



TEST REPORT

ON

1 TO 18 GHz

SINGLE POLE TWO THROW

REFLECTIVE SWITCH MODULE

AMC MODEL No:

SWN-218-2DR-STANDARD-F9120AH-27
OPTION 118

Serial Numbers: 2MS410707 THRU 2MS410710

**DESIGNED
BY
R. Afable**

**TESTED
BY
P. Kuhn**

**REPORTED
BY
E. Elder**

May 10, 2005

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 : 2000 CERTIFIED

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SINGLE POLE TWO THROW REFLECTIVE SWITCH MODULE

AMC MODEL No: SWN-218-2DR-STD-F9120AH-27 OPTION 118

FEATURES:

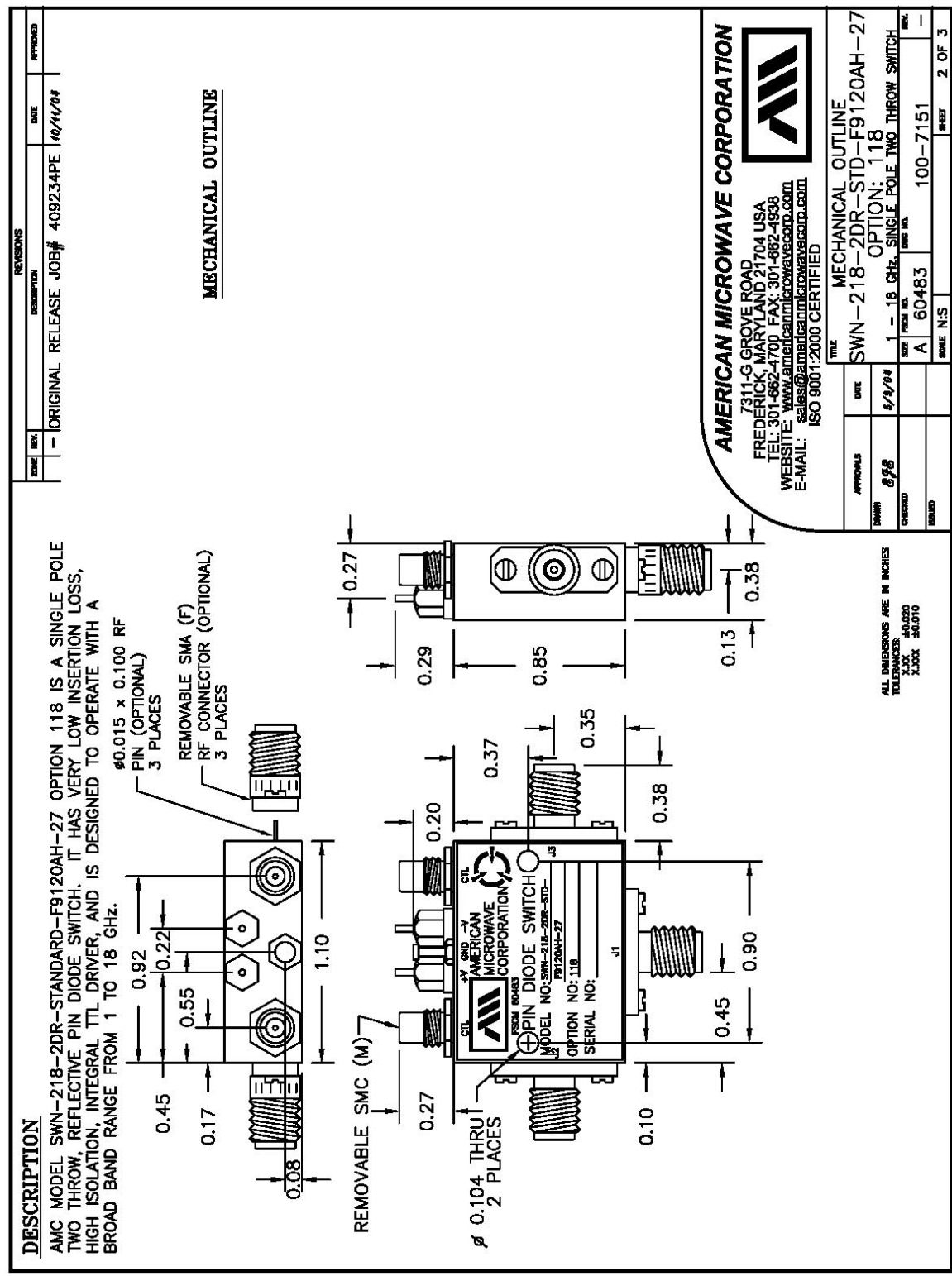
- **1 TO 18 GHz FREQUENCY RANGE (OTHER RANGES AVAILABLE)**
- **LOW INSERTION LOSS**
- **HIGH ISOLATION**
- **INTEGRAL TTL DRIVER**

