



**AMERICAN MICROWAVE  
CORPORATION**

**TEST DATA**

**ON**

**150 MHz TO 2000 MHz**

**OPTIMIZED FOR**

**250 MHz TO 500 MHz**

**1dB LOW INSERTION LOSS**

**90dB HIGH ISOLATION**

**-70dBc LOW HARMONIC CONTENT**

**-80dBc LOW RF CONDUCTIVE/RADIATED LEAKAGE**

**ABSORPTIVE**

**NOISE IMMUNE**

**SP8T PIN DIODE SWITCH**

**WITH**

**8 DIFFERENTIAL TTL CONTROL PAIRS WITH OPTO-COUPLEDERS**

**AMC MODEL No: SW-2000-8AT-200**

**Serial No: 8MS60474**

**DESIGNED  
BY  
A. K. GORWARA**

**REPORTED  
BY  
P. D. WOOD**

**SEPTEMBER 19, 1995**



**150 MHz TO 2000 MHz  
(OPTIMIZED FOR)  
250 MHz TO 500 MHz  
LOW LOSS, HIGH ISOLATION  
SP8T, ABSORPTIVE, PIN DIODE SWITCH**

- LOW LOSS
- ABSORPTIVE
- HIGH ISOLATION
- LOW HARMONICS
- LOW RF LEAKAGE
- NOISE IMMUNITY CIRCUIT

**AMC MODEL Nos: SW-2000-8AT-200**

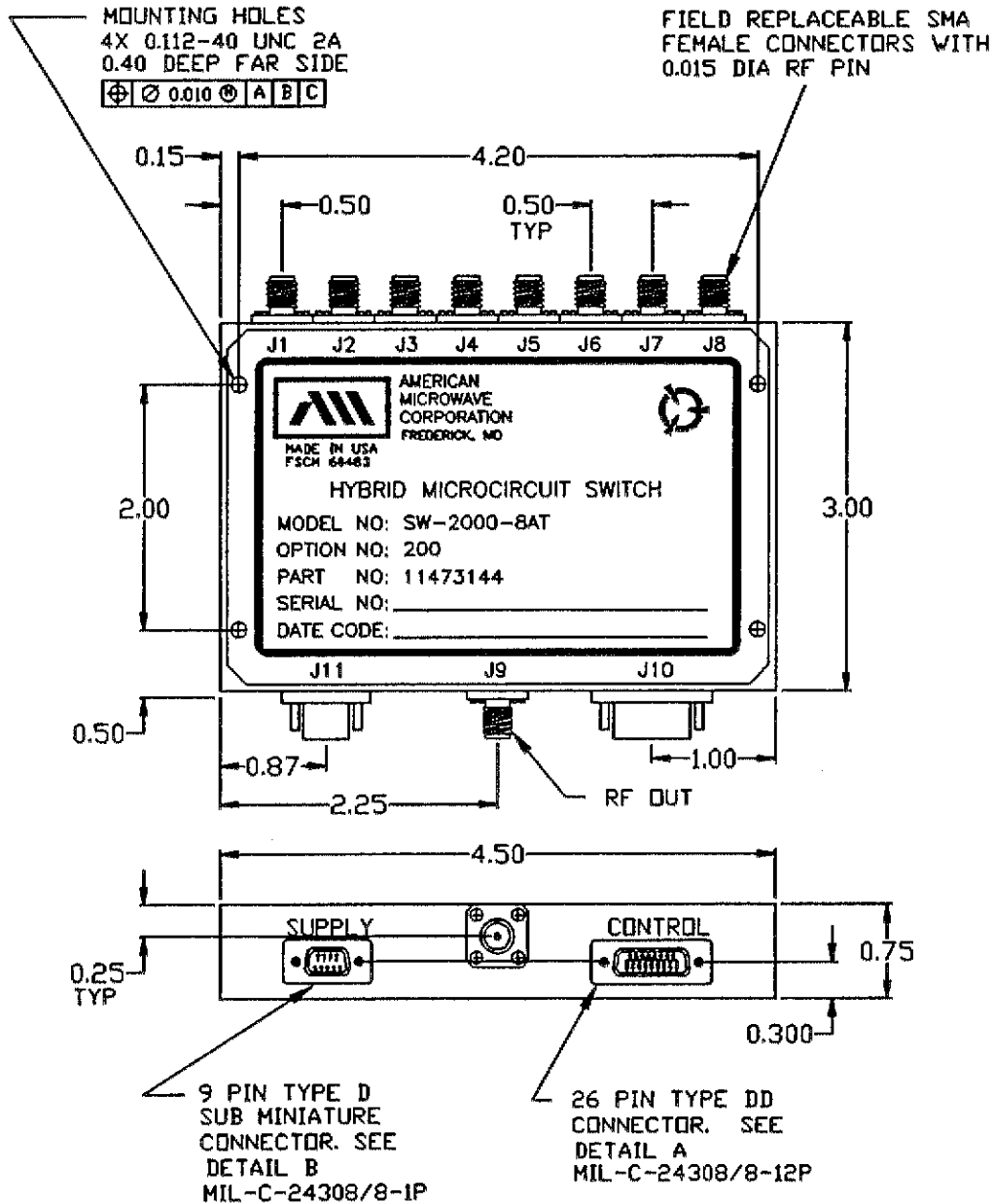
**SPECIFICATIONS:**

• FREQUENCY RANGE	: 250 MHz TO 500 GHz (USABLE FROM 150 TO 2000 MHz)	
• INSERTION LOSS	: 2.0 dB MAX. : 0.90 dB TYP. @ 250 MHz : 0.90 dB TYP. @ 500 MHz : 1.20 dB TYP. @ 1.0 GHz : 1.60 dB TYP. @ 1.5 GHz : 2.50 dB TYP. @ 2.0 GHz	
• ISOLATION	: 80 dB MIN. @ 250 MHz TO 500 MHz : 90 dB TYP. @ 50 MHz : 90 dB TYP. @ 250 MHz : 90 dB TYP. @ 500 MHz : 85 dB TYP. @ 1.0 GHz : 80 dB TYP. @ 1.5 GHz : 80 dB TYP. @ 2.0 GHz	
• VSWR	: 2.0:1	
• SWITCHING SPEED	: "RISE" : 100 nS MAX.,	50nS TYP.
	: "FALL" : 20 nS MAX.,	25nS TYP.
	: "ON" : 500 nS MAX.,	400nS TYP.
	: "OFF" : 300 nS MAX.,	250nS TYP.
• CONTROL	: Differential TTL with 8 Individual Control Pairs : with OPTO-Couplers for Noise Immunity (Logic "1" = Insertion Loss, Logic "0" = Isolation)	
• VIDEO TRANSIENTS	: 1.0 V Peak to Peak in a 20 MHz BW (Without Video Filters) : 4.0 V Peak to Peak in a 300 MHz BW (Without Video Filters)	
• HARMONIC CONTENT	: 2nd Harmonic: - 65 dBc Max. (-70 dBc TYP.) @ +10 dBm Input RF Power : 3rd Harmonic: - 70 dBc Max. (-75 dBc TYP.) @ +10 dBm Input RF Power	
• RF LEAKAGE(CONDUCTIVE / RADIATED)	: ≥ 80 dBc @ 500 MHz	
• RF INPUT POWER	: +20 dBm Operating, +1 Watt CW Max.	
• DC POWER SUPPLY	: + 5.0 ±0.25vdc	@ 500mA MAX. (DC Lines are Filtered to prevent RF Leakage
	: - 5.2 ±0.25vdc	@ 100mA MAX. and provide true Power Supply Decoupling)
• CONNECTORS	: RF Input/Output	: SMA Female
	: Control	: 26 Pin Type DD Sub Miniature
	: Power Supply	: 9 Pin Type D Sub Miniature
• SIZE & WEIGHT	: 4.50" X 3.0" X 0.75"	@ <14.0 oz.

**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
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**MECHANICAL OUTLINES**



UNLESS OTHERWISE SPECIFIED  
 DIMENSIONS ARE IN INCHES  
 TOLERANCES ARE ± 0.010

SW-2000-8AT-200

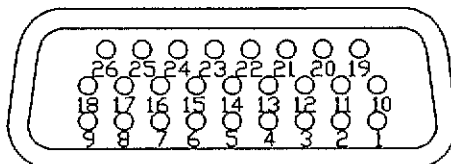
SEPTEMBER 19, 1996



**MECHANICAL OUTLINES**

**DETAIL "A"**  
**ILLUSTRATING 8 DIFFERENTIAL CONTROL PAIRS**

DETAIL A

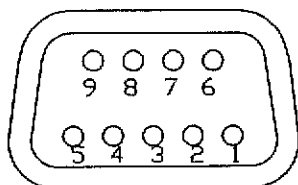


PIN FUNCTION TABLE (CONTROL)

PIN NO:	PIN FUNC	PIN NO:	PIN FUNC	PIN NO:	PIN FUNC
1	N/C GND	10	N/C GND	19	+1
2	+2	11	G1	20	-1
3	-2	12	G2	21	+3
4	+4	13	G3	22	-3
5	-4	14	G4	23	+5
6	+6	15	G5	24	-5
7	-6	16	G6	25	+7
8	+8	17	G7	26	-7
9	-8	18	G8		

**DETAIL "B"**

DETAIL B



PIN FUNCTION TABLE (SUPPLY)

