



**AMERICAN MICROWAVE
CORPORATION**

TEST DATA

ON

7.5 TO 18.0 GHz

VERY LOW VIDEO TRANSIENTS (L/C)

10nS-ULTRA HIGH SPEED

HIGH ISOLATION

REFLECTIVE, SPST PIN DIODE SWITCH

AMC MODEL No: SWN-1TDR-ARG-LVT

Serial Number: 1MS407279

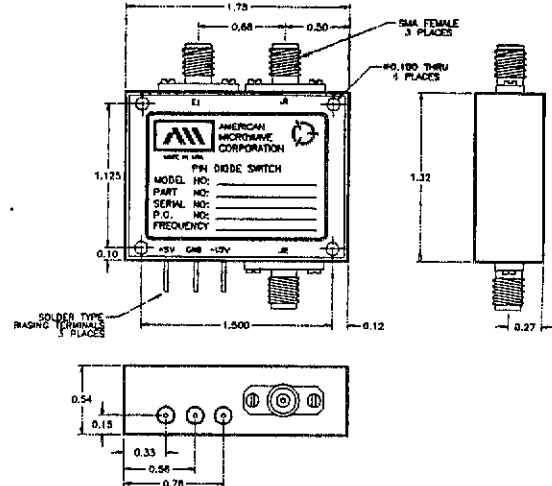
**BY
AMERICAN MICROWAVE
CORPORATION**

JULY 19, 1995

7311G GROVE ROAD, FREDERICK, MARYLAND 21701 • Tel. (301) 662-4700 • Fax (301) 662-4938

**LOW VIDEO TRANSIENT
ULTRA HIGH SPEED, SPST
REFLECTIVE, PIN DIODE SWITCH**

- **<3mV P-P TRANSIENT
(300 MHz BANDWIDTH)**
- **LOW LOSS**
- **HIGH ISOLATION**
- **ULTRA HIGH SPEED**



AMC MODEL No: SWN-1TDR-ARG-LVT

SPECIFICATIONS:

- **FREQUENCY RANGE** : 8.0 TO 18.0 GHz (Other Bandwidths Available)
- **INSERTION LOSS** : 2.4 dB MAX.
- **ISOLATION** : 60dB MIN., 75dB TYP.
- **INPUT VSWR** : 2.0:1 MAX.

- **SWITCHING SPEED** : RISE : 5nS MAX., ≤3nS TYP.
: FALL : 5nS MAX., ≤3nS TYP.
: ON : 10nS MAX., ≤8nS TYP.
: OFF : 10nS MAX., ≤8nS TYP.

- **VIDEO TRANSIENTS** : <3 mV Peak to Peak in a 300 MHz BW

- **CONTROL** : TTL Compatible
- **DC POWER SUPPLY** : +5 vdc @ 60 mA MAX., 35 mA TYP.
: -15 vdc @ 25 mA MAX., 25 mA TYP.
- **RF POWER** : +20 dBm Operating, 1 Watt Survival
- **SIZE** : 1.74" X 1.32" X 0.54"
- **WEIGHT** : <2.5 oz.

MULTITHROW VERSIONS AND OTHER FREQUENCY BANDWIDTHS AVAILABLE

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SWN-1TDR-ARG-LVT
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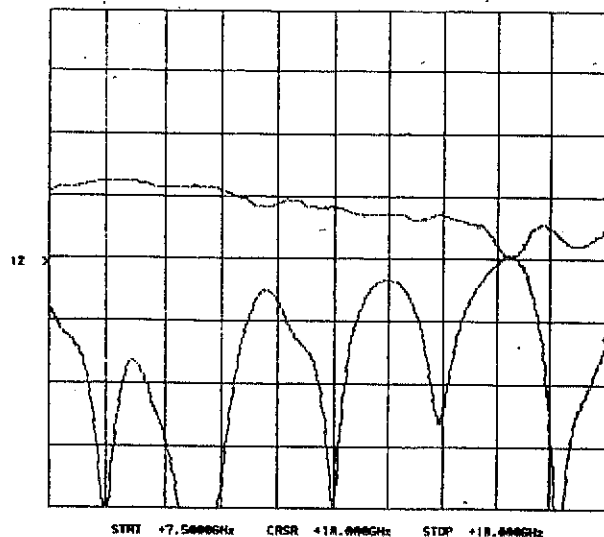
SERIAL NUMBER : 1MS407279
TECHNICIAN : RENE AFABLE & HOLLY HAHN
VOLTAGE & CURRENT DRAW : +5 vdc @ +60 mA MAX.
 -15 vdc @ +25 mA MAX.

