AMERICAN MICROWAVE CORPORATION

TEST DATA

ON A

SLIMLINE

LOW INSERTION LOSS

AMPLITUDE (±0.5 dB) AND PHASE (±5°) MATCHED

MINIATURE REFLECTIVE SP8T

RADIAL SOLID STATE SWITCH

(SURFACE MOUNTABLE)

FROM 10 MHz TO 5 GHz

(10 MHz TO 18 GHz OPTIONAL)

AMC MODEL No:
MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004

(Serial Number: 8MS90646) (Page 2 to 51)

AND FROM 70 MHz TO 1.5 GHz

(10 MHz TO 18 GHz OPTIONAL)

AMC MODEL No:
MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

(Serial Number: 8MS90646) (Page 51 to 101)

REPORTED AND PREPARED
BY
RENE AFABLE

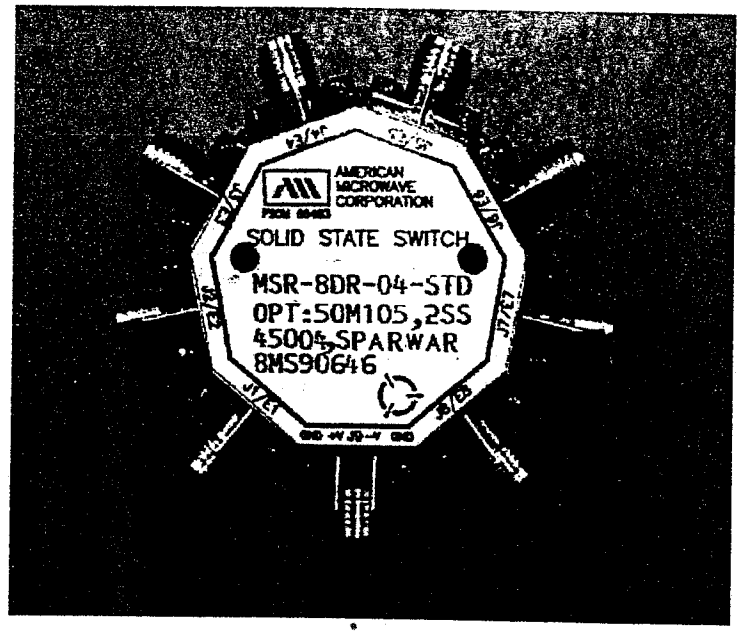
SEPTEMBER 15, 1999

WEB PAGE: HTTP://WWW.AMWAVE.COM E-MAIL ADDRESS: AMCPMI@AOL.COM

7311 G GROVE ROAD, FREDERICK, MARYLAND 21704 • Tel. (301) 662-4700 • Fax (301) 662-4938

AMERICAN MICROWAVE CORPORATION

SP8T REFLECTIVE RADIAL SOLID STATE SWITCH



KEY FEATURES

- 70 MHz TO 1.5 GHz (10MHz to 18GHz optional)
- SLIMLINE
- LOW INSERTION LOSS
- MINIATURE
- TTL LOGIC COMPATIBLE

AMC MODEL No: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004

SPECIFICATIONS: (REFLECTIVE)

• FREQUENCY RANGE	:	70 MHz to 1.5 GHz (10MHz to 18GHz Optional)
• INSERTION LOSS	:	1.6 dB MAX.
	:	0.90 dB TYP. @ 70 MHz
	:	0.90 dB TYP. @ 500 MHz
	:	0.95 dB TYP. @ 1.0 GHz
	:	1.25 dB TYP. @ 1.5 GHz
• ISOLATION	:	≥ 55 dB MIN.
	:	≥ 65 dB TYP. @ 70 MHz
	:	≥ 60 dB TYP. @ 500 MHz
	:	≥ 60 dB TYP. @ 1.0 GHz
	:	≥ 55 dB TYP. @ 1.5 GHz
• VSWR	:	2.0:1
• SWITCHING SPEED	:	"RISE" 50nS MAX., 25nS TYP.
	:	"FALL" 150nS MAX., 120nS TYP.
	:	"ON" 150nS MAX., 130nS TYP.
	:	"OFF" 300nS MAX., 250nS TYP.
• CONTROL	:	Independent TTL Compatible (3 Bit Decoder available)
• VIDEO TRANSIENTS	:	≤3.4 V Peak to Peak, 300 MHZ Bandwidth
	:	≤3.25 V Peak to Peak, 20 MHZ Bandwidth
• RF INPUT POWER	:	+20dBm Operating, 1 Watt Survival (Other power Levels available)
• DC POWER SUPPLY (Other supply voltages available)	:	+5vdc @ +25mA MAX. - 5vdc @ - 75mA MAX.
• SIZE	:	1.5" Dia. circle point to point X 0.40" (H)
• WEIGHT	:	≤ 2.5 oz.

SEPTEMBER 15, 1999

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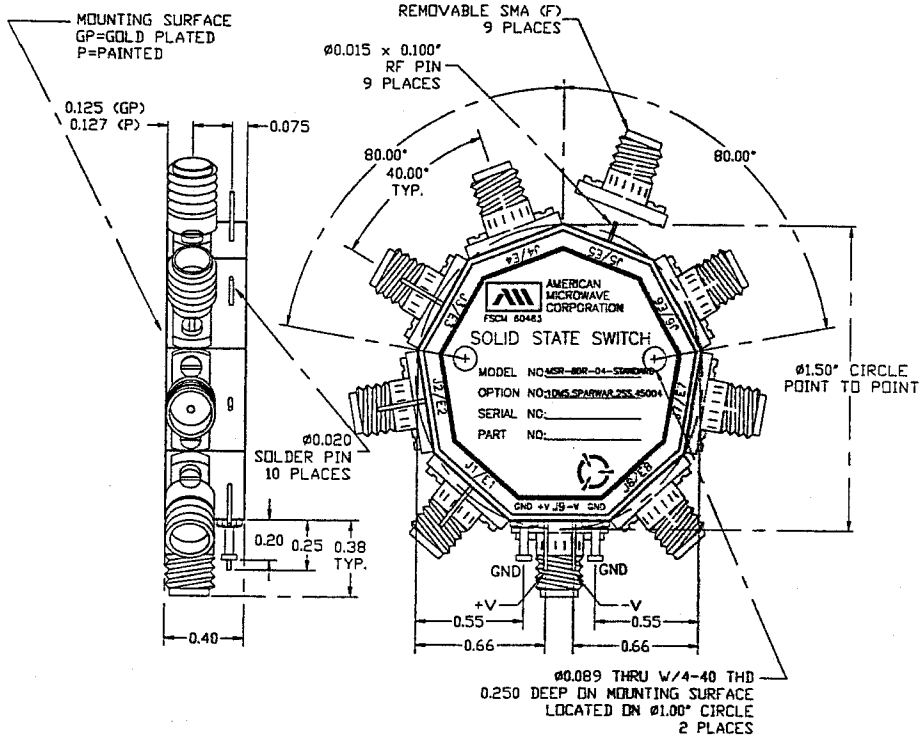
SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA



ALL DIMENSIONS ARE IN INCHES
TOLERANCES:

X.XX	±0.020
X.XXX	±0.010

ENVIRONMENTAL RATINGS:

- TEMPERATURE:..... -55°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.

SEPTEMBER 15, 1999

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	—	ORIGINAL RELEASE	8/29/99	

DESCRIPTION:

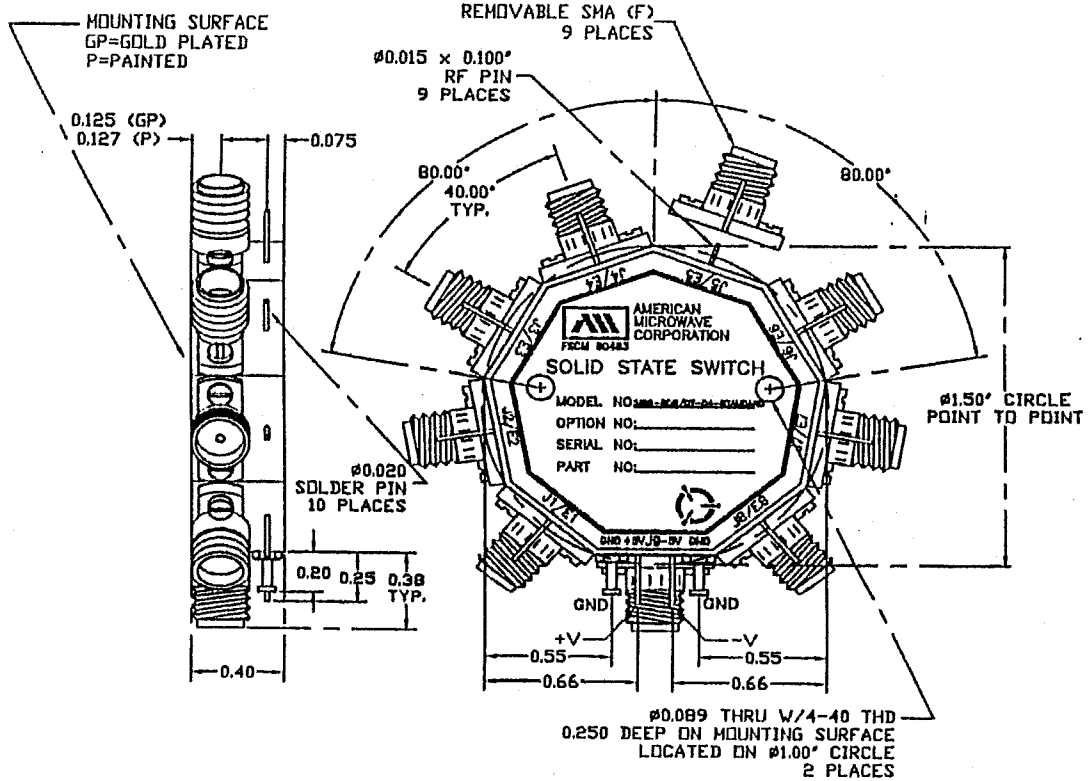
AMC MODEL [illegible]DR/DT-04-STANDARD IS A SINGLE POLE EIGHT THROW, REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SWITCH MODULE WITH LOW LOSS, HIGH SPEED AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR BROAD BAND OPERATIONS.

SPECIFICATIONS:

- FREQUENCY: ..... 0.5 GHz TO 18 GHz
- INSERTION LOSS: ..... REFLECTIVE: 4.0db
  ABSORPTIVE: 4.5db
- ISOLATION: ..... 0.5 GHz TO 2 GHz: 60db
  2 GHz TO 18 GHz: 70db
- VSWR: ..... REFLECTIVE IN/OUT: 2.0:1
  ABSORPTIVE IN/OUT: 2.0:1
  ABSORPTIVE OUT/OFF: 2.0:1
- SPEED: ..... RISE: 10ns TYPICAL, 15ns MAX.
  FALL: 10ns TYPICAL, 15ns MAX.
  DELAY ON: 75ns TYPICAL, 100ns MAX.
  DELAY OFF: 75ns TYPICAL, 100ns MAX.
- POWER INPUT: ..... (CW)+20dBm (STANDARD), +10 dBm (HIGH SPEED)
- SURVIVAL POWER: ..... 1 WATT CW, 10 WATTS PEAK 1 usec
- CONTROL: ..... TTL LOGIC "0"=ON "1"=OFF
- POWER SUPPLY: ..... +5V @ 400 mA MAX.
  −5V @ 75mA MAX.(RELECTIVE)
  100mA MAX.(ABSORPTIVE/NON-REFLECTIVE)
- SIZE ..... ø1.500 CIRCLE POINT TO POINT X 0.400 (H)
- WEIGHT ..... 2.5 OUNCES TYPICAL

OPTIONS:

INDEPENDENT CONTROL WITH SOLDER PIN STANDARD
DEC-SP ..... 3 BIT DECODER WITH SOLDER PIN
10M18 ..... 10 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 10 MHz AND 0.5db AT 18 GHz)
100M18 ..... 100 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 0.5db AT 18 GHz)
118 ..... 1 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
218 ..... 2 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
412 ..... 4 GHz TO 12.4 GHz (NO CHANGE IN INSERTION LOSS)
618 ..... 6 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
1218 ..... 12 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
100M20 ..... 100 MHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 1.0db AT 20 GHz)
220 ..... 2 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
1020 ..... 10 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
B01 ..... −12V POWER SUPPLIES
B02 ..... −15V POWER SUPPLIES
B03 ..... REVERSE LOGIC "1"=ON "0"=OFF
B04 ..... DRIVERLESS, CURRENT CONTROLLED
B05 ..... HIGH SPEED, TURNON/TURNOFF 20 nsec MAXIMUM WHEN APPLICABLE OR OPTION HS
B06 ..... HIGH POWER − SPECIFY CW POWER, PEAK POWER, PULSE WIDTH, DUTY CYCLE, RF FREQUENCY AND BANDWIDTH
B07 ..... CUSTOM DESIGNED PRODUCT− SPECIFY INITIALS OF CUSTOMER
B08 ..... LOW VIDEO TRANSIENTS − SPECIFY VIDEO BANDWIDTH
B09 ..... LOW INSERTION LOSS VERSION
B10 ..... HIGHER ISOLATION VERSION



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

ENVIRONMENTAL RATINGS:

- TEMPERATURE: ..... −55°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

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

PART NO.		
APPROVALS		DATE
DRAWN	WSP, RRA	8/28/99
CHECKED	WP	8/31/99
ISSUED	[illegible]	8/31/99

AMERICAN MICROWAVE CORPORATION
FREDERICK, MARYLAND

TITLE: OUTLINE DRAWING
MSR-8DR/DT-04-STANDARD
REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE
SOLID STATE SWITCH

SIZE	FSCM NO.	DWG NO.	REV.
A	60483	100-4191-1	—

SCALE N/S SHEET 1 of 2

PAGE 4 (T21-S-RA-0999)

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	–	ORIGINAL RELEASE	8/28/99	

DESCRIPTION:

AMC MODEL MSR-8DR/DT-04-DEC-SP IS A SINGLE POLE EIGHT THROW, REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SWITCH MODULE WITH LOW LOSS, HIGH SPEED AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR BROAD BAND OPERATIONS.

SPECIFICATIONS:

- FREQUENCY: ..... 0.5 GHz TO 18 GHz
- INSERTION LOSS: ..... REFLECTIVE: 4.0db
  ABSORPTIVE: 4.5db
- ISOLATION: ..... 0.5 GHz TO 2 GHz: 60db
  2 GHz TO 18 GHz: 70db
- VSWR: ..... REFLECTIVE IN/OUT: 2.0:1
  ABSORPTIVE IN/OUT: 2.0:1
  ABSORPTIVE OUT/OFF: 2.0:1
- SPEED: ..... RISE: 10ns TYPICAL, 15ns MAX.
  FALL: 10ns TYPICAL, 15ns MAX.
  DELAY ON: 75ns TYPICAL, 100ns MAX.
  DELAY OFF: 75ns TYPICAL, 100ns MAX.
- POWER INPUT: ..... (CW)+20dBm (STANDARD), +10 dBm (HIGH SPEED)
- SURVIVAL POWER: ..... 1 WATT CW, 10 WATTS PEAK 1 usec
- CONTROL: ..... SEE LOGIC TABLE
- POWER SUPPLY: ..... +5V @ 400 mA MAX.
  −5V @ 75mA MAX.(RELECTIVE)
  100mA MAX.(ABSORPTIVE/NON-REFLECTIVE)
- SIZE ..... ø1.500 CIRCLE POINT TO POINT X 0.400 (H)
- WEIGHT ..... 2.5 OUNCES TYPICAL

OPTIONS:

INDEPENDENT CONTROL WITH SOLDER PIN STANDARD
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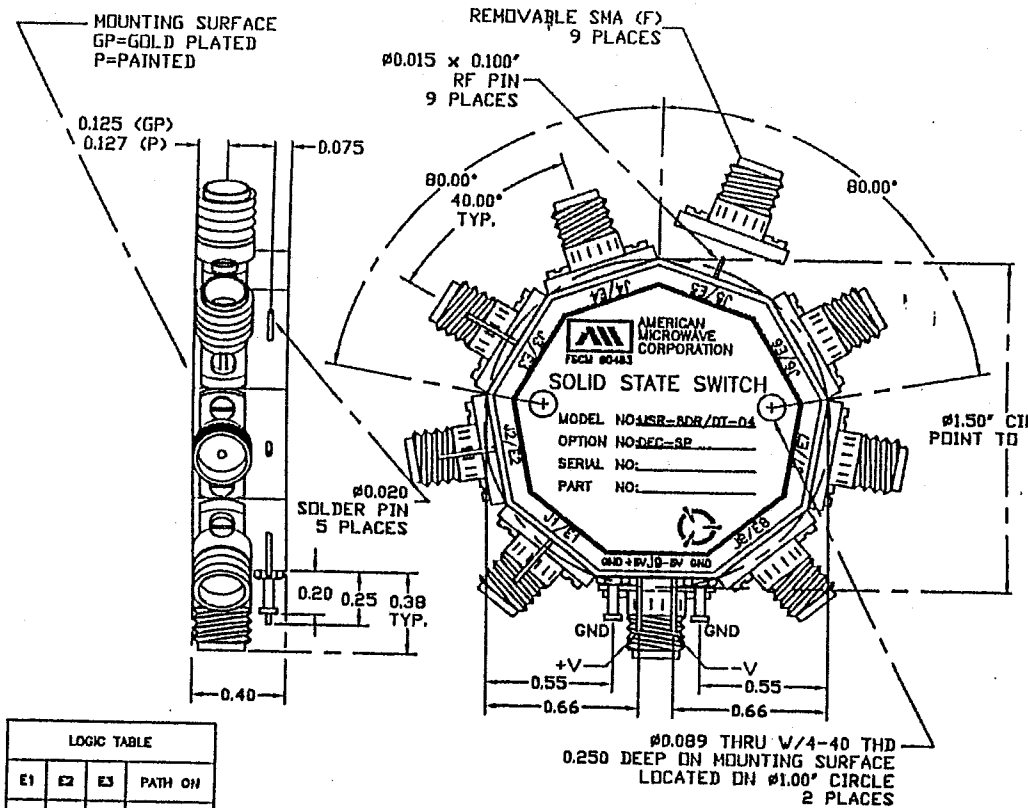
10M18 ..... 10 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 10 MHz AND 0.5db AT 18 GHz)
100M18 ..... 100 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 0.5db AT 18 GHz)
118 ..... 1 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
218 ..... 2 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
412 ..... 4 GHz TO 12.4 GHz (NO CHANGE IN INSERTION LOSS)
618 ..... 6 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
1218 ..... 12 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
100M20 ..... 100 MHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 1.0db AT 20 GHz)
220 ..... 2 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
1020 ..... 10 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
B01 ..... −12V POWER SUPPLIES
B02 ..... −15V POWER SUPPLIES
B03 ..... REVERSE LOGIC "1"=ON "0"=OFF
B04 ..... DRIVERLESS, CURRENT CONTROLLED
B05 ..... HIGH SPEED, TURNON/TURNOFF 20 nsec MAXIMUM WHEN APPLICABLE OR OPTION HS
B06 ..... HIGH POWER − SPECIFY CW POWER, PEAK POWER, PULSE WIDTH, DUTY CYCLE, RF FREQUENCY AND BANDWIDTH
B07 ..... CUSTOM DESIGNED PRODUCT− SPECIFY INITIALS OF CUSTOMER
B08 ..... LOW VIDEO TRANSIENTS − SPECIFY VIDEO BANDWIDTH
B09 ..... LOW INSERTION LOSS VERSION
B10 ..... HIGHER ISOLATION VERSION

ENVIRONMENTAL RATINGS:

