



**TEST REPORT**  
**ON**  
**1 TO 8.2 GHz**  
**SINGLE POLE FOUR THROW**  
**ABSORPTIVE / NON-REFLECTIVE SWITCH MODULE**

**AMC MODEL No:**  
**MSN-4DT-05-STANDARD**  
**OPTION 18, 12X, LVT**

Serial Numbers: 4MS909232 THRU 4MS909235

DESIGNED  
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**ISO9001 : 2000 CERTIFIED**

## TABLE OF CONTENTS

●	PRODUCT DESCRIPTION AND ELECTRICAL SPECIFICATIONS	PAGE 3
●	PRODUCT FEATURE AND ENVIRONMENTAL SPECIFICATIONS	PAGE 4
●	OUTLINE DRAWING	PAGE 5
●	FUNCTIONAL SCHEMATIC	PAGE 6
●	TEST DATA ON MSN-4DT-05-STANDARD OPTION 18, 12X, LVT SERIAL NUMBERS 4MS909232 THRU 4MS909235	PAGE 7
●	TEST DATA FOR MSN-4DT-05-STANDARD OPTION 18, 12X, LVT SERIAL NUMBER 4MS909232	PAGE 8
●	TEST DATA FOR MSN-4DT-05-STANDARD OPTION 18, 12X, LVT SERIAL NUMBER 4MS909233	PAGE 9
●	TEST DATA FOR MSN-4DT-05-STANDARD OPTION 18, 12X, LVT SERIAL NUMBER 4MS909234	PAGE 10
●	TEST DATA FOR MSN-4DT-05-STANDARD OPTION 18, 12X, LVT SERIAL NUMBER 4MS909235	PAGE 11

## SINGLE POLE FOUR THROW ABSORPTIVE / NON-REFLECTIVE SWITCH MODULE AMC MODEL No: MSN-4DT-05-STANDARD OPTION 18, 12X, LVT

### FEATURES:

- **LOW INSERTION LOSS**
- **HIGH ISOLATION**
- **LOW VIDEO TRANSIENTS**
- **LOW HARMONIC DISTORTION**

### SPECIFICATIONS:

● FREQUENCY	: 1 TO 8.2 GHz
● INSERTION LOSS	: 2.5 dB MAXIMUM
● ISOLATION	: 60 dB MINIMUM
● VSWR	: 1.8:1
● SWITCHING SPEED	: < 30 ns
● RISE / FALL TIME	: < 10 ns
● MAXIMUM TOGGLE RATE	: > 20 ns
● RF CONNECTORS	: SMA FEMALE
● DC POWER SUPPLY	: +5 V $\pm$ 10% @ 200 mA MAXIMUM -5 V $\pm$ 10% @ 100 mA MAXIMUM
● CONTROL	: TTL LOGIC "0"=ON , "1"=OFF
● CONTROL INTERFACE	: DC SOLDER PINS
● HARMONIC DISTORTION	: $\leq$ 70 dB @ +10 dBm I/P
● FLATNESS ACROSS BAND (ON STATE)	: $\pm$ 1.0 dB, $\pm$ 0.75 dB TYPICAL
● VIDEO LEAKAGE	: 100 mV PEAK TO PEAK, 20 MHz BANDWIDTH (-60 dBm TO -65 dBm LEAKAGE POWER OR ENERGY IN THE BAND OF INTEREST)
● 1 dB COMPRESSION POINT	: +20 dBm
● 2 TONE 3 <sup>RD</sup> ORDER INTERCEPT POINT, P <sub>OUT</sub> 0dBm	: +35 dBm
● 2 TONE 2 <sup>ND</sup> ORDER INTERCEPT POINT, P <sub>OUT</sub> 0dBm	: +55 dBm
● 0.1 dB PASS BAND	: 1 GHz TO 8.2 GHz



**PRODUCT FEATURE**

ZONE	REV.	DESCRIPTION	DATE	APPROVED
		ORIGINAL RELEASE	8/11/99	

**DESCRIPTION:**  
 AMC MODEL MSN-4DT-05-STANDARD OPTION 18, 12X, LVT IS A SINGLE POLE FOUR THROW, ABSORPTIVE/NON-REFLECTIVE SWITCH MODULE WITH VERY LOW INSERTION LOSS, HIGH ISOLATION AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR LOW VIDEO TRANSIENTS AND LOW HARMONIC DISTORTION OVER 1.0 TO 8.2 GHz BANDWIDTH.

