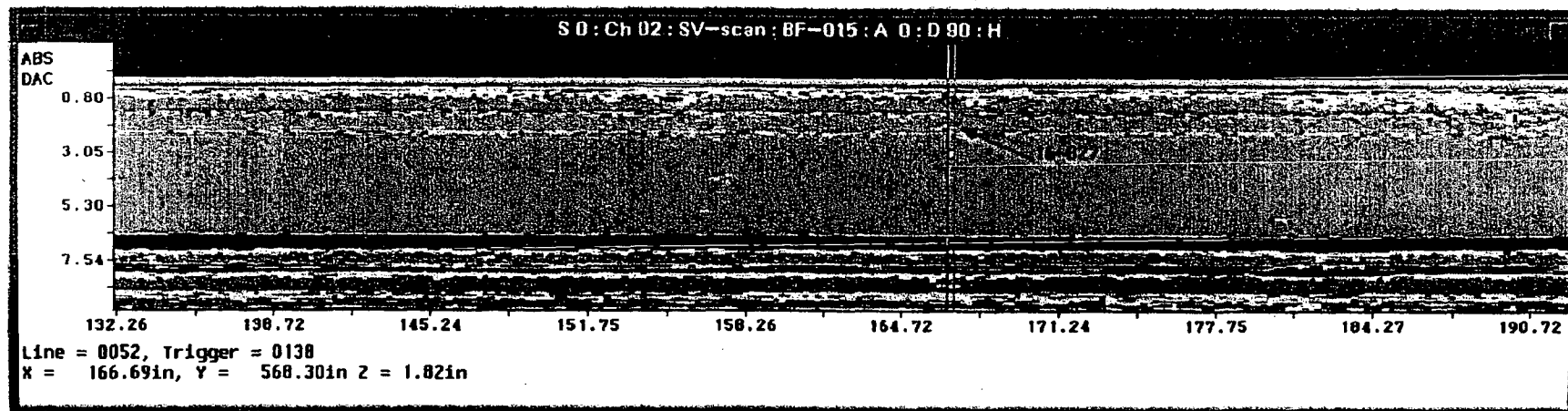
DAC



Lower T

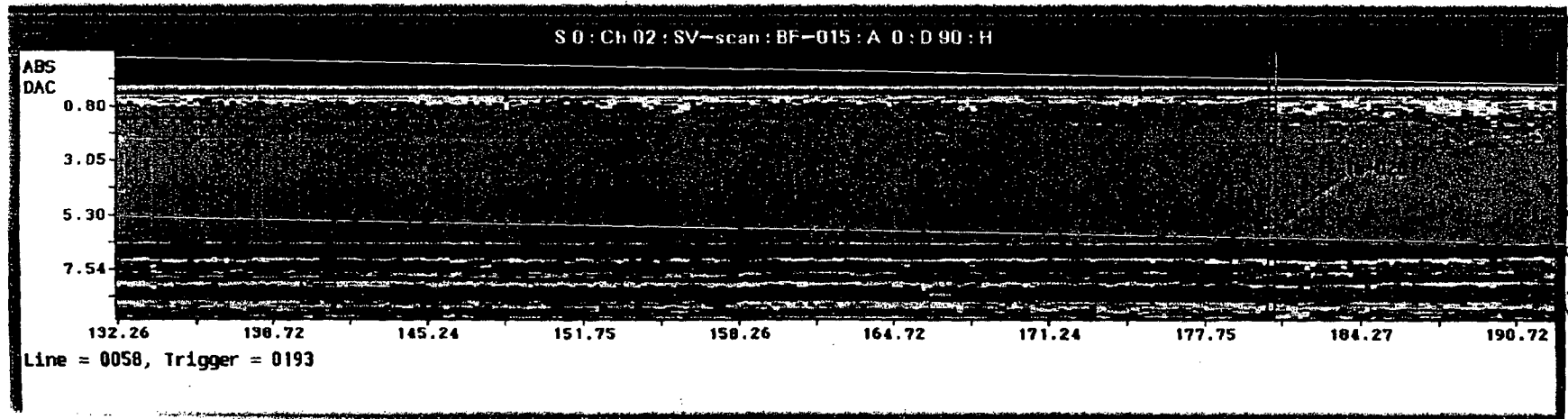
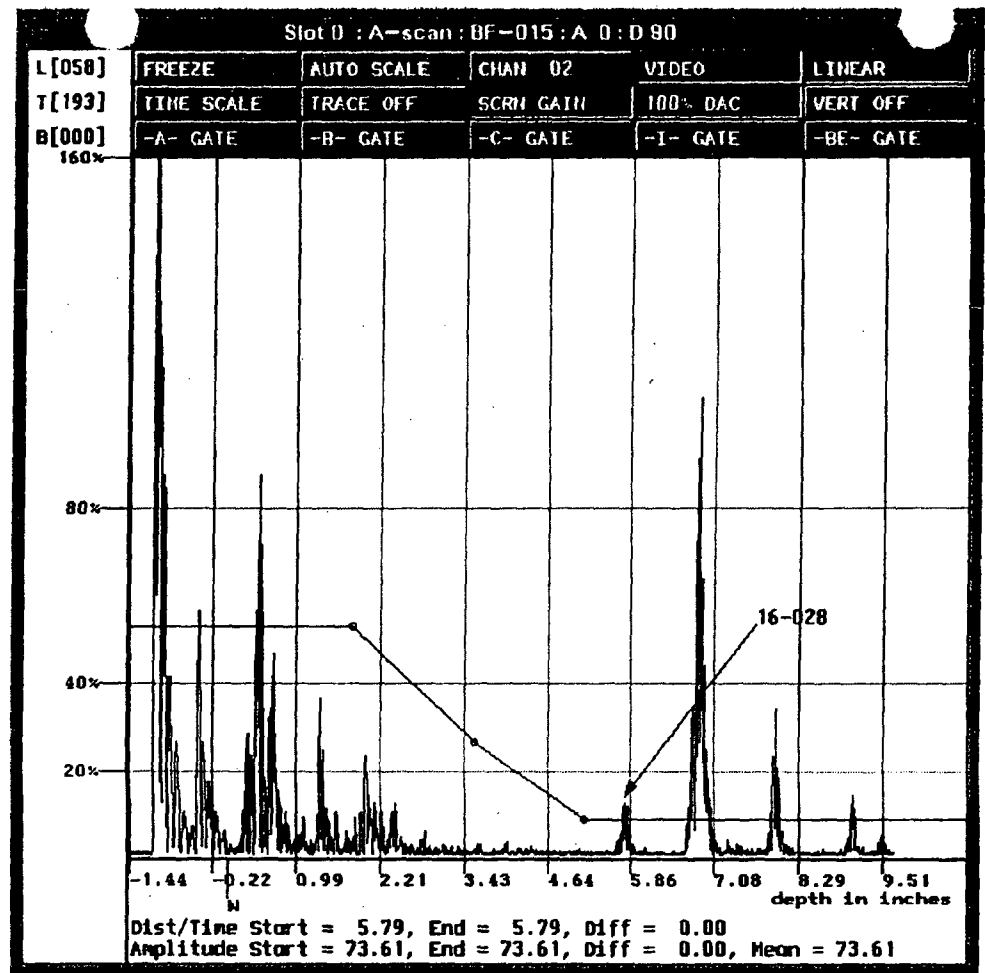
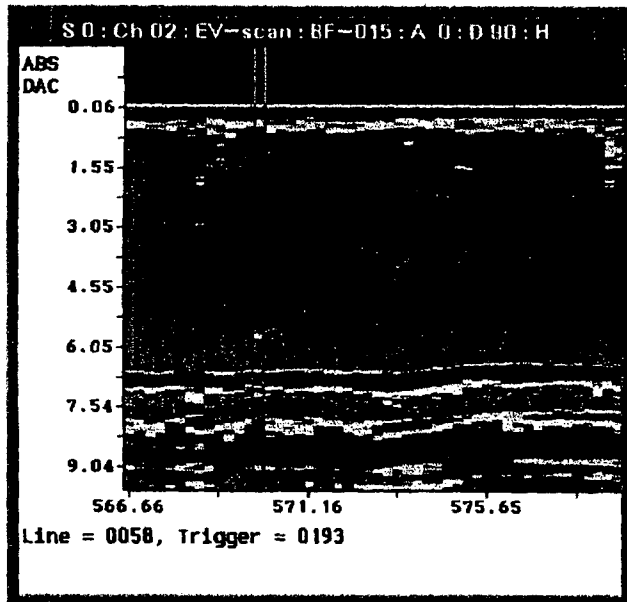
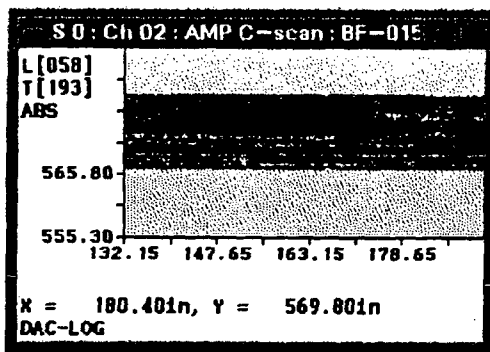


0000 1000



00538  
R1152  
125 of 295

S 0 : Scale	
32.3	
36.6	
41.0	
45.3	
49.7	
54.0	
58.4	100%
62.7	
67.1	50%
71.4	
75.8	20%
80.1	
84.5	
88.8	
93.2	DAC



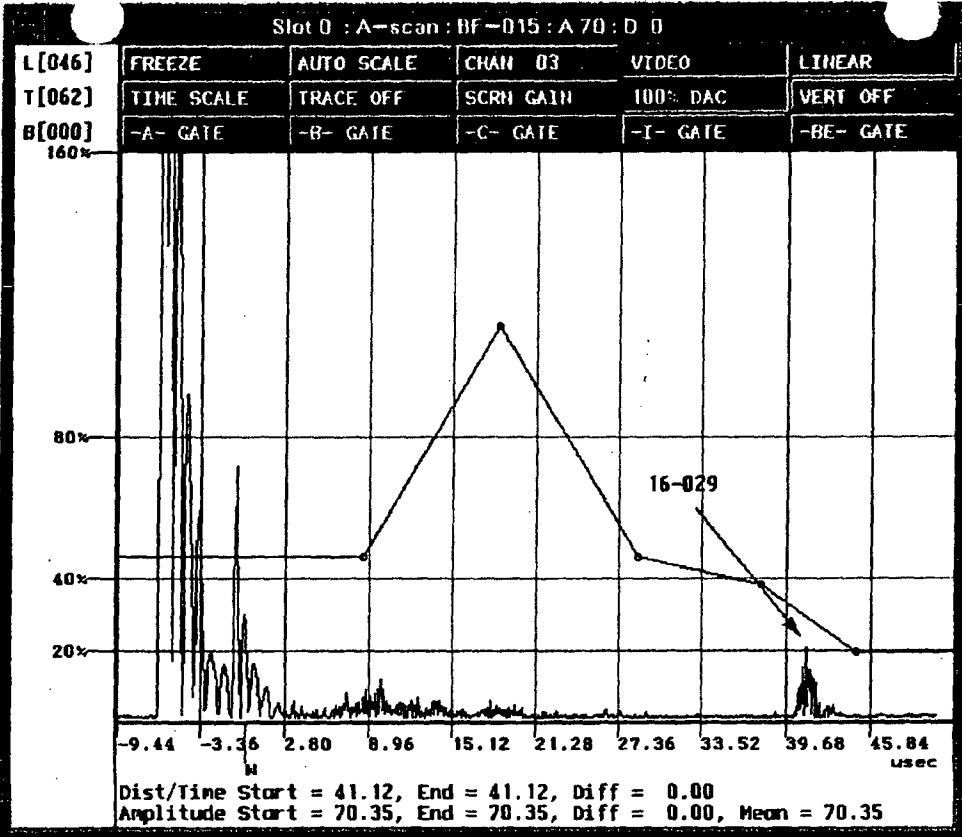
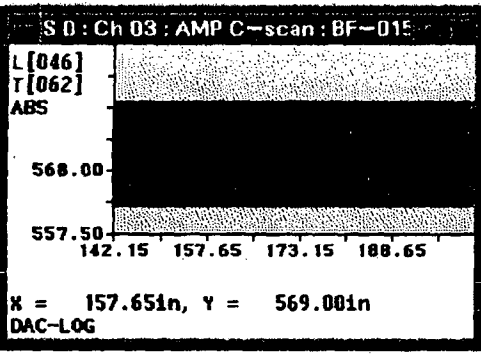
1764245  
R 1152  
00539

S 0 : Scale

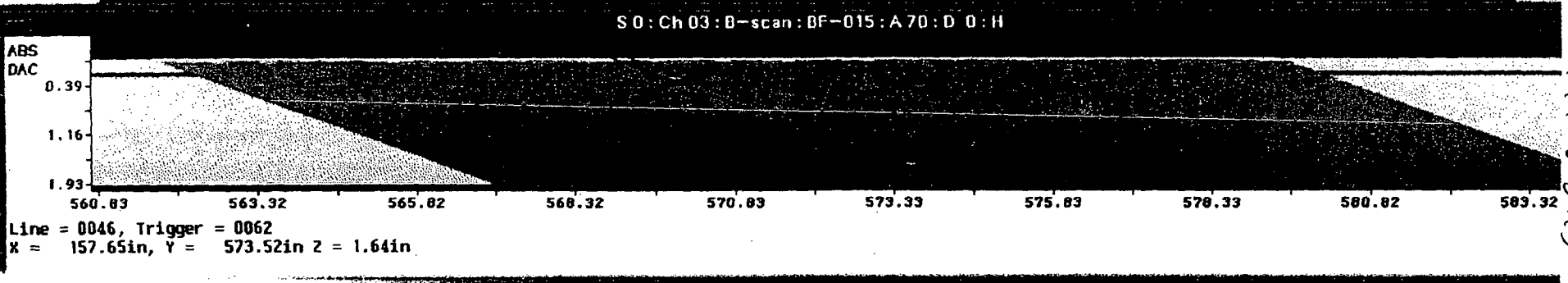
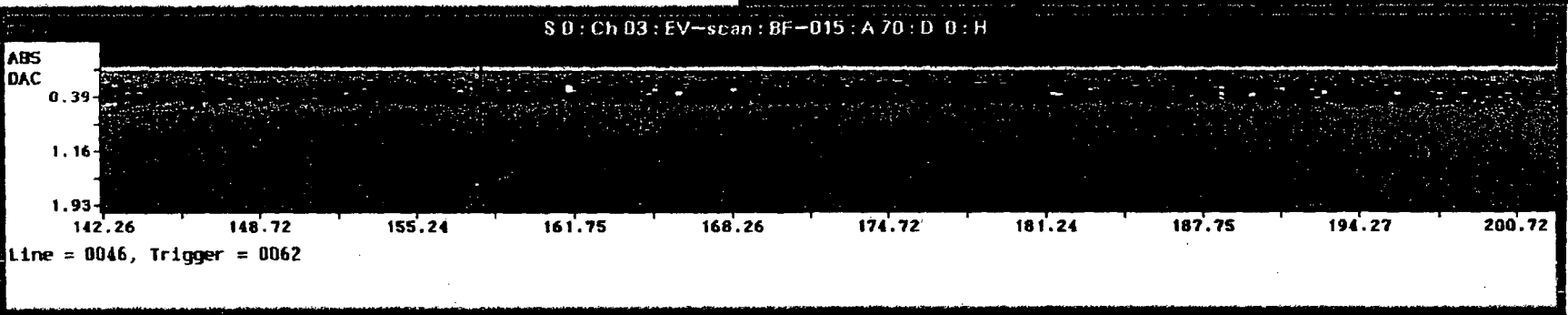
32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC



Lower T

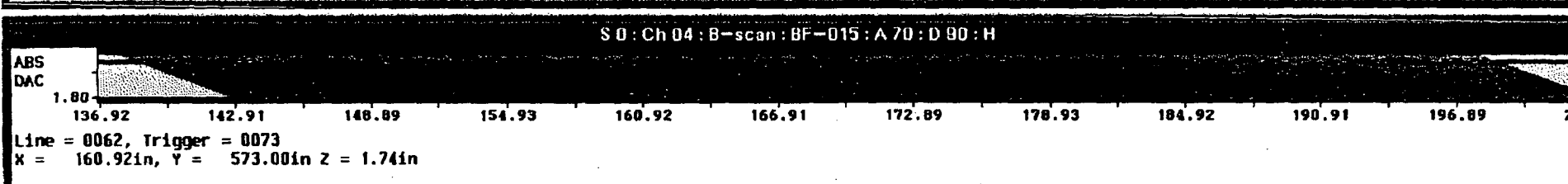
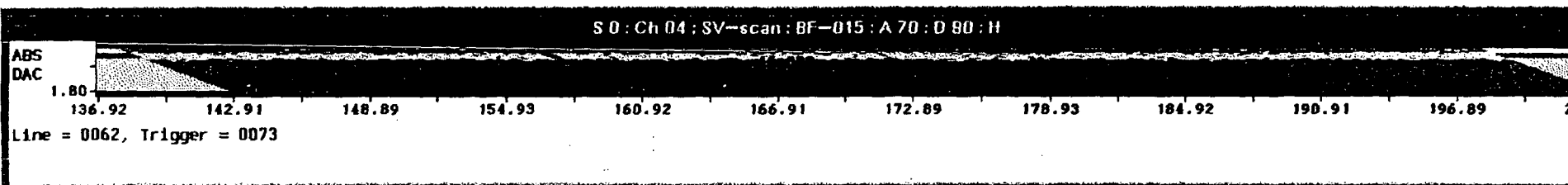
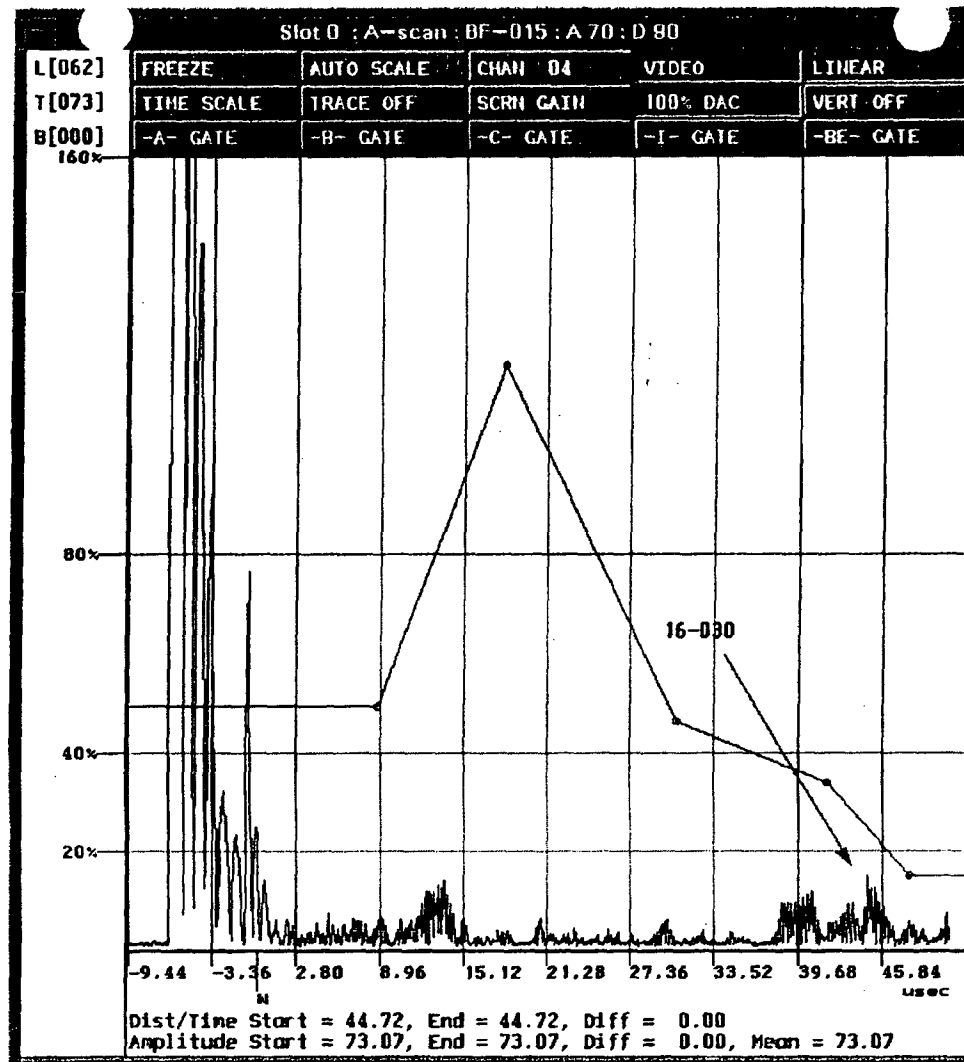
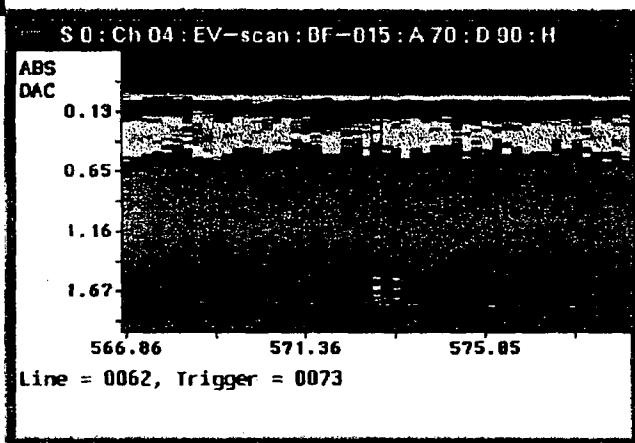
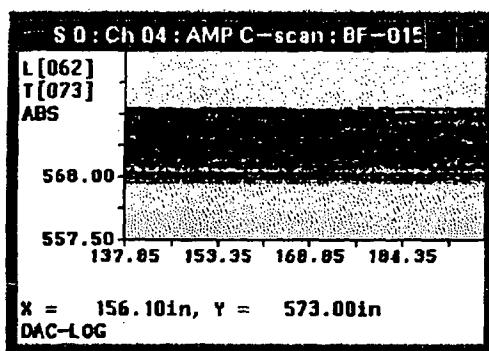


1778245  
R1152  
00540

S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7 100  
67.1 50  
71.4  
75.8 20  
80.1  
84.5  
88.8  
93.2

DAC



1788 245  
R1152541

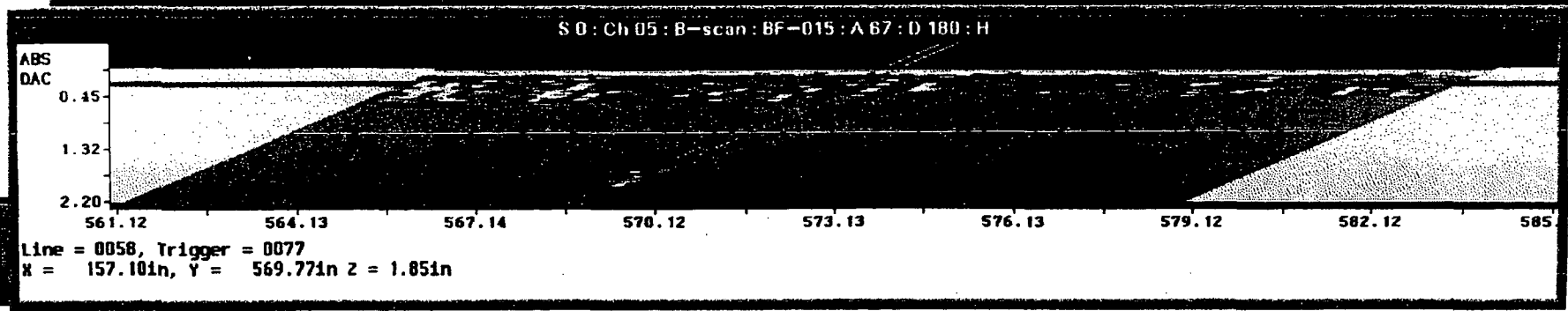
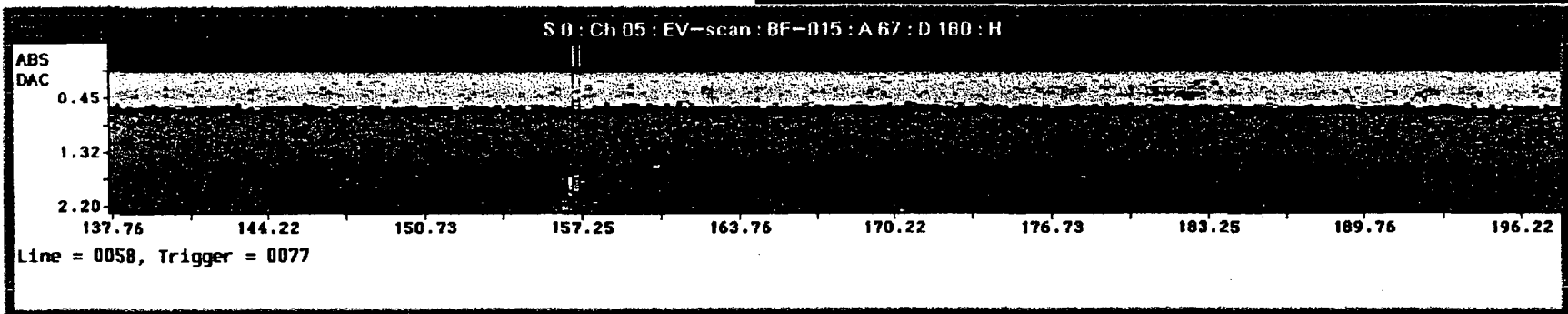
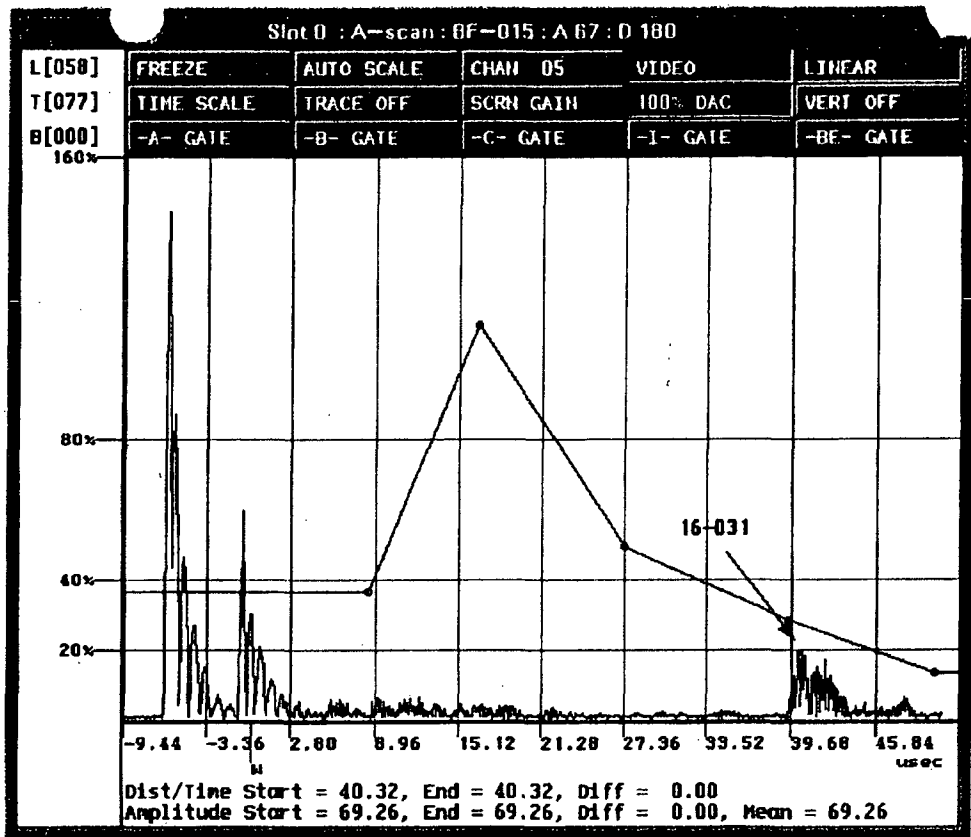
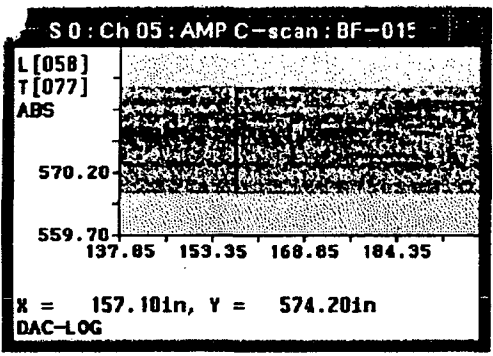
S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC

Lower T



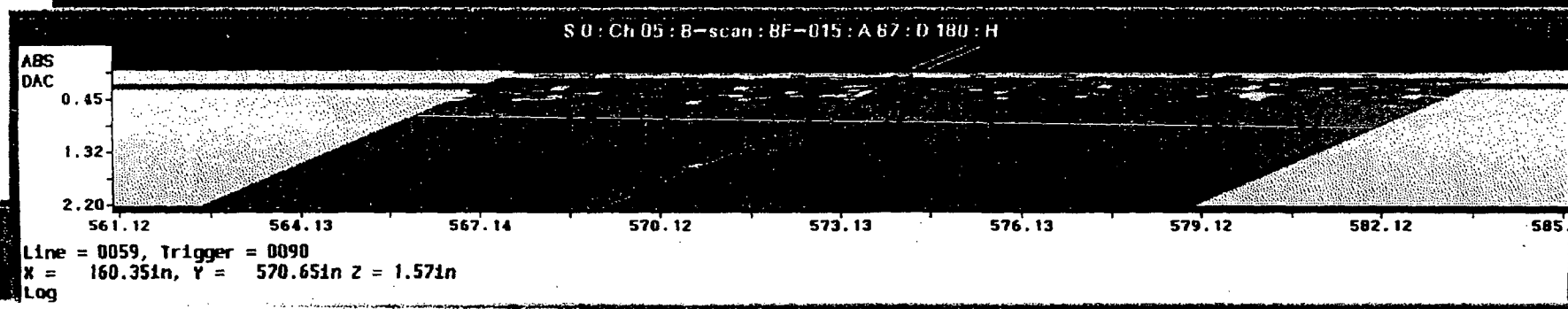
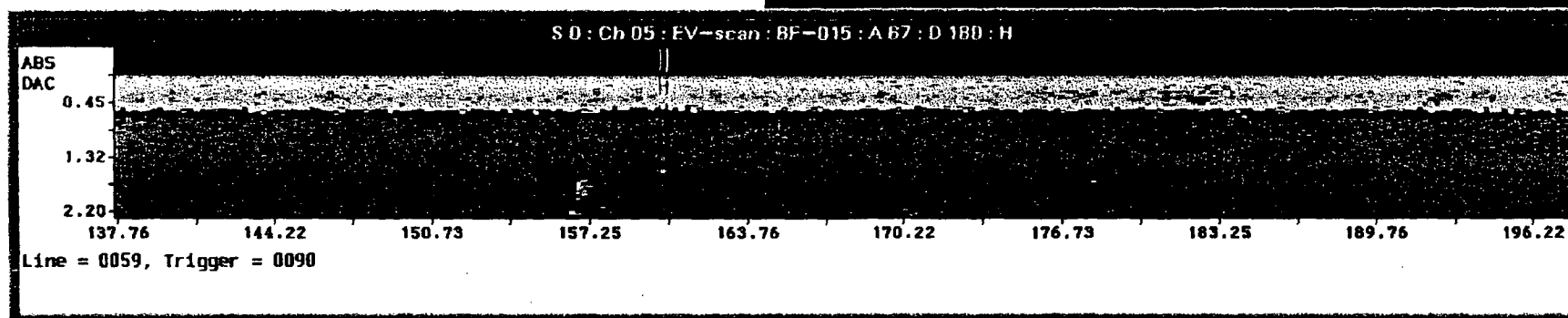
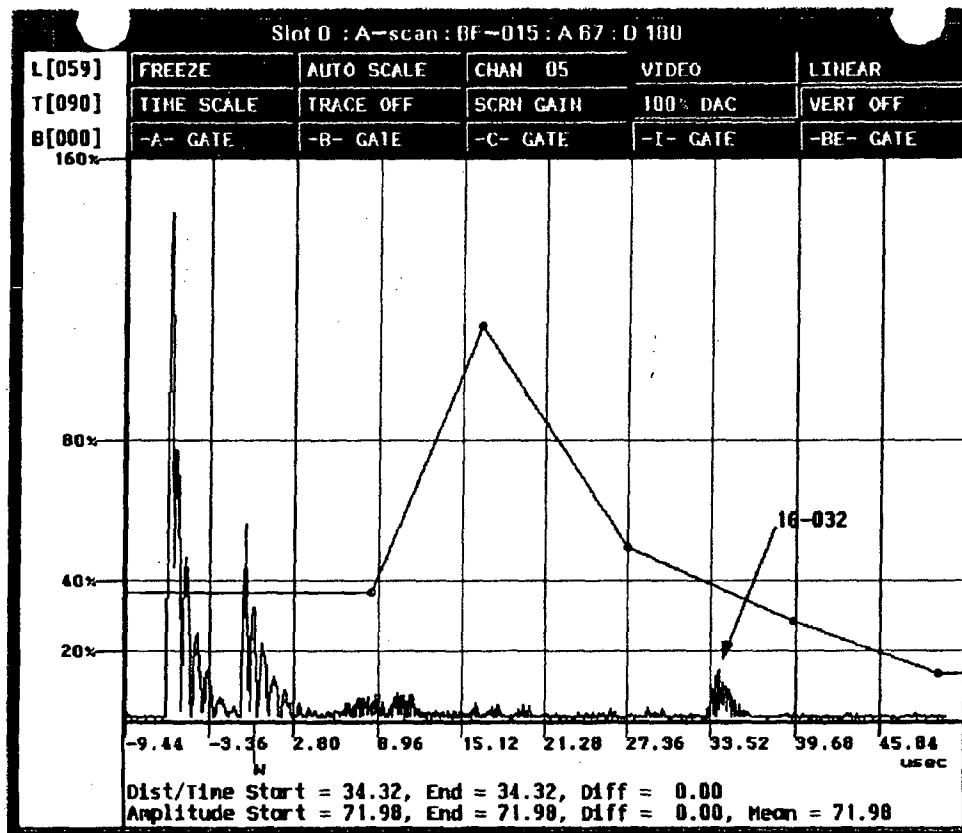
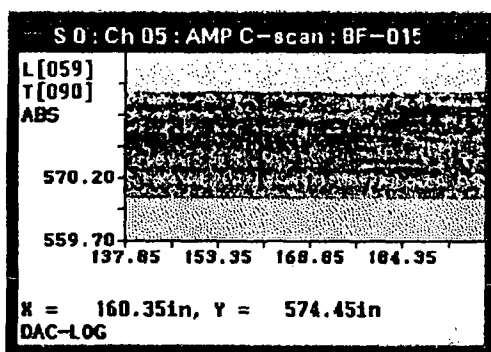
17908245  
R 1152  
60542

S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC



18006245  
R1152  
\* 06543

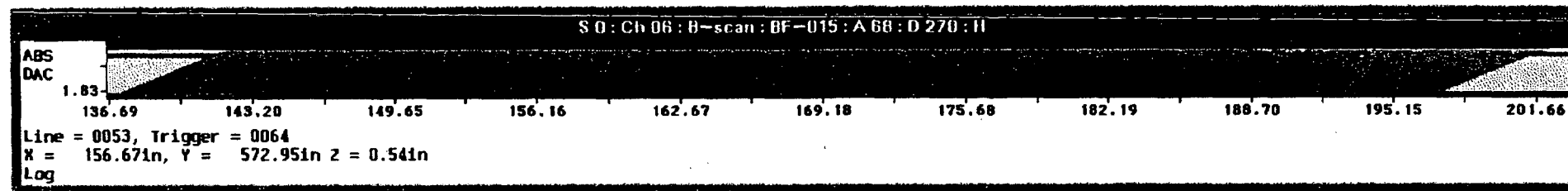
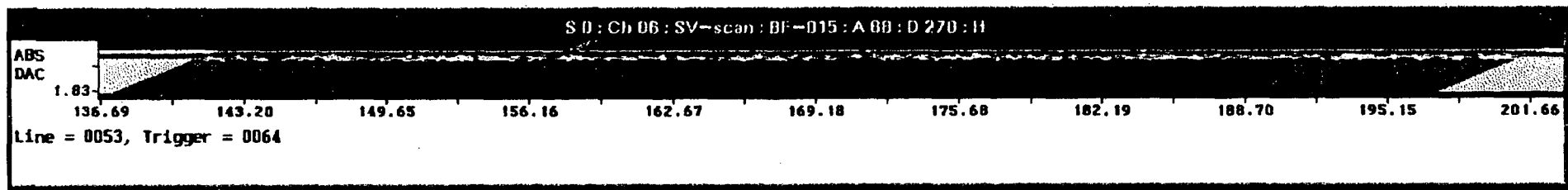
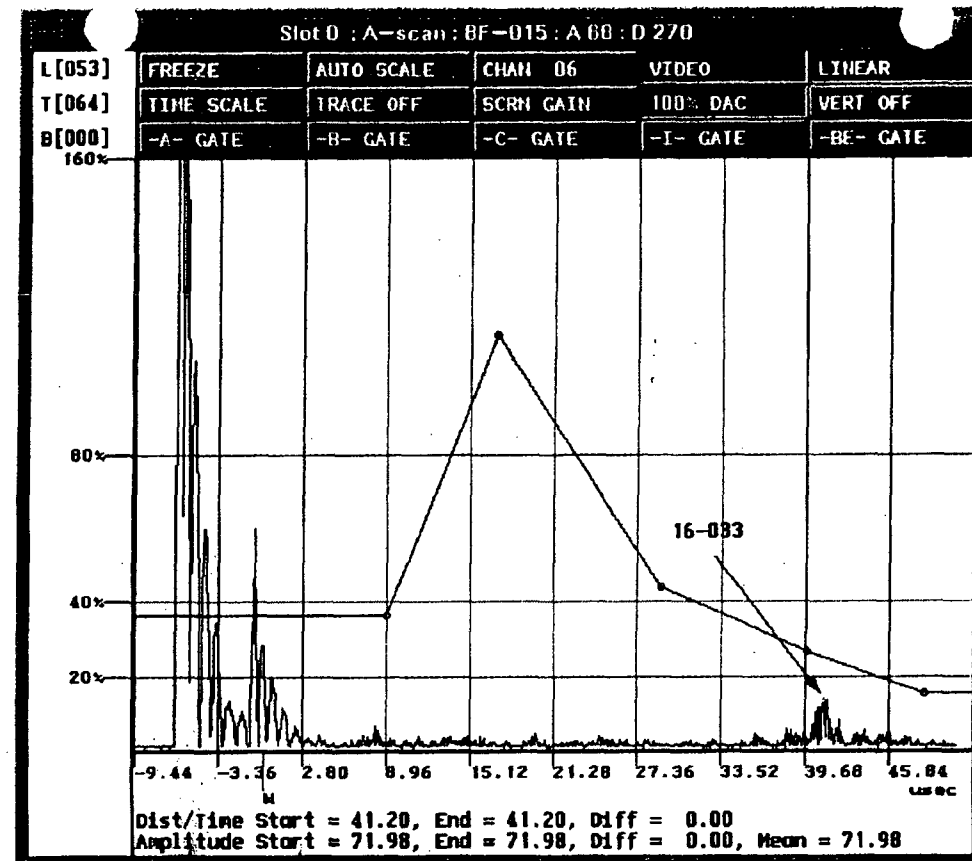
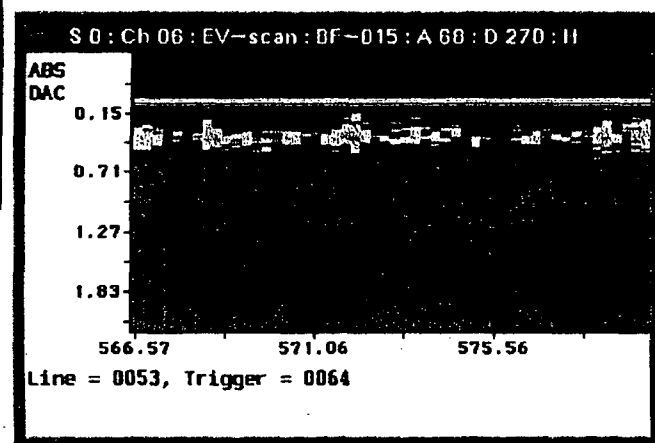
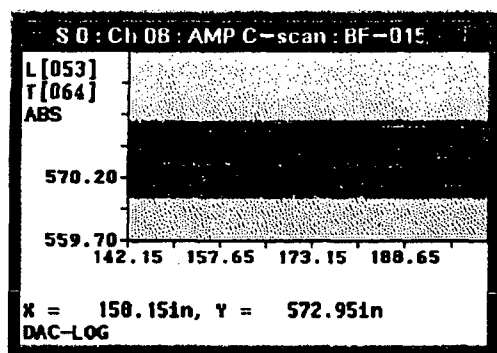


S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC

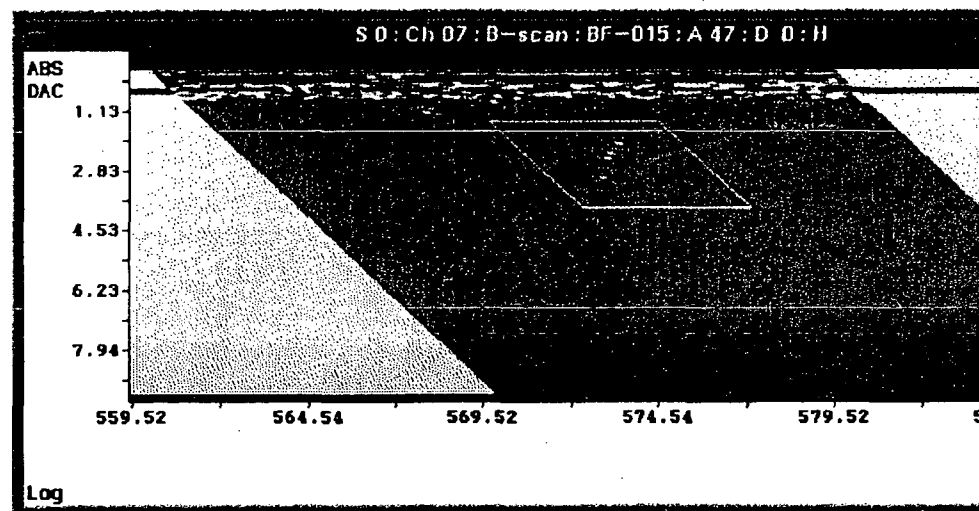
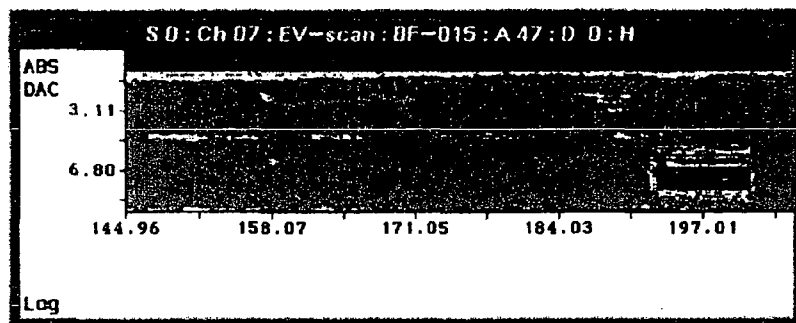
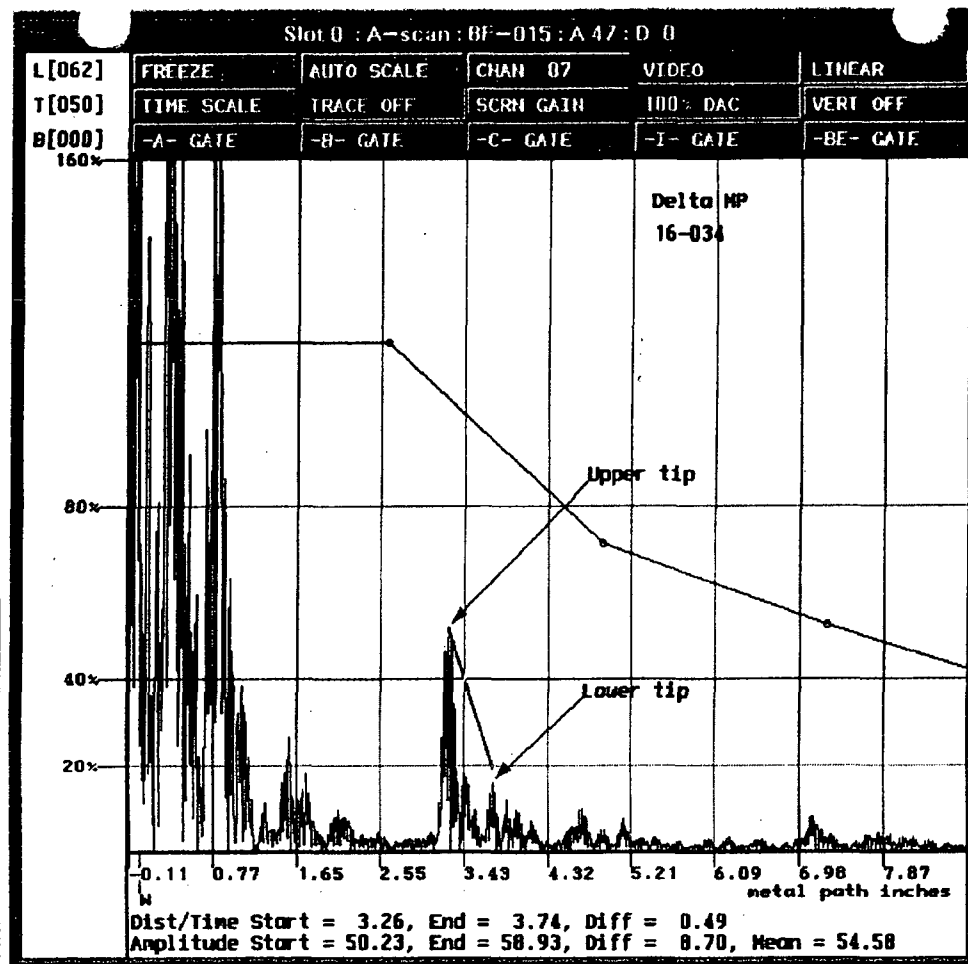
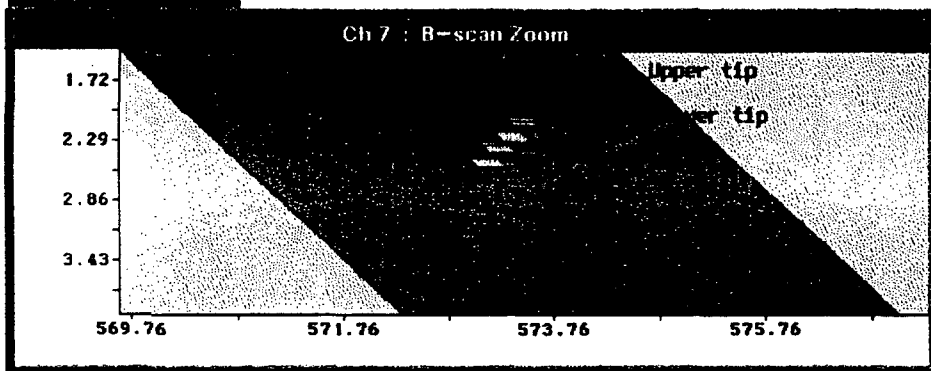
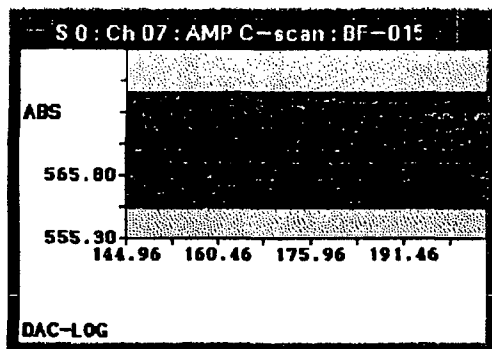


00544  
21152  
18108245

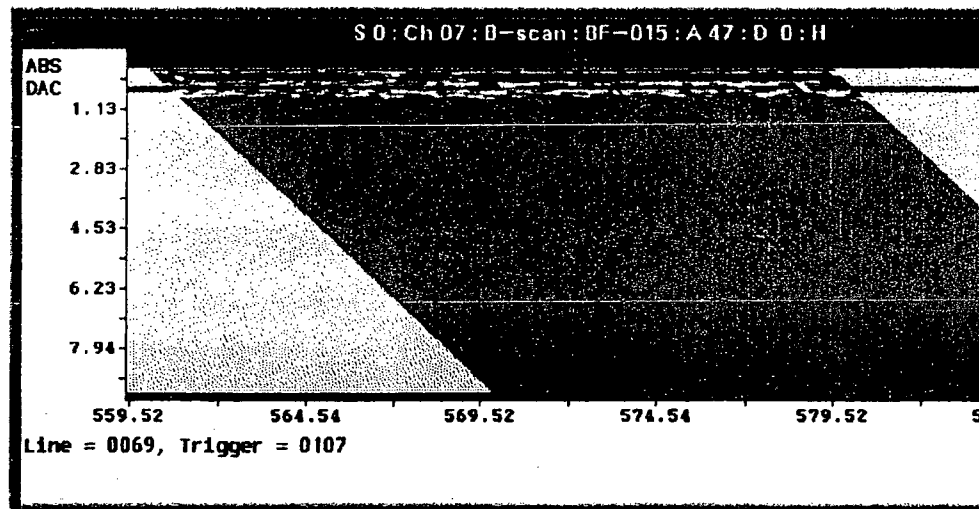
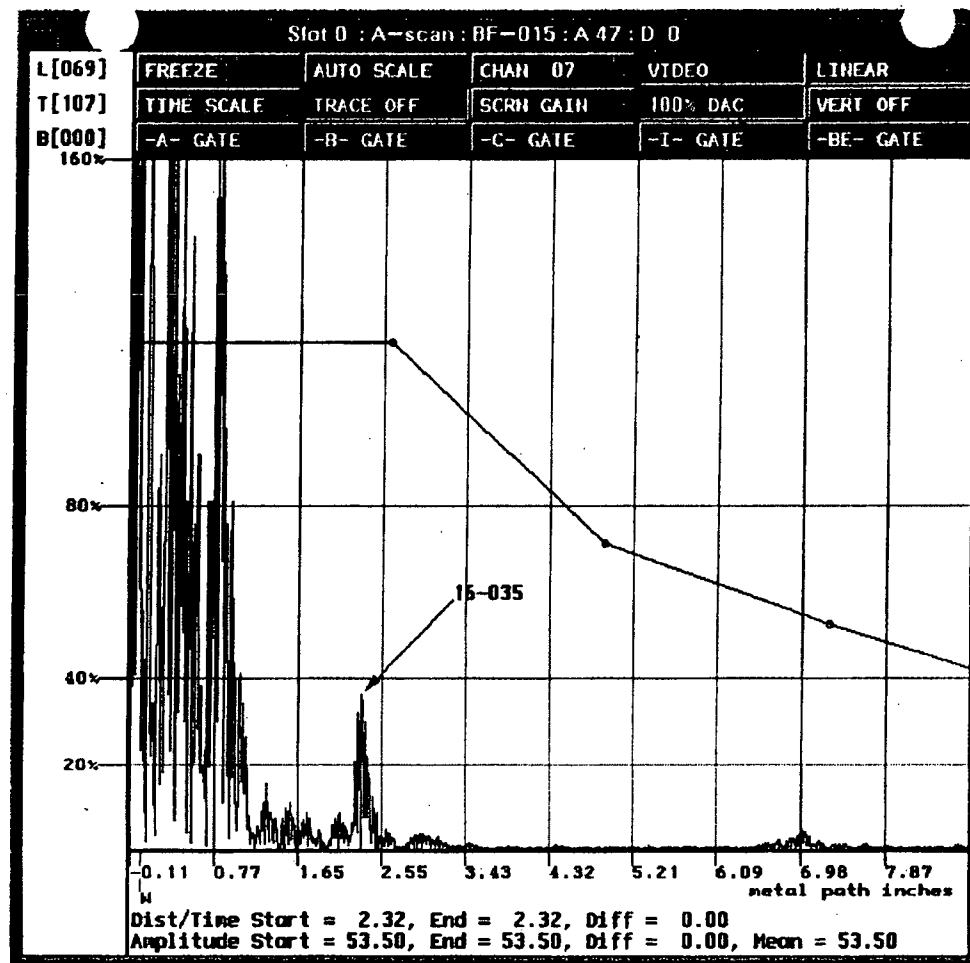
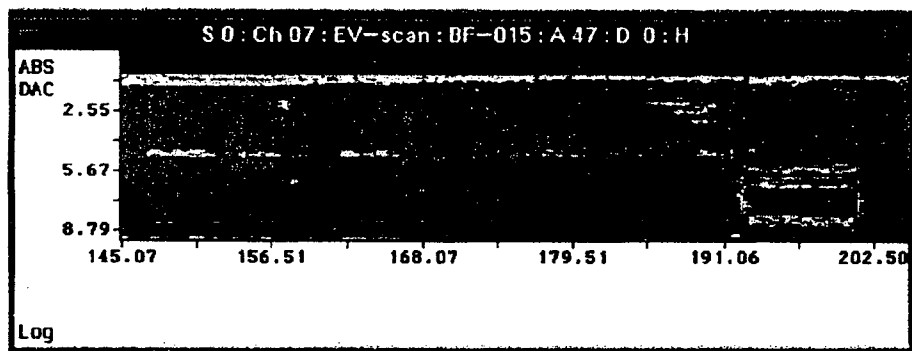
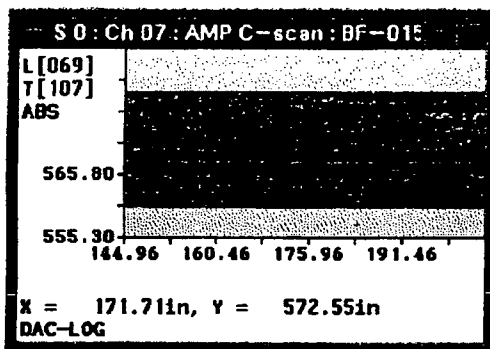
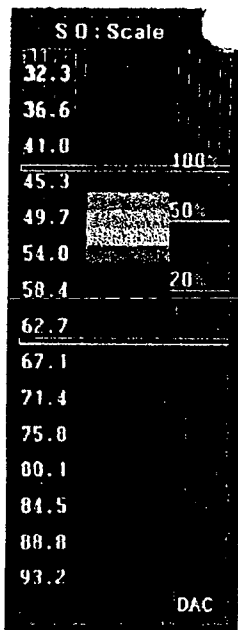
S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
51.0  
50.4  
62.7  
67.1  
71.4  
75.0  
80.1  
84.5  
80.0  
93.2

100%  
50%  
20%



182 of 295  
R115245



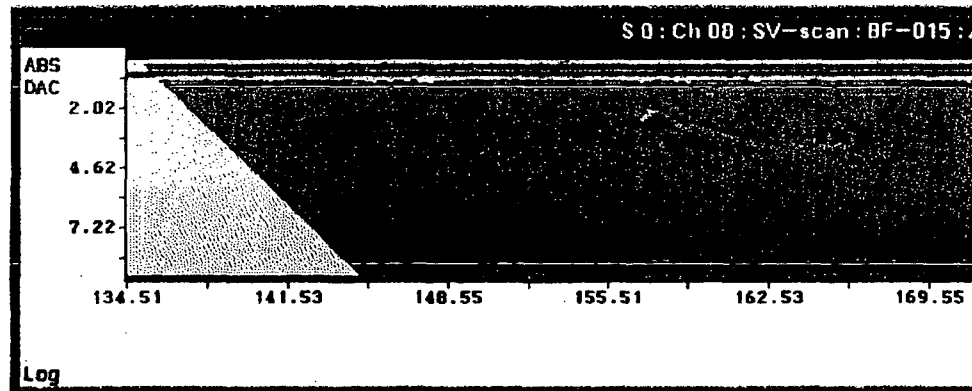
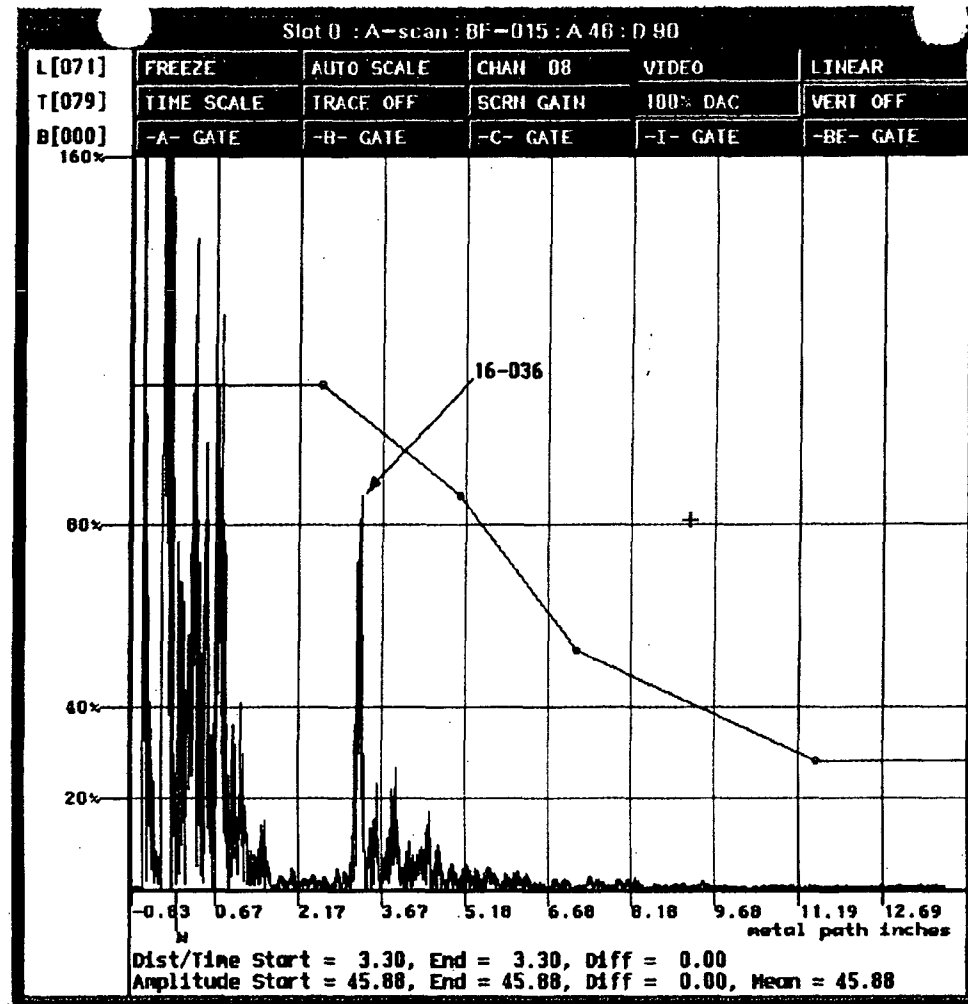
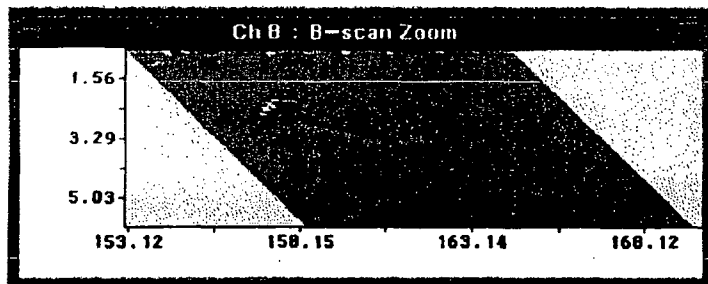
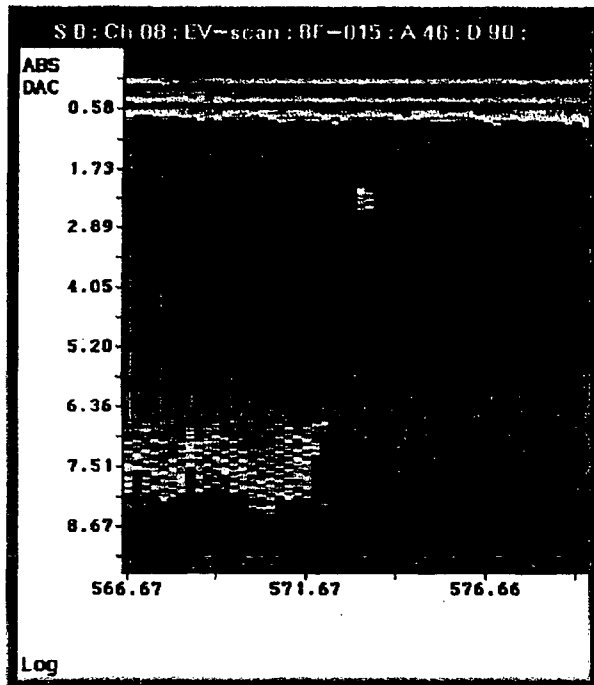
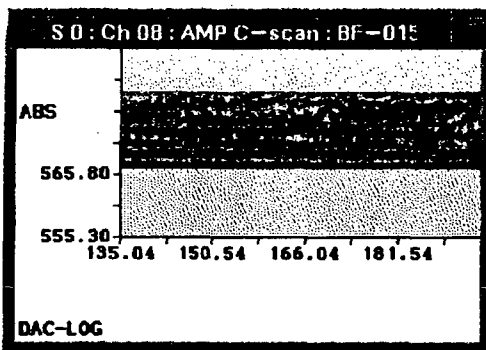
18308245  
K1152  
00546

