



TEST REPORT

ON

8.0 TO 18.0 GHz

HIGH ISOLATION

REFLECTIVE

SPST SWITCH

AMC MODEL No:

SW-2184-1A

Option DM864CH-20

Serial Numbers: 1MS001377 THRU 1MS001386

DESIGNED
BY
R. Afable

TESTED
BY
H. Hahn

REPORTED
BY
W. Steinhaus

April 19, 2004

AMERICAN MICROWAVE CORPORATION., 7311-G Grove Road, Frederick, MD 21704
Tel: 301-662-4700 • Fax: 301-662-4938 • Email: sales@americanmicrowavecorp.com
Website: <http://www.americanmicrowavecorp.com>

ISO9001 : 1994 CERTIFIED

Handwritten notes:
pw
EBC
WAS
MOS
DRH
JBT
SKM
LC

TABLE OF CONTENTS

●	PRODUCT DESCRIPTION AND ELECTRICAL SPECIFICATIONS	PAGE 3
●	PRODUCT FEATURE AND ENVIRONMENTAL SPECIFICATIONS	PAGE 4
●	MECHANICAL OUTLINE	PAGE 5
●	FUNCTIONAL SCHEMATIC	PAGE 6
●	TEST DATA ON SW-2184-1A OPTION DM864CH-20, SERIAL NUMBERS 1MS001377 THRU 1MS001386	PAGE 7
●	TEST DATA FOR SW-2184-1A OPTION DM864CH-20 SERIAL NUMBER 1MS001377	PAGE 8
●	TEST DATA FOR SW-2184-1A OPTION DM864CH-20 SERIAL NUMBER 1MS001378	PAGE 9
●	TEST DATA FOR SW-2184-1A OPTION DM864CH-20 SERIAL NUMBER 1MS001379	PAGE 10
●	TEST DATA FOR SW-2184-1A OPTION DM864CH-20 SERIAL NUMBER 1MS001380	PAGE 11
●	TEST DATA FOR SW-2184-1A OPTION DM864CH-20 SERIAL NUMBER 1MS001381	PAGE 12
●	TEST DATA FOR SW-2184-1A OPTION DM864CH-20 SERIAL NUMBER 1MS001382	PAGE 13
●	TEST DATA FOR SW-2184-1A OPTION DM864CH-20 SERIAL NUMBER 1MS001383	PAGE 14
●	TEST DATA FOR SW-2184-1A OPTION DM864CH-20 SERIAL NUMBER 1MS001384	PAGE 15
●	TEST DATA FOR SW-2184-1A OPTION DM864CH-20 SERIAL NUMBER 1MS001385	PAGE 16
●	TEST DATA FOR SW-2184-1A OPTION DM864CH-20 SERIAL NUMBER 1MS001386	PAGE 17

SPST, REFLECTIVE, PIN DIODE SWITCH AMC MODEL No: SW-2184-1A OPTION DM864CH-20

FEATURES:

- **REFLECTIVE**
- **HIGH ISOLATION**
- **OPTIMIZED FOR 8.0 TO 18.0 GHz**

SPECIFICATIONS:

- **FREQUENCY** : 8.0 TO 18.0 GHz
- **INSERTION LOSS** : 8.0-12.4 GHz: 1.8 dB MAXIMUM
: 12.4-18.0 GHz: 2.8 dB MAXIMUM
- **ISOLATION** : 80 dB MINIMUM
- **VSWR** : 8.0-12.4 GHz: 2.0:1
: 12.4-18 GHz: 2.2:1
- **RISE/FALL TIME** : 10 nS
- **DELAY ON/OFF TIME** : 30 nS MAXIMUM, 15 nS TYPICAL
- **REPETITION RATE** : 20 MHz
- **POWER HANDLING CAPABILITY** : 1 WATT CW OR PEAK SURVIVAL POWER
: 2 WATT AVERAGE, 75 WATT PEAK
(1 USEC MAXIMUM PULSE WIDTH)
- **POWER SUPPLY** : +15V @ 70 mA MAXIMUM
: -15V @ 20 mA MAXIMUM
- **CONTROL INPUT IMPEDANCE** : TTL, TWO-UNIT LOAD. (A UNIT LOAD IS 1.6 mA
CURRENT SINK)
- **CONTROL LOGIC** : LOGIC "0" (-0.3V TO +0.7V) FOR SWITCH OFF
AND LOGIC "1" (+2.5V TO +5.0V) FOR SWITCH ON
- **CONTROL, VOLTAGE CONNECTOR** : SMC MALE
- **SIZE** : 1.97" X 0.80" X 0.53"
- **WEIGHT** : 1.5 OUNCES TYPICAL