- TEMPERATURE: ..... −55°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



LOGIC TABLE			
E1	E2	E3	PATH ON
L	L	L	J1
H	L	L	J2
L	H	L	J3
H	H	L	J4
L	L	H	J5
H	L	H	J6
L	H	H	J7
H	H	H	J8

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

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

PART NO.		
APPROVALS		DATE
DRAWN	W.S.P, R.R.A	8/28/99
CHECKED	W.P	8/31/99
ISSUED	R.A	8/31/99

AMERICAN MICROWAVE CORPORATION
FREDERICK, MARYLAND

TITLE: OUTLINE DRAWING
MSR-8DR/DT-04-DEC-SP
REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE
SOLID STATE SWITCH

SIZE	FSCM NO.	DWG NO.	REV.
A	60483	100-4191-2	–

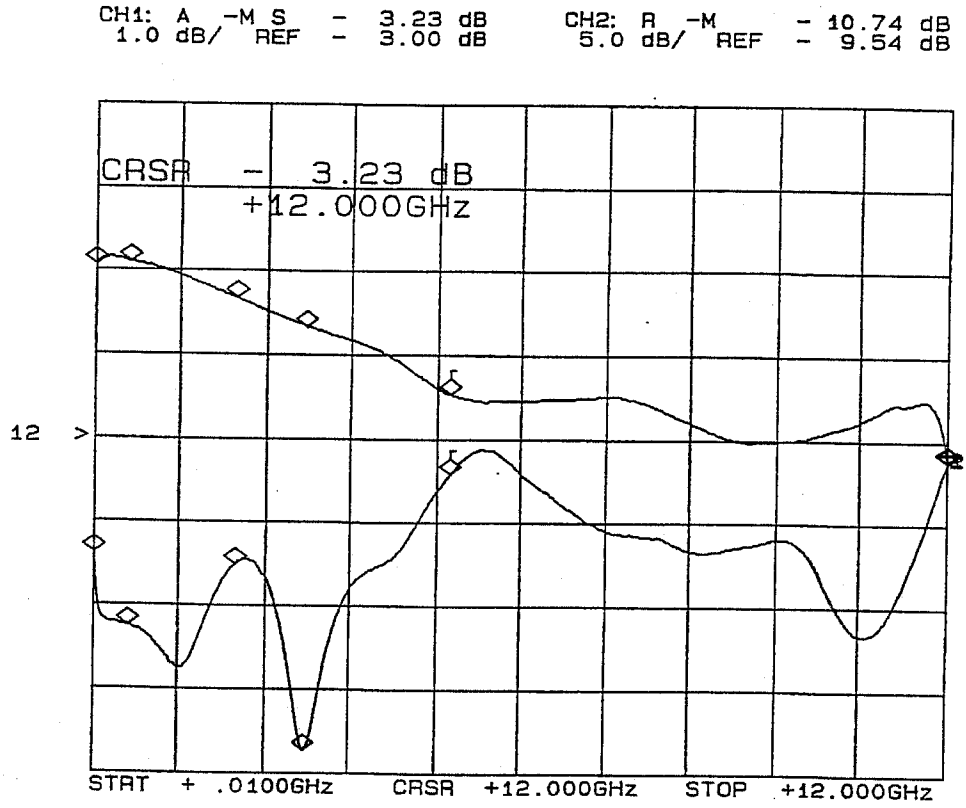
SCALE 1:1 SHEET 1 of 2

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J1



*J9: INPUT ARM

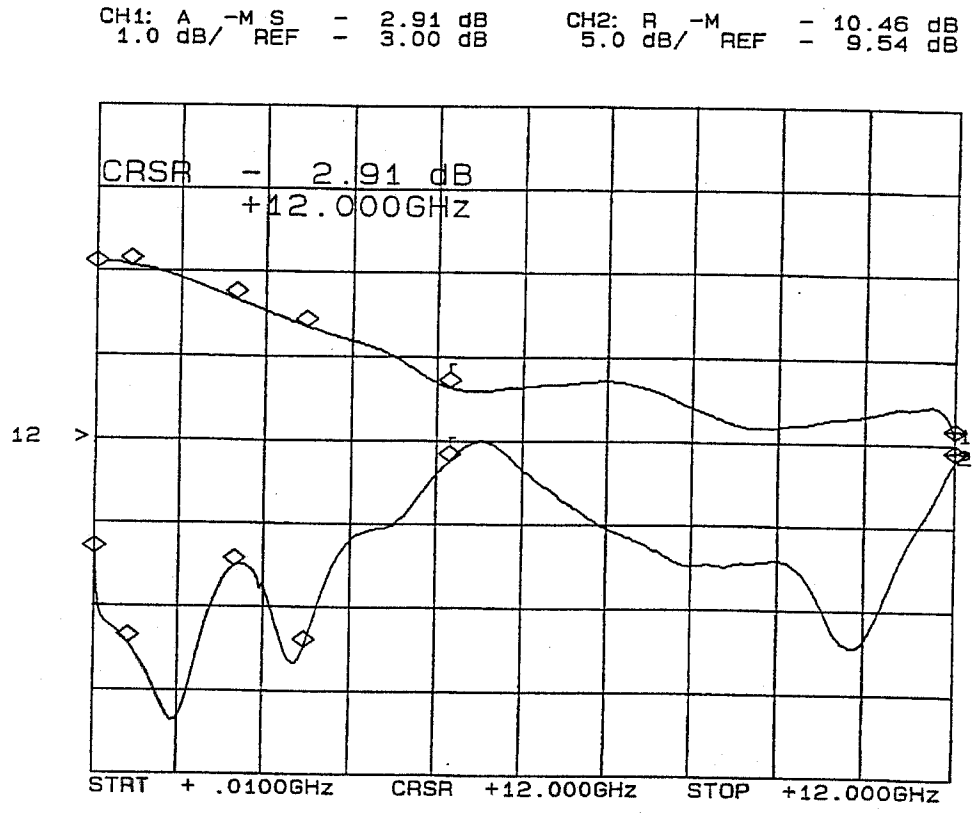
FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.93 dB	16.4 dB
500 MHz	0.89 dB	20.7 dB
2.0 GHz	1.32 dB	17.0 dB
3.0 GHz	1.65 dB	28.1 dB
5.0 GHz	2.45 dB	11.6 dB
12.0 GHz	3.23 dB	10.7 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J2



*J9: INPUT ARM

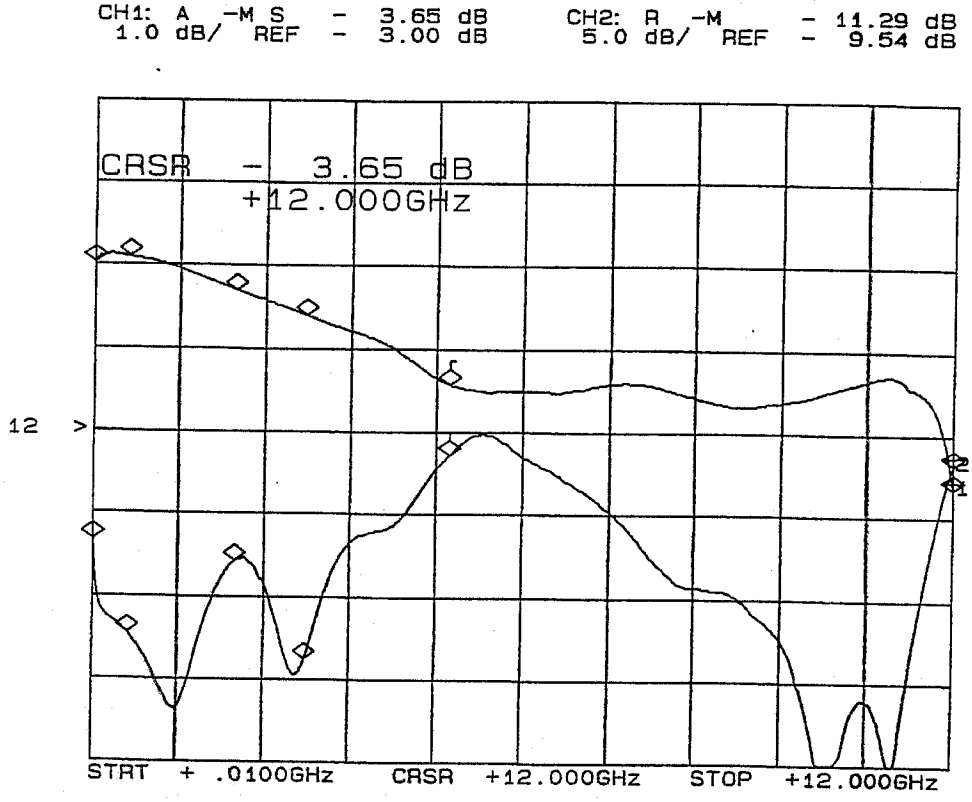
FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.98 dB	16.3 dB
500 MHz	0.93 dB	21.7 dB
2.0 GHz	1.32 dB	17.1 dB
3.0 GHz	1.64 dB	21.8 dB
5.0 GHz	2.35 dB	10.7 dB
12.0 GHz	2.91 dB	10.4 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J3



***J9: INPUT ARM**

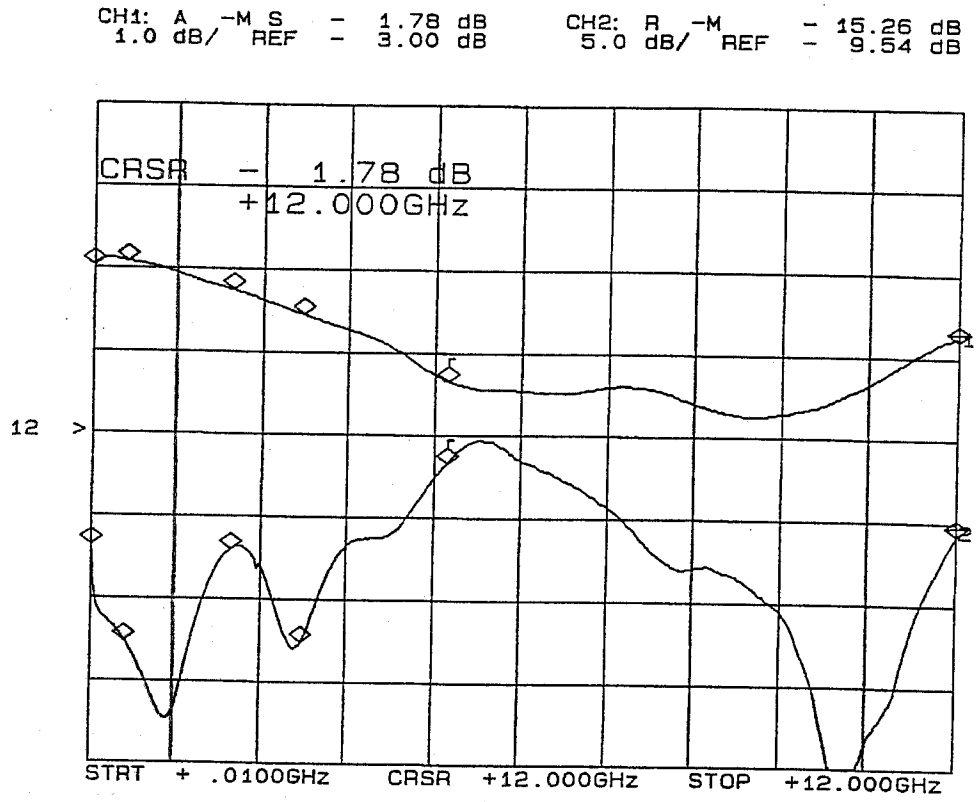
FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.97 dB	16.0 dB
500 MHz	0.90 dB	21.7 dB
2.0 GHz	1.28 dB	17.4 dB
3.0 GHz	1.59 dB	23.2 dB
5.0 GHz	2.41 dB	10.9 dB
12.0 GHz	3.65 dB	11.2 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J4



*J9: INPUT ARM

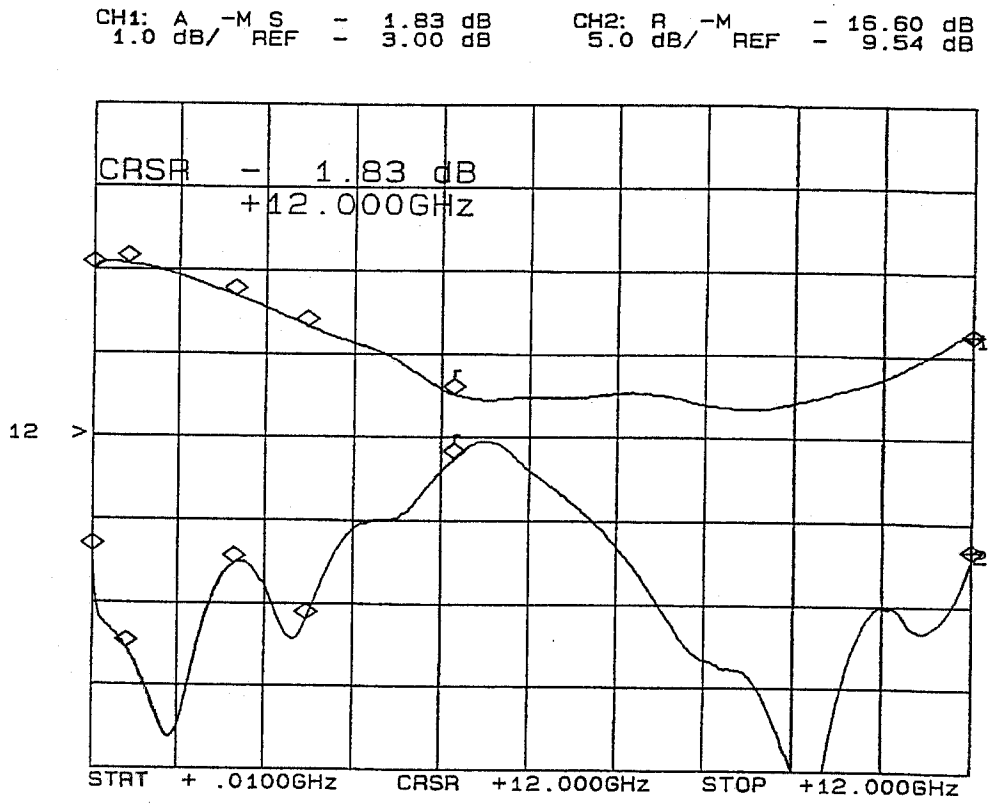
FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.97 dB	16.3 dB
500 MHz	0.91 dB	22.0 dB
2.0 GHz	1.26 dB	16.4 dB
3.0 GHz	1.53 dB	22.0 dB
5.0 GHz	2.33 dB	11.2 dB
12.0 GHz	1.78 dB	15.2 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J5



*J9: INPUT ARM

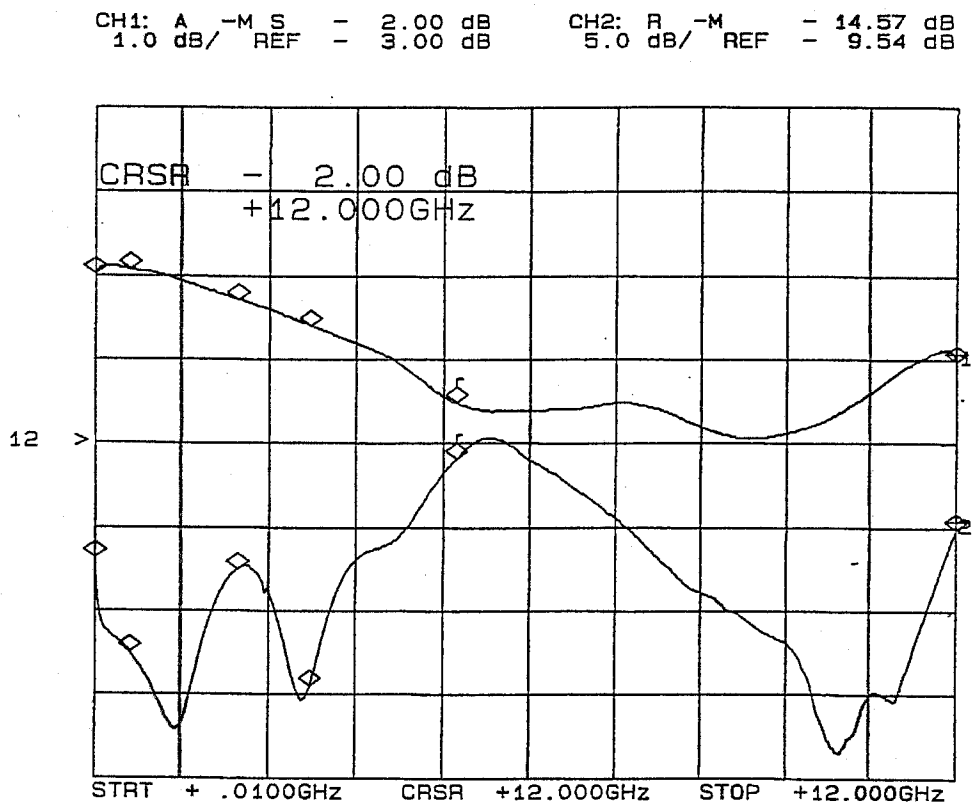
FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.98 dB	16.4 dB
500 MHz	0.92 dB	22.3 dB
2.0 GHz	1.29 dB	17.0 dB
3.0 GHz	1.65 dB	20.4 dB
5.0 GHz	2.47 dB	10.8 dB
12.0 GHz	1.83 dB	16.6 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J6



*J9: INPUT ARM

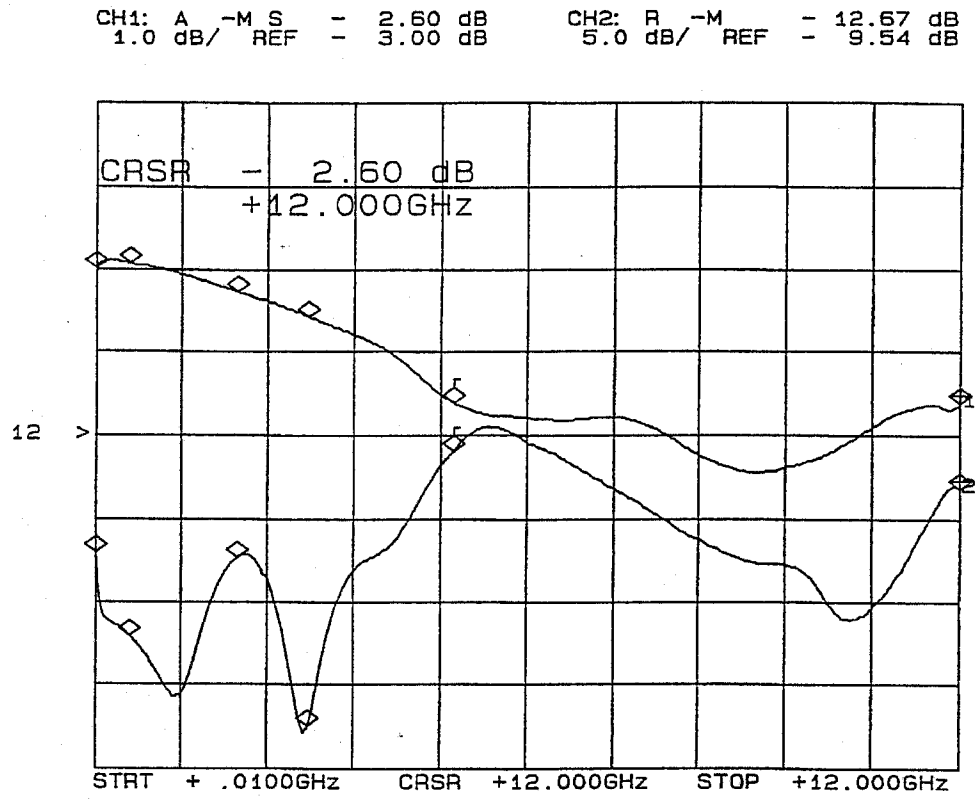
FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.97 dB	16.3 dB
500 MHz	0.91 dB	21.9 dB
2.0 GHz	1.27 dB	16.9 dB
3.0 GHz	1.57 dB	23.9 dB
5.0 GHz	2.52 dB	10.4 dB
12.0 GHz	2.00 dB	14.5 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J7



*J9: INPUT ARM

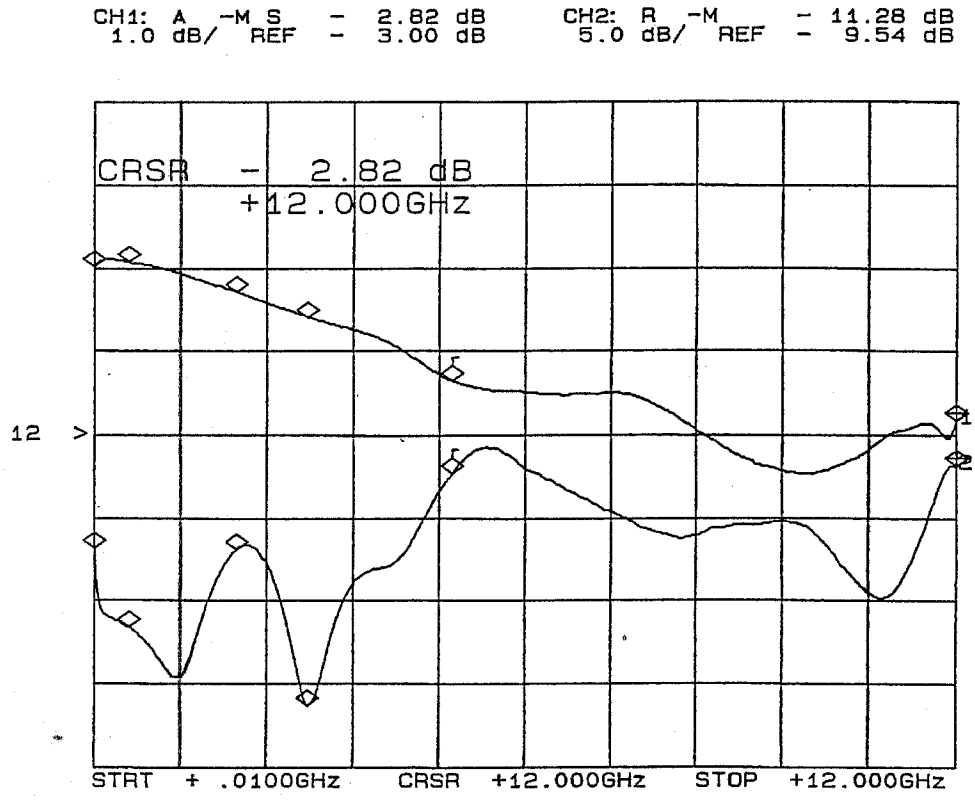
FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.96 dB	16.4 dB
500 MHz	0.91 dB	21.5 dB
2.0 GHz	1.25 dB	16.7 dB
3.0 GHz	1.56 dB	26.9 dB
5.0 GHz	2.60 dB	10.4 dB
12.0 GHz	2.60 dB	12.6 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J8