INSERTION LOSS AND RETURN LOSS

INSERTION LOSS: 1.97 dB TYP. @ 18.0 GHz

RETURN LOSS: 19.17 dB TYP. @ 18.0 GHz

CH1: A, -18 REF = 1:37 dB CH2: B, -18 REF = 12:17 dB



| FREQUENCY | INSERTION LOSS |
|-----------|----------------|
| 8.0 GHz | 1.40 dB |
| 10.0 GHz | 1.20 dB |
| 12.0 GHz | 1.60 dB |
| 14.0 GHz | 1.70 dB |
| 16.0 GHz | 2.20 dB |
| 18.0 GHz | 1.97 dB |

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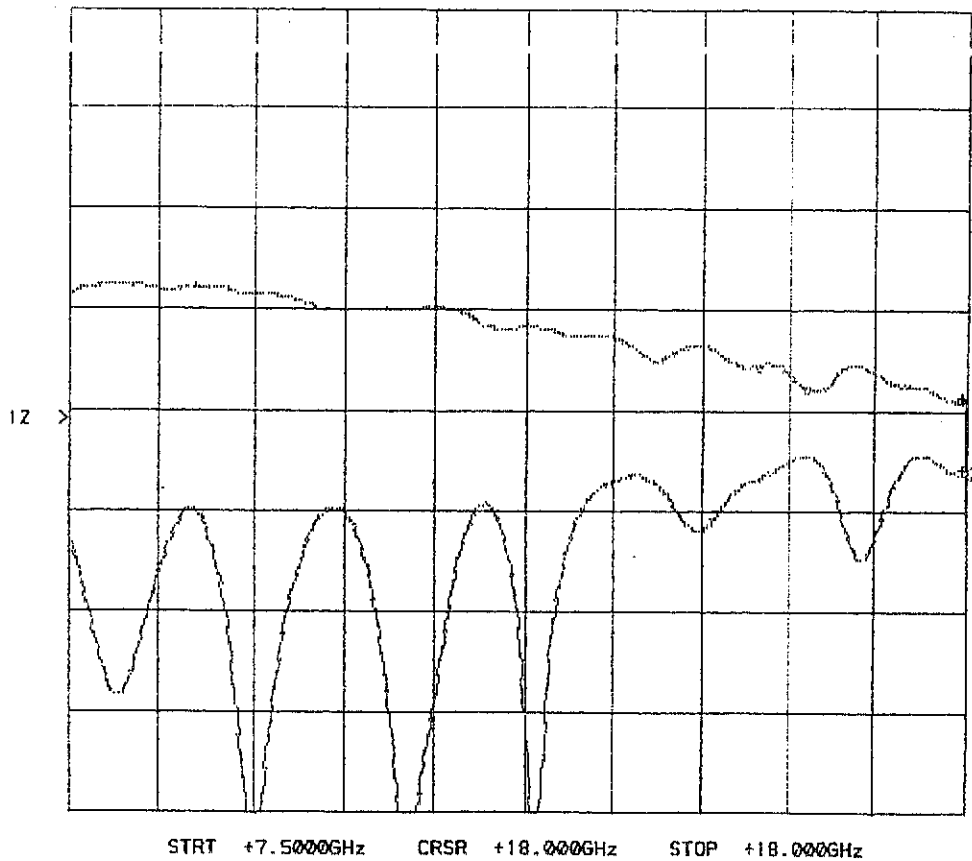
SUMMARY TEST DATA
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SERIAL NUMBER : 1MS407279
TECHNICIAN : RENE AFABLE & HOLLY HAHN
VOLTAGE & CURRENT DRAW : +5 vdc @ +60 mA MAX.
-15 vdc @ +25 mA MAX.