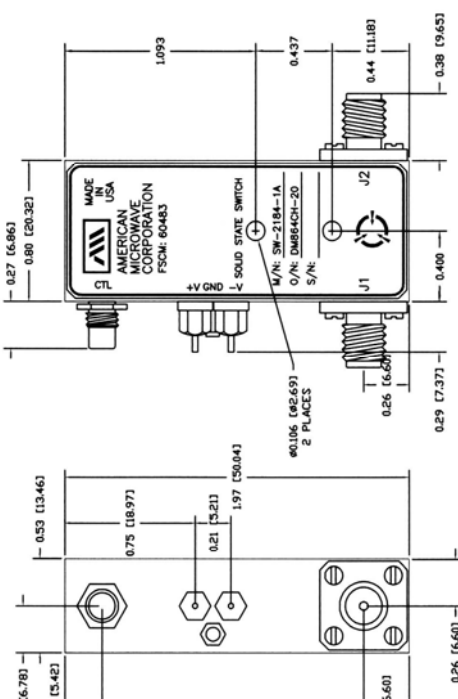
PRODUCT FEATURE

REV. NO.	DESCRIPTION	DATE	APPROVED
—	ORIGINAL JOB# 909167E	12/13/99	—

DESCRIPTION:
 AMC MODEL SW-2184-1A OPTION DM864CH-20 IS A HIGH SPEED, REFLECTIVE, SINGLE POLE SINGLE THROW SWITCH MODULE WITH LOW INSERTION LOSS, AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR 8 GHz TO 18 GHz OPERATION.

SPECIFICATIONS:

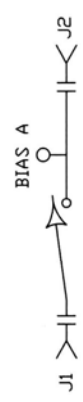
- FREQUENCY: 8 GHz TO 18 GHz
- INSERTION LOSS: 8.0-12.4 GHz 1.8 dB MAX.
12.4-18.0 GHz 2.8 dB MAX.
- ISOLATION: 80 dB MINIMUM
- VSWR: 8.0 GHz TO 12.4 GHz: 2.0:1
12.4 GHz TO 18.0 GHz: 2.2:1
- RISE/FALL TIME: 10 nS
(10% RF TO 90% RF)
(90% RF TO 10% RF)
- DELAY ON/OFF: 30 nS TYPICAL
(50% TTL TO 90% RF)
(50% TTL TO 10% RF)
- REPETITION RATE: 20 MHz
- POWER HANDLING CAPABILITY: 1 WATT CW OR PEAK SURVIVAL POWER
2 WATT AVERAGE, 75 WATT PEAK
(1 USEC MAX PULSE WIDTH)
- POWER SUPPLY: +15V @ 70 mA MAXIMUM
-15V @ 20 mA MAXIMUM
- CONTROL INPUT IMPEDANCE: TTL, TWO-UNIT LOAD. (A UNIT LOAD IS 1.6mA CURRENT SINK.)
- CONTROL LOGIC: LOGIC "0" (-0.3V TO +0.7V) FOR SWITCH OFF
AND LOGIC "1" (+2.5V TO +5.0V) FOR SWITCH ON
- CONTROL, VOLTAGE CONNECTOR: SMC MALE
- SIZE: 1.97" (L) x 0.80" (W) x 0.53" (H)
- WEIGHT: 1.5 OUNCE TYPICAL