SPECIFICATIONS:

- FREQUENCY : 1 TO 18 GHz
- INSERTION LOSS : 1 TO 4 GHz: 1.1 dB MAXIMUM
: 4 TO 8 GHz: 1.4 dB MAXIMUM
: 8 TO 12.4 GHz: 2.0 dB MAXIMUM
: 12.4 TO 18 GHz: 2.5 dB MAXIMUM
- ISOLATION : 1 TO 12.4 GHz: 60 dB MINIMUM
: 12.4 TO 18 GHz: 50 dB MAXIMUM
- VSWR : 1 TO 12.4GHz: 1.75:1
: 12.4 TO 18 GHz: 2.0:1
- SPEED : RISE: 10 nS MAXIMUM
: FALL: 10 nS MAXIMUM
: ON: 20 nS MAXIMUM
: OFF: 20 nS MAXIMUM
- POWER HANDLING CAPABILITY : 1 WATT CW OR PEAK
- SURVIVAL POWER : 1 WATT AVERAGE, 75 WATTS PEAK (1 uS
: MAXIMUM PULSE WIDTH)
- CONTROL : LOGIC "0" = ON, "1" = OFF
- POWER SUPPLY : +5V @ 60 mA MAXIMUM
: -12V TO -15V @ 50 mA MAXIMUM
- SIZE : 1.10" (L) x 0.85" (W) x 0.38" (H)
- WEIGHT : 0.75 OZ