S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

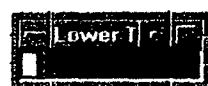
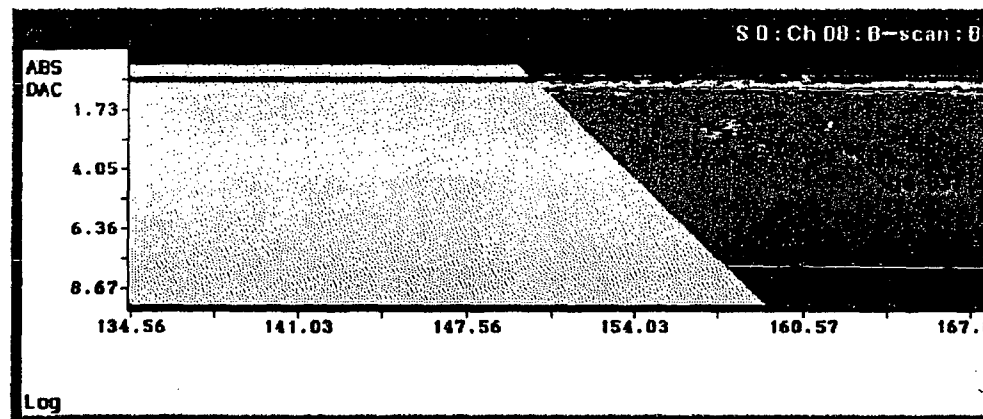
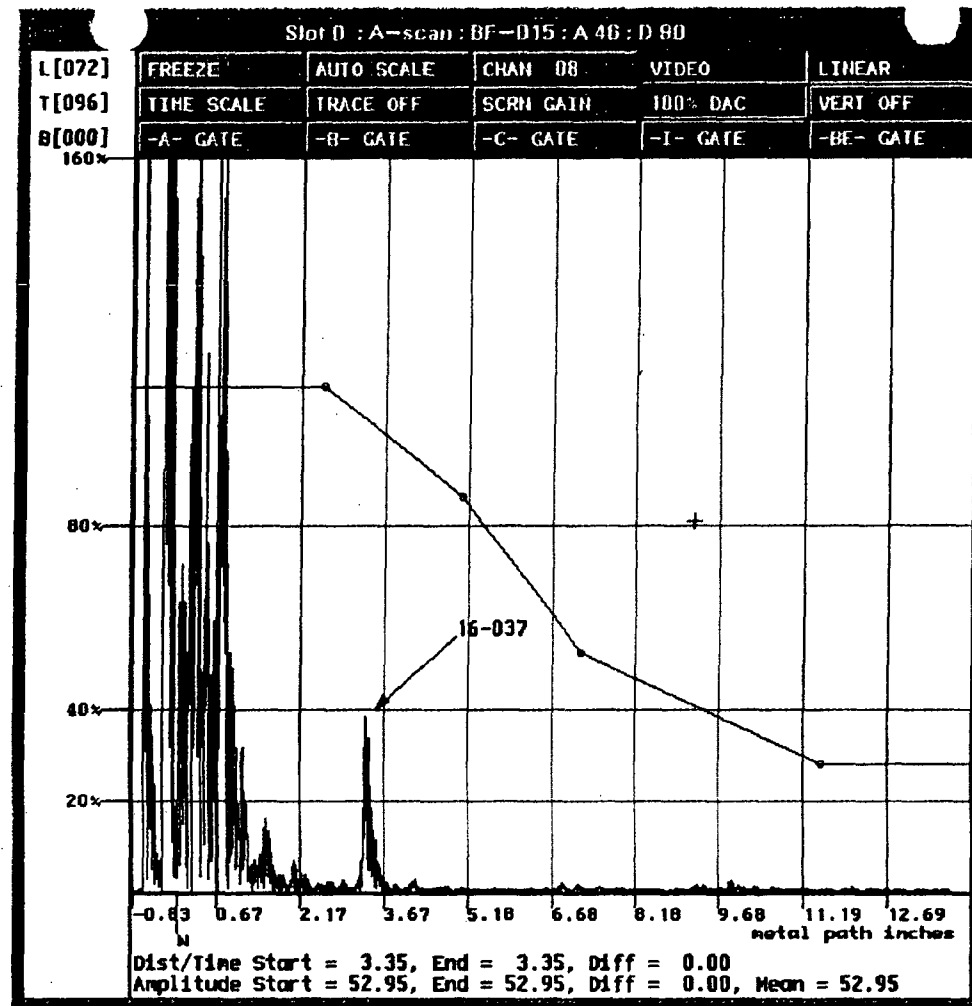
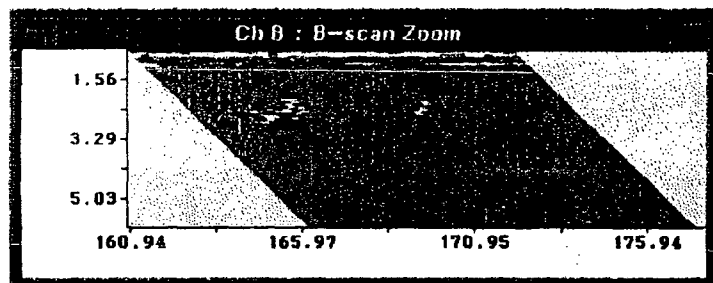
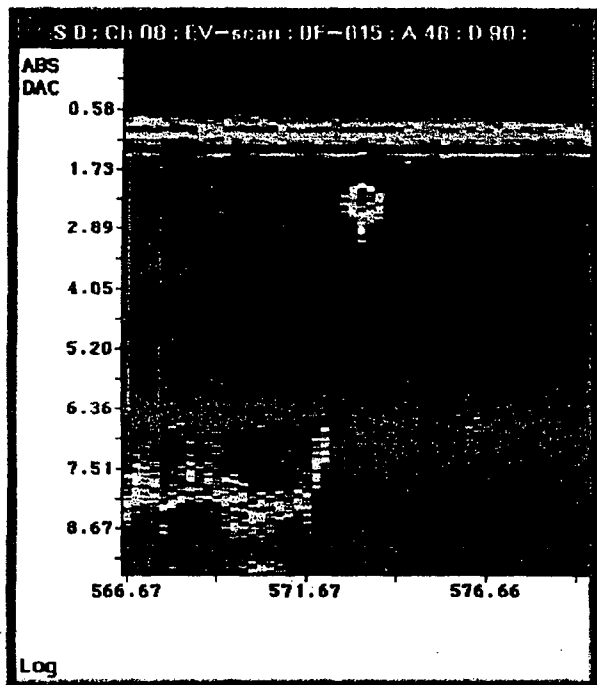
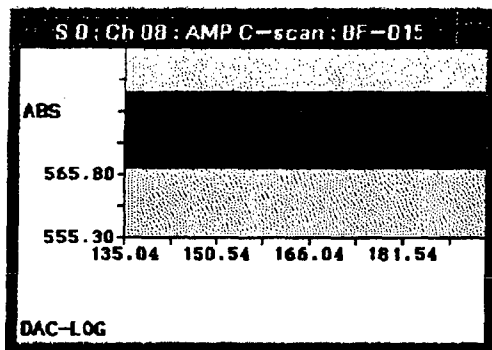
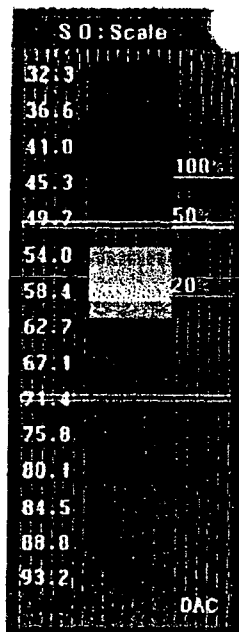
100  
50  
20

DAC

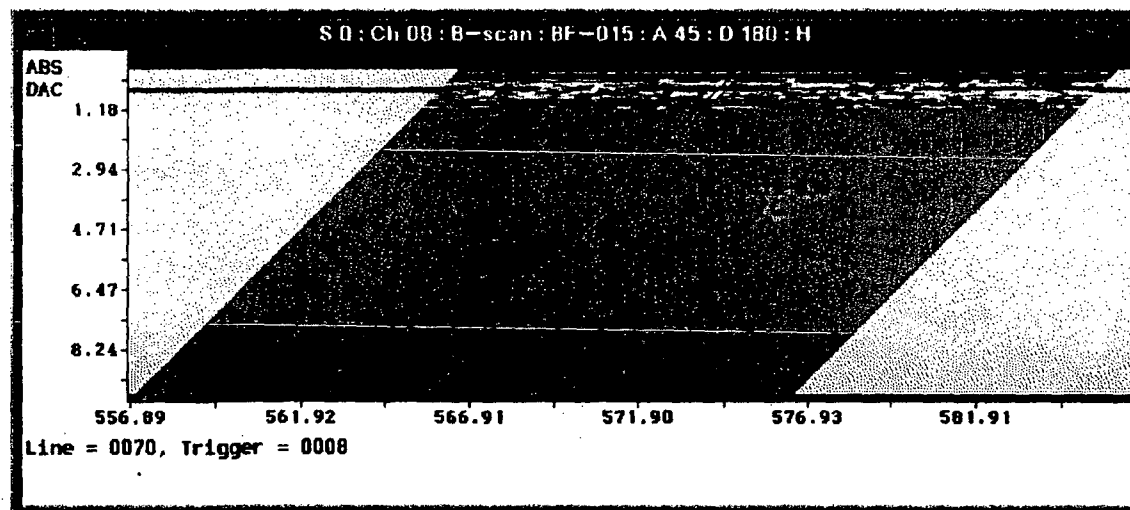
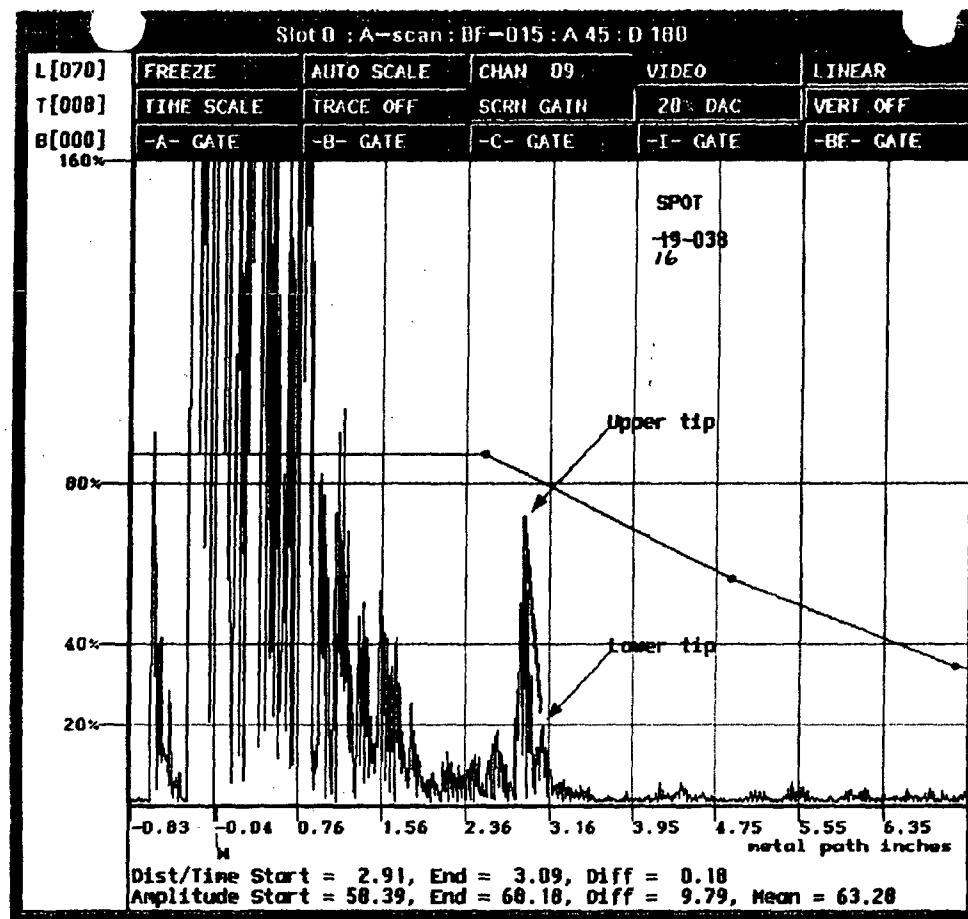
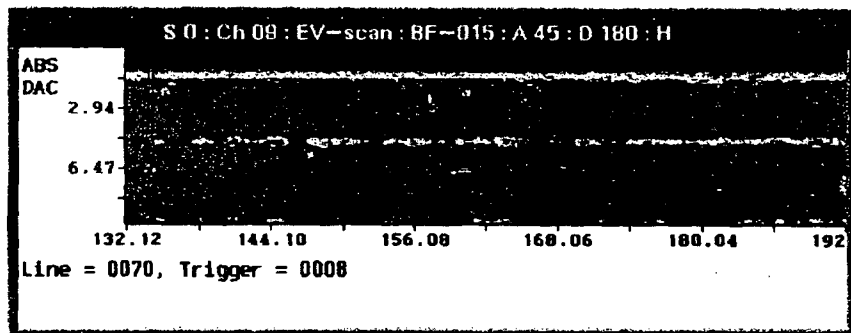
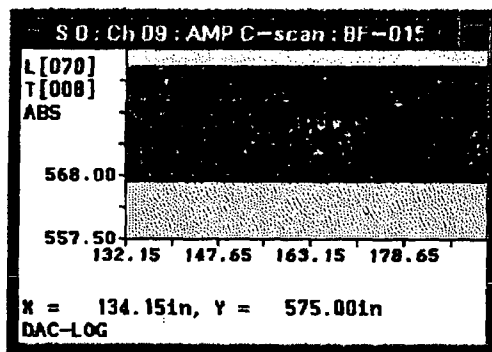
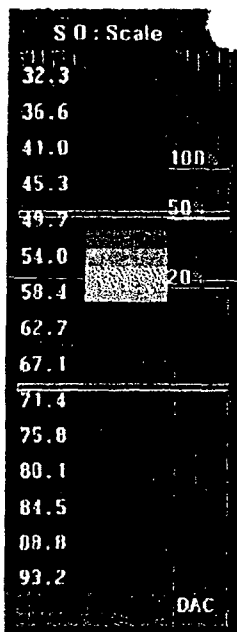


Lower T

184 of 245  
R1152547



185 of 245  
R1152  
UUC48



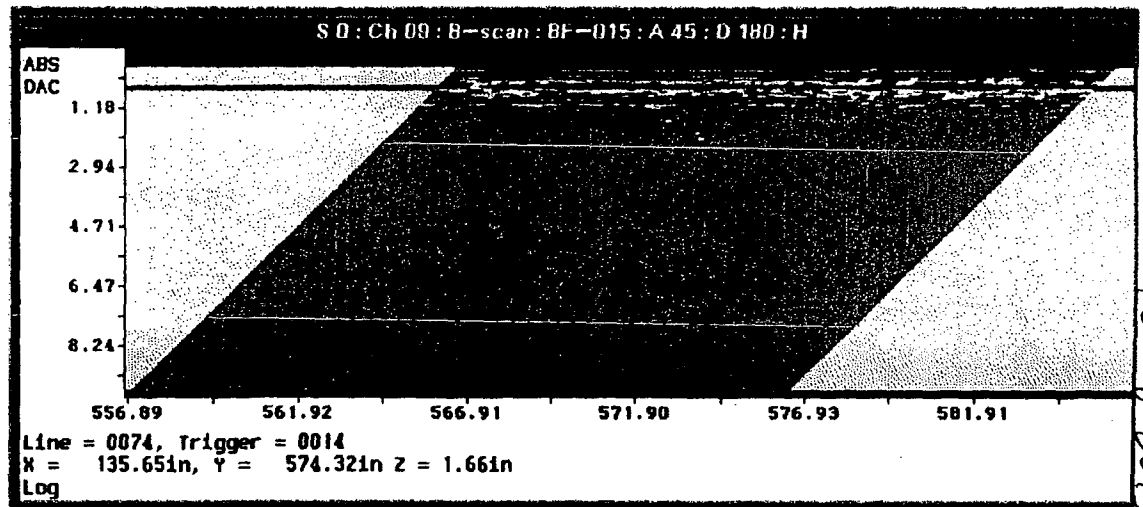
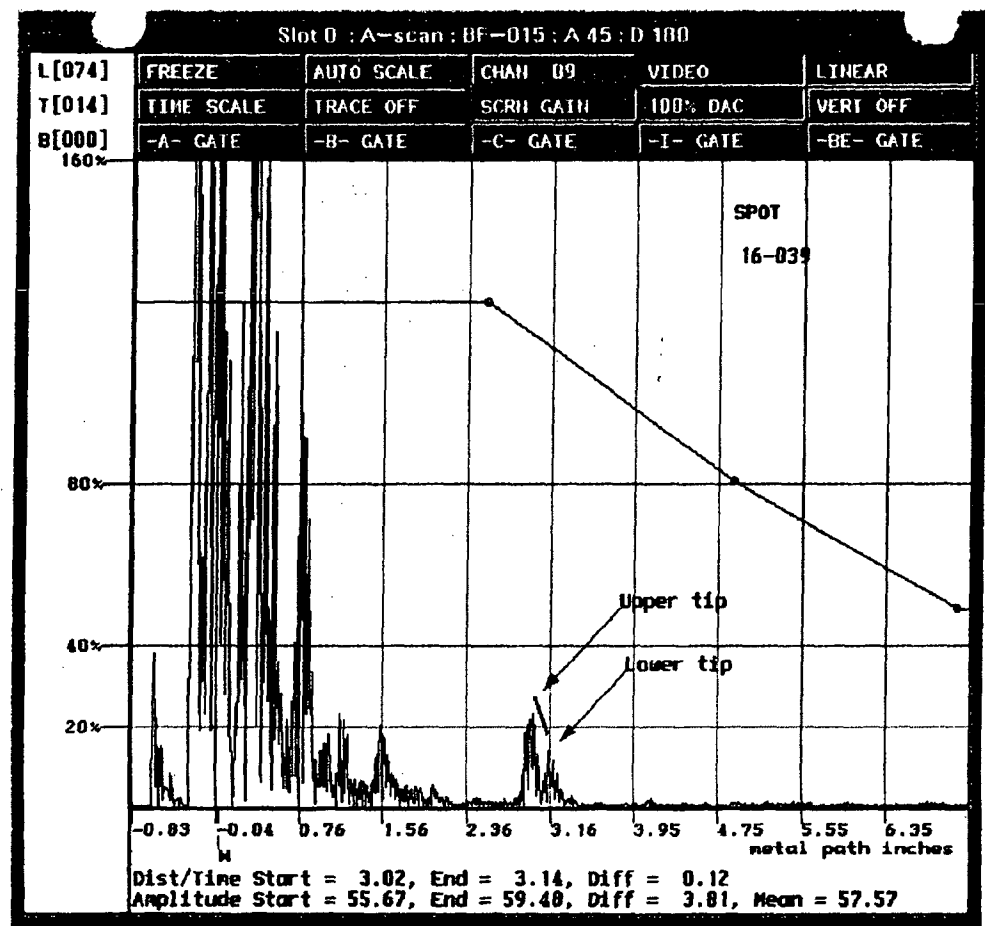
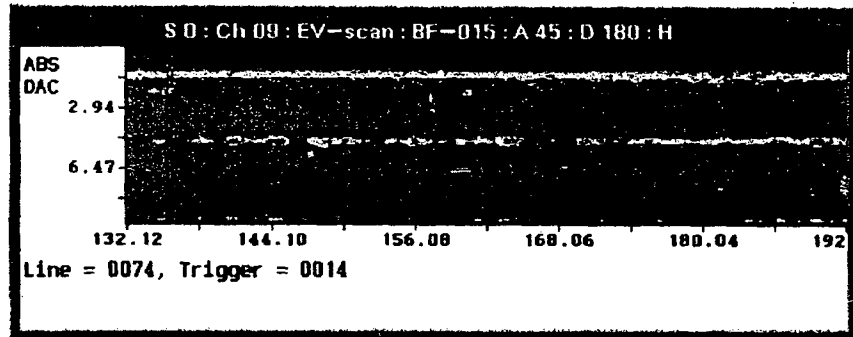
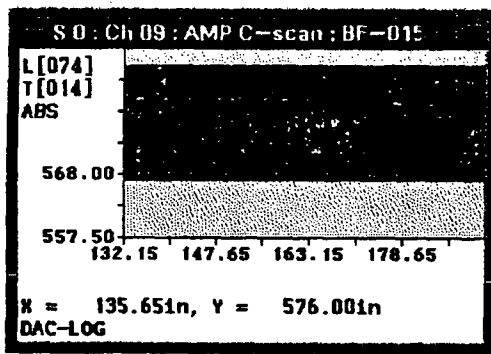
18608245  
21192549

S 0 : Scale

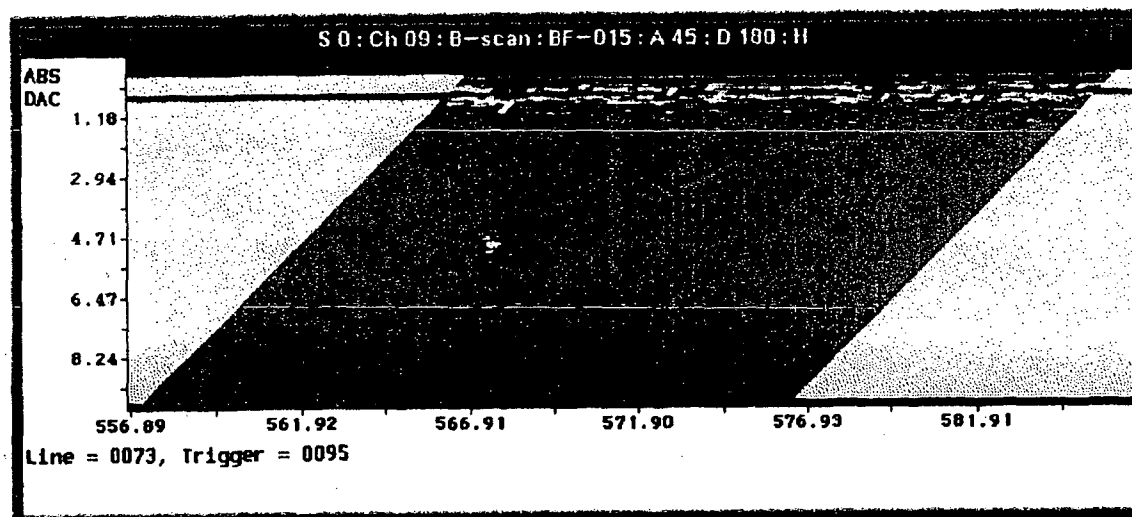
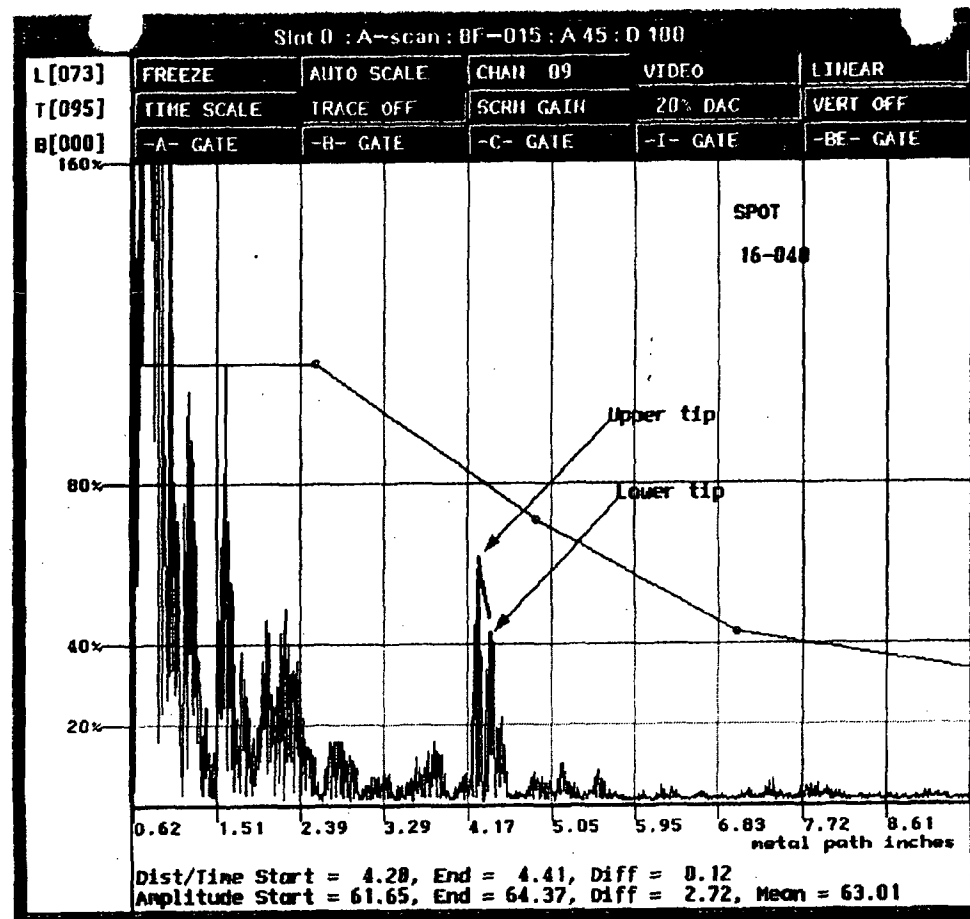
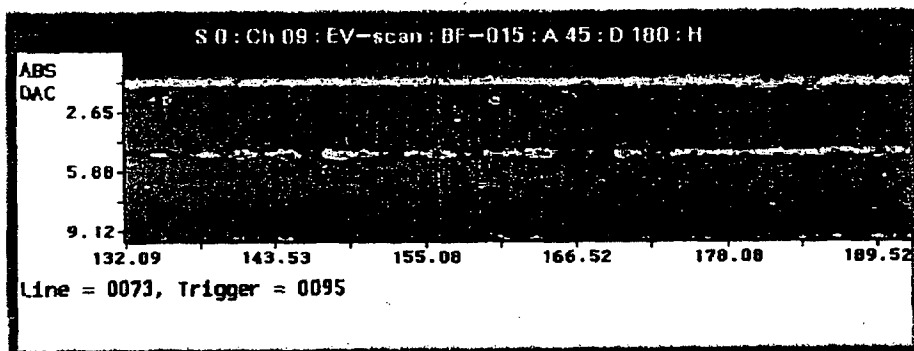
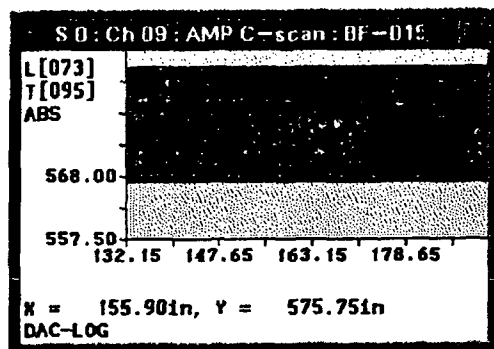
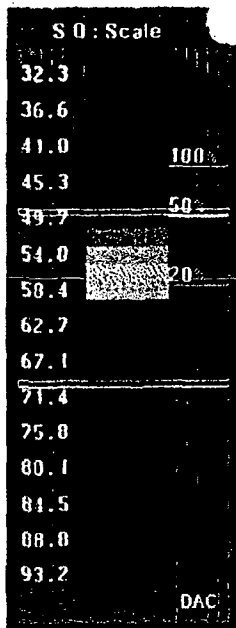
32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC

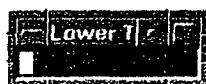
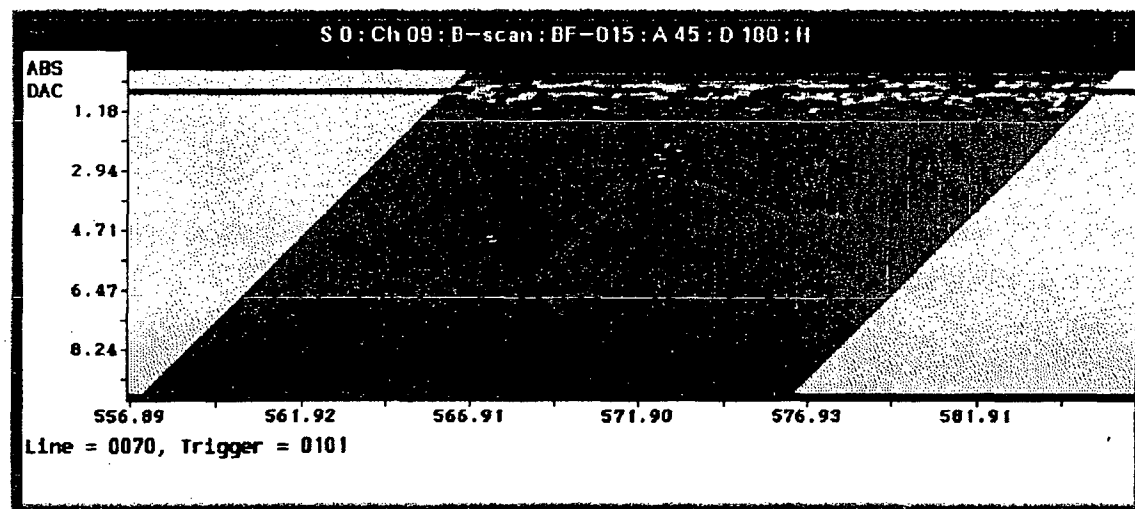
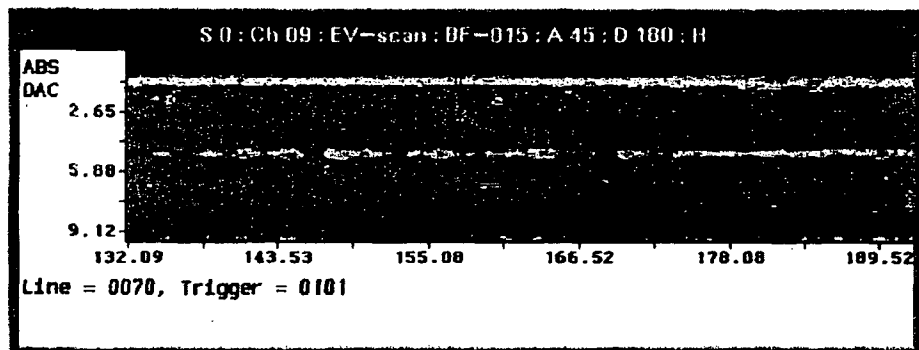
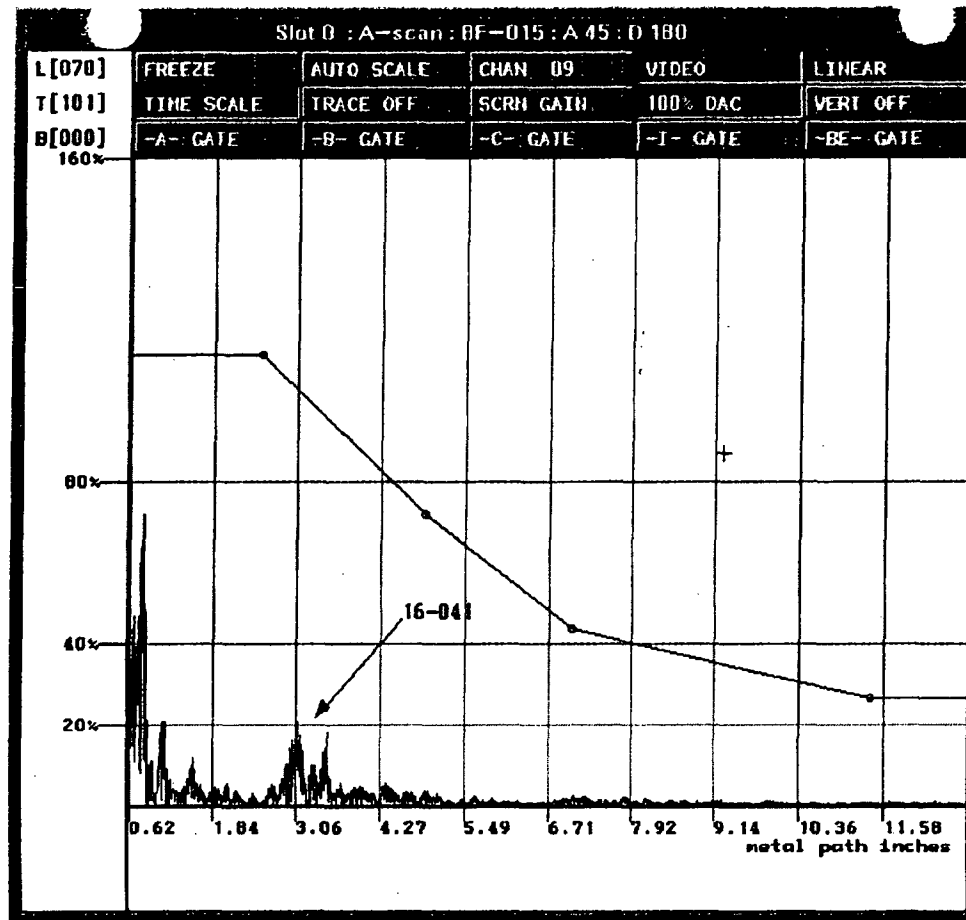
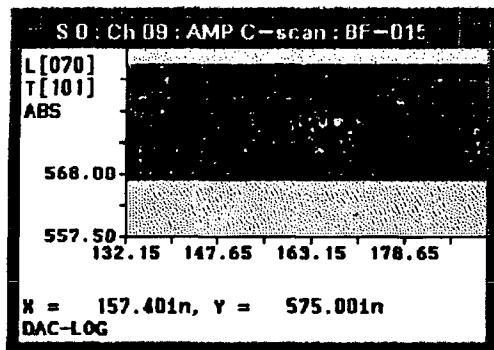
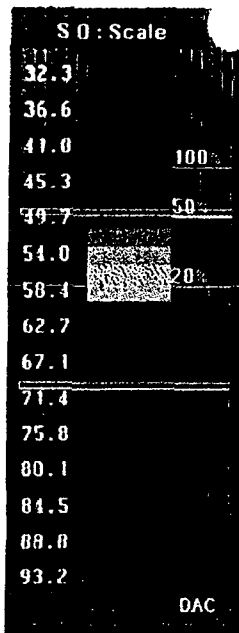


1870245  
R1152  
00550



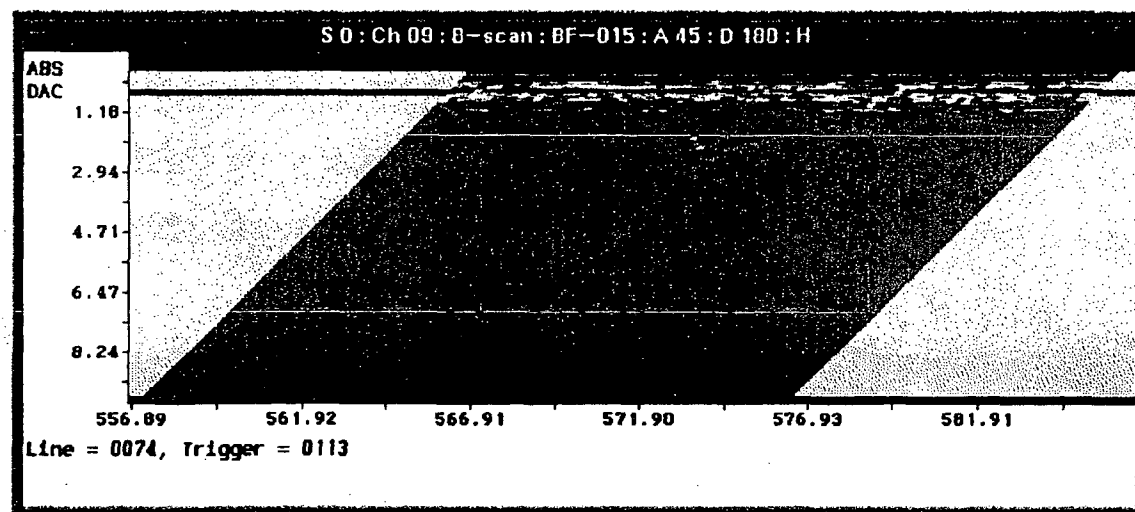
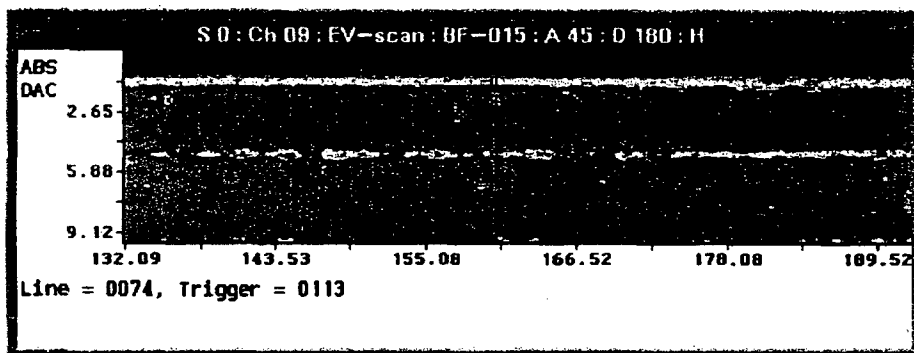
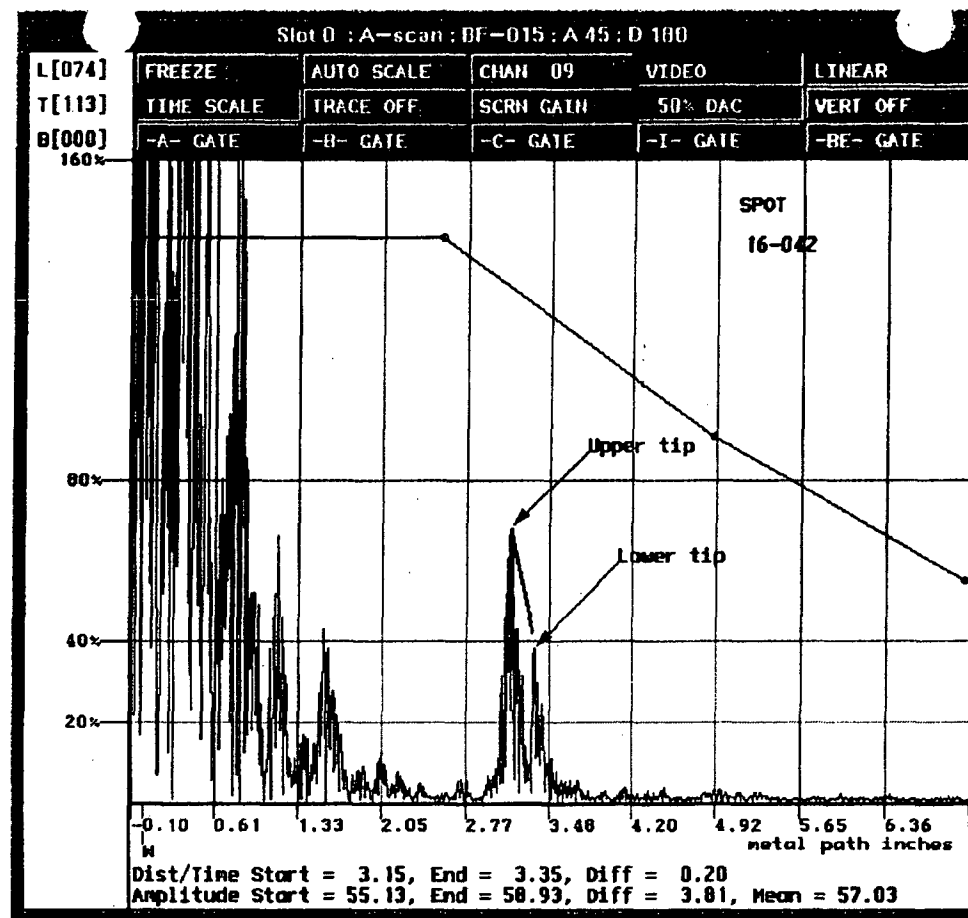
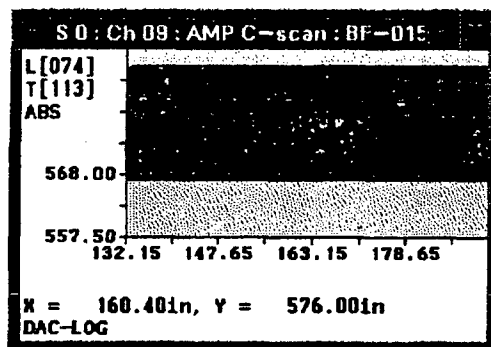
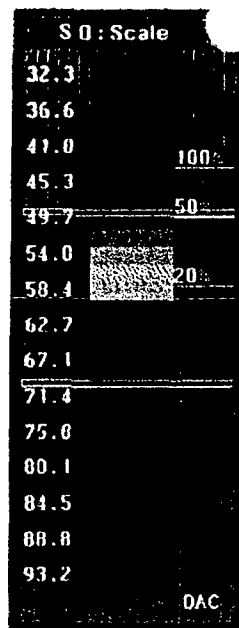
18808245  
200551  
21152



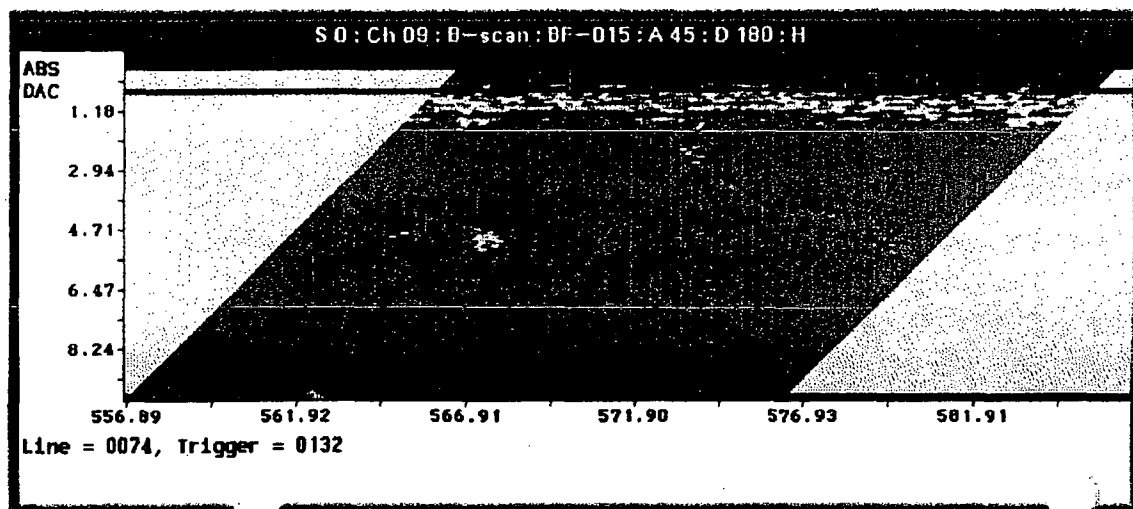
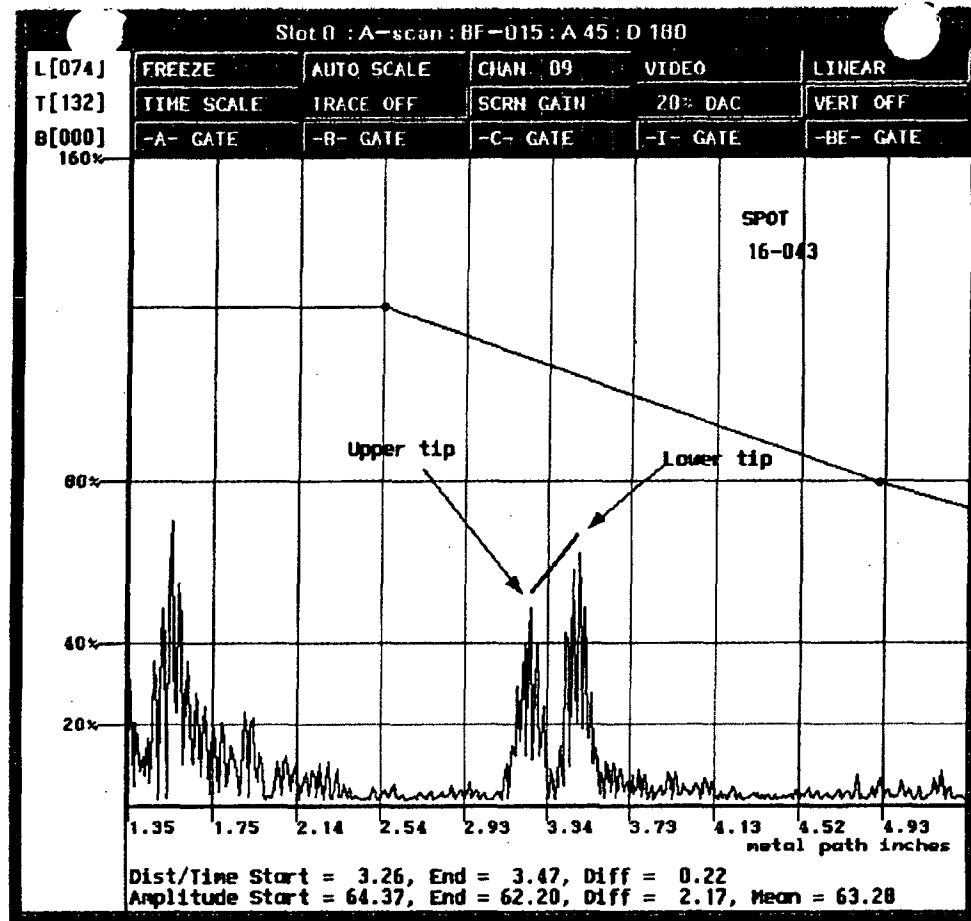
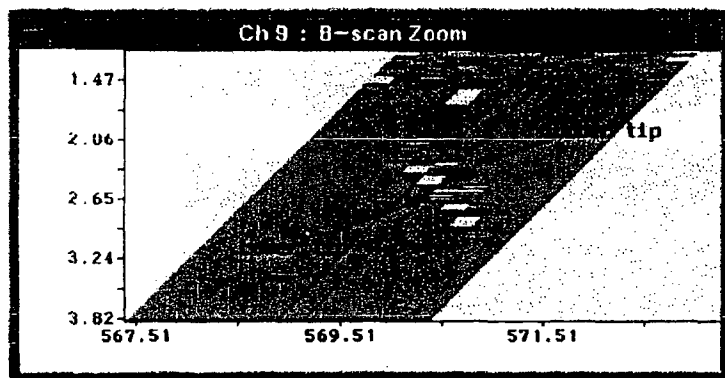
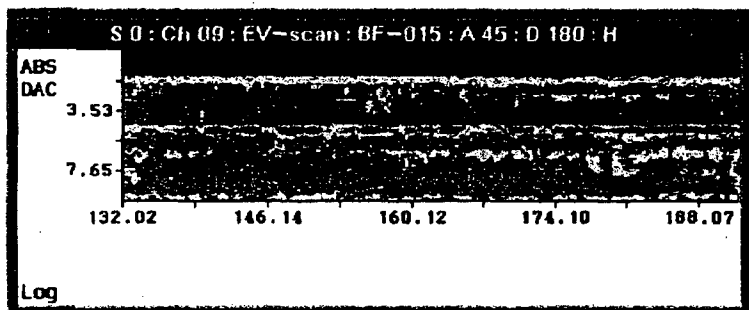
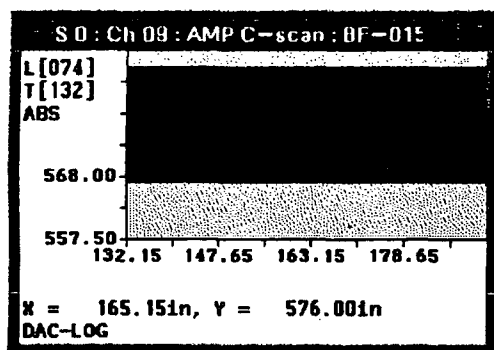
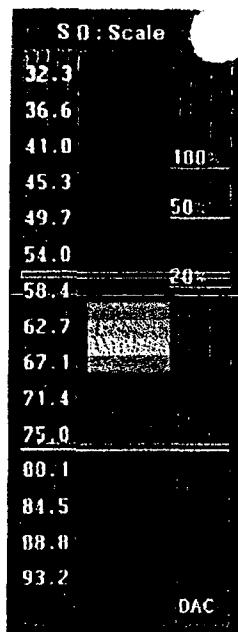


18906245

00552  
21152



00553  
21152  
1908245



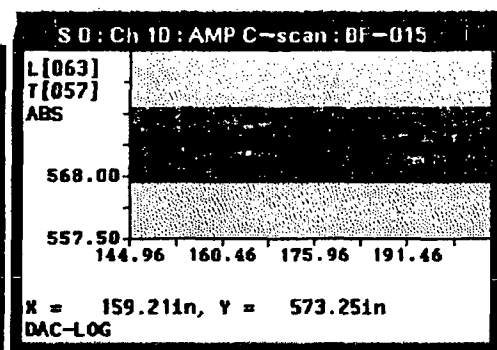
191 of 245  
R1152  
0055A

S 0 : Scale

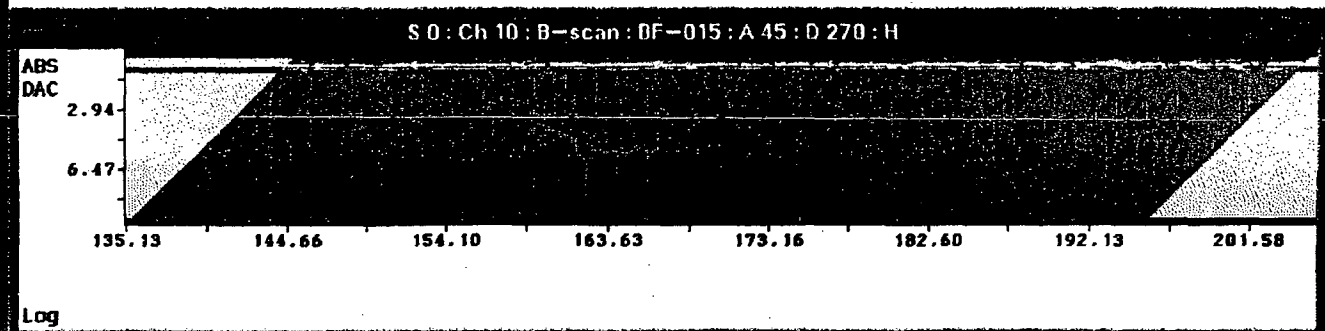
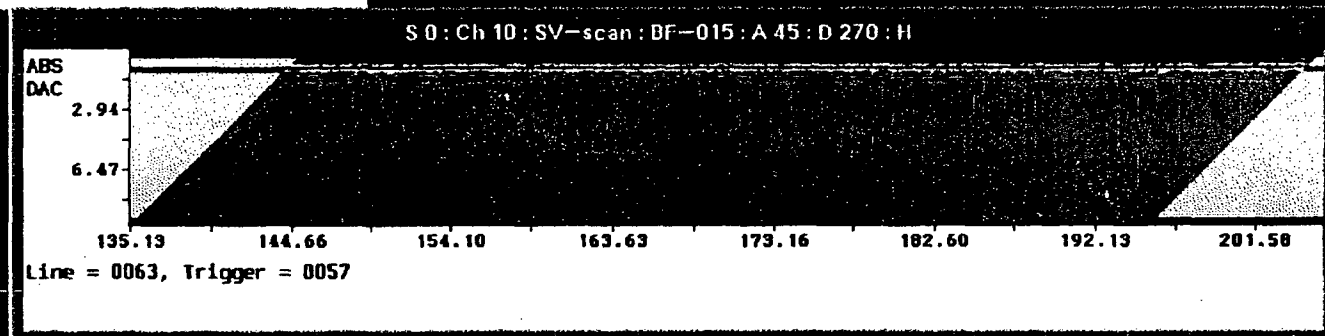
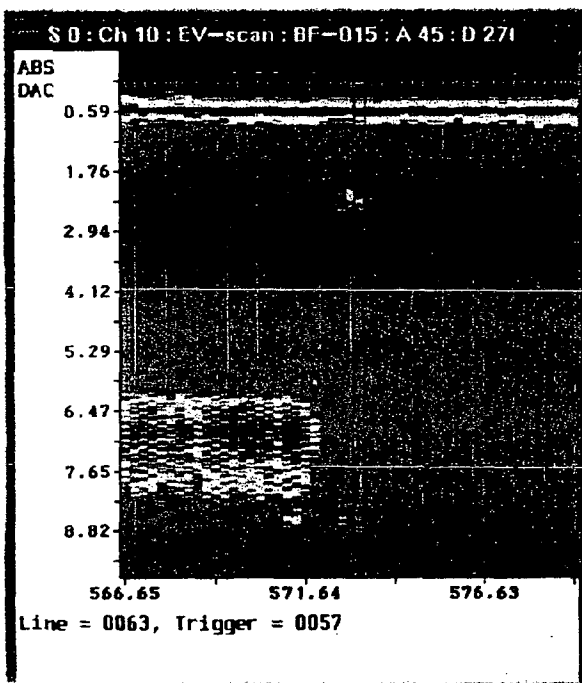
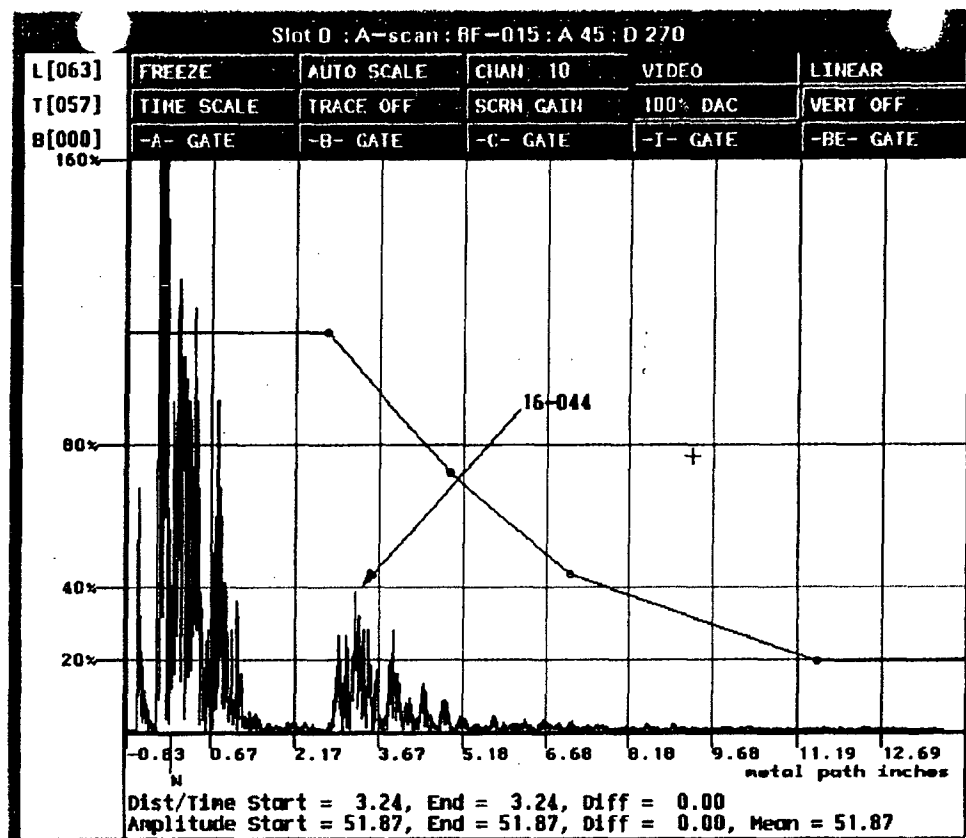
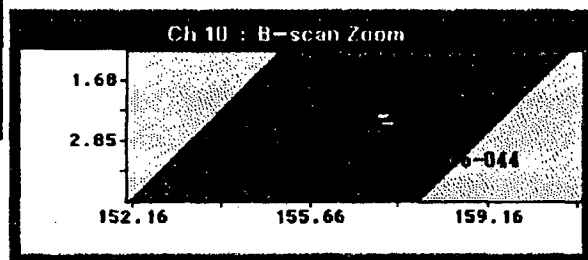
32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100  
50  
20

DAC



Lower T



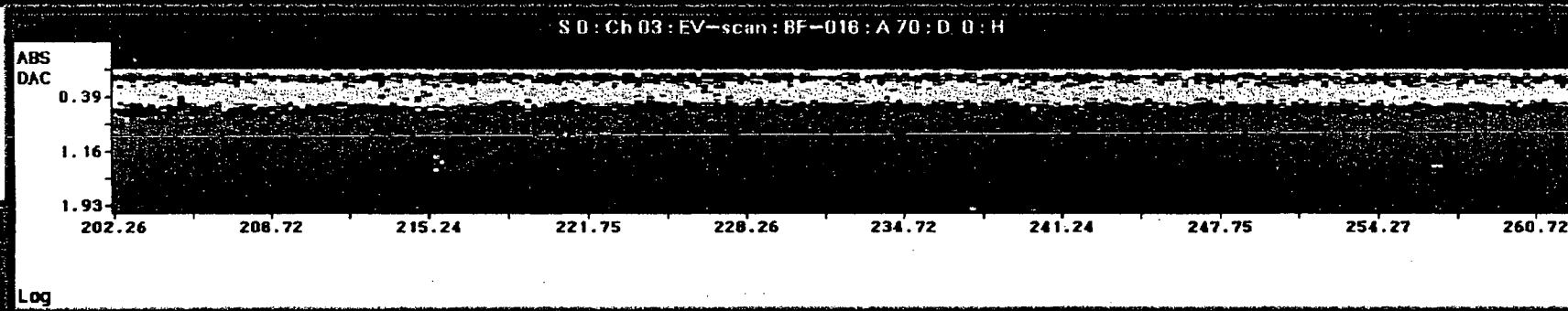
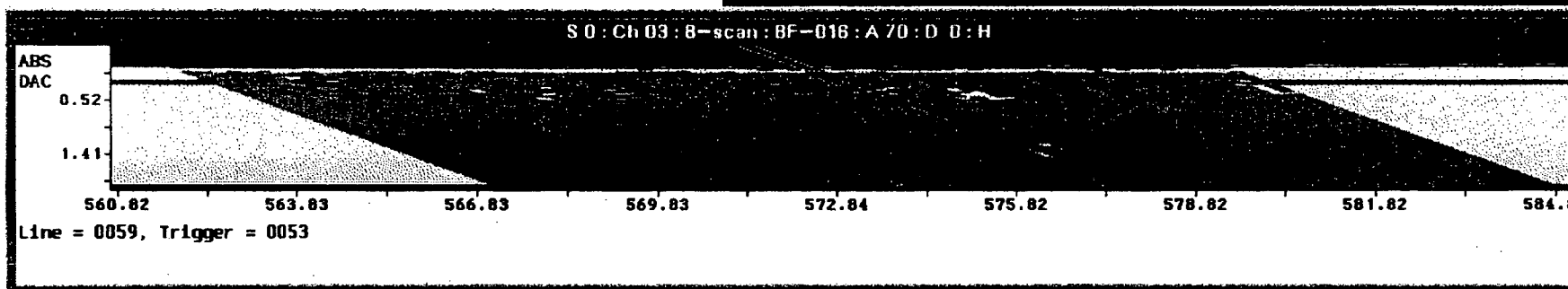
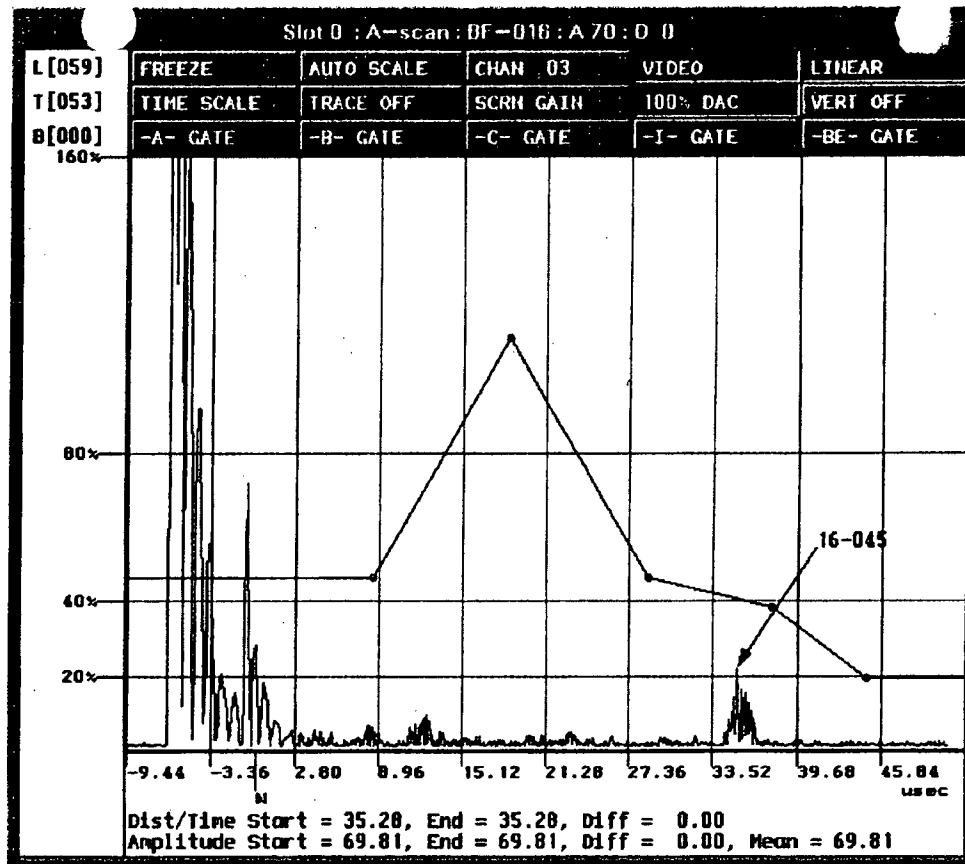
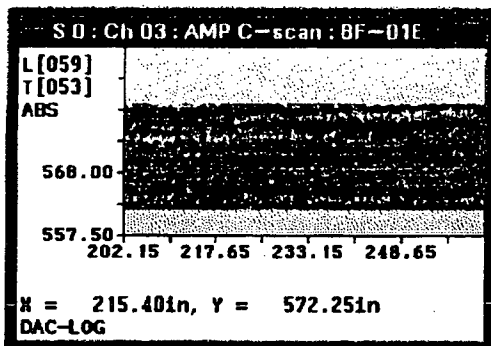
1924-295  
R1152  
00555