*J9: INPUT ARM

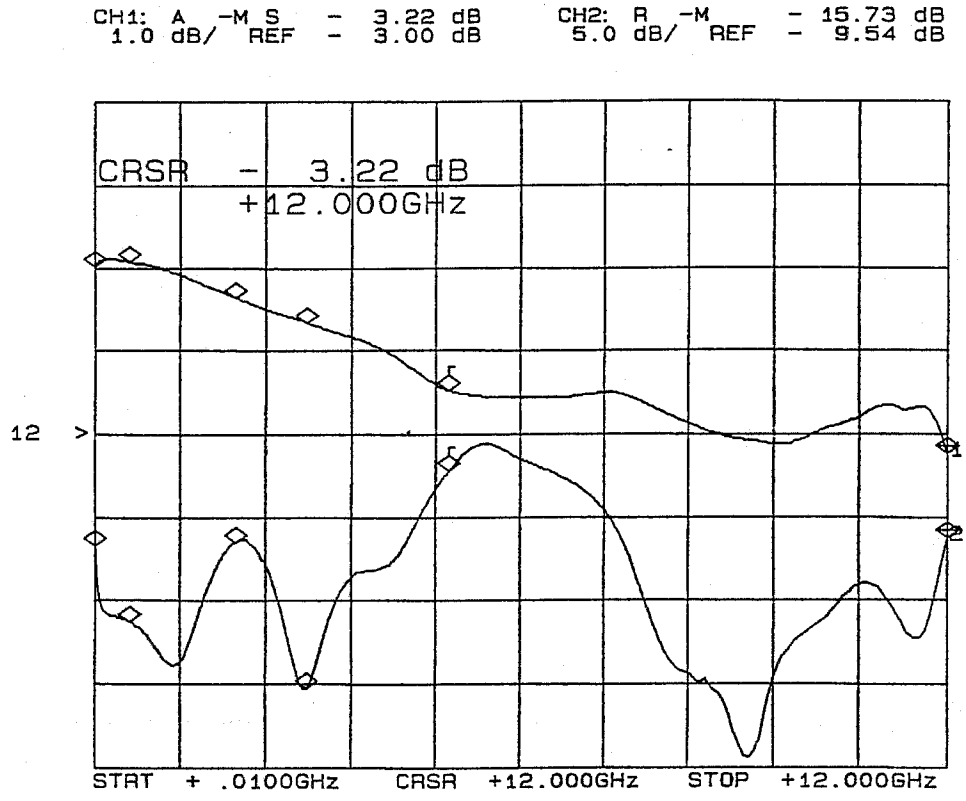
FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.96 dB	16.3 dB
500 MHz	0.92 dB	21.1 dB
2.0 GHz	1.27 dB	16.3 dB
3.0 GHz	1.57 dB	25.8 dB
5.0 GHz	2.35 dB	11.7 dB
12.0 GHz	2.82 dB	11.2 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J1-J9



*J1: INPUT ARM

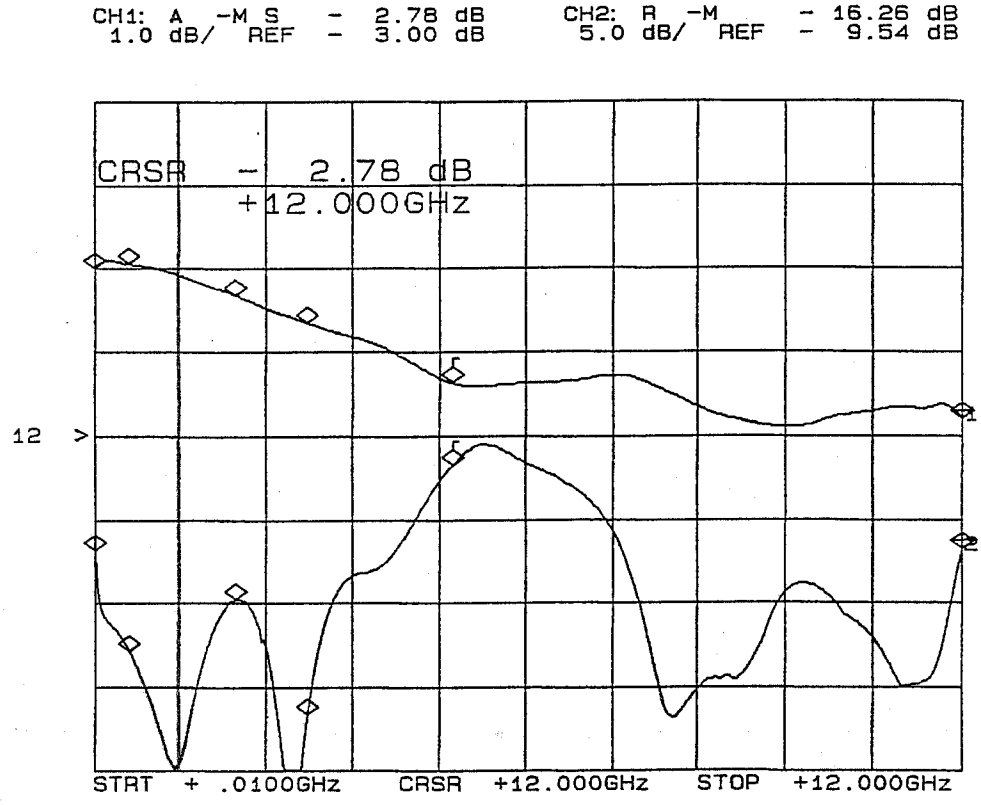
FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.96 dB	16.1 dB
500 MHz	0.91 dB	20.8 dB
2.0 GHz	1.35 dB	15.9 dB
3.0 GHz	1.66 dB	24.7 dB
5.0 GHz	2.46 dB	11.7 dB
12.0 GHz	3.22 dB	15.7 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J2-J9



*J2: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.99 dB	16.2 dB
500 MHz	0.94 dB	22.3 dB
2.0 GHz	1.32 dB	19.3 dB
3.0 GHz	1.64 dB	26.2 dB
5.0 GHz	2.37 dB	11.2 dB
12.0 GHz	2.78 dB	16.2 dB

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004

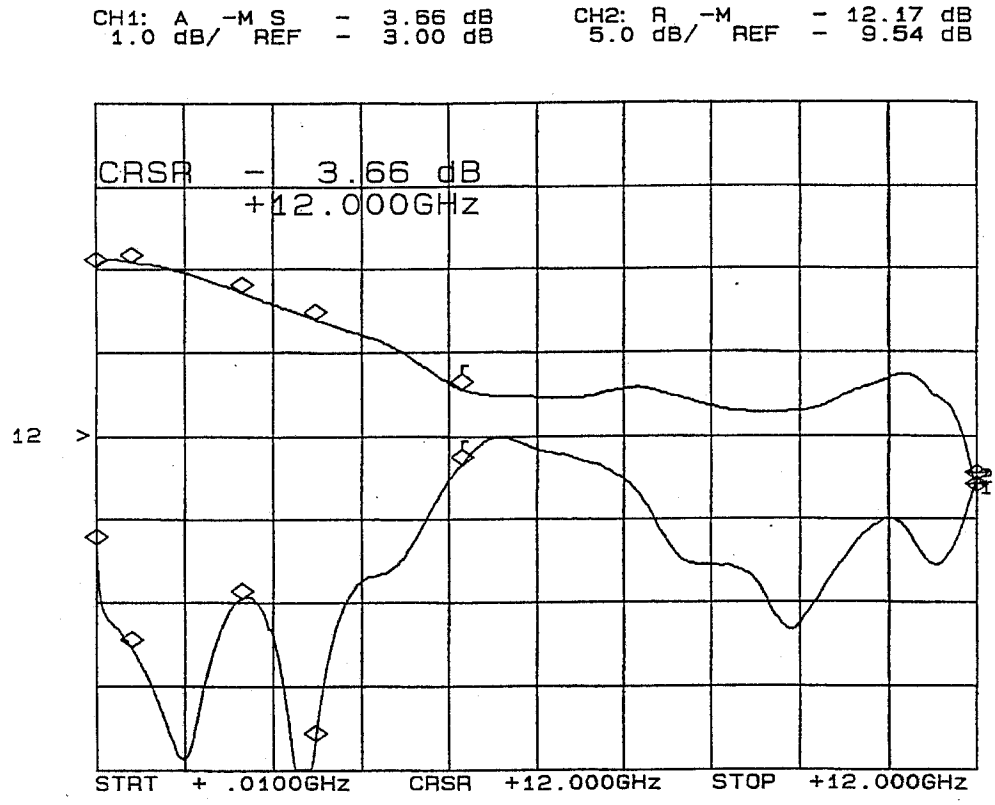
SERIAL NUMBER : 8MS90646

ENGINEER : RENE AFABLE

VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J3-J9



*J3: INPUT ARM

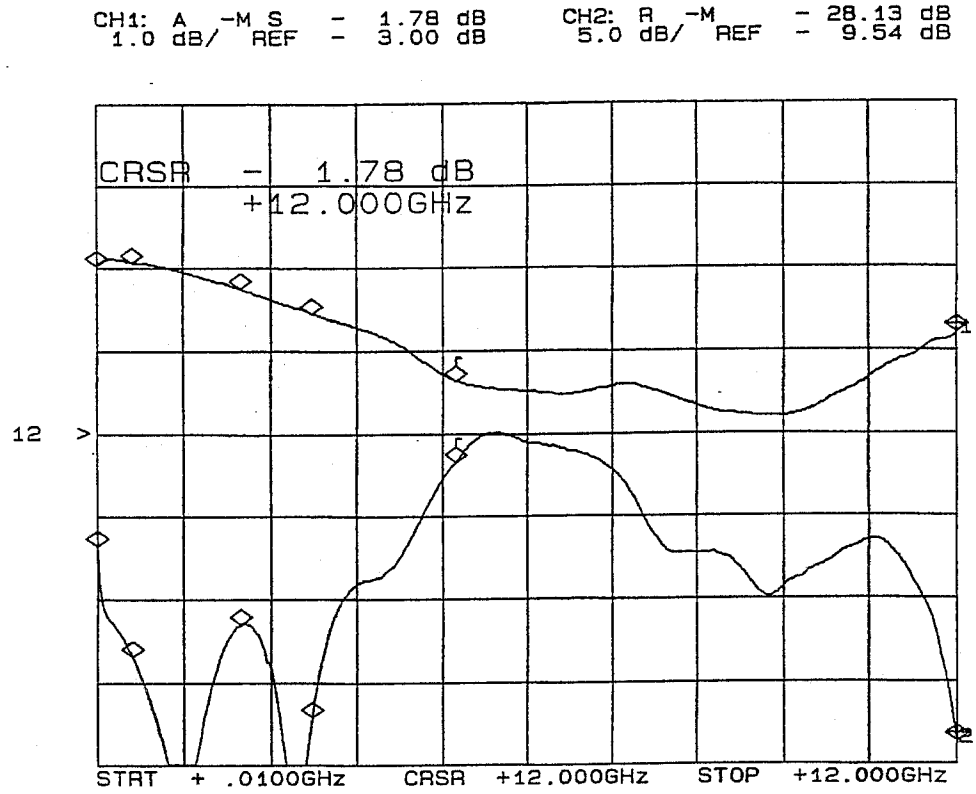
FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.97 dB	16.0 dB
500 MHz	0.90 dB	22.2 dB
2.0 GHz	1.28 dB	19.2 dB
3.0 GHz	1.60 dB	27.8 dB
5.0 GHz	2.43 dB	11.1 dB
12.0 GHz	3.66 dB	12.1 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J4-J9



*J4: INPUT ARM

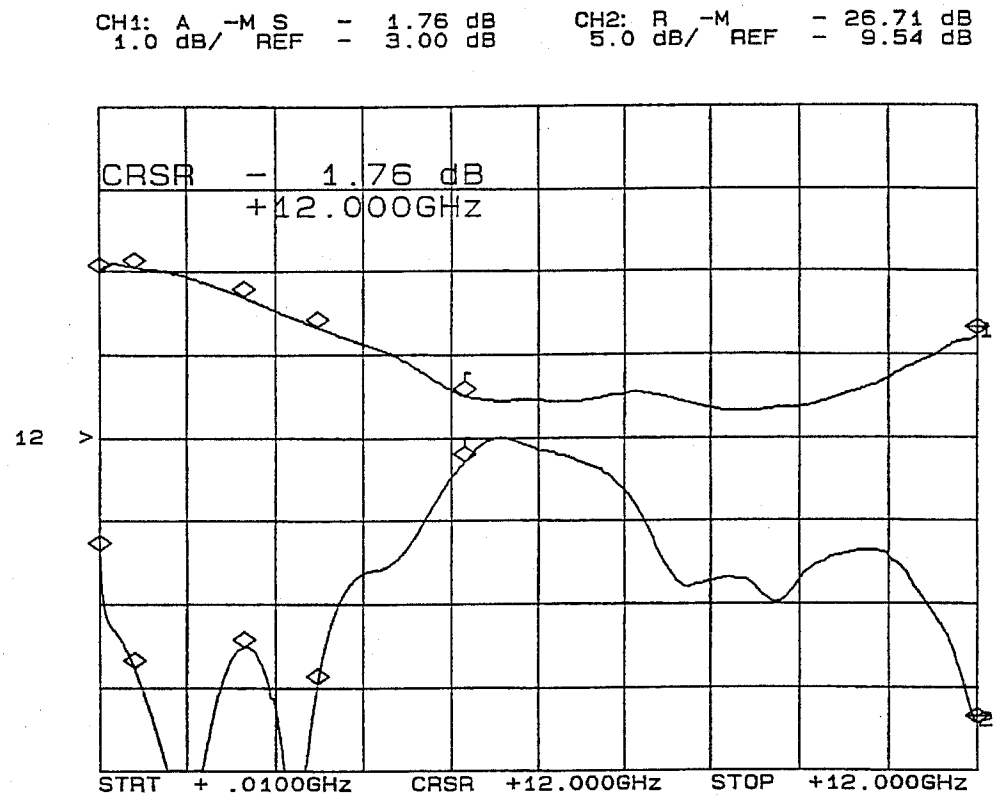
FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.97 dB	16.3 dB
500 MHz	0.92 dB	22.9 dB
2.0 GHz	1.24 dB	21.0 dB
3.0 GHz	1.54 dB	26.6 dB
5.0 GHz	2.34 dB	11.1 dB
12.0 GHz	1.78 dB	28.1 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J5-J9



*J5: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.99 dB	16.3 dB
500 MHz	0.94 dB	23.3 dB
2.0 GHz	1.29 dB	22.1 dB
3.0 GHz	1.66 dB	24.2 dB
5.0 GHz	2.48 dB	10.9 dB
12.0 GHz	1.76 dB	26.7 dB

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004

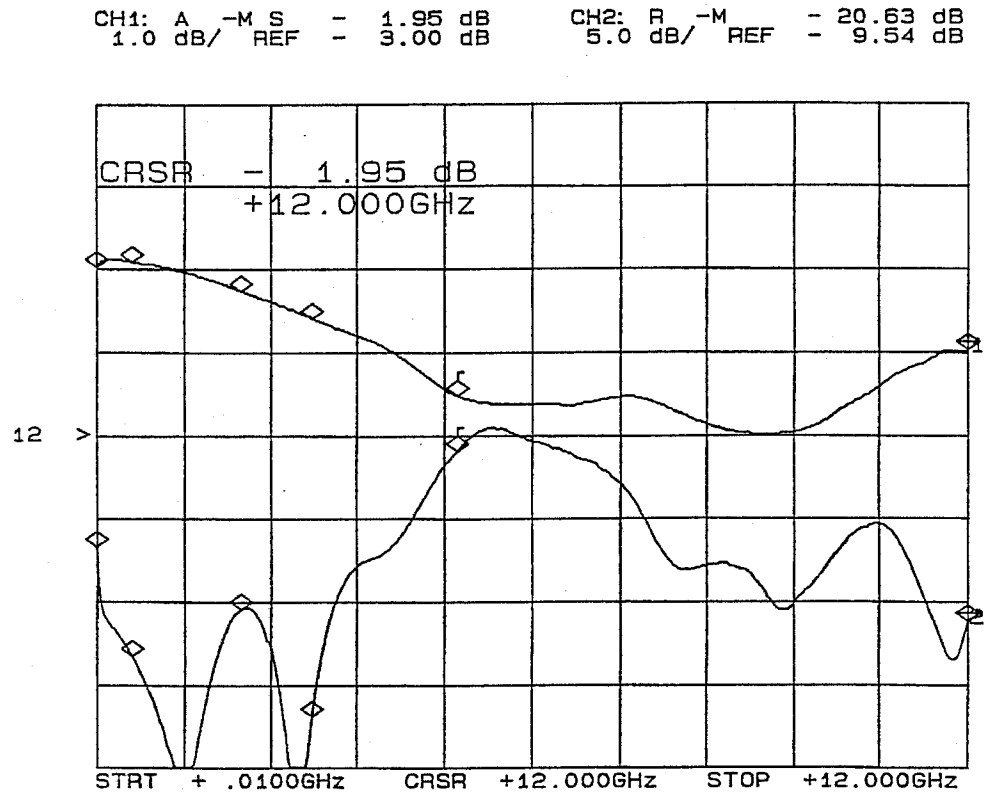
SERIAL NUMBER : 8MS90646

ENGINEER : RENE AFABLE

VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J6-J9



*J6: INPUT ARM

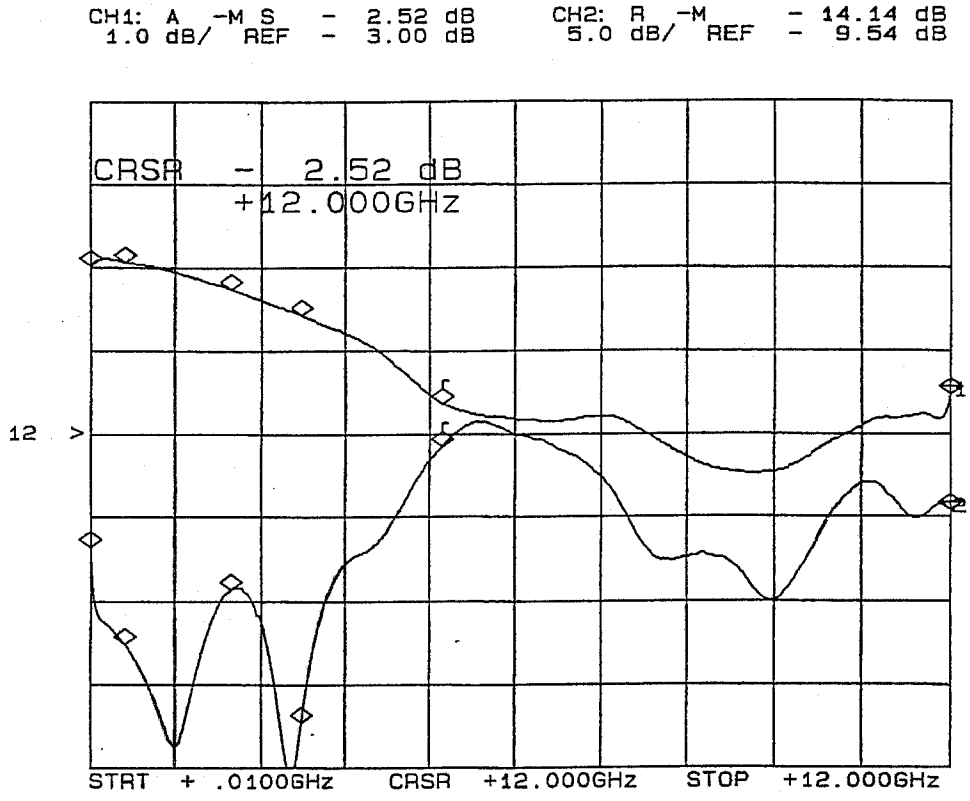
FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.96 dB	16.2 dB
500 MHz	0.90 dB	22.7 dB
2.0 GHz	1.24 dB	19.9 dB
3.0 GHz	1.57 dB	26.4 dB
5.0 GHz	2.51 dB	10.4 dB
12.0 GHz	1.95 dB	20.6 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J7-J9



*J7: INPUT ARM

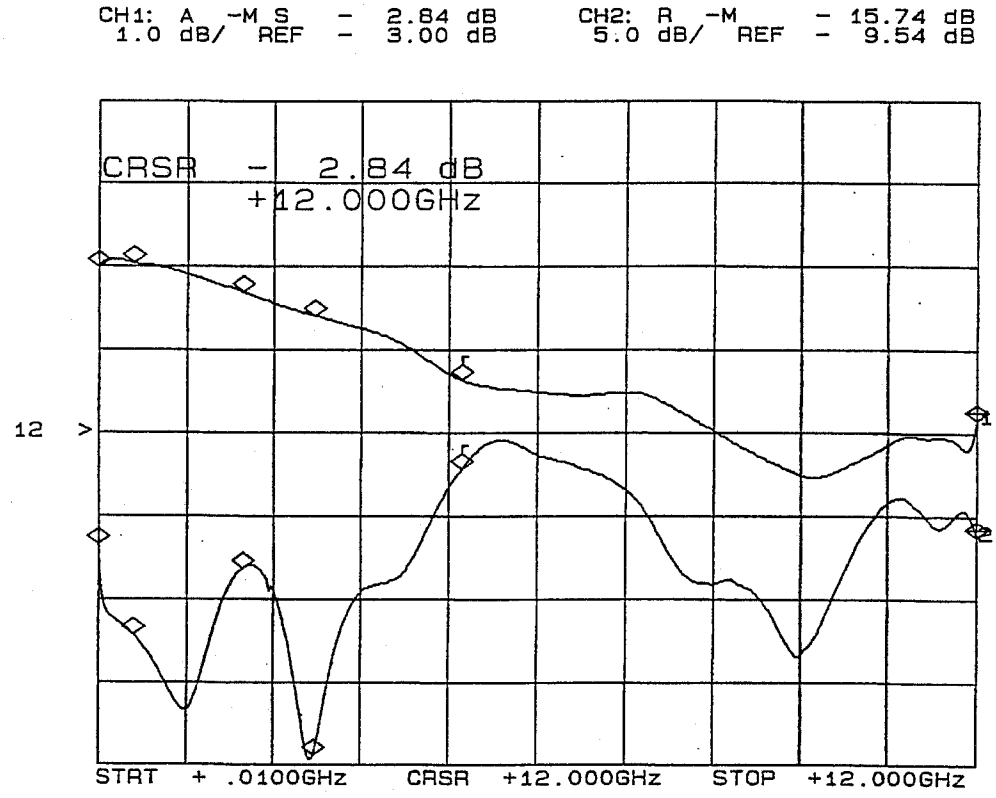
FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	0.97 dB	16.3 dB
500 MHz	0.93 dB	22.0 dB
2.0 GHz	1.25 dB	18.8 dB
3.0 GHz	1.57 dB	26.7 dB
5.0 GHz	2.61 dB	10.2 dB
12.0 GHz	2.52 dB	14.1 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J8-J9



*J8: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	1.00 dB	16.2 dB
500 MHz	0.95 dB	21.5 dB
2.0 GHz	1.31 dB	17.4 dB
3.0 GHz	1.57 dB	28.8 dB
5.0 GHz	2.36 dB	11.7 dB
12.0 GHz	2.84 dB	15.7 dB