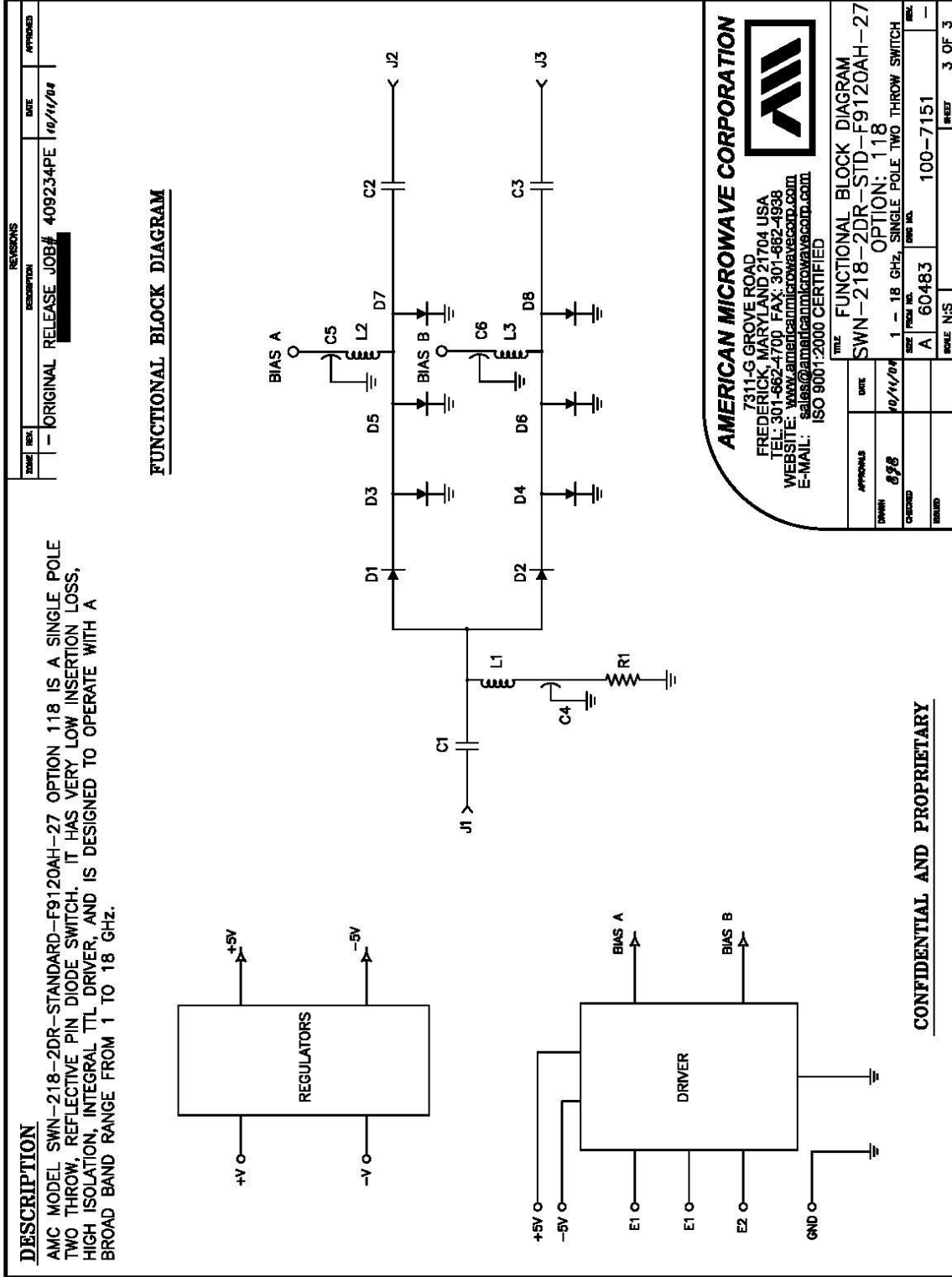
OUTLINE DRAWING



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



FUNCTIONAL SCHEMATIC



FINAL TEST DATA

FINAL TEST DATA SHEETS

FOR

AMC MODEL NUMBER

**SWN-218-2DR-STANDARD-F9120AH-27
OPTION 118**

Serial Numbers:

2MS410707 THRU 2MS410710



FINAL TEST DATA

AMC MODEL NO: SWN-218-2DR-STANDARD-F9120AH-27 OPT 118, SERIAL NUMBER: 2MS410707

FORM: SW-DTA
 DATE: October 27, 2004



AMERICAN MICROWAVE CORPORATION
 7311-G GROVE RD., FREDERICK MD. 21704
 TEL: 301-662-4700 FAX: 301-662-4938
 WWW.AMERICANMICROWAVECORP.COM
 E-MAIL: SALES@AMERICANMICROWAVECORP.COM
 ISO 9001:1994 CERTIFIED