S D : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.0  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC



1936245

00556  
21152

S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC

S 0 : Ch 03 : AMP C-scan : BF-01E

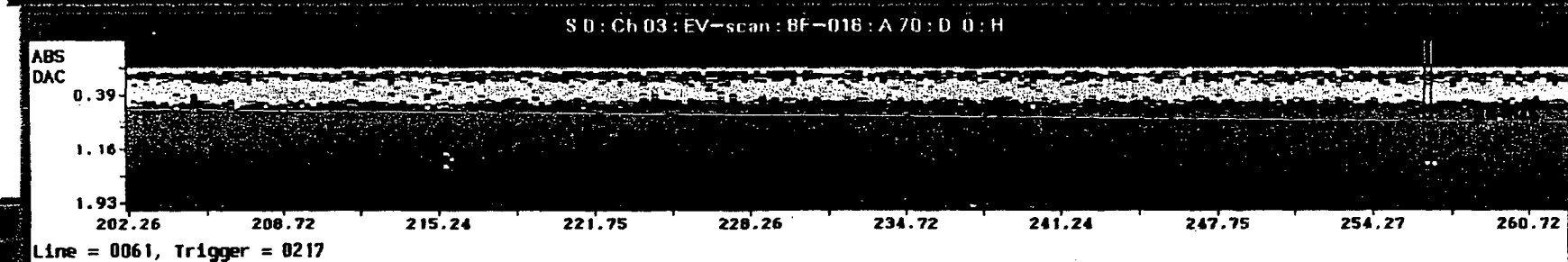
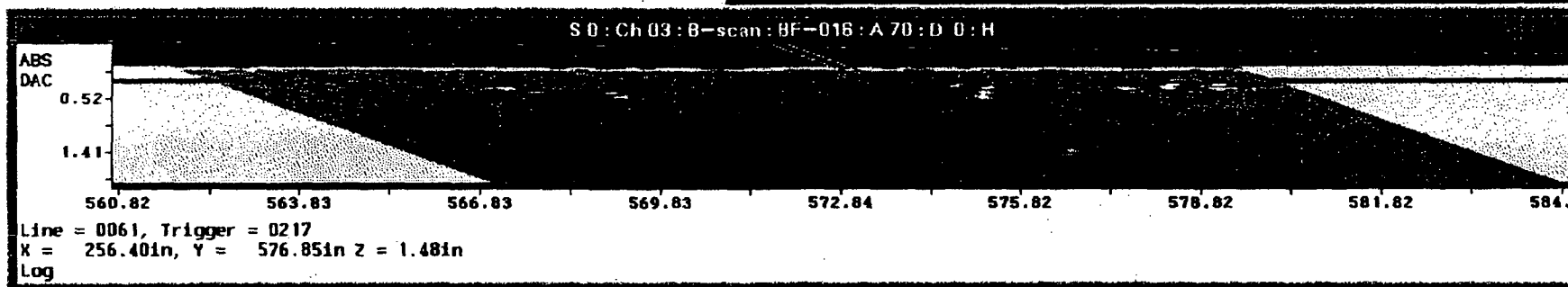
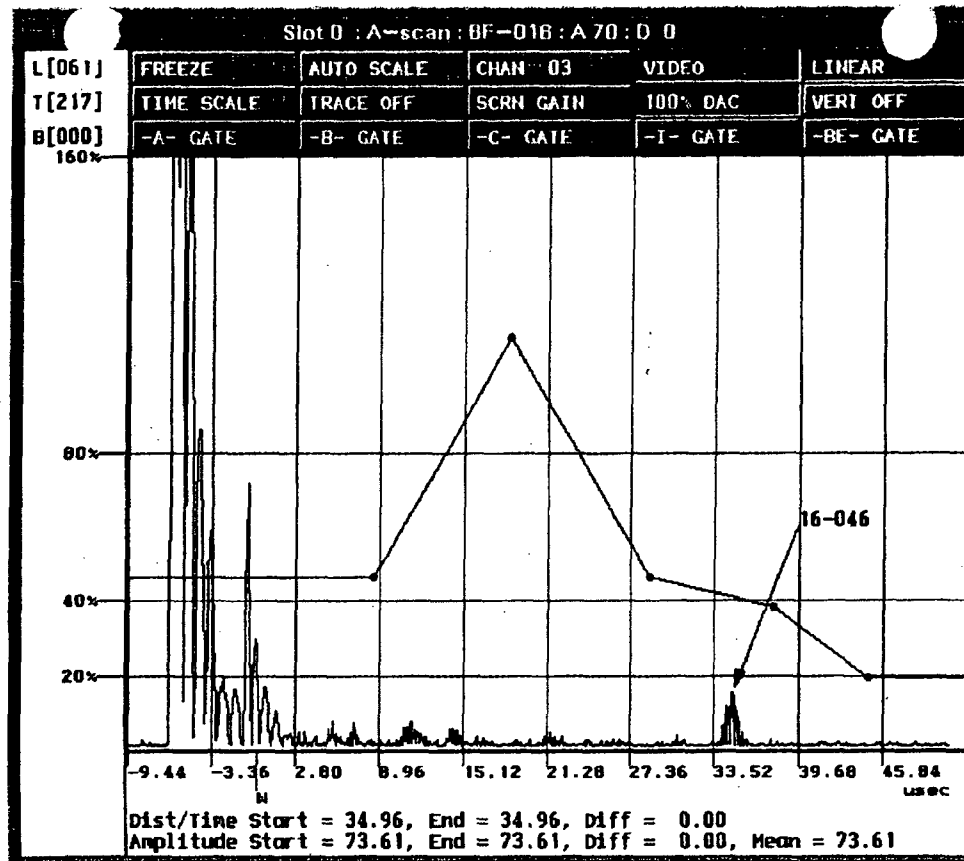
L[061]  
T[217]  
ABS

568.00  
557.50

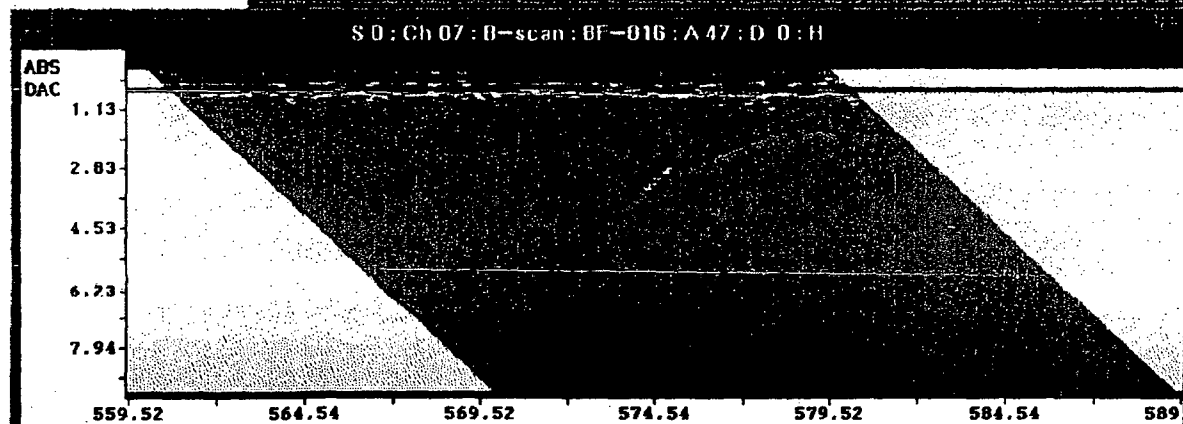
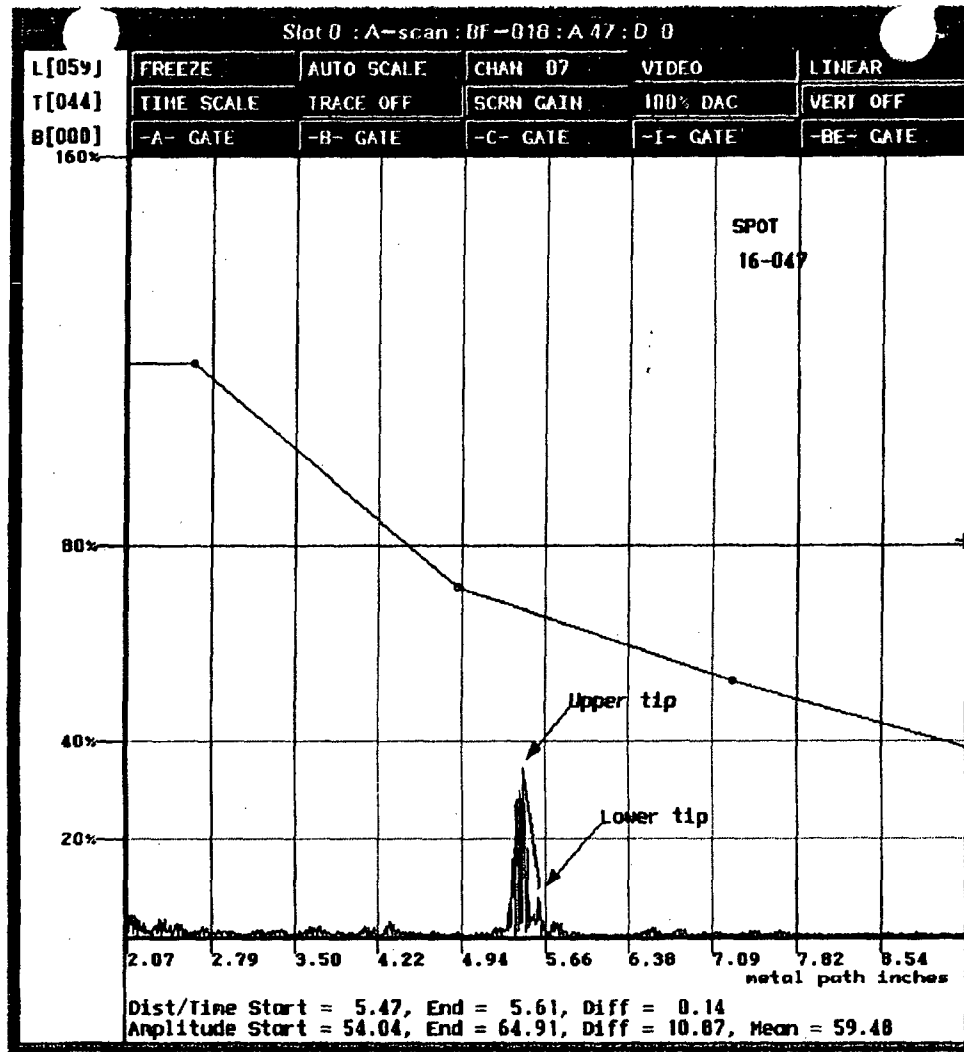
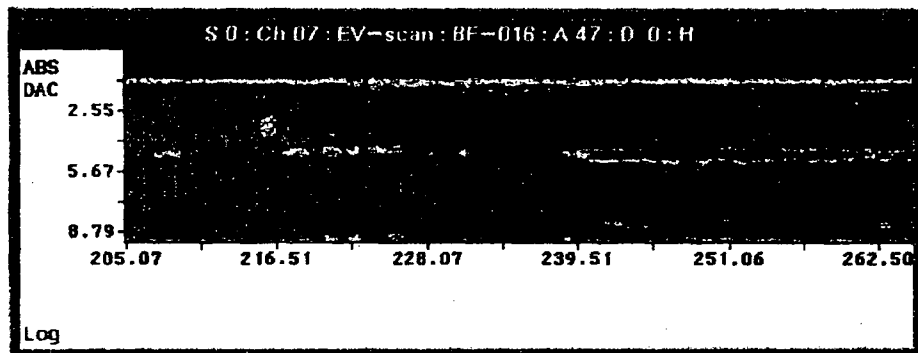
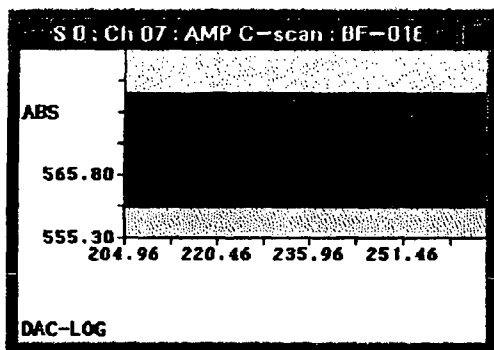
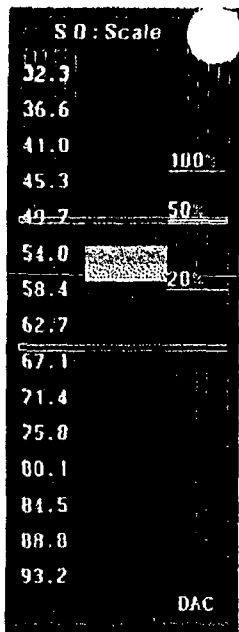
202.15 217.65 233.15 248.65

X = 256.40in, Y = 572.75in  
DAC-LOG

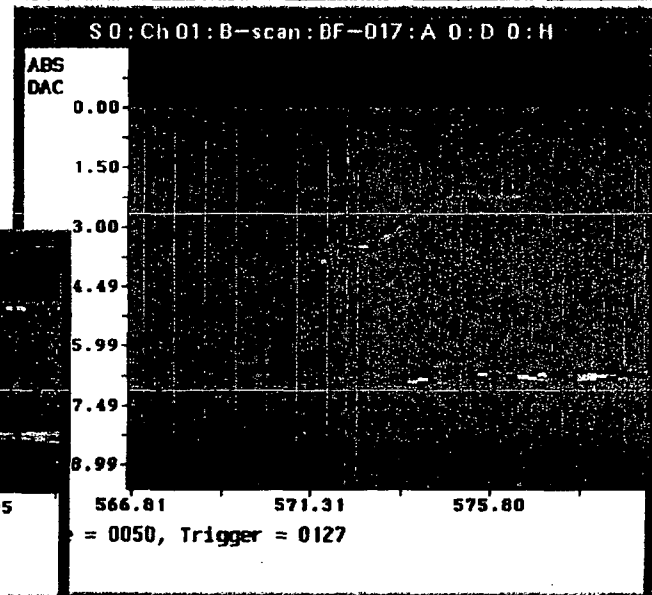
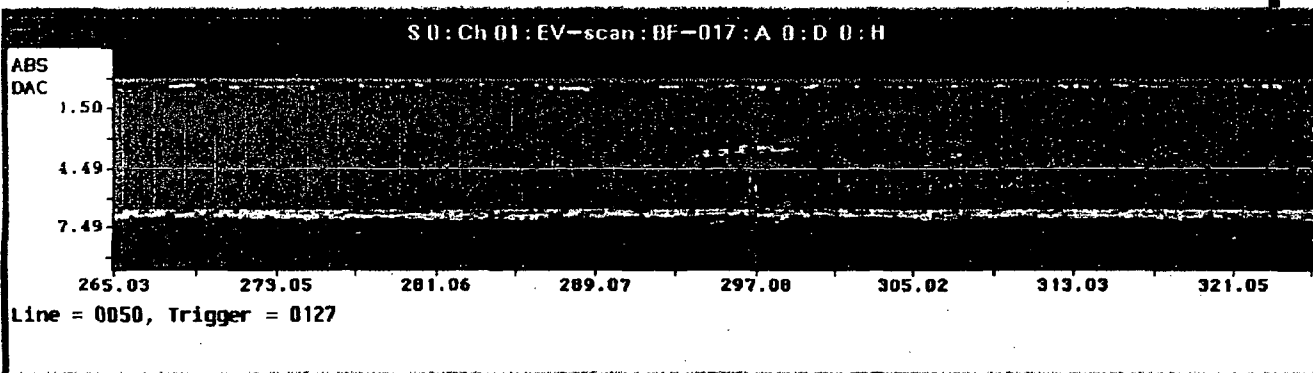
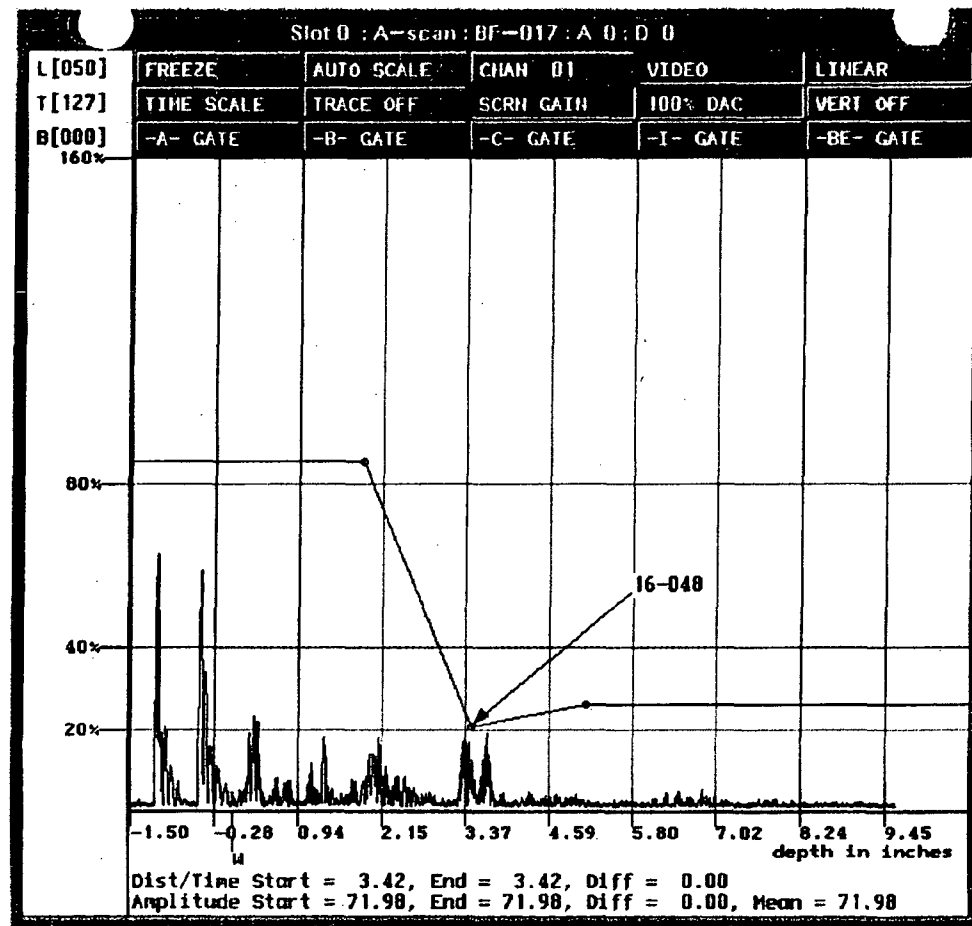
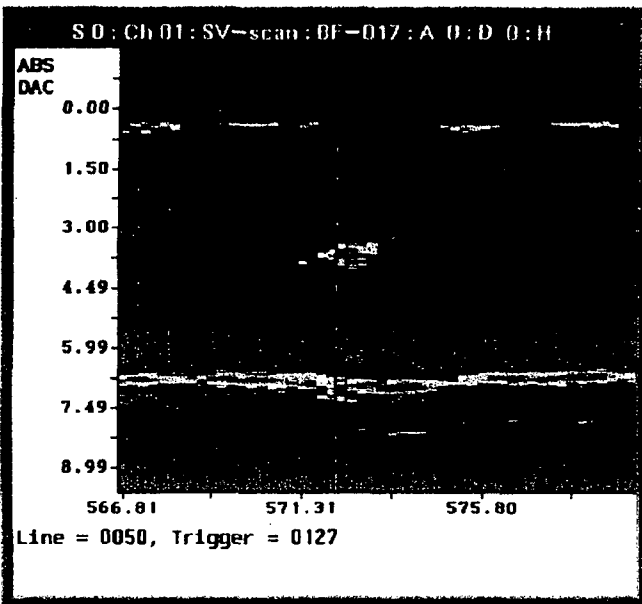
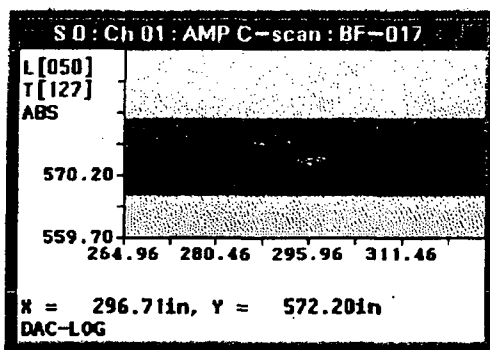
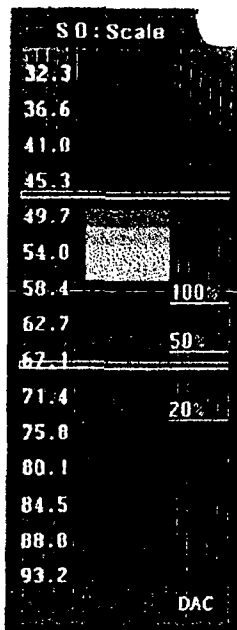
Lower T



21152  
19908 295  
00557



R1152  
19506245  
00558



00559  
21152  
19604245



S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

DAC

S 0 : Ch 02 : AMP C-scan : BF-017

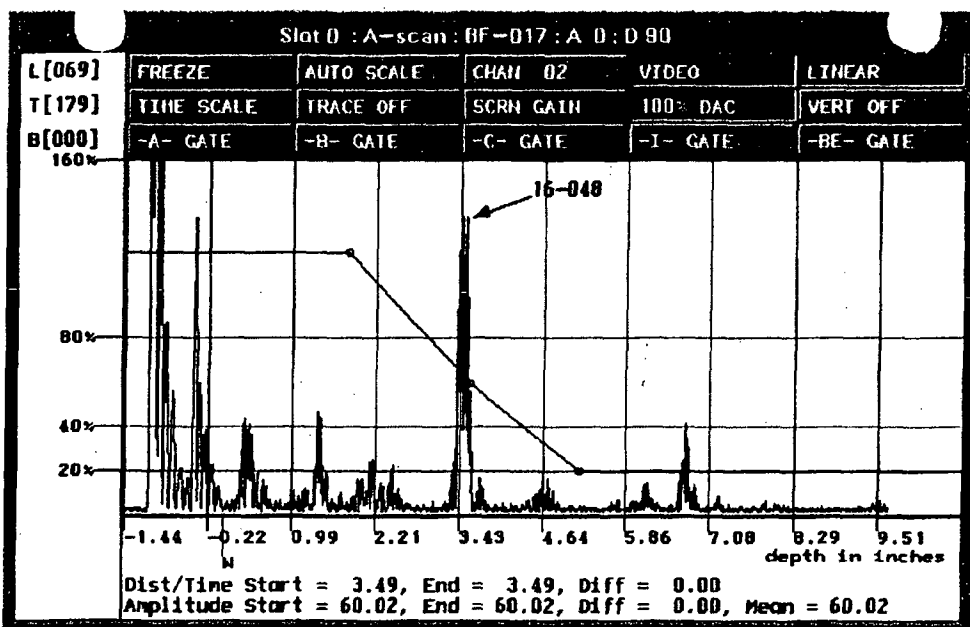
L[069]  
T[179]  
ABS

565.80  
555.30

252.15 267.65 283.15 298.65

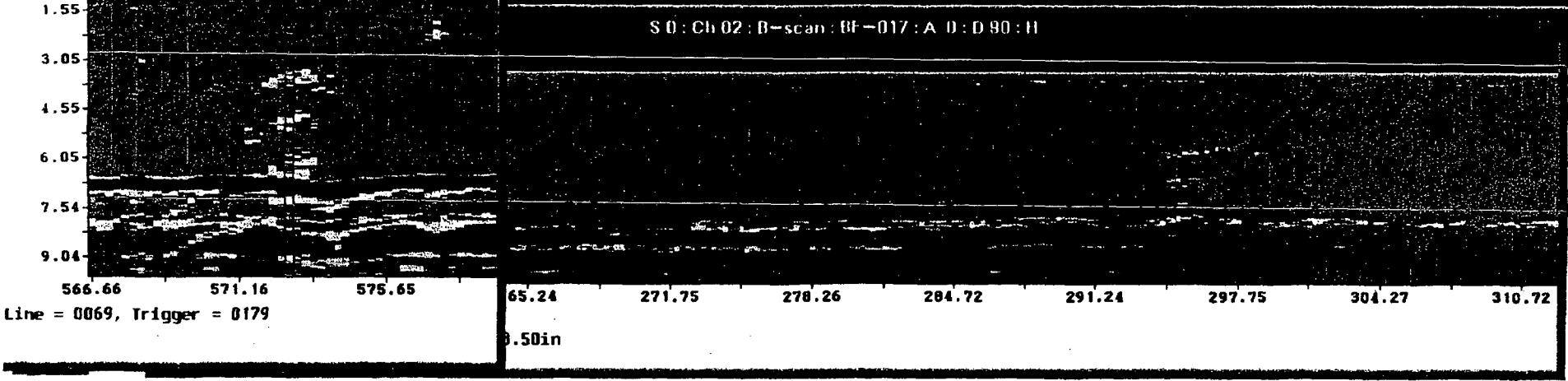
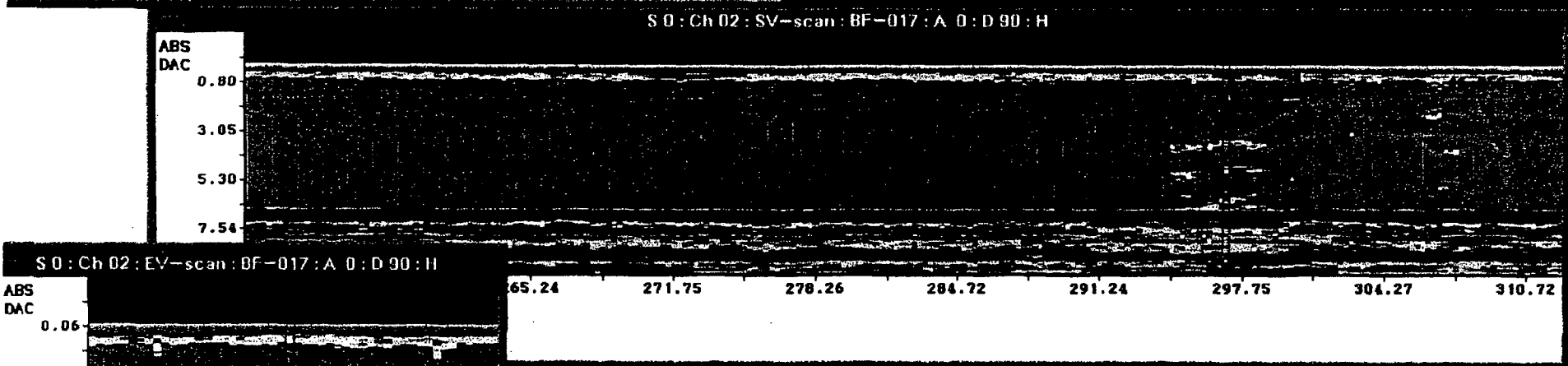
X = 296.90in, Y = 572.55in  
DAC-LOG

Lower



ABS  
DAC

0.80  
3.05  
5.30  
7.54



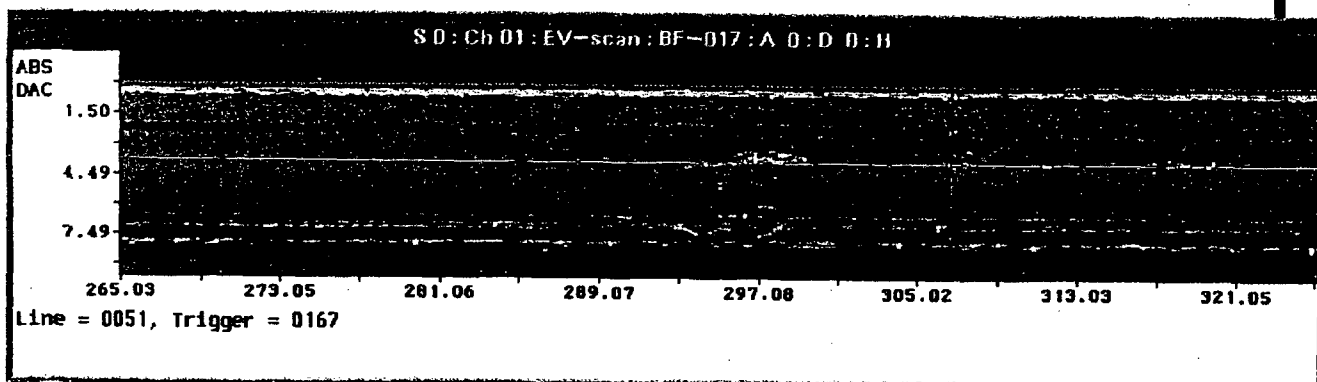
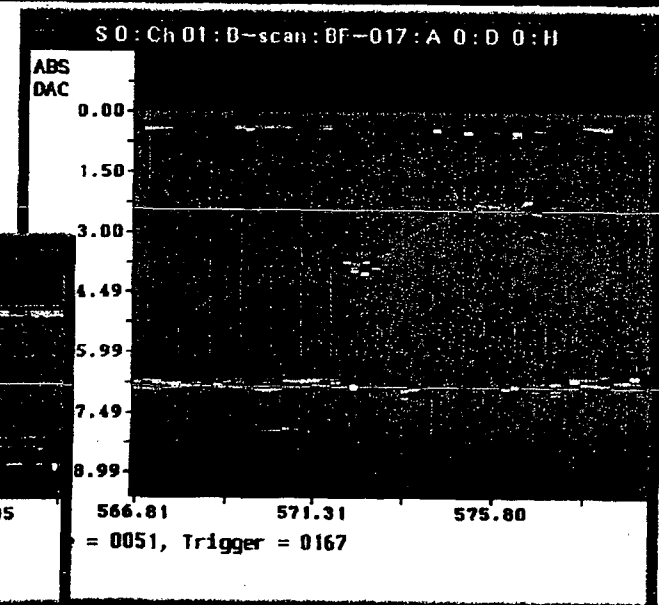
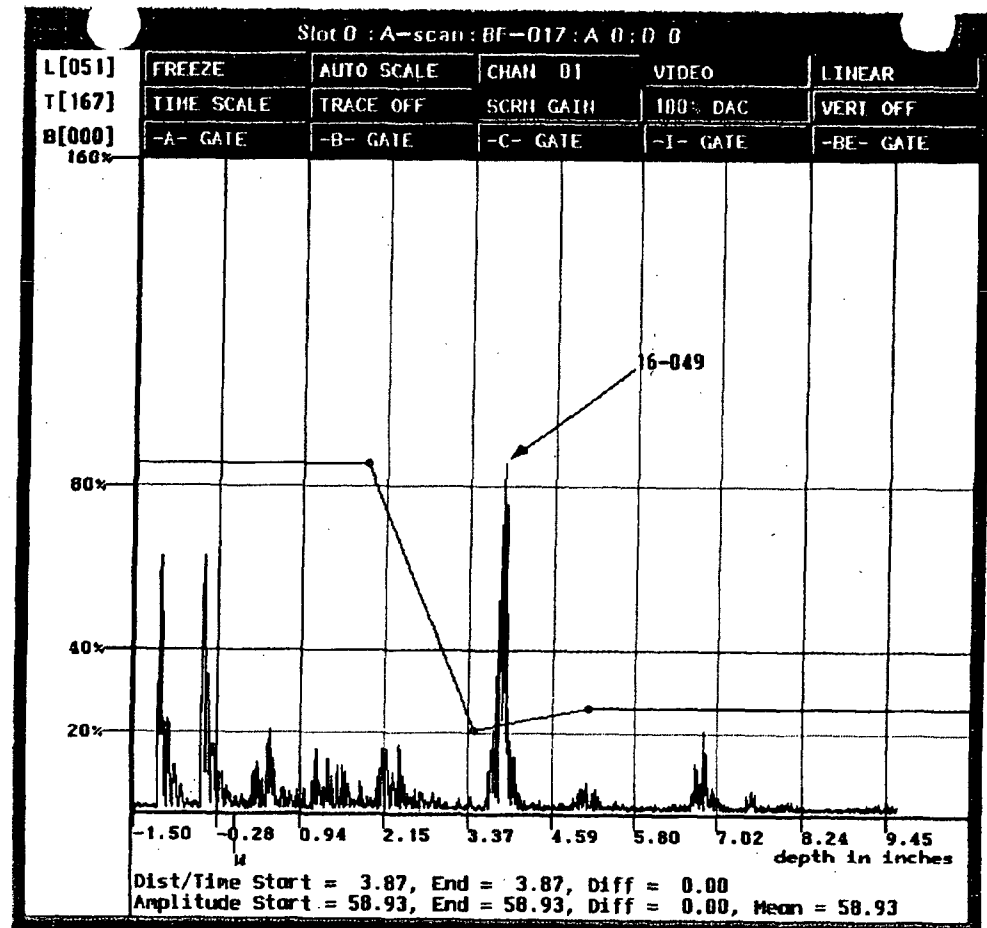
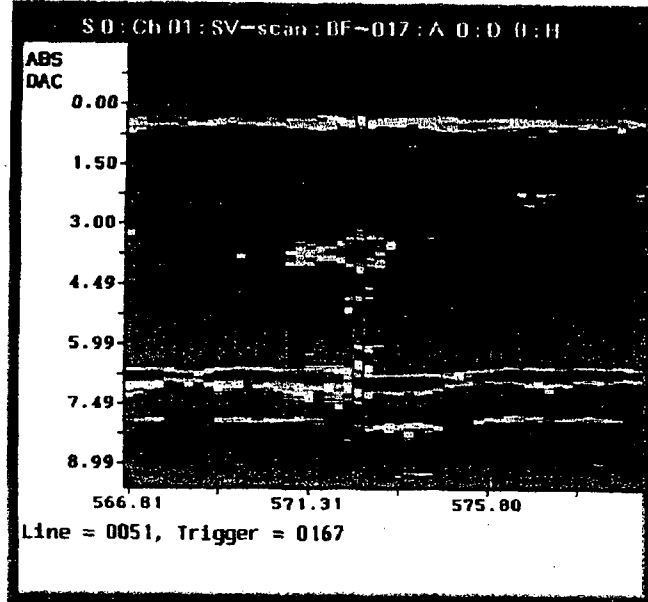
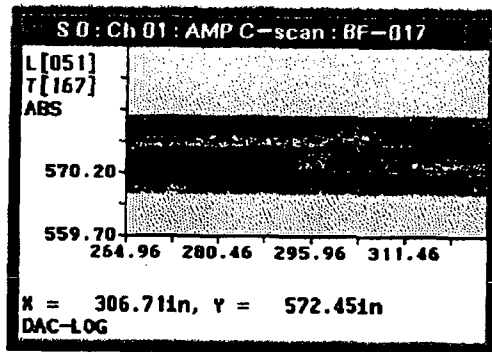
1978 245  
R1152  
60560

S D: Scale

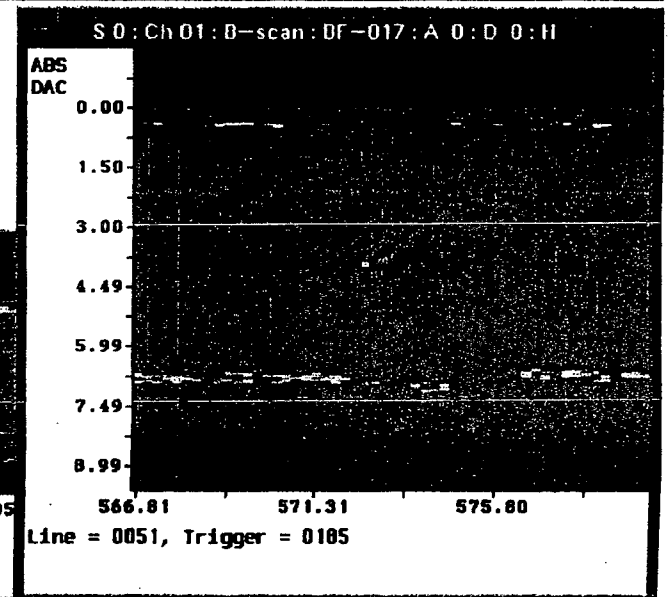
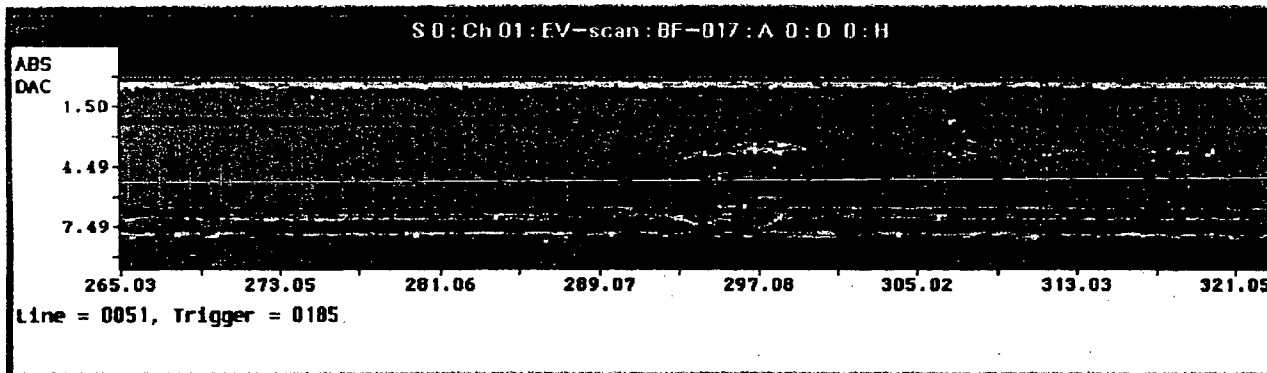
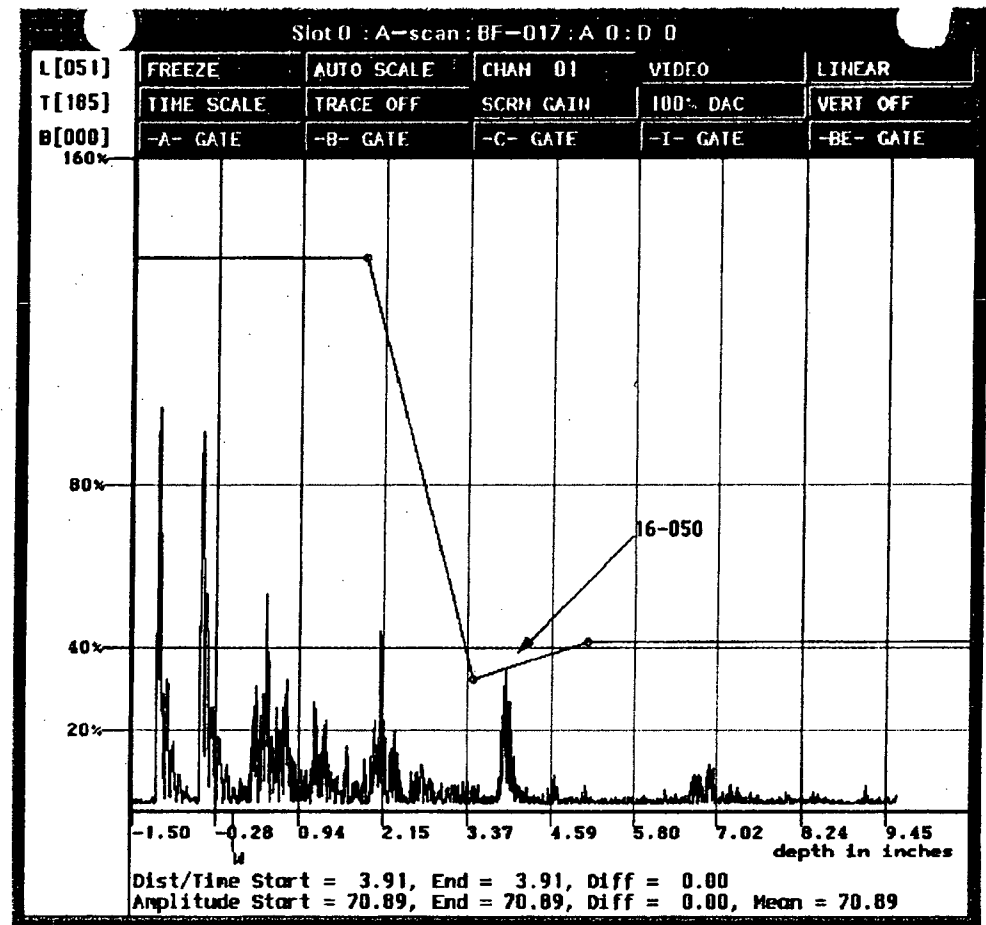
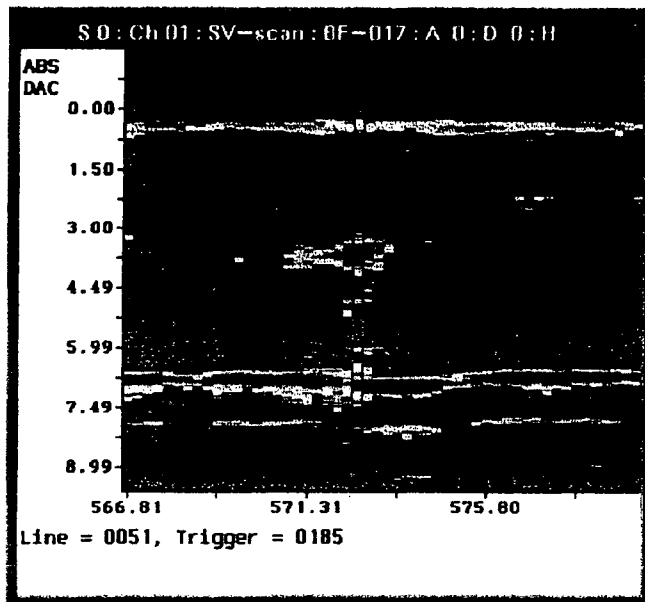
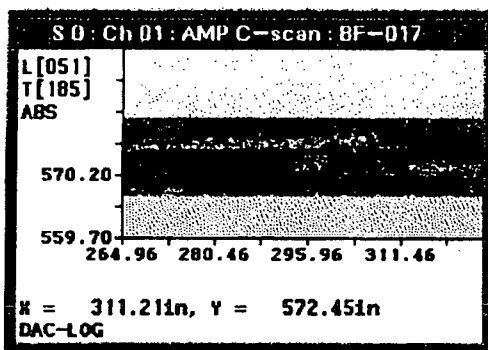
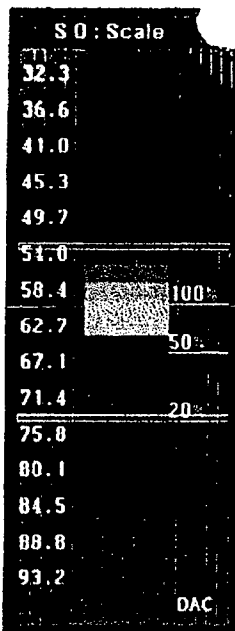
32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.0  
80.1  
84.5  
88.0  
93.2

100%  
50%  
20%

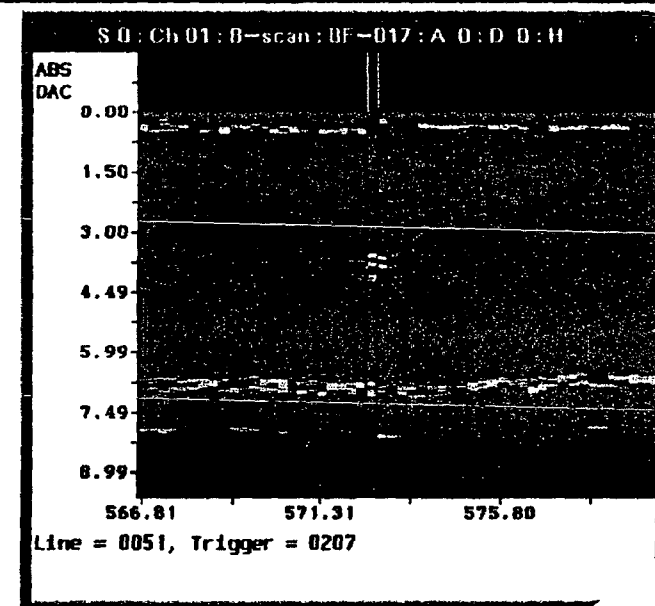
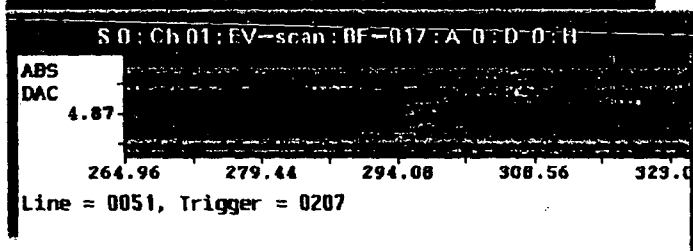
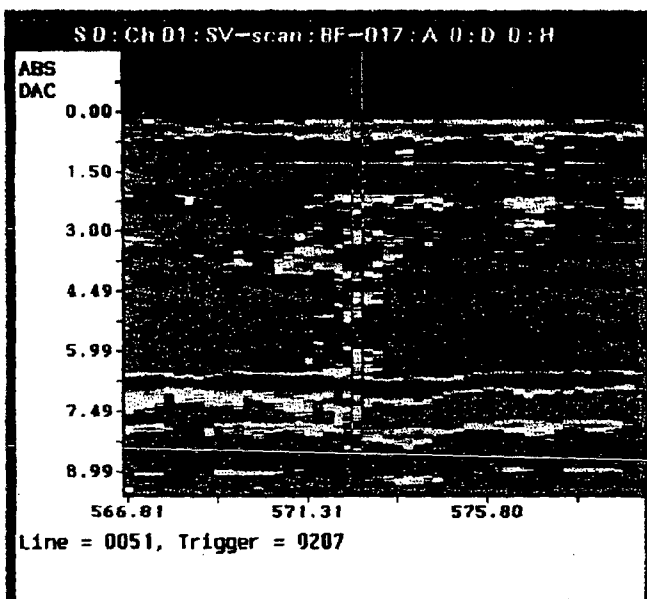
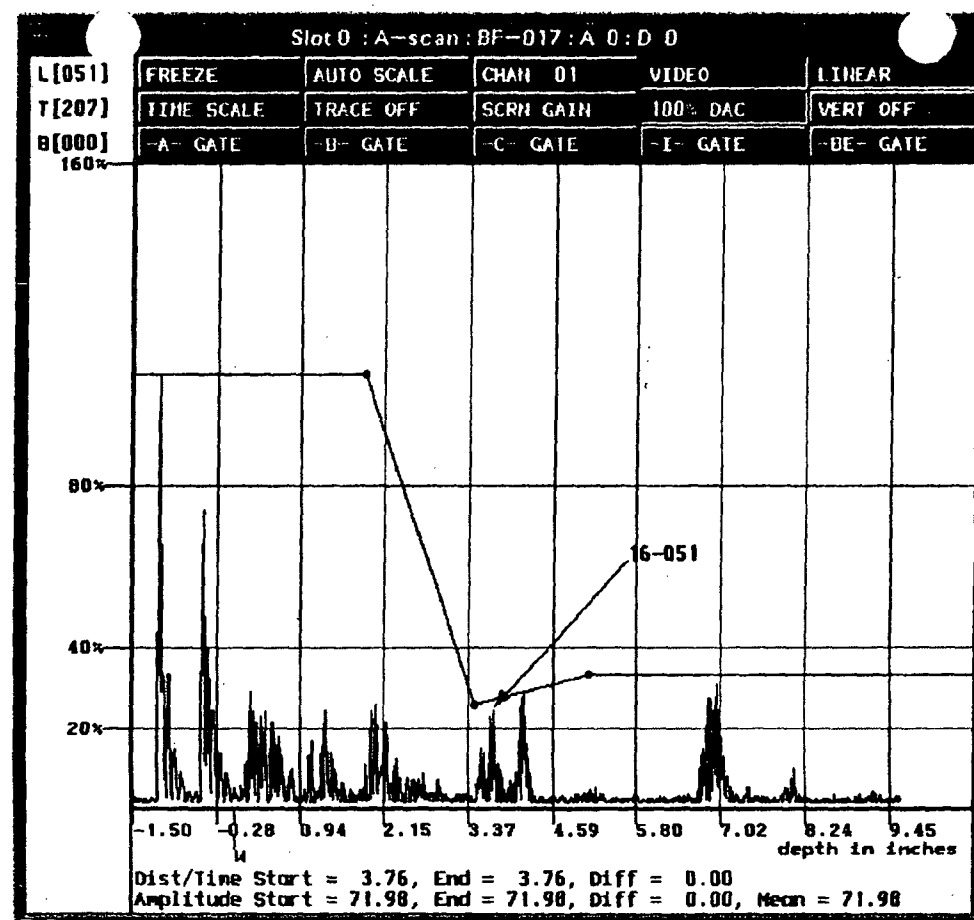
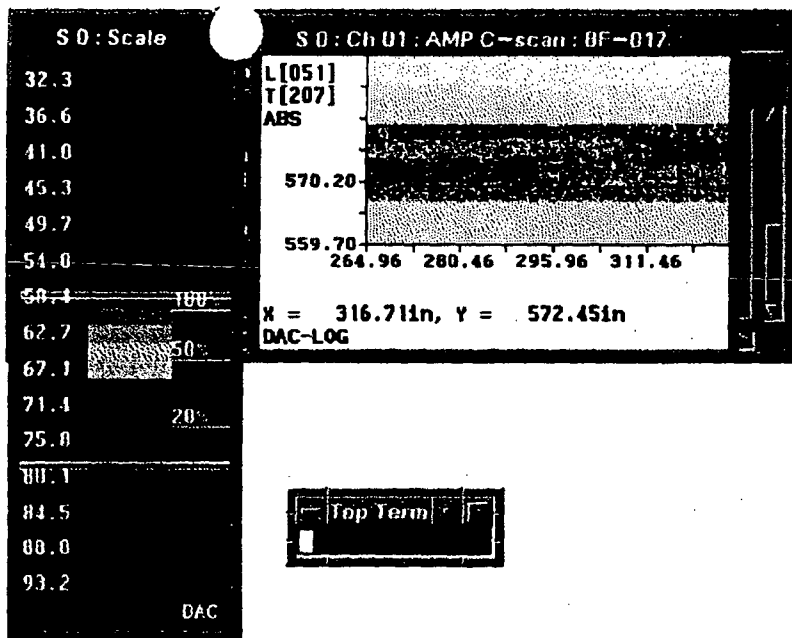
DAC

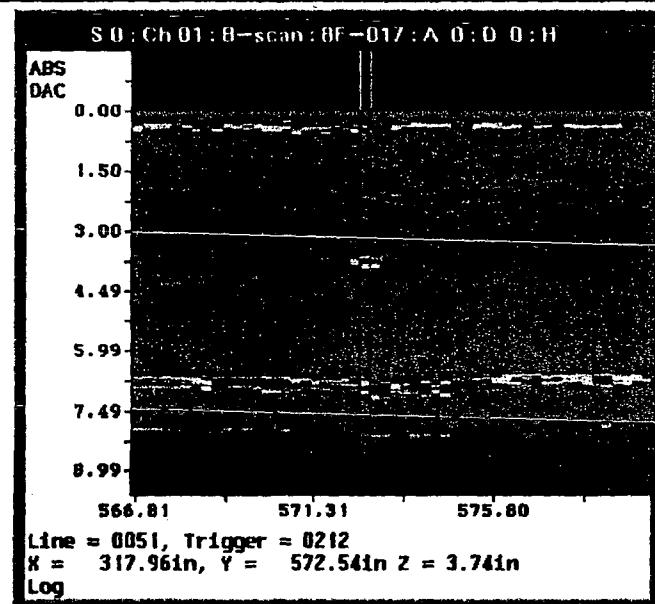
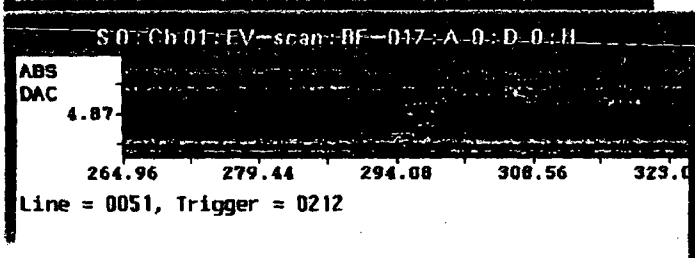
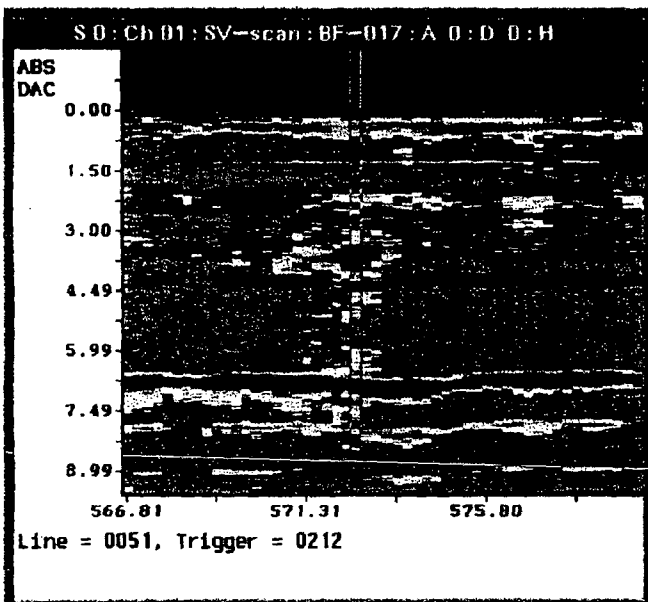
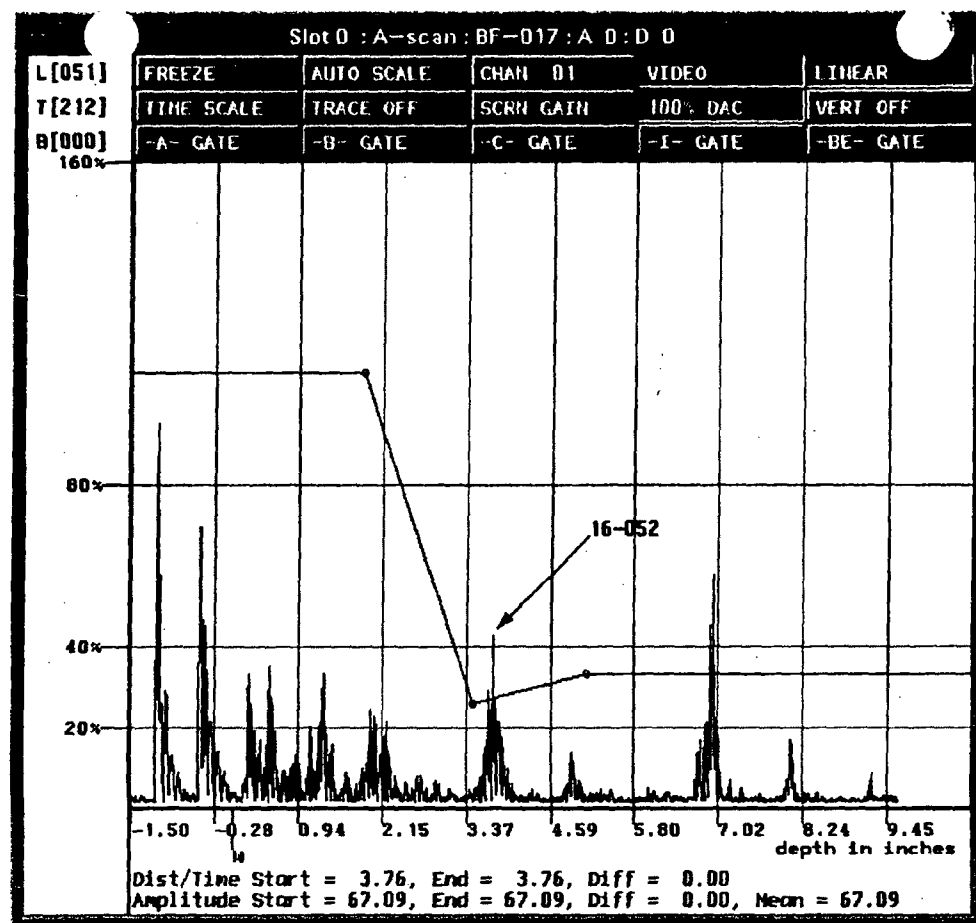
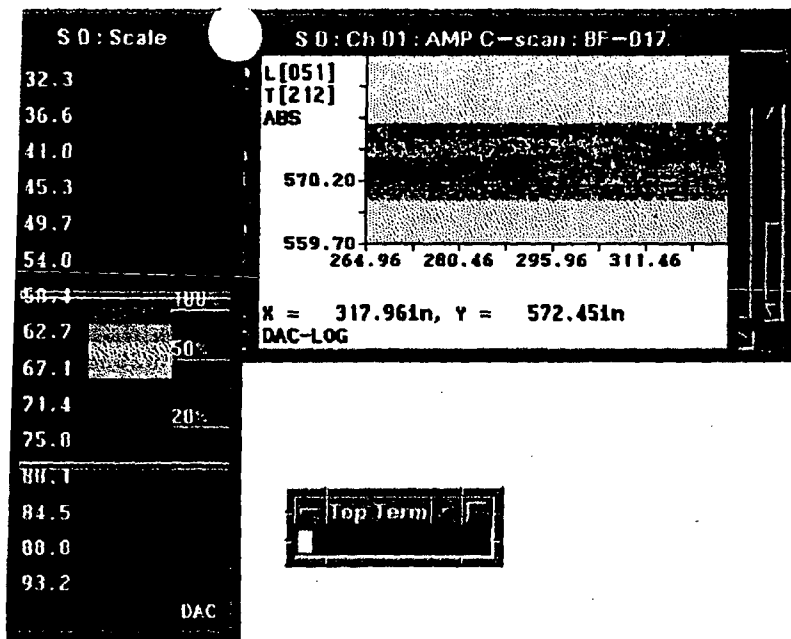