M/N = MANUFACTURER PART NUMBER
 O/N = OPTION NUMBER
 S/N = SERIAL NUMBER

CONFIDENTIAL AND PROPRIETARY

BLOCK DIAGRAM



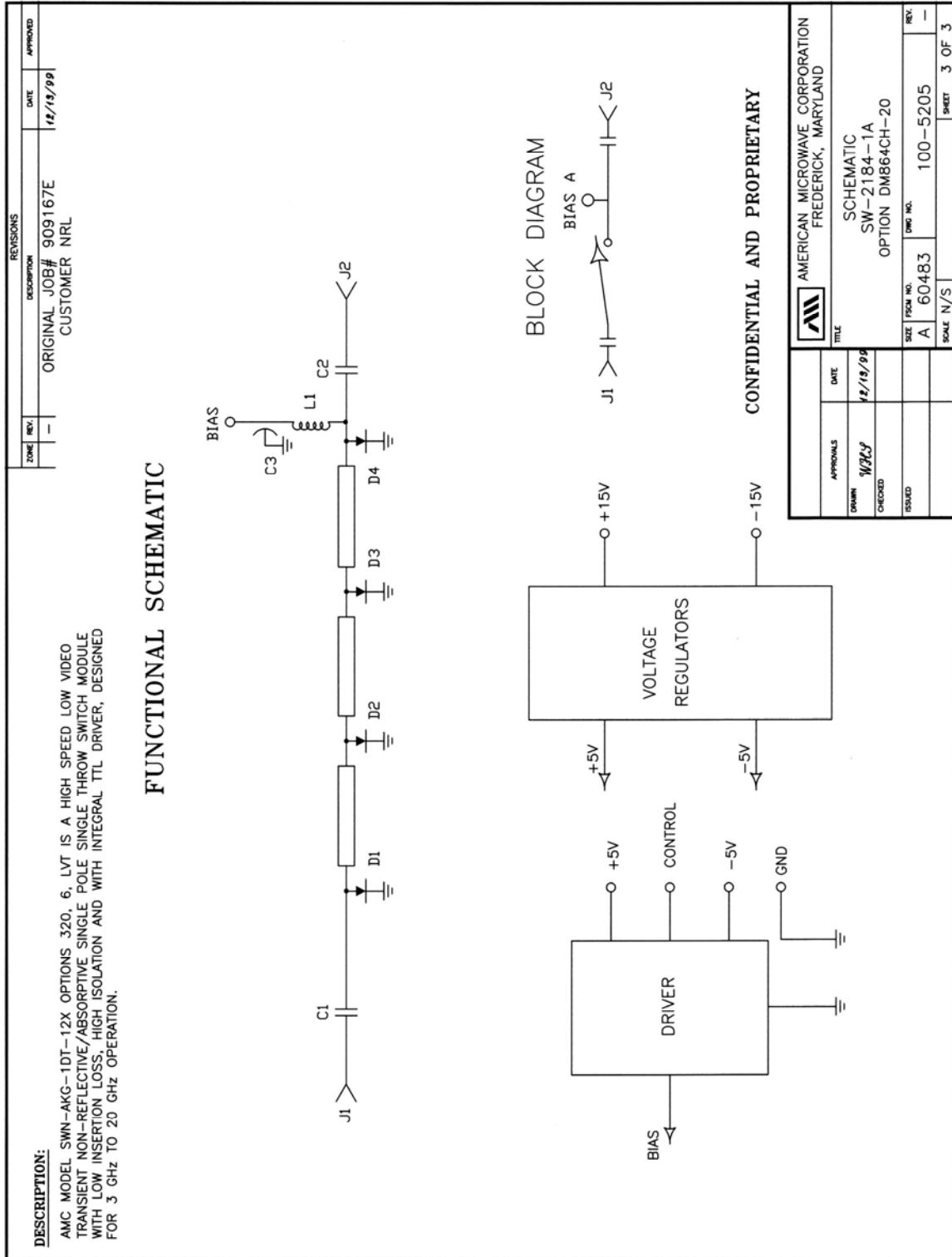
ALL DIMENSIONS ARE IN INCHES
 TOLERANCES:
 X.XX ±0.020
 X.XXX ±0.010

ENVIRONMENTAL RATINGS

- TEMPERATURE: -65°C TO +85°C (OPERATING)
-65°C TO +125°C (STORAGE)
- HUMIDITY: MIL-STD-202F, METHOD 103B COND. B
- SHOCK: MIL-STD-202F, METHOD 213B COND. B
- VIBRATION: MIL-STD-202F, METHOD 204D COND. B
- ALTITUDE: MIL-STD-202F, METHOD 105C COND. B
- TEMPERATURE CYCLE: MIL-STD-202F, METHOD 107D COND. A

NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

FUNCTIONAL SCHEMATIC



FINAL TEST DATA

FINAL TEST DATA SHEETS

FOR

AMC MODEL NUMBER

SW-2184-1A
OPTION DM864CH-20

Serial Numbers:

1MS001377 THRU 1MS001386

FINAL TEST DATA

AMC MODEL NO: SW-2184-1A OPTION DM864CH-20, SERIAL NUMBER: 1MS001378

FINAL TEST DATA ON MICROWAVE SWITCH DATE: 1-31-00

CUSTOMER: <u>NRL</u>	TECHNICIAN: <u>H.H.</u>
JOB NO: <u>909176E</u>	
MODEL NO: <u>SW-2184-1A</u>	OPTION NO: <u>DM864CH-20</u>
SERIAL NO: <u>1MS001378</u>	SPECIFICATION:
CURRENT DRAW: <u>+15VDC @ 75 mA; -15VDC @ 35 mA</u>	FREQUENCY RANGE: <u>8-18 GHz</u>

INSERTION LOSS (WORST CASE)	RETURN LOSS (WORST CASE)					
	INPUT dB	INPUT VSWR	OUTPUT ON dB	OUTPUT ON VSWR	OUTPUT OFF dB	OUTPUT OFF VSWR
J1-J2 <u>2.24 dB</u>	<u>13.36 dB</u>	<u>1.55 : 1</u>	<u>11.56 dB</u>	<u>1.72 : 1</u>	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J1-J2 <u>> 80 dB</u>	<u>14 nS</u>	<u>4 nS</u>	<u>14 nS</u>	<u>2 nS</u>
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS

NOTE: Any additional test data on back

TESTED ON: William 37347A
 QA/QC APPROVAL: 04 [Signature] DATED: FEB 01 2000



FINAL TEST DATA

AMC MODEL NO: SW-2184-1A OPTION DM864CH-20, SERIAL NUMBER: 1MS001379

DATE: 1-31-00
 FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: NRL TECHNICIAN: H.H.
 JOB NO: 909176E
 MODEL NO: SW-2184-1A OPTION NO: DM864CH-20
 SERIAL NO: 1M5601379 SPECIFICATION: _____
 CURRENT DRAW: +15VDC @ 75mA; -15VDC @ 35mA FREQUENCY RANGE: 8-18 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
J1-J2 <u>2.4</u> dB	<u>9.89</u> dB	<u>1.94</u> : 1	<u>9.97</u> dB	<u>1.93</u> : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J1-J2 <u>> 80</u> dB	<u>14</u> nS	<u>2</u> nS	<u>15</u> nS	<u>3</u> nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS

NOTE: Any additional test data on back

TESTED ON: William 37347A
 QA/QC APPROVAL: DATED: FEB 01 2000



FINAL TEST DATA

AMC MODEL NO: SW-2184-1A OPTION DM864CH-20, SERIAL NUMBER: 1MS001381

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

DATE: 1-31-00

CUSTOMER: NRL TECHNICIAN: H.H.
 JOB NO: 909176E
 MODEL NO: SW-2184-1A OPTION NO: DM864CH-20
 SERIAL NO: 1MS001381 SPECIFICATION:
 CURRENT DRAW: +15VDC @ 25mA; -15VDC @ 35mA FREQUENCY RANGE: 8-18 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
J1-J2 <u>1.93</u> dB	<u>12.76</u> dB	<u>1.58 : 1</u>	<u>11.74</u> dB	<u>1.70 : 1</u>	dB	<u>1. : 1</u>
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J1-J2 <u>>80</u> dB	<u>14</u> nS	<u>2</u> nS	<u>14</u> nS	<u>2</u> nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS

NOTE: Any additional test data on back

TESTED ON: Willem 37347A

QA/QC APPROVAL: (Signature)