**SPECIFICATIONS:**

- FREQUENCY: 1.0 GHz TO 8.2 GHz
- INSERTION LOSS: 2.5 dB MAXIMUM
- ISOLATION: 90 dB MINIMUM
- VSWR (ANY PORT, ANY STATE): <1.8
- SWITCHING SPEED: <30 ns
- (50% TTL TO 10%/90% RF)
- RISE/FALL TIME: <10 ns
- (10% TO 90% RF)
- (90% TO 10% RF)
- MAXIMUM TOGGLE RATE: >20 MHz
- (50% DC)
- RF CONNECTORS: SMA FEMALE
- DC POWER SUPPLY: +5V ±10% @ 200 mA MAXIMUM
- CONTROL: -5V ±10% @ 100 mA MAXIMUM
- TTL LOGIC: "0"=ON "1"=OFF
- CONTROL INTERFACE: DC SOLDER PINS
- HARMONIC DISTORTION: < 70dB @ +10 dBm I/P
- FLATNESS ACROSS BAND: ±1.0dB, ±0.75dB TYPICAL (ON STATE)
- VIDEO LEAKAGE: 100 mV PEAK TO PEAK, 20 MHz BANDWIDTH (-60 dBm TO -65 dBm LEAKAGE POWER OR ENERGY IN THE BAND OF INTEREST)
- 1 dB COMPRESSION POINT: +20 dBm
- 2 TONE 3RD ORDER INTERCEPT POINT, POUT 0dBm: +35 dBm
- 2 TONE 2RD ORDER INTERCEPT POINT, POUT 0dBm: +55 dBm
- 0.1 dB PASS BAND: 1.0 GHz TO 8.2 GHz
- WEIGHT: 3.0 OUNCES TYPICAL
- SIZE: 2.00 (L) X 1.50 (W) X 0.40 (H)

REMOVABLE SMA (F) 5 PLACES  
 MOUNTING SURFACE GOLD PLATED P-PAINTED  
 #0.015 x 0.100" RF PIN 5 PLACES  
 #0.030 SOLDER PIN 6 PLACES  
 #0.089 DIA THRU W/4-40 THD 0.250 DEEP MINIMUM ON MOUNTING SURFACE, 4 PLACES  
 #0.125 (GP) #0.127 (CP)

**ENVIRONMENTAL RATINGS:**

- TEMPERATURE: -10°C TO +55°C (OPERATING)
- -40°C TO +71°C (STORAGE)
- HUMIDITY: 95% OVER TEMPERATURE
- SHOCK: MIL-STD-202F, METHOD 213B COND. B
- VIBRATION: MIL-STD-202F, METHOD 2040 COND. B
- MIL-STD-202F, METHOD 105C COND. B
- ALTITUDE: MIL-STD-202F, METHOD 107D COND. A
- TEMPERATURE CYCLE: MIL-STD-202F, METHOD 107D COND. A