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: RAYTHEON TECHNICIAN: P. Kuhn *P. Kuhn*
 JOB NO: 409234PE CUSTOMER PART NO: _____
 MODEL NO: SWN-218-2DR-STD-F9120AH-27 OPTION NO: 118
 SERIAL NO: 2MS410707 SPECIFICATION: MIL-STD-454
 CURRENT DRAW: + 5 VDC @ 54 mA; - 5 VDC @ 27 mA FREQUENCY RANGE: 1.0 GHz - 18.0 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 0.65 dB @ 1-4 GHz	21.21 dB	1.19 : 1	25.54 dB	1.11 : 1		
J1-J2 1.27 dB @ 4-8 GHz	15.20 dB	1.42 : 1	15.45 dB	1.41 : 1		
J1-J2 1.72 dB @ 8-12.4 GHz	13.11 dB	1.57 : 1	12.19 dB	1.65 : 1		
J1-J2 2.04 dB @ 12.4-18 GHz	13.23 dB	1.56 : 1	12.33 dB	1.64 : 1		
J1-J3 0.57 dB @ 1-4 GHz	26.99 dB	1.09 : 1	25.64 dB	1.11 : 1		
J1-J3 1.15 dB @ 4-8 GHz	20.14 dB	1.22 : 1	23.42 dB	1.14 : 1		
J1-J3 1.78 dB @ 8-12.4 GHz	12.04 dB	1.67 : 1	12.07 dB	1.66 : 1		
J1-J3 2.45 dB @ 12.4-18 GHz	12.66 dB	1.61 : 1	11.47 dB	1.73 : 1		
ISOLATION	SWITCHING SPEED					
	DELAY ON	RISE TIME	DELAY OFF	FALLTIME		
J1-J2: 64.88dB @ 1-4 GHz	25 nS	10 nS	25 nS	6 nS		
J1-J2: 64.72dB @ 4-8 GHz	25 nS	10 nS	25 nS	6 nS		
J1-J2: 63.72dB @ 8-12.4 GHz	25 nS	10 nS	25 nS	6 nS		
J1-J2: 60.37dB @ 12.4-18 GHz	25 nS	10 nS	25 nS	6 nS		
J1-J3: 73.40dB @ 1-4 GHz	25 nS	10 nS	25 nS	6 nS		
J1-J3: 68.75dB @ 4-8 GHz	25 nS	10 nS	25 nS	6 nS		
J1-J3: 73.92dB @ 8-12.4 GHz	25 nS	10 nS	25 nS	6 nS		
J1-J3: 58.35dB @ 12.4-18 GHz	25 nS	10 nS	25 nS	6 nS		

* DENOTES A FAILURE

TESTED ON: HEWLETT PACKARD, 8720D, 0, 7.64
 QA/QC APPROVAL: *[Signature]*

DATED: 11/2/04



FINAL TEST DATA

AMC MODEL NO: SWN-218-2DR-STANDARD-F9120AH-27 OPT 118, SERIAL NUMBER: 2MS410708

FORM: SW-DTA
 DATE: October 27, 2004



AMERICAN MICROWAVE CORPORATION
 7311-G GROVE RD., FREDERICK MD. 21704
 TEL: 301-662-4700 FAX: 301-662-4938
 WWW.AMERICANMICROWAVECORP.COM
 E-MAIL: SALES@AMERICANMICROWAVECORP.COM
 ISO 9001:1994 CERTIFIED