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER : 8MS90646
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)

FREQUENCY	J1	J2	J3	J4	J5	J6	J7	J8
70 MHz	68 dB	70 dB	70 dB	74 dB	75 dB	76 dB	76 dB	72 dB
100 MHz	71 dB	71 dB	72 dB	73 dB	74 dB	74 dB	74 dB	71 dB
500 MHz	60 dB	63 dB	62 dB	63 dB	64 dB	62 dB	63 dB	64 dB
1 GHz	59 dB	60 dB	61 dB	62 dB	62 dB	62 dB	62 dB	60 dB
1.5 GHz	56 dB	59 dB	58 dB	58 dB	59 dB	58 dB	55 dB	60 dB
2 GHz	56 dB	56 dB	56 dB	60 dB	60 dB	60 dB	55 dB	55 dB
4 GHz	50 dB	53 dB	52 dB	53 dB	53 dB	53 dB	50 dB	50 dB
6 GHz	44 dB	44 dB	46 dB	47 dB	47 dB	47 dB	47 dB	45 dB
8 GHz	42 dB	43 dB	43 dB	44 dB	44 dB	43 dB	40 dB	43 dB
10 GHz	40 dB	37 dB	39 dB	40 dB	41 dB	40 dB	40 dB	40 dB
12 GHz	41 dB	41 dB	41 dB	41 dB	40 dB	41 dB	40 dB	42 dB
14 GHz	41 dB	37 dB	41 dB	39 dB	47 dB	45 dB	37 dB	40 dB
16 GHz	39 dB	38 dB	36 dB	39 dB	38 dB	36 dB	34 dB	39 dB
18 GHz	41 dB	40 dB	37 dB	40 dB	33 dB	36 dB	36 dB	38 dB

* J9: INPUT ARM

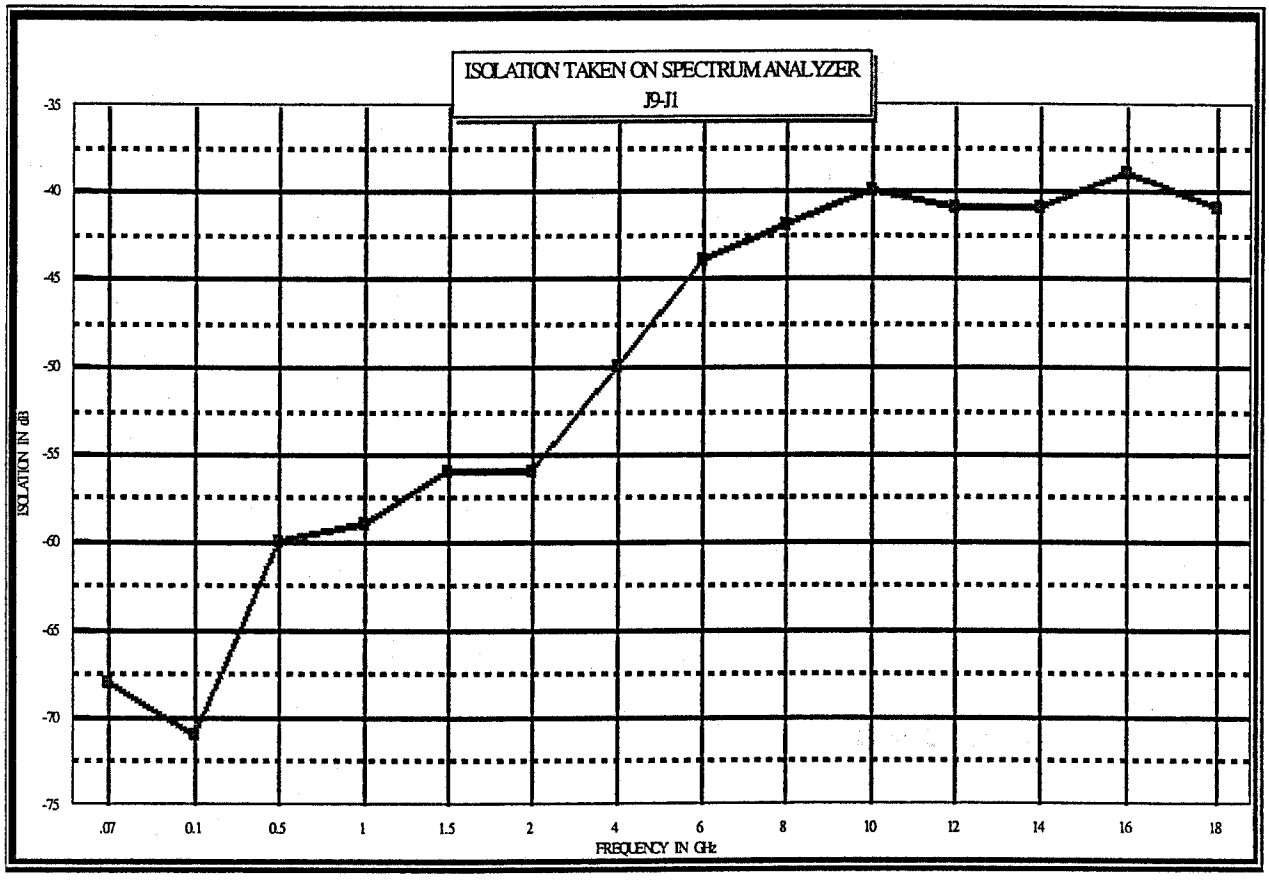
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)
J9-J1



*J9: INPUT ARM

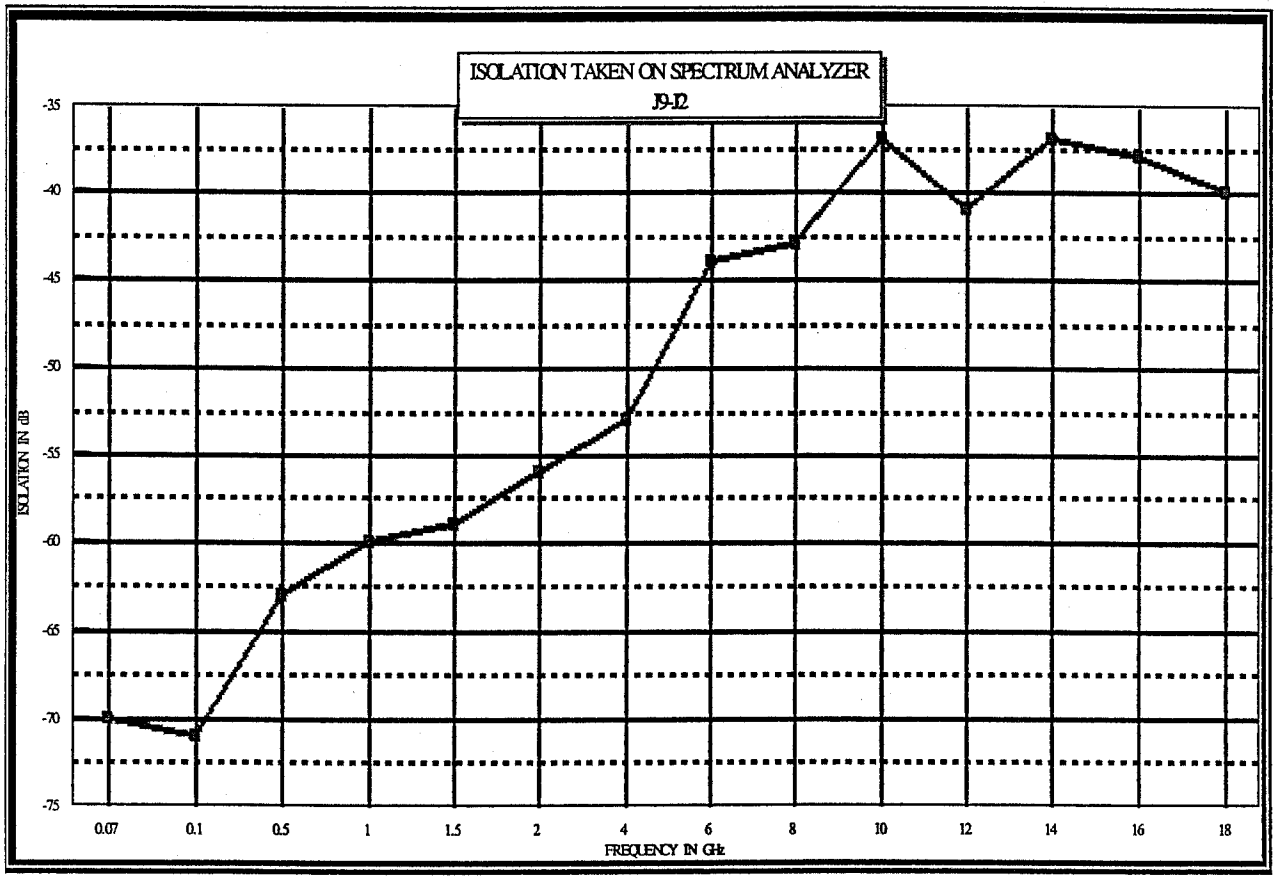
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)
J9-J2



*J9: INPUT ARM

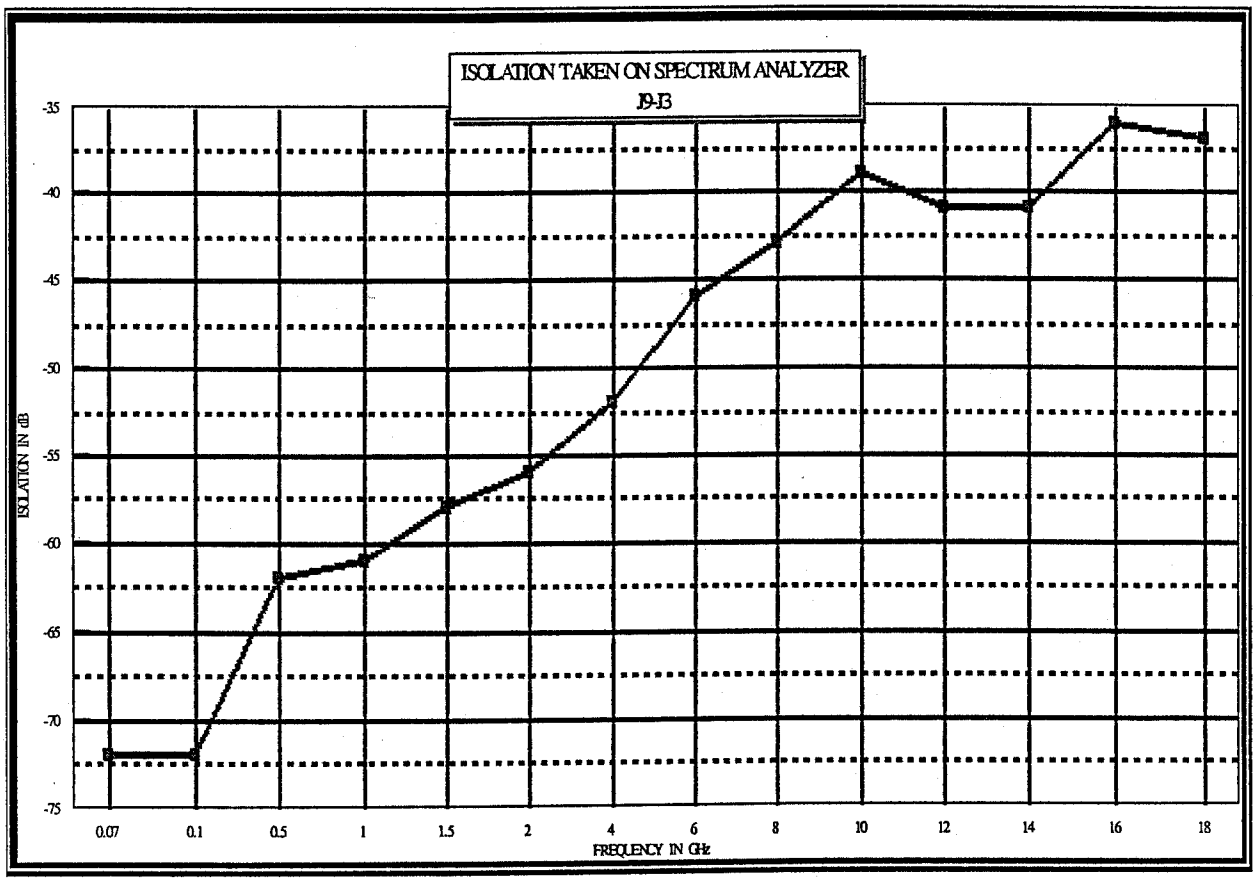
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)
J9-J3



*J9: INPUT ARM

SEPTEMBER 15, 1999

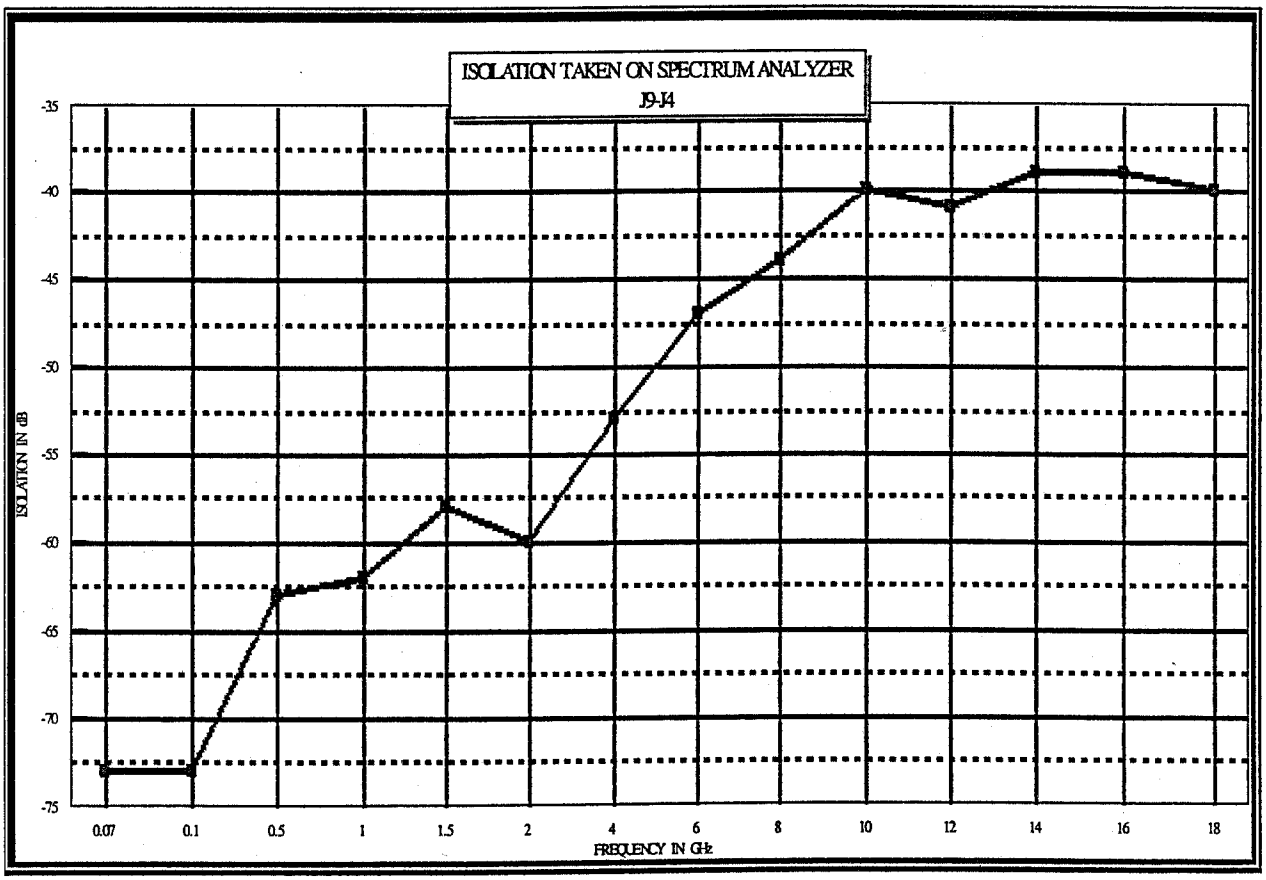
SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)

J9-J4



*J9: INPUT ARM

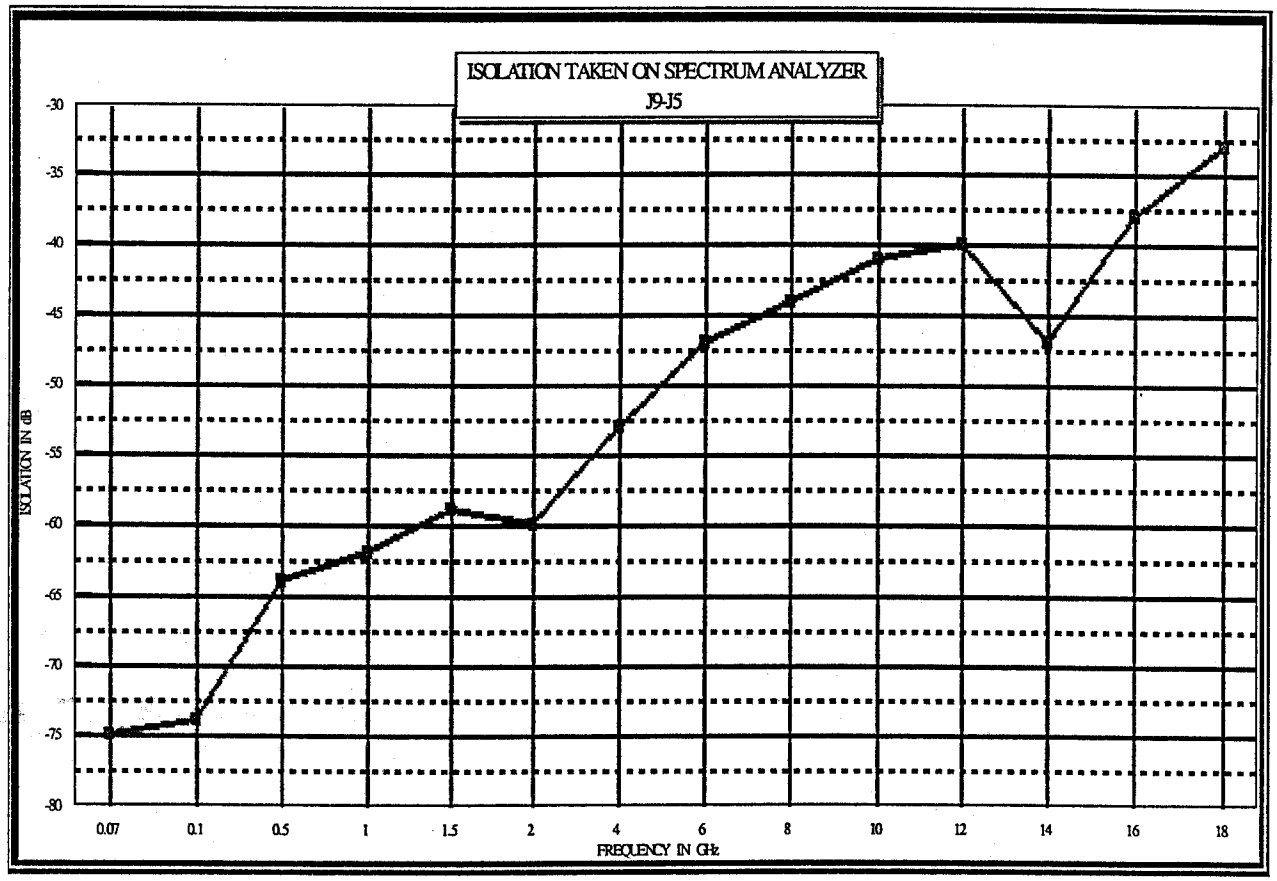
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)
J9-J5



*J9: INPUT ARM

SEPTEMBER 15, 1999

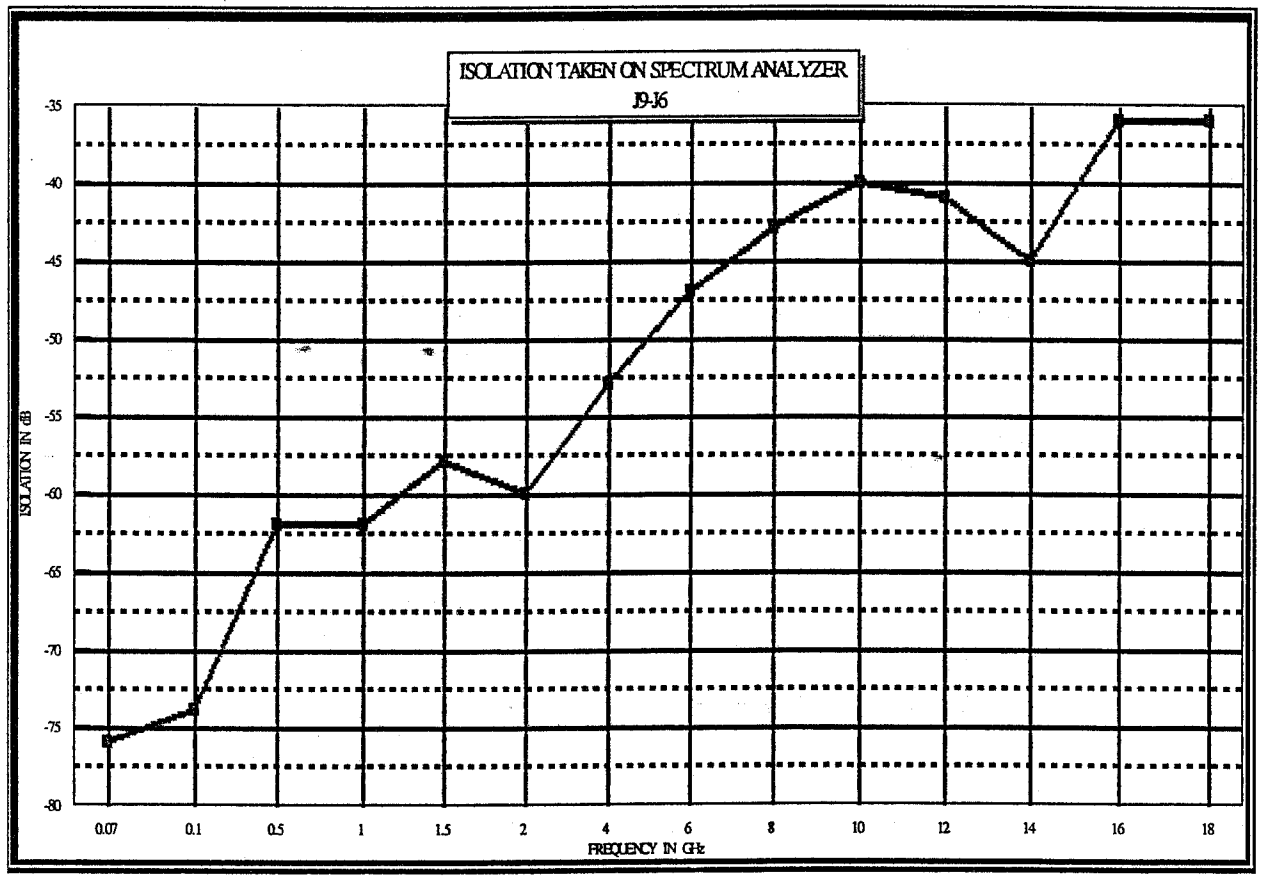
SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)