RETURN LOSS OUTPUT ON

RETURN LOSS: 15.69 dB TYP. @ 18.0 GHz

CH1: A -M - 2.28 dB CH2: B -M - 15.69 dB
1.0 dB/ REF - 2.40 dB 5.0 dB/ REF - 12.74 dB

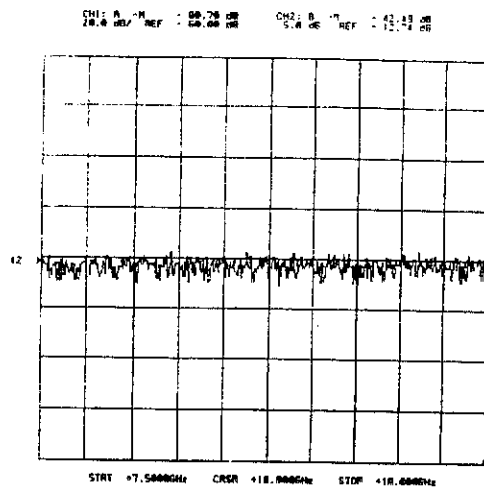


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SUMMARY TEST DATA
 SWN-1TDR-ARG-LVT
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SERIAL NUMBER : 1MS407279
 TECHNICIAN : RENE AFABLE & HOLLY HAHN
 VOLTAGE & CURRENT DRAW : +5vdc @+60 mA MAX.
 -15vdc @+25 mA MAX.

ISOLATION AS MEASURED ON A NETWORK ANALYSER



ISOLATION AS MEASURED ON A SPECTRUM ANALYZER

| FREQUENCY | ISOLATION |
|-----------|-----------|
| 1.0 GHz | 53 dB |
| 2.0 GHz | 64 dB |
| 4.0 GHz | 96 dB |
| 8.0 GHz | 98 dB |
| 12.0 GHz | 89 dB |
| 16.0 GHz | 82 dB |
| 18.0 GHz | 68 dB |

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SUMMARY TEST DATA
SWN-1TDR-ARG-LVT
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SERIAL NUMBER : 1MS407279
TECHNICIAN : RENE AFABLE & HOLLY HAHN
VOLTAGE & CURRENT DRAW : +5vdc @+60 mA MAX.
-15vdc @+25 mA MAX.

SWITCHING SPEED: RISE/FALL, ON/OFF

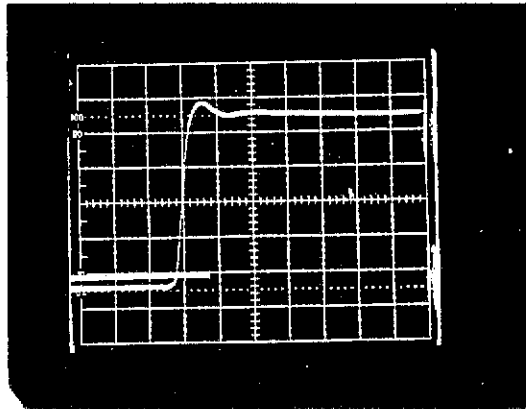
Rise/Fall = 10% RF to 90% RF/ 90% RF to 10% RF