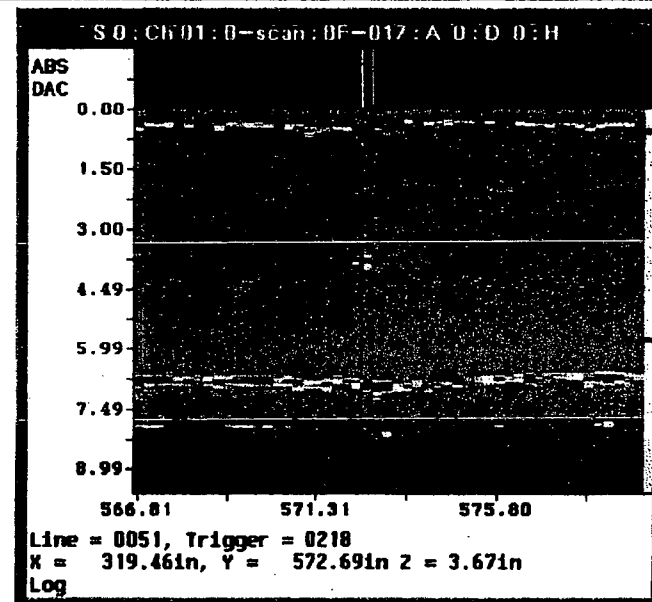
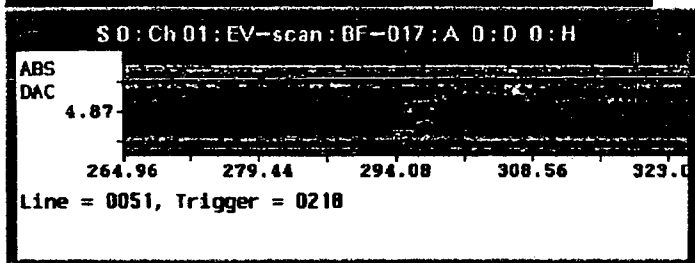
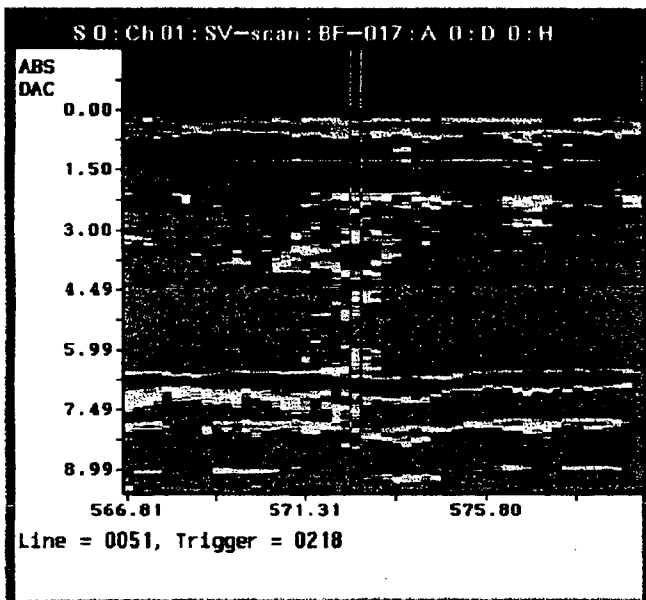
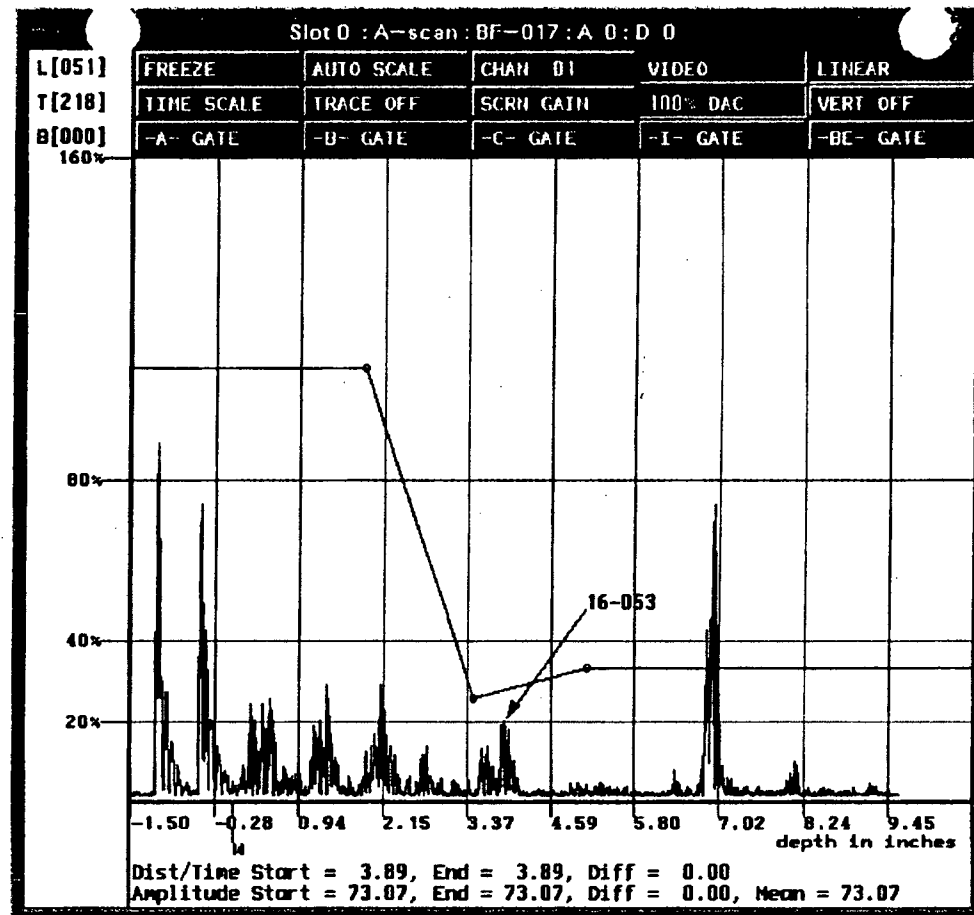
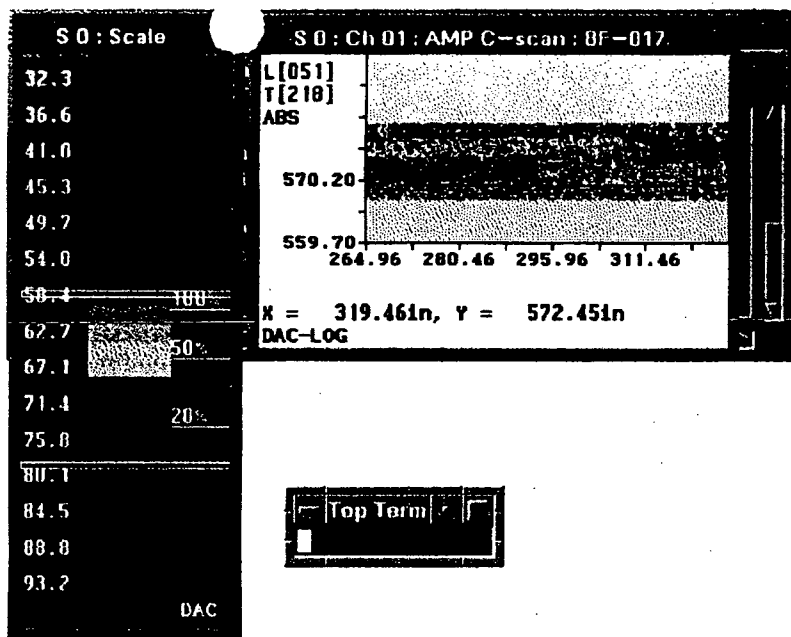
00561 1988  
R1152 245



00562 199 of 245  
21152







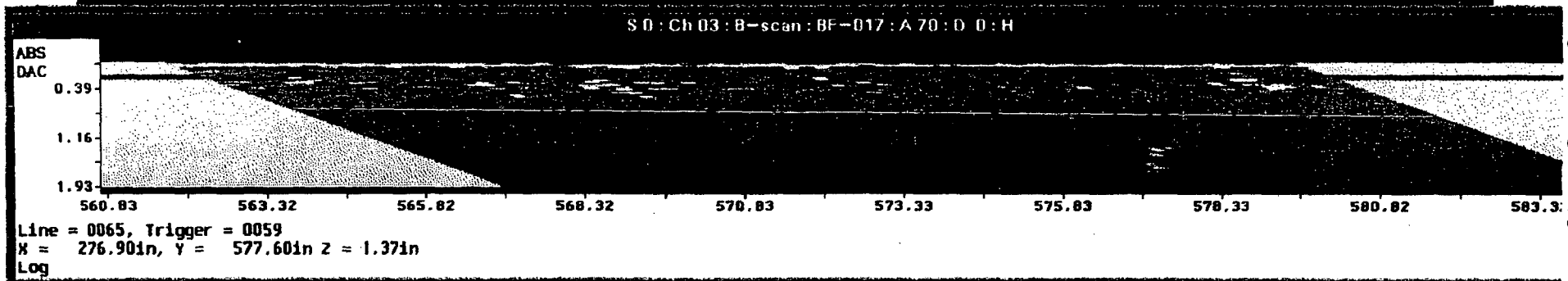
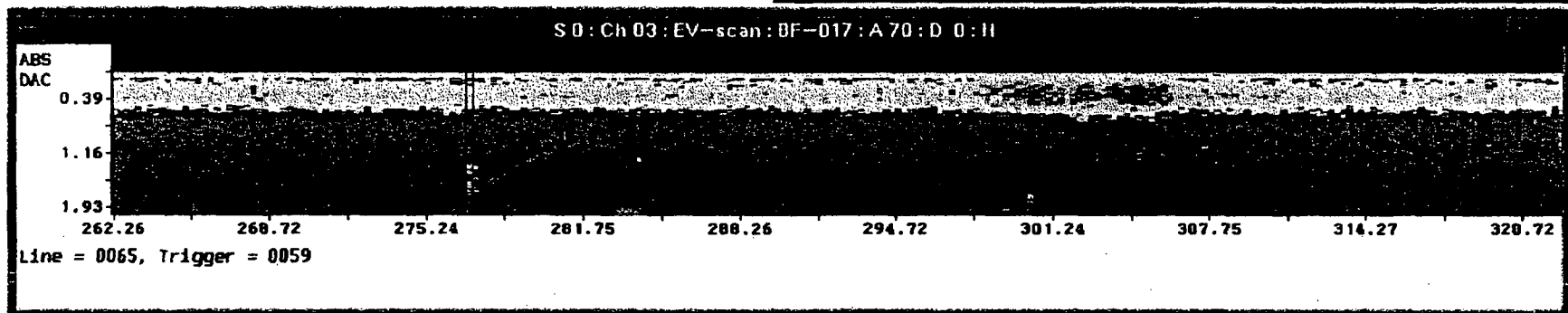
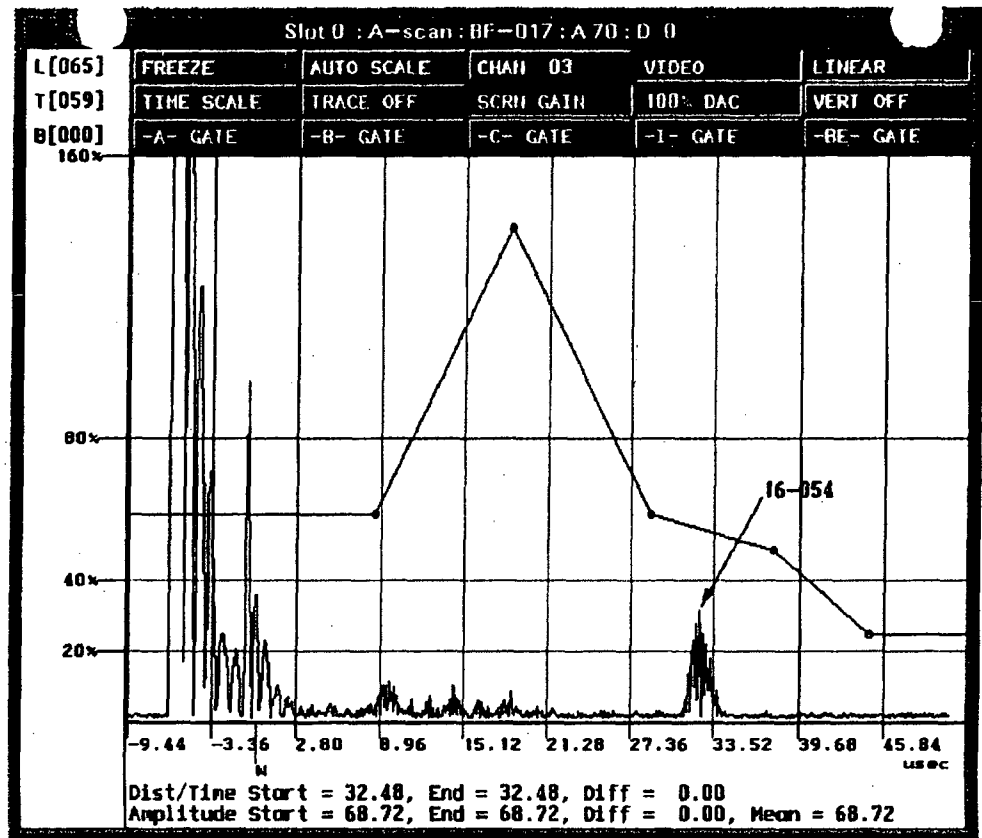
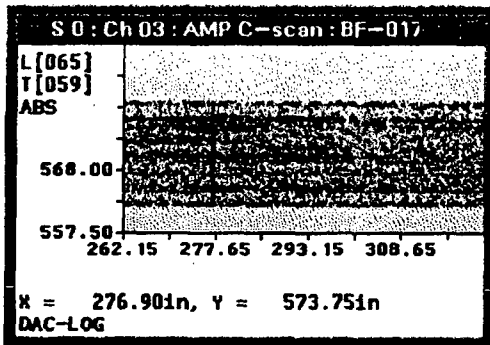
202 of 245  
R1152  
00565

S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.0  
80.1  
84.5  
88.0  
93.2

100  
50  
20

DAC



R1152  
20306 295

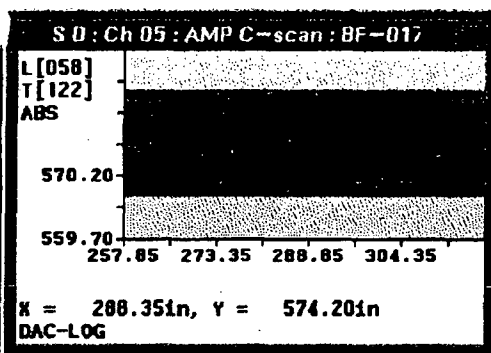
00000

S 0 : Scale

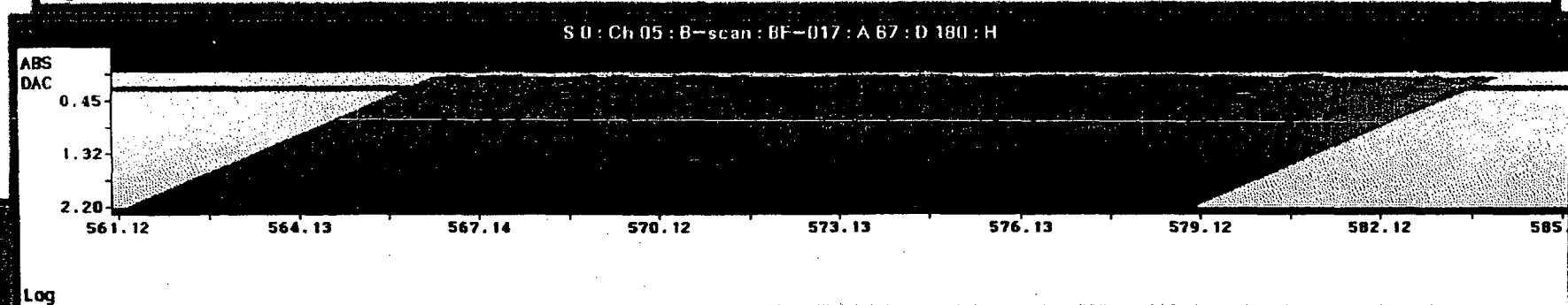
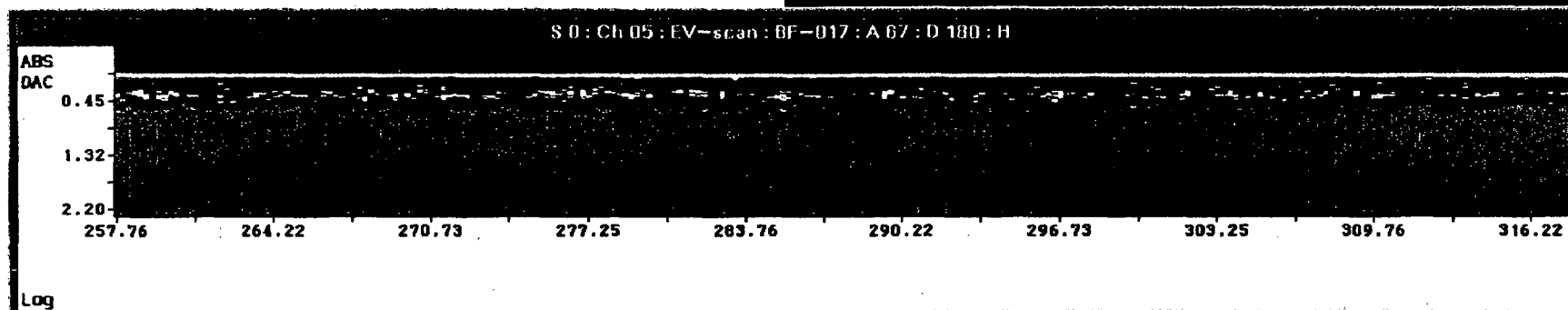
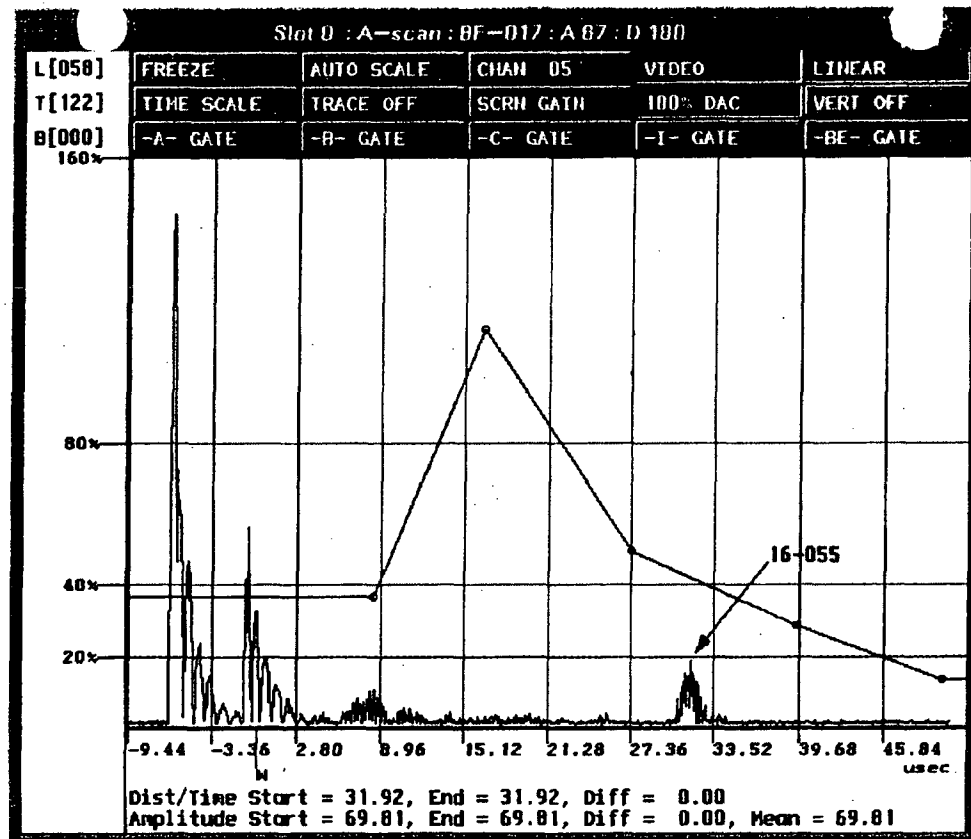
32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC



Lower



204 of 2015  
R1152  
\* 06567

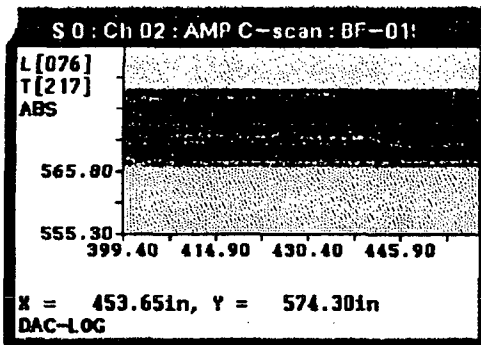


S 0 : Scale

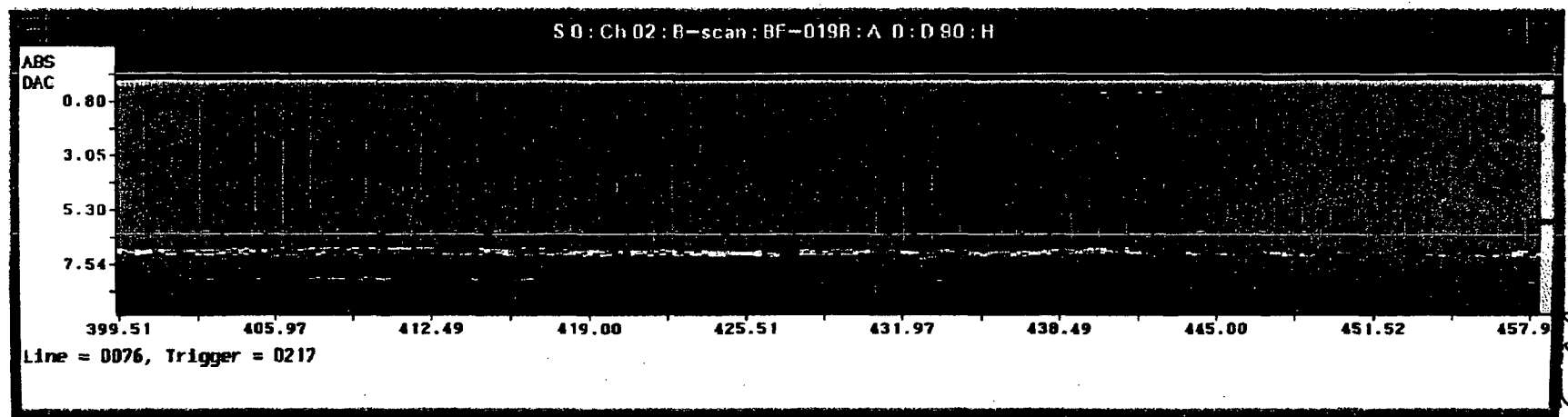
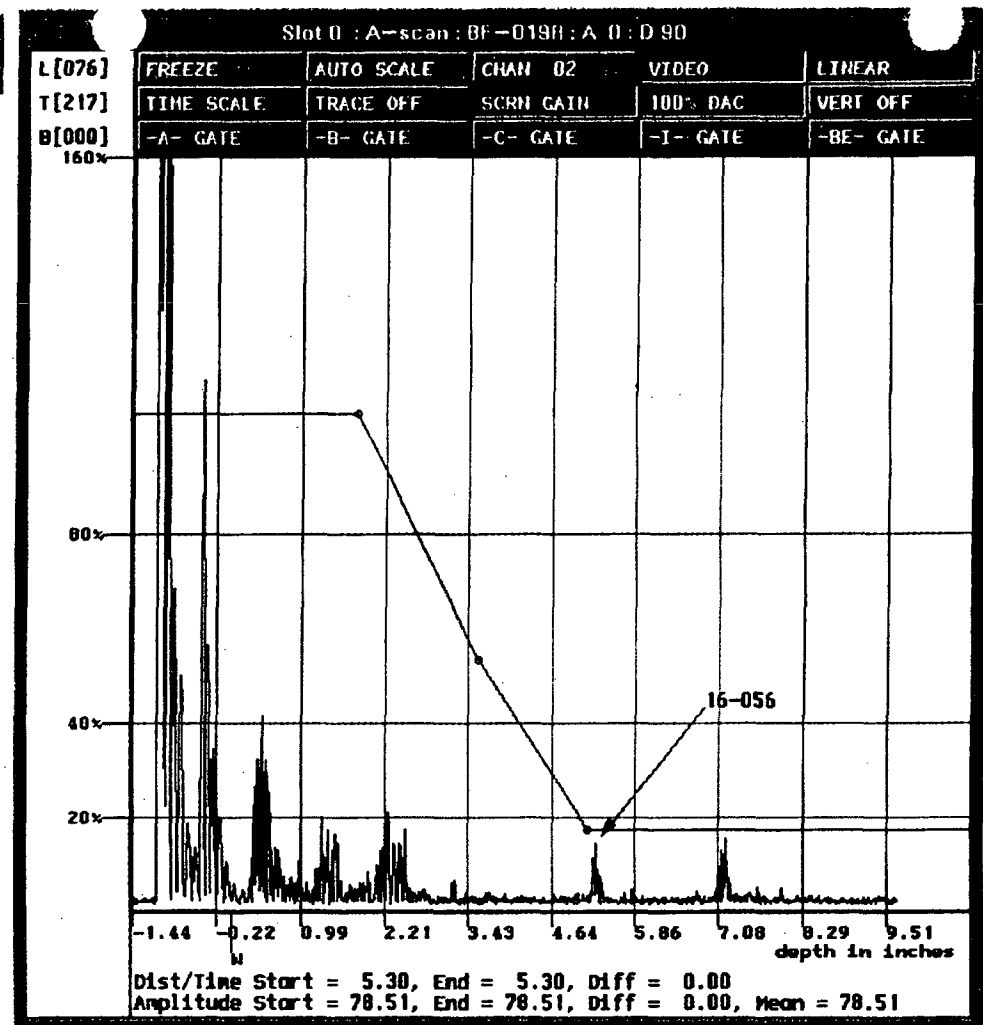
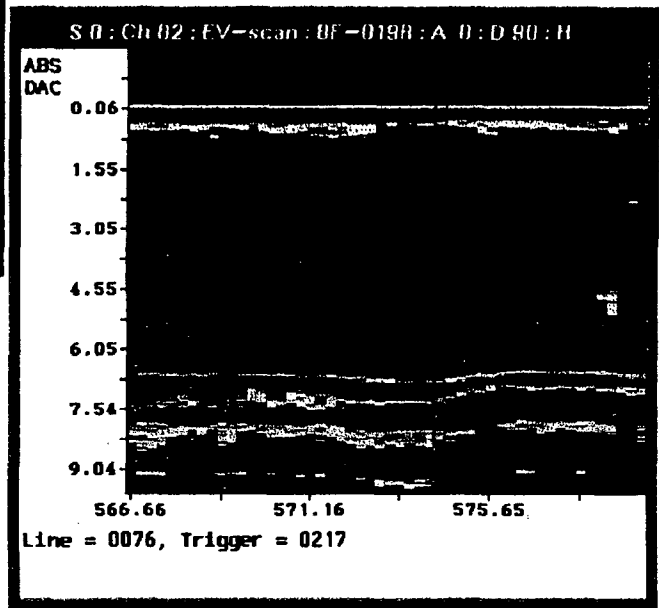
32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

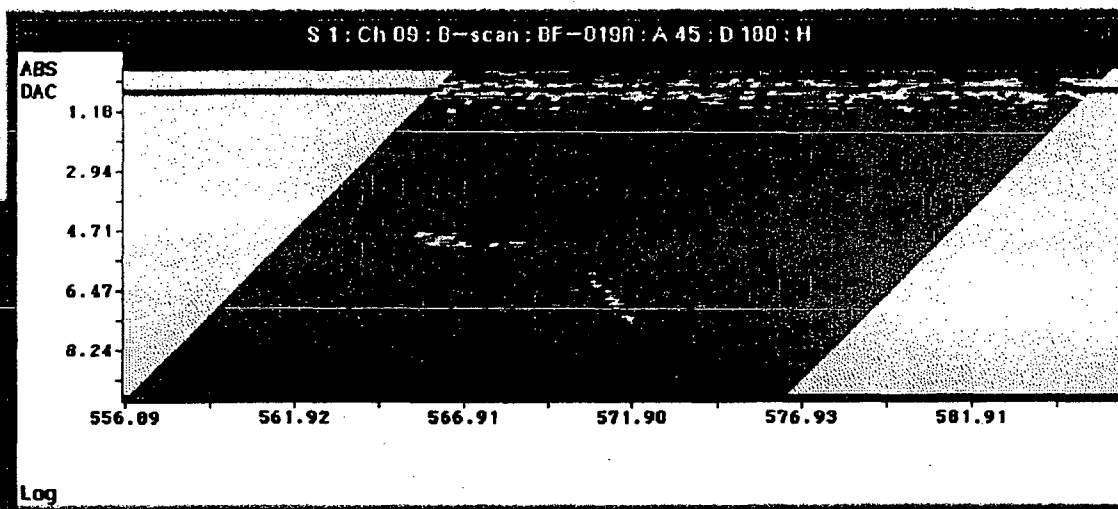
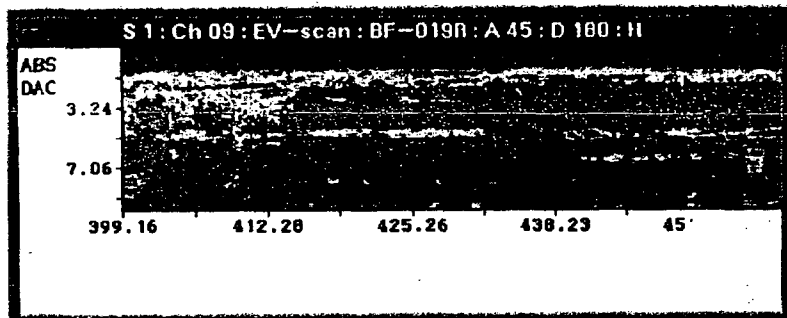
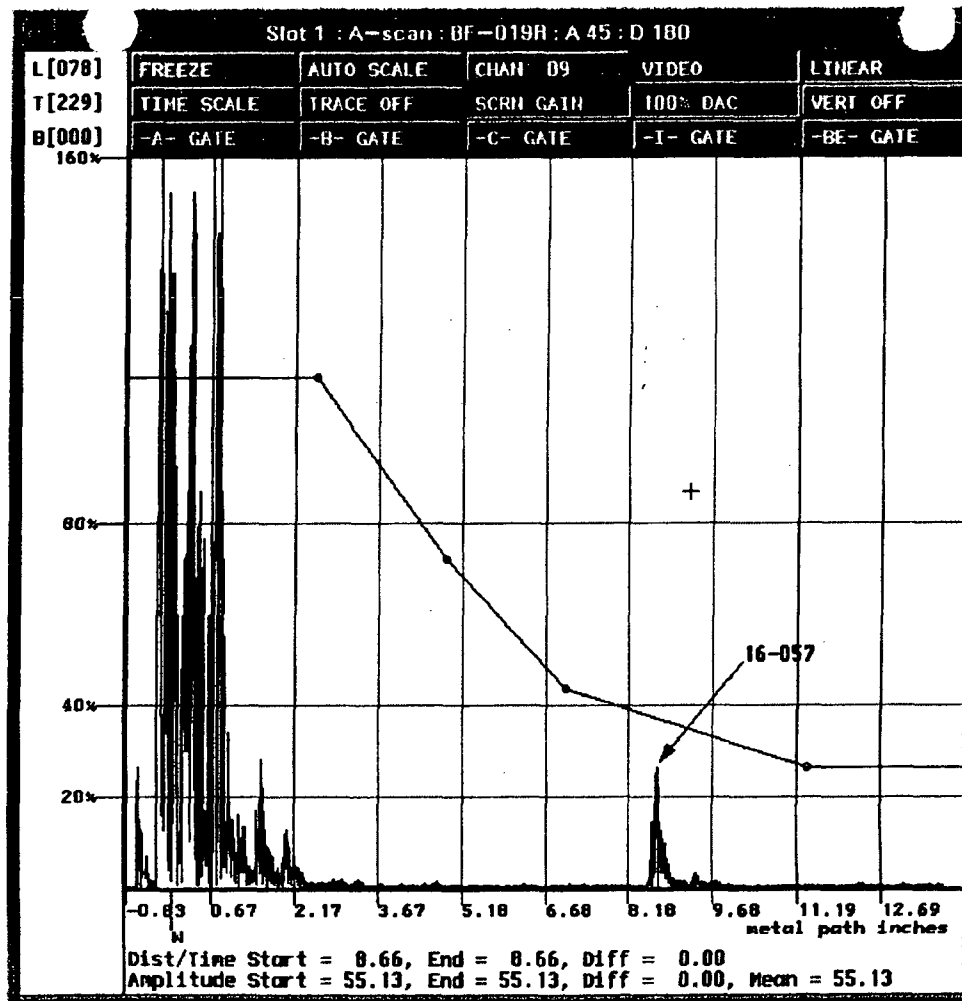
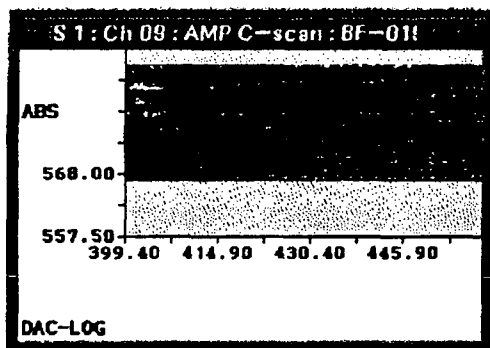
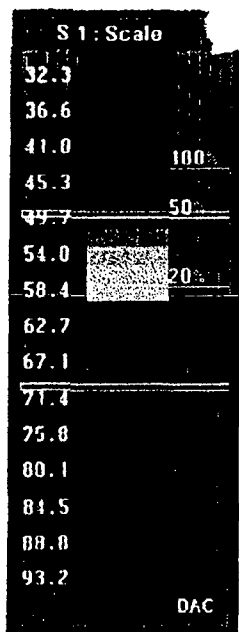
DAC



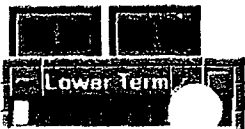
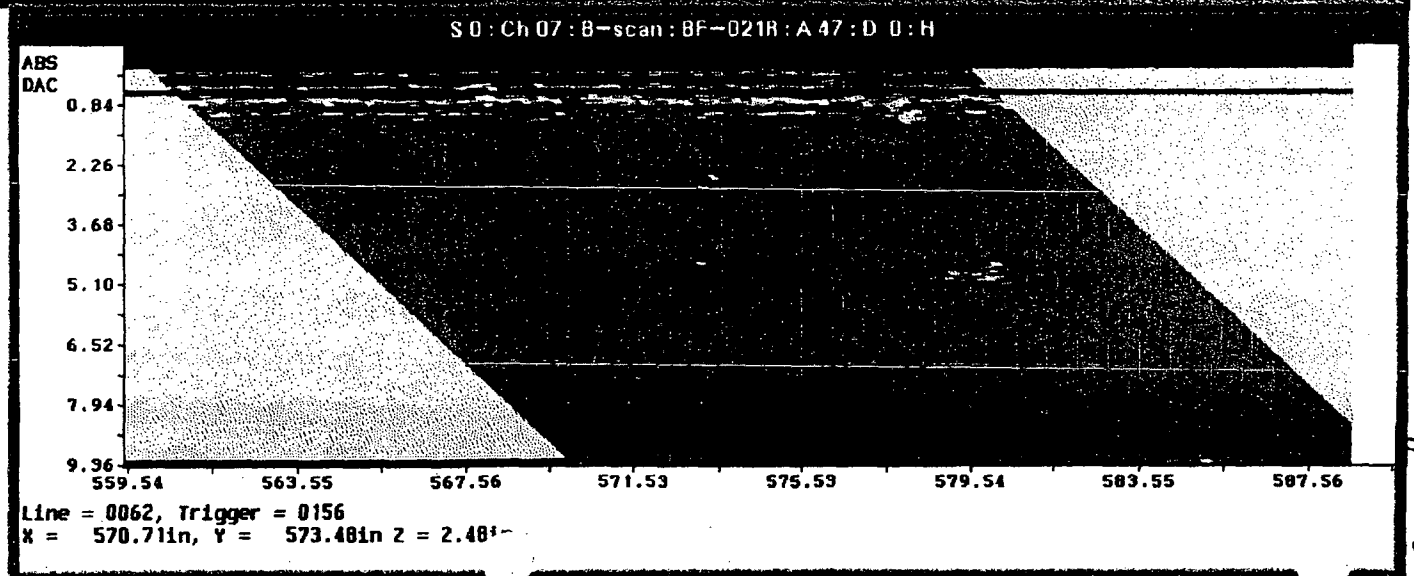
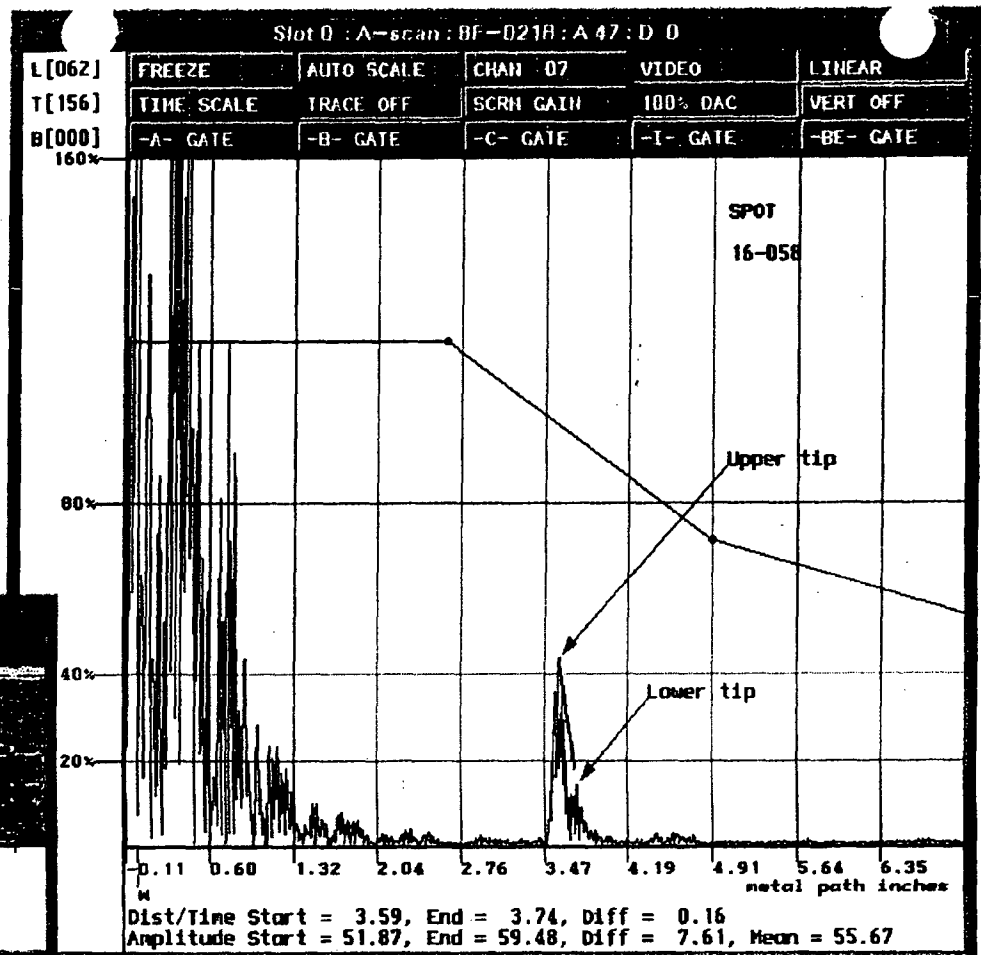
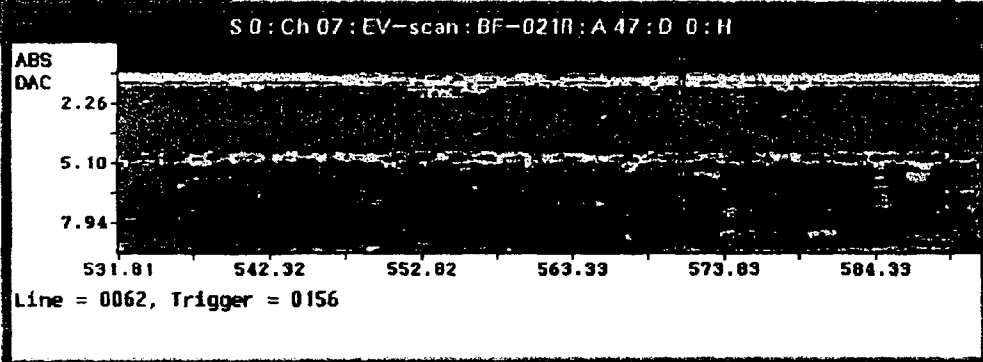
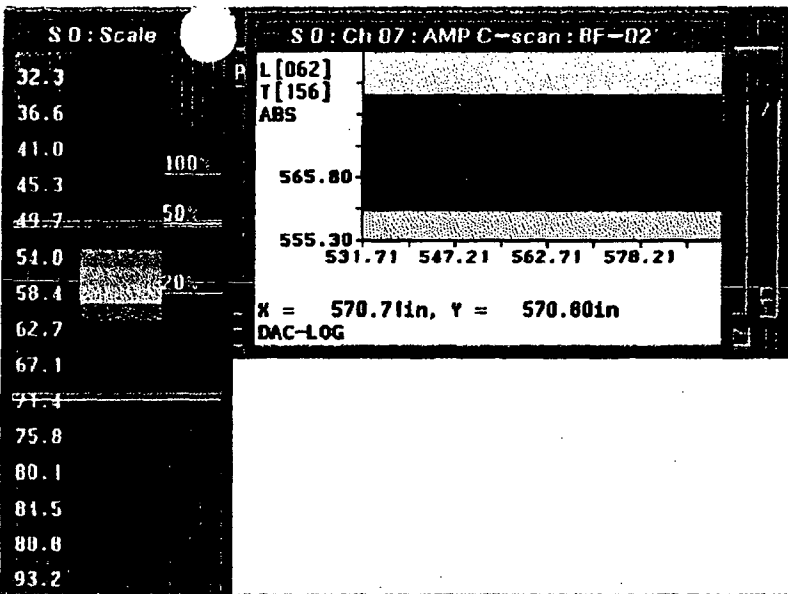
Lower



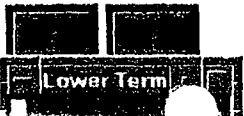
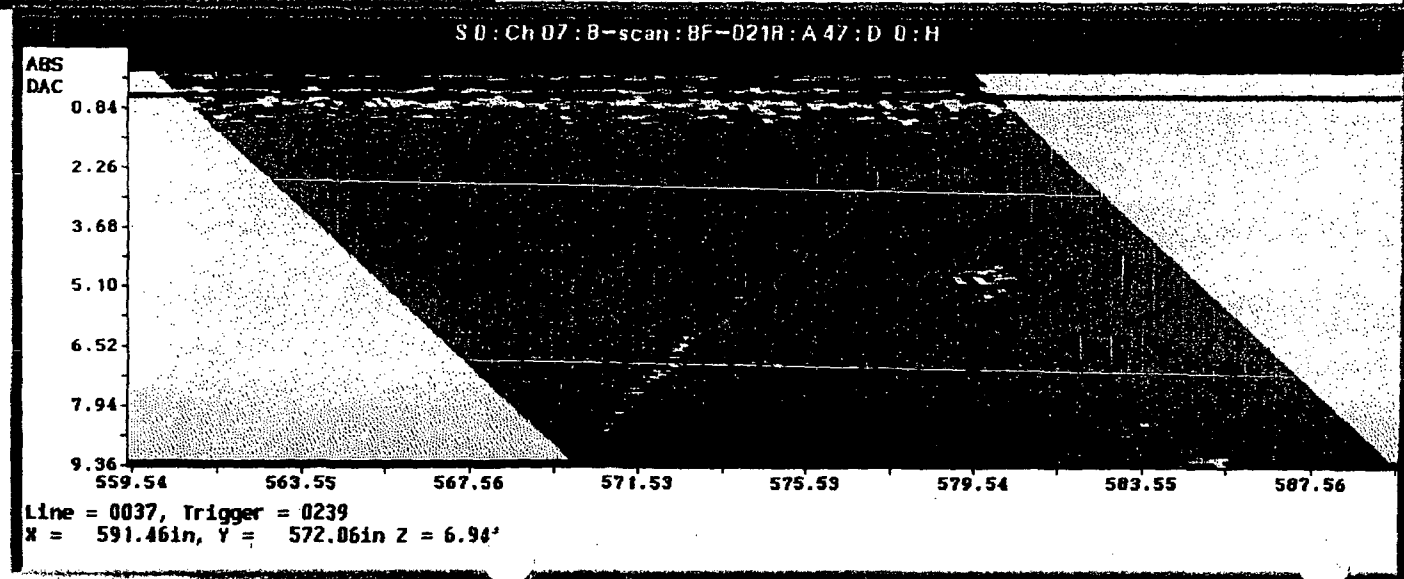
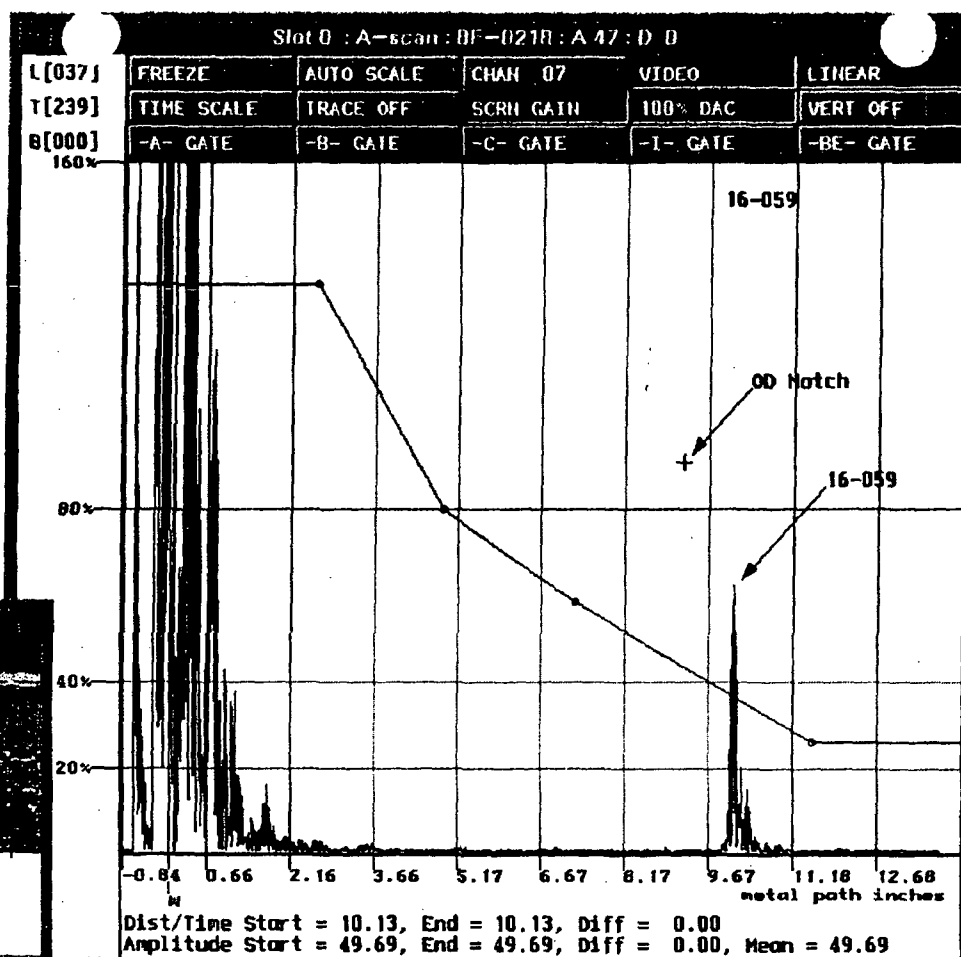
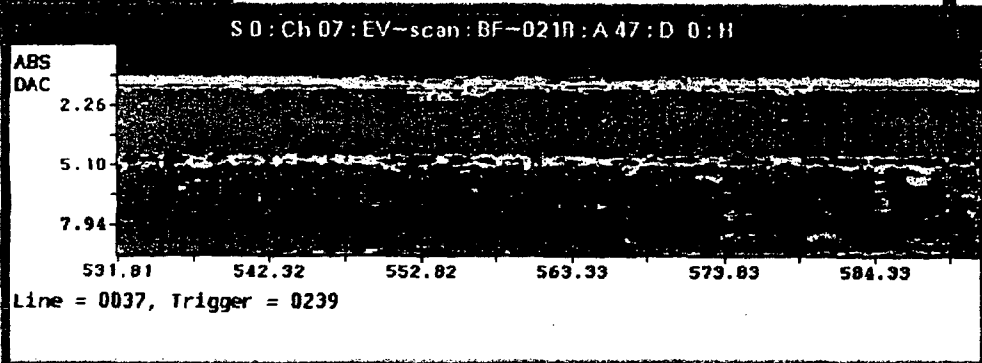
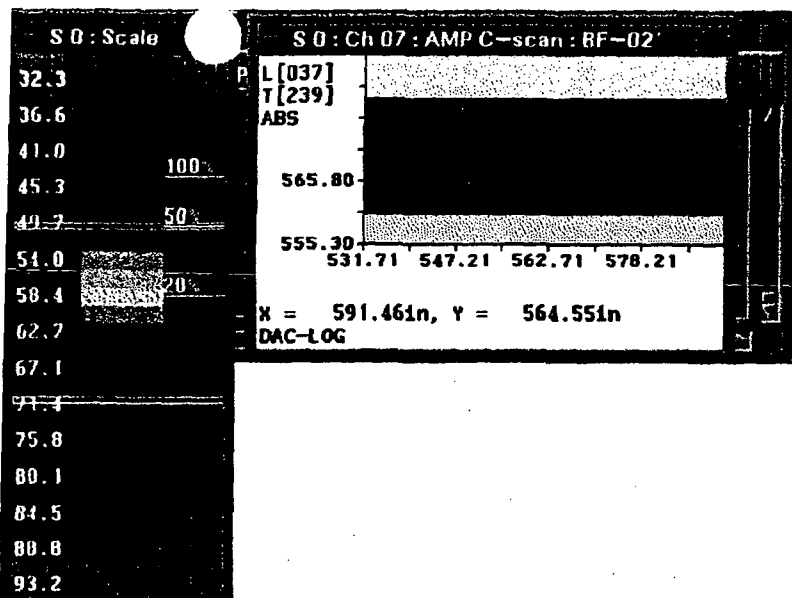
00568  
21152  
205 of 295



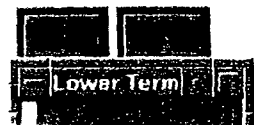
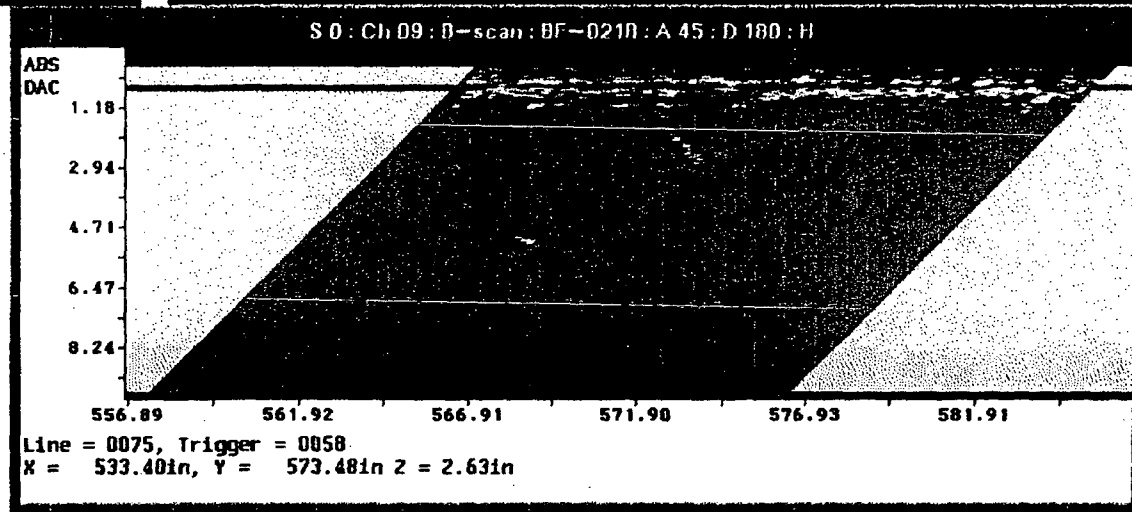
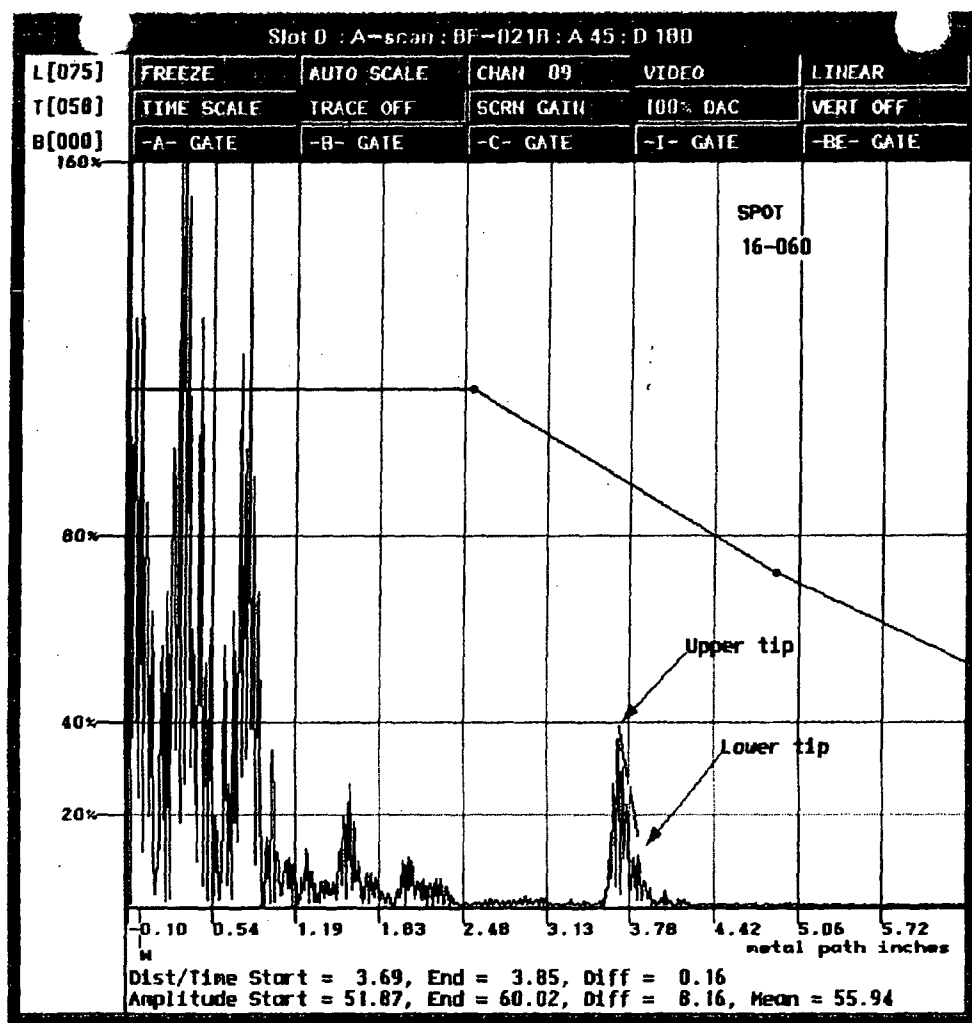
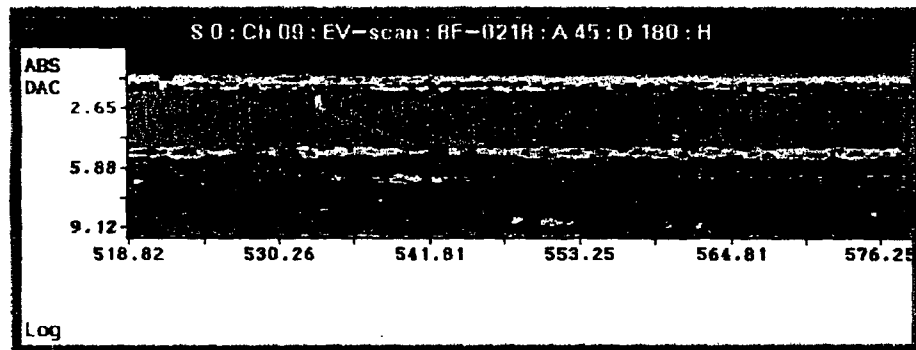
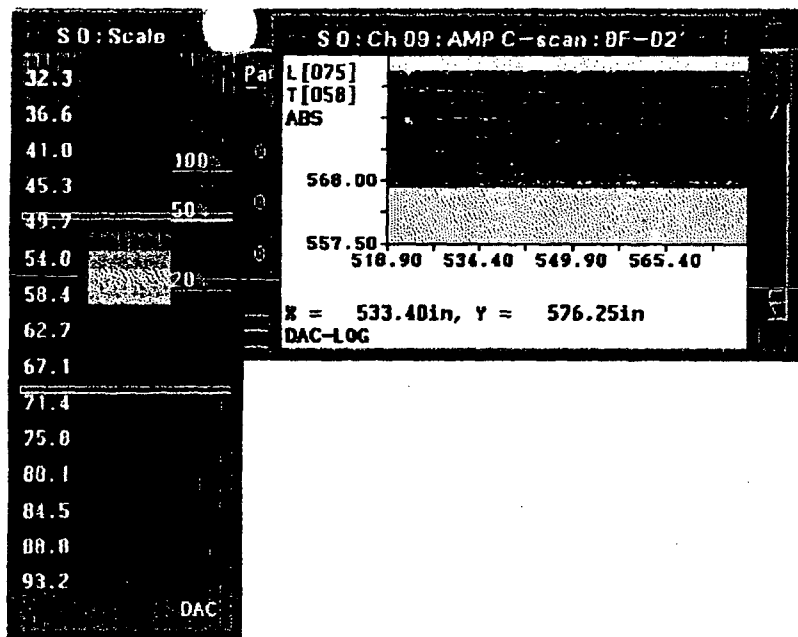
00569 R1152  
206 of 295