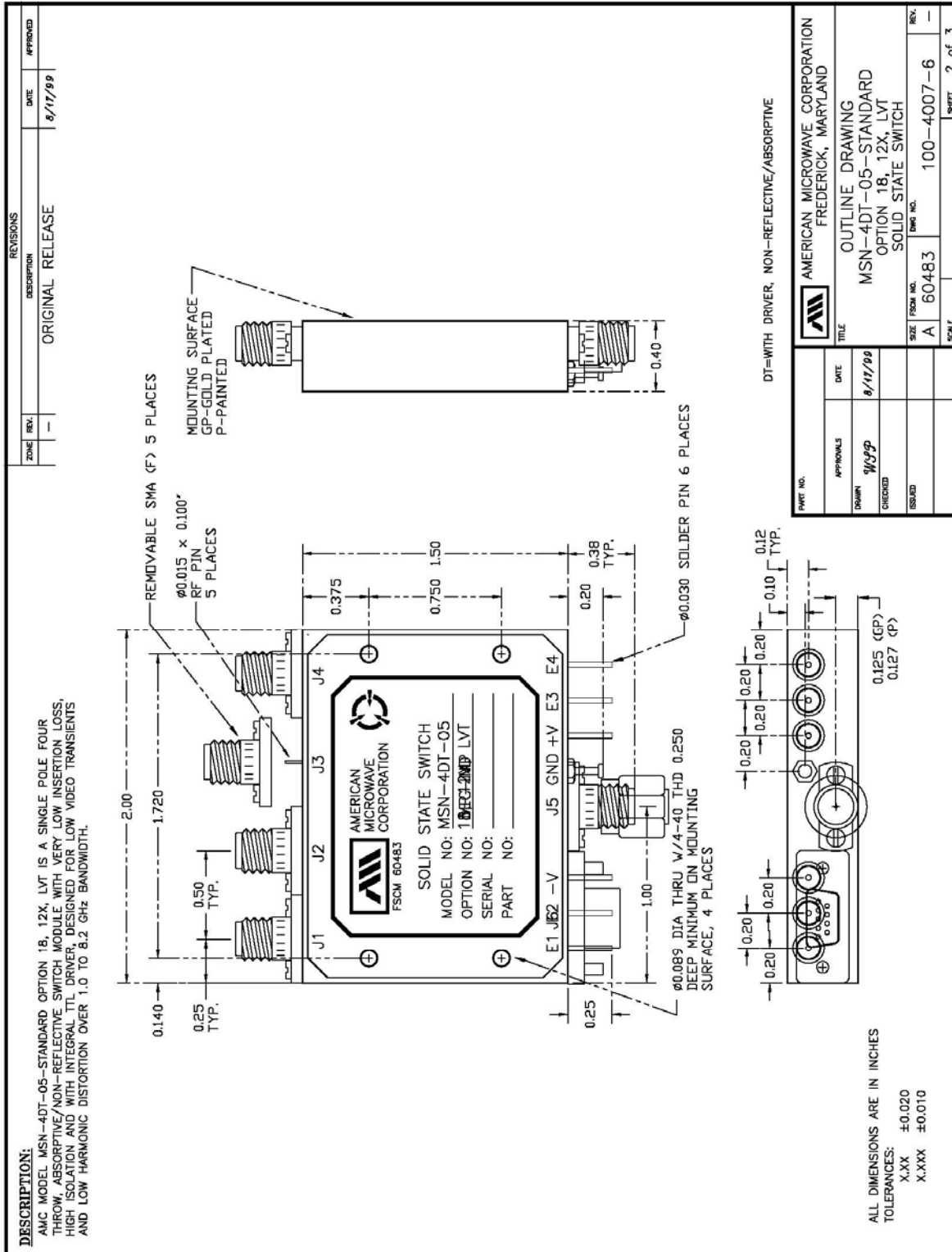
NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