On/Off = 50% TTL to 90%/10% RF

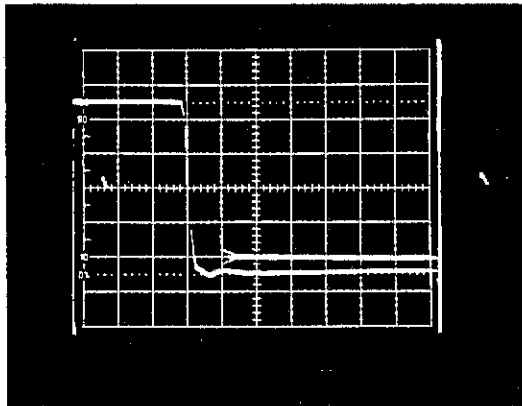
Rise/Fall = $\leq 3\text{nS}$ Typical

On/Off = $\leq 5\text{nS}$ Typical

VERTICAL:
10mV/Division



HORIZONTAL:
10nS/Division



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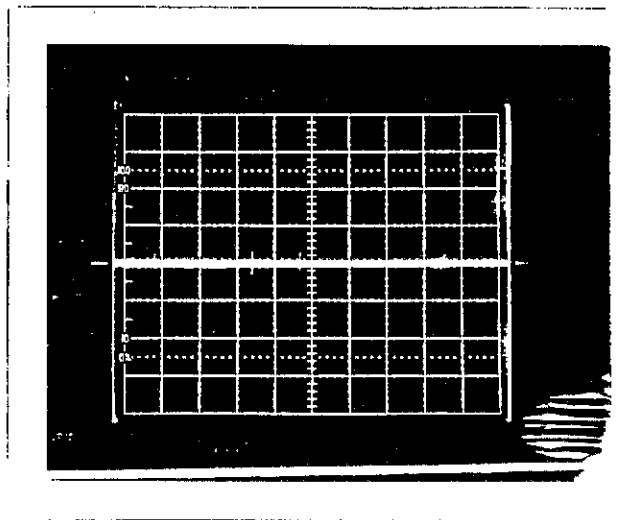
SERIAL NUMBER : 1MS407279
TECHNICIAN : RENE AFABLE & HOLLY HAHN
VOLTAGE & CURRENT DRAW : +5vdc @+60 mA MAX.
-15vdc @+25 mA MAX.

VIDEO TRANSIENTS

VIDEO TRANSIENTS: ≤ 3 mV Peak to Peak in a 300 MHz Bandwidth

VERTICAL SCALE:
5mV PER DIVISION

HORIZONTAL SCALE:
0.1 μ S PER DIVISION



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SUMMARY TEST DATA
 SWN-1TDR-ARG-LVT
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SERIAL NUMBER : 1MS407279
 TECHNICIAN : RENE AFABLE

TEST DATA AS PRESENTED TO CUSTOMER

FORM: SW-1/0712/94



AMERICAN MICROWAVE CORPORATION
 15110 ROUTE 604A, FREDERICK, MD. 21704
 TEL: (301)641-4700 FAX: (301)642-0300

TEST DATA ON
 PIN DIODE SWITCH
 ARGO SYSTEMS
 SCD NO. 209359-01 REV. -

JOB NO: 309226-4E MODEL NO: SW-1TDR-ARG OPTION: NONE DATE: 2/1/95

SERIAL NO: 1MS407279 CUSTOMER: ARGO SYSTEMS TESTED BY: R. Afable

| TEST ITEM NO. | PARAMETERS | SPECIFIED VALUE | MEASURED VALUE |
|---------------|--------------------------------------------|--------------------------------|----------------|
| -1- | FREQUENCY | 7.5 GHz to 18.0 GHz | X |
| -2- | INSERTION LOSS J1-J2 (SWEEP DATA) | 2.4 dB MAX | -2.32 dB |
| -3- | ISOLATION J1-J2 (SWEEP DATA) | 60 dB MIN | >60 dB |
| -4- | VSWR J1 INPUT J2 OUTPUT (SWEEP DATA) | INPUT 1.6:1 | -12.52 dB |
| | | OUTPUT 1.6:1 | -14.82 dB |
| -5- | SWITCHING SPEED | 50% TTL TO 90% RF 12 nS MAX | 10 nS |
| | | 10% RF TO 90% RF 5 nS MAX | 1 nS |
| -6- | D.C. POWER | +5 VOLTS @ 60 mA MAX | 35 mA |
| | | -15 VOLTS @ 25 mA MAX | 25 mA |