PIN NO:	PIN FUNCTION
1	+5V
2	+5.0V RET
3	N/C GND
4	-5.2V
5	-5.2V RET
6	+5.0V GND
7	N/C GND
8	N/C GND
9	-5.2V GND



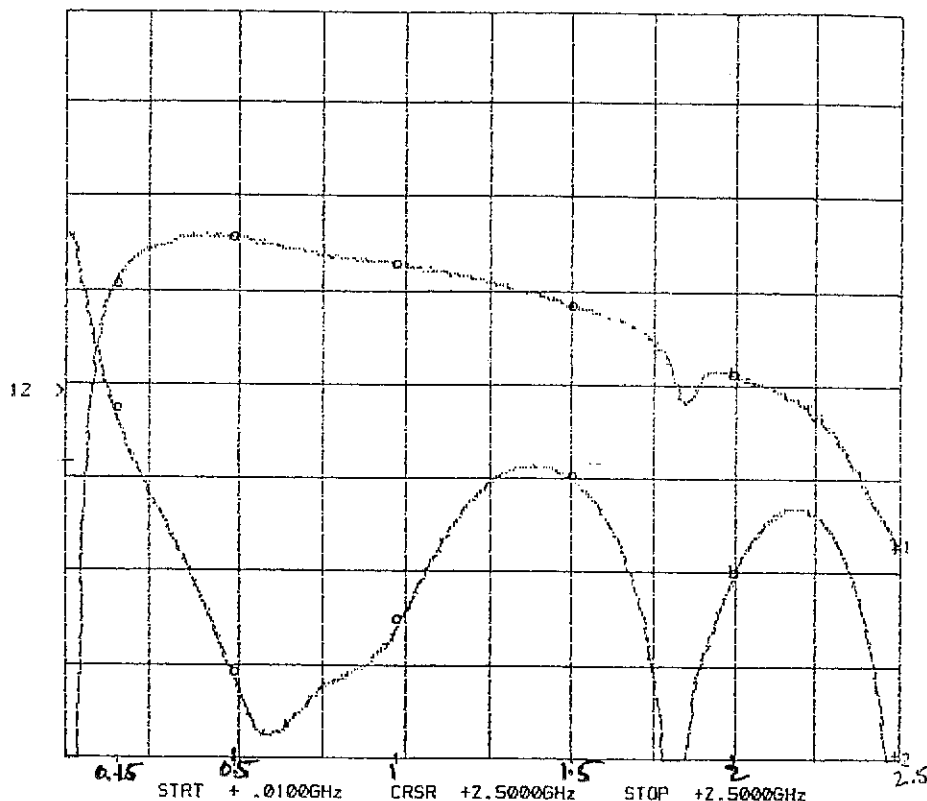
SUMMARY TEST DATA  
 150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH  
 PAGE 5

SERIAL NUMBER  
 TECHNICIAN

: 8MS60474  
 : R. AFABLE

INSERTION LOSS & RETURN LOSS  
 J9 TO J1

CH1: A -M - 4.25 dB      CH2: B -M - 39.95 dB  
 1.0 dB/ REF - 2.50 dB      5.0 dB/ REF - 9.54 dB



Markers		Frequency	IL	USWR
No.		(Hz)	Chan. 1 (dB)	Chan. 2 (dB)
150 MHz	1	1.4695E+08	- 1.404	- 10.737
500 "	2	4.955501E+08	- .898	- 24.745
1 GHz	3	9.997751E+08	- 1.184	- 22.119
1.5 "	4	1.497775E+09	- 1.607	- 14.373
2 "	act	1.995775E+09	- 2.354	- 19.510
Cursors				
2.5 GHz	1	2.5E+09	- 4.255	- 39.439



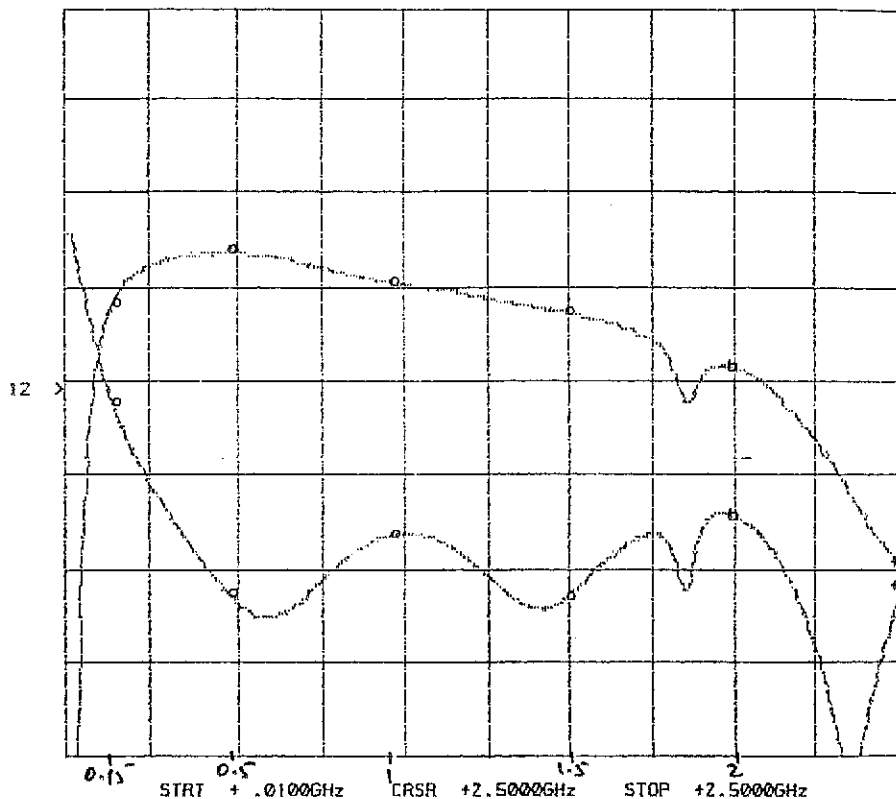
**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
**PAGE 6**

**SERIAL NUMBER**  
**TECHNICIAN**

**: 8MS60474**  
**: R. AFABLE**

**INSERTION LOSS & RETURN LOSS**  
**J9 TO J2**

CH1: A -M - 4.44 dB . CH2: B -M - 20.56 dB  
 1.0 dB/ REF - 2.50 dB 5.0 dB/ REF - 9.54 dB



Markers		I.L.		U.S.W.P.	
No.	Frequency (Hz)	Chan. 1 (dB)	Chan. 2 (dB)	Chan. 1 (dB)	Chan. 2 (dB)
150 MHz	1.4695E+08	- 1.623	- 10.682		
500 MHz	4.955501E+08	- 1.107	- 20.888		
1 GHz	9.997751E+08	- 1.420	- 17.587		
1.5 GHz	1.497775E+09	- 1.750	- 20.987		
2 GHz	1.995775E+09	- 2.316	- 16.692		
Cursors					
2.5	2.5E+09	- 4.441	- 20.608		



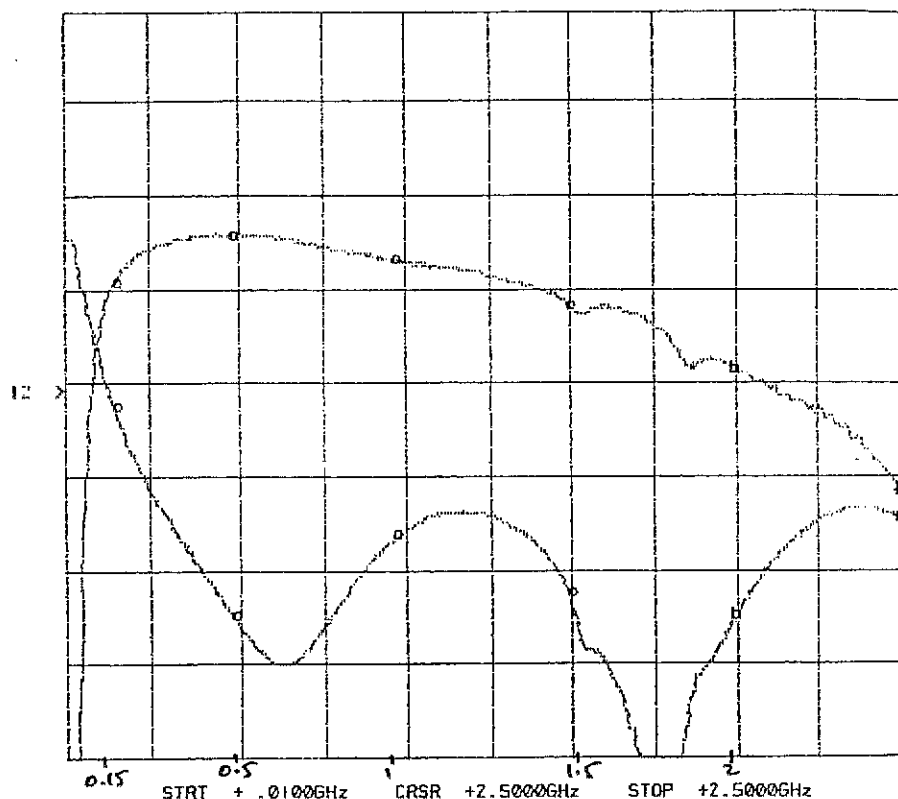
SUMMARY TEST DATA  
 150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH  
 PAGE 7

SERIAL NUMBER  
 TECHNICIAN

: 8MS60474  
 : R. AFABLE

INSERTION LOSS & RETURN LOSS  
 J9 TO J3

CH1: A -M - 3.65 dB      CH2: B -M - 16.69 dB.  
 1.0 dB/ REF - 2.50 dB      5.0 dB/ REF - 9.54 dB



Markers		Frequency (Hz)	IL Chan. 1 (dB)	IL Chan. 2 (dB)
150 MHz	1	1.4695E+08	- 1.365	- 10.687
500	2	4.955501E+08	- .865	- 21.872
1 GHz	3	9.997751E+08	- 1.129	- 17.411
1.5 GHz	4	1.497775E+09	- 1.596	- 20.647
2 GHz	act	1.995775E+09	- 2.299	- 21.767

Cursors		Frequency (Hz)	IL Chan. 1 (dB)	IL Chan. 2 (dB)
2.5 GHz	1	2.5E+09	- 3.639	- 16.670