**FINAL TEST DATA
 ON
 MICROWAVE SWITCH**

CUSTOMER: RAYTHEON TECHNICIAN: P. Kuhn
 JOB NO: 409234PE CUSTOMER PART NO: _____
 MODEL NO: SWN-218-2DR-STD-F9120AH-27 OPTION NO: 118
 SERIAL NO: 2MS410708 SPECIFICATION: MIL-STD-454
 CURRENT DRAW: + 5 VDC @ 53 mA; - 5 VDC @ 26 mA FREQUENCY RANGE: 1.0 GHz - 18.0 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 0.96 dB @ 1-4 GHz	18.39 dB	1.27 : 1	17.20 dB	1.32 : 1		
J1-J2 1.02 dB @ 4-8 GHz	14.30 dB	1.48 : 1	14.68 dB	1.45 : 1		
J1-J2 1.53 dB @ 8-12.4 GHz	12.76 dB	1.60 : 1	12.55 dB	1.62 : 1		
J1-J2 1.80 dB @ 12.4-18 GHz	14.97 dB	1.43 : 1	14.09 dB	1.49 : 1		
J1-J3 1.01 dB @ 1-4 GHz	19.86 dB	1.23 : 1	19.31 dB	1.24 : 1		
J1-J3 0.96 dB @ 4-8 GHz	22.62 dB	1.16 : 1	19.79 dB	1.23 : 1		
J1-J3 1.57 dB @ 8-12.4 GHz	14.42 dB	1.47 : 1	14.54 dB	1.46 : 1		
J1-J3 2.22 dB @ 12.4-18 GHz	10.73 dB	1.82 : 1	11.98 dB	1.67 : 1		
ISOLATION	SWITCHING SPEED					
	DELAY ON	RISE TIME	DELAY OFF	FALLTIME		
J1-J2 89.07dB @ 1-4 GHz	24 nS	10 nS	25 nS	6 nS		
J1-J2 88.66dB @ 4-8 GHz	24 nS	10 nS	25 nS	6 nS		
J1-J2 85.44dB @ 8-12.4 GHz	24 nS	10 nS	25 nS	6 nS		
J1-J2 77.56dB @ 12.4-18 GHz	24 nS	10 nS	25 nS	6 nS		
J1-J3 89.66dB @ 1-4 GHz	24 nS	10 nS	25 nS	6 nS		
J1-J3 87.55dB @ 4-8 GHz	24 nS	10 nS	25 nS	6 nS		
J1-J3 84.74dB @ 8-12.4 GHz	24 nS	10 nS	25 nS	6 nS		
J1-J3 79.41dB @ 12.4-18 GHz	24 nS	10 nS	25 nS	6 nS		

* DENOTES A FAILURE

TESTED ON: HEWLETT PACKARD, 8720D, 0, 7.64
 QA/QC APPROVAL: _____

DATED: 11/2/09



FINAL TEST DATA

AMC MODEL NO: SWN-218-2DR-STANDARD-F9120AH-27 OPT 118, SERIAL NUMBER: 2MS410709

FORM: SW-DTA
 DATE: October 27, 2004



AMERICAN MICROWAVE CORPORATION
 7311-G GROVE RD., FREDERICK MD. 21704
 TEL: 301-662-4700 FAX: 301-662-4938
 WWW.AMERICANMICROWAVECORP.COM
 E-MAIL: SALES@AMERICANMICROWAVECORP.COM
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**FINAL TEST DATA
 ON
 MICROWAVE SWITCH**

CUSTOMER: RAYTHEON TECHNICIAN: P. Kuhn *P. Kuhn*
 JOB NO: 409234PE CUSTOMER PART NO: _____
 MODEL NO: SWN-218-2DR-STD-F9120AH-27 OPTION NO: 118
 SERIAL NO: 2MS410709 SPECIFICATION: MIL-STD-454
 CURRENT DRAW: + 5 VDC @ 53 mA; - 5 VDC @ 26 mA FREQUENCY RANGE: 1.0 GHz - 18.0 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 0.68 dB @ 1-4 GHz	25.27 dB	1.12 : 1	21.50 dB	1.18 : 1		
J1-J2 1.15 dB @ 4-8 GHz	13.75 dB	1.52 : 1	14.42 dB	1.47 : 1		
J1-J2 1.55 dB @ 8-12.4 GHz	11.89 dB	1.68 : 1	12.75 dB	1.60 : 1		
J1-J2 2.31 dB @ 12.4-18 GHz	9.94 dB	1.93 : 1	10.09 dB	1.91 : 1		
J1-J3 0.63 dB @ 1-4 GHz	14.26 dB	1.48 : 1	13.76 dB	1.52 : 1		
J1-J3 0.96 dB @ 4-8 GHz	17.13 dB	1.32 : 1	16.57 dB	1.35 : 1		
J1-J3 1.22 dB @ 8-12.4 GHz	18.19 dB	1.28 : 1	16.35 dB	1.36 : 1		
J1-J3 1.94 dB @ 12.4-18 GHz	17.94 dB	1.29 : 1	14.23 dB	1.48 : 1		
ISOLATION	SWITCHING SPEED					
	DELAY ON	RISE TIME	DELAY OFF	FALLTIME		
J1-J2 85.28dB @ 1-4 GHz	24 nS	10 nS	25 nS	6 nS		
J1-J2 88.31dB @ 4-8 GHz	24 nS	10 nS	25 nS	6 nS		
J1-J2 85.55dB @ 8-12.4 GHz	24 nS	10 nS	25 nS	6 nS		
J1-J2 78.46dB @ 12.4-18 GHz	24 nS	10 nS	25 nS	6 nS		
J1-J3 87.80dB @ 1-4 GHz	24 nS	10 nS	25 nS	6 nS		
J1-J3 88.63dB @ 4-8 GHz	24 nS	10 nS	25 nS	6 nS		
J1-J3 86.16dB @ 8-12.4 GHz	24 nS	10 nS	25 nS	6 nS		
J1-J3 77.94dB @ 12.4-18 GHz	24 nS	10 nS	25 nS	6 nS		