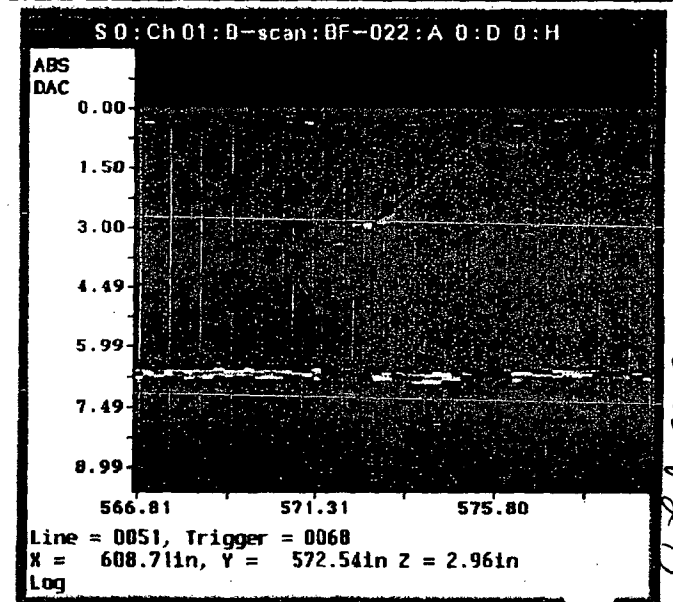
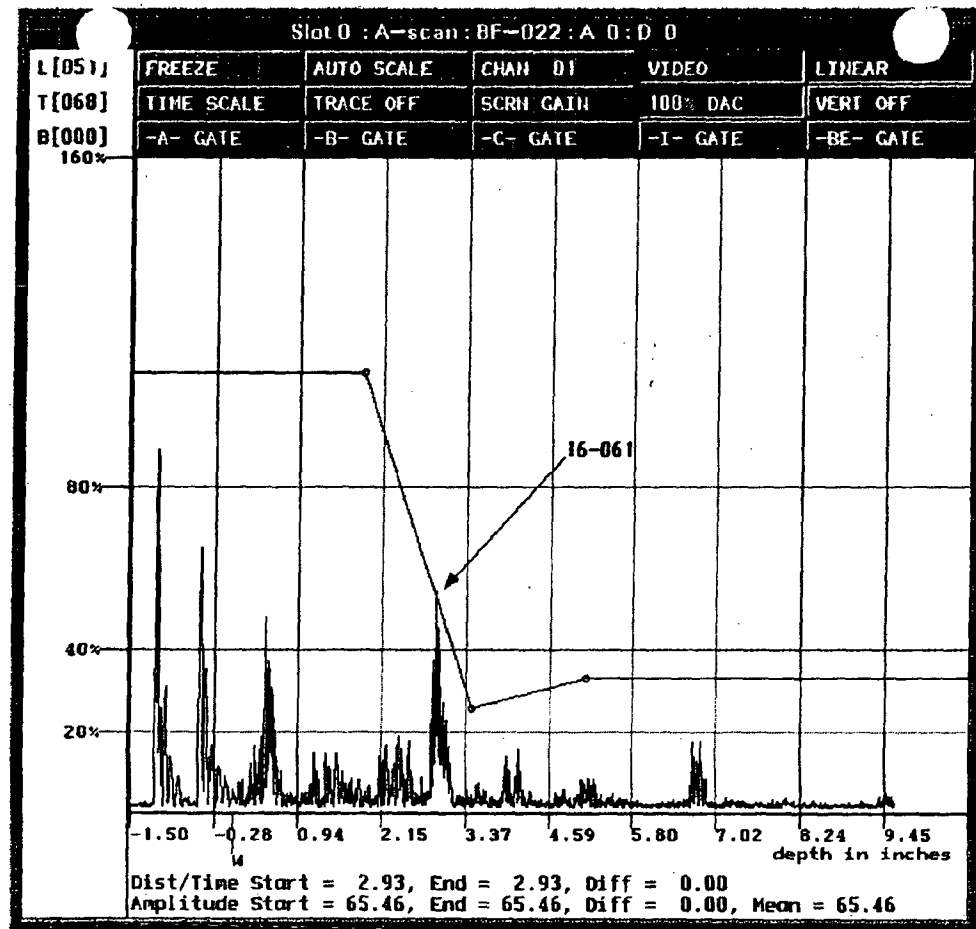
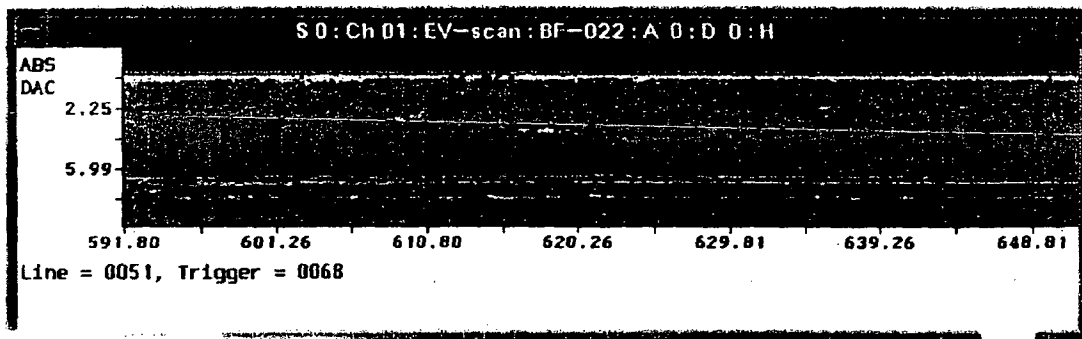
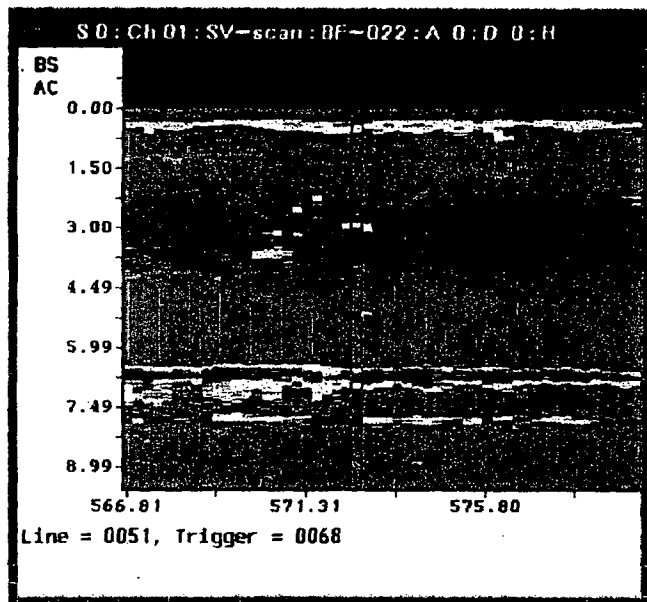
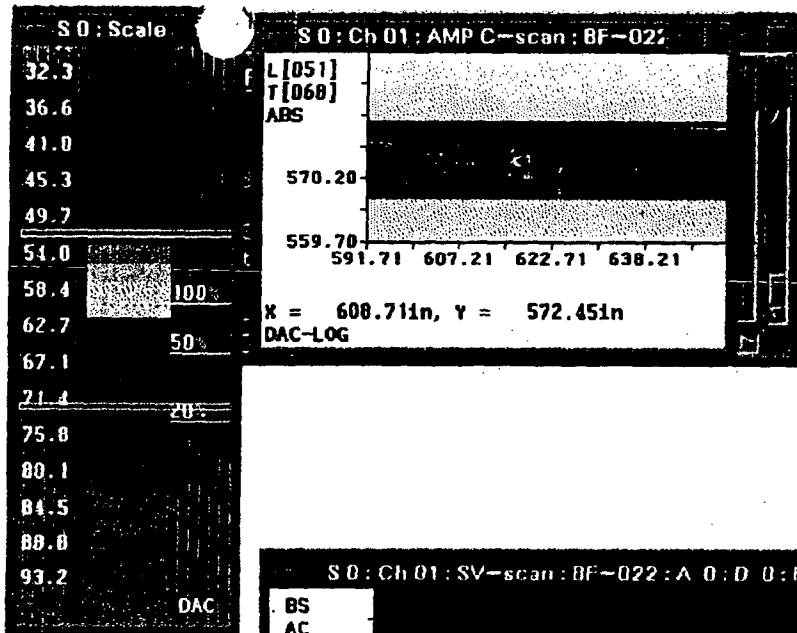
00570 R1152  
20708 245



\* 00571  
R1152  
208 of 245



00572 R1152  
20904 295



00573  
R1152  
210 of 245

S 0 : Ch 03 : AMP C-scan ; BF-02:

L[049]  
T[094]  
ABS

**568.00-**

**557.50-**

588.90	604.40	619.90	635.40
--------	--------	--------	--------

X = 612.40in, Y = 569.75in  
DAC-LOG

DAC

S 0 : Ch 03 : SV-scan : BF-022 : A 70 : D 0 : H

**ABS  
DAC**

Log

Slot 0 : A-scan : BF-022 : A 70 : 0 0

L[049]  
T[094]  
B[000]  
160%

**FREEZE**

### TIME SCALE

**-A- GATE**

**AUTO SCALE**

TRACE OFF

**B-GATE**

CHAN 03

SCRIP GAIN

-C~ GATE

## VIDEO

50% DAC

-I- GATE

## LINEAR

VERT OFF

-BE- GATE

PATT  
16-062  
Combined

**Upper tip**

Lower tip

Dist/Time Start = 20.88, End = 26.64, Diff = 5.76  
Amplitude Start = 71.44, End = 73.07, Diff = 1.63, Mean = 72.25

S O : Ch 03 : EV-scan : BF-022 : A 70 : D 0 : H

**ABS  
DAC**

S 0 : Ch 03 : B-scan : BF-022 : A 70 : D 0 : H

**ABS  
DAC**

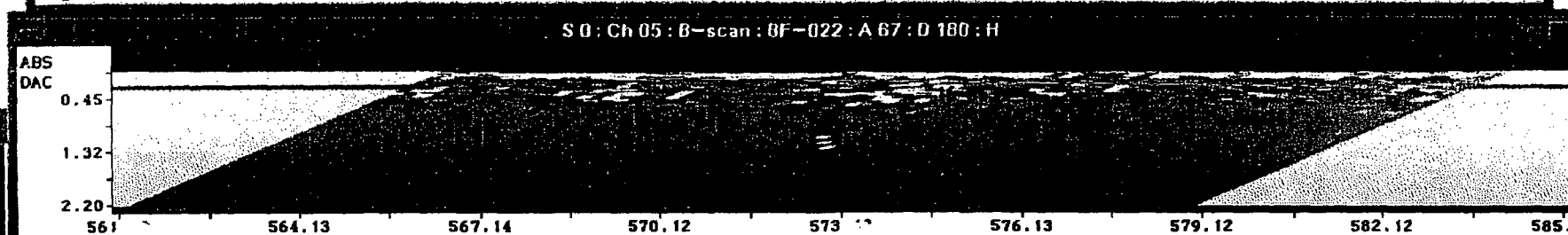
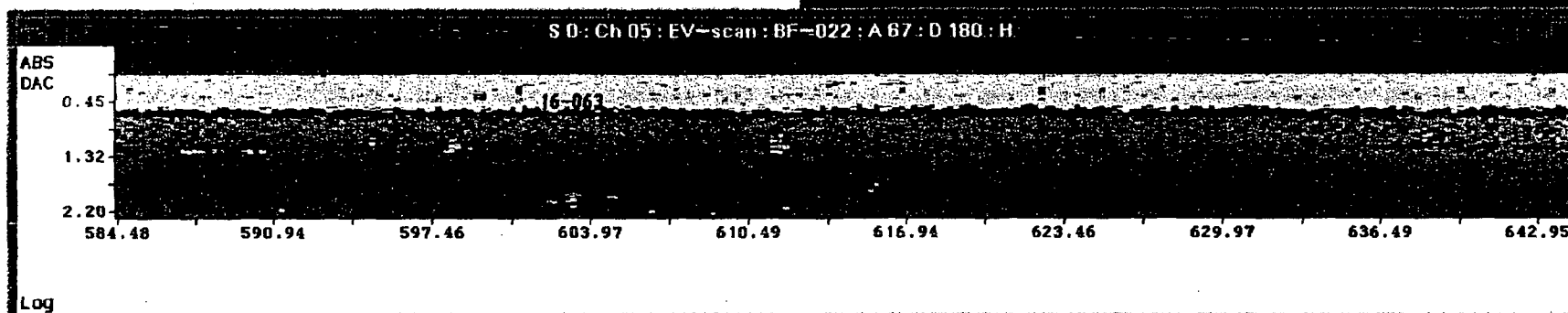
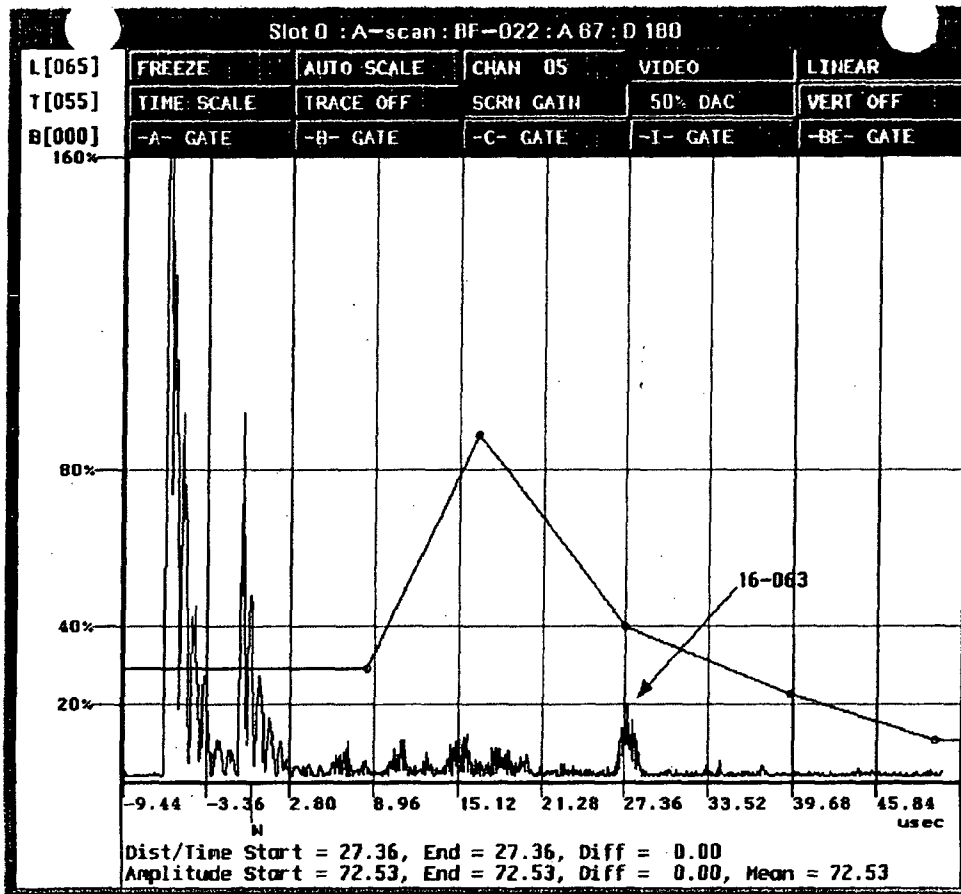
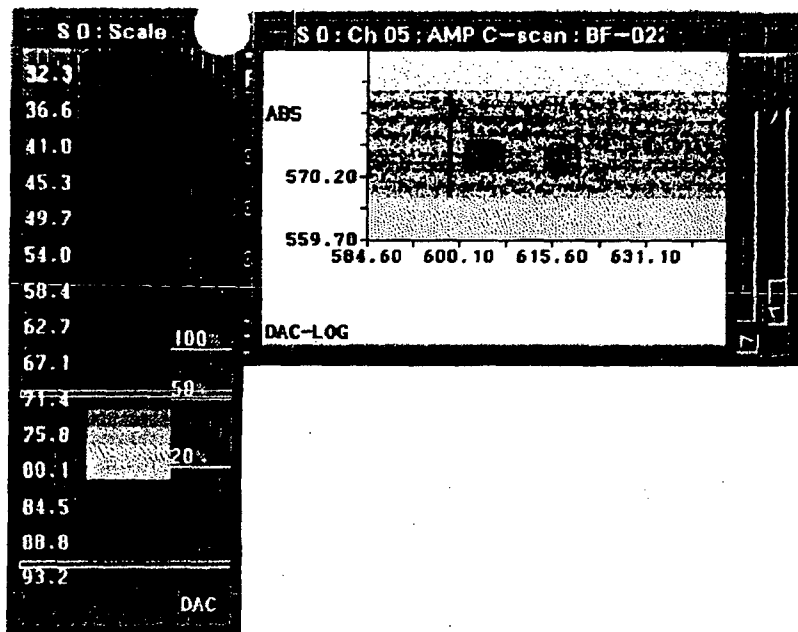
The figure is a 3D surface plot. The horizontal axes represent the domain  $[0, 1] \times [0, 1]$ , with labels ranging from 560.82 to 584.82. The vertical axis represents the function value  $F_{\max}$ , with labels at 0.52 and 1.41. The surface is characterized by a central peak and four corner minima, creating a saddle-like shape.

Line = 0049, Trigger = 0094

00574

K1152

211 of 245



R1152

212 of 245

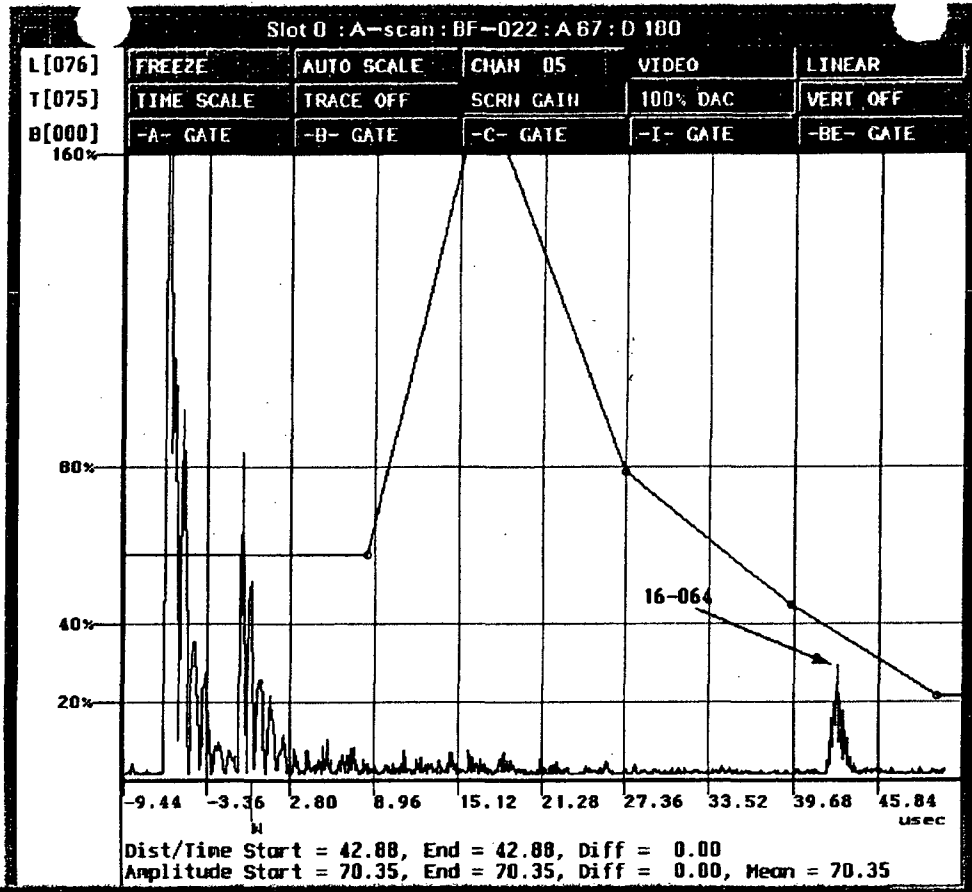
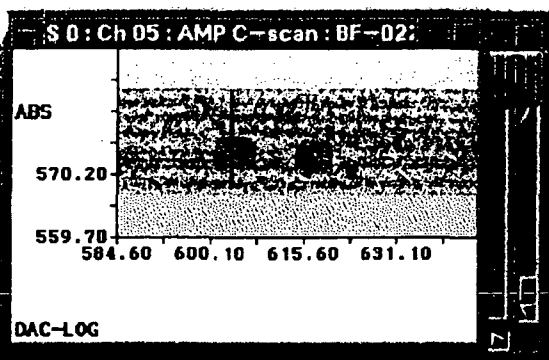
4 06575



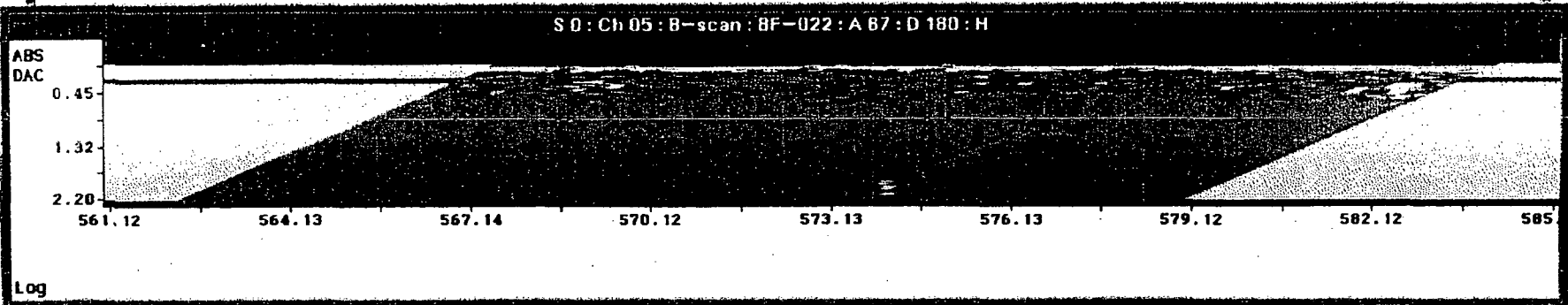
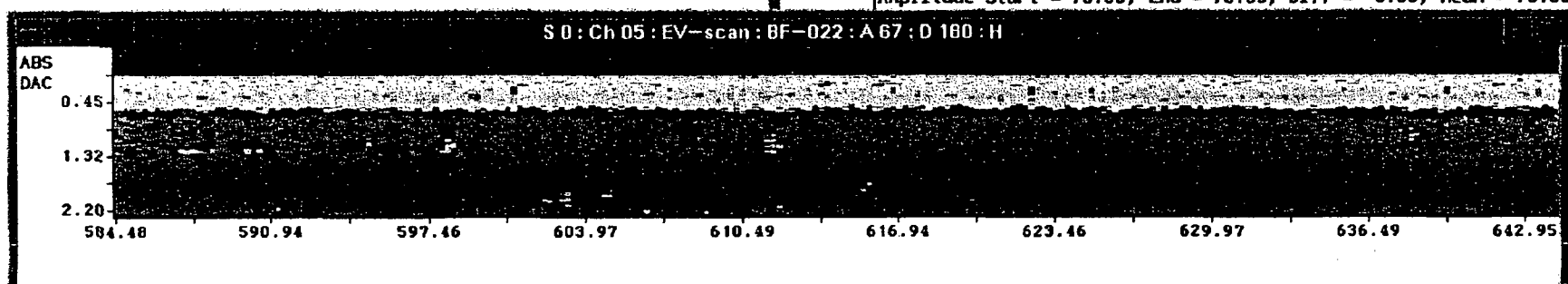
S 0 : Scale

32.3
36.6
41.0
45.3
49.7
54.0
58.4
62.7
67.1
71.4
75.8
80.1
84.5
88.8
93.2

DAC



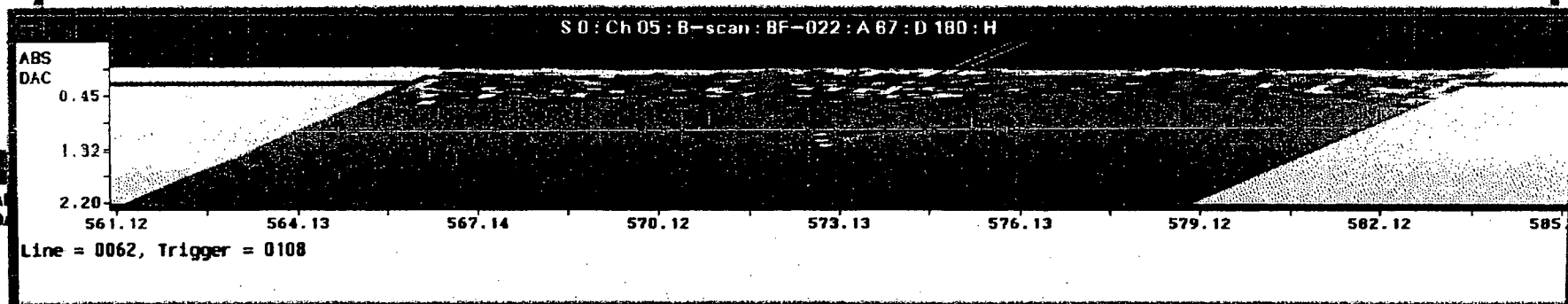
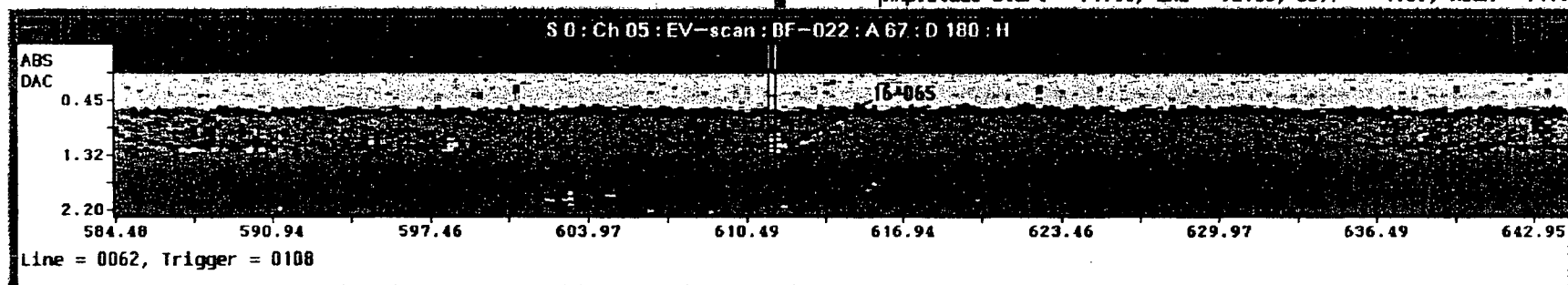
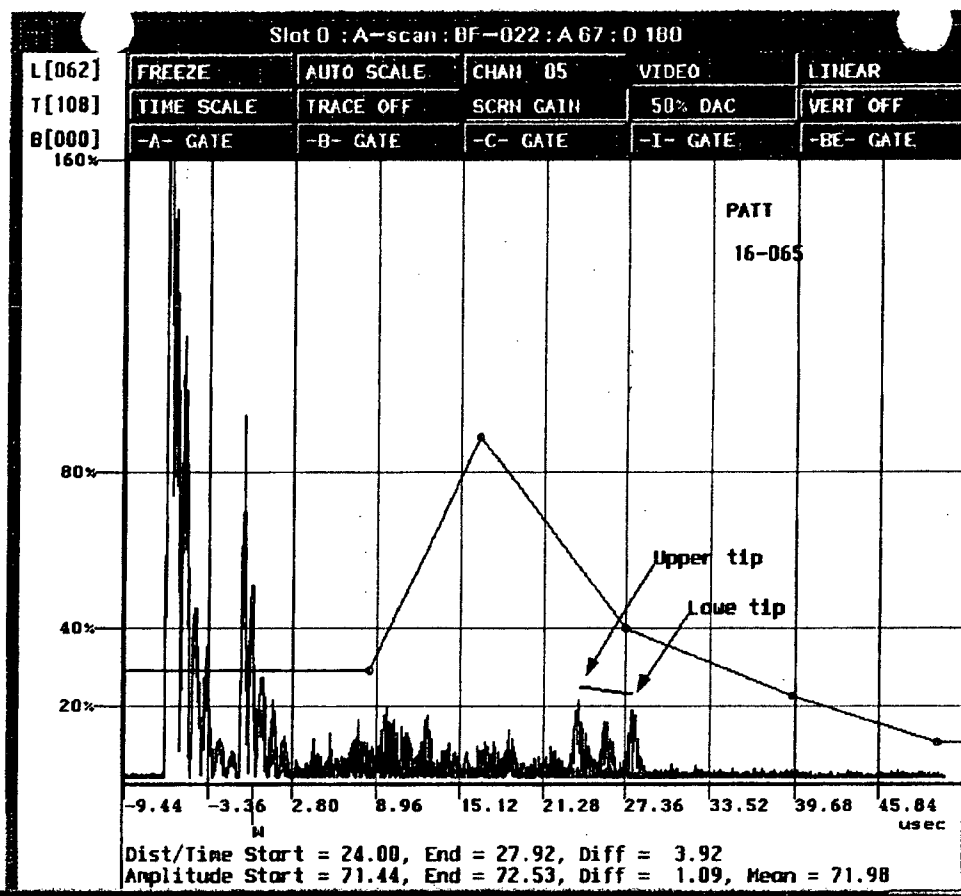
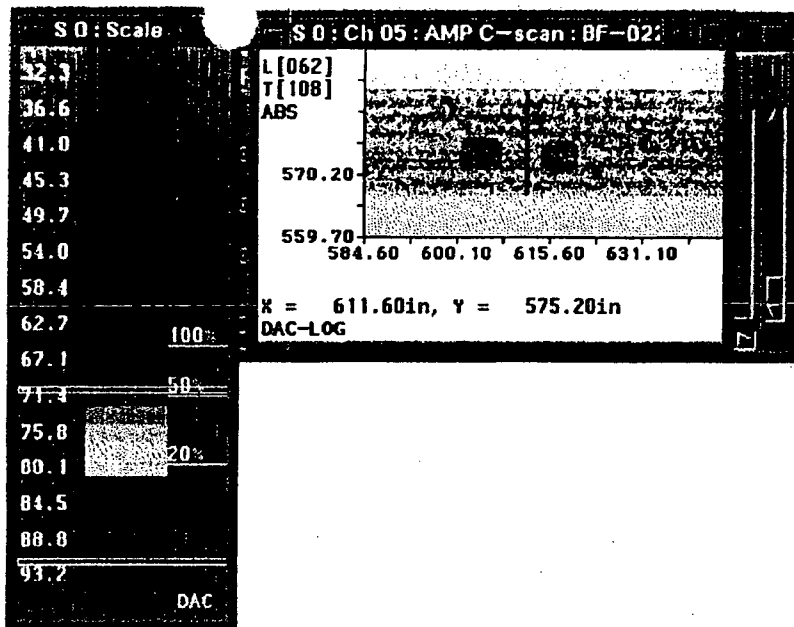
Lower



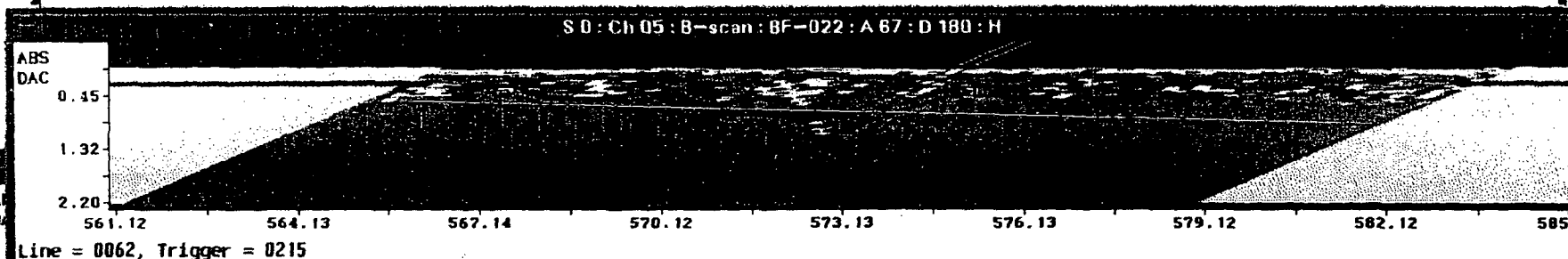
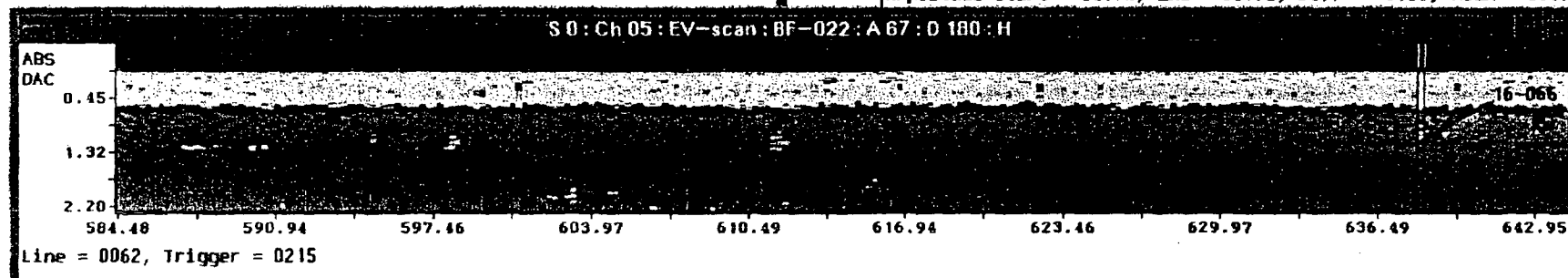
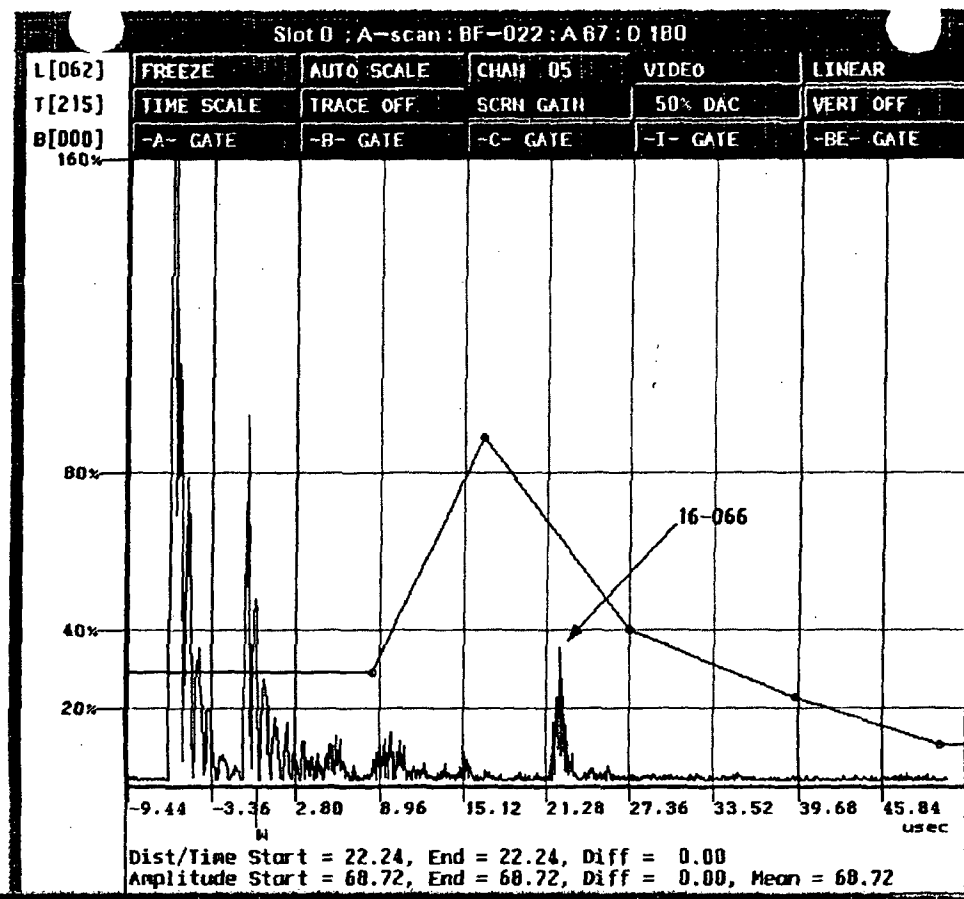
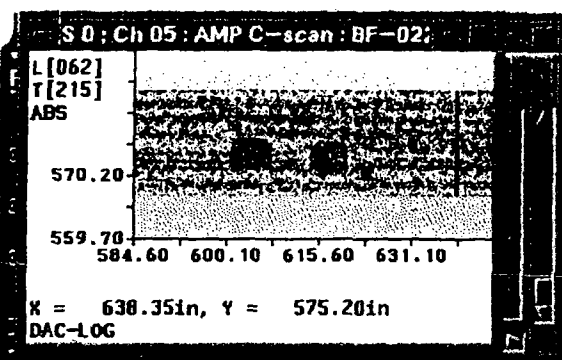
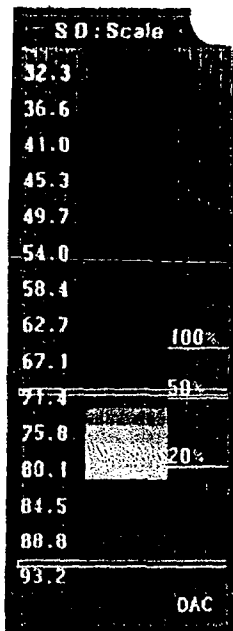
0000 1000

R1152  
21306245

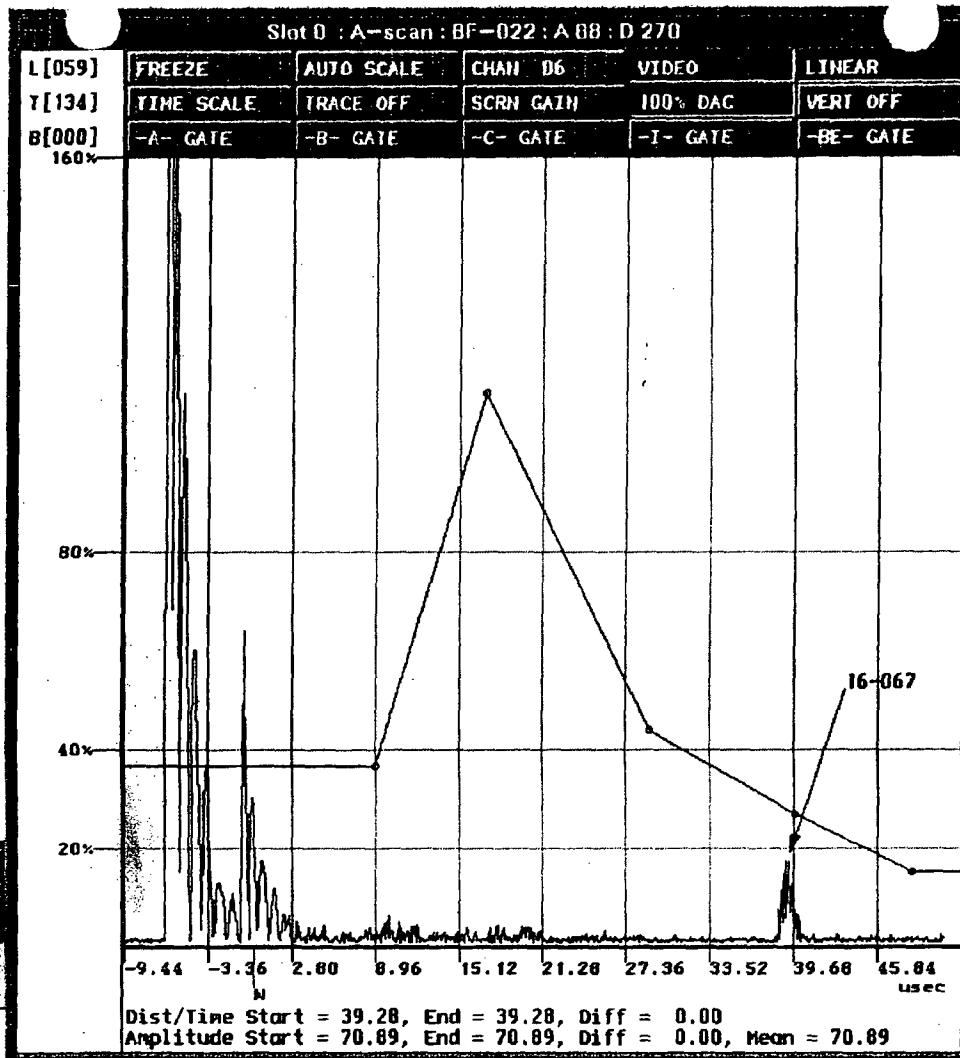
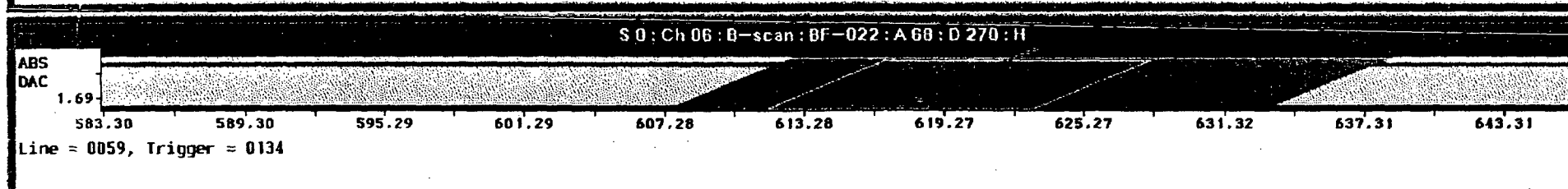
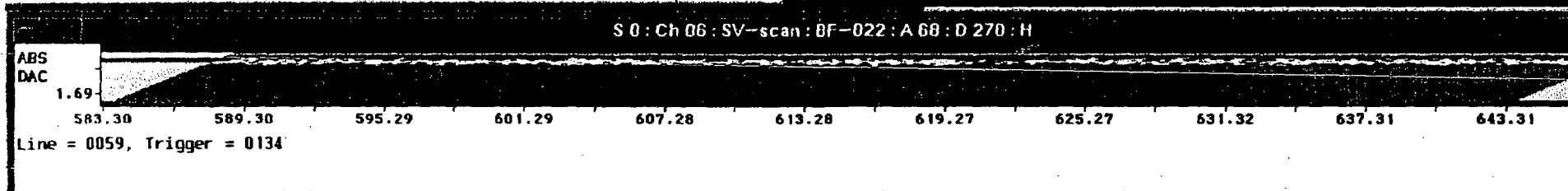
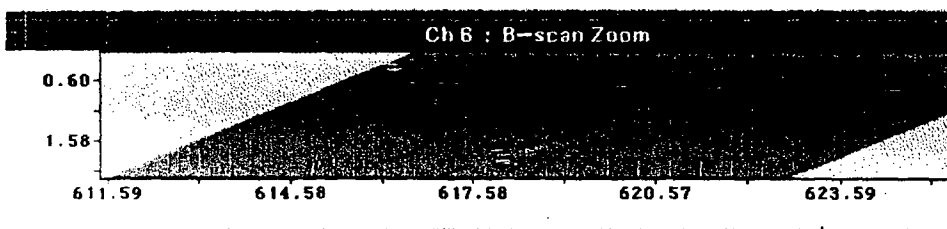
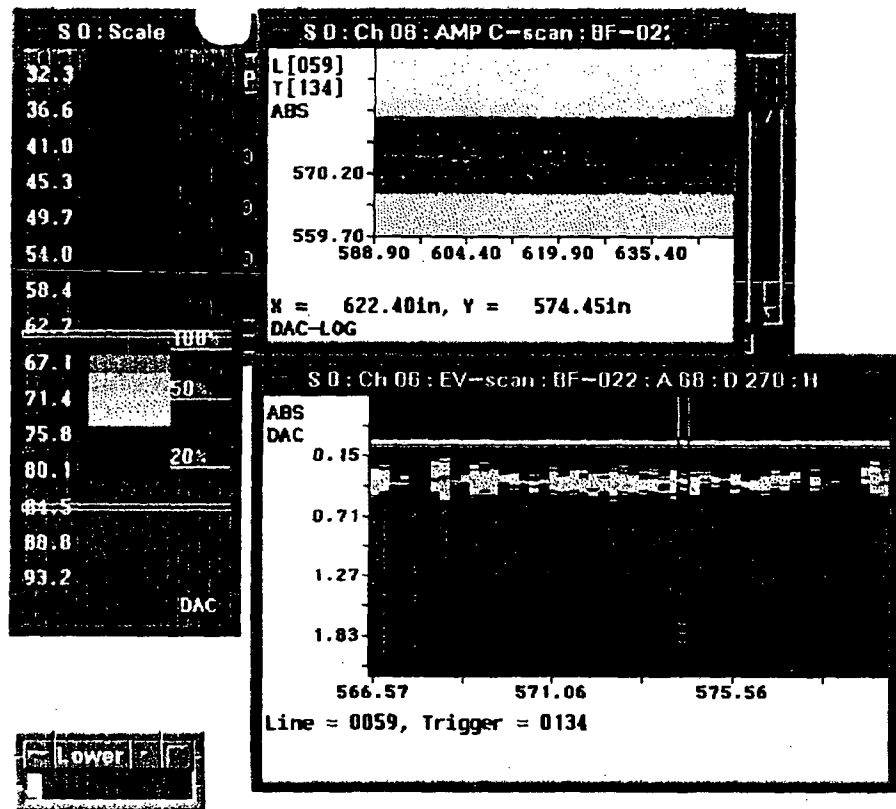
00576



R1152  
2/14 of 295  
\* 00577



R1152  
2154-245  
06578



00579

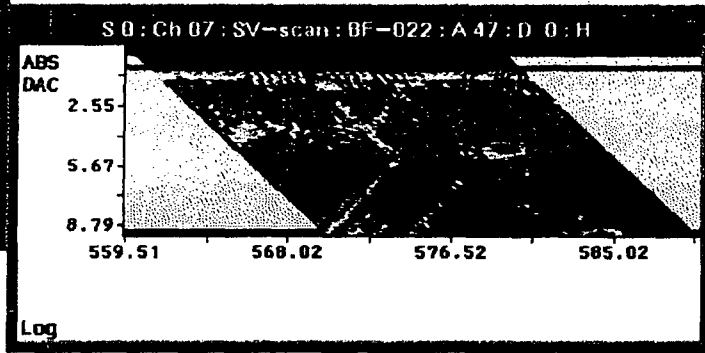
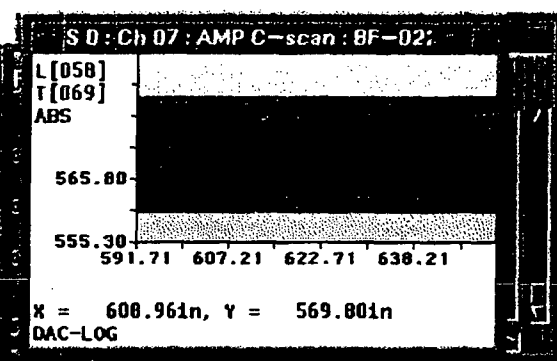
R1152  
216 of 245

S 0 : Scale

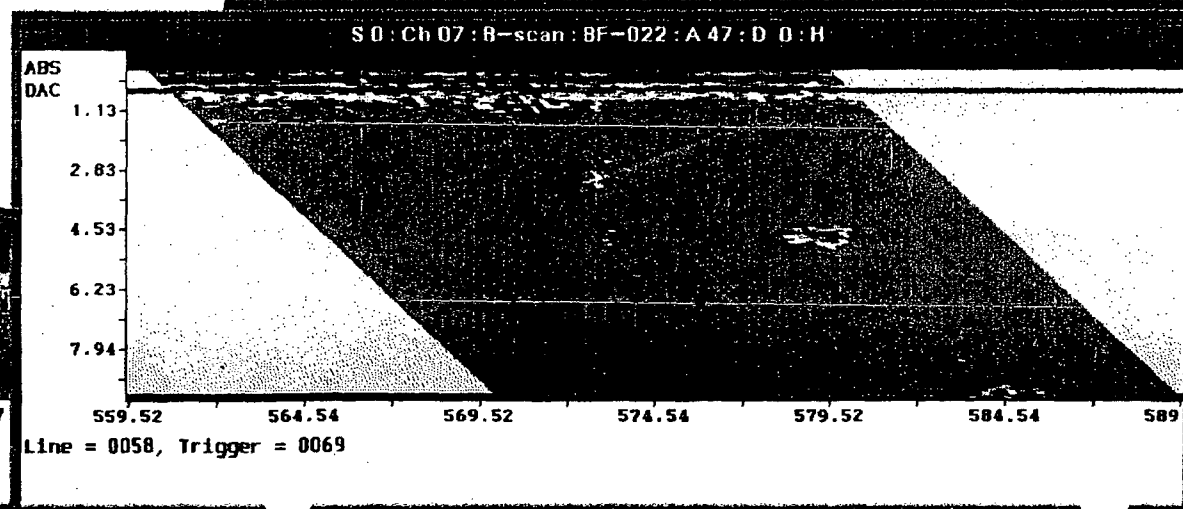
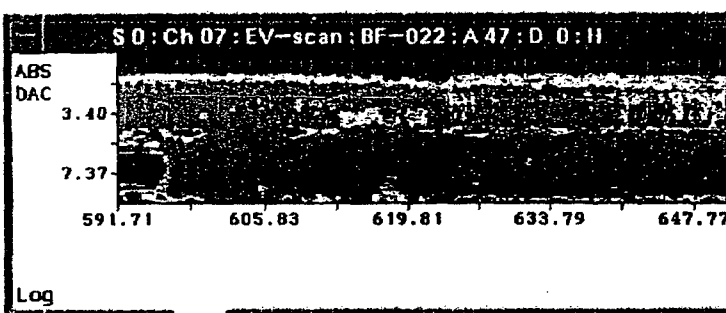
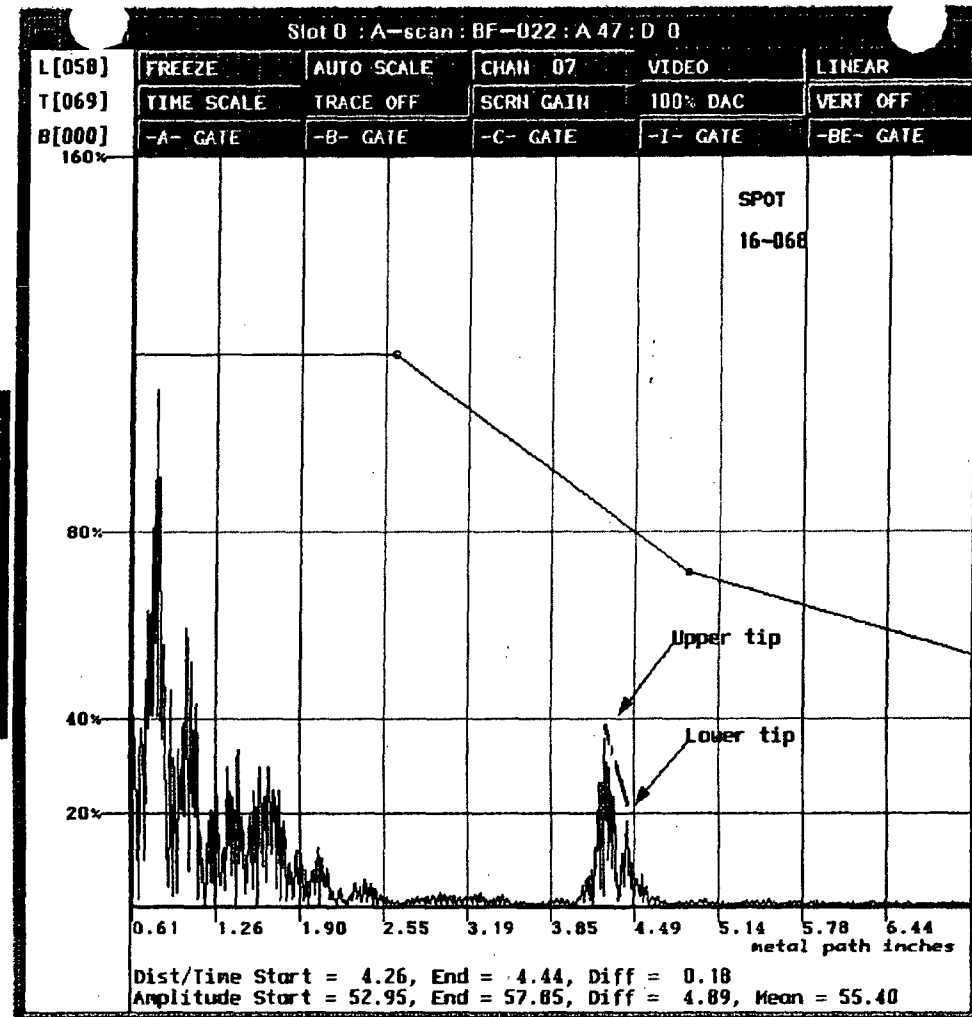
32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

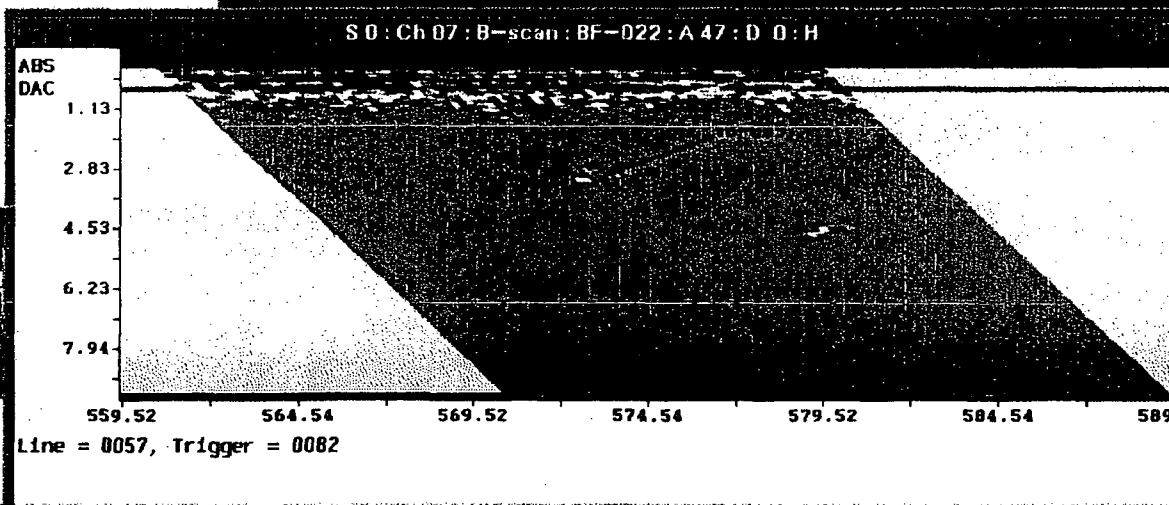
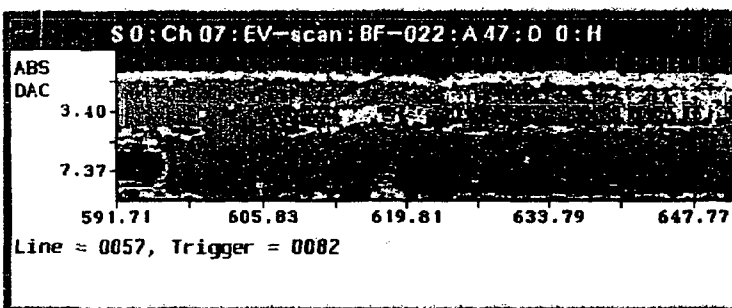
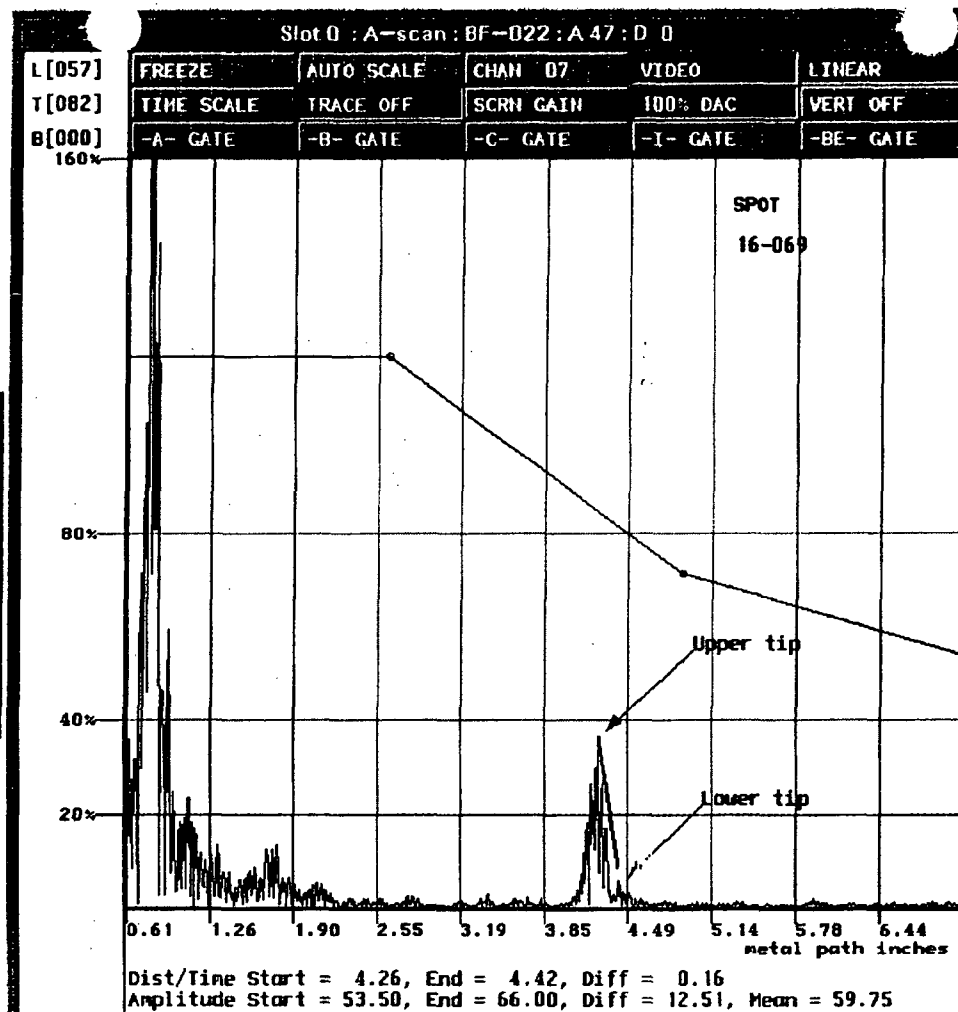
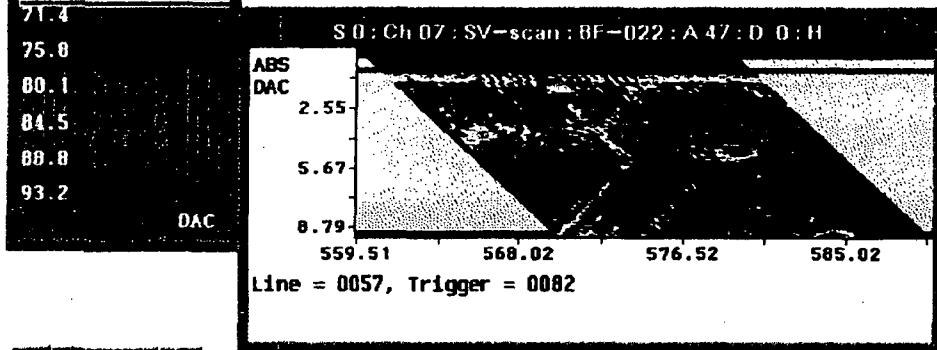
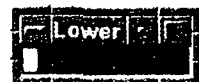
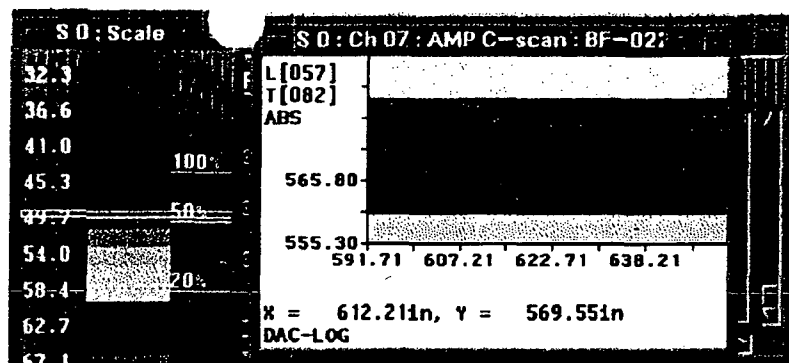
DAC