J9-J6



*J9: INPUT ARM

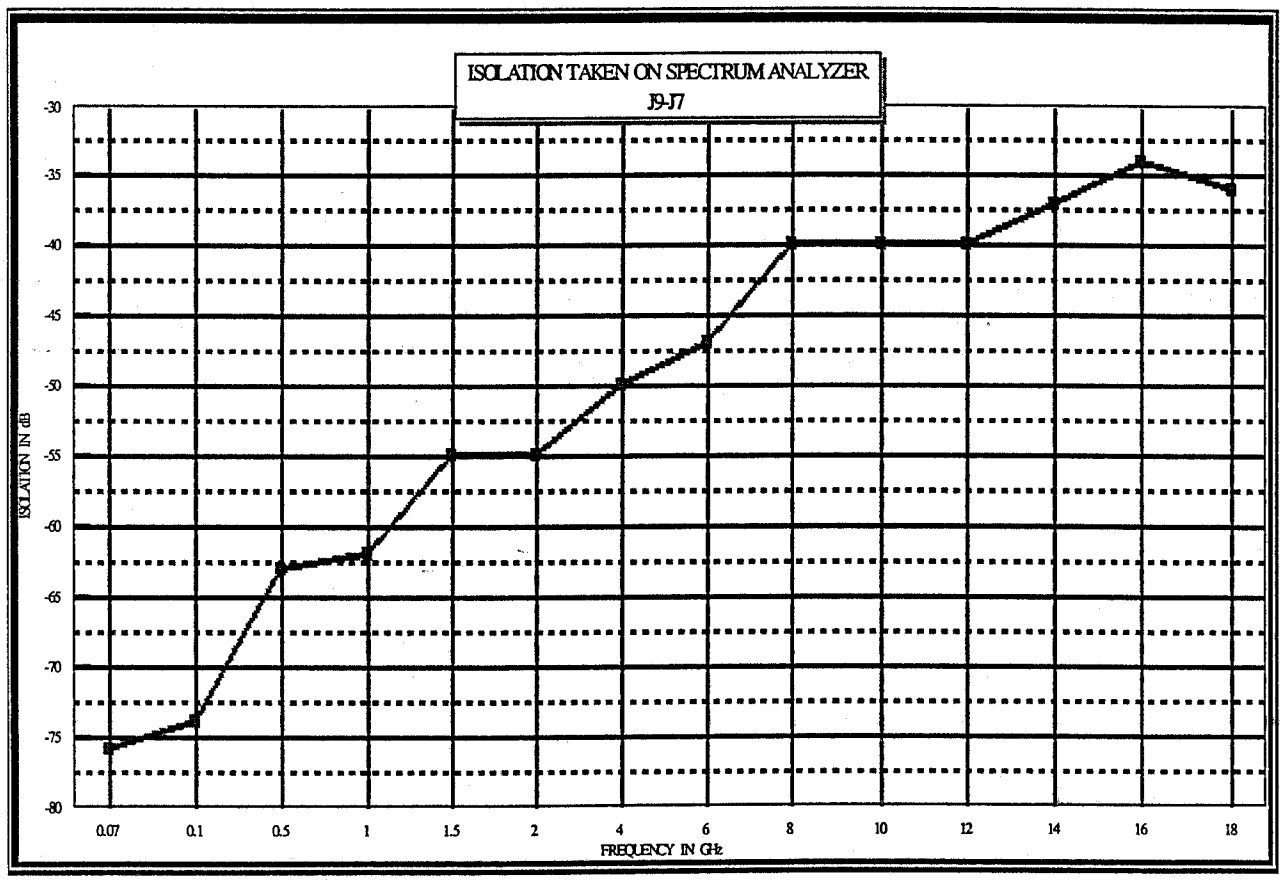
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)
J9-J7



*J9: INPUT ARM

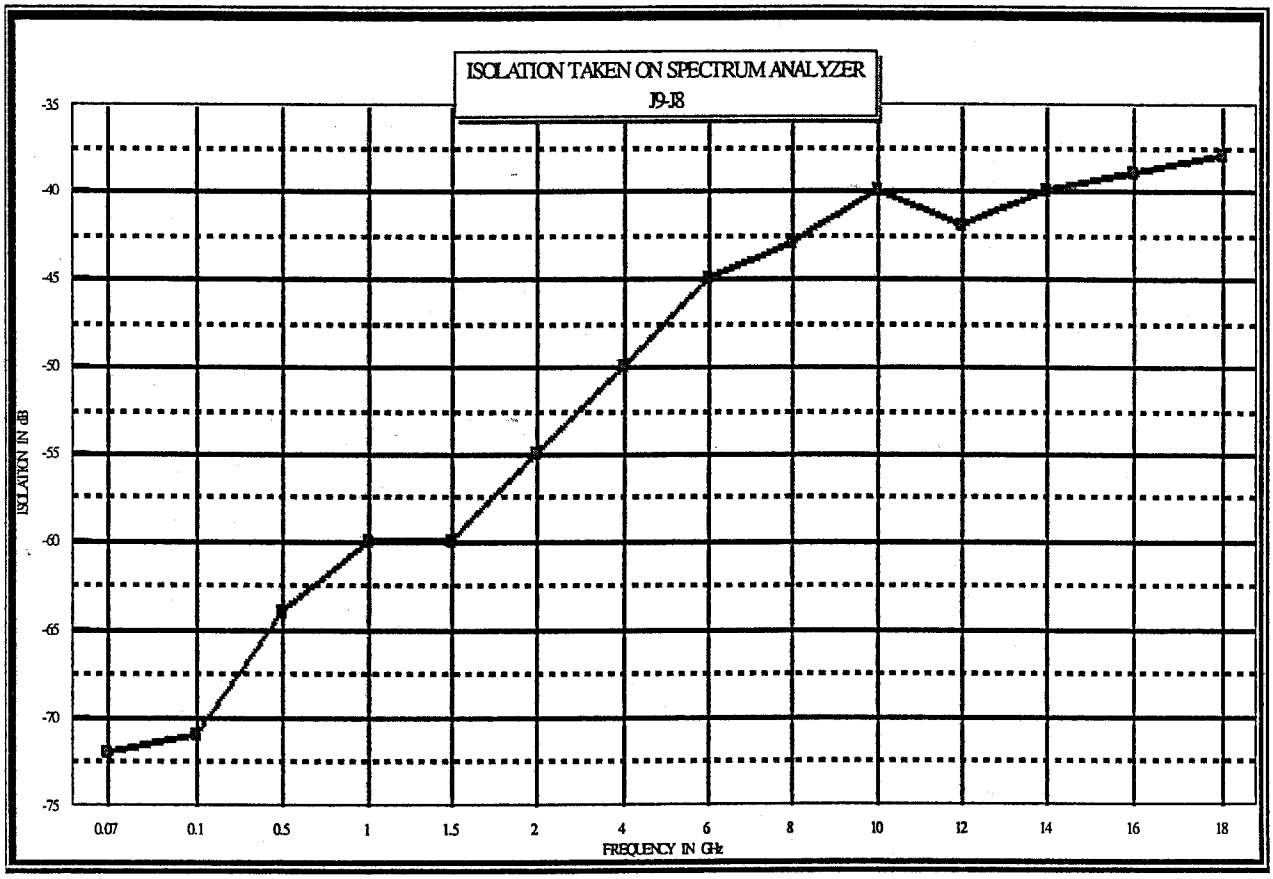
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)
J9-J8



*J9: INPUT ARM

SEPTEMBER 15, 1999

AMERICAN MICROWAVE CORPORATION

AMPLITUDE

DATA

BETWEEN

PORT TO PORT

FROM

40 MHz TO 5 GHz

ON A

SP8T

RADIAL SOLID STATE SWITCH
(SURFACE MOUNTABLE)

AMC MODEL No:
MSR-8DR-04-STANDARS
OPTIONS 10M5, SPARWAR, 2SS, 45004
(Serial Number: 8MS90646)

REPORTED AND PREPARED
BY
RENE AFABLE

SEPTEMBER 15, 1999

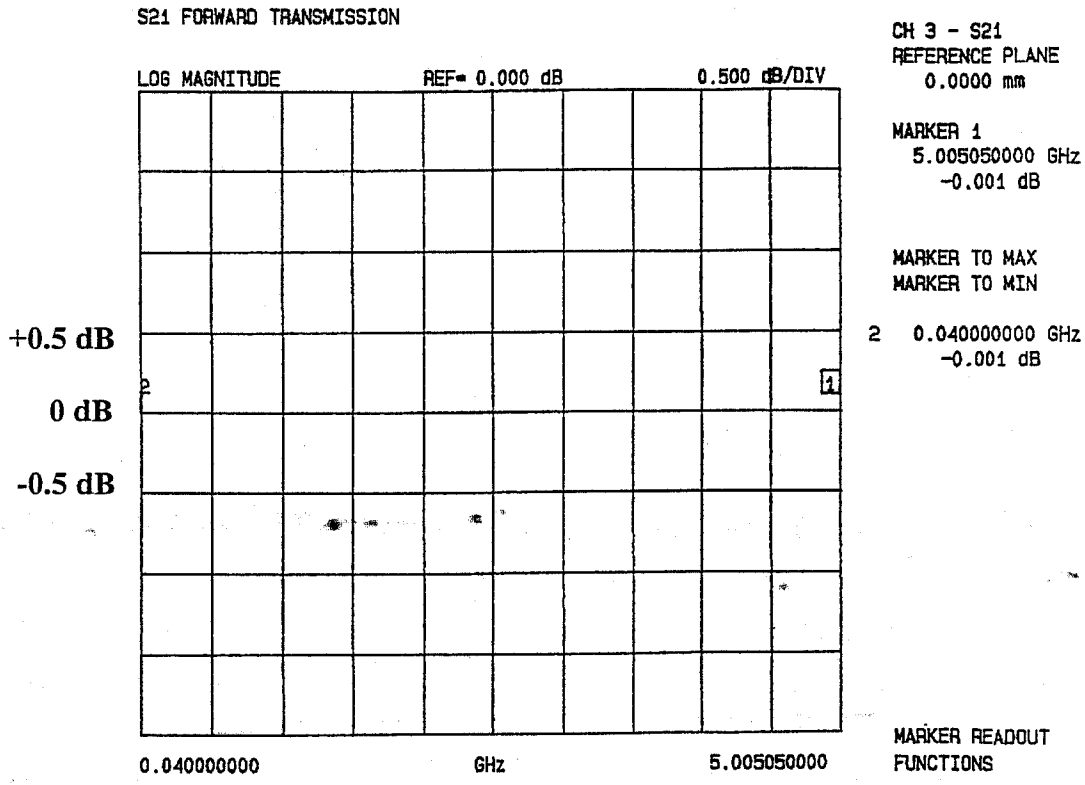
7311 G GROVE ROAD, FREDERICK, MARYLAND 21704 • Tel. (301) 662-4700 • Fax (301) 662-4938

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J1 (REFERENCE)



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
5.0- GHZ		-0.001 dB
40 MHz		-0.001 dB

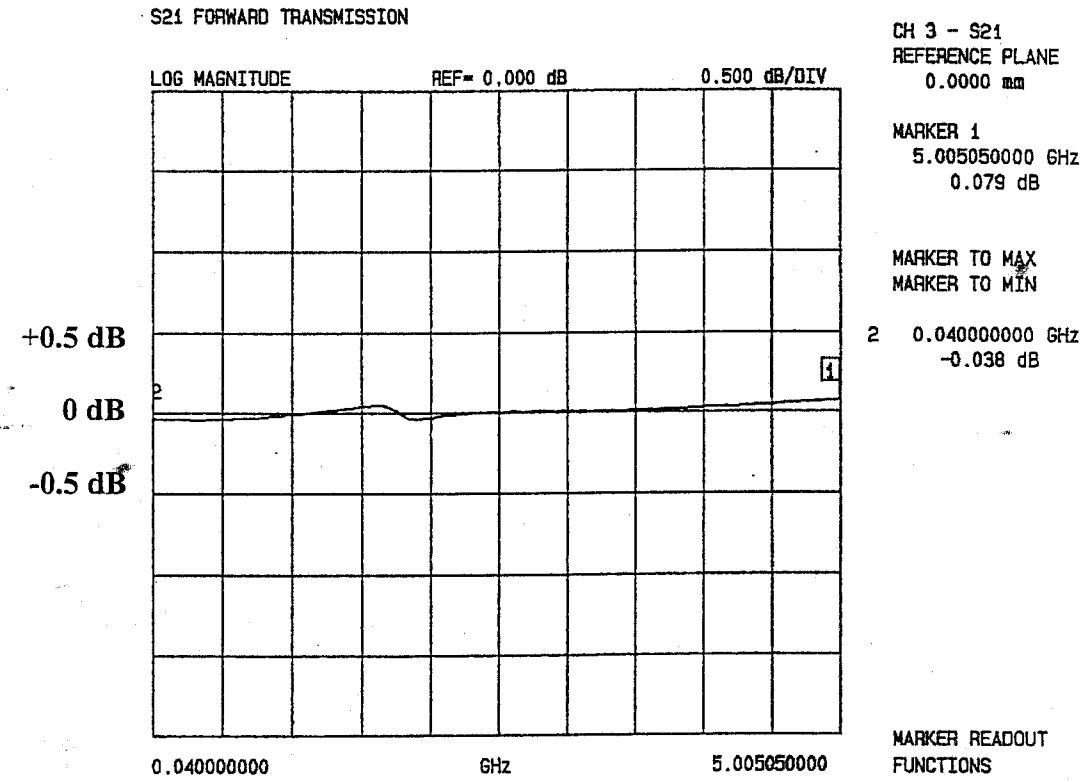
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J2



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
5.00 GHZ	0.079 dB	
40 MHz		-0.038 dB

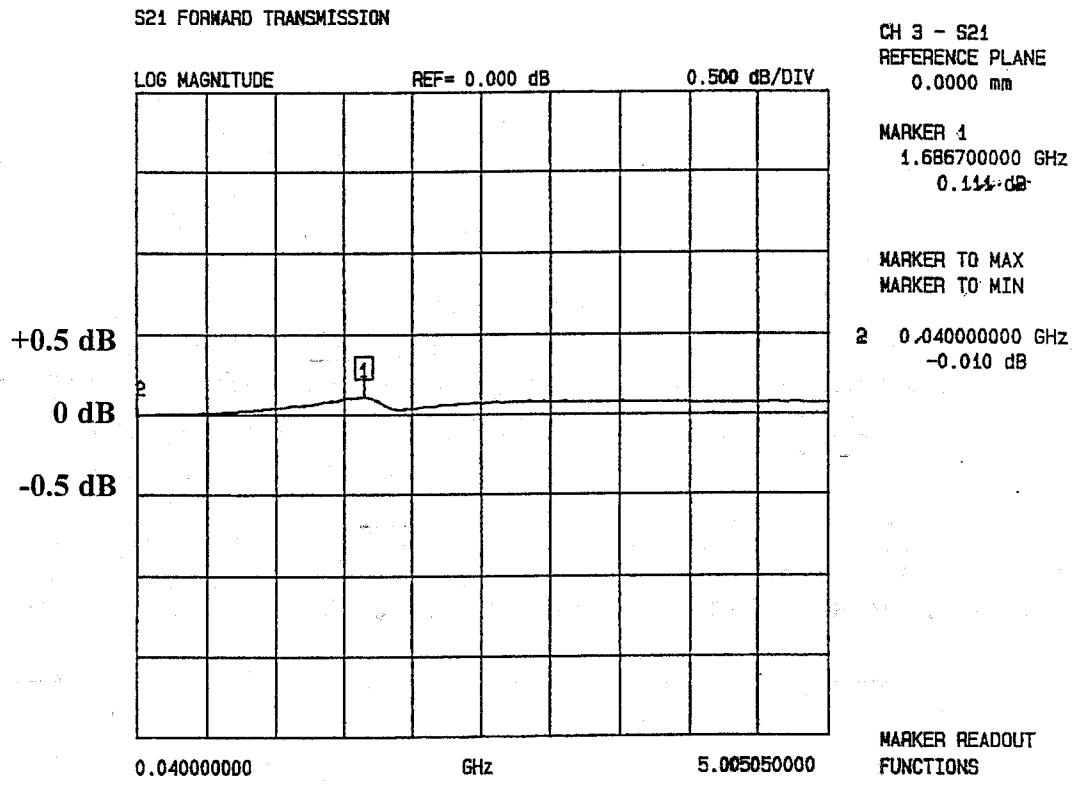
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J3



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
1.68 GHZ	0.111 dB	
40 MHz		-0.010 dB

SEPTEMBER 15, 1999

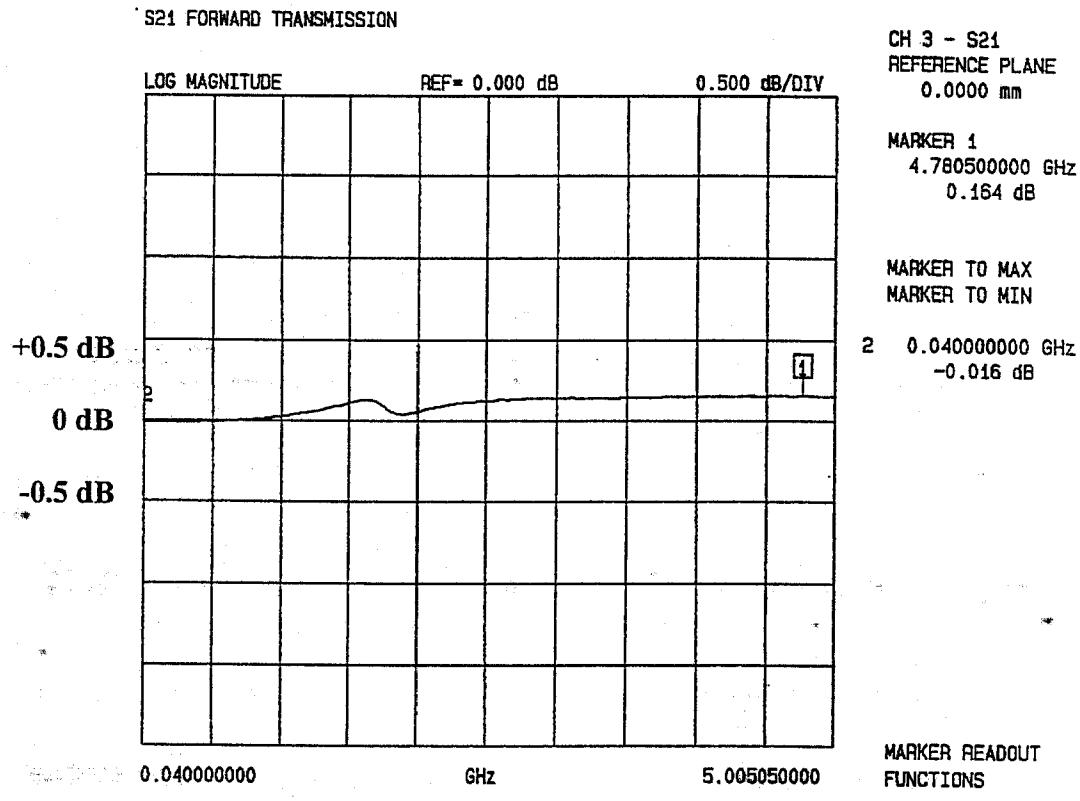
SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J4



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
4.78 GHZ	0.164 dB	
40 MHz		-0.016 dB