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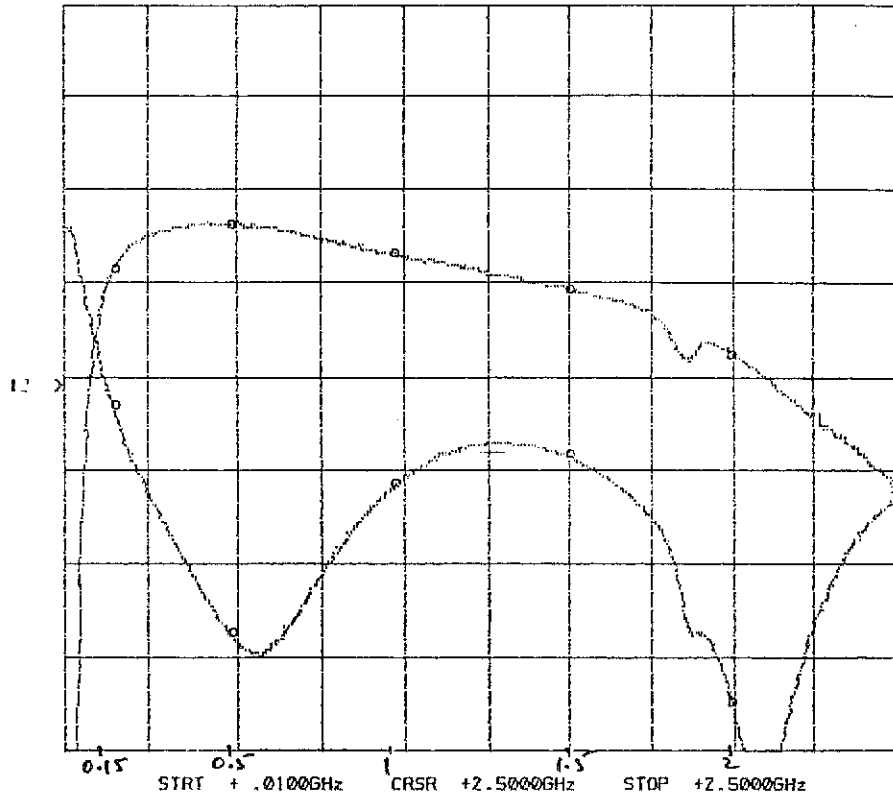
SUMMARY TEST DATA  
 150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH  
 PAGE 8

SERIAL NUMBER  
 TECHNICIAN

: 8MS60474  
 : R. AFABLE

INSERTION LOSS & RETURN LOSS  
 J9 TO J4

CH1: 0 -M - 3.69 dB      CH2: 0 -M - 15.77 dB  
 1.0 dB/ REF - 2.50 dB      5.0 dB/ REF - 9.54 dB



Markers			I.L	R.L
No.	Frequency (Hz)	Chan. 1 (dB)	Chan. 2 (dB)	
150 MHz	1.4695E+08	- 1.349	- 10.836	
500 M	4.995501E+08	- .849	- 23.251	
1 GHz	9.997751E+08	- 1.184	- 15.038	
1.5 G	1.497775E+09	- 1.541	- 13.670	
2 G	act 1.995775E+09	- 2.211	- 27.014	
Cursors				
2.5 GHz	2.5E+09	- 3.694	- 15.774	

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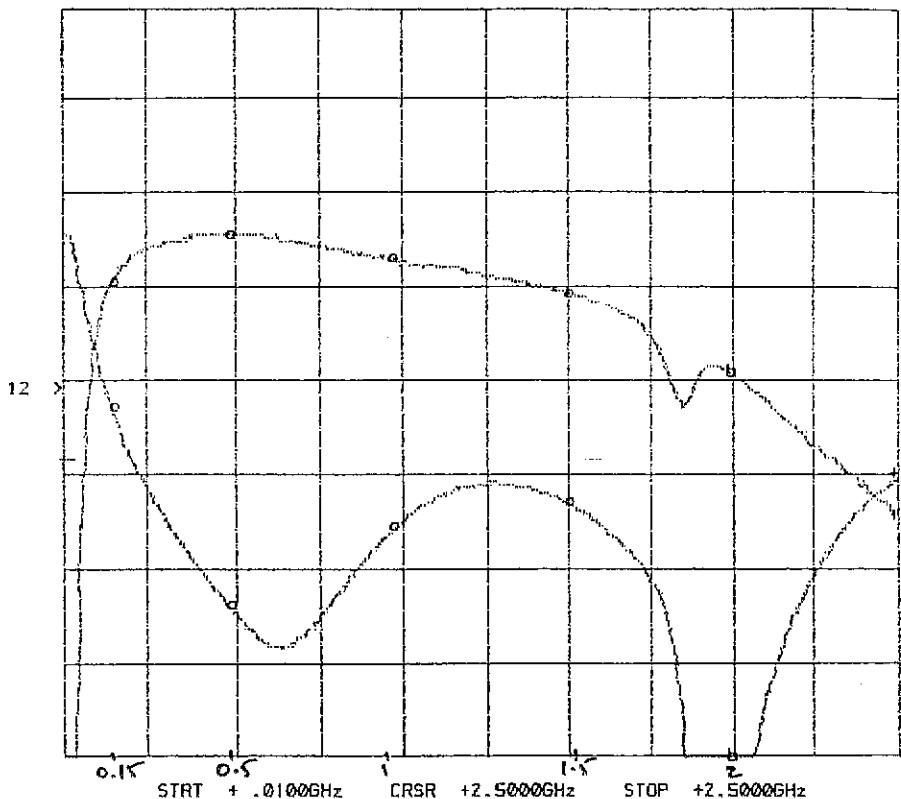
**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
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**SERIAL NUMBER**  
**TECHNICIAN**

**: 8MS60474**  
**: R. AFABLE**

**INSERTION LOSS & RETURN LOSS**  
**J9 TO J5**

CH1: A -M - 3.93 dB      CH2: B -M - 14.61 dB  
 1.0 dB/ REF - 2.50 dB      5.0 dB/ REF - 9.54 dB



Markers		Frequency (Hz)	IL Chan. 1 (dB)	RL Chan. 2 (dB)
150 MHz	1	1.4595E+08	- 1.420	- 10.808
500	2	4.955501E+08	- .926	- 21.438
1 GHz	3	9.997751E+08	- 1.173	- 17.098
1.5 GHz	4	1.497775E+09	- 1.535	- 15.912
2 GHz	act	1.995775E+09	- 2.376	- 35.948
Cursors				
2.5 GHz	1	2.5E+09	- 3.920	- 14.588

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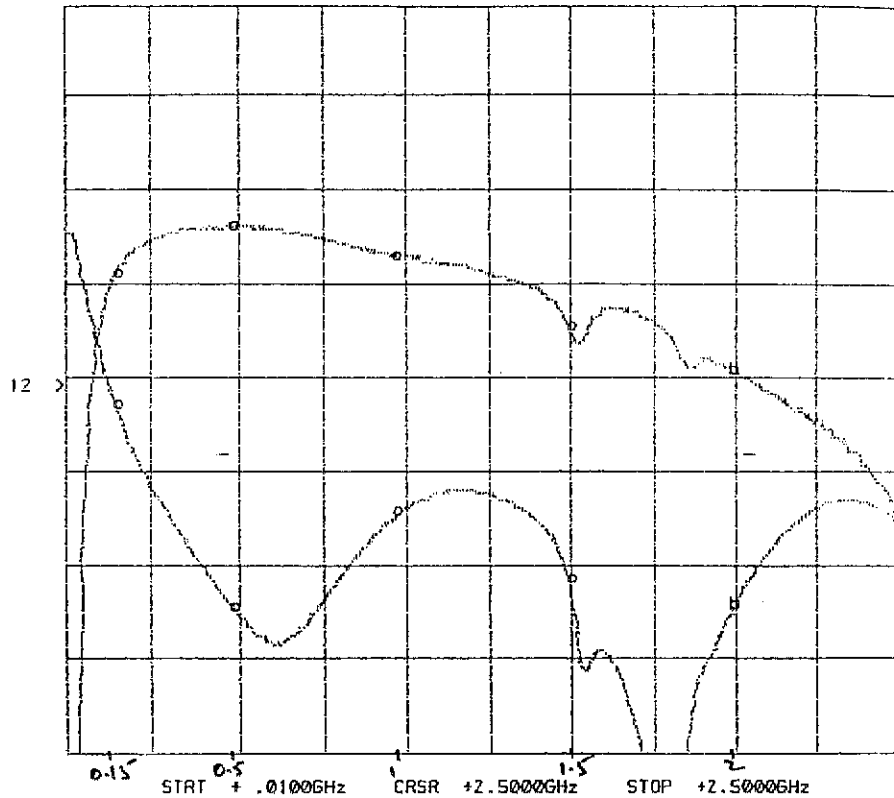
**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
**PAGE 10**

**SERIAL NUMBER**  
**TECHNICIAN**

**: 8MS60474**  
**: R. AFABLE**

**INSERTION LOSS & RETURN LOSS**  
**J9 TO J6**

CH1: R -M - 3.94 dB      CH2: B -M - 17.31 dB  
 1.0 dB/ REF - 2.50 dB      5.0 dB/ REF - 9.54 dB



<u>Markers</u>		<u>IL</u>	<u>USWR</u>
No.	Frequency (Hz)	Chan. 1 (dB)	Chan. 2 (dB)
150 MHz. 1	1.4695E+08	- 1.349	- 10.803
600 " 2	4.955501E+08	- .849	- 21.608
1 GHz. 3	9.997751E+08	- 1.156	- 16.987
1.5 " 4	1.497775E+09	- 1.904	- 20.070
2 " act	1.995775E+09	- 2.392	- 21.476
<u>Cursors</u>			
2.5 GHz. 1	2.5E+09	- 3.936	- 17.252

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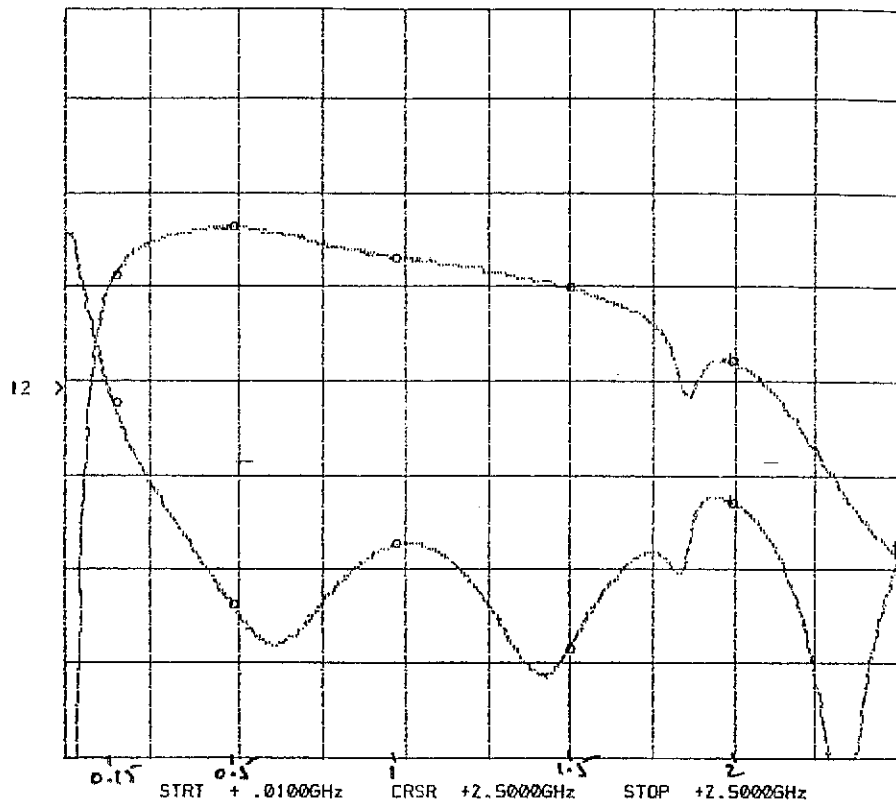
**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
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**SERIAL NUMBER**  
**TECHNICIAN**