**NOTE:**  
 DT=WITH DRIVER, NON-REFLECTIVE/ABSORPTIVE

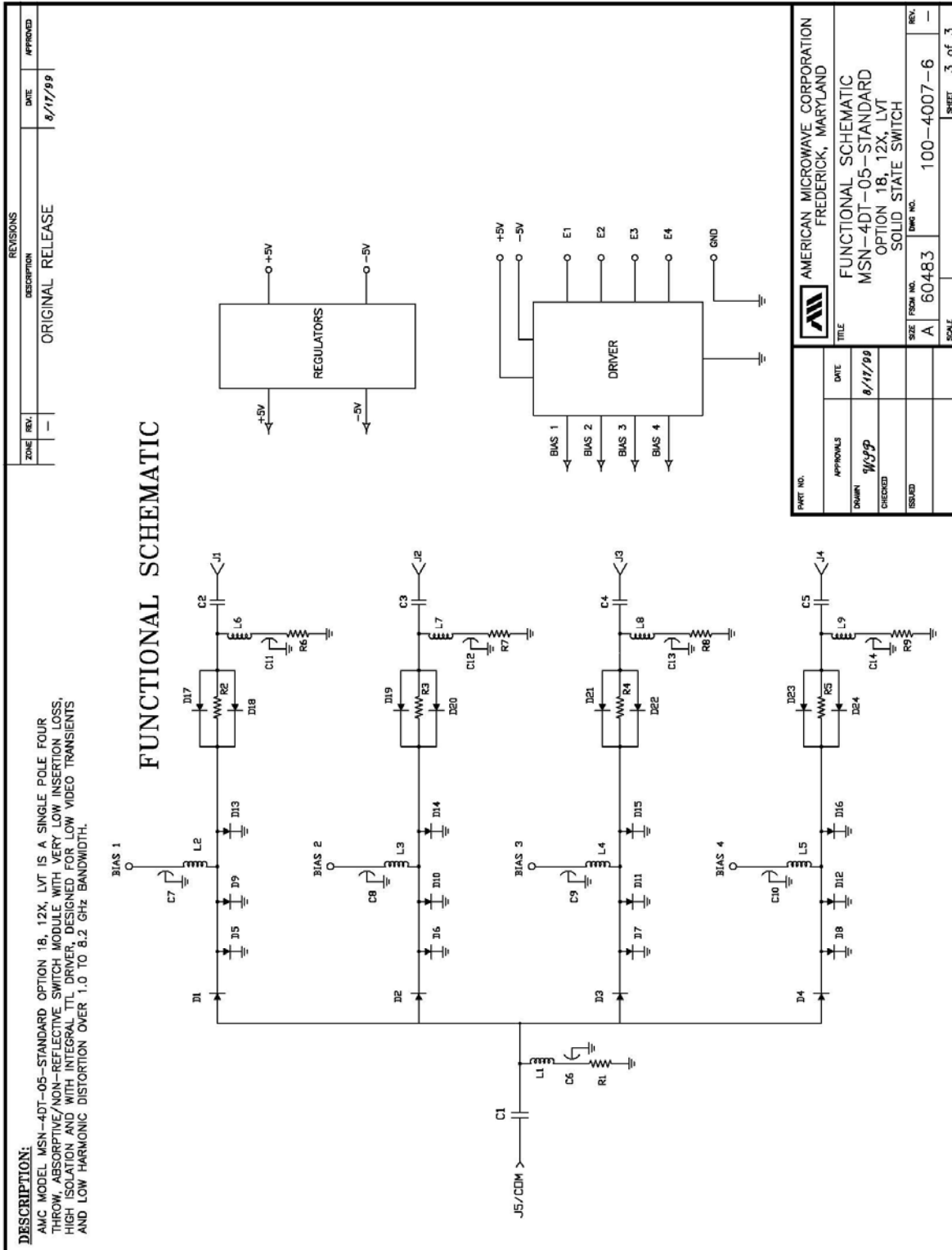
  

PART NO.	APPROVALS	DATE	TITLE	REV.	SCALE	SHEET	1 OF 3
		8/11/99	PRODUCT FEATURE MSN-4DT-05-STANDARD OPTION 18, 12X, LVT SOLID STATE SWITCH		A 60483	100-4007-6	

**OUTLINE DRAWING**



## FUNCTIONAL SCHEMATIC



## FINAL TEST DATA

FINAL TEST DATA SHEETS

FOR

AMC MODEL NUMBER

**MSN-4DT-05-STANDARD**  
**OPTION 18, 12X, LVT**

Serial Numbers:

**4MS909232 THRU 4MS909235**



**FINAL TEST DATA**

AMC MODEL NO: MSN-4DT-05-STANDARD OPTION 18, 12X, LVT SERIAL NUMBER: 4MS909232

AMERICAN MICROWAVE CORPORATION  
 7311-G GROVE RD., FREDERICK MD. 21704  
 TEL: 301-662-4700 FAX: 301-662-4938  
 DATE: 11-30-99

FINAL TEST DATA  
 ON  
 MICROWAVE SWITCH

CUSTOMER: Telemas      TECHNICIAN: R. Butler  
 JOB NO: 907134E-3  
 MODEL NO: MSN-4DT-05-STD      OPTION NO: 18, 12X LVT  
 SERIAL NO: 4MS909232      SPECIFICATION:  
 CURRENT DRAW: +5VDC @ 75 mA; -5VDC @ 38 mA      FREQUENCY RANGE: 1.0 GHz to 8.2 GHz