Lower



00580  
R 1152  
217 of 245



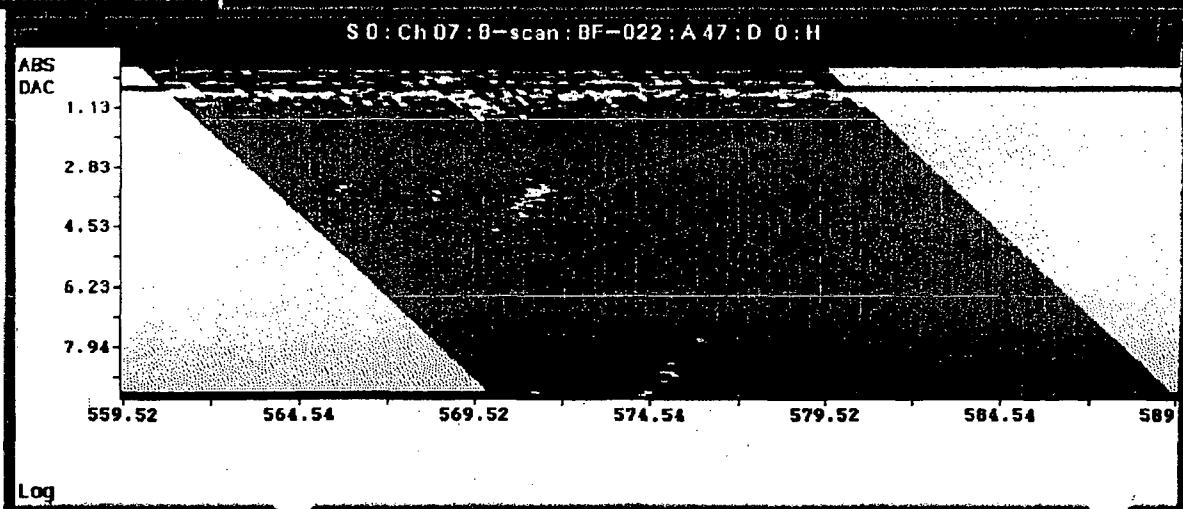
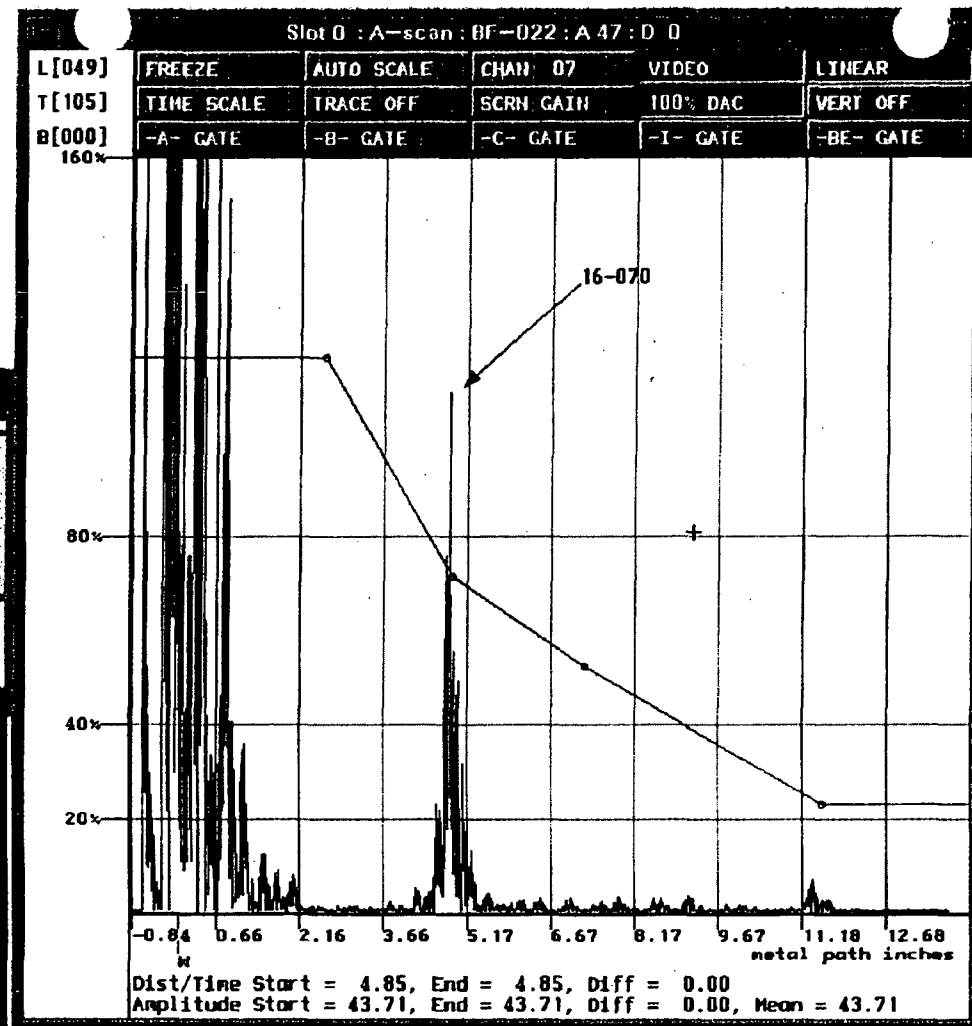
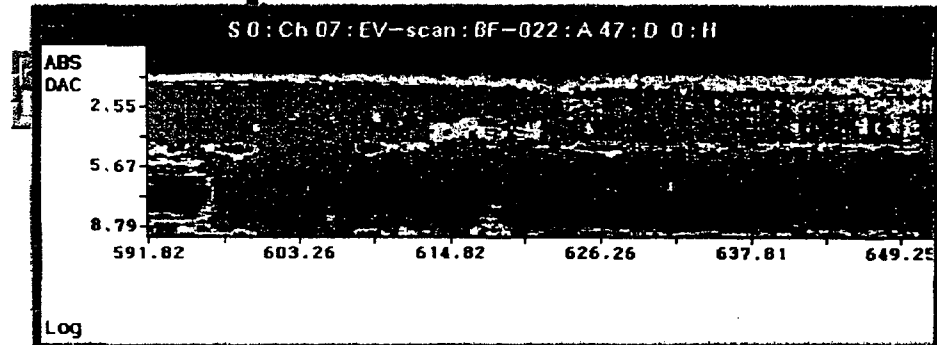
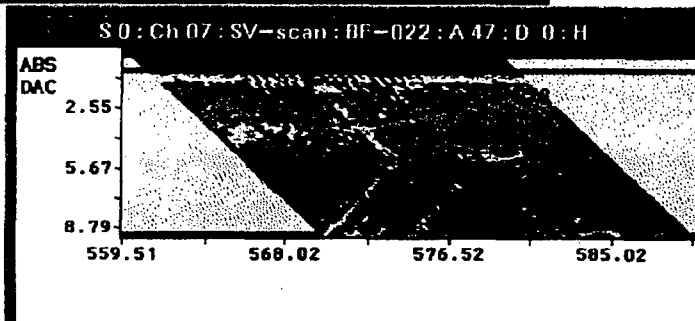
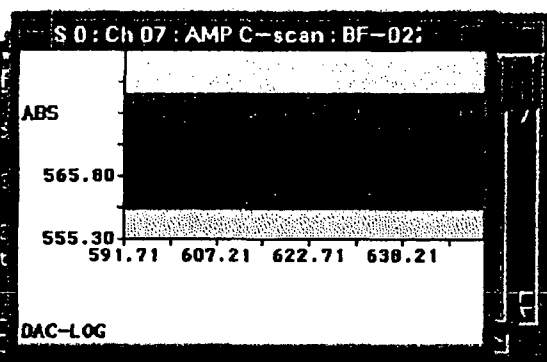
2186245  
R 1152  
# 00581

S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC



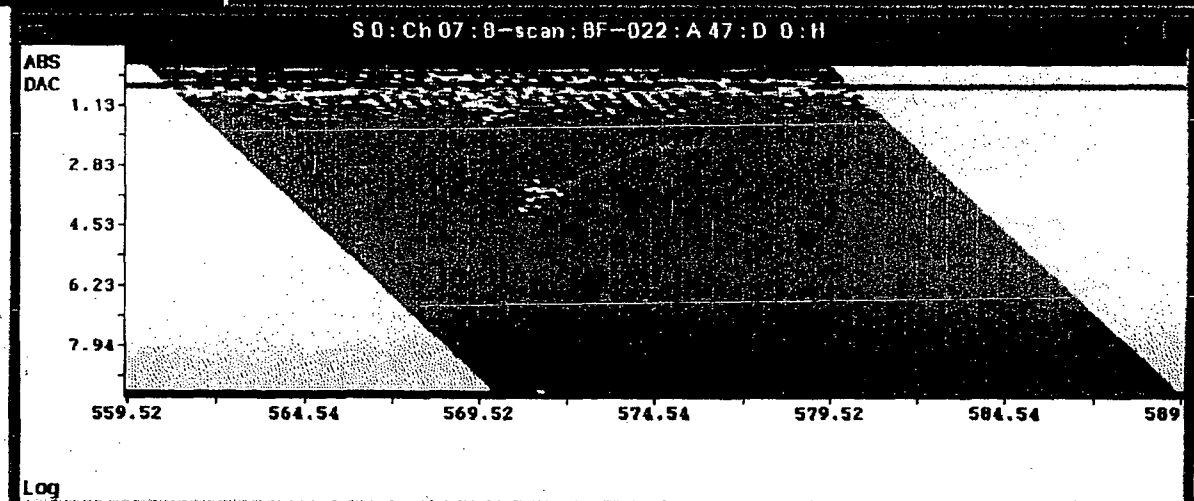
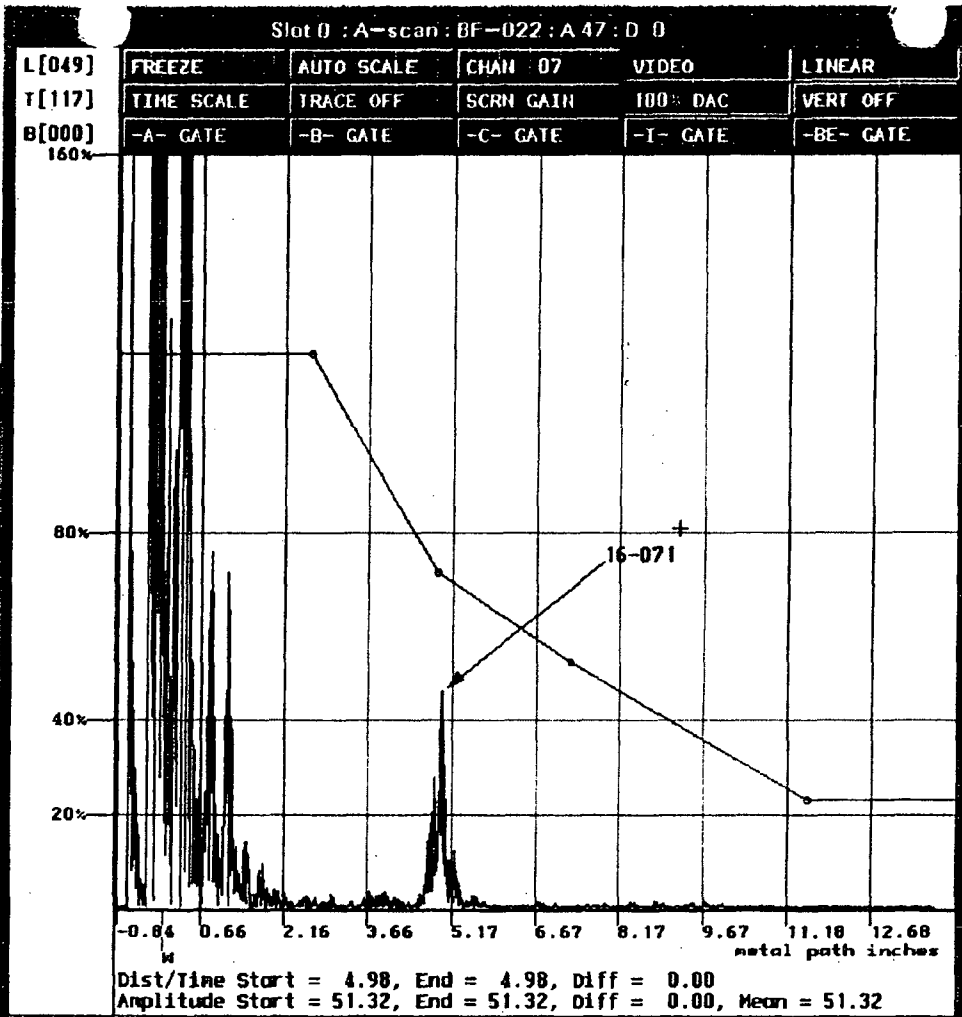
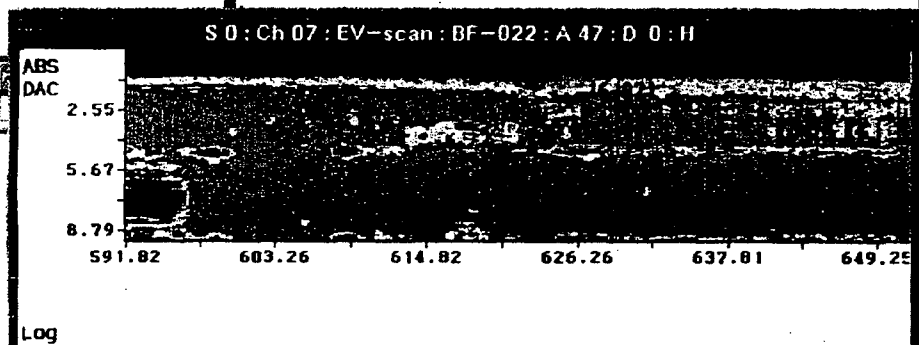
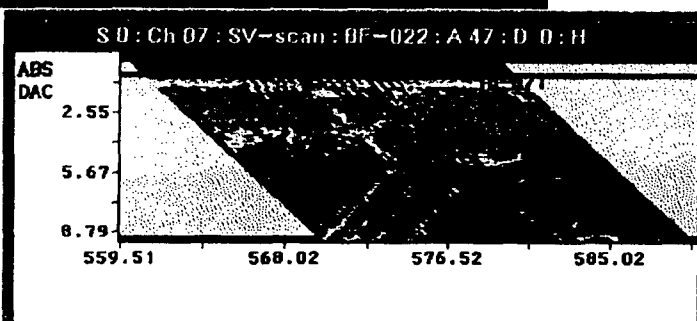
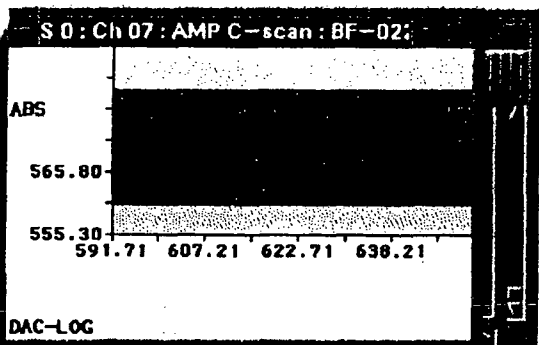
21908245  
R1152  
00582

S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.3  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

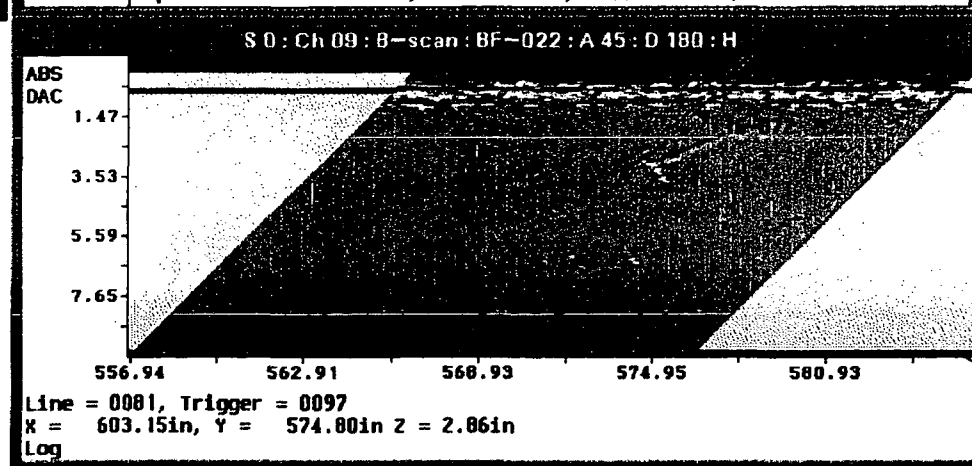
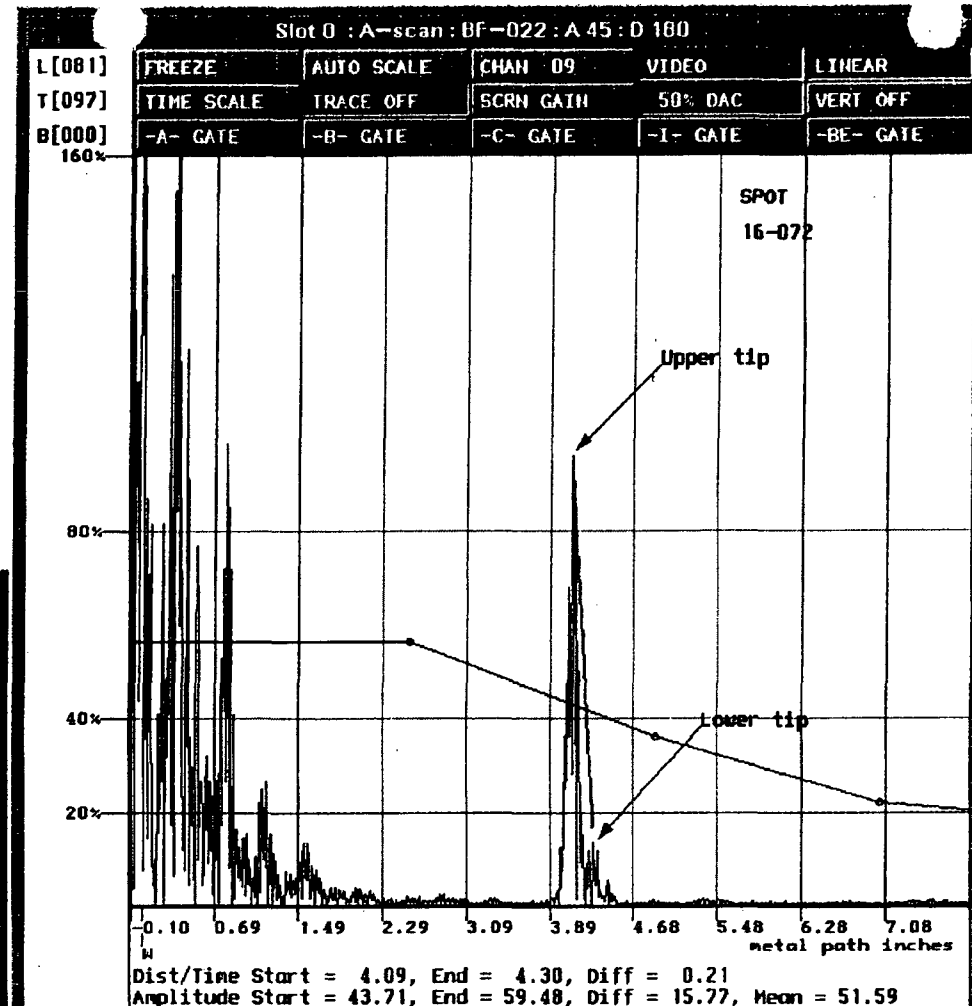
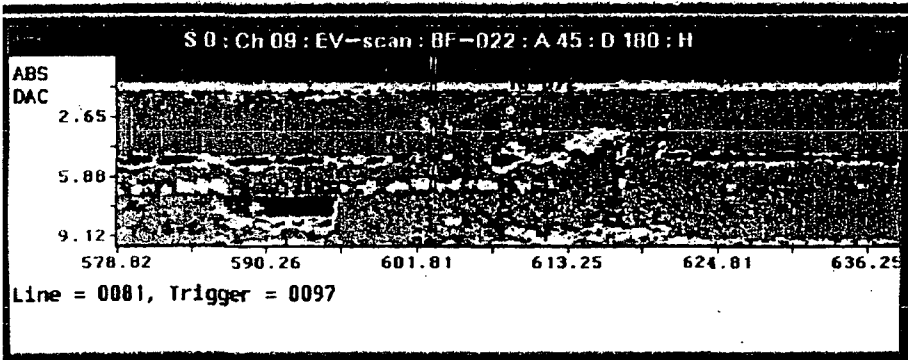
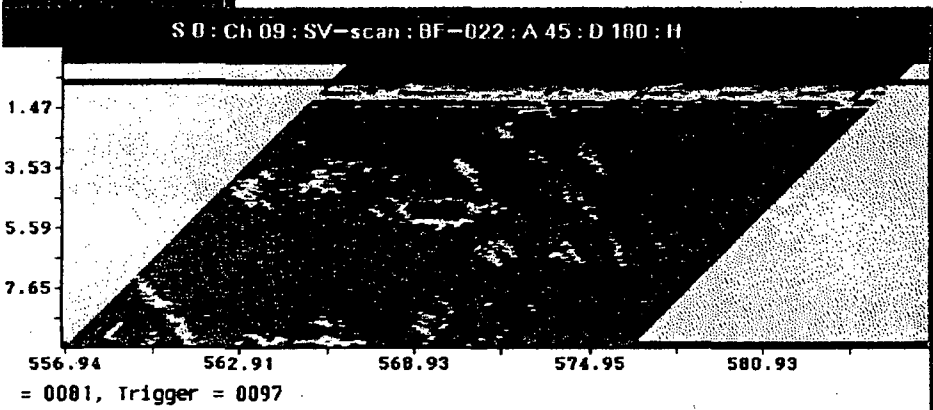
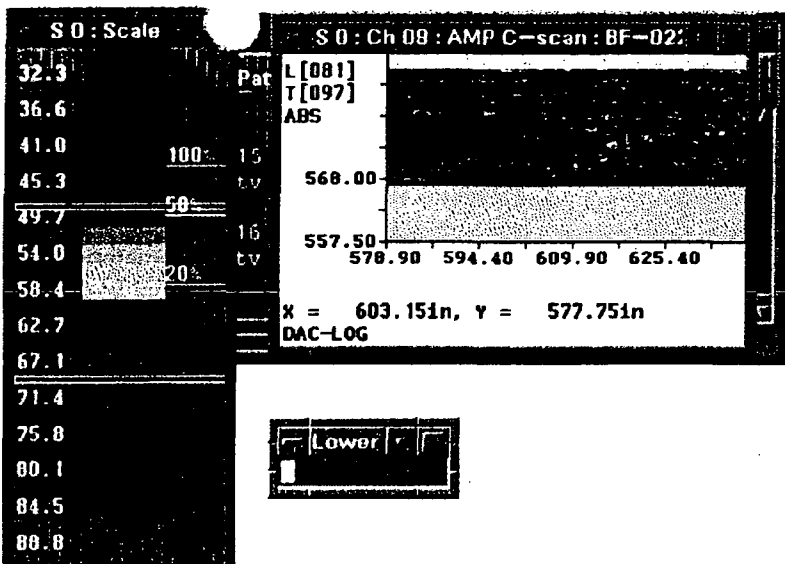
DAC



00583 R 1152

220 of 245

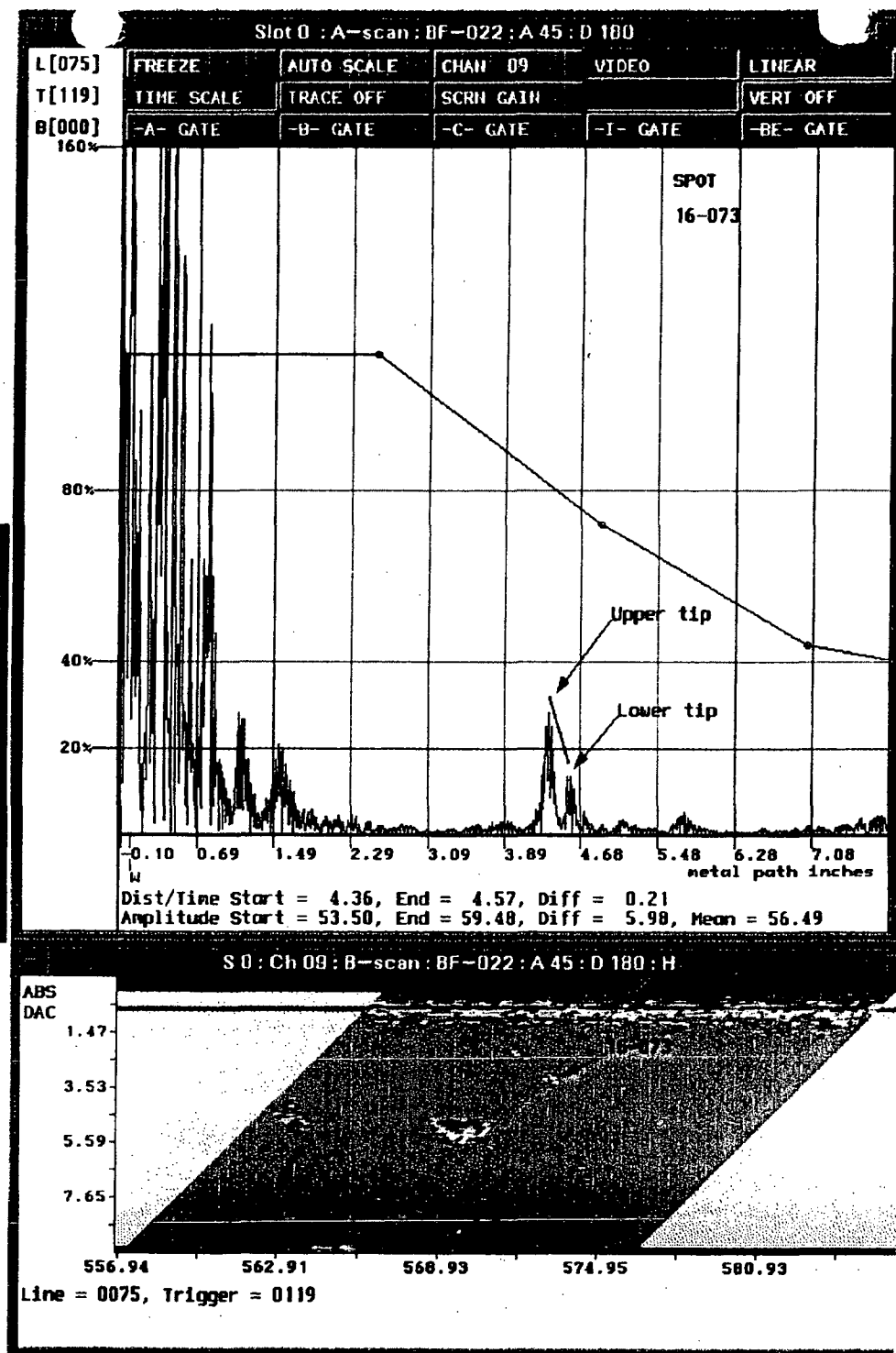
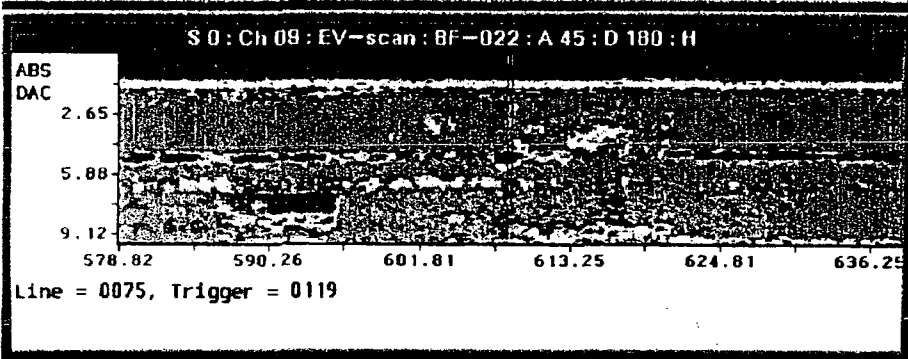
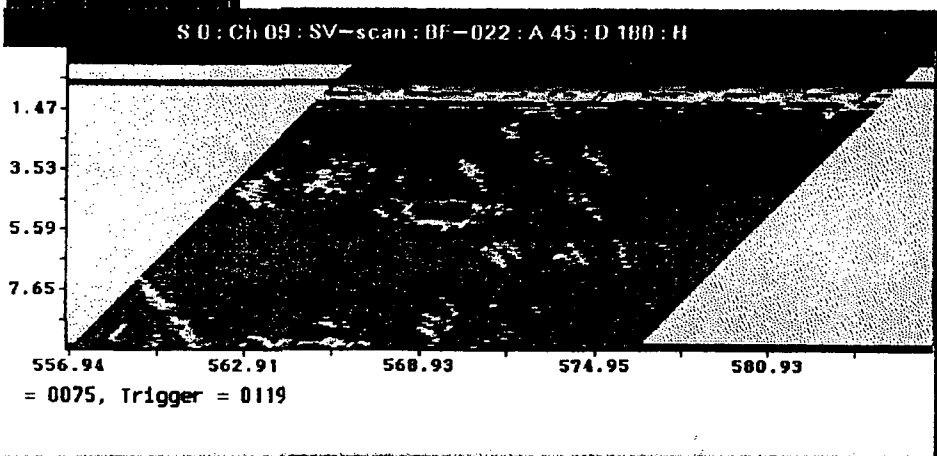
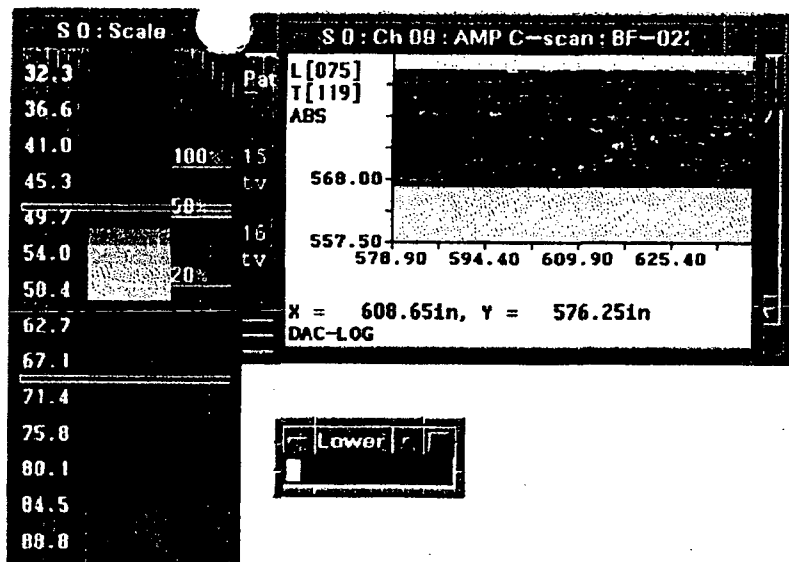




00584 R1152

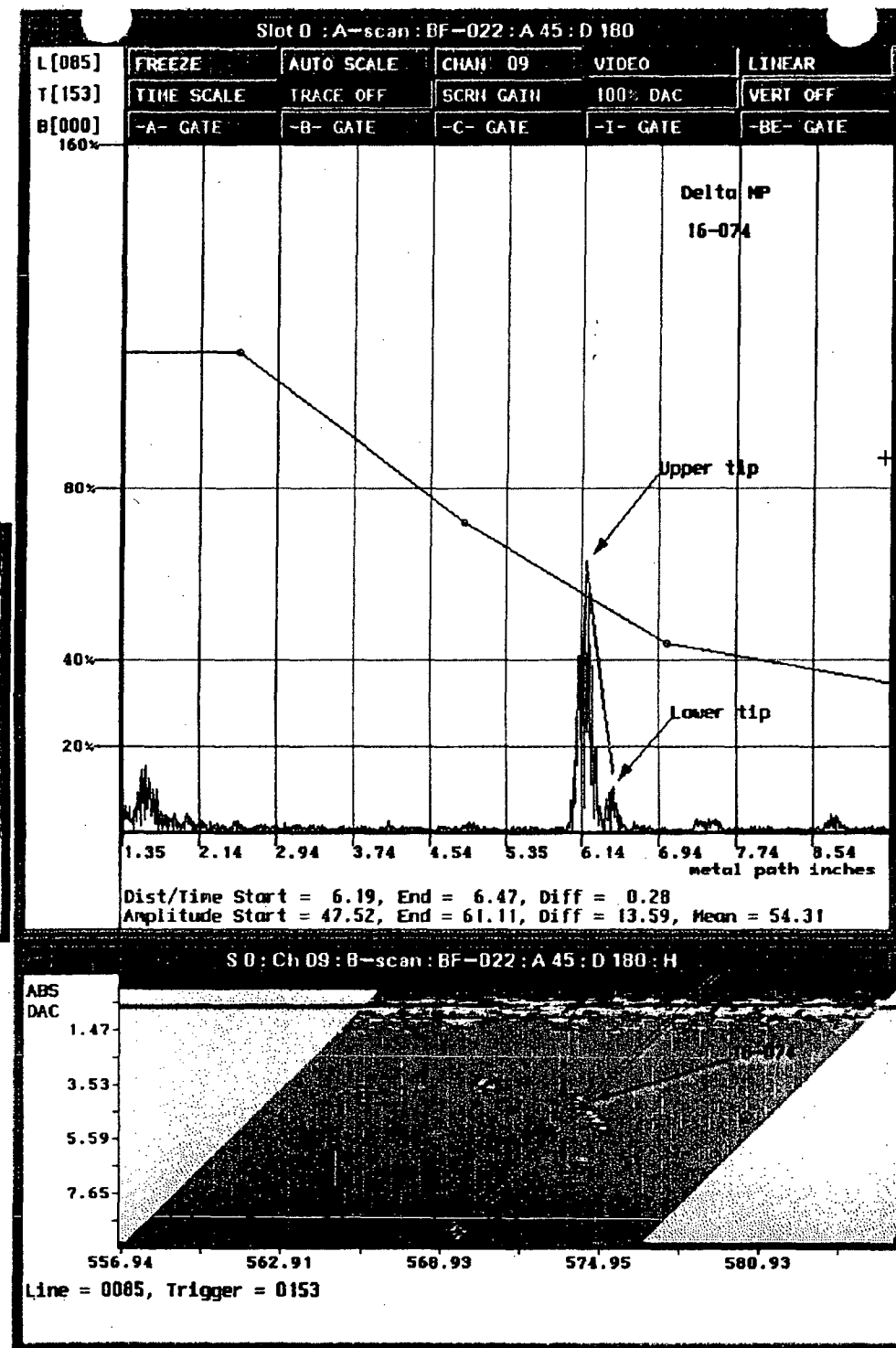
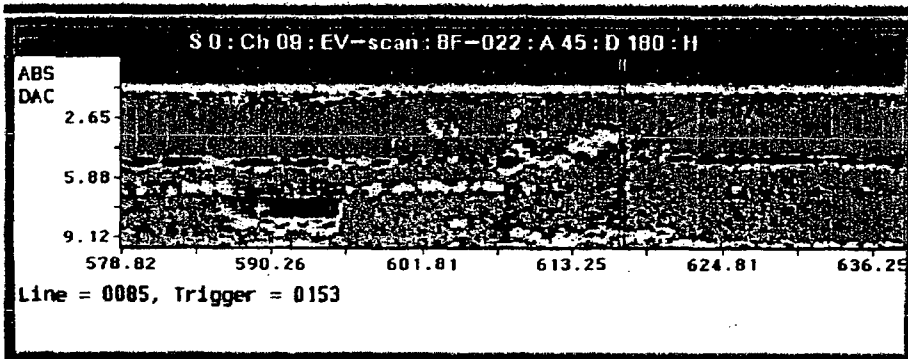
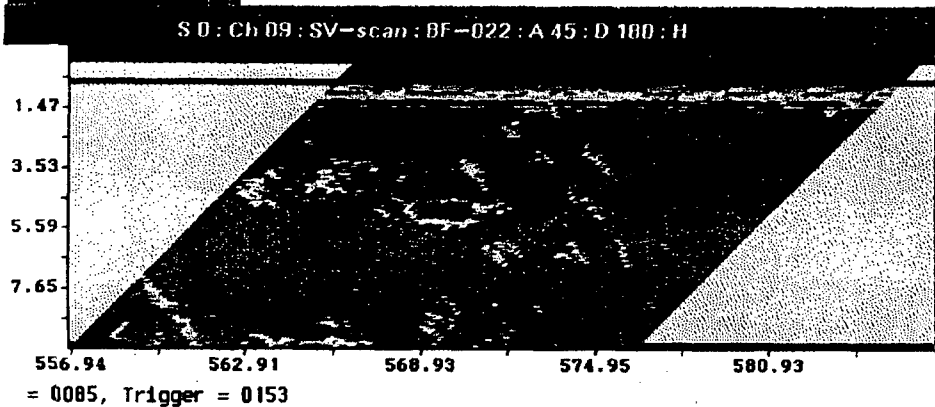
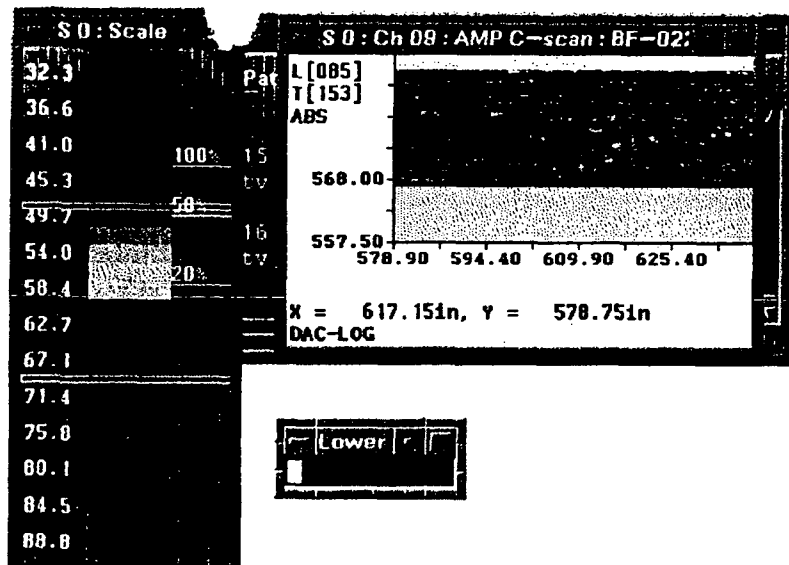
00584 R1152

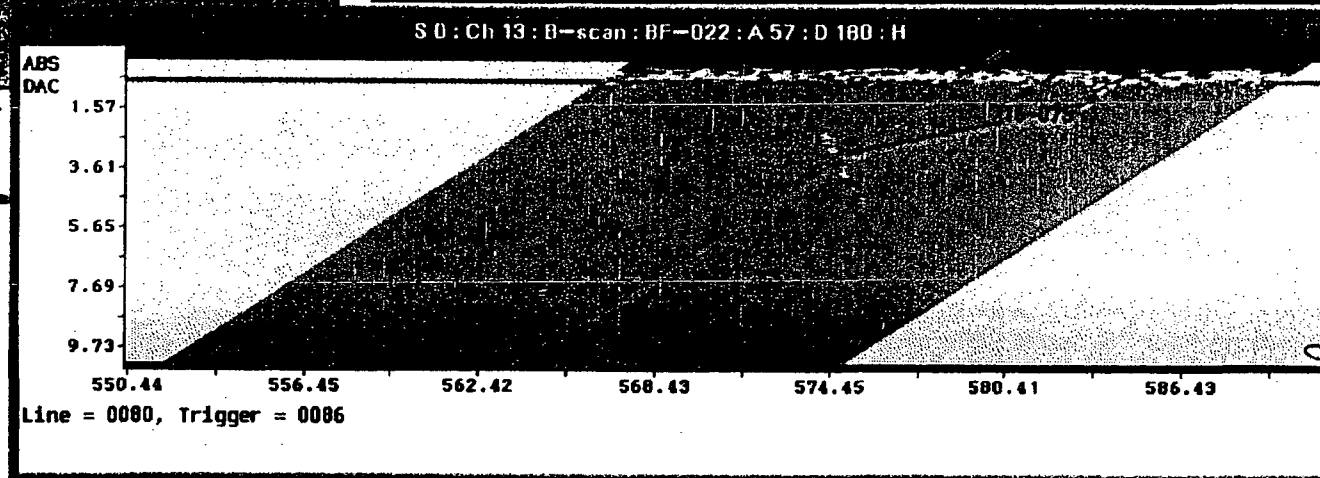
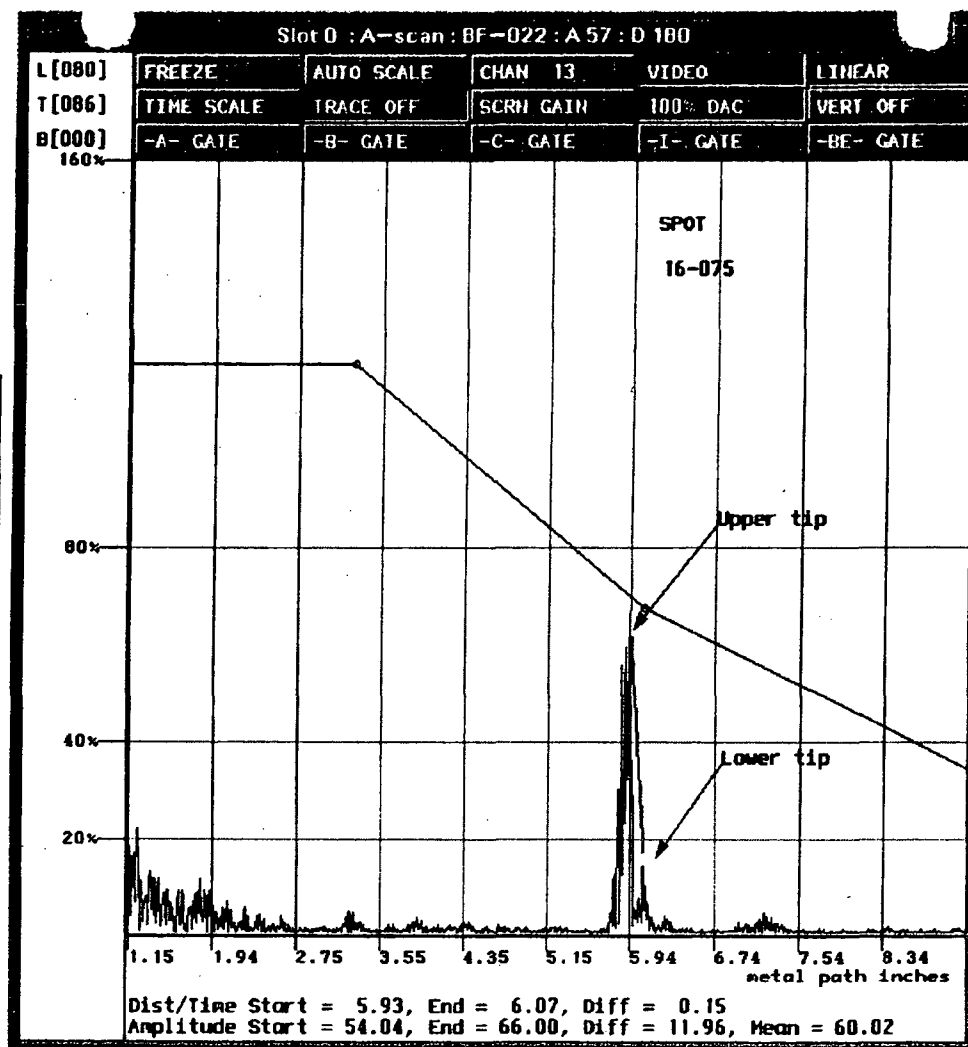
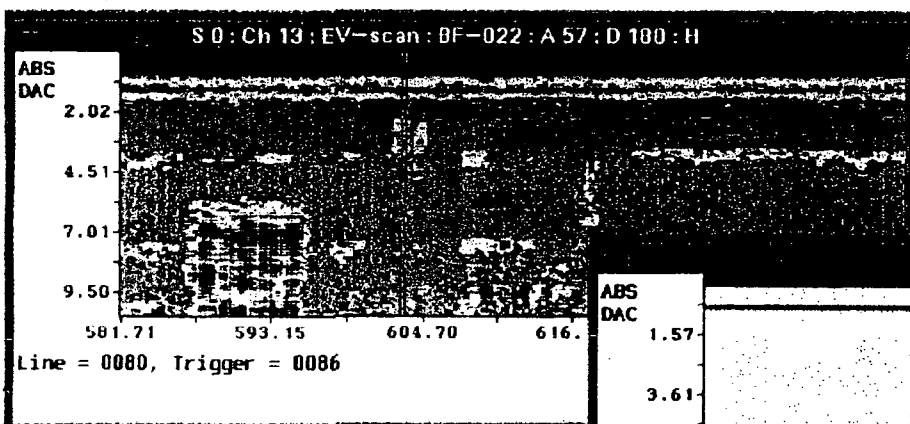
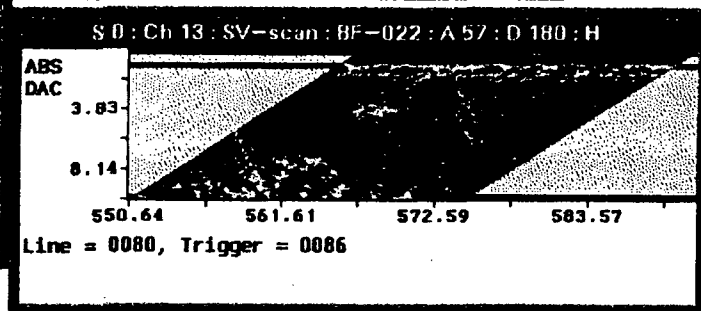
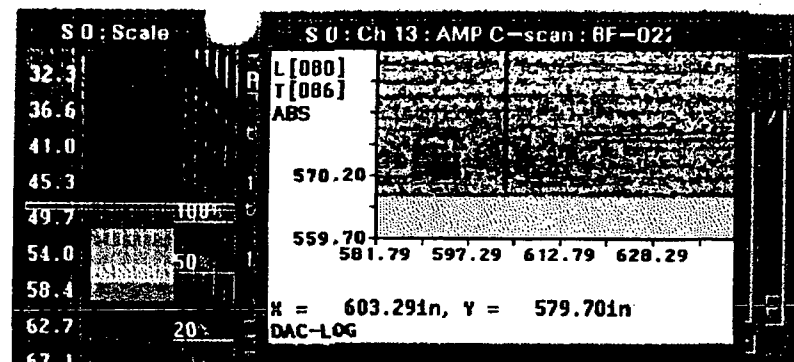
22/04/245



00585 R1152

2220 245





0000 1000

00587 R1152

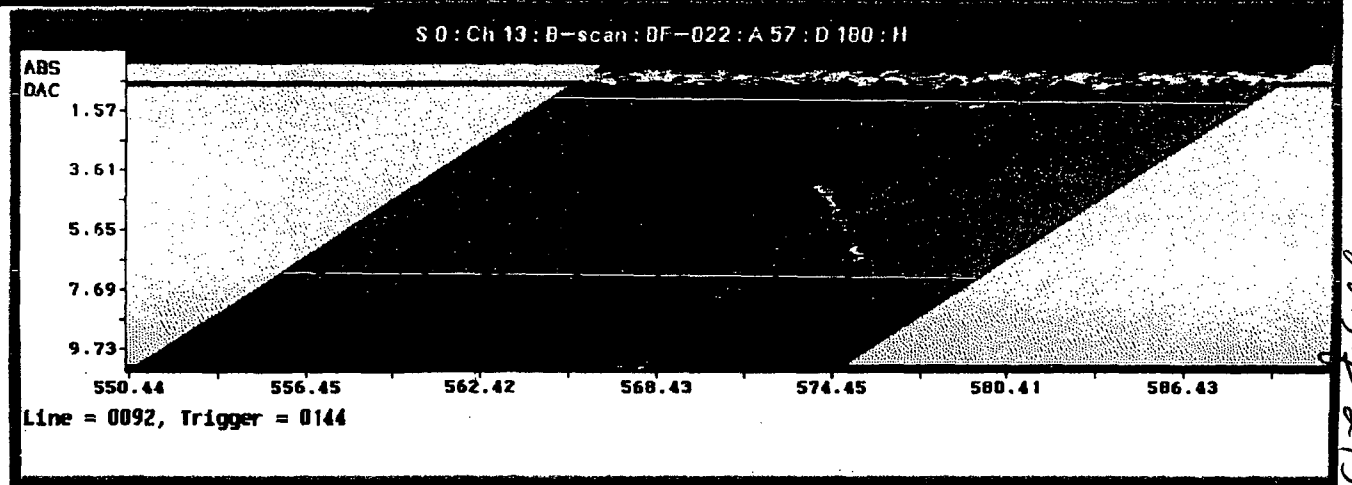
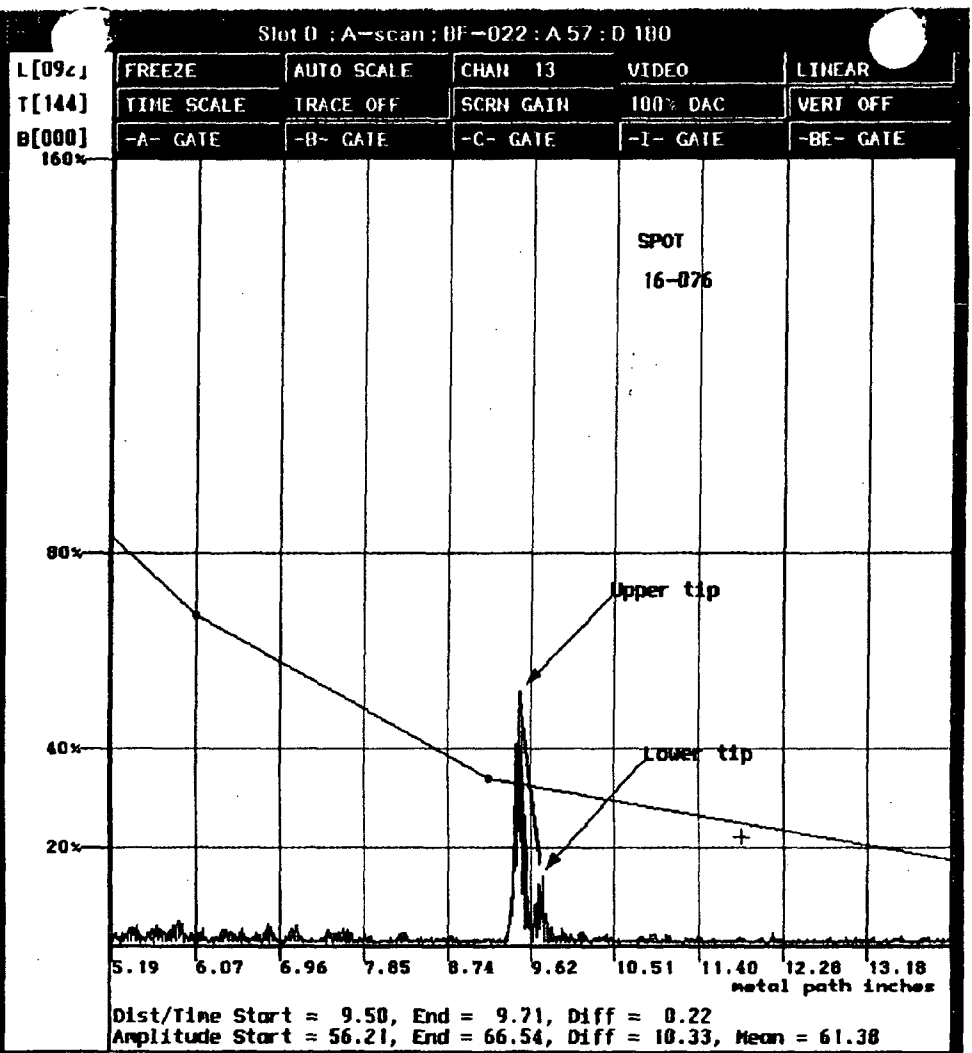
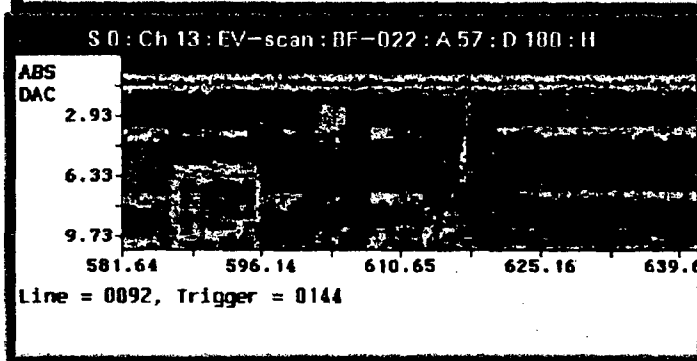
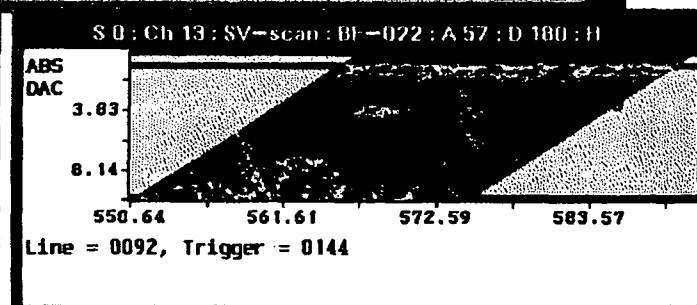
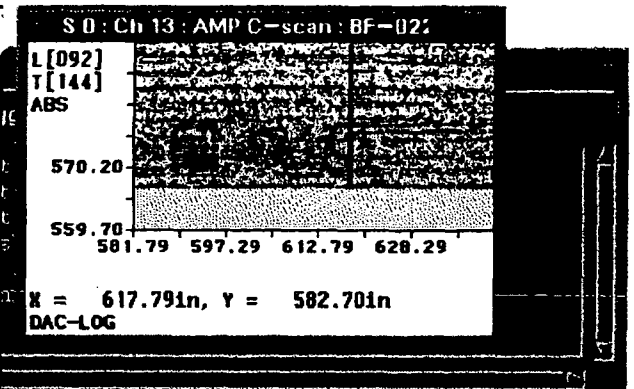
2246245

S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC



00588 R1152

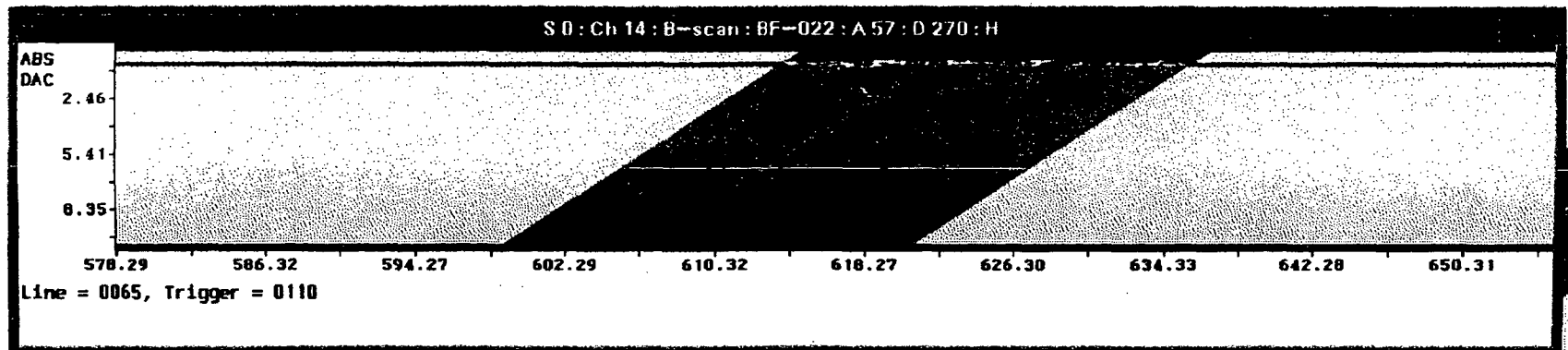
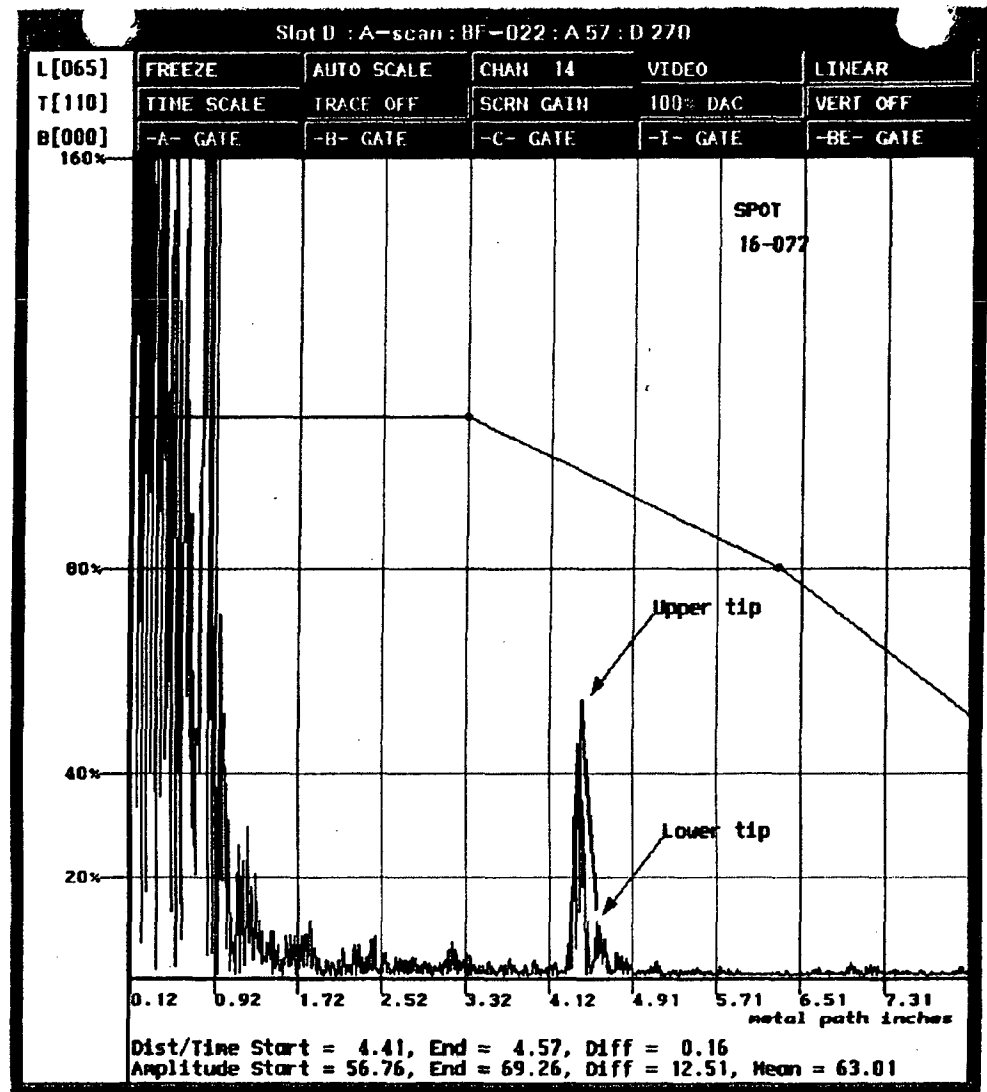
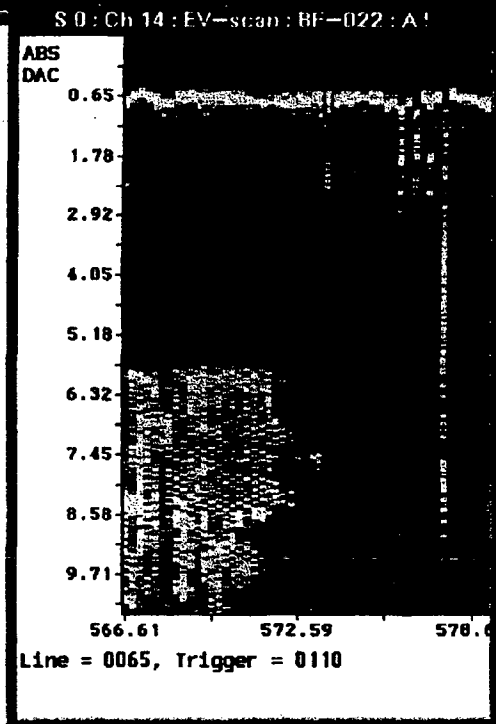
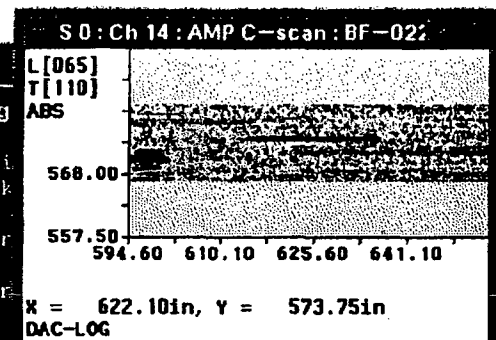
22564 245