**: 8MS60474**  
**: R. AFABLE**

**INSERTION LOSS & RETURN LOSS**  
**J9 TO J7**

CH1: R -M - 4.35 dB      CH2: B -M - 18.32 dB  
 1.0 dB/ REF - 2.50 dB      5.0 dB/ REF - 9.54 dB



<u>Markers</u>		<u>I.L.</u>	<u>R.L.</u>
No.	Frequency (Hz)	Chan. 1 (dB)	Chan. 2 (dB)
150 MHz	1.4695E+08	- 1.354	- 10.599
500 "	4.955501E+08	- .843	- 21.295
1 GHz	9.997751E+08	- 1.156	- 18.125
1.5 "	1.497775E+09	- 1.497	- 23.882
2 "	1.995775E+09	- 2.283	- 15.868
<u>Cursors</u>			
2.5 GHz	2.5E+09	- 4.359	- 18.257

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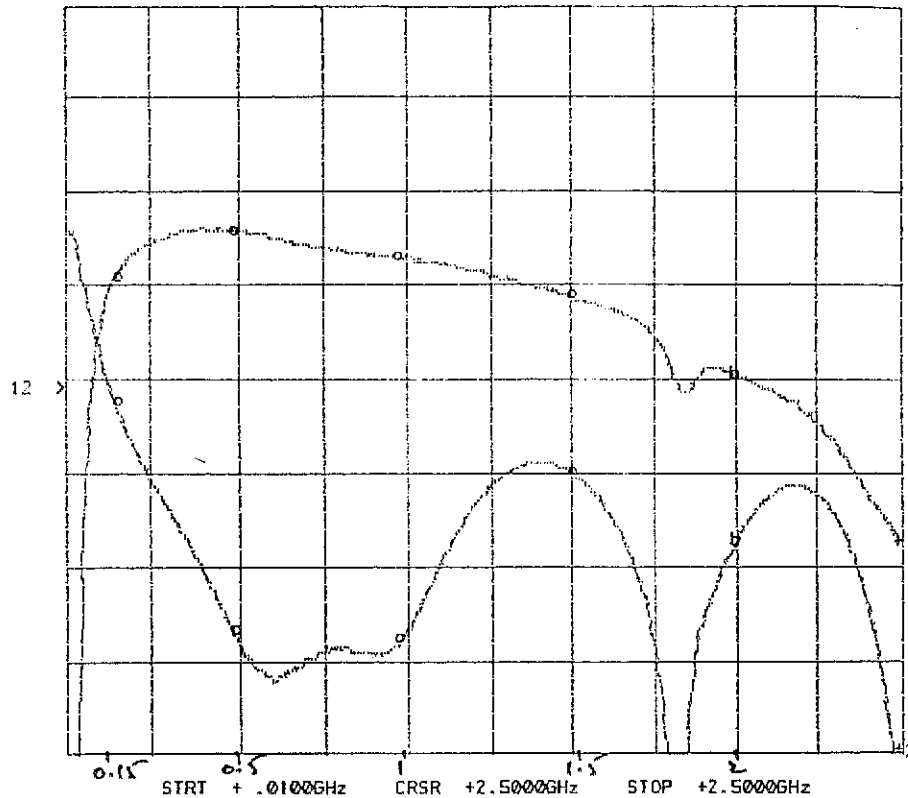
**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
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**SERIAL NUMBER**  
**TECHNICIAN**

**: 8MS60474**  
**: R. AFABLE**

**INSERTION LOSS & RETURN LOSS**  
**J9 TO J8**

CH1: A -M - 4.27 dB      CH2: B -M - 33.45 dB  
 1.0 dB/ REF - 2.50 dB      5.0 dB/ REF - 9.54 dB



Markers		I.L.		U.S.W.R.	
No.	Frequency (Hz)	Chan. 1 (dB)	Chan. 2 (dB)	Chan. 1 (dB)	Chan. 2 (dB)
150 MHz	1.4695E+08	- 1.398	- 10.556		
500 "	4.955501E+08	- .876	- 22.850		
1 GHz	9.997751E+08	- 1.184	- 23.196		
1.5 "	1.497775E+09	- 1.596	- 14.275		
2 "	1.995775E+09	- 2.420	- 18.059		
Cursors					
2.5 GHz	2.5E+09	- 4.271	- 33.562		

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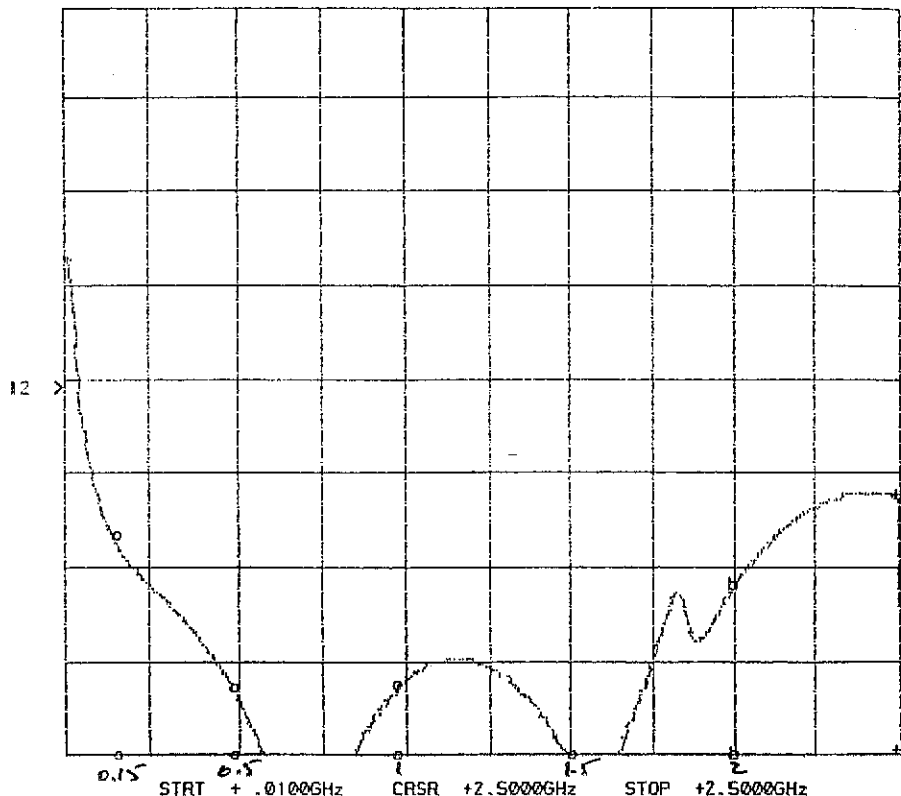
**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
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**SERIAL NUMBER**  
**TECHNICIAN**

**: 8MS60474**  
**: R. AFABLE**

**OFF-ARM TERMINATION**  
**J9-J1**

CH1: A -M - 50.66 dB      CH2: B -M - 15.87 dB  
 1.0 dB/ REF - 2.50 dB      5.0 dB/ REF - 9.54 dB



<u>Markers</u>				
	No.	Frequency (Hz)	Chan. 1 (dB)	Chan. 2 (dB)
150 MHz	1	1.4895E+08	- 48.697	- 17.873
500 "	2	4.955501E+08	- 52.415	- 25.816
1 GHz	3	9.997751E+08	- 45.306	- 25.712
1.5 "	4	1.497775E+09	- 49.950	- 29.639
2 "	act	1.995775E+09	- 49.641	- 20.460
<u>Cursors</u>				
2.5 GHz	1	2.5E+09	- 52.953	- 15.857



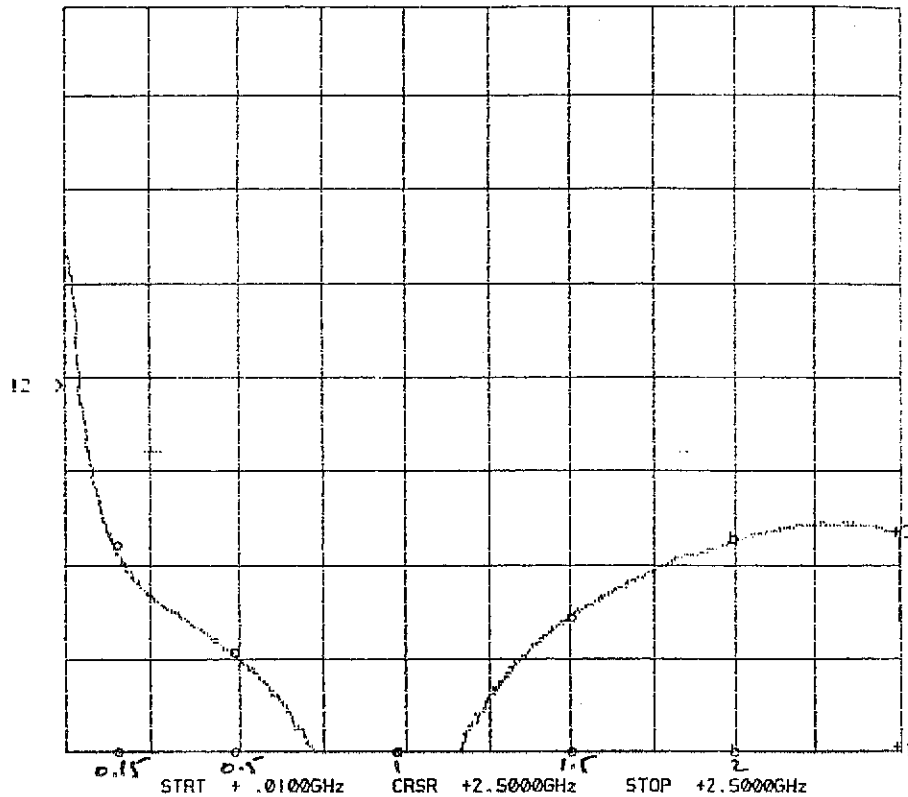
SUMMARY TEST DATA  
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SERIAL NUMBER  
 TECHNICIAN