INSERTION LOSS (WORST CASE)	RETURN LOSS (WORST CASE)					
	INPUT dB	INPUT VSWR	OUTPUT ON dB	OUTPUT ON VSWR	OUTPUT OFF dB	OUTPUT OFF VSWR
J5-J1 1.78 dB	14.45 dB	1.47: 1	15.8 dB	1.38: 1	15.0 dB	1.42: 1
J5-J2 1.73 dB	14.7 dB	1.44: 1	15.3 dB	1.41: 1	15.9 dB	1.38: 1
J5-J3 1.73 dB	14.2 dB	1.48: 1	15.1 dB	1.42: 1	14.6 dB	1.45: 1
J5-J4 1.88 dB	14.3 dB	1.47: 1	14.0 dB	1.49: 1	15.3 dB	1.41: 1
dB	dB	1. : 1	dB	1. : 1	dB	1. : 1
dB	dB	1. : 1	dB	1. : 1	dB	1. : 1
dB	dB	1. : 1	dB	1. : 1	dB	1. : 1
dB	dB	1. : 1	dB	1. : 1	dB	1. : 1
dB	dB	1. : 1	dB	1. : 1	dB	1. : 1

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J5-J1 > 60 dB	16 nS	3 nS	15 nS	3 nS
J5-J2 > 60 dB	17 nS	3 nS	16 nS	2 nS
J5-J3 > 60 dB	16 nS	3 nS	15 nS	2 nS
J5-J4 > 60 dB	16 nS	3 nS	16 nS	2 nS
dB	nS	nS	nS	nS
dB	nS	nS	nS	nS
dB	nS	nS	nS	nS
dB	nS	nS	nS	nS
dB	nS	nS	nS	nS

NOTE: Any additional test data on back

TESTED ON: 8350B/8757A (HP)

QA/QC APPROVAL: AS      DATED: 11/30/99





**FINAL TEST DATA**

AMC MODEL NO: MSN-4DT-05-STANDARD OPTION 18, 12X, LVT SERIAL NUMBER: 4MS909233

AMERICAN MICROWAVE CORPORATION  
 7311-G GROVE RD., FREDERICK MD. 21704  
 TEL: 301-662-4700 FAX: 301-662-4938

DATE: 11-30-99

FINAL TEST DATA  
 ON  
 MICROWAVE SWITCH

CUSTOMER: Telemas  
 JOB NO: 907134E-3  
 MODEL NO: MSN-4DT-05-STD  
 SERIAL NO: 4MS909233  
 CURRENT DRAW: +5VDC @ 75mA; -5VDC @ 35mA

TECHNICIAN: R. Butler  
 OPTION NO: 18, 12X, LVT  
 SPECIFICATION: FREQUENCY RANGE: 1.0 GHz to 8.2 GHz

INSERTION LOSS (WORST CASE)	RETURN LOSS (WORST CASE)					
	INPUT dB	INPUT VSWR	OUTPUT ON dB	OUTPUT ON VSWR	OUTPUT OFF dB	OUTPUT OFF VSWR
J5-J1 1.86 dB	13.7 dB	1.51 : 1	12.6 dB	1.61 : 1	12.1 dB	1.65 : 1
J5-J2 1.85 dB	13.5 dB	1.53 : 1	13.9 dB	1.50 : 1	15.1 dB	1.42 : 1
J5-J3 1.93 dB	12.3 dB	1.64 : 1	13.4 dB	1.53 : 1	15.3 dB	1.41 : 1
J5-J4 1.97 dB	14.2 dB	1.48 : 1	14.0 dB	1.49 : 1	12.0 dB	1.66 : 1
dB	dB	1. : 1	dB	1. : 1	dB	1. : 1
dB	dB	1. : 1	dB	1. : 1	dB	1. : 1
dB	dB	1. : 1	dB	1. : 1	dB	1. : 1
dB	dB	1. : 1	dB	1. : 1	dB	1. : 1
dB	dB	1. : 1	dB	1. : 1	dB	1. : 1

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J5-J1 > 60 dB	17 nS	3 nS	18 nS	2 nS
J5-J2 > 60 dB	16 nS	3 nS	15 nS	2 nS
J5-J3 > 60 dB	16 nS	3 nS	22 nS	10 nS
J5-J4 > 60 dB	17 nS	4 nS	24 nS	10 nS
dB	nS	nS	nS	nS
dB	nS	nS	nS	nS
dB	nS	nS	nS	nS
dB	nS	nS	nS	nS
dB	nS	nS	nS	nS

NOTE: Any additional test data on back

TESTED ON: 8350B/8757-A (H)

QA/QC APPROVAL: H

DATED: 11/30/99