S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

180°  
50°  
20°

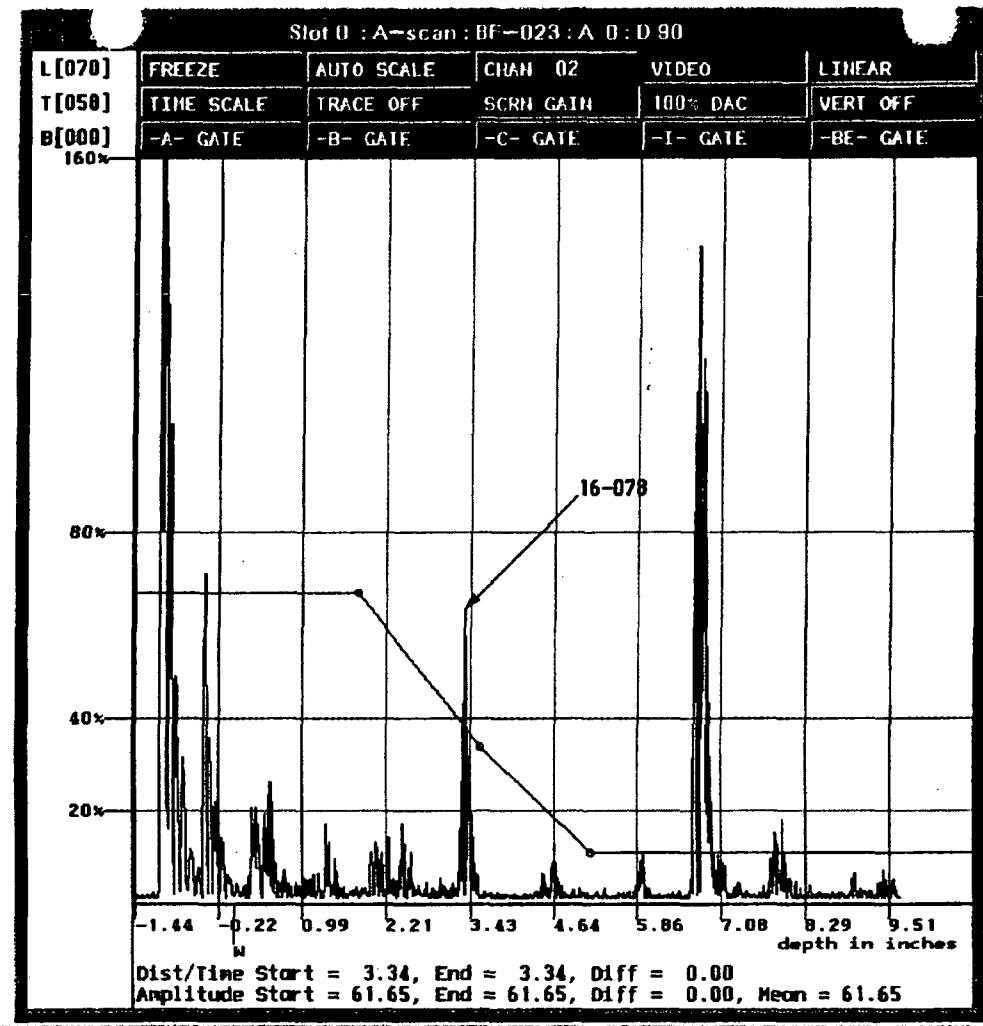
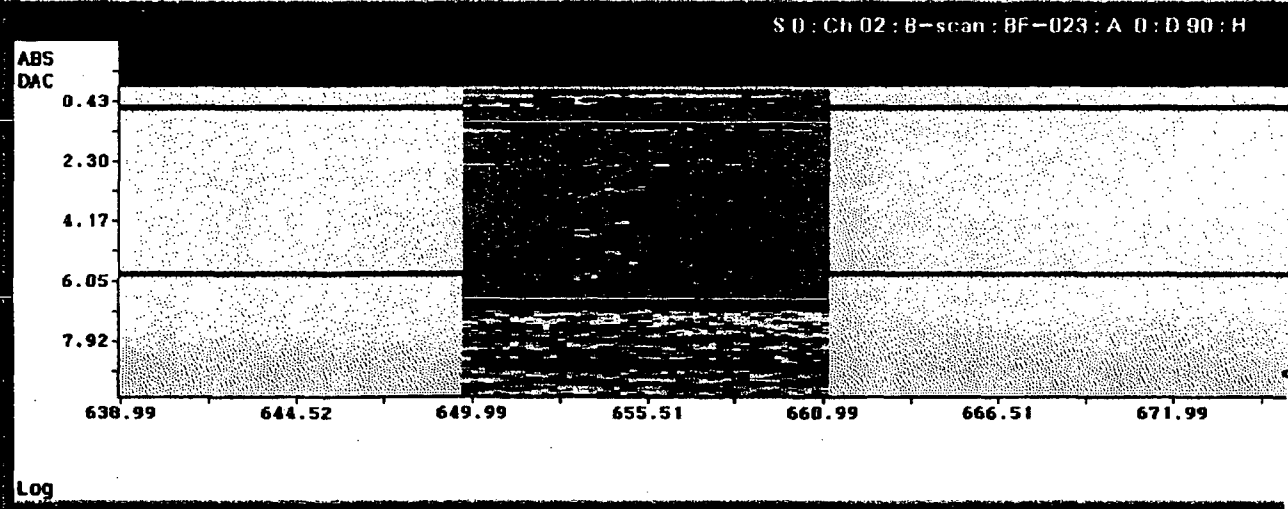
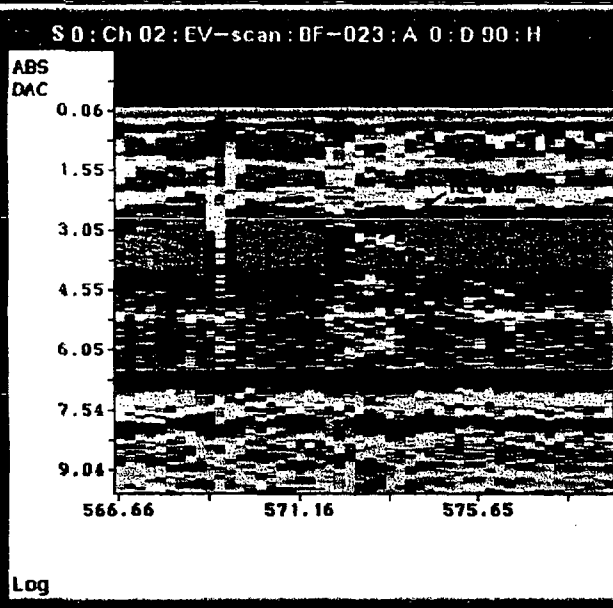
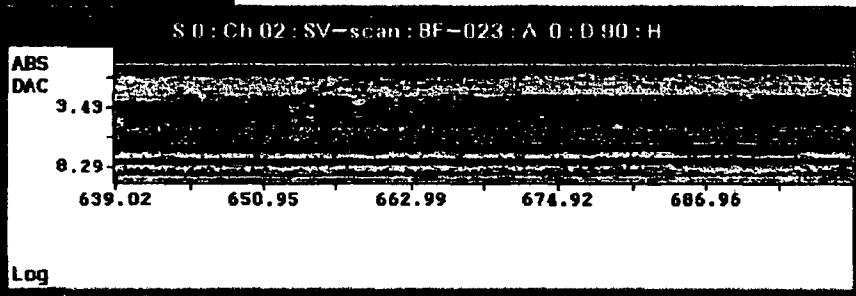
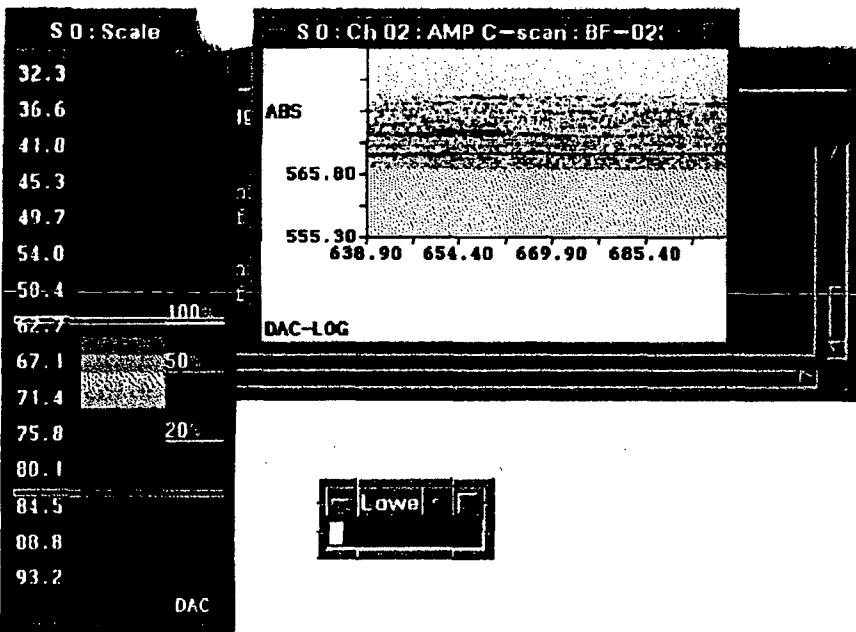
DAC



00000 00000

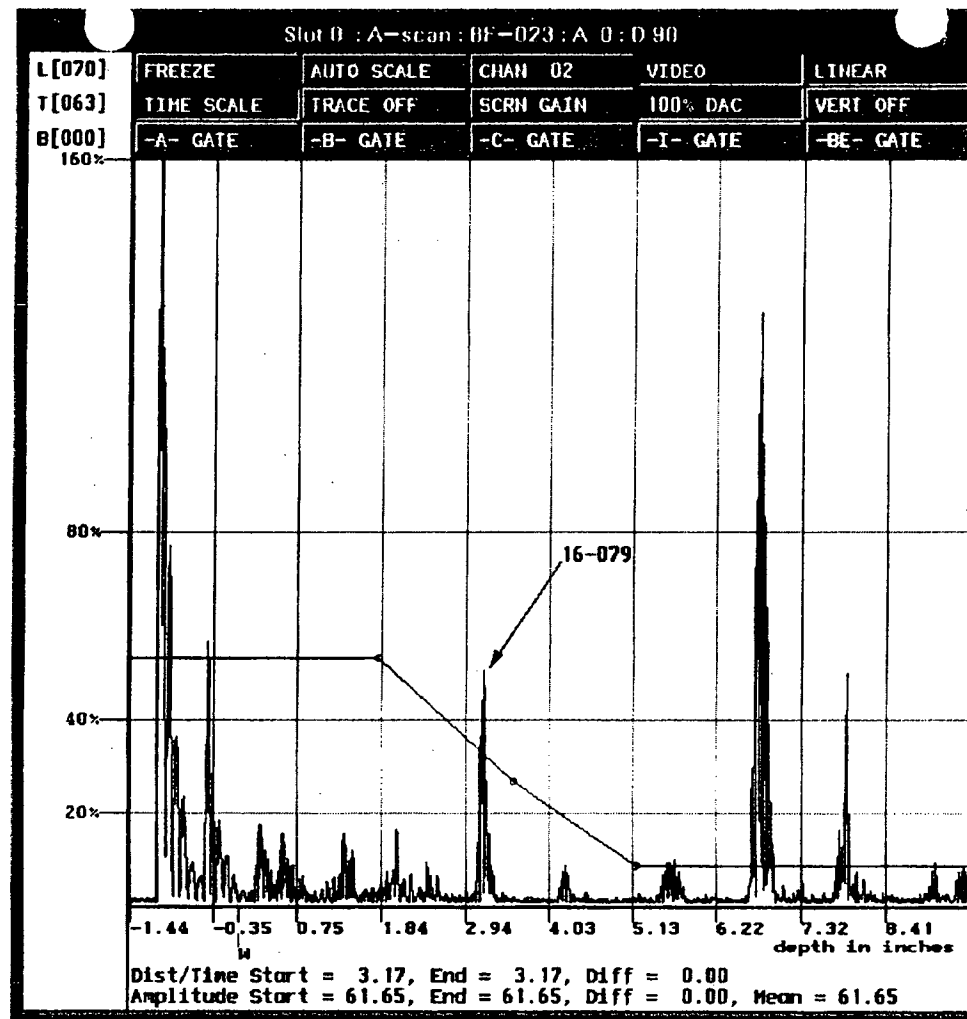
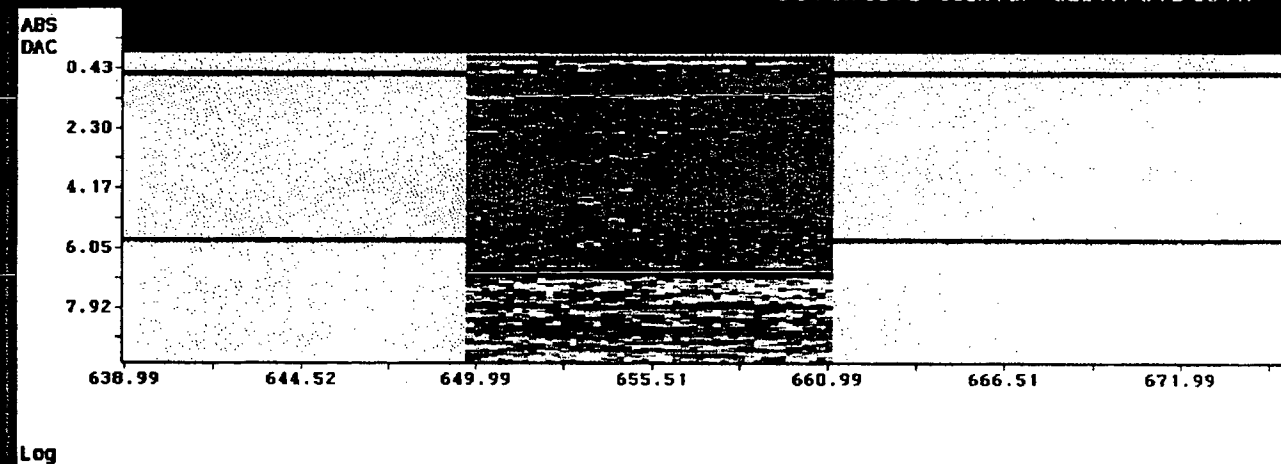
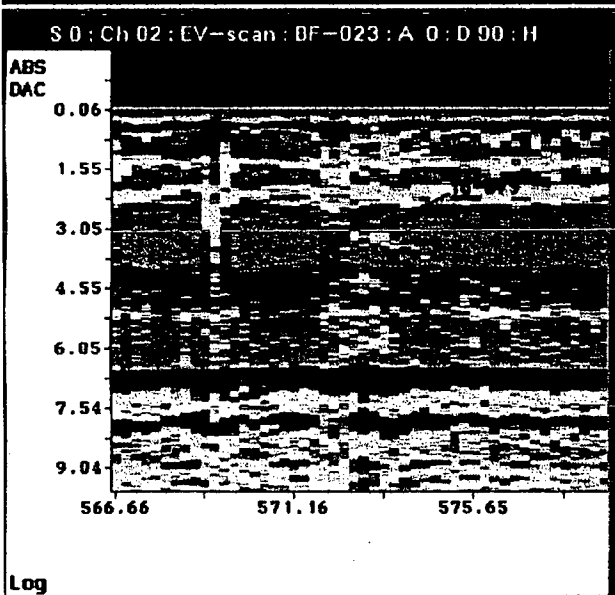
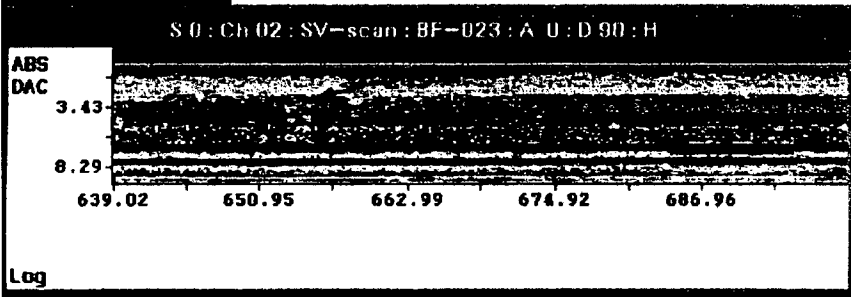
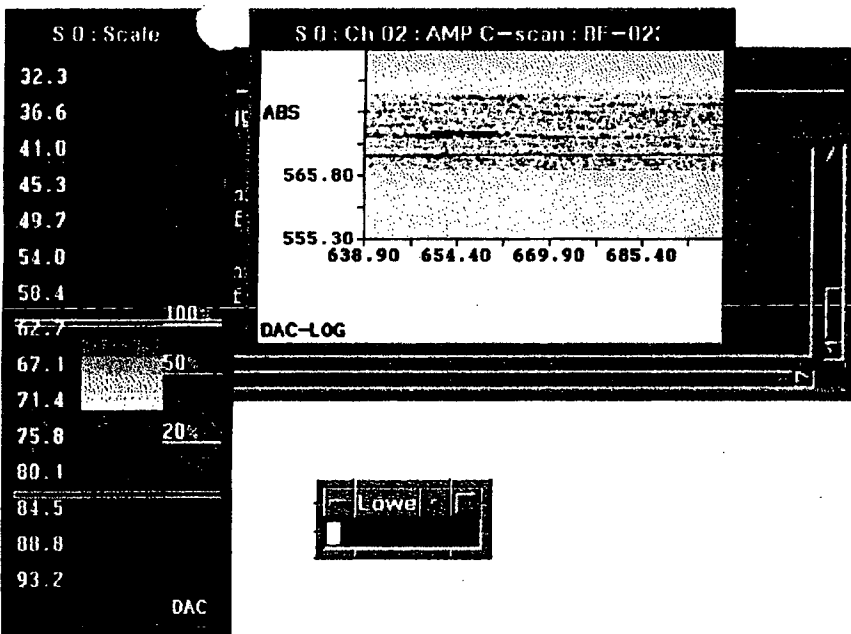
00589 R1152

22604245



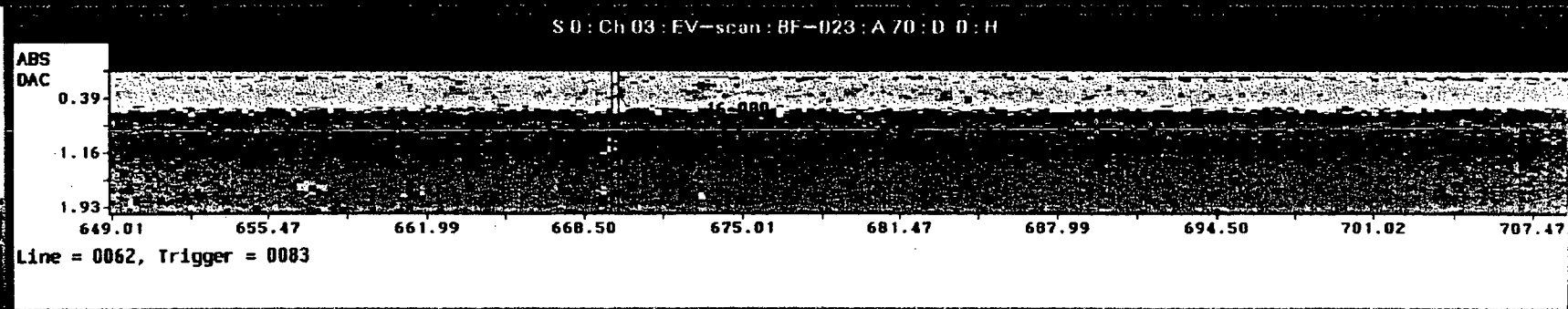
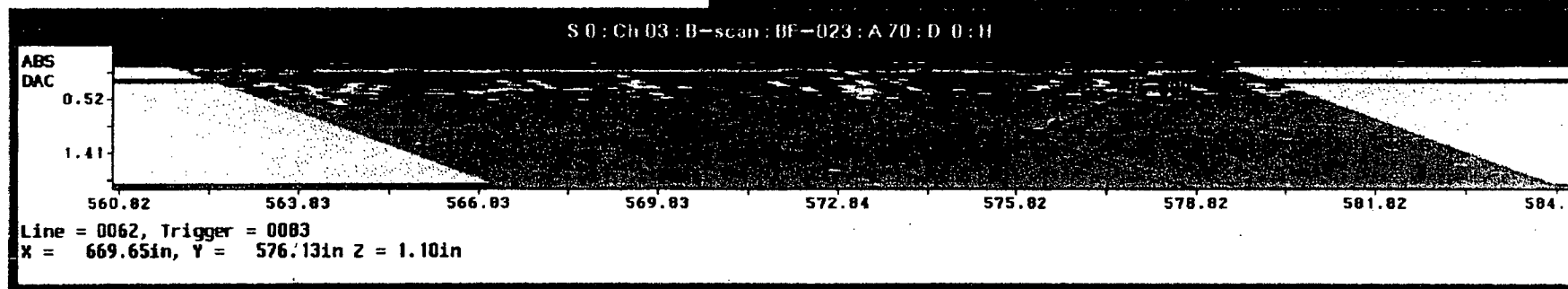
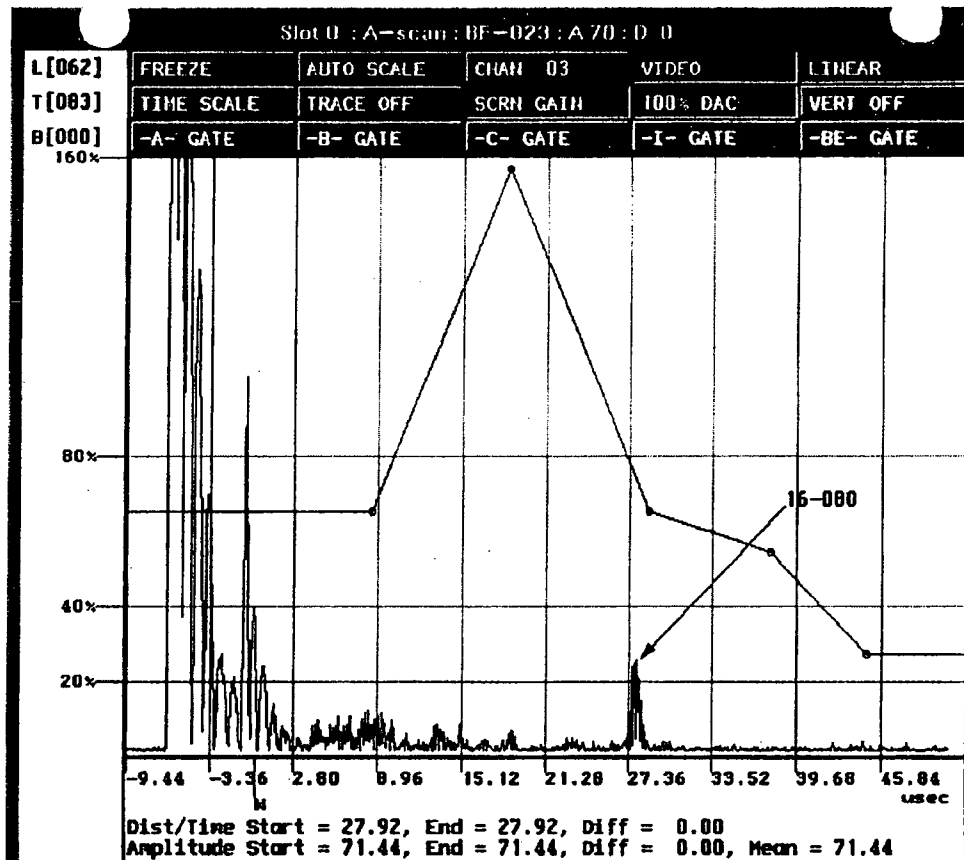
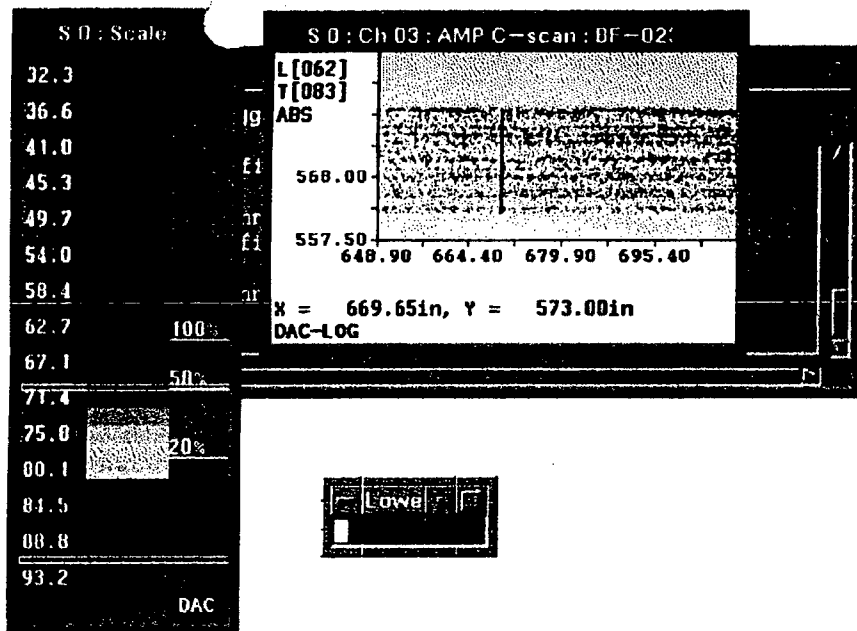
00590 R 1152

22704295

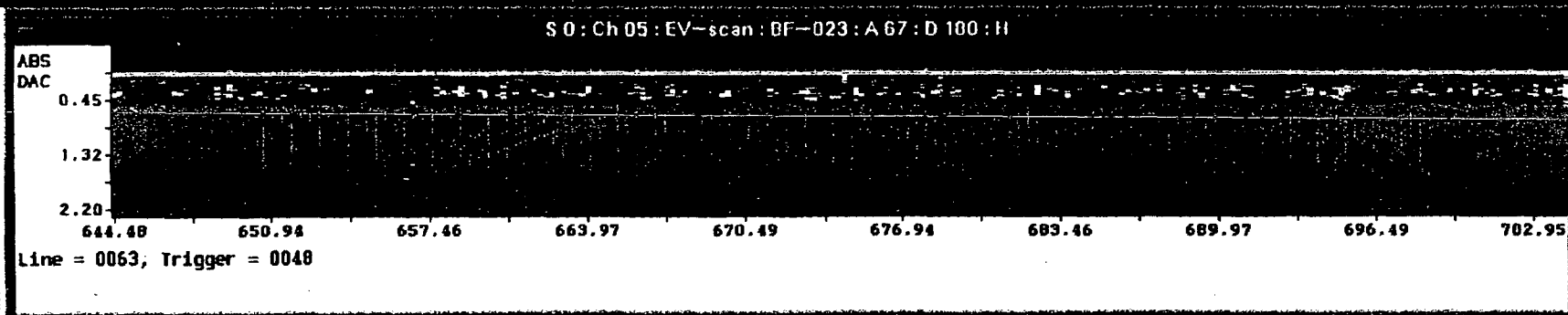
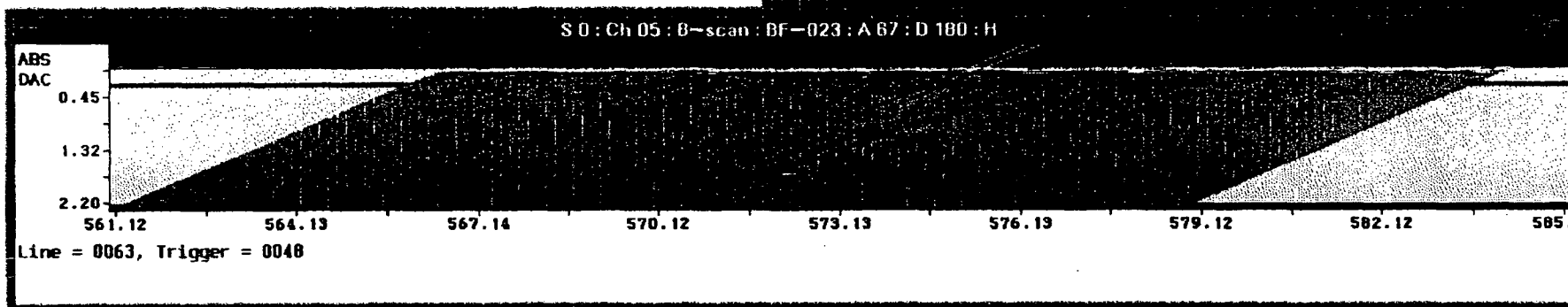
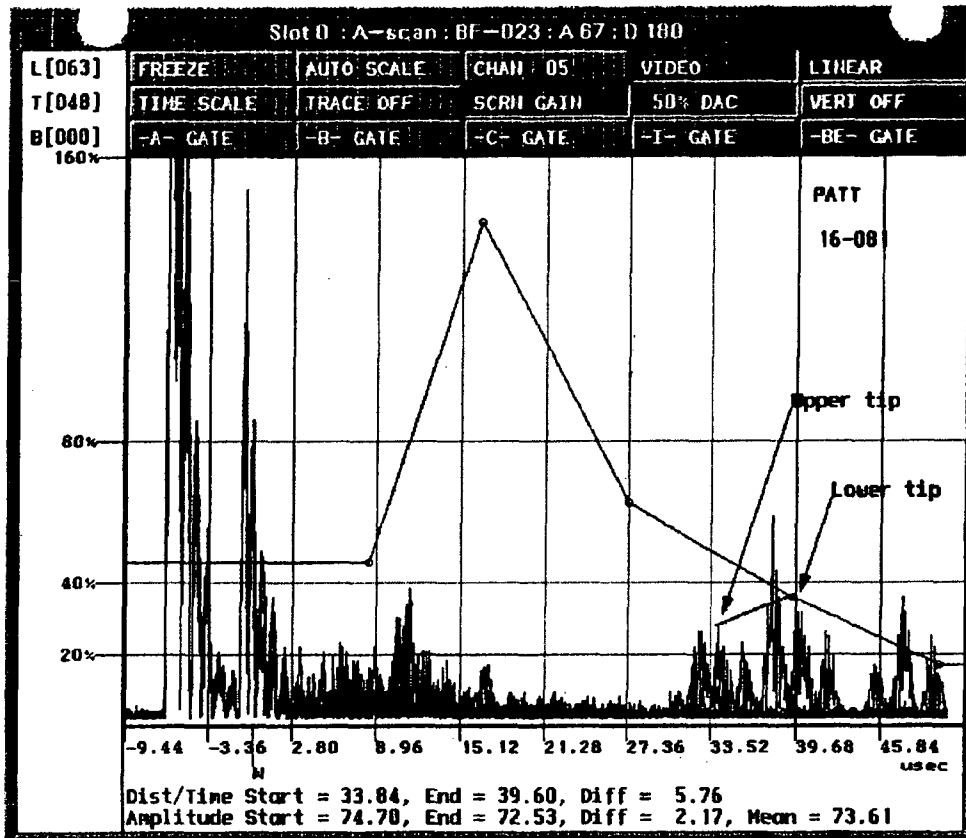
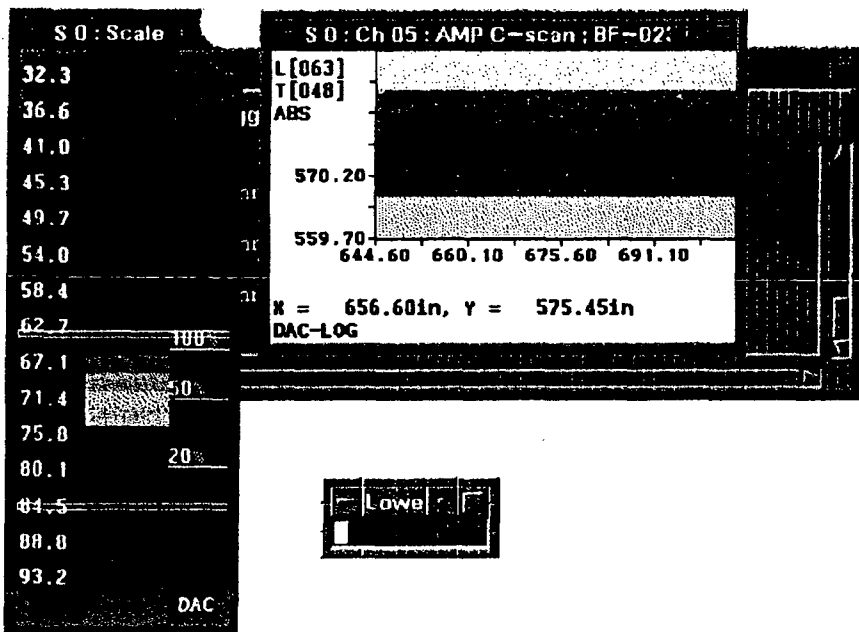


00581 R 1152  
2284245





00592 21152  
2296245



00593 R1152

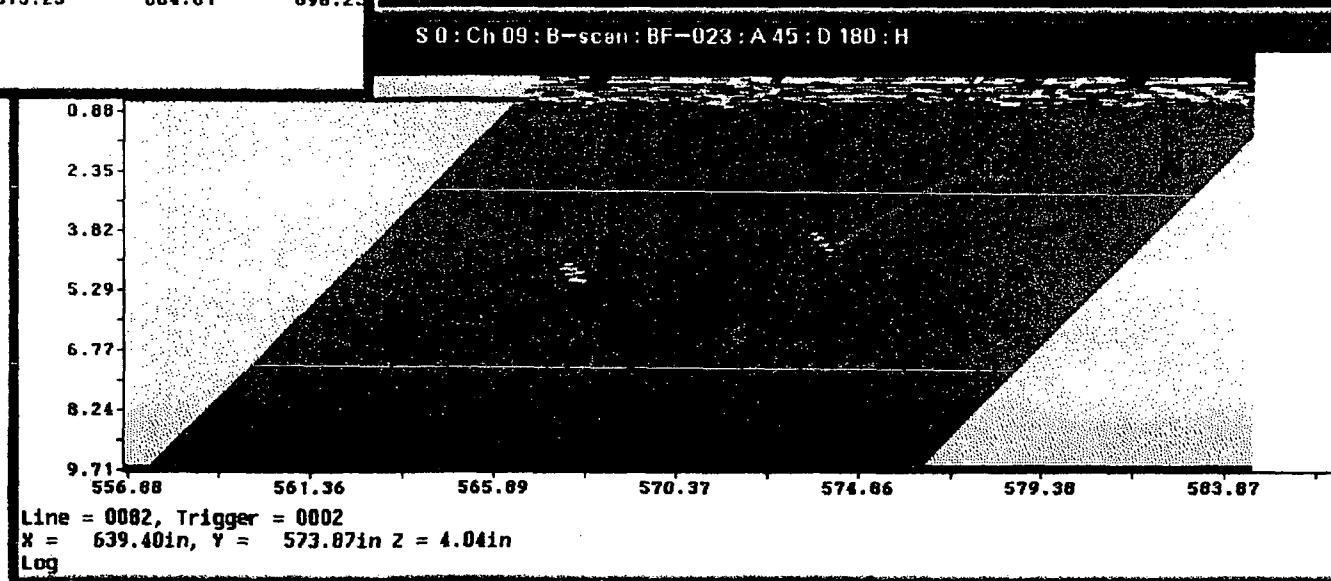
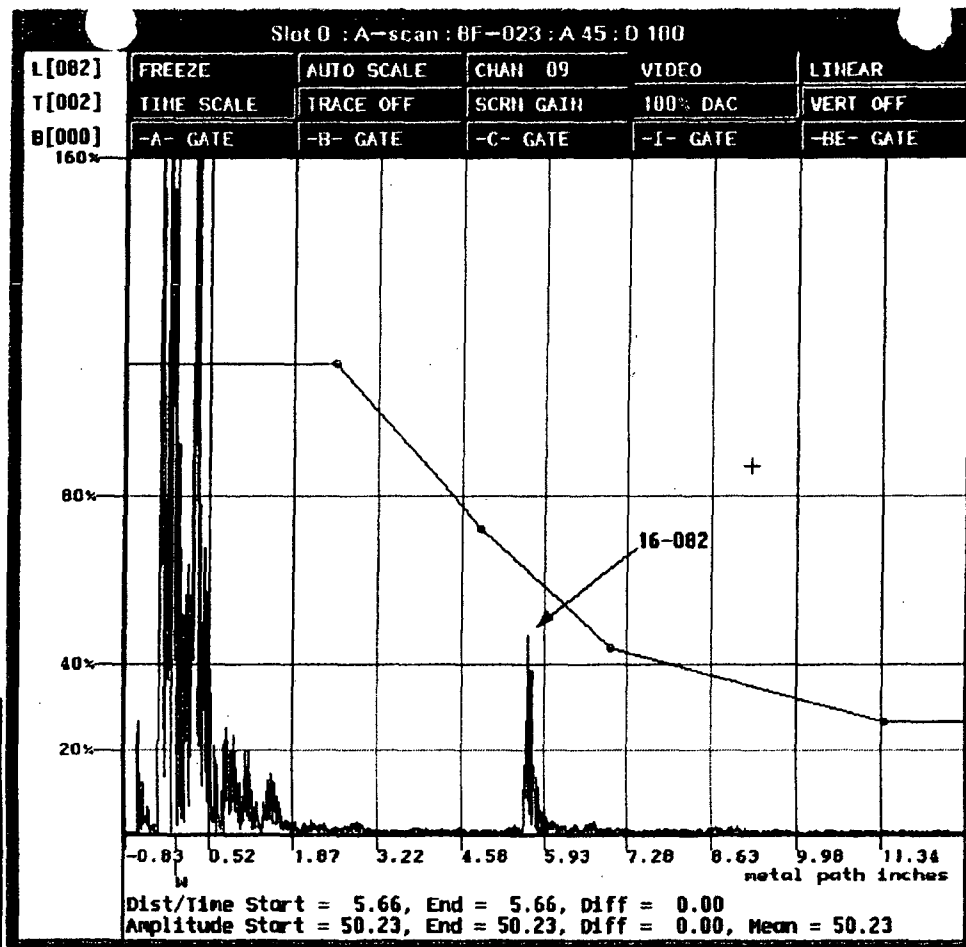
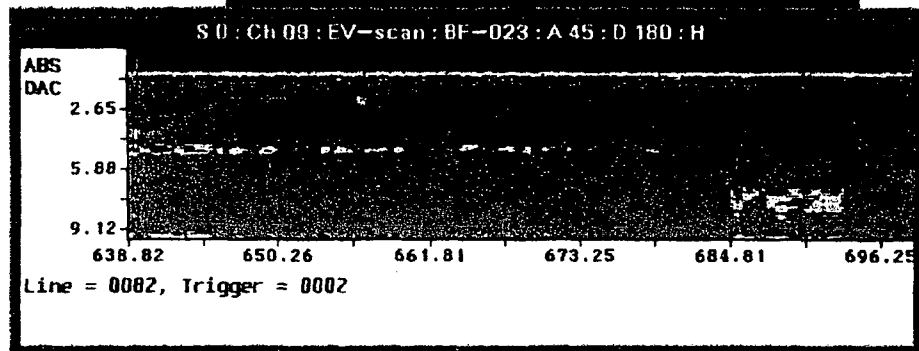
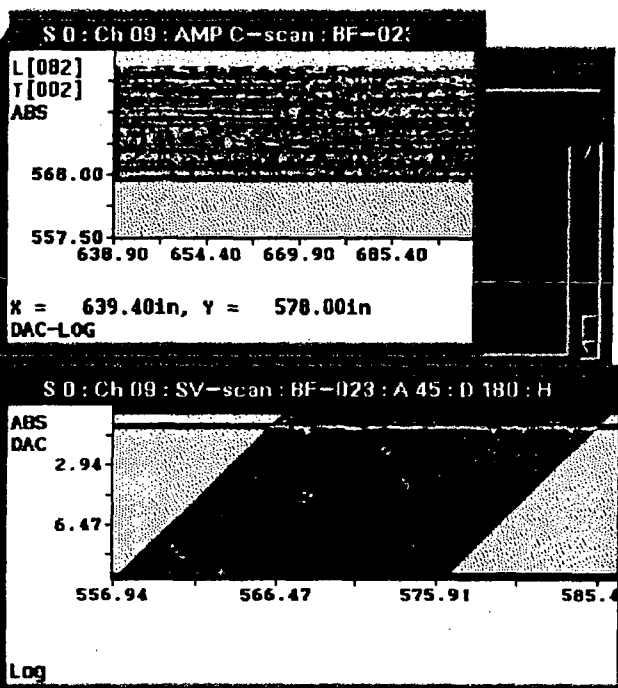
2308245

S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC



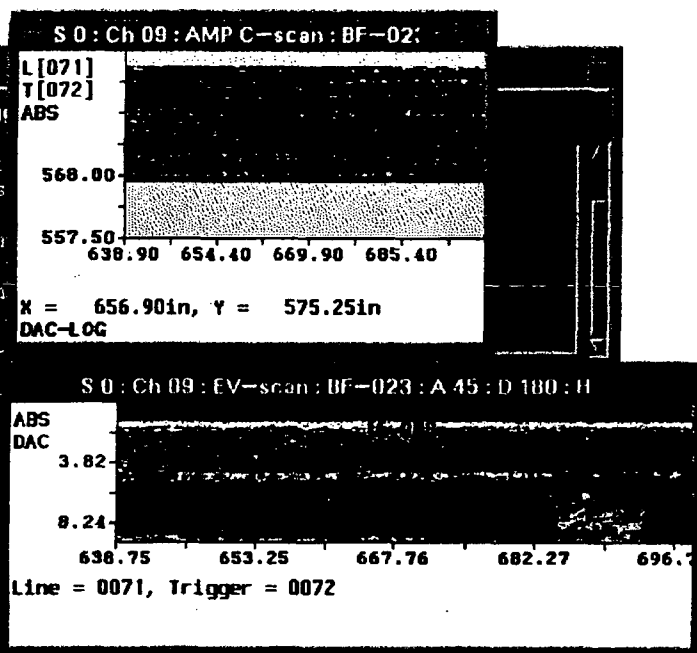
00594 R1152  
23/04/245

S 0 : Scale

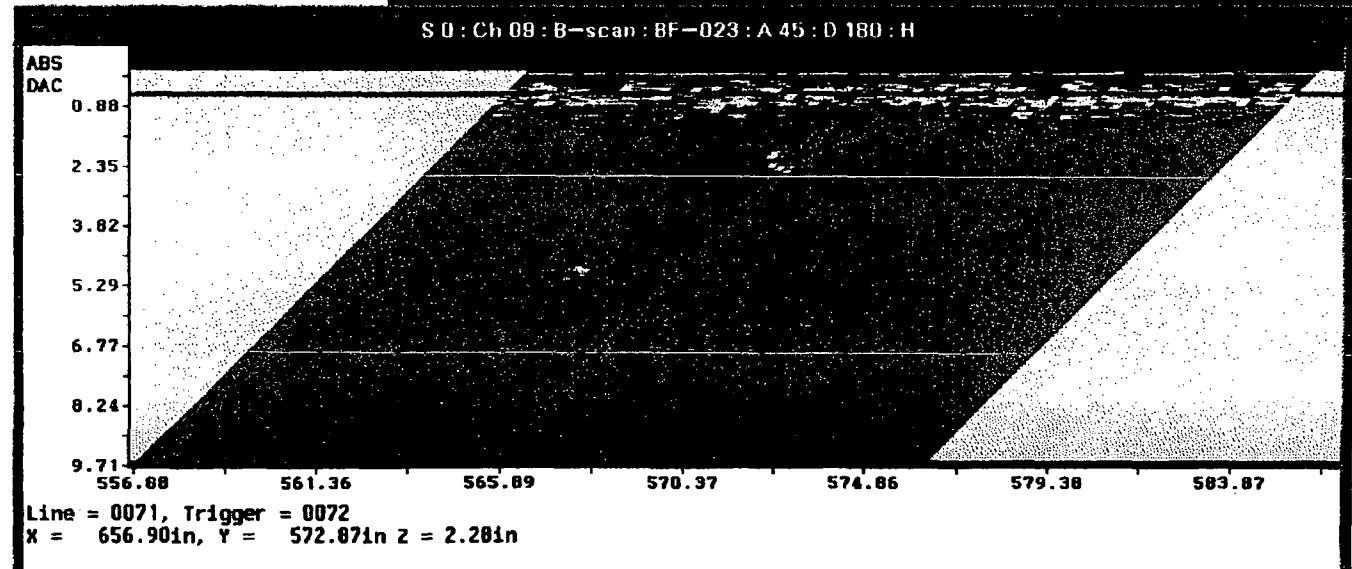
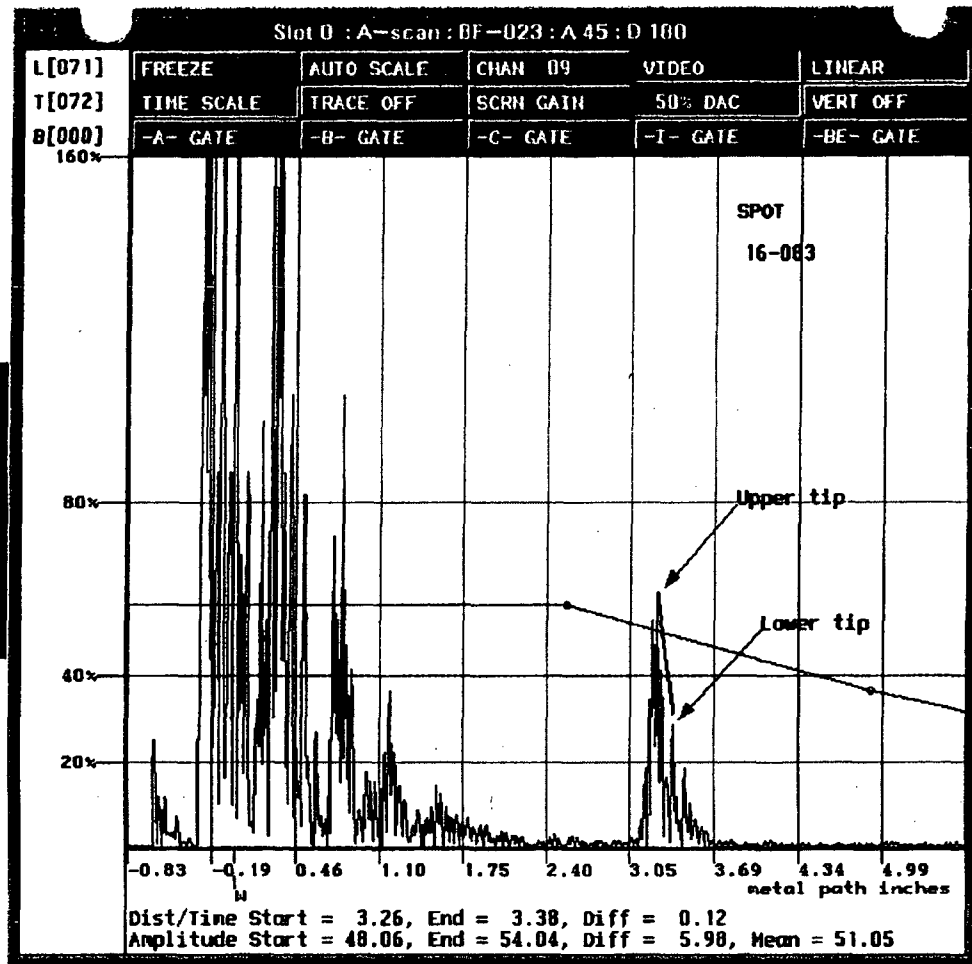
32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

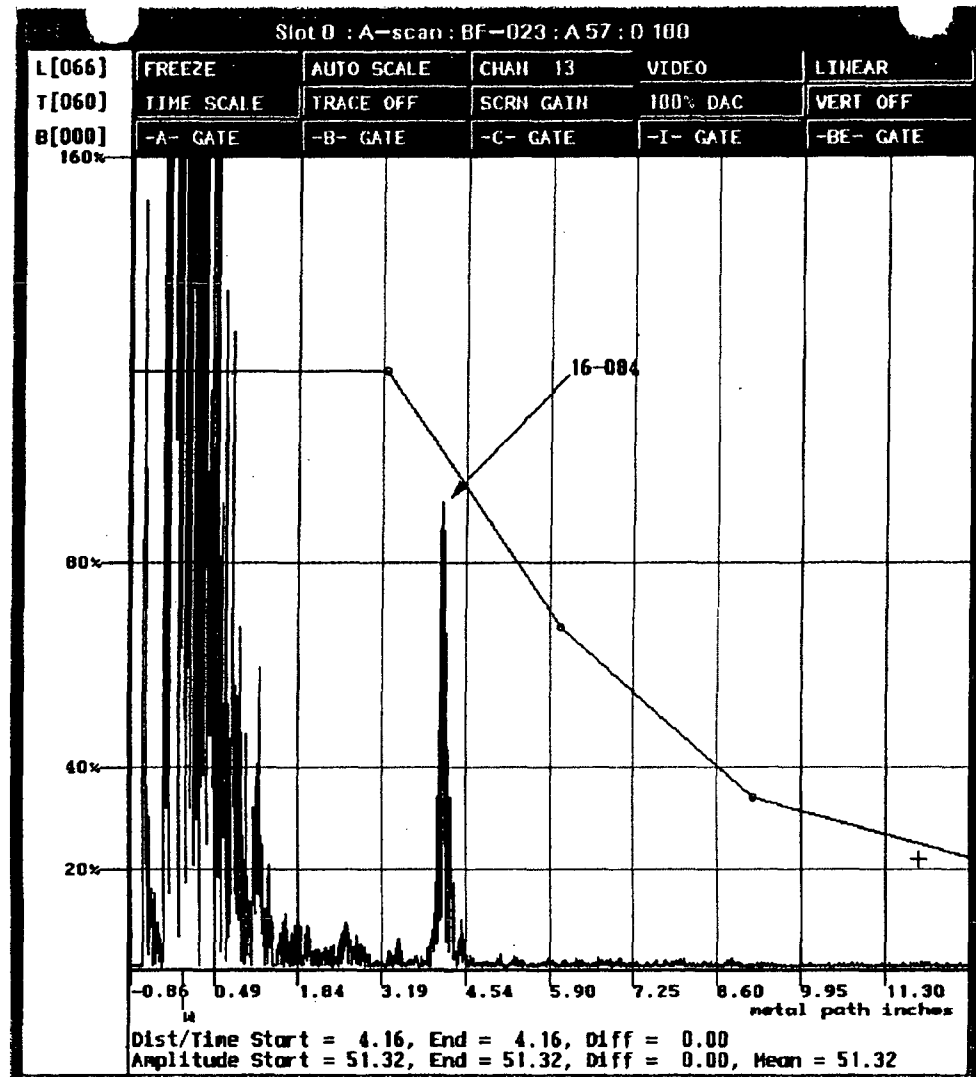
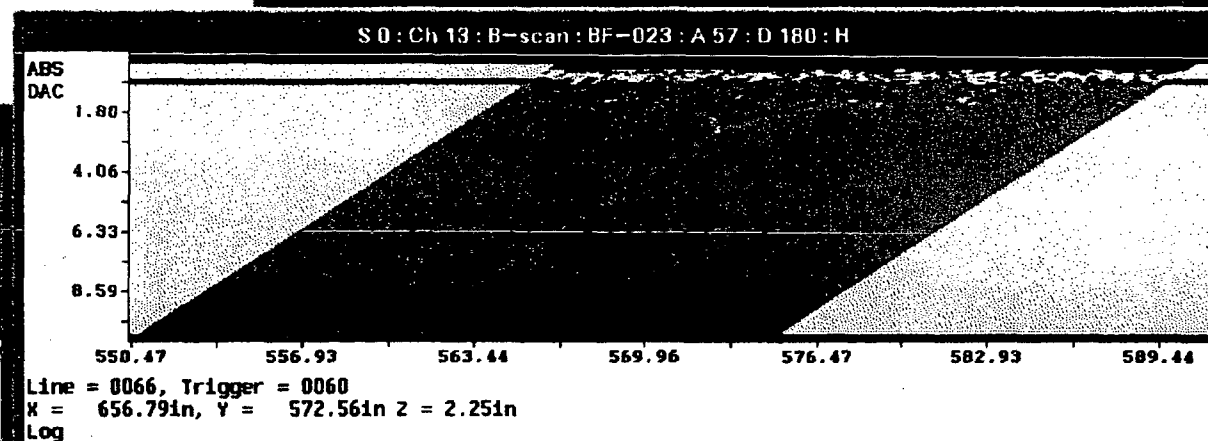
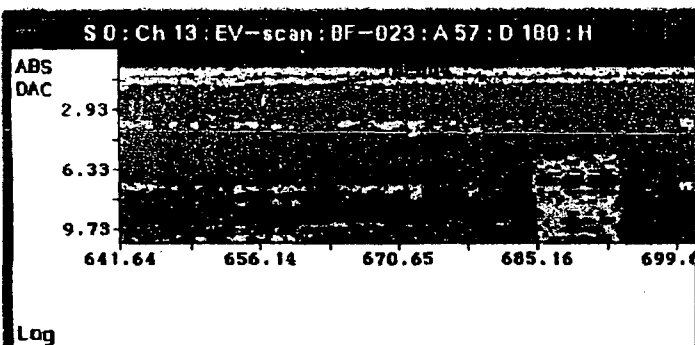
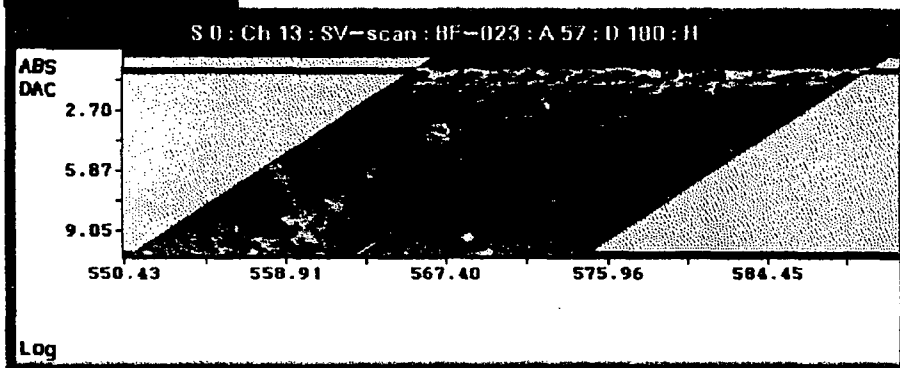
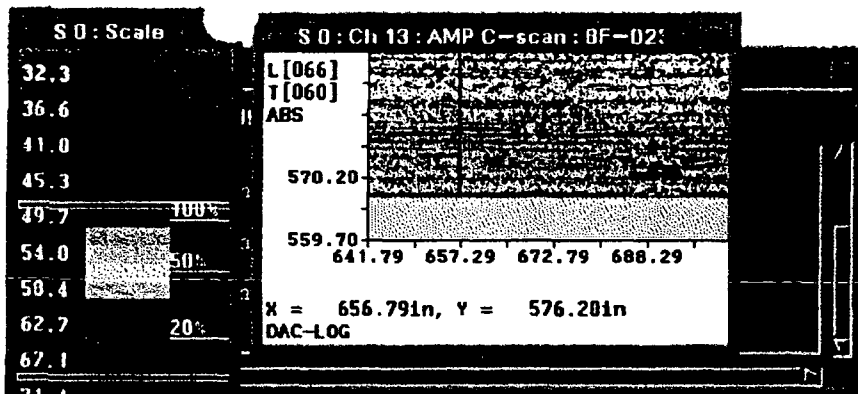
DAC



Lower T



00593 R1152  
232 of 245



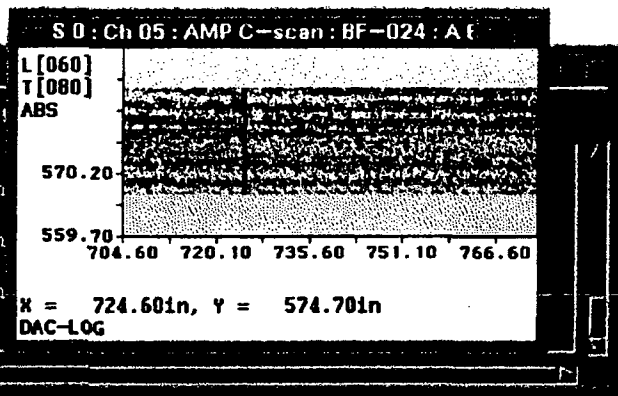
00596 R1152  
2334245

S 0 : Scale

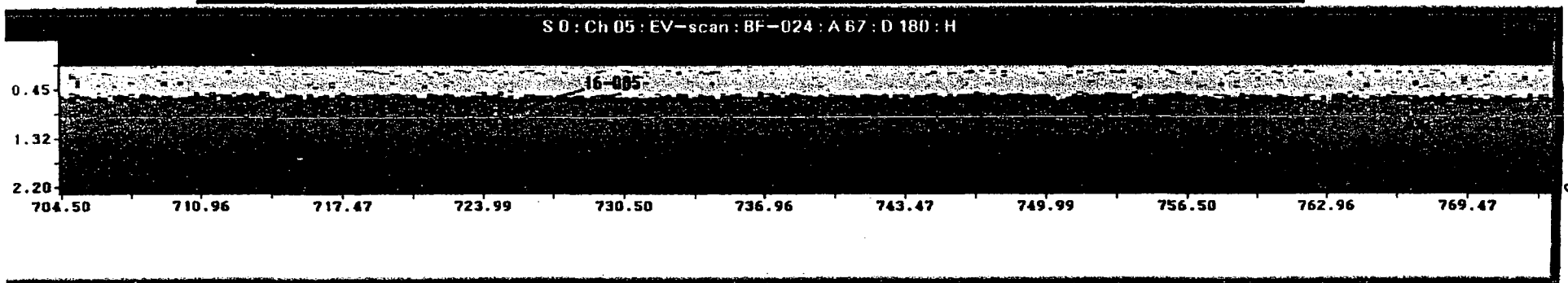
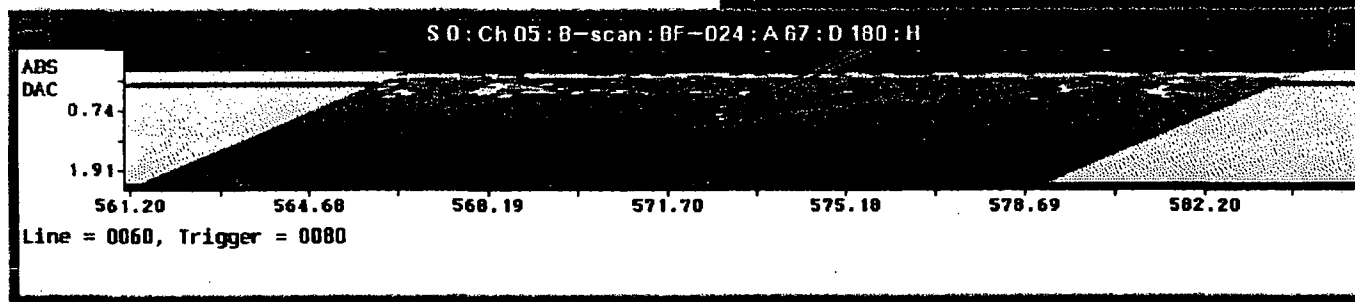
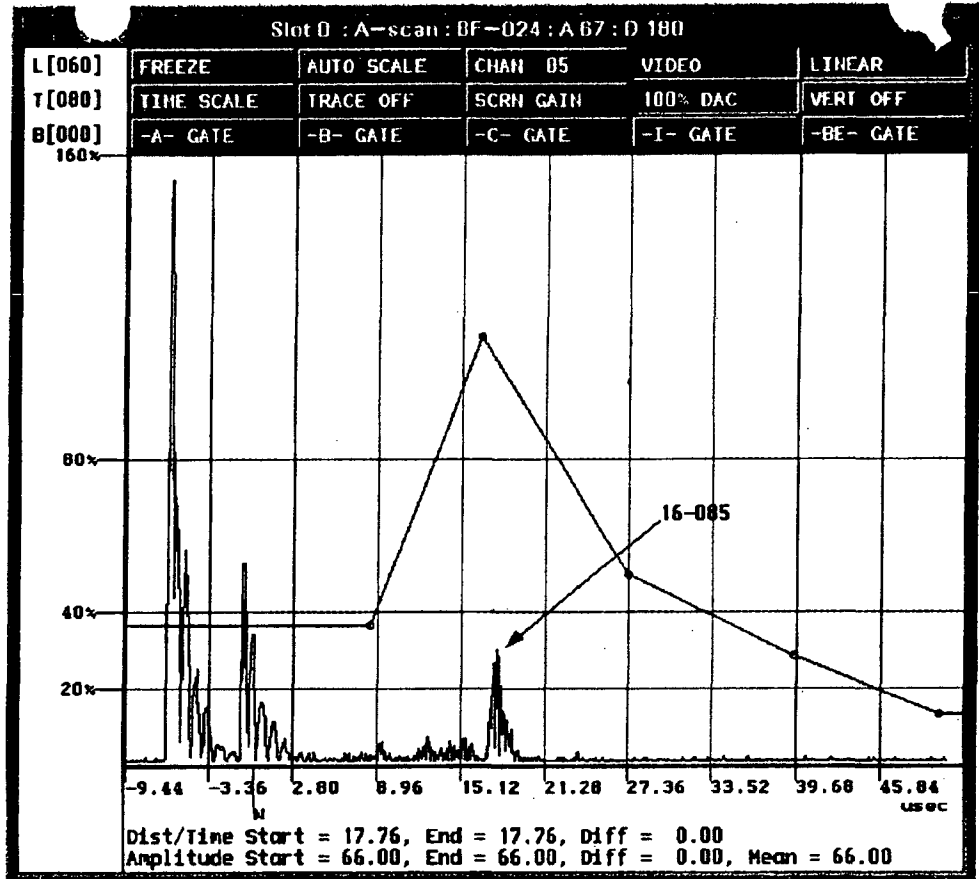
32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.0  
93.2