: 8MS60474  
 : R. AFABLE

OFF-ARM TERMINATION  
 J9-J2

CH1: A -M - 45.07 dB      CH2: B -M - 17.77 dB  
 1.0 dB/ REF - 2.50 dB      5.0 dB/ REF - 9.54 dB



Markers

No.	Frequency (Hz)	Chan. 1 (dB)	Chan. 2 (dB)
150 MHz	1.4695E+08	-44.598	-18.389
500 "	4.955501E+08	-45.439	-24.201
1 GHz	9.997751E+08	-50.124	-38.989
1.5 "	1.497775E+09	-45.971	-22.366
2 GHz act	1.995775E+09	-45.828	-18.147

Cursors

No.	Frequency (Hz)	Chan. 1 (dB)	Chan. 2 (dB)
2.5 GHz	2.5E+09	-47.635	-17.774



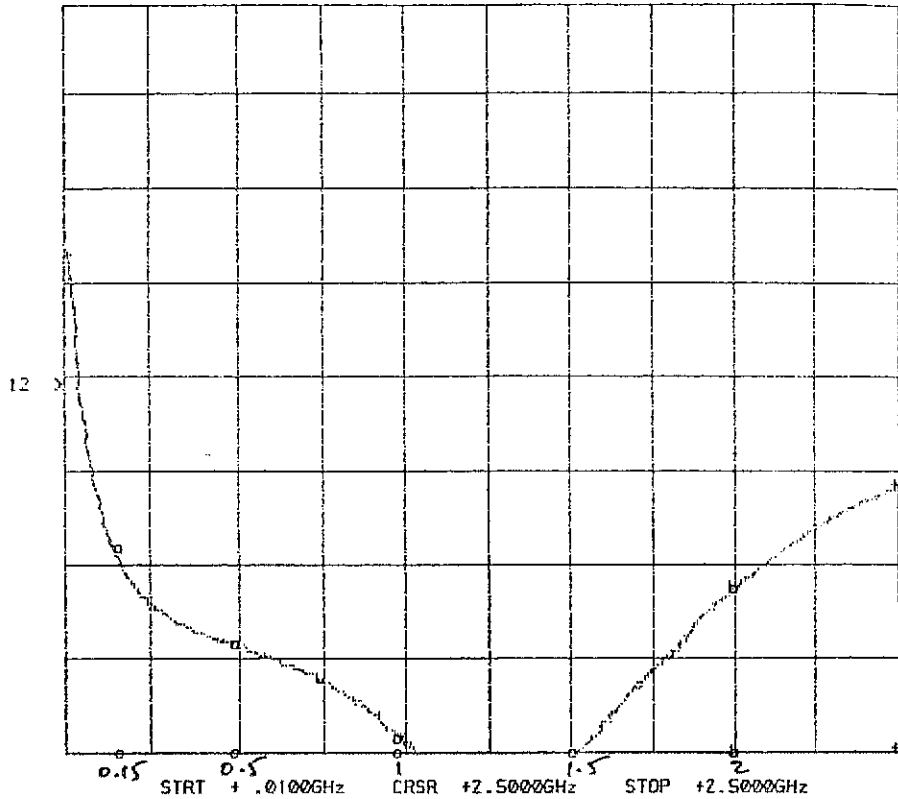
**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
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**SERIAL NUMBER**  
**TECHNICIAN**

**: 8MS60474**  
**: R. AFABLE**

**OFF-ARM TERMINATION**  
**J9-J3**

CH1: A -M - 47.64 dB  
 1.0 dB/ REF - 2.50 dB  
 CH2: B -M - 15.22 dB  
 5.0 dB/ REF - 9.54 dB



<u>Markers</u>				
	No.	Frequency (Hz)	Chan. 1 (dB)	Chan. 2 (dB)
150 MHz	1	1.4695E+08	- 48.042	- 18.631
500 "	2	4.955501E+08	- 47.917	- 23.668
1 GHz	3	9.997751E+08	- 47.723	- 28.920
1.5 "	4	1.497775E+09	- 47.059	- 30.557
2 "	act	1.995775E+09	- 48.514	- 20.724
<u>Cursors</u>				
2.5 GHz	1	2.5E+09	- 44.433	- 15.208

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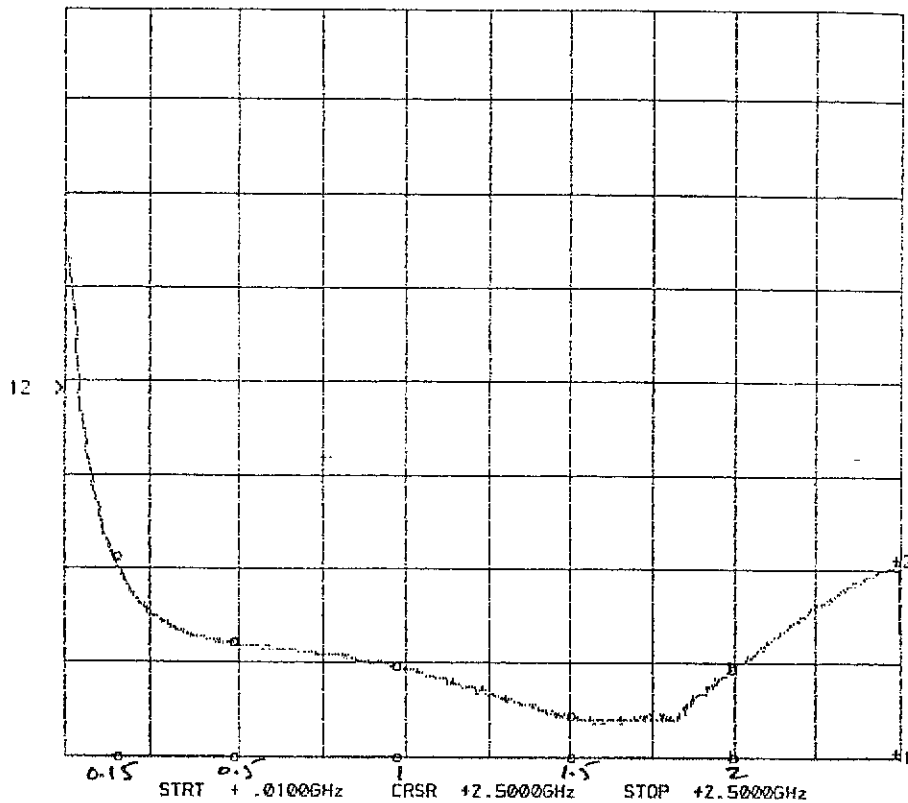
**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
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**SERIAL NUMBER**  
**TECHNICIAN**

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**: R. AFABLE**

**OFF-ARM TERMINATION**  
**J9-J4**

CH1: A -M - 47.47 dB      CH2: B -M - 19.08 dB  
 1.0 dB/ REF - 2.50 dB      5.0 dB/ REF - 9.54 dB



Markers		Frequency	Chan. 1	Chan. 2
No.		(Hz)	(dB)	(dB)
150 MHz	1	1.4695E+08	- 48.844	- 18.823
500 "	2	4.955501E+08	- 43.889	- 23.520
1 GHz	3	9.997751E+08	- 48.504	- 24.706
1.5 "	4	1.497775E+09	- 48.745	- 27.371
2 "	act	1.995775E+09	- 48.800	- 24.745
Cursors				
2.5 GHz	1	2.5E+09	- 49.404	- 19.070

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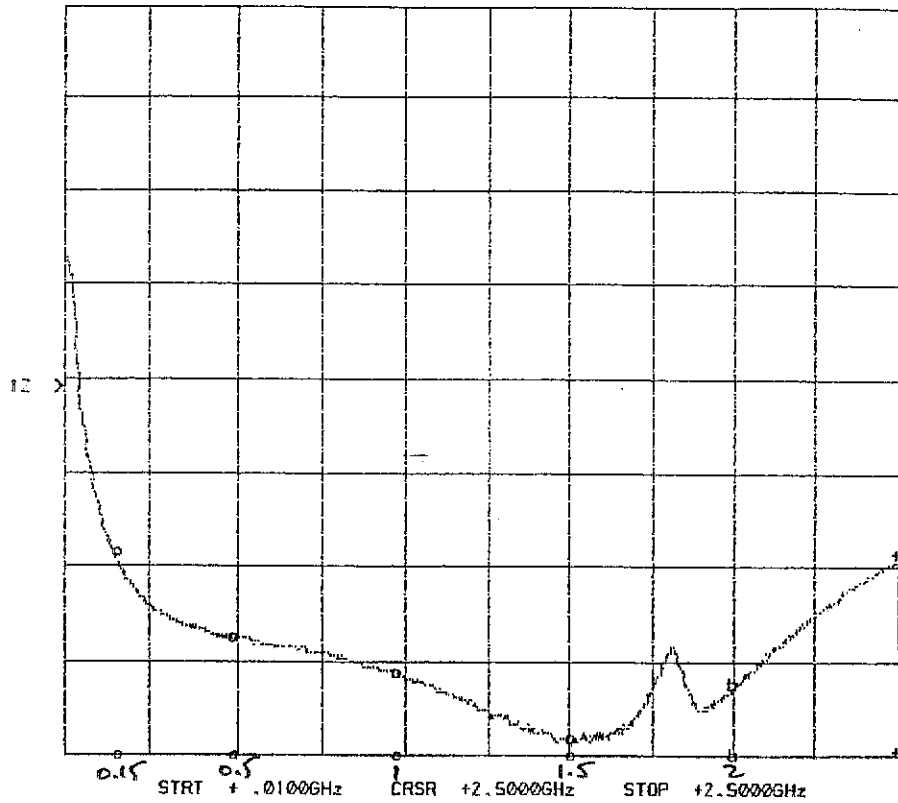
**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
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**SERIAL NUMBER**  
**TECHNICIAN**