* DENOTES A FAILURE

TESTED ON: HEWLETT PACKARD, 8720D, 0,7.64
 QA/QC APPROVAL: _____

DATED: 11/2/04



FINAL TEST DATA

AMC MODEL NO: SWN-218-2DR-STANDARD-F9120AH-27 OPT 118, SERIAL NUMBER: 2MS410710

FORM: SW-DTA
 DATE: October 27, 2004



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 7311-G GROVE RD., FREDERICK MD. 21704
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**FINAL TEST DATA
 ON
 MICROWAVE SWITCH**

CUSTOMER: RAYTHEON TECHNICIAN: P. Kuhn
 JOB NO: 409234PE CUSTOMER PART NO: _____
 MODEL NO: SWN-218-2DR-STD-F9120AH-27 OPTION NO: 118
 SERIAL NO: 2MS410710 SPECIFICATION: MIL-STD-454
 CURRENT DRAW: + 5 VDC @ 53 mA; - 5 VDC @ 27 mA FREQUENCY RANGE: 1.0 GHz - 18.0 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 0.87 dB @ 1-4 GHz	21.87 dB	1.18 : 1	18.79 dB	1.26 : 1		
J1-J2 1.04 dB @ 4-8 GHz	18.13 dB	1.28 : 1	20.11 dB	1.22 : 1		
J1-J2 1.60 dB @ 8-12.4 GHz	14.33 dB	1.48 : 1	13.71 dB	1.52 : 1		
J1-J2 2.41 dB @ 12.4-18 GHz	11.61 dB	1.71 : 1	12.42 dB	1.63 : 1		
J1-J3 0.83 dB @ 1-4 GHz	19.66 dB	1.23 : 1	20.06 dB	1.22 : 1		
J1-J3 1.22 dB @ 4-8 GHz	15.55 dB	1.40 : 1	14.23 dB	1.48 : 1		
J1-J3 1.67 dB @ 8-12.4 GHz	11.29 dB	1.75 : 1	11.29 dB	1.75 : 1		
J1-J3 2.23 dB @ 12.4-18 GHz	10.26 dB	1.89 : 1	11.48 dB	1.73 : 1		

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALLTIME
J1-J2 78.03dB @ 1-4 GHz	25 nS	6 nS	25 nS	8 nS
J1-J2 69.13dB @ 4-8 GHz	25 nS	6 nS	25 nS	8 nS
J1-J2 67.79dB @ 8-12.4 GHz	25 nS	6 nS	25 nS	8 nS
J1-J2 60.68dB @ 12.4-18 GHz	25 nS	6 nS	25 nS	8 nS
J1-J3 78.63dB @ 1-4 GHz	25 nS	6 nS	25 nS	8 nS
J1-J3 76.97dB @ 4-8 GHz	25 nS	6 nS	25 nS	8 nS
J1-J3 81.30dB @ 8-12.4 GHz	25 nS	6 nS	25 nS	8 nS
J1-J3 52.70dB @ 12.4-18 GHz	25 nS	6 nS	25 nS	8 nS

* DENOTES A FAILURE

TESTED ON: HEWLETT PACKARD 8720D, 0, 7.64
 QA/QC APPROVAL: _____ DATED: 11/2/04