PRODUCTION MANAGER APPROVAL: R. Afable DATED: 2/1/95

QA/QC APPROVAL: [Signature] DATED: 2/2/95

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SUMMARY TEST DATA
 SWN-1TDR-ARG-LVT
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SERIAL NUMBER : IMS407280
 TECHNICIAN : RENE AFABLE

TEST DATA AS PRESENTED TO CUSTOMER

FORM: SW-1/0712/94



TEST DATA ON
 PIN DIODE SWITCH
 ARGO SYSTEMS
 SCD NO. 209359-01 REV. -

JOB NO: 309226-4E MODEL NO: SW-1TDR-ARG OPTION: NONE DATE: 2/1/95
 SERIAL NO: IMS407280 CUSTOMER: ARGO SYSTEMS TESTED BY: R. Afable

| TEST ITEM NO. | PARAMETERS | SPECIFIED VALUE | MEASURED VALUE |
|---------------|--------------------------------------------|--------------------------------|----------------|
| -1- | FREQUENCY | 7.5 GHz to 18.0 GHz | X |
| -2- | INSERTION LOSS J1-J2 (SWEEP DATA) | 2.4 dB MAX | -2.42 dB |
| -3- | ISOLATION J1-J2 (SWEEP DATA) | 60 dB MIN | > 60 dB |
| -4- | VSWR J1 INPUT J2 OUTPUT (SWEEP DATA) | INPUT 1.6:1 | -13.74 dB |
| | | OUTPUT 1.6:1 | -14.78 dB |
| -5- | SWITCHING SPEED | 50% TTL TO 90% RF 12 nS MAX | 6 nS |
| | | 10% RF TO 90% RF 5 nS MAX | 1 nS |
| -6- | D.C. POWER | +5 VOLTS @ 60 mA MAX | 34 mA |
| | | -15 VOLTS @ 25 mA MAX | 25 mA |

PRODUCTION MANAGER APPROVAL: R. Afable DATED: 2/1/95
 QA/QC APPROVAL: A. Strickman DATED: 2/2/95

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SUMMARY TEST DATA
 SWN-1TDR-ARG-LVT
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SERIAL NUMBER : IMS407281
 TECHNICIAN : RENE AFABLE

TEST DATA AS PRESENTED TO CUSTOMER

FORM: SW-1/0712/94



TEST DATA ON
 PIN DIODE SWITCH
 ARGO SYSTEMS
 SCD NO. 209359-01 REV. -

JOB NO: 309226-4E MODEL NO: SW-1TDR-ARG OPTION: NONE DATE: 2/1/95
 SERIAL NO: IMS407281 CUSTOMER: ARGO SYSTEMS TESTED BY: *R. Afable*

| TEST ITEM NO. | PARAMETERS | SPECIFIED VALUE | MEASURED VALUE |
|---------------|--------------------------------------------|--------------------------------|----------------|
| -1- | FREQUENCY | 7.5 GHz to 18.0 GHz | X |
| -2- | INSERTION LOSS J1-J2 (SWEPT DATA) | 2.4 dB MAX | -2.13 dB |
| -3- | ISOLATION J1-J2 (SWEPT DATA) | 60 dB MIN | >60 dB |
| -4- | VSWR J1 INPUT J2 OUTPUT (SWEPT DATA) | INPUT 1.6:1 | -14.15 dB |
| | | OUTPUT 1.6:1 | -15.38 dB |
| -5- | SWITCHING SPEED | 50% TTL TO 90% RF 12 nS MAX | 6 nS |
| | | 10% RF TO 90% RF 5 nS MAX | 1 nS |
| -6- | D.C. POWER | +5 VOLTS @ 60 mA MAX | 40 mA |
| | | -15 VOLTS @ 25 mA MAX | 25 mA |

PRODUCTION MANAGER APPROVAL: *R. Afable* DATED: 2/1/95
 QA/QC APPROVAL: *A. Motta* DATED: 2/2/95

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SUMMARY TEST DATA
 SWN-1TDR-ARG-LVT
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SERIAL NUMBER : 1MS407283
 TECHNICIAN : RENE AFABLE