**: 8MS60474**  
**: R. AFABLE**

**OFF-ARM TERMINATION**  
**J9-J5**

CH1: A -M - 45.12 dB      CH2: B -M - 18.86 dB  
 1.0 dB/ REF - 2.50 dB      5.0 dB/ REF - 9.54 dB



Markers

No.	Frequency (Hz)	Chan. 1 (dB)	Chan. 2 (dB)
150 MHz 1	1.4695E+08	-45.383	-18.691
500 " 2	4.955501E+08	-44.933	-23.190
1 GHz 3	9.997751E+08	-57.271	-25.261
1.5 " 4	1.497775E+09	-46.394	-28.640
2 " act	1.995775E+09	-56.040	-25.992

Cursors

2.5 GHz	2.5E+09	-55.952	-18.850
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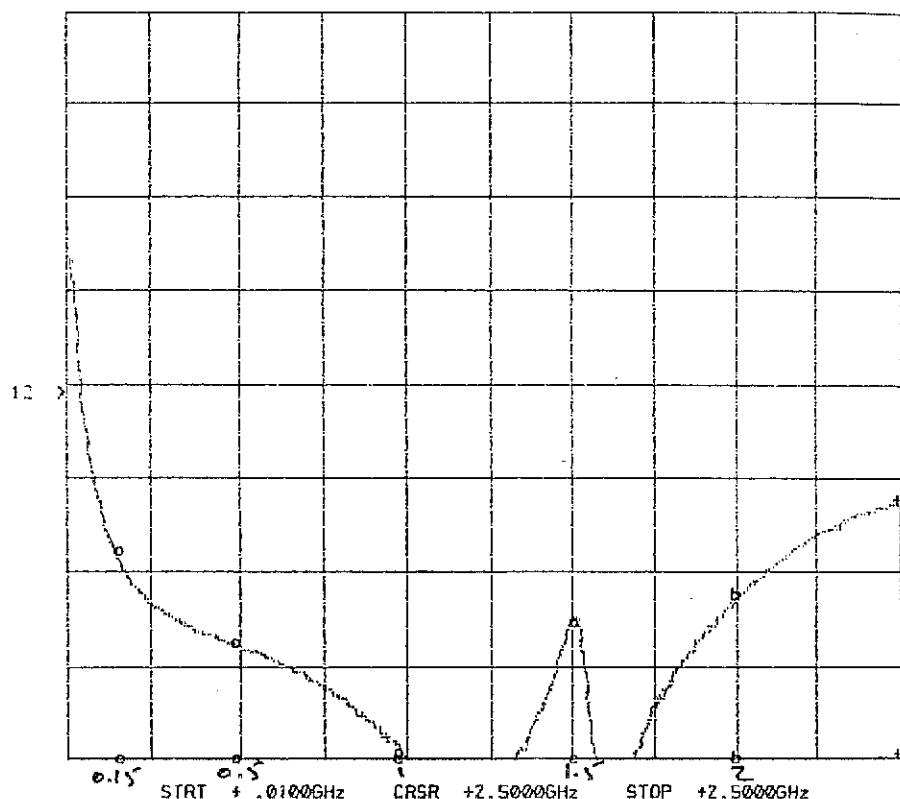
SUMMARY TEST DATA  
 150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH  
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SERIAL NUMBER  
 TECHNICIAN

: 8MS60474  
 : R. AFABLE

OFF-ARM TERMINATION  
 J9-J6

CH1: A -M - 47.81 dB      CH2: B -M - 15.82 dB  
 1.0 dB/ REF - 2.50 dB      5.0 dB/ REF - 9.54 dB



Markers				
No.	Frequency (Hz)	Chan. 1 (dB)	Chan. 2 (dB)	
150 MHz: 1	1.4695E+08	- 47.806	- 18.433	
500 MHz: 2	4.955501E+08	- 45.460	- 23.284	
1 GHz: 3	9.997751E+08	- 45.839	- 29.211	
1.5 GHz: 4	1.497775E+09	- 46.169	- 22.245	
2 GHz act	1.995775E+09	- 43.768	- 20.916	
Cursors				
2.5 GHz: 1	2.5E+09	- 51.151	- 15.818	



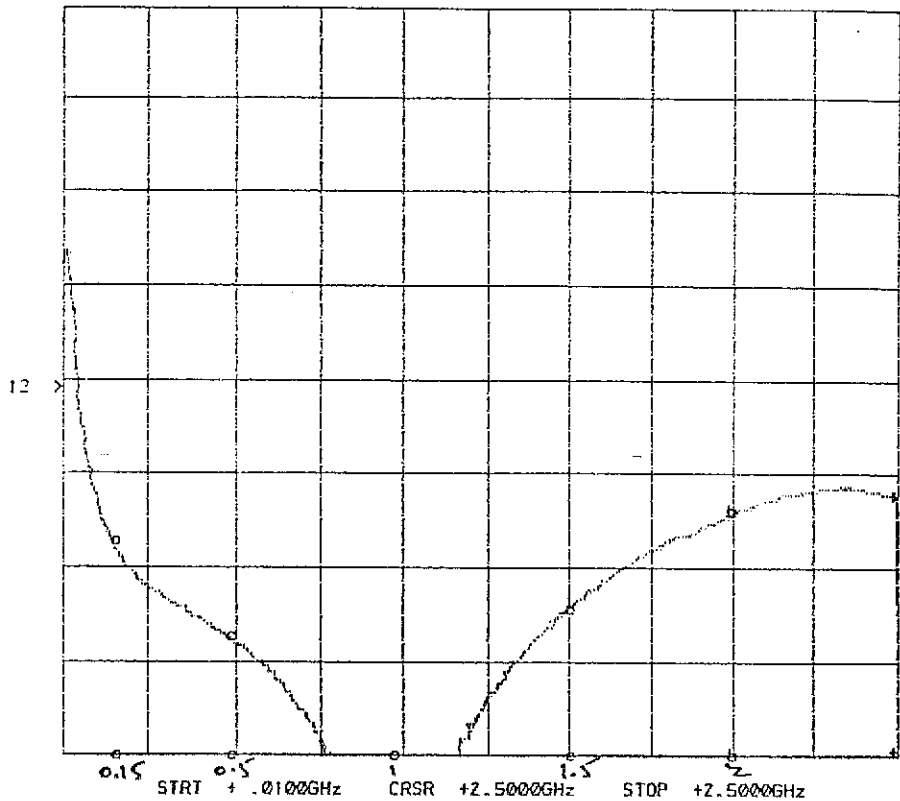
**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
**PAGE 19**

**SERIAL NUMBER**  
**TECHNICIAN**

**: 8MS60474**  
**: R. AFABLE**

**OFF-ARM TERMINATION**  
**J9-J7**

CH1: A -M - 44.61 dB      CH2: B -M - 15.80 dB  
 1.0 dB/ REF - 2.50 dB      5.0 dB/ REF - 9.54 dB



Markers

No.	Frequency (Hz)	Chan: 1 (dB)	Chan: 2 (dB)
150 MHz	1.46995E+08	- 49.064	- 18.070
500 "	4.955501E+08	- 55.507	- 23.069
1 GHz	9.997751E+08	- 45.174	- 36.753
1.5 GHz	1.497775E+09	- 49.959	- 21.723
2.0 GHz act	1.995775E+09	- 48.937	- 16.609

Cursors

No.	Frequency (Hz)	Chan: 1 (dB)	Chan: 2 (dB)
2.5 GHz	2.5E+09	- 45.746	- 15.791



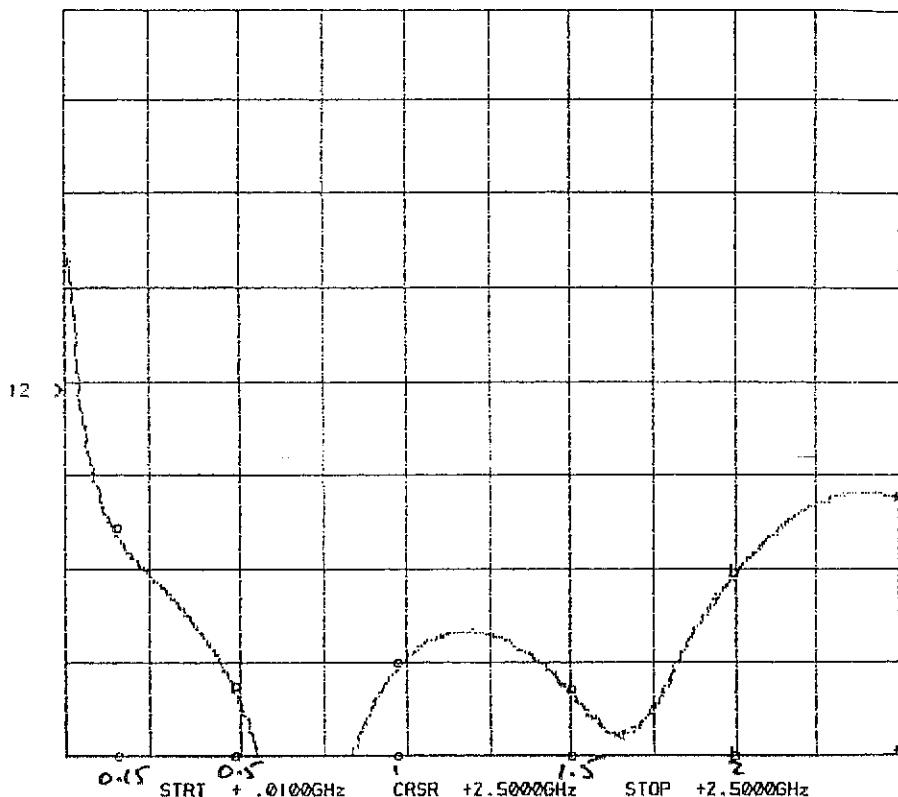
**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
**PAGE 20**

**SERIAL NUMBER**  
**TECHNICIAN**

**: 8MS60474**  
**: R. AFABLE**

**OFF-ARM TERMINATION**  
**J9-J8**

CH1: A -M --50.22 dB      CH2: B -M    - 15.81 dB  
 1.0 dB/ REF - 2.50 dB      5.0 dB/ REF - 9.54 dB