100%  
50%  
20%

DAC



Lower T



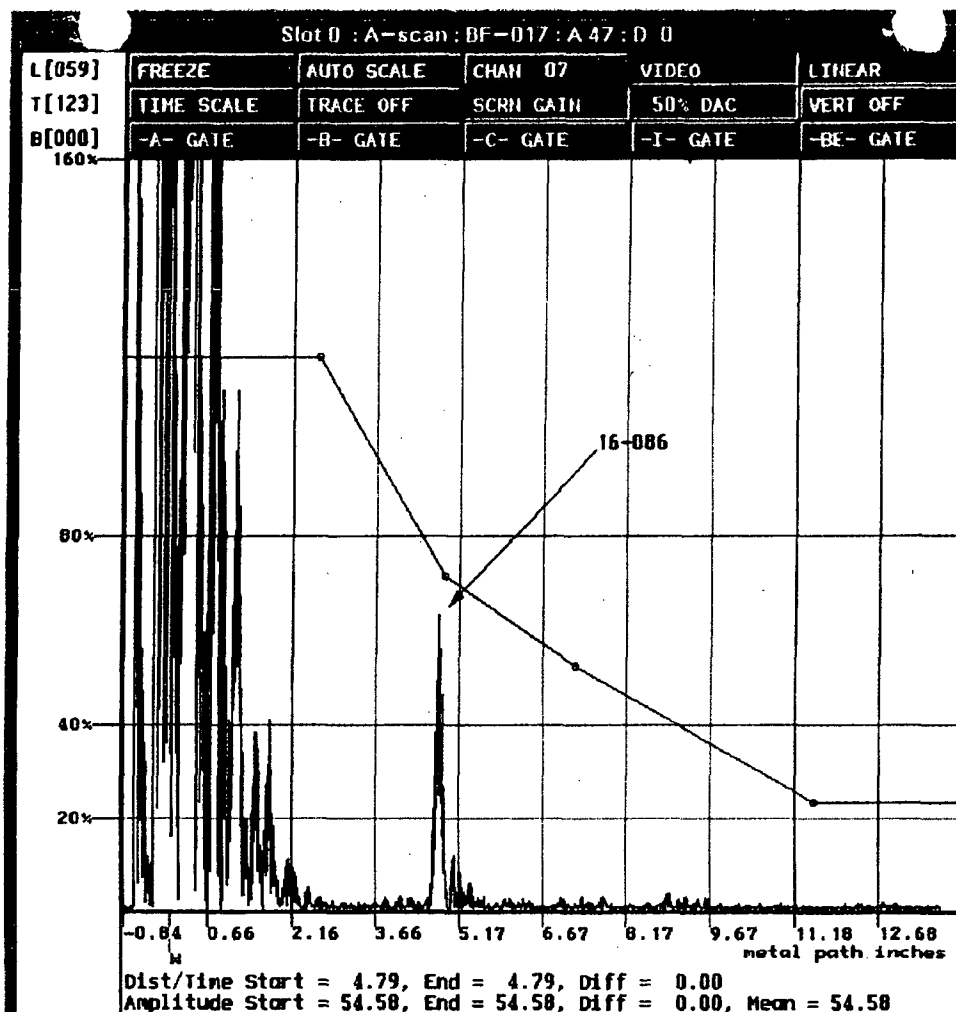
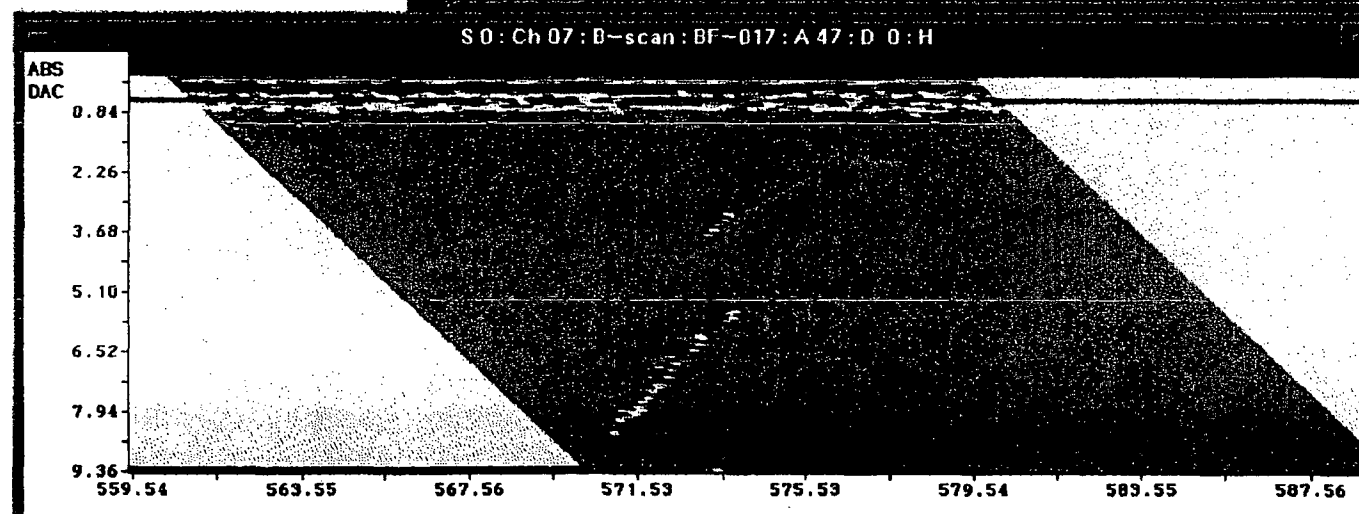
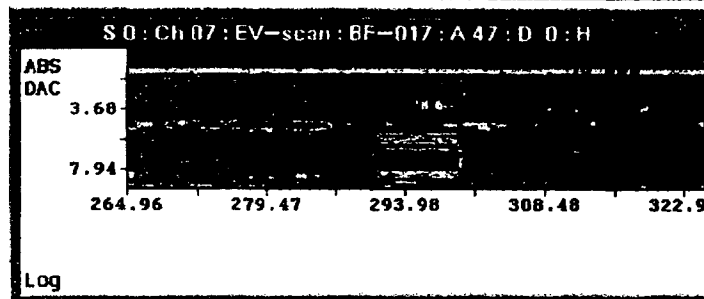
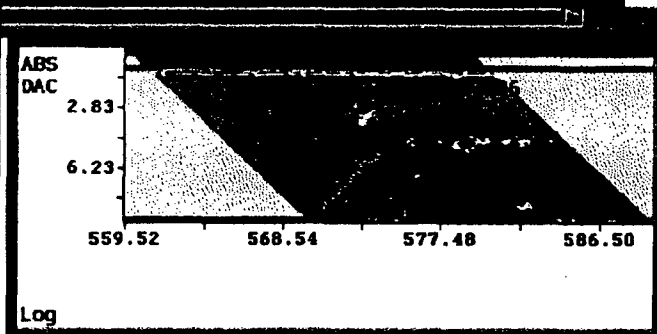
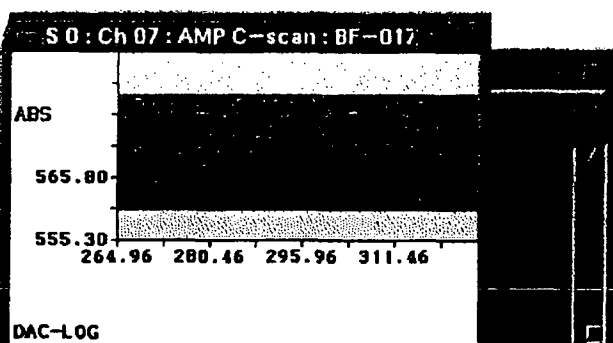
4-00597 R1152  
239106-245

S 0 : Scale

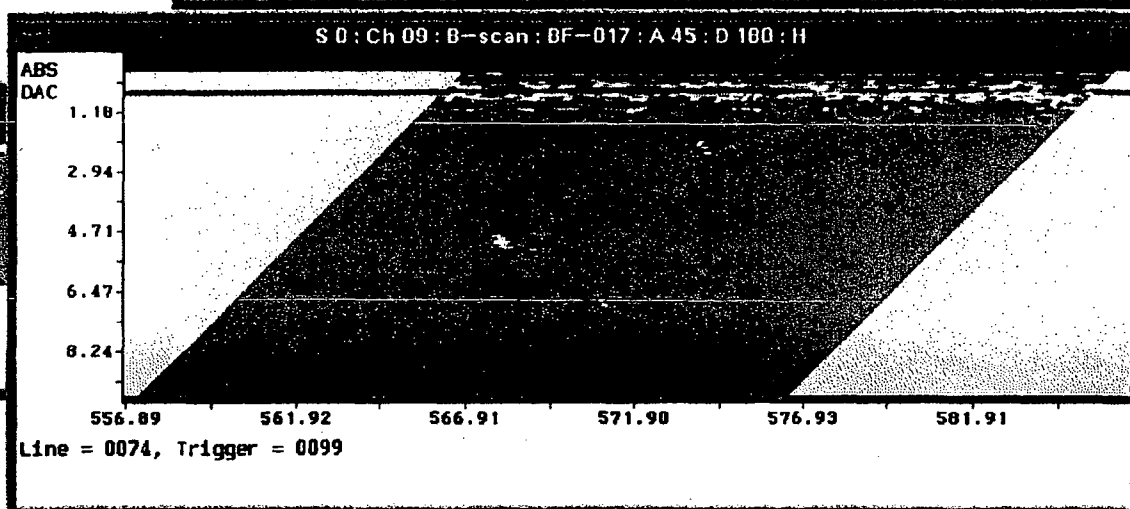
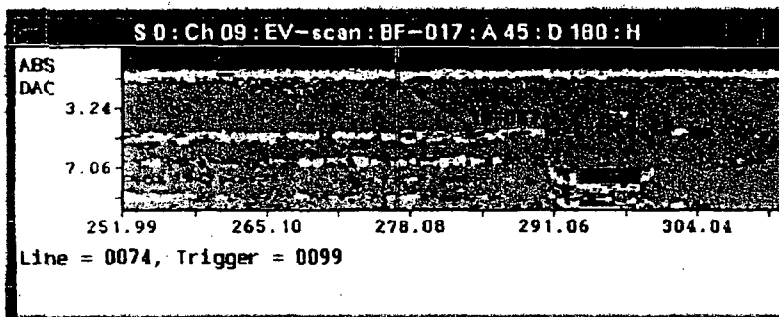
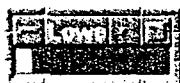
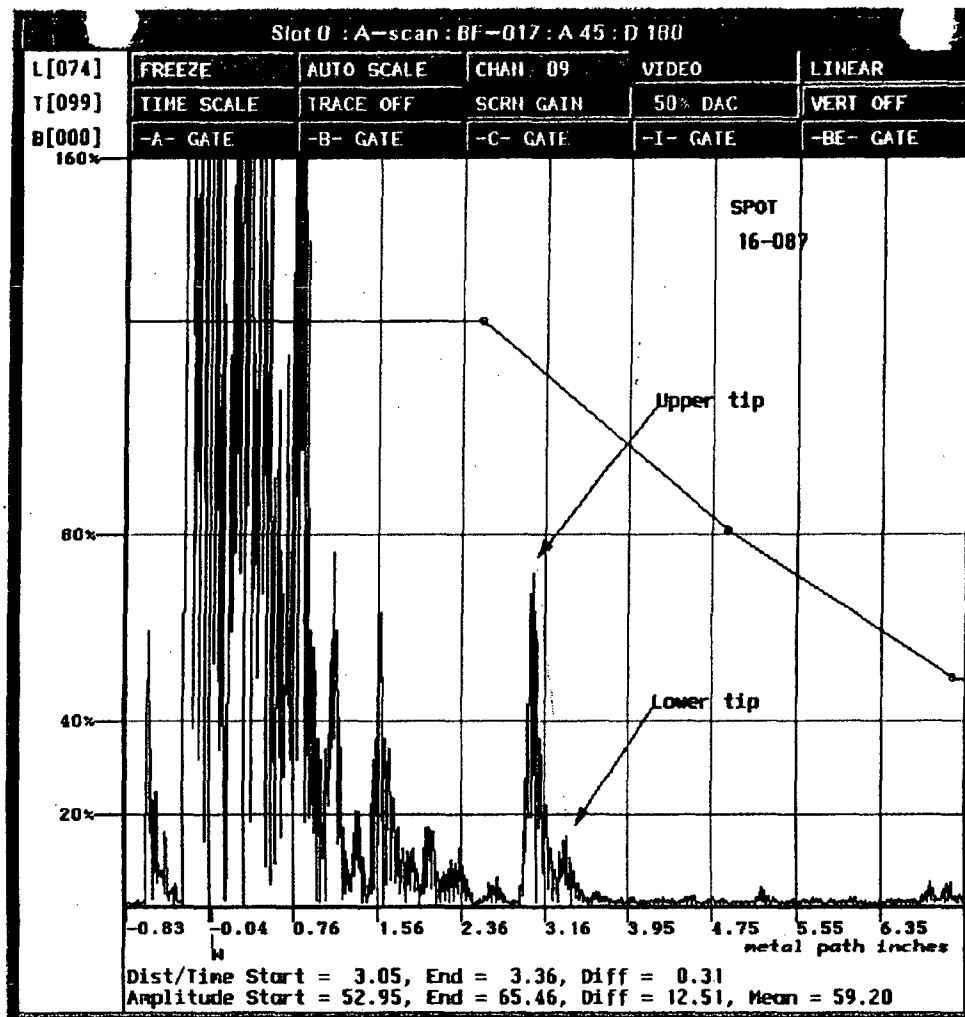
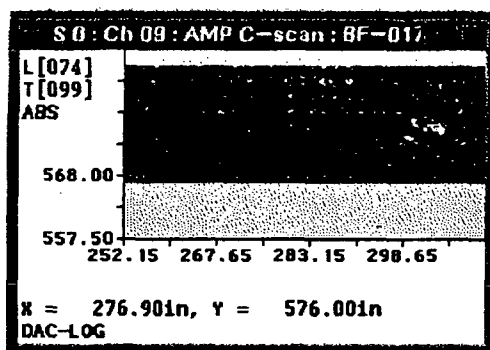
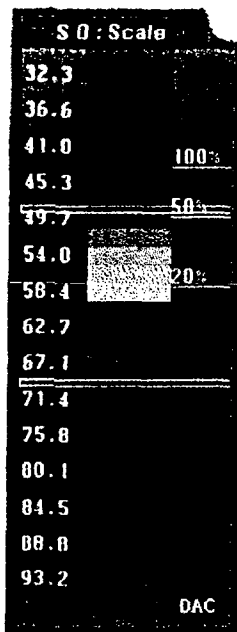
32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC

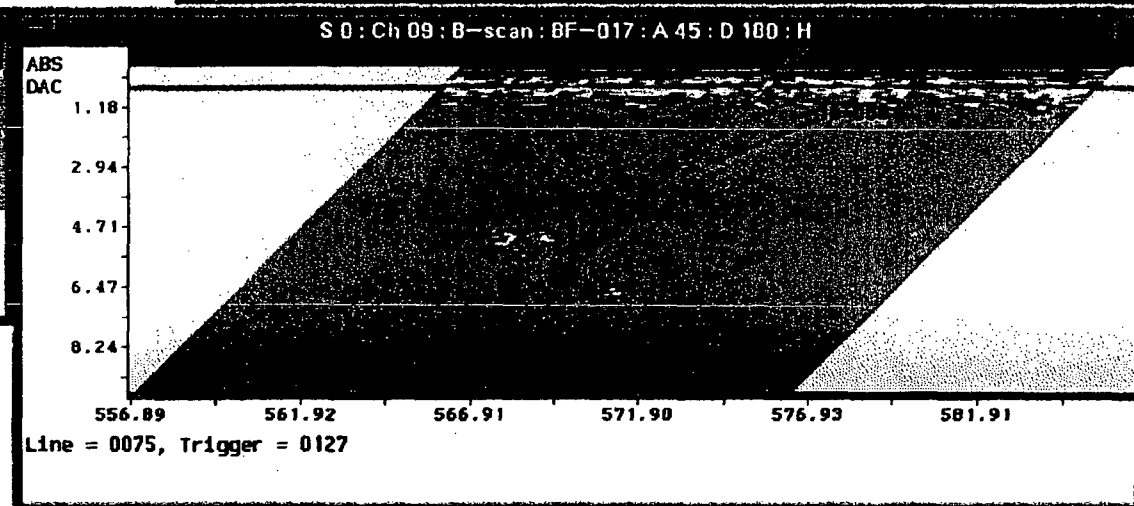
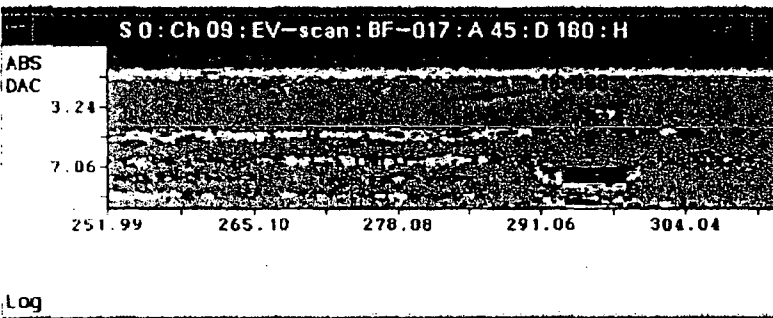
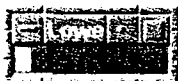
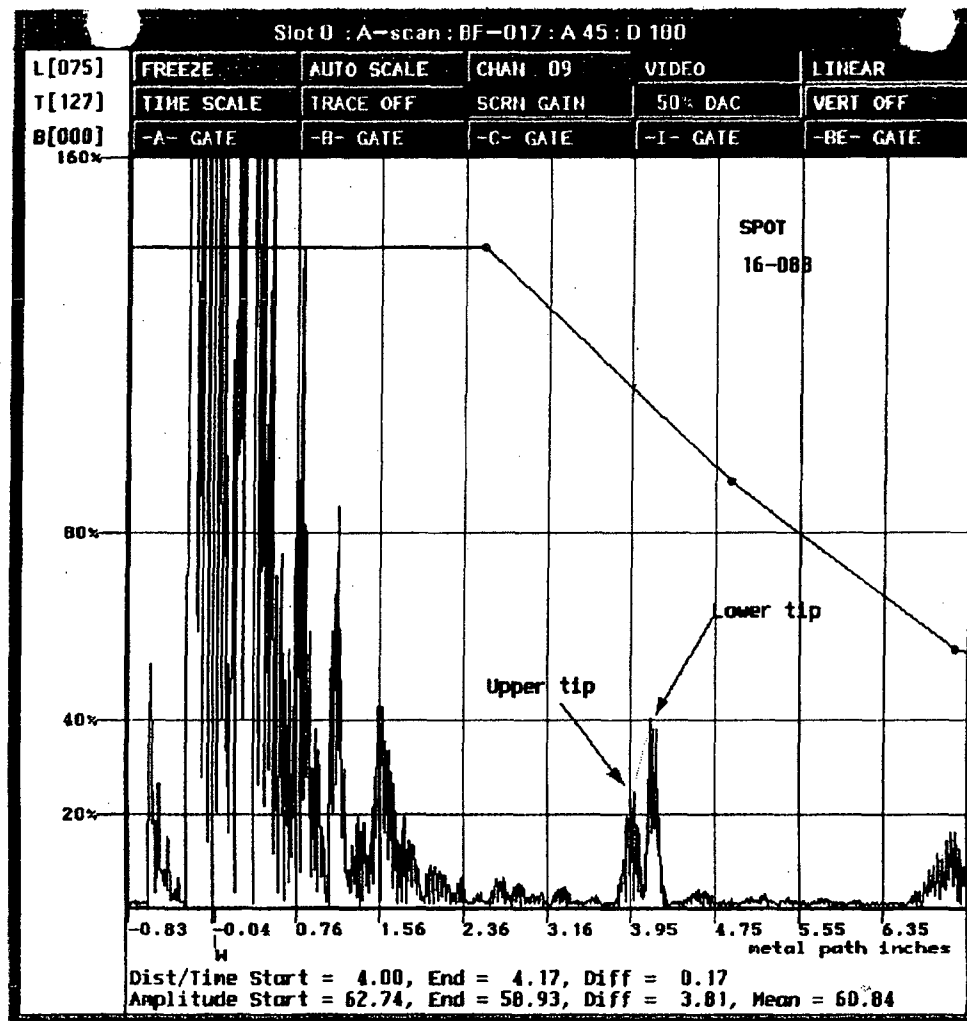
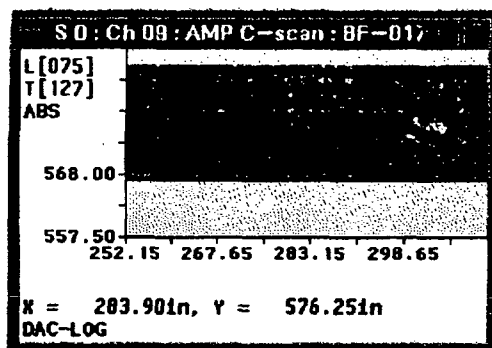
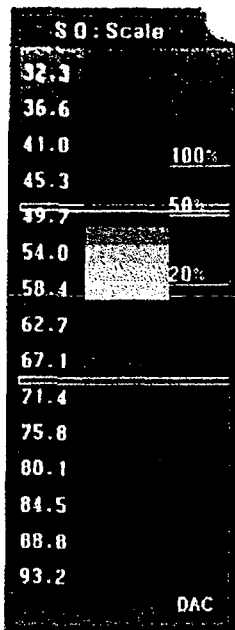


00598 R1152  
235 of 245

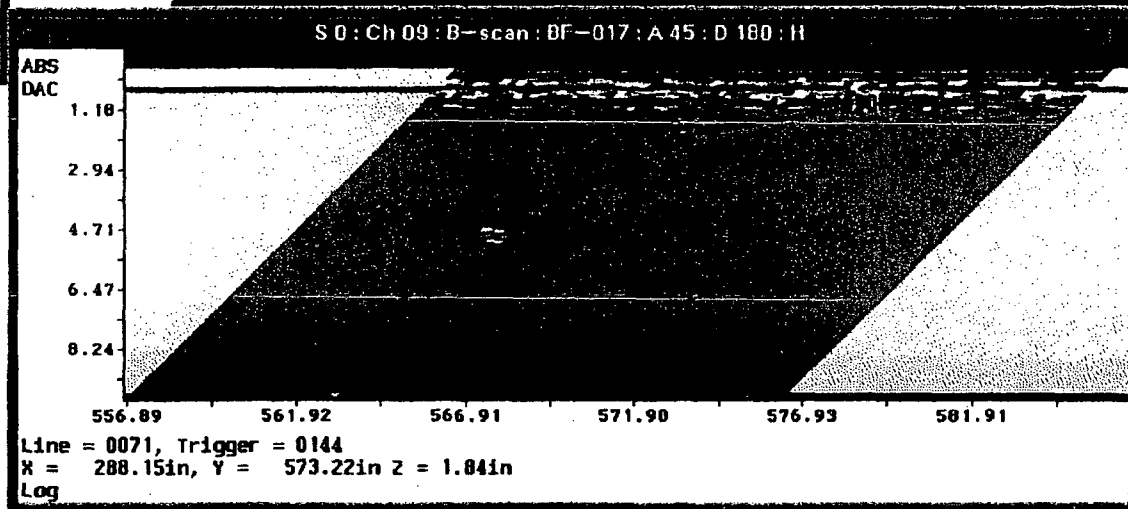
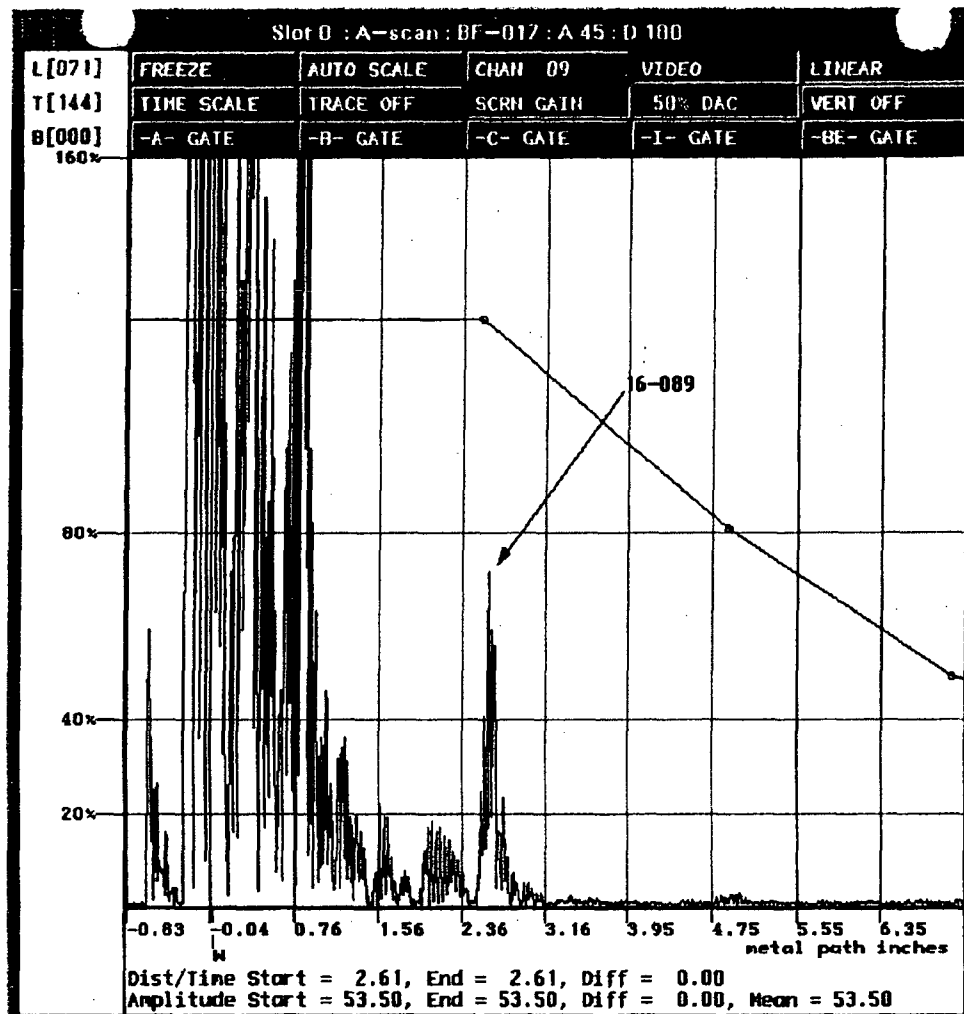
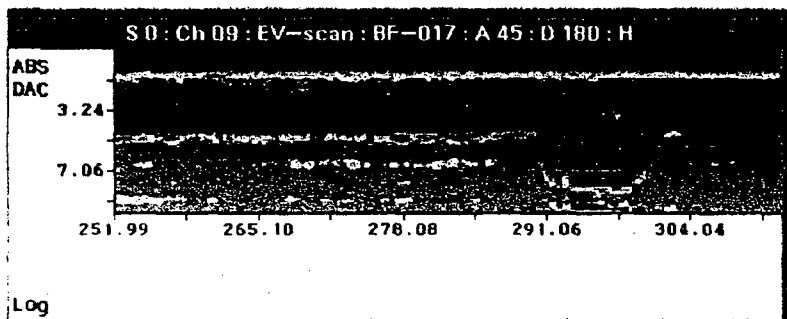
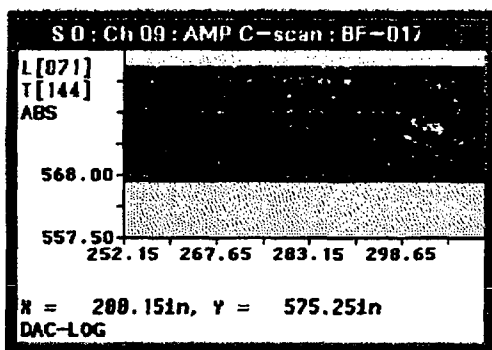
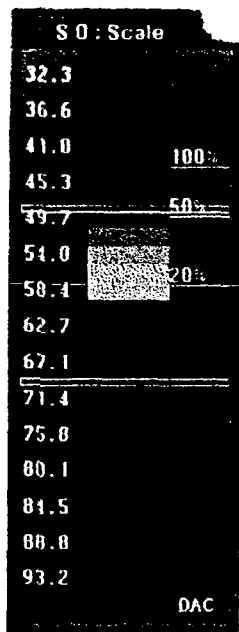


00599 R1152  
236 of 245

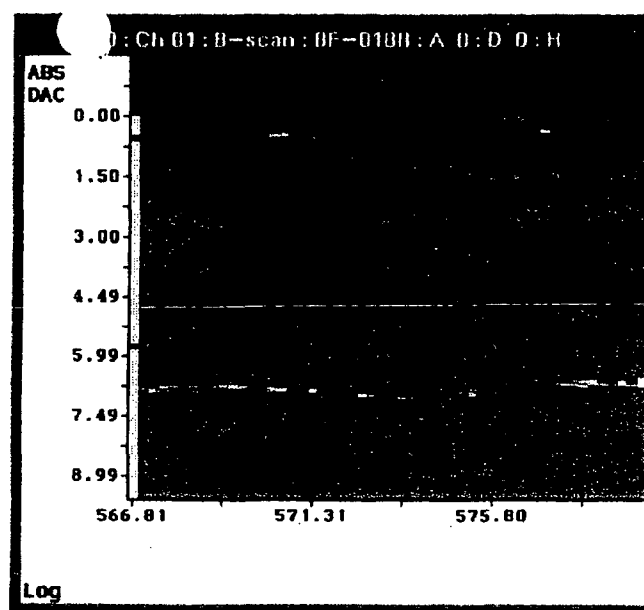
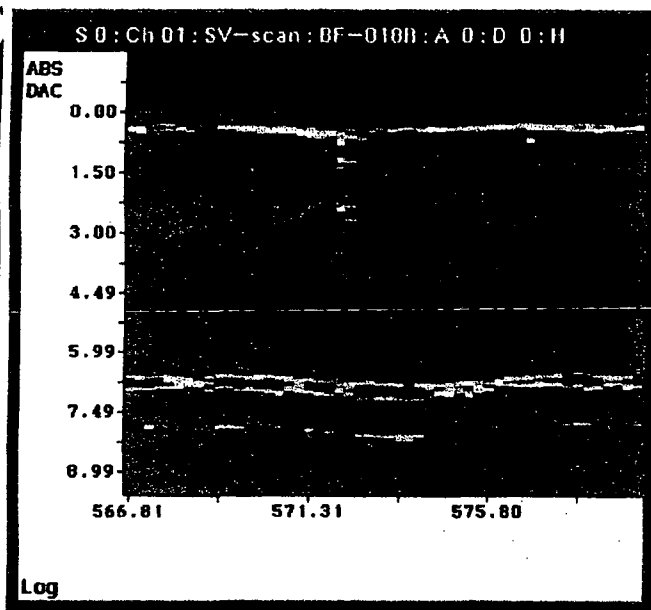
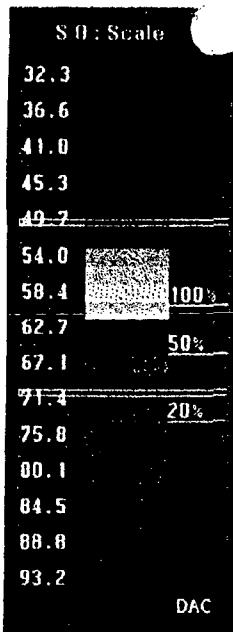




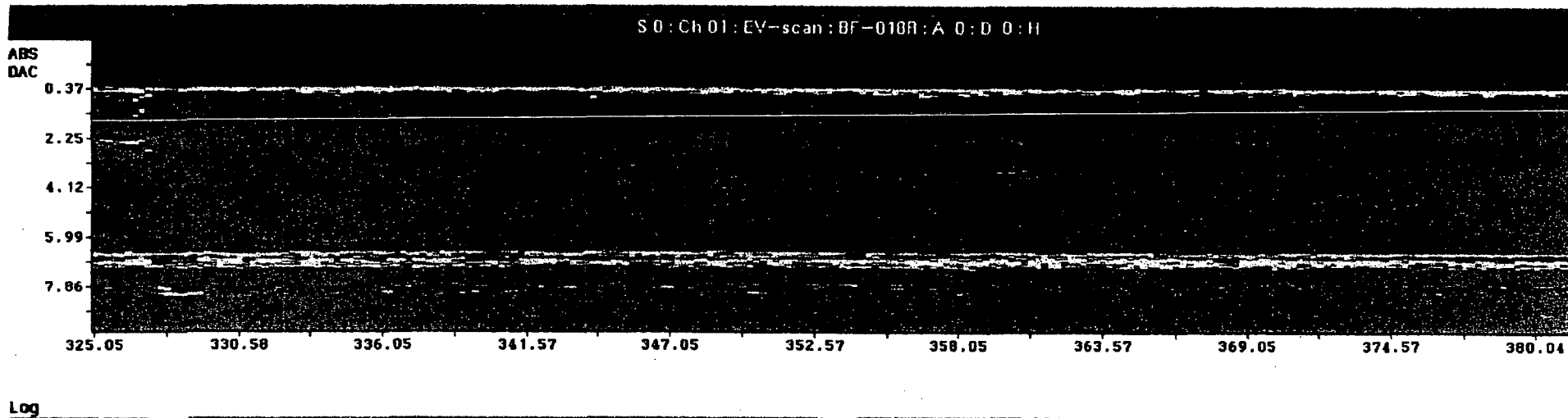
00600 R1152  
237 of 245



00601 R1152  
238 of 245



16-090  
can 2/min



00602 R 1152  
23906-245

S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

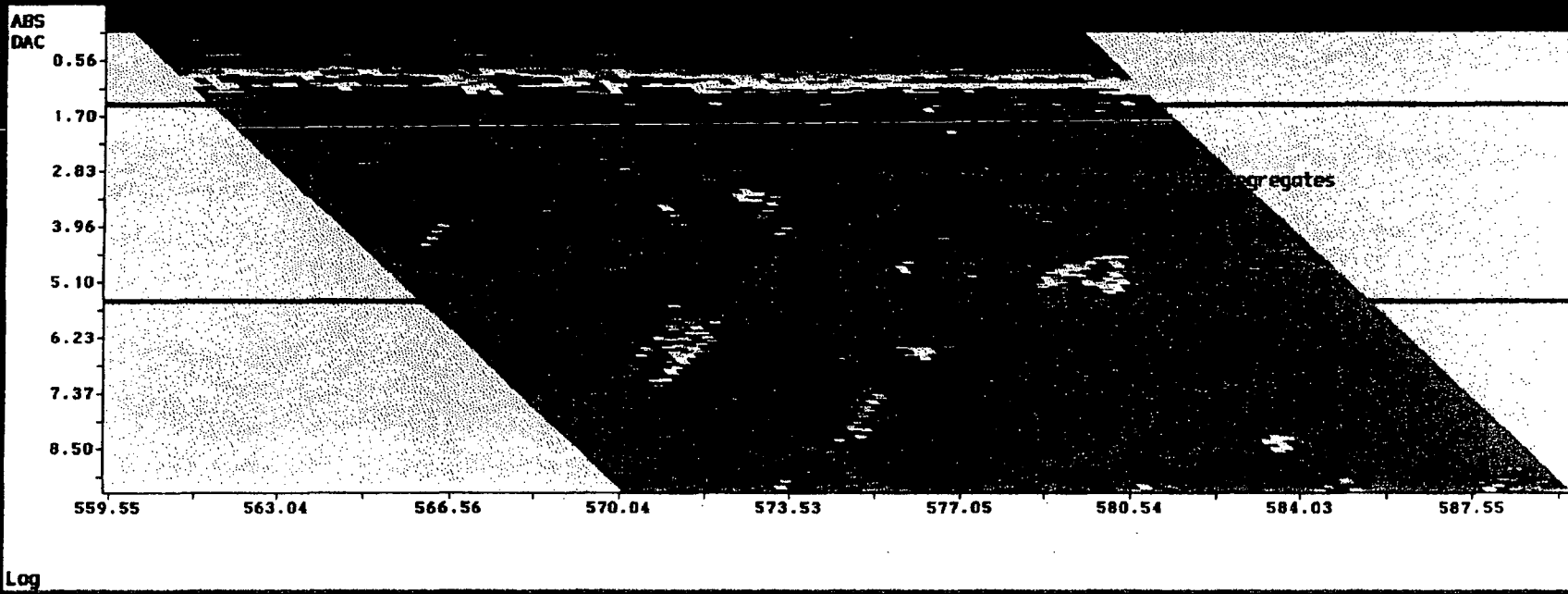
100

50%

20%

DA

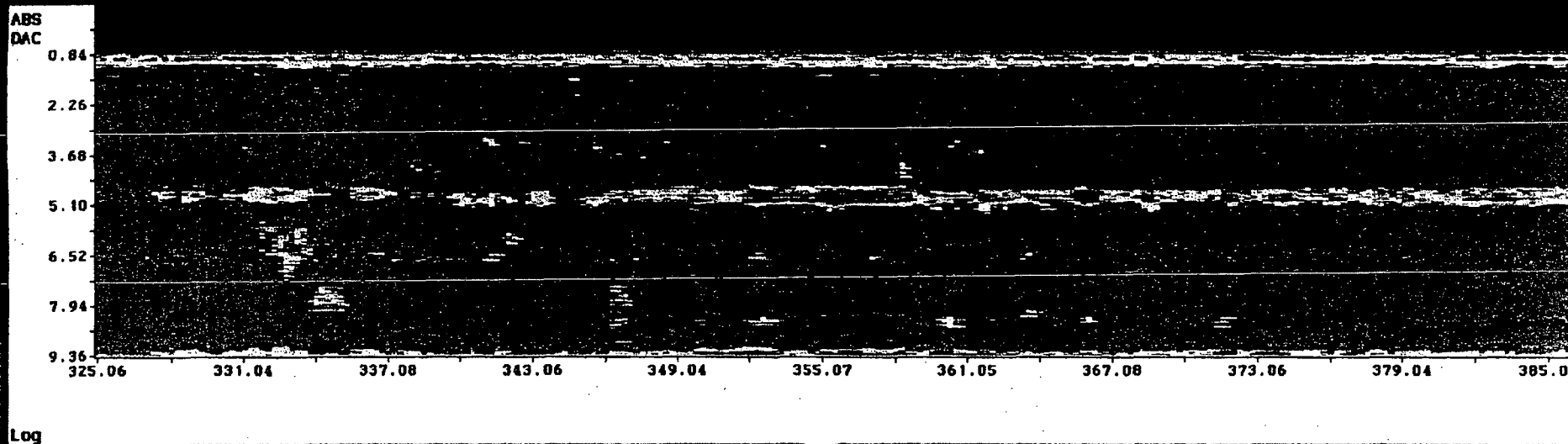
S 0 : Ch 07 : SV-scan : BF-018R : A 47 : D 0 : H



Top Te

16-09/  
CMT 12/13/97

S 0 : Ch 07 : EV-scan : BF-018R : A 47 : D 0 : H



00603 R1152

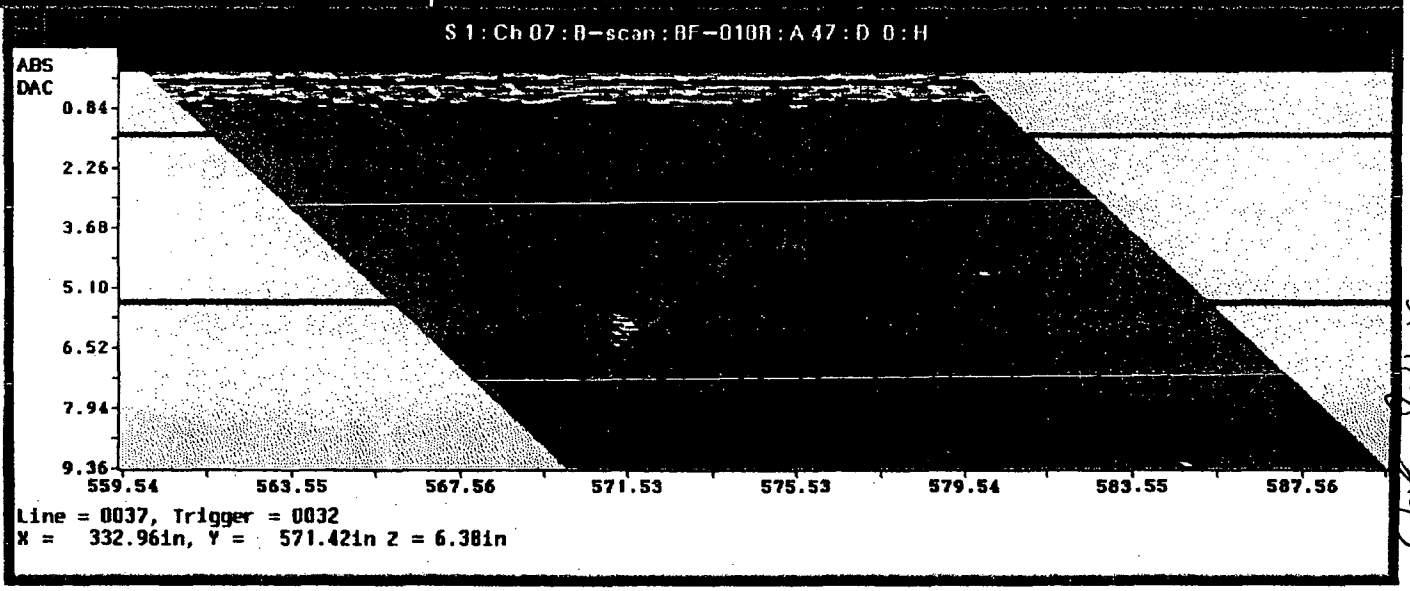
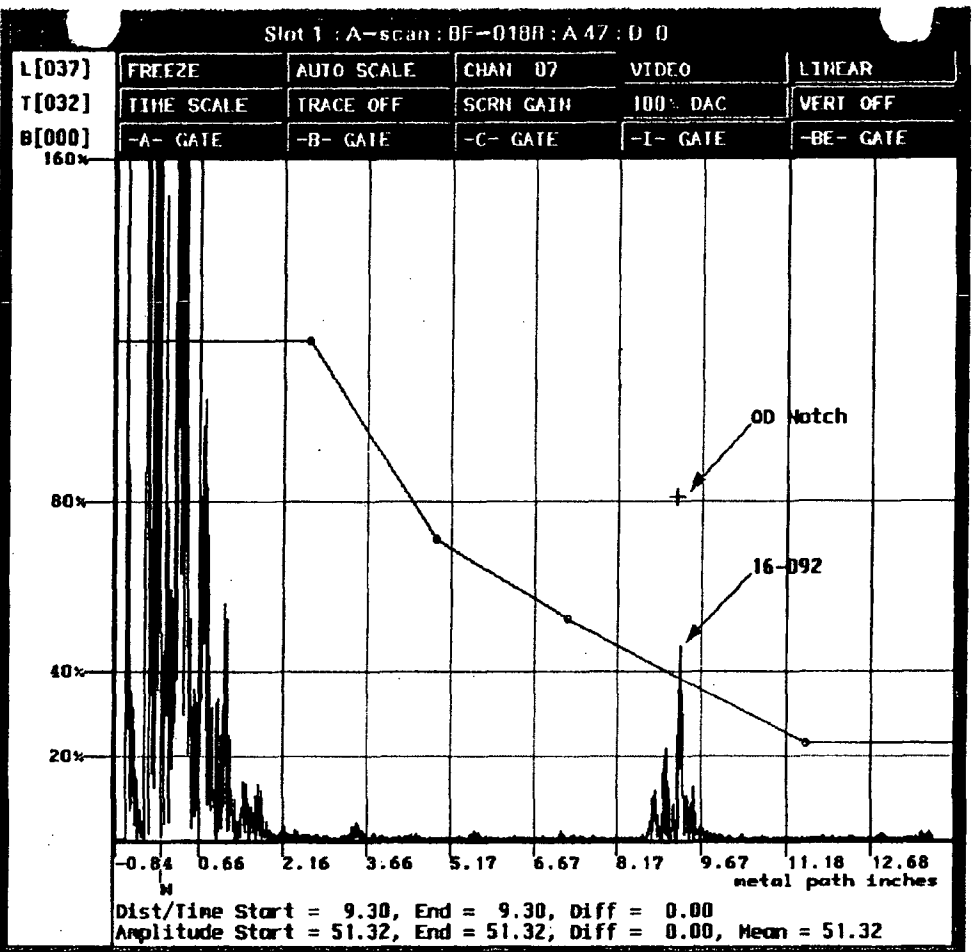
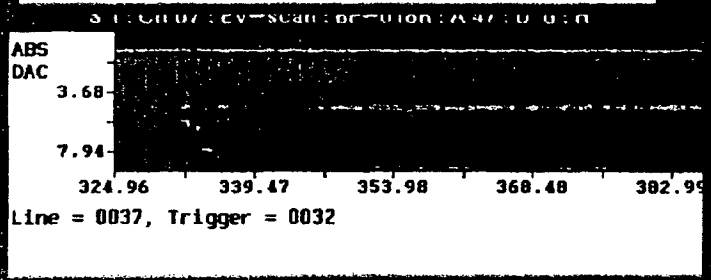
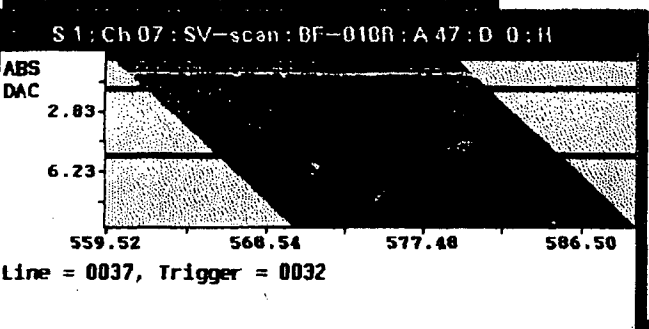
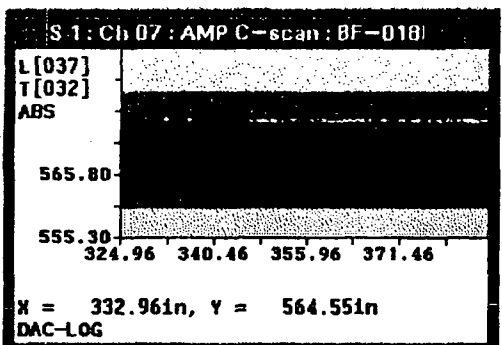
2404 245

S 1: Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC



00604  
R1152  
29/08/245

S 0 : Scale

32.3  
36.6  
41.0  
45.3 100%  
49.7 50%  
54.0  
58.4 20%  
62.7  
67.1  
71.4  
75.0  
80.1  
84.5  
88.8  
93.2

DAC

Top Te

S 0 : Ch 08 : AMP C-scan : BF-018

L[066]  
T[168]  
ABS

565.80

555.30

315.04 330.54 346.04 361.54

X = 357.04in, Y = 571.80in

RAM-LOG

S 0 : Ch 08 : EV-scan : BF-018R : A 46 : D 90

ABS  
DAC

0.58

1.73

2.89

4.05

5.20

6.36

7.51

8.67

566.67

571.67

576.66

Line = 0066, Trigger = 0168

16-097 093  
CAM 12/13/93

S 0 : Ch 08 : SV-scan : BF-018R : A 46 : D 90 : H

ABS  
DAC

2.02

4.62

7.22

314.51

321.53

328.55

335.51

342.53

349.55

356.51

363.53

370.55

377.51

384.53

Line = 0066, Trigger = 0168

X = 360.93in, Y = 571.80in Z = 3.78in

Log

00605

R 1152

24206-245

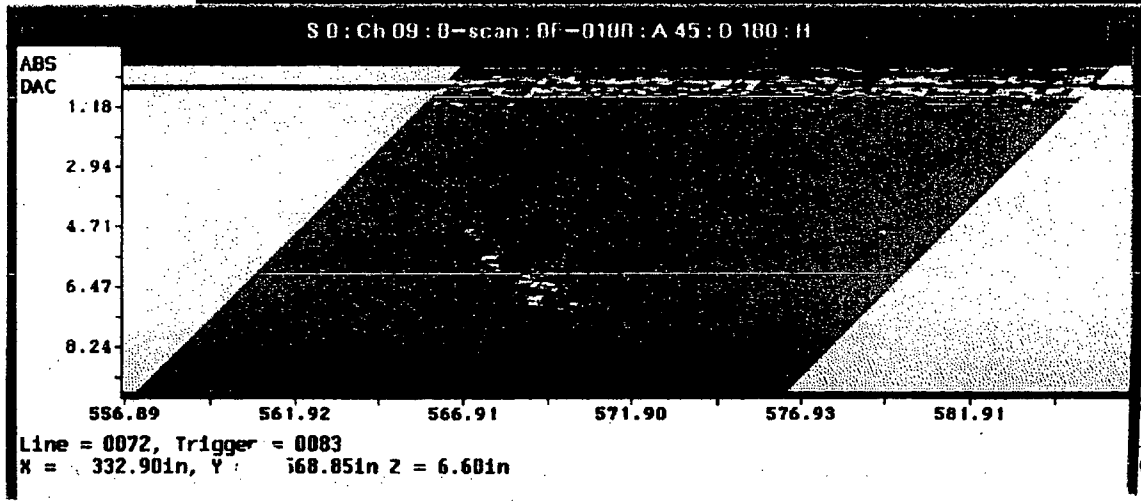
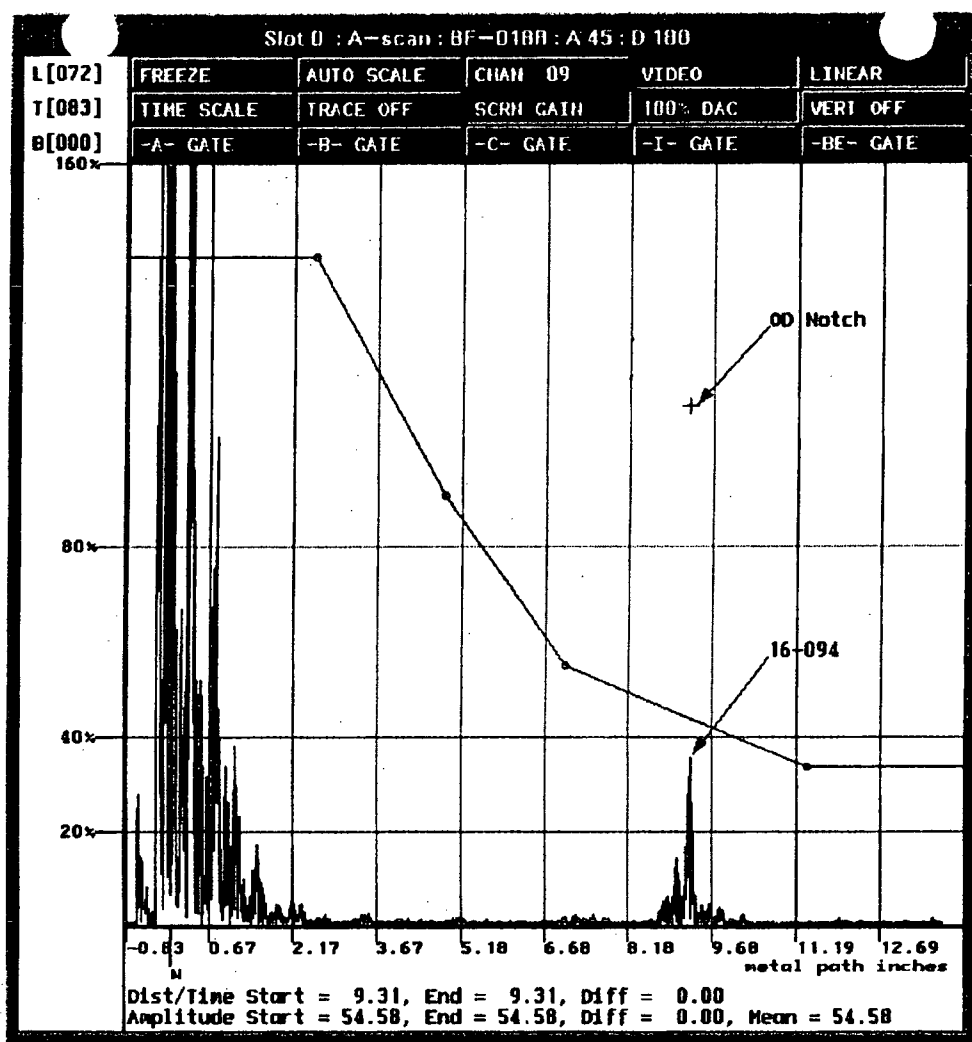
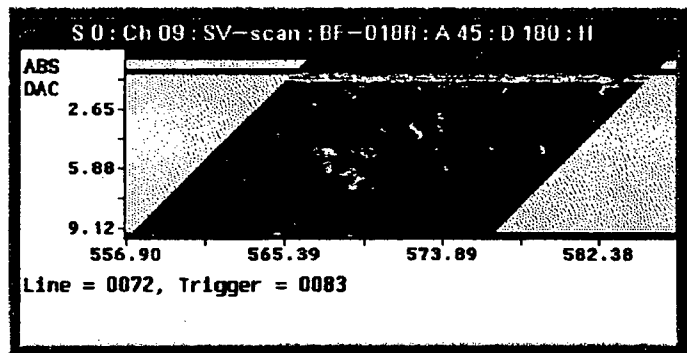
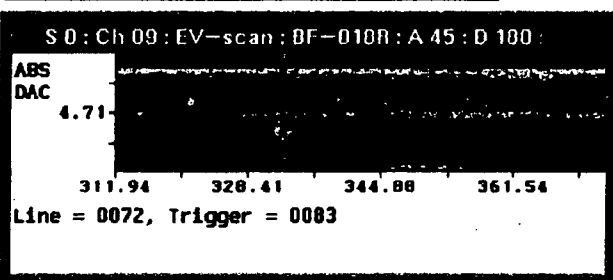
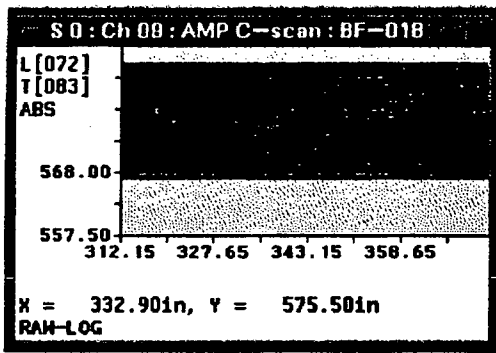
S 0 : Scale

32.3  
36.6  
41.0  
45.3  
49.7  
54.0  
58.4  
62.7  
67.1  
71.4  
75.8  
80.1  
84.5  
88.8  
93.2

100%  
50%  
20%

DAC

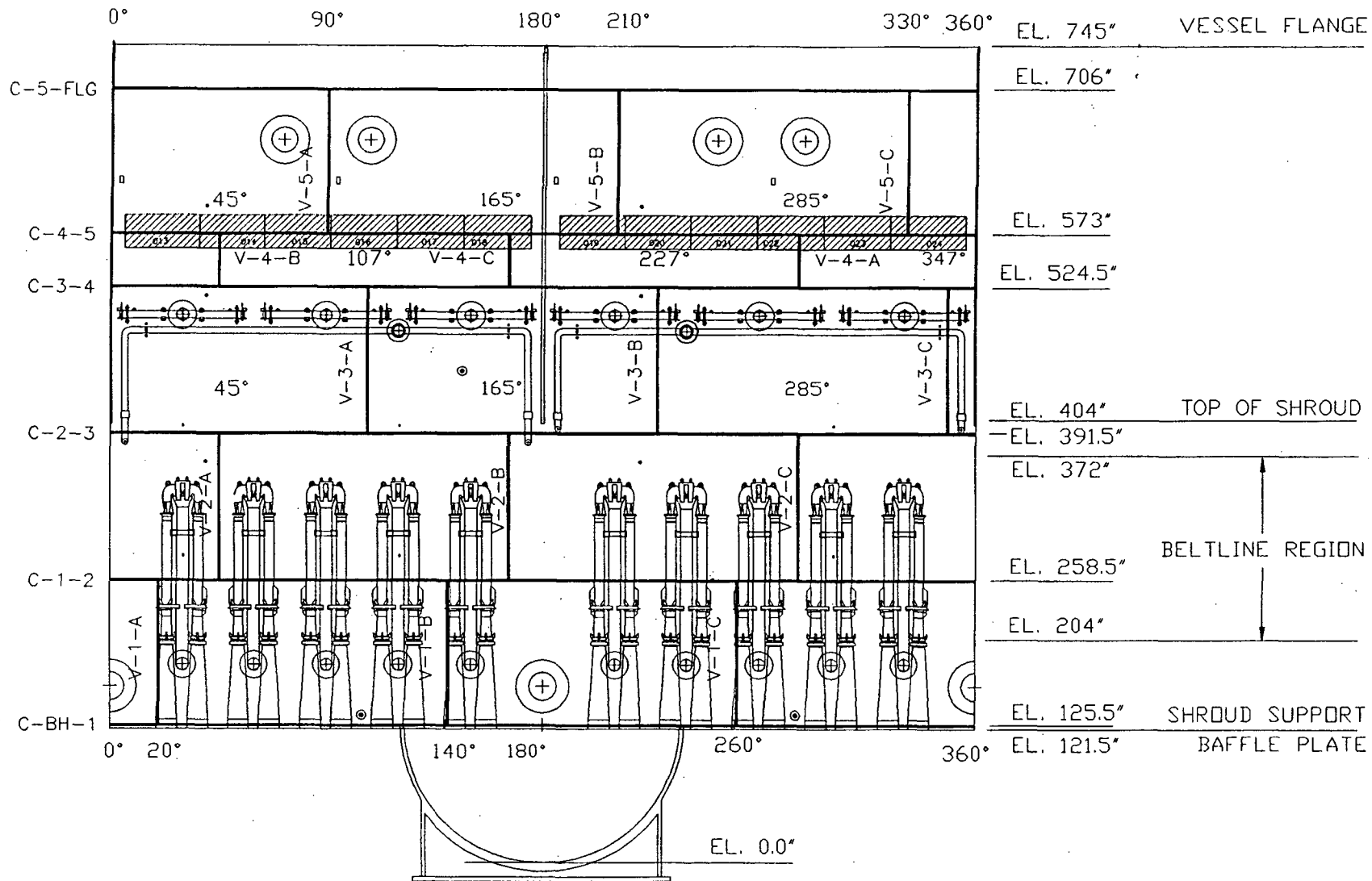
Lower Ter  
-094



00606 R1152

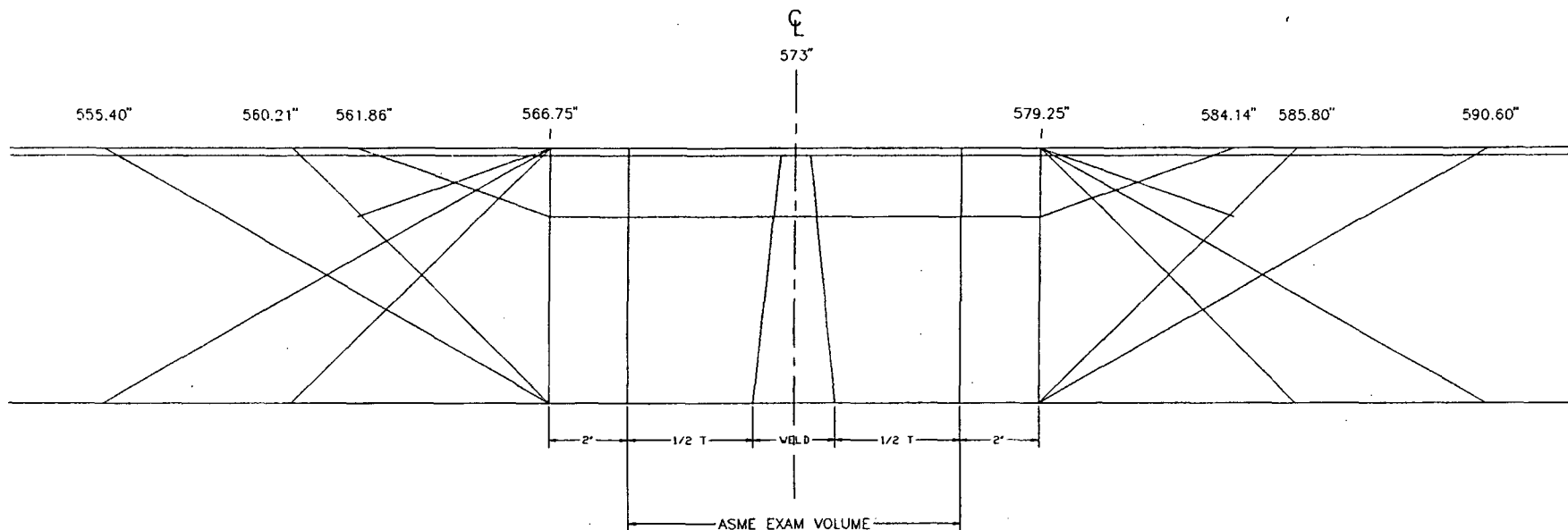
24304 245

# BROWNS FERRY UNIT-3 WELD LOCATIONS



244 of 245





Nominal Clad T = 3/16"  
 Nominal Base Metal T = 6 3/8"

CH.	ANGLE	DIR.	MIN Y	MAX Y
1	0 W	0	566.75	579.25
2	0 W	90	566.75	579.25
3	70 UP	0	561.86	579.25
4	70 CW	90	566.75	579.25
5	70 DN	180	566.75	584.14
6	70 CCW	270	566.75	579.25
7	45 UP	0	560.21	579.25
8	45 CW	90	566.75	579.25
9	45 DN	180	566.75	585.80
10	45 CCW	270	566.75	579.25
11	60 UP	0	555.40	579.25
12	60 CW	90	566.75	579.25
13	60 DN	180	566.75	590.60
14	60 CCW	270	566.75	579.25
15	0 BM	0	566.75	590.60
16	0 BM	90	555.40	579.25

GE NUCLEAR ENERGY

BROWNS FERRY UNIT 3

WELD C-4-5 EXAM VOLUME

SCALE: NONE

DWG. BF3C-4-5

REV. 0

06608 245 of 295

R1152