TEST DATA AS PRESENTED TO CUSTOMER

FORM: SW-1/0712/94



AMERICAN MICROWAVE CORPORATION
 7810 CROFT ROAD, PRAIRIE RIDGE, IL 617
 TEL: (815) 642-4700 FAX: (815) 642-4800

TEST DATA ON
 PIN DIODE SWITCH
 ARGO SYSTEMS
 SCD NO. 209359-01 REV. -

JOB NO: 309226-4E MODEL NO: SW-1TDR-ARG OPTION: NONE DATE: 2/1/95
 SERIAL NO: 1MS407283 CUSTOMER: ARGO SYSTEMS TESTED BY: R. Afable

| TEST ITEM NO. | PARAMETERS | SPECIFIED VALUE | MEASURED VALUE |
|---------------|--------------------------------------------|--------------------------------|----------------|
| -1- | FREQUENCY | 7.5 GHz to 18.0 GHz | X |
| -2- | INSERTION LOSS J1-J2 (SWEEP DATA) | 2.4 dB MAX | -2.02 dB |
| -3- | ISOLATION J1-J2 (SWEEP DATA) | 60 dB MIN | >60 dB |
| -4- | VSWR J1 INPUT J2 OUTPUT (SWEEP DATA) | INPUT 1.6:1 | -13.63 dB |
| | | OUTPUT 1.6:1 | -15.18 dB |
| -5- | SWITCHING SPEED | 50% TTL TO 90% RF 12 nS MAX | 6 nS |
| | | 10% RF TO 90% RF 5 nS MAX | 1 nS |
| -6- | D.C. POWER | +5 VOLTS @ 60 mA MAX | 37 mA |
| | | -15 VOLTS @ 25 mA MAX | 29 mA |

PRODUCTION MANAGER APPROVAL: R. Afable DATED: 2/1/95
 QA/QC APPROVAL: A. Stettin DATED: 2/2/95

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SUMMARY TEST DATA
 SWN-1TDR-ARG-LVT
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SERIAL NUMBER
 TECHNICIAN

: 1MS407282
 : RENE AFABLE

TEST DATA AS PRESENTED TO CUSTOMER

FORM: SW-1/0712/94



AMERICAN MICROWAVE CORPORATION
 7816 CROFT ROAD, FREDERICK MD. 21704
 TEL: (301)622-7700 FAX: (301)622-6008

TEST DATA ON
 PIN DIODE SWITCH
 ARGO SYSTEMS
 SCD NO. 209359-01 REV. -

JOB NO: 309226-4E MODEL NO: SW-1TDR-ARG OPTION: NONE DATE: 9/10/94
 SERIAL NO: 1MS407282 CUSTOMER: ARGO SYSTEMS TESTED BY: R. Afable

| TEST ITEM NO. | PARAMETERS | SPECIFIED VALUE | MEASURED VALUE |
|---------------|--------------------------------------------|--------------------------------|----------------|
| -1- | FREQUENCY | 7.5 GHz to 18.0 GHz | X |
| -2- | INSERTION LOSS J1-J2 (SWEPT DATA) | 2.4 dB MAX | 2.05 dB |
| -3- | ISOLATION J1-J2 (SWEPT DATA) | 60 dB MIN | 70 dB |
| -4- | VSWR J1 INPUT J2 OUTPUT (SWEPT DATA) | INPUT 1.6:1 | -12.76 dB |
| | | OUTPUT 1.6:1 | -15.20 dB |
| -5- | SWITCHING SPEED | 50% TTL TO 90% RF 12 nS MAX | 6 nS |
| | | 10% RF TO 90% RF 5 nS MAX | 1 nS |
| -6- | D.C. POWER | +5 VOLTS @ 60 mA MAX | 45 mA |
| | | -15 VOLTS @ 25 mA MAX | 38 mA |

PRODUCTION MANAGER APPROVAL: R. Afable DATED: 9/10/94
 QA/QC APPROVAL: _____ DATED: _____

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