<u>Markers</u>				
	No.	Frequency (Hz)	Chan. 1 (dB)	Chan. 2 (dB)
150 MHz	1	1.4695E+08	- 55.332	- 17.345
500 "	2	4.955501E+08	- 40.389	- 25.613
1 GHz	3	9.997751E+08	- 47.029	- 24.575
1.5 "	4	1.497775E+09	- 46.295	- 26.074
2 GHz	act	1.995775E+09	- 47.086	- 19.680
<u>Cursors</u>				
2.5 GHz	1	2.5E+09	- 46.279	- 15.785

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**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
**PAGE 21**

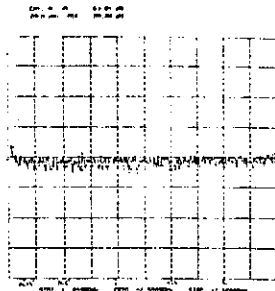
**SERIAL NUMBER**  
**TECHNICIAN**

**: 8MS60474**  
**: R. AFABLE**

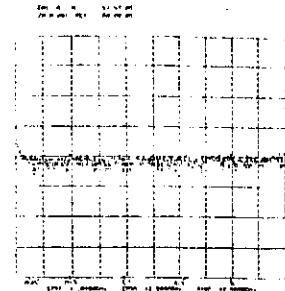
**ISOLATION**

**AS MEASURED ON A NETWORK ANALYSER**

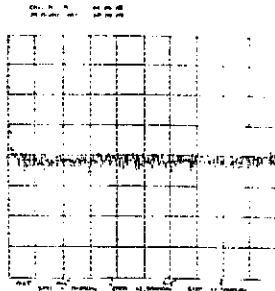
**J9-J1**



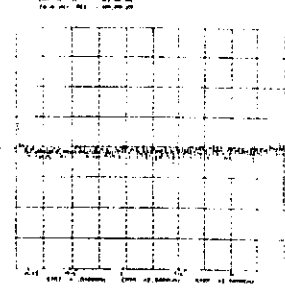
**J9-J2**



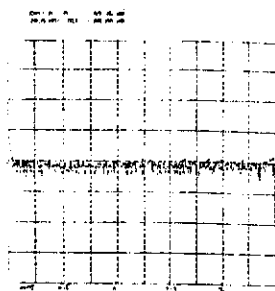
**J9-J3**



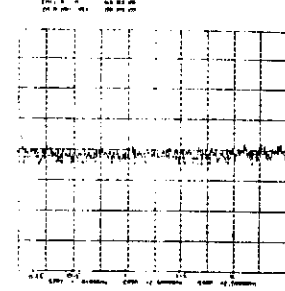
**J9-J4**



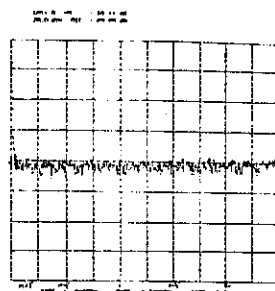
**J9-J5**



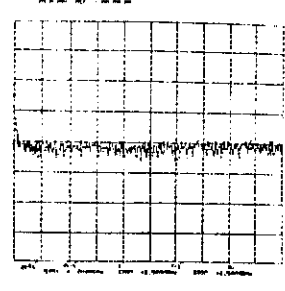
**J9-J6**



**J9-J7**



**J9-J8**



**SEPTEMBER 19, 1996**



SERIAL NUMBER  
TECHNICIAN

: 8MS60474  
: R. AFABLE

ISOLATION

ISOLATION AS MEASURED ON A SPECTRUM ANALYSES

J9 (COMMON ARM) TO:

	J1	J2	J3	J4	J5	J6	J7	J8
50 MHz	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB
100 MHz	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB
250 GHz	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB
500 GHz	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB	<90 dB
1.0 GHz	88 dB	92 dB	92 dB	91 dB	92 dB	91 dB	92 dB	88 dB
1.5 GHz	82 dB	87 dB	86 dB	86 dB	86 dB	85 dB	85 dB	79 dB
2.0 GHz	79 dB	81 dB	80 dB	79 dB	79 dB	78 dB	78 dB	76 dB
2.5 GHz	74 dB	78 dB	75 dB	75 dB	74 dB	72 dB	75 dB	74 dB

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SUMMARY TEST DATA  
 150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH  
 PAGE 23

SERIAL NUMBER : 8MS60474  
 TECHNICIAN : R. AFABLE

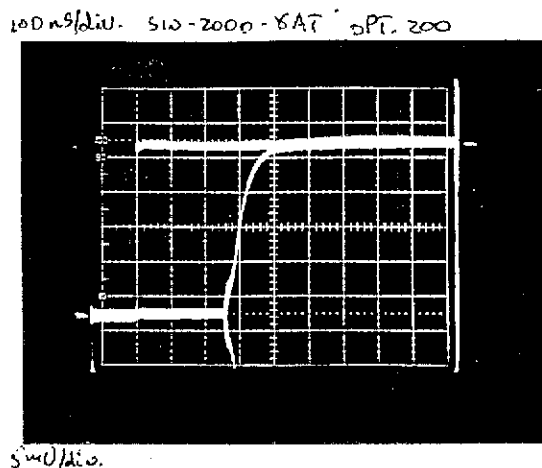
SWITCHING SPEED  
TYPICAL FOR ALL ARMS

"RISE/FALL" TIME: 10%RF TO 90%RF & 90%RF TO 10%RF  
 "ON/OFF" TIME: 50%TTL TO 90%RF OR 10%RF

"ON" 350nS, "RISE" 100nS

HORIZONTAL SCALE:  
 100nS/DIVISION

VERTICAL SCALE:  
 5mV/DIVISION

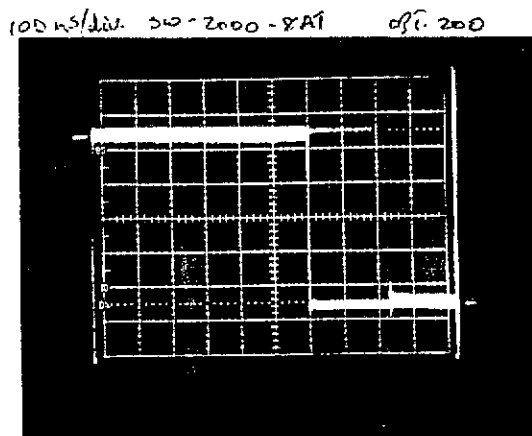


5mV/div.

"OFF" 135nS, "FALL" 20nS

HORIZONTAL SCALE:  
 100nS/DIVISION

VERTICAL SCALE:  
 5mV/DIVISION



5mV/div.



**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
**PAGE 24**

**SERIAL NUMBER**  
**TECHNICIAN**

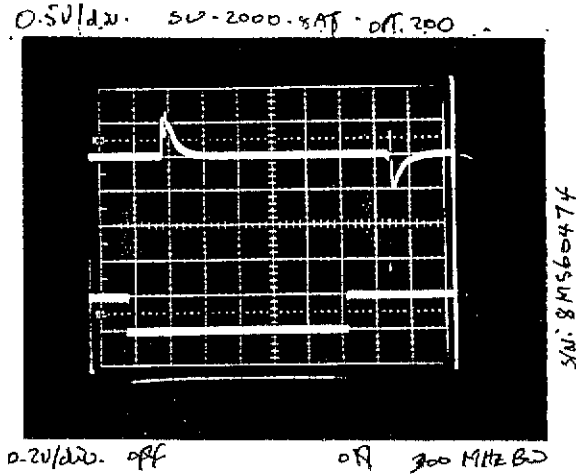
**: 8MS60474**  
**: R. AFABLE**

**VIDEO TRANSIENTS**  
**TYPICAL FOR ALL ARMS**

**AS MEASURED IN A**  
**300MHz BANDWIDTH**

**HORIZONTAL SCALE:**  
**0.2μS/DIVISION**

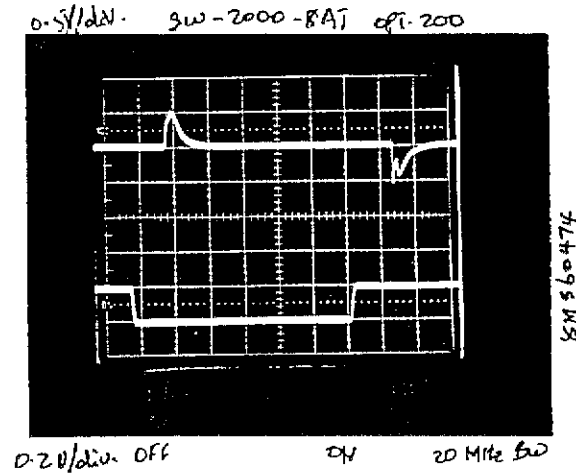
**VERTICAL SCALE:**  
**0.5 V/DIVISION**



**AS MEASURED IN A**  
**20MHz BANDWIDTH**

**HORIZONTAL SCALE:**  
**0.2μS/DIVISION**

**VERTICAL SCALE:**  
**0.5 V/DIVISION**





**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
**PAGE 25**



**SERIAL NUMBER**  
**TECHNICIAN**

**: 8MS60474**  
**: R. AFABLE**

**ACTUAL TEST DATA AS PRESENTED TO THE CUSTOMER**

SWRAY101-535115



AMERICAN MICROWAVE CORPORATION  
 21116 GROVE ROAD, FREDERICK MD, 21701  
 TEL: (301) 661-1700 FAX: (301) 661-1654

**ACCEPTANCE INSPECTION**  
**TEST DATA SHEET**

MODEL NO: SW-2000-8AT OPTION NO: 200 JOB NO: 60123  
 CUSTOMER: RAYTHEON SCD NO: 11473144 REVISION: A  
 TECHNICIAN: R.A. DATE: 4/3/96 SERIAL NO: 8MS60474  
 QA/QC APPROVAL: \_\_\_\_\_ DATE \_\_\_\_\_

**INSERTION LOSS**

RF PATH ON	MAXIMUM IN-BAND INSERTION LOSS	SPECIFIED MAXIMUM INSERTION LOSS	PASS	FAIL
J9 - J1	-1.06 dB	2.0 dB MAX	✓	
J9 - J2	-1.23 dB	2.0 dB MAX	✓	
J9 - J3	-0.99 dB	2.0 dB MAX	✓	
J9 - J4	-0.93 dB	2.0 dB MAX	✓	
J9 - J5	-1.00 dB	2.0 dB MAX	✓	
J9 - J6	-0.92 dB	2.0 dB MAX	✓	
J9 - J7	-0.92 dB	2.0 dB MAX	✓	
J9 - J8	-0.93 dB	2.0 dB MAX	✓	