DATED: FEB 01 2000

FINAL TEST DATA

AMC MODEL NO: SW-2184-1A OPTION DM864CH-20, SERIAL NUMBER: 1MS001382

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

DATE: 1-31-00

CUSTOMER: NRL TECHNICAL: H.H.
 JOB NO: 909176E
 MODEL NO: SW-2184-1A OPTION NO: DM864CH-20
 SERIAL NO: 1M15001382 SPECIFICATION:
 CURRENT DRAW: +15VDC @ 75mA; -15VDC @ 35mA FREQUENCY RANGE: 8-18 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
J1-J2 <u>2.51</u> dB	<u>10.09</u> dB	<u>1.91 : 1</u>	<u>10.65</u> dB	<u>1.83 : 1</u>		
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J1-J2 <u>> 80</u> dB	<u>13</u> nS	<u>2</u> nS	<u>24</u> nS	<u>1</u> nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS

NOTE: Any additional test data on back

TESTED ON: William 37347A

QA/QC APPROVAL: 

DATED: FEB 01 2000

FINAL TEST DATA

AMC MODEL NO: SW-2184-1A OPTION DM864CH-20, SERIAL NUMBER: 1MS001383

FINAL TEST DATA ON MICROWAVE SWITCH DATE: 1-31-00

CUSTOMER: NRL TECHNICIAN: 17.H.
 JOB NO: 909176E
 MODEL NO: SW-2184-1A OPTION NO: DM864CH-20
 SERIAL NO: 1MS001383 SPECIFICATION:
 CURRENT DRAW: +1.5VDC @ 75 mA; -1.5VDC @ 35 mA FREQUENCY RANGE: 8-18 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
J1-J2 <u>2.07 dB</u>	<u>14.31 dB</u>	<u>1.48 : 1</u>	<u>12.96 dB</u>	<u>1.58 : 1</u>	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J1-J2 <u>> 80 dB</u>	<u>14</u> nS	<u>2</u> nS	<u>2</u> nS	<u>14</u> nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS

NOTE: Any additional test data on back

TESTED ON: William 37347A

QA/QC APPROVAL

04

DATED: FEB 01 2000



FINAL TEST DATA

AMC MODEL NO: SW-2184-1A OPTION DM864CH-20, SERIAL NUMBER: 1MS001384

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

DATE: 1-31-00

CUSTOMER: NRL TECHNICALIAN: A.H.
 JOB NO: 909176E
 MODEL NO: SW-2184-1A OPTION NO: DM864CH-20
 SERIAL NO: 1M5601384 SPECIFICATION:
 CURRENT DRAW: +15VDC @ 75mA; -15VDC @ 35mA FREQUENCY RANGE: 8-18 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
J1-J2 <u>2.18 dB</u>	<u>11.11 dB</u>	<u>1.77 : 1</u>	<u>10.58 dB</u>	<u>1.84 : 1</u>	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J1-J2 <u>> 80 dB</u>	<u>13 nS</u>	<u>2 nS</u>	<u>14 nS</u>	<u>2 nS</u>
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS

NOTE: Any additional test data on back

QA/QC APPROVAL: TESTED ON: William 37347A
 DATED: FEB 01 2000



FINAL TEST DATA

AMC MODEL NO: SW-2184-1A OPTION DM864CH-20, SERIAL NUMBER: 1MS001385

FINAL TEST DATA
ON
MICROWAVE SWITCH

DATE: 1-31-00

CUSTOMER: NRL
 JOB NO: 909176E
 MODEL NO: SW-2184-1A
 SERIAL NO: 1MS001385
 CURRENT DRAW: +15VDC @ 35 mA; -15VDC @ 35 mA

TECHNICIAN: A.H.
 OPTION NO: DM864CH-20
 SPECIFICATION: _____
 FREQUENCY RANGE: 8-18 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
J1-J2 <u>2.37 dB</u>	<u>14.41 dB</u>	<u>1.47 : 1</u>	<u>13.41 dB</u>	<u>1.54 : 1</u>	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J1-J2 <u>> 80 dB</u>	<u>13 nS</u>	<u>2 nS</u>	<u>14 nS</u>	<u>3 nS</u>
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS

NOTE: Any additional test data on back

TESTED ON: William 37347A

QA/QC APPROVAL: 

DATED: FEB 01 2000