MAXIMUM INSERTION LOSS VARIATION: 0.31 dB PASS: ✓  
 SPECIFIED INSERTION LOSS VARIATION: 0.4 dB MAX FAIL: \_\_\_\_\_

**ISOLATION**

RF PATH ON	MINIMUM IN-BAND ISOLATION	SPECIFIED MINIMUM ISOLATION	PASS	FAIL
J9 - (OTHERS)	> -90 dB	-80 dB MIN	✓	
J9 - (OTHERS)		-80 dB MIN	✓	
J9 - (OTHERS)		-80 dB MIN	✓	
J9 - (OTHERS)		-80 dB MIN	✓	
J9 - (OTHERS)		-80 dB MIN	✓	
J9 - (OTHERS)		-80 dB MIN	✓	
J9 - (OTHERS)		-80 dB MIN	✓	
J9 - (OTHERS)	> -90 dB	-80 dB MIN	✓	

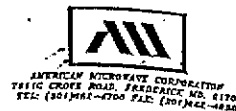
**SEPTEMBER 19, 1996**

**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
**PAGE 26**



**SERIAL NUMBER** : 8MS60474  
**TECHNICIAN** : R. AFABLE

**ACTUAL TEST DATA AS PRESENTED TO THE CUSTOMER**



**ACCEPTANCE INSPECTION**  
**TEST DATA SHEET**

MODEL NO: SW-2000-8AT OPTION NO: 200 JOB NO: 60123  
 CUSTOMER: RAYTHEON SCD NO: 11473144 REVISION: A  
 TECHNICIAN: R-A. DATE: 6/3/96 SERIAL NO: 8MS60474  
 QA/QC APPROVAL: \_\_\_\_\_ DATE: \_\_\_\_\_

**SWITCHING TIME**

RF PATH	ON-TIME	OFF-TIME	SPECIFIED MAX SWITCHING TIME	PASS	FAIL
J9 - J1	380 nSEC	240 nSEC	750 nSEC	✓	
J9 - J2	360 nSEC	240 nSEC	750 nSEC	✓	
J9 - J3	380 nSEC	240 nSEC	750 nSEC	✓	
J9 - J4	400 nSEC	240 nSEC	750 nSEC	✓	
J9 - J5	390 nSEC	240 nSEC	750 nSEC	✓	
J9 - J6	400 nSEC	240 nSEC	750 nSEC	✓	
J9 - J7	380 nSEC	240 nSEC	750 nSEC	✓	
J9 - J8	380 nSEC	240 nSEC	750 nSEC	✓	

SUMMARY TEST DATA  
 150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH  
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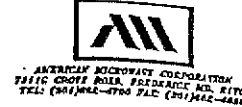


SERIAL NUMBER  
 TECHNICIAN

: 8MS60474  
 : R. AFABLE

ACTUAL TEST DATA AS PRESENTED TO THE CUSTOMER

DRAWING NO: 100-3104 REV: A  
 SHEET 11 OF 15



TEST DATA SHEET I

MODEL NO: SW-2000-SAT OPTION NO: 200 JOB NO: 60123  
 CUSTOMER: RAYTHEON SCD NO: 11473144 REVISION: A  
 TECHNICIAN: R.A. DATE: 6/3/96 SERIAL NO: 8MS60474  
 QA/QC APPROVAL: \_\_\_\_\_ DATE \_\_\_\_\_

INSERTION LOSS

RF PATH ON	MAXIMUM IN-BAND INSERTION LOSS	SPECIFIED MAXIMUM INSERTION LOSS	PASS	FAIL
J9 - J1	-1.06 dB	2.0 dB MAX	✓	
J9 - J2	-1.23 dB	2.0 dB MAX	✓	
J9 - J3	-0.99 dB	2.0 dB MAX	✓	
J9 - J4	-0.93 dB	2.0 dB MAX	✓	
J9 - J5	-1.00 dB	2.0 dB MAX	✓	
J9 - J6	-0.92 dB	2.0 dB MAX	✓	
J9 - J7	-0.92 dB	2.0 dB MAX	✓	
J9 - J8	-0.93 dB	2.0 dB MAX	✓	

MAXIMUM INSERTION LOSS VARIATION: 0.31 dB PASS:   
 SPECIFIED INSERTION LOSS VARIATION: 0.4 dB MAX FAIL: \_\_\_\_\_

INPUT/OUTPUT VSWR

INPUT/OUTPUT RF PATH	INPUT VSWR PATH ON	OUTPUT VSWR PATH ON	OUTPUT VSWR PATH OFF	SPECIFIED MAX VSWR	PASS	FAIL
J9 - J1	-15.12 dBR	-13.69 dBR	-20.27 dBR	-9.54 dBR	✓	
J9 - J2	-14.87 dBR	-13.31 dBR	-20.93 dBR	-9.54 dBR	✓	
J9 - J3	-14.99 dBR	-13.83 dBR	-21.39 dBR	-9.54 dBR	✓	
J9 - J4	-15.53 dBR	-14.32 dBR	-21.70 dBR	-9.54 dBR	✓	
J9 - J5	-15.00 dBR	-13.87 dBR	-21.45 dBR	-9.54 dBR	✓	
J9 - J6	-15.04 dBR	-13.98 dBR	-21.09 dBR	-9.54 dBR	✓	
J9 - J7	-14.69 dBR	-13.65 dBR	-20.41 dBR	-9.54 dBR	✓	
J9 - J8	-14.60 dBR	-13.62 dBR	-19.79 dBR	-9.54 dBR	✓	

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**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
**PAGE 28**

**SERIAL NUMBER** : 8MS60474  
**TECHNICIAN** : R. AFABLE

**ACTUAL TEST DATA AS PRESENTED TO THE CUSTOMER**

DRAWING NO: 100-3104 REV. A  
 SHEET 12 OF 15



**TEST DATA SHEET II**

MODEL NO: SW-2000-8AT OPTION NO: 200 JOB NO: 60123  
 CUSTOMER: RAYTHEON SCD NO: 11473144 REVISION: A  
 TECHNICIAN: R.A. DATE: 6/3/96 SERIAL NO: 8MS60474  
 QA/QC APPROVAL: \_\_\_\_\_ DATE: \_\_\_\_\_

**ISOLATION**

RF PATH ON	MINIMUM IN-BAND ISOLATION	SPECIFIED MINIMUM ISOLATION	PASS	FAIL
J9 - (OTHERS)	> -90 dB	-80 dB MIN	✓	
J9 - (OTHERS)	> -90 dB	-80 dB MIN	✓	
J9 - (OTHERS)	> -90 dB	-80 dB MIN	✓	
J9 - (OTHERS)	> -90 dB	-80 dB MIN	✓	
J9 - (OTHERS)	> -90 dB	-80 dB MIN	✓	
J9 - (OTHERS)	> -90 dB	-80 dB MIN	✓	
J9 - (OTHERS)	> -90 dB	-80 dB MIN	✓	
J9 - (OTHERS)	> -90 dB	-80 dB MIN	✓	

**SWITCHING TIME**

RF PATH	ON-TIME	OFF-TIME	SPECIFIED MAX SWITCHING TIME	PASS	FAIL
J9 - J1	380 nSEC	240 nSEC	750 nSEC	✓	
J9 - J2	360 nSEC	240 nSEC	750 nSEC	✓	
J9 - J3	380 nSEC	240 nSEC	750 nSEC	✓	
J9 - J4	400 nSEC	240 nSEC	750 nSEC	✓	
J9 - J5	390 nSEC	240 nSEC	750 nSEC	✓	
J9 - J6	400 nSEC	240 nSEC	750 nSEC	✓	
J9 - J7	380 nSEC	240 nSEC	750 nSEC	✓	
J9 - J8	380 nSEC	240 nSEC	750 nSEC	✓	

SEPTEMBER 19, 1996



**SUMMARY TEST DATA**  
**150 MHz to 2 GHz SP8T ABSORPTIVE SWITCH**  
**PAGE 29**

**SERIAL NUMBER** : 8MS60474  
**TECHNICIAN** : R. AFABLE

**ACTUAL TEST DATA AS PRESENTED TO THE CUSTOMER**

DRAWING NO: 100-3104 REV. A  
 SHEET 13 OF 15



**TEST DATA SHEET III**

MODEL NO: SW-2000-8AT OPTION NO: 200 JOB NO: 60123  
 CUSTOMER: RAYTHEON SCD NO: 11473144 REVISION: A  
 TECHNICIAN: R-A DATE: 6/3/96 SERIAL NO: 8MS60474  
 QA/QC APPROVAL: \_\_\_\_\_ DATE \_\_\_\_\_

**HARMONICS**

RF PATH ON	2nd HARMONIC	3rd HARMONIC	SPECIFIED HARMONICS	PASS	FAIL
J9 - J1	-70 dBC	<-70 dBC	-65 dBC MAX	✓	
J9 - J2	-63 dBC	dBC	-65 dBC MAX	✓	
J9 - J3	-67 dBC	dBC	-65 dBC MAX	✓	
J9 - J4	-66 dBC	dBC	-65 dBC MAX	✓	
J9 - J5	-65 dBC	dBC	-65 dBC MAX	✓	
J9 - J6	-68 dBC	dBC	-65 dBC MAX	✓	
J9 - J7	-69 dBC	dBC	-65 dBC MAX	✓	
J9 - J8	-72 dBC	<-70 dBC	-65 dBC MAX	✓	

**RF LEAKAGE**

SPECIFIED LEAKAGE: 80 dBC MIN.  
 MEASURED RADIATED LEAKAGE: \_\_\_\_\_ dBC PASS: \_\_\_\_\_ FAIL: \_\_\_\_\_  
 MEASURED CONDUCTIVE LEAKAGE: \_\_\_\_\_ dBC PASS: \_\_\_\_\_ FAIL: \_\_\_\_\_

**DC POWER**

SPECIFIED DC CURRENT: +5 +1-0.25VDC @ I1 = 500 mA MAX.  
-5.2 +1-0.25 VDC @ I2 = 180 mA MAX.  
 MEASURED DC CURRENT: I1 = 467 mA PASS: ✓ FAIL: \_\_\_\_\_  
 I2 = 54 mA PASS: ✓ FAIL: \_\_\_\_\_

**SEPTEMBER 19, 1996**