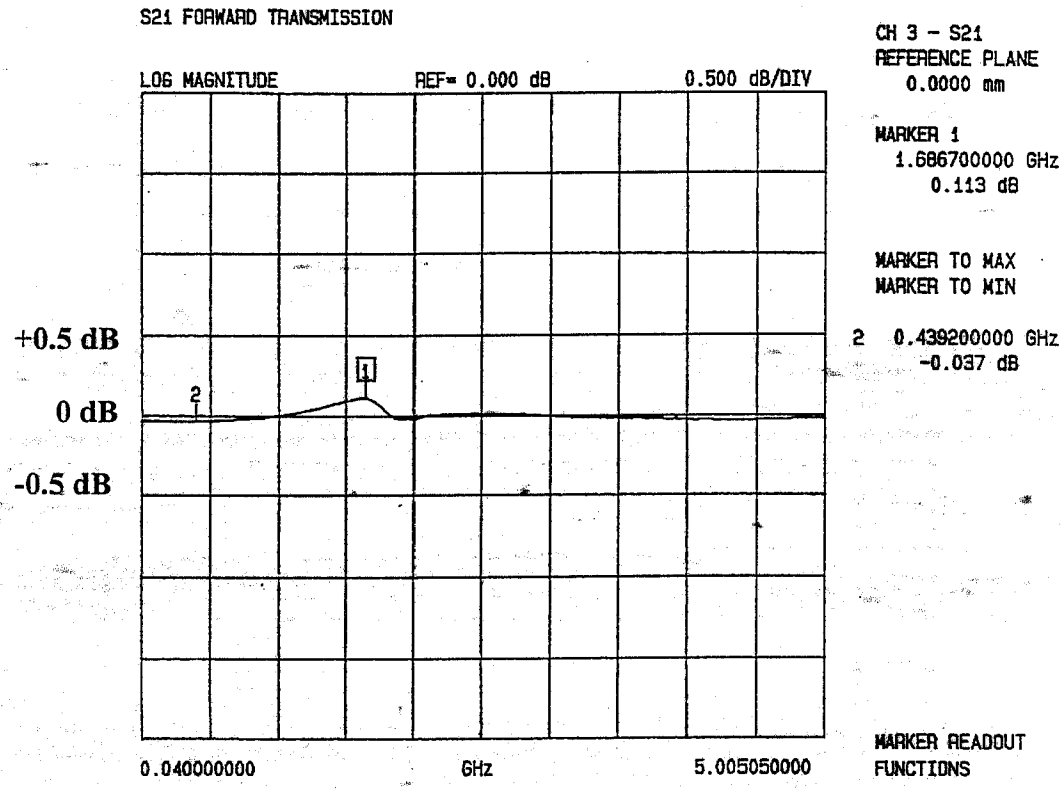
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J5



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
1.68 GHZ	0.113 dB	
439 MHz		-0.037 dB

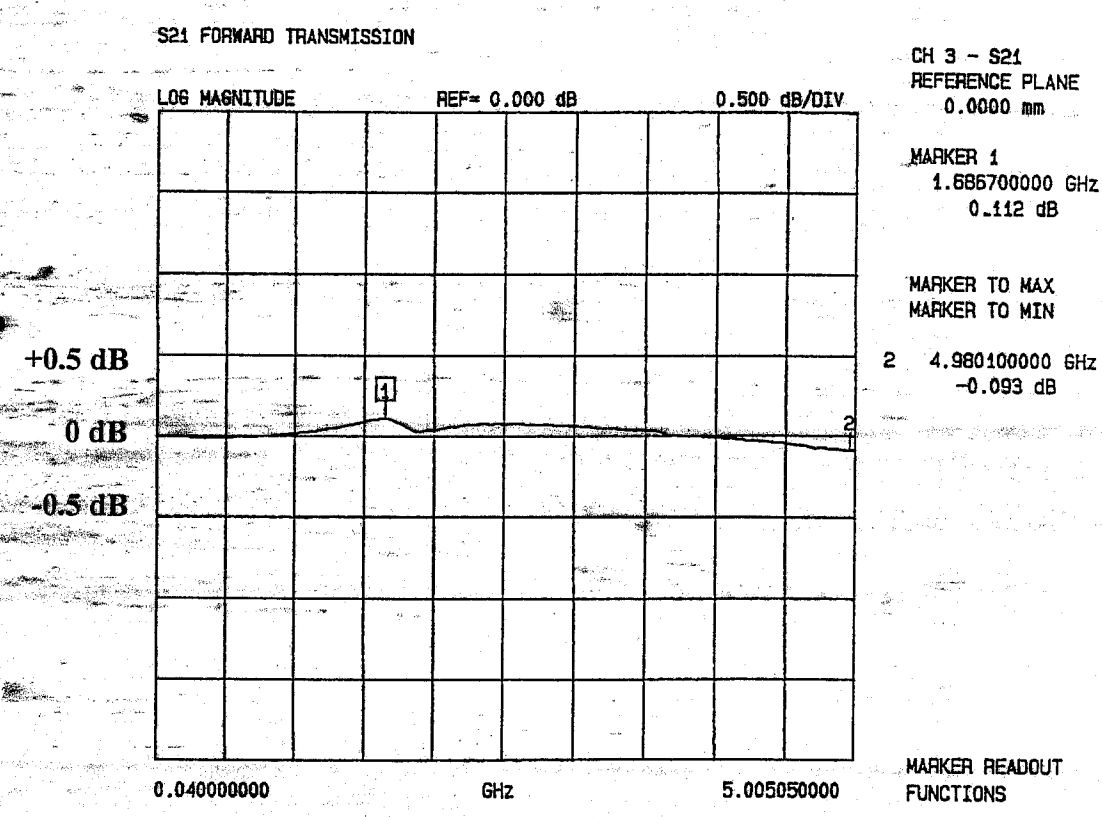
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J6



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
1.68 GHZ	0.112 dB	
4.98 GHz		-0.093 dB

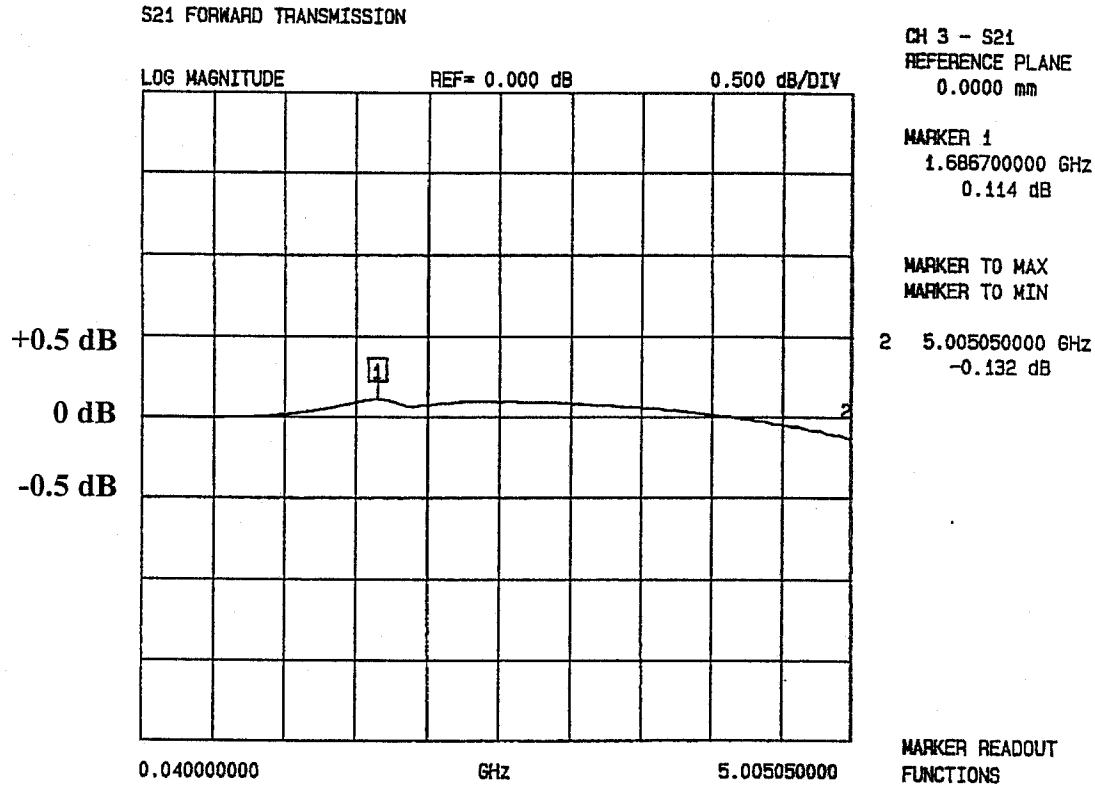
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J7



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
1.68 GHZ	0.114 dB	
5.00 GHz		-0.132 dB

SEPTEMBER 15, 1999

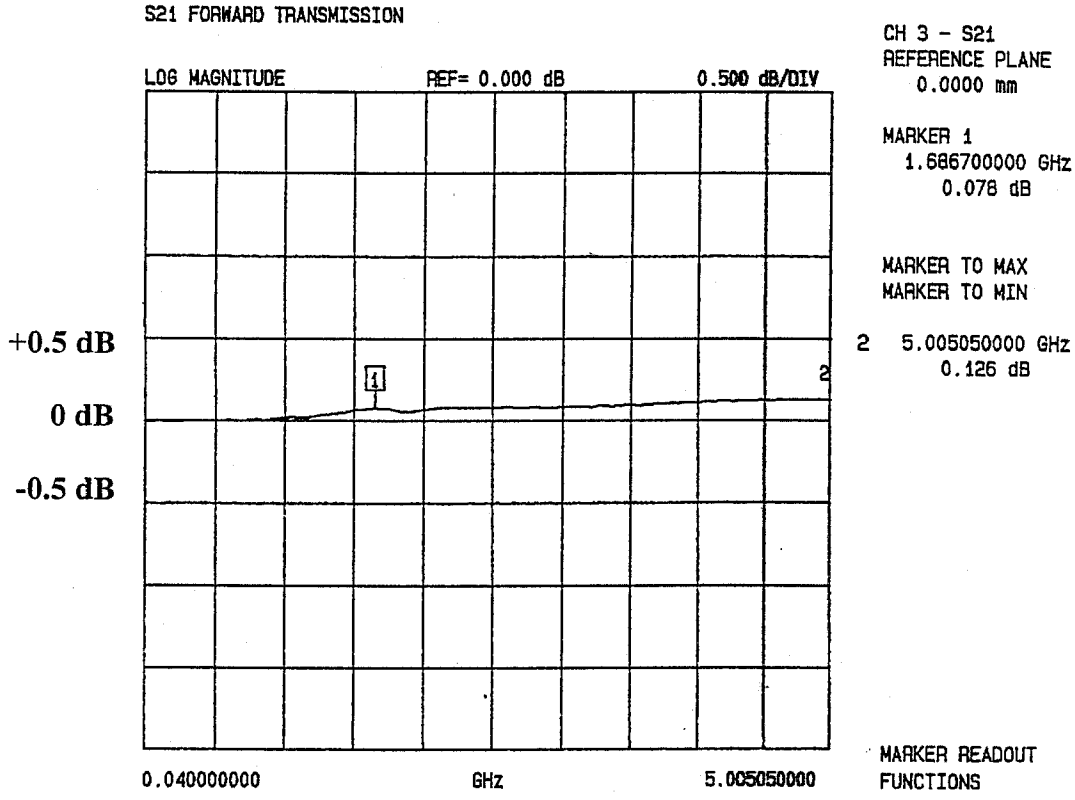
SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J8



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
1.68 GHZ	0.078 dB	
5.00 GHz	0.126 dB	

SEPTEMBER 15, 1999

AMERICAN MICROWAVE CORPORATION

PHASE

DATA

BETWEEN

PORT TO PORT

FROM

40 MHz TO 5 GHz

ON A

SP8T

RADIAL SOLID STATE SWITCH
(SURFACE MOUNTABLE)

AMC MODEL No:
MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004
(Serial Number: 8MS90646)

REPORTED AND PREPARED
BY
RENE AFABLE

SEPTEMBER 15, 1999

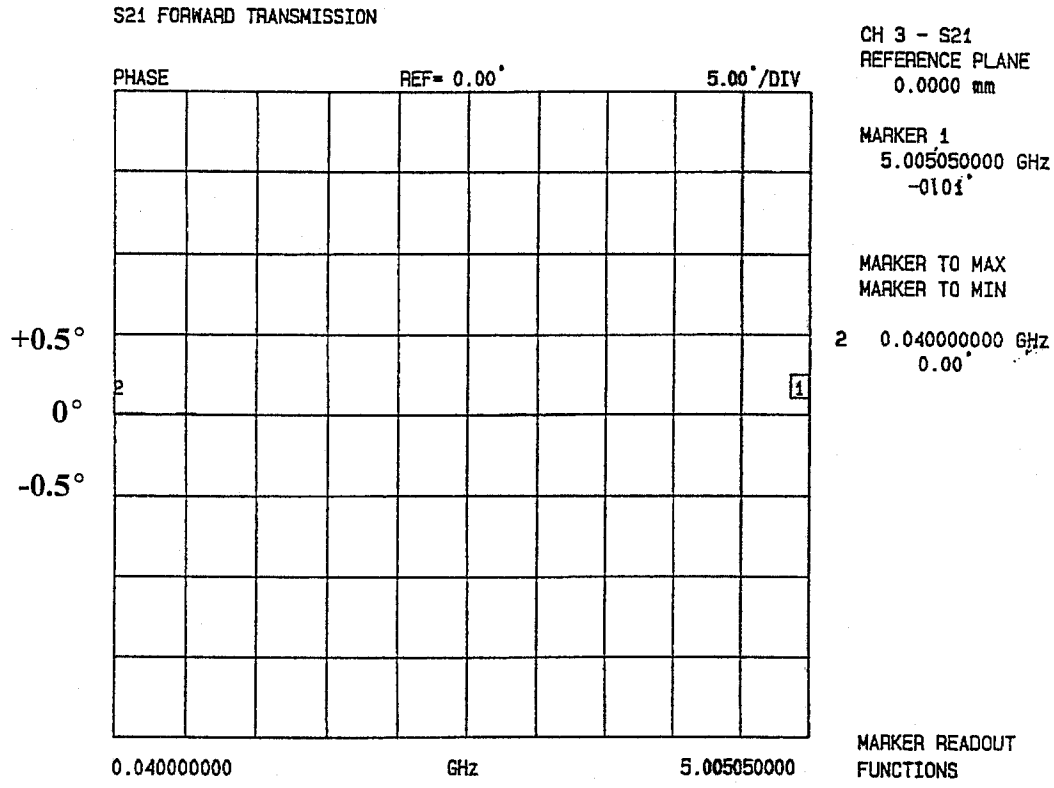
7311 G GROVE ROAD, FREDERICK, MARYLAND 21704 • Tel. (301) 662-4700 • Fax (301) 662-4938

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*

J9-J1 (REFERENCE)



*J9: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
40 MHZ		-0.01°
5.00 GHz	0.00°	

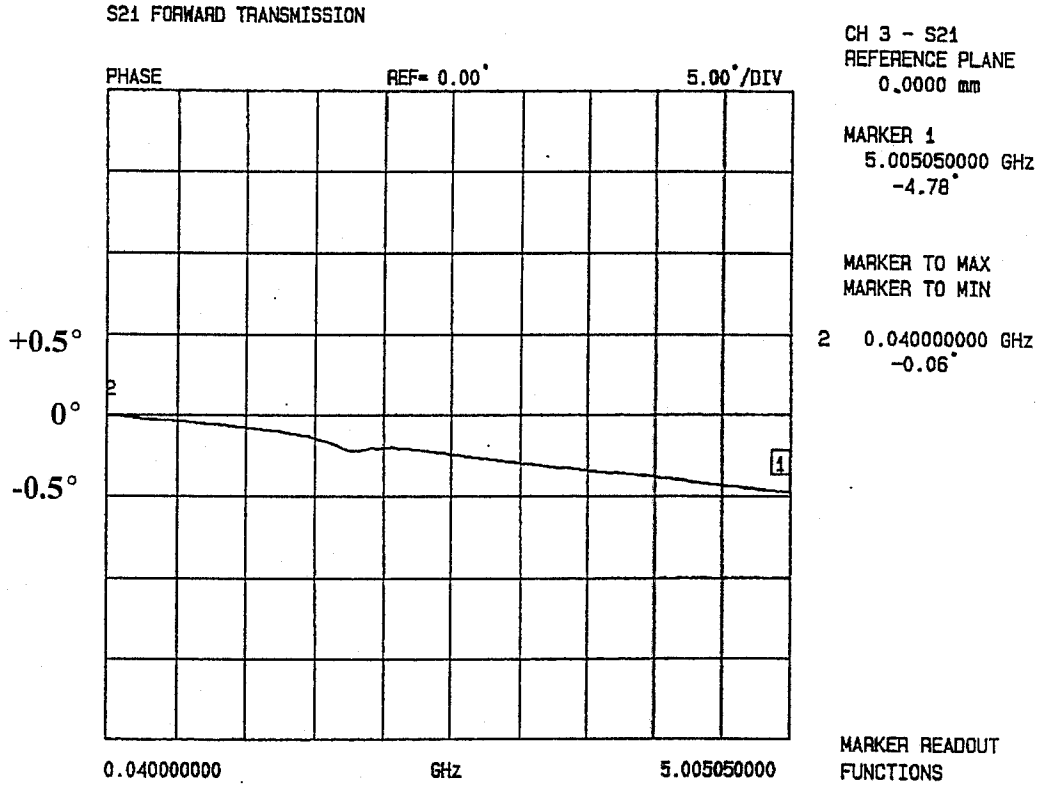
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*

J9-J2



*J9: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
40 MHZ		-0.06°
5.00 GHz		-4.78°

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004

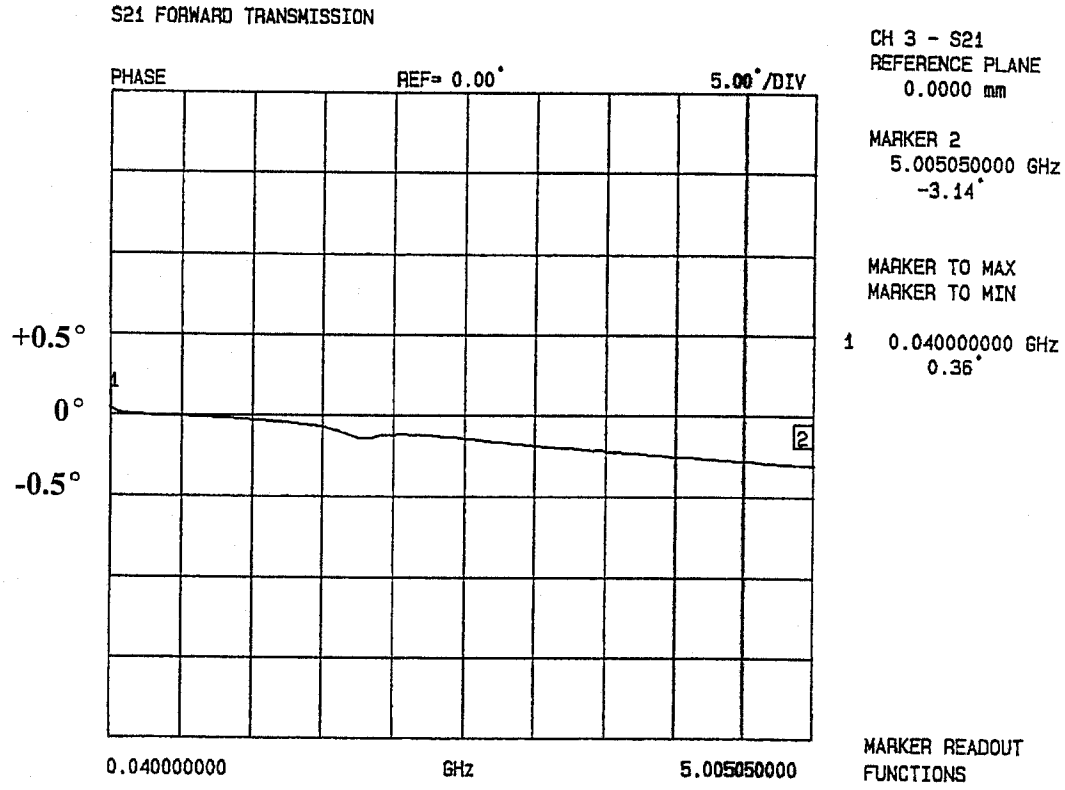
SERIAL NUMBER : 8MS90646

ENGINEER : RENE AFABLE

VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*

J9-J3



*J9: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
40 MHZ	0.36°	
5.00 GHz		-3.14°

SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004

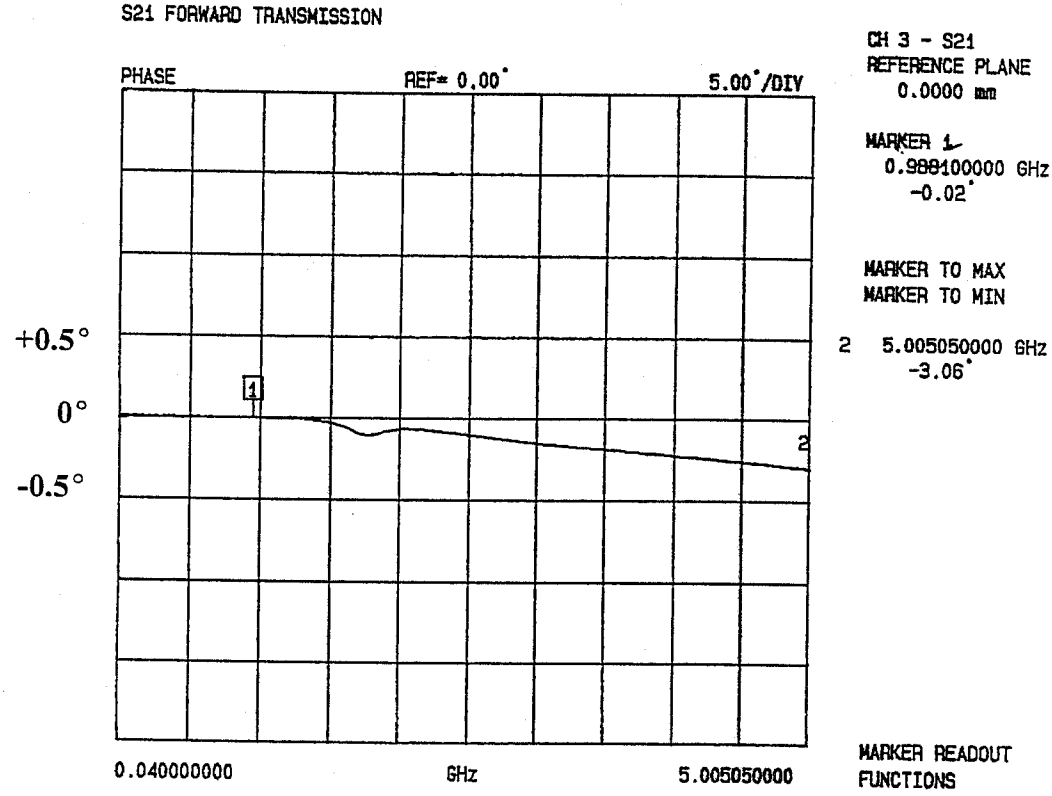
SERIAL NUMBER : 8MS90646

ENGINEER : RENE AFABLE

VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*

J9-J4



*J9: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
988 MHZ		-0.02°
5.00 GHz		-3.06°

SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004

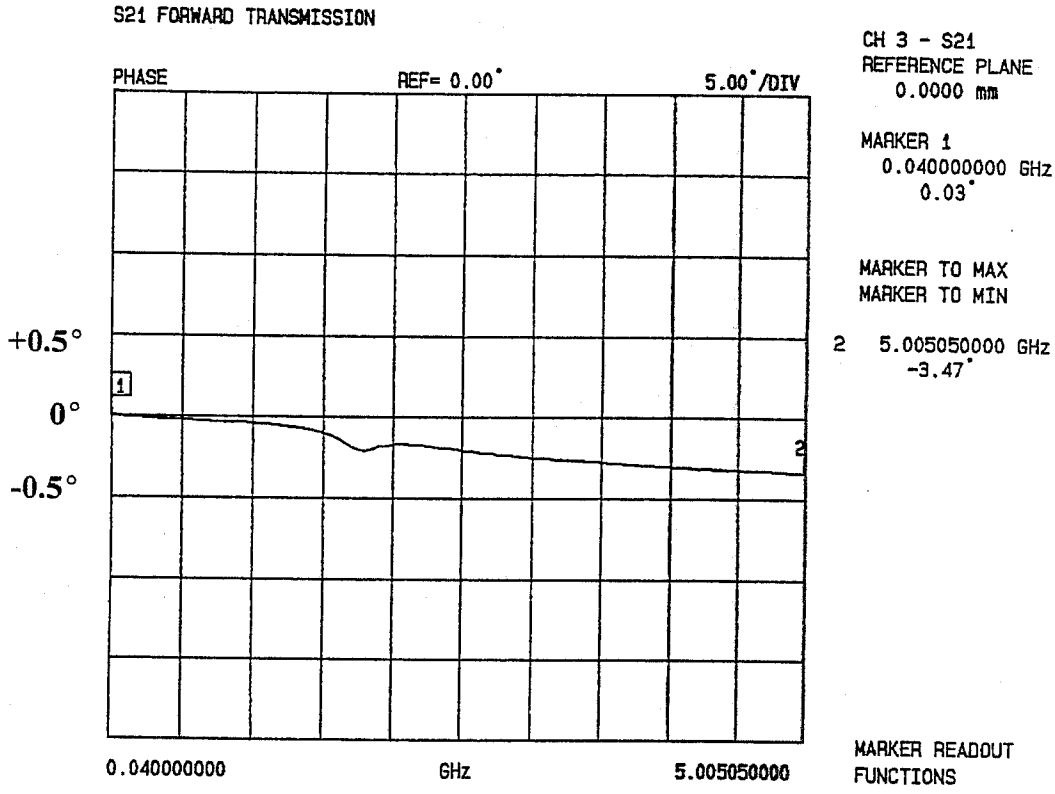
SERIAL NUMBER : 8MS90646

ENGINEER : RENE AFABLE

VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*

J9-J5



*J9: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
40 MHZ	0.03°	
5.00 GHz		-3.47°

SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004

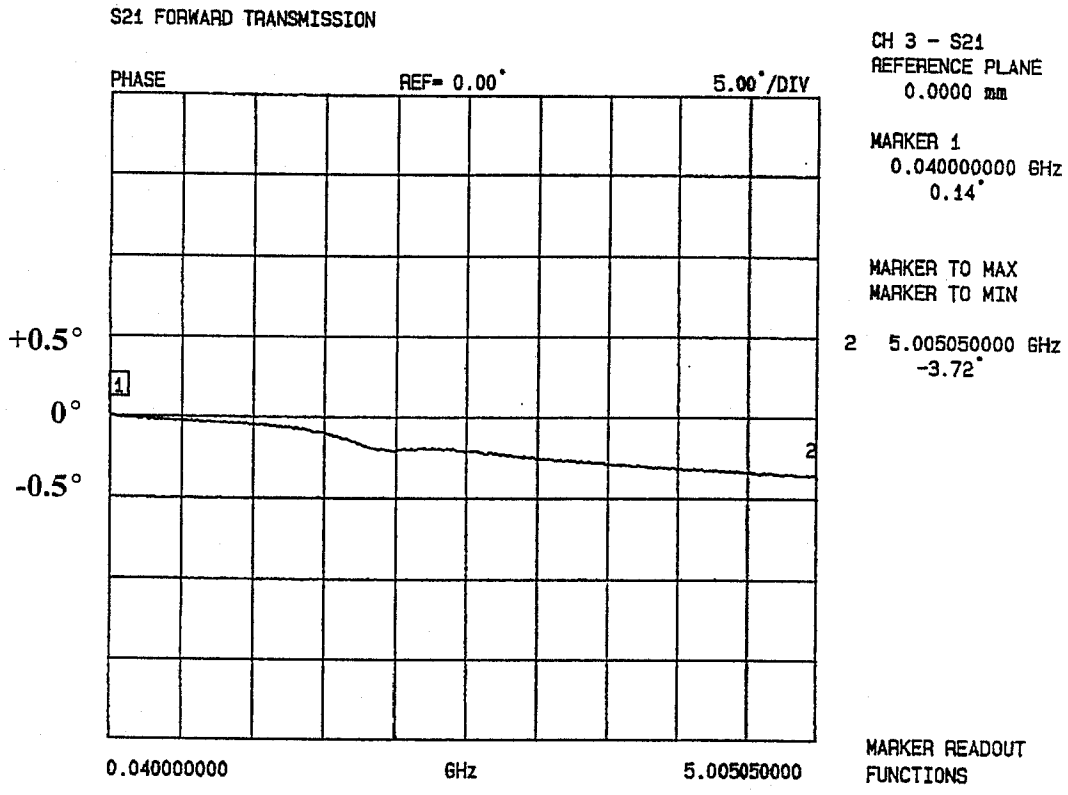
SERIAL NUMBER : 8MS90646

ENGINEER : RENE AFABLE

VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*

J9-J6



*J9: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
40 MHZ	0.14°	
5.00 GHz		-3.72°

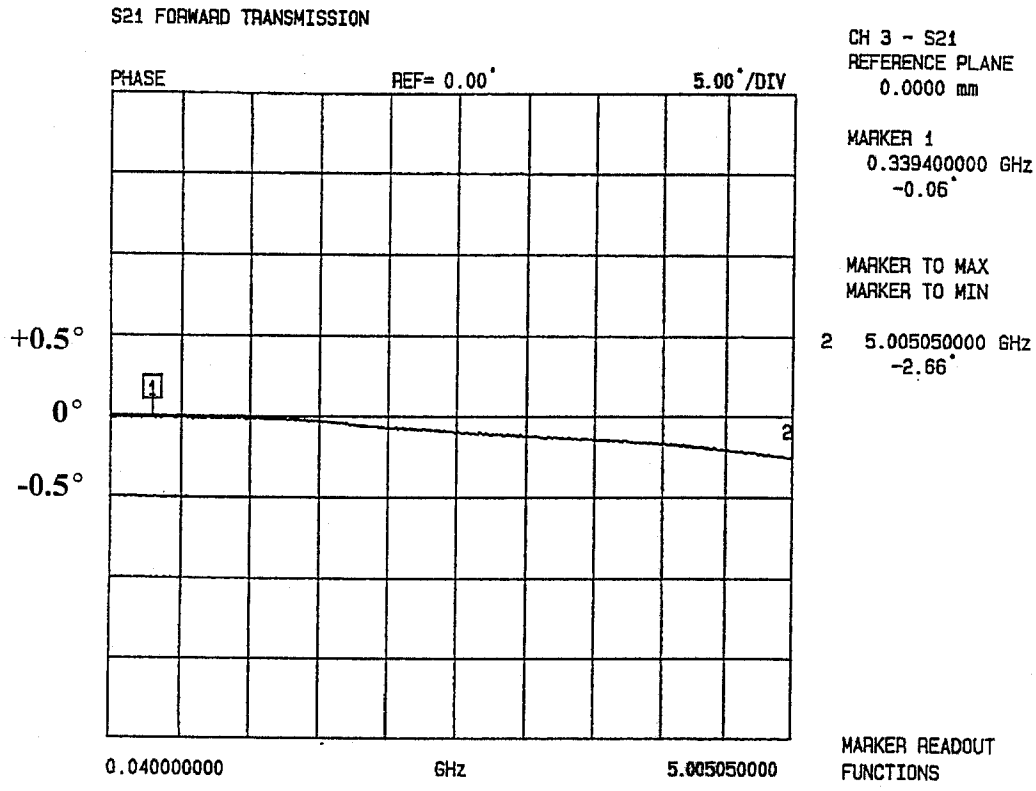
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*
J9-J7



*J9: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
339 MHZ		-0.06°
5.00 GHz		-2.66°

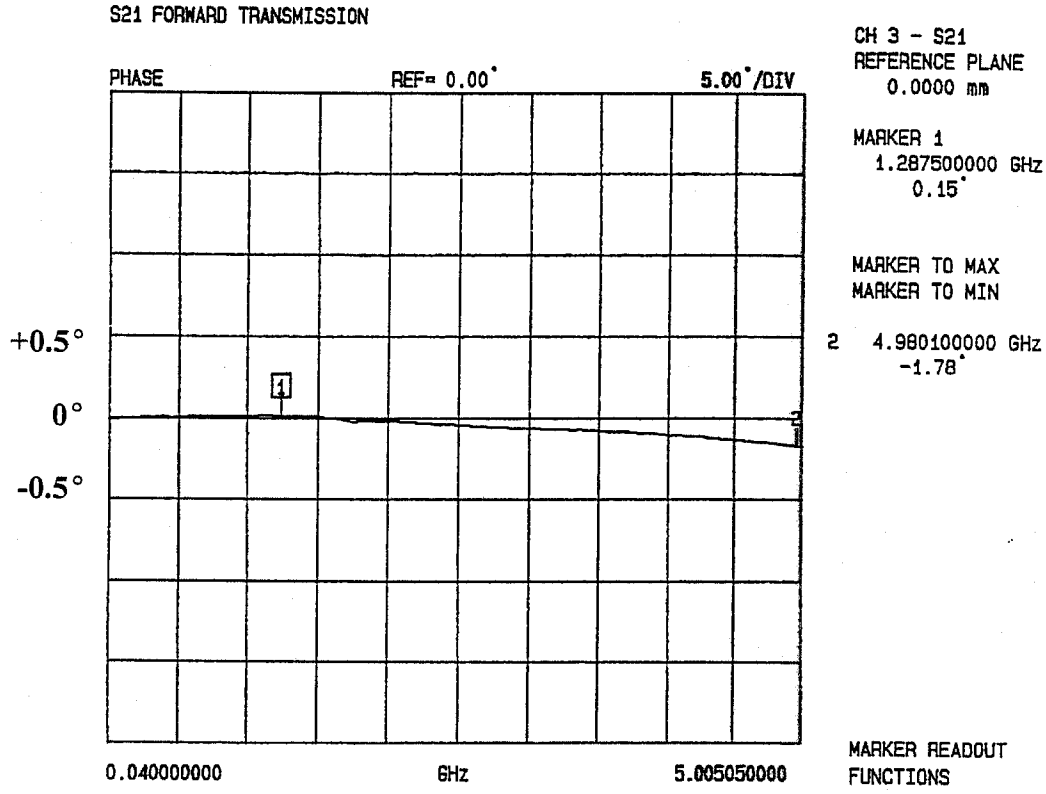
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*

J9-J8



*J9: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
1.28 GHZ	0.15°	
4.98 GHz		-1.78°

SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

SWITCHING SPEED

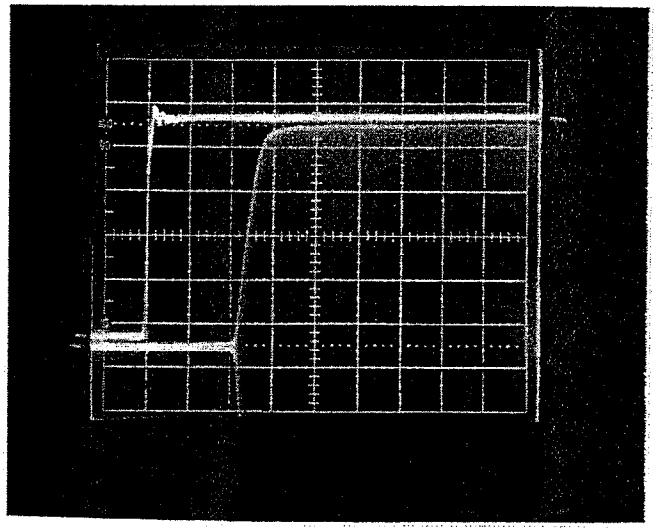
"Rise/Fall" Time: 10% RF to 90% RF & 90% RF to 10% RF
"On/Off" Time: 50% TTL to 90% RF or 10% RF

TYPICAL OF ALL ARMS

"DELAY ON": 135 nS
"RISE TIME": 25 nS

HORIZONTAL SCALE:
50 nS PER DIVISION

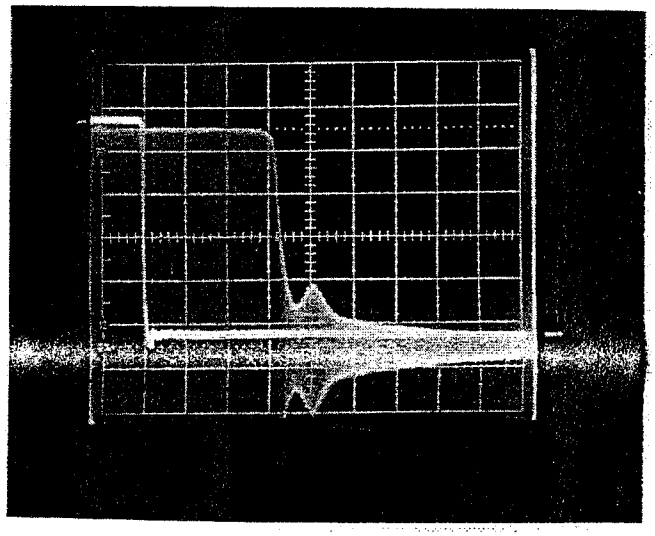
VERTICAL SCALE:
10 mV PER DIVISION



"DELAY OFF": 250nS
"FALL TIME": 100 nS

HORIZONTAL SCALE:
50 nS PER DIVISION

VERTICAL SCALE:
10 mV PER DIVISION



SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

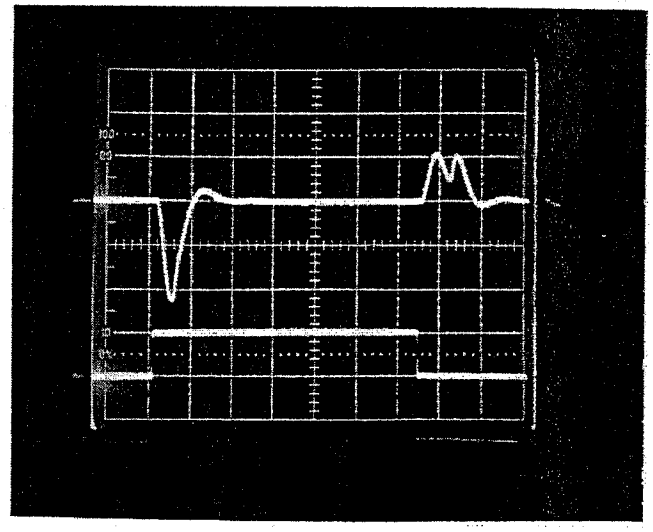
VIDEO TRANSIENTS

TYPICAL OF ALL ARMS

≤3.4 V P-P
MEASURED IN A
300 MHZ BANDWIDTH

VERTICAL SCALE:
1 V PER DIVISION

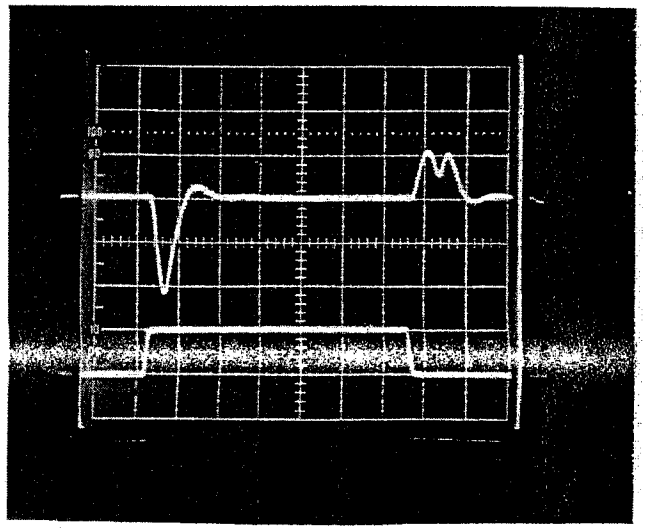
HORIZONTAL SCALE:
0.2 uS PER DIVISION



≤3.25 V P-P
MEASURED IN A
20 MHZ BANDWIDTH

VERTICAL SCALE:
1 V PER DIVISION

HORIZONTAL SCALE:
0.2 uS PER DIVISION



SEPTEMBER 15, 1999

AMERICAN MICROWAVE CORPORATION

APPENDIX A

MISCELLANEOUS

TEST DATA AND PLOTS

ON

ISOLATION

AS

MEASURED

ON A SCALAR NETWORK

ANALYZER

(NOISE FLOOR OF SCALAR NETWORK ANALYZER IS -70 dB)

ON A

SP8T

RADIAL SOLID STATE SWITCH

(SURFACE MOUNTABLE)

AMC MODEL No:
MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004

(Serial Number: 8MS90646)

FROM 10 MHz TO 12 GHz

REPORTED AND PREPARED
BY
RENE AFABLE

SEPTEMBER 15, 1999

7311 G GROVE ROAD, FREDERICK, MARYLAND 21704 • Tel. (301) 662-4700 • Fax (301) 662-4938

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646

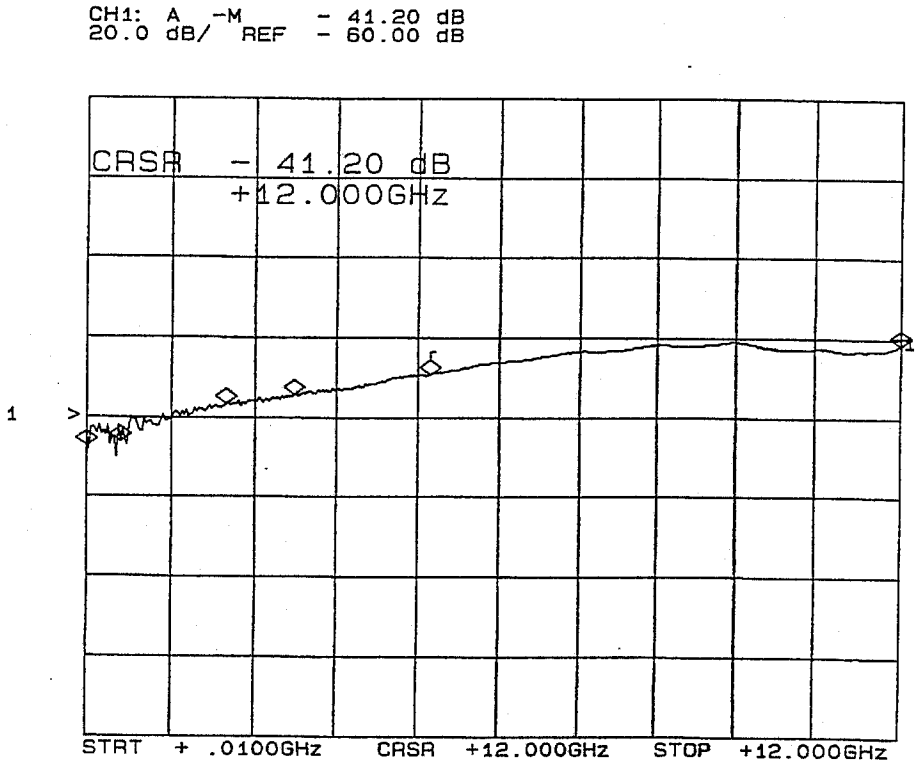
ENGINEER : RENE AFABLE

VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J9-J1



*J9: INPUT ARM

FREQUENCY	ISOLATION
10 MHz	67.2 dB
500 MHz	65.8 dB
2.0 GHz	56.4 dB
3.0 GHz	53.8 dB
5.0 GHz	49.0 dB
12.0 GHz	41.2 dB

SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646

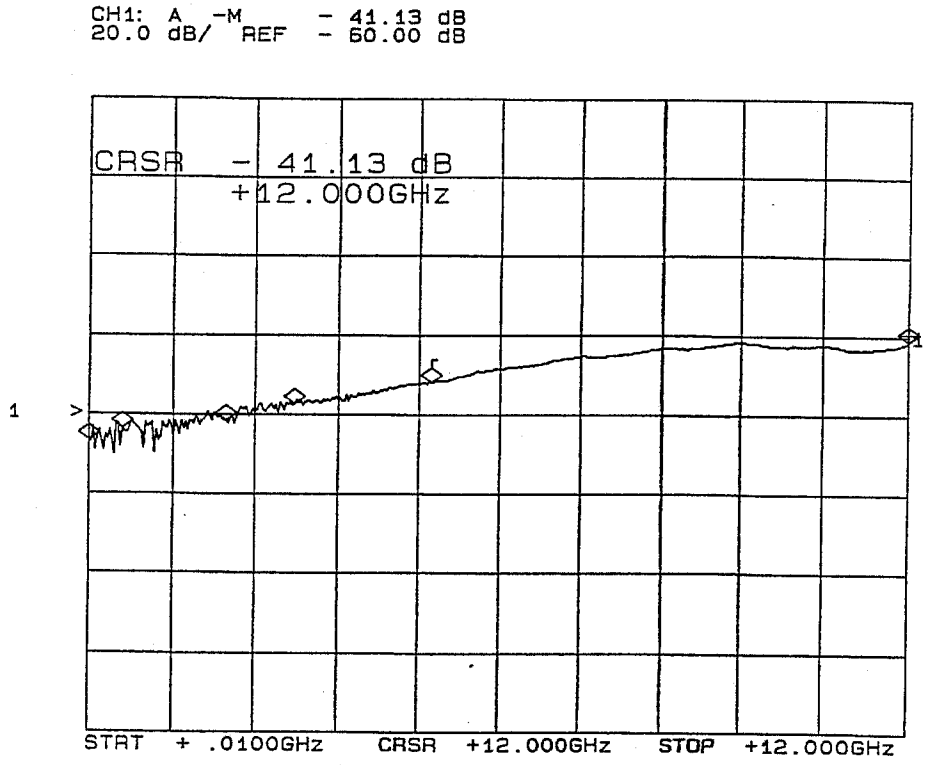
ENGINEER : RENE AFABLE

VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J9-J2



*J9: INPUT ARM

FREQUENCY	ISOLATION
10 MHz	66.4 dB
500 MHz	63.2 dB
2.0 GHz	61.4 dB
3.0 GHz	56.9 dB
5.0 GHz	51.5 dB
12.0 GHz	41.1 dB

SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 10M5, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646

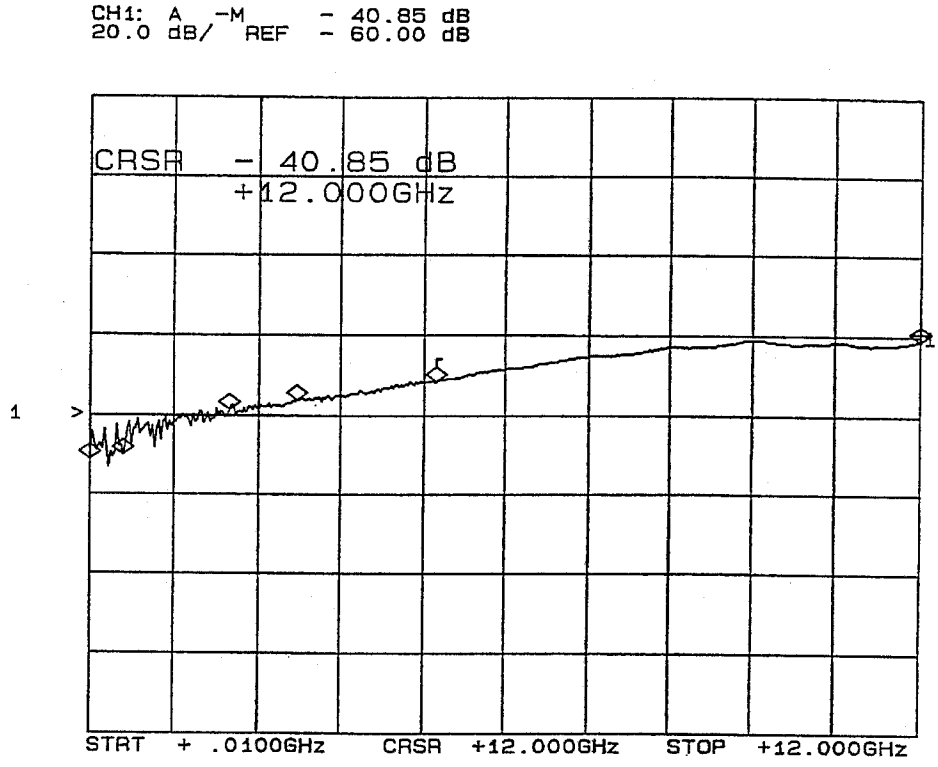
ENGINEER : RENE AFABLE

VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J9-J3



*J9: INPUT ARM

FREQUENCY	ISOLATION
10 MHz	71.1 dB
500 MHz	69.7 dB
2.0 GHz	58.3 dB
3.0 GHz	56.1 dB
5.0 GHz	51.5 dB
12.0 GHz	40.8 dB

SEPTEMBER 15, 1999

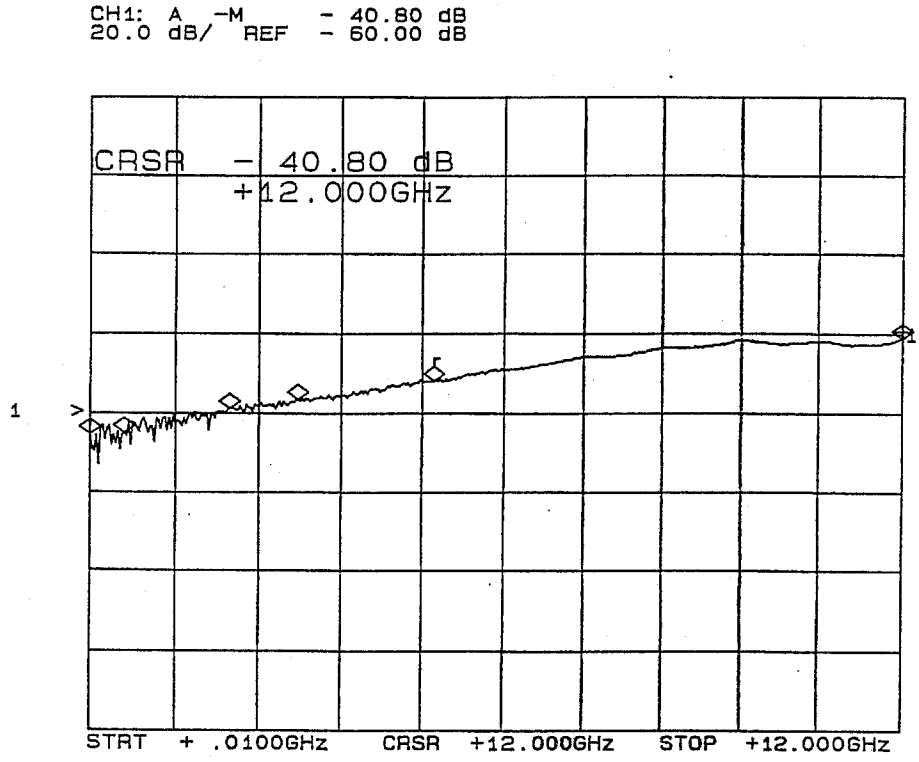
SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J9-J4



*J9: INPUT ARM

FREQUENCY	ISOLATION
10 MHz	65.1 dB
500 MHz	64.9 dB
2.0 GHz	58.6 dB
3.0 GHz	56.3 dB
5.0 GHz	51.9 dB
12.0 GHz	40.8 dB

SEPTEMBER 15, 1999

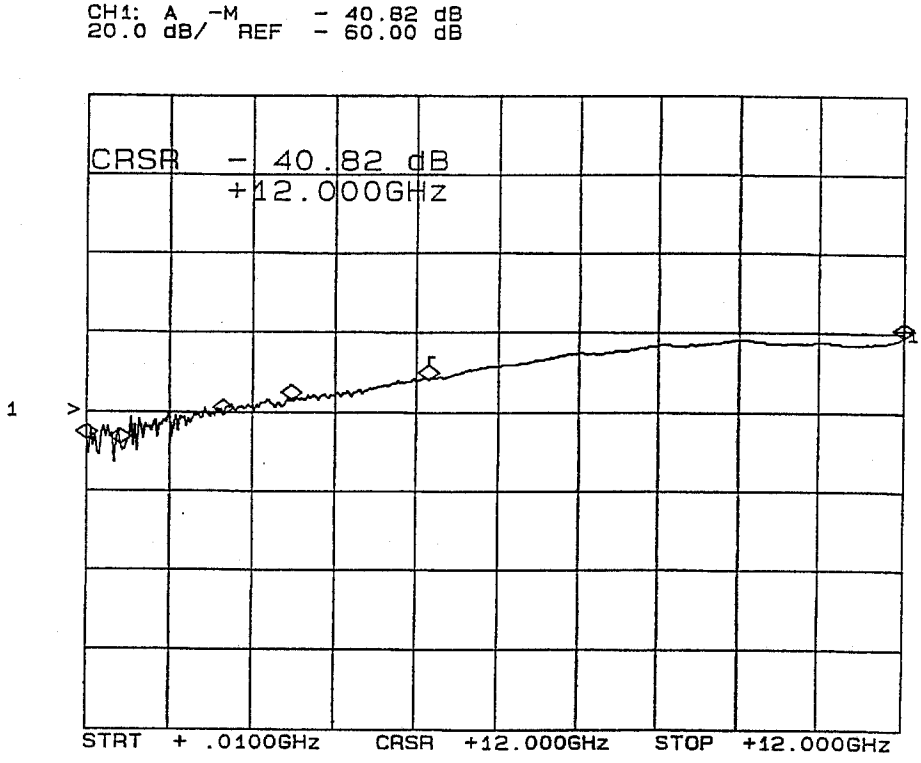
SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J9-J5



***J9: INPUT ARM**

FREQUENCY	ISOLATION
10 MHz	66.7 dB
500 MHz	68.0 dB
2.0 GHz	60.4 dB
3.0 GHz	56.5 dB
5.0 GHz	51.7 dB
12.0 GHz	40.8 dB

SEPTEMBER 15, 1999

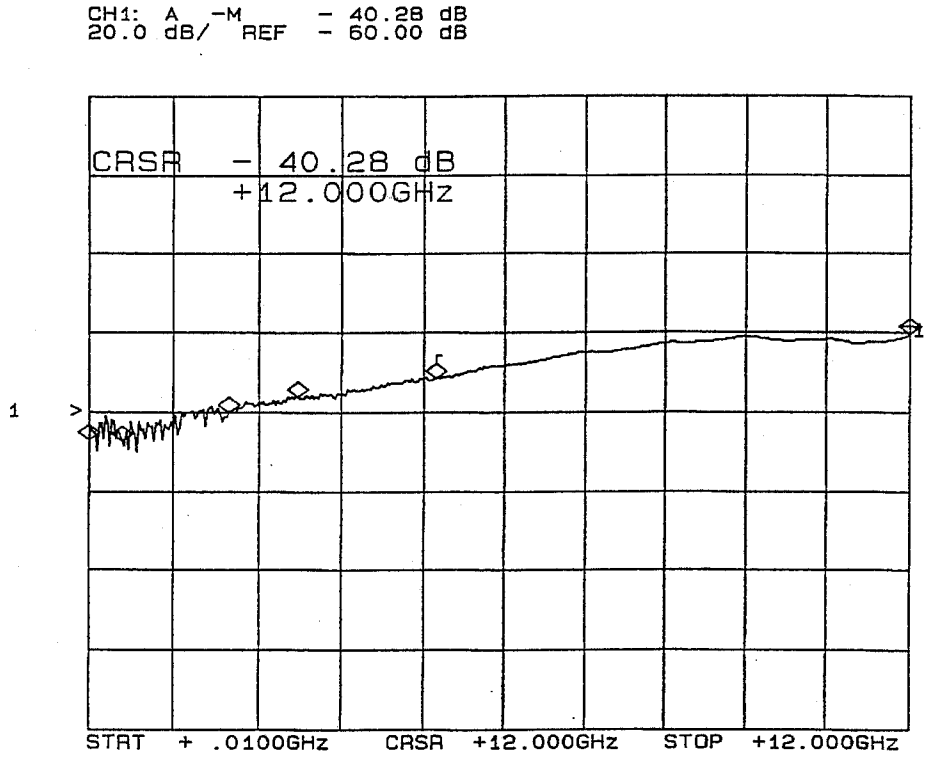
SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J9-J6



*J9: INPUT ARM

FREQUENCY	ISOLATION
10 MHz	66.6 dB
500 MHz	66.9 dB
2.0 GHz	59.7 dB
3.0 GHz	55.7 dB
5.0 GHz	51.3 dB
12.0 GHz	40.2 dB

SEPTEMBER 15, 1999

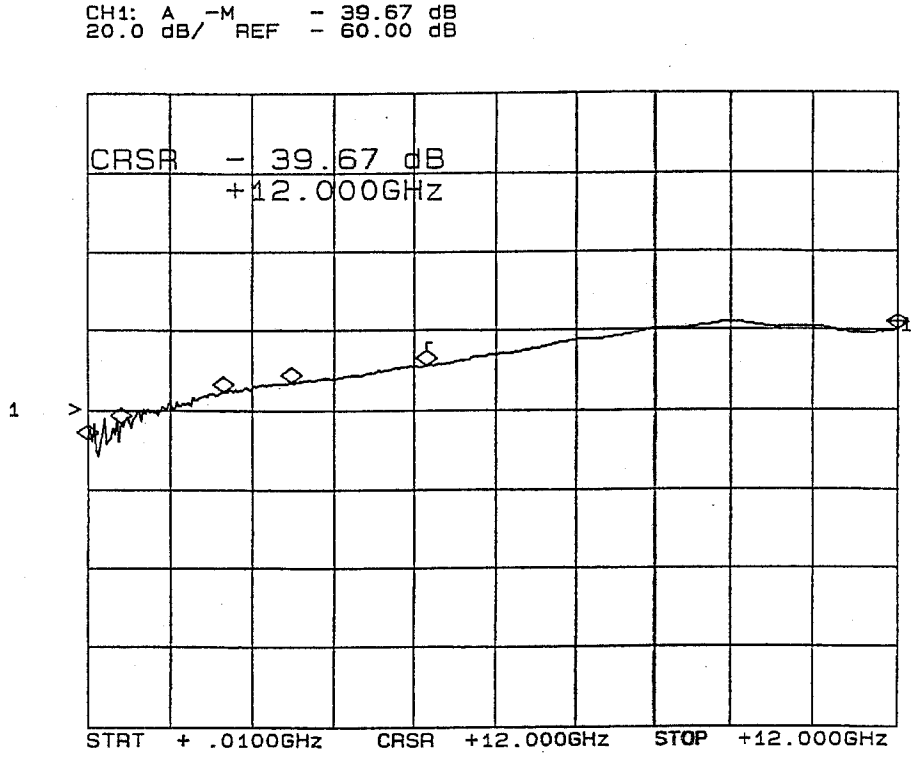
SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J9-J7



*J9: INPUT ARM

FREQUENCY	ISOLATION
10 MHz	66.9 dB
500 MHz	62.9 dB
2.0 GHz	55.3 dB
3.0 GHz	52.9 dB
5.0 GHz	48.7 dB
12.0 GHz	39.6 dB

SEPTEMBER 15, 1999

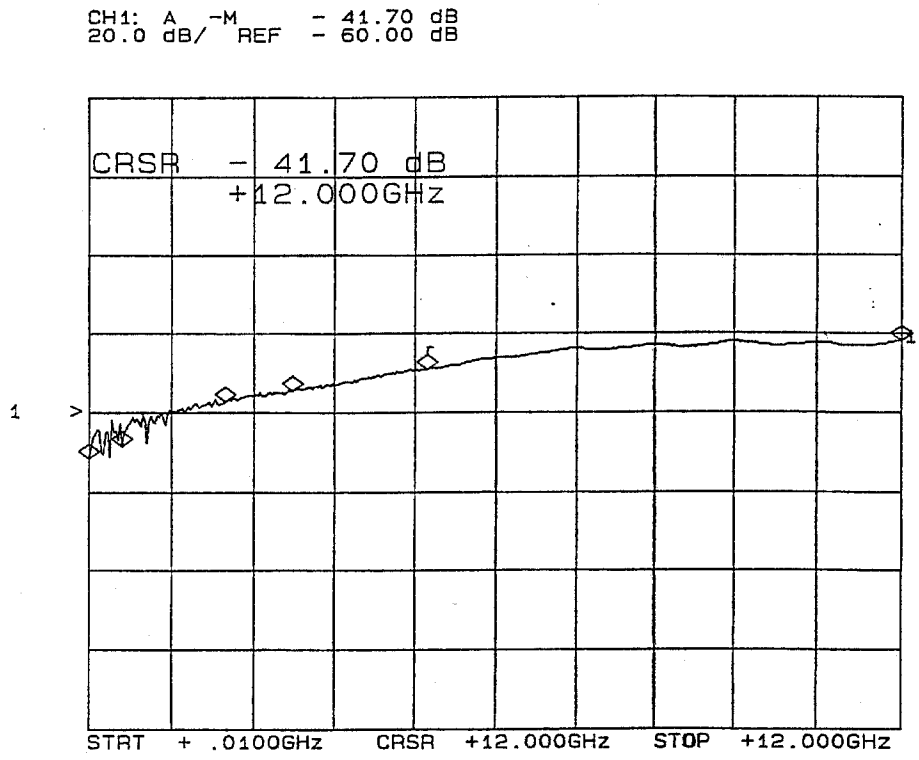
SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 10M5, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J9-J8



*J9: INPUT ARM

FREQUENCY	ISOLATION
10 MHz	71.1 dB
500 MHz	68.4 dB
2.0 GHz	56.9 dB
3.0 GHz	54.3 dB
5.0 GHz	49.1 dB
12.0 GHz	41.7 dB

SEPTEMBER 15, 1999

AMERICAN MICROWAVE CORPORATION

TEST DATA

FROM 70 MHz TO 1.5 GHz
(10 MHz TO 18 GHz OPTIONAL)

SLIMLINE

LOW INSERTION LOSS

AMPLITUDE (±0.5 dB) AND PHASE (±5°) MATCHED

MINIATURE REFLECTIVE

SP8T

RADIAL SOLID STATE SWITCH
(SURFACE MOUNTABLE)

AMC MODEL No:
MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004
(Serial Number: 8MS90646) (Page 51 to 101)

REPORTED AND PREPARED
BY
RENE AFABLE

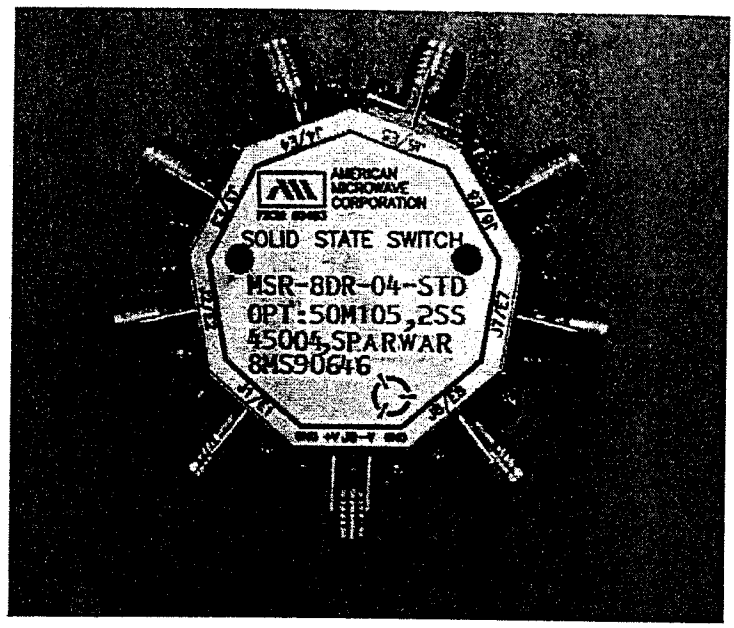
SEPTEMBER 15, 1999

WEB PAGE: HTTP://WWW.AMWAVE.COM E-MAIL ADDRESS: AMCPMI@AOL.COM

7311 G GROVE ROAD, FREDERICK, MARYLAND 21704 • Tel. (301) 662-4700 • Fax (301) 662-4938

AMERICAN MICROWAVE CORPORATION

SP8T REFLECTIVE RADIAL SOLID STATE SWITCH



KEY FEATURES

- 70 MHz TO 1.5 GHz (10MHz to 18GHz optional)
- SLIMLINE
- LOW INSERTION LOSS
- MINIATURE
- TTL LOGIC COMPATIBLE

AMC MODEL No: MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

SPECIFICATIONS: (REFLECTIVE)

• FREQUENCY RANGE	:	70 MHz to 1.5 GHz (10MHz to 18GHz Optional)
• INSERTION LOSS	:	1.6 dB MAX.
	:	0.90 dB TYP. @ 70 MHz
	:	0.90 dB TYP. @ 500 MHz
	:	0.95 dB TYP. @ 1.0 GHz
	:	1.25 dB TYP. @ 1.5 GHz
• ISOLATION	:	≥ 55 dB MIN.
	:	≥ 65 dB TYP. @ 70 MHz
	:	≥ 60 dB TYP. @ 500 MHz
	:	≥ 60 dB TYP. @ 1.0 GHz
	:	≥ 55 dB TYP. @ 1.5 GHz
• VSWR	:	2.0:1
• SWITCHING SPEED	:	"RISE" 50nS MAX., 25nS TYP.
	:	"FALL" 150nS MAX., 120nS TYP.
	:	"ON" 150nS MAX., 130nS TYP.
	:	"OFF" 300nS MAX., 250nS TYP.
• CONTROL	:	Independent TTL Compatible (3 Bit Decoder available)
• VIDEO TRANSIENTS	:	≤3.4 V Peak to Peak, 300 MHZ Bandwidth
	:	≤3.25 V Peak to Peak, 20 MHZ Bandwidth
• RF INPUT POWER	:	+20dBm Operating, 1 Watt Survival (Other power Levels available)
• DC POWER SUPPLY (Other supply voltages available)	:	+5vdc @ +25mA MAX. - 5vdc @ - 75mA MAX.
• SIZE	:	1.5" Dia. circle point to point X 0.40" (H)
• WEIGHT	:	≤ 2.5 oz.

SEPTEMBER 15, 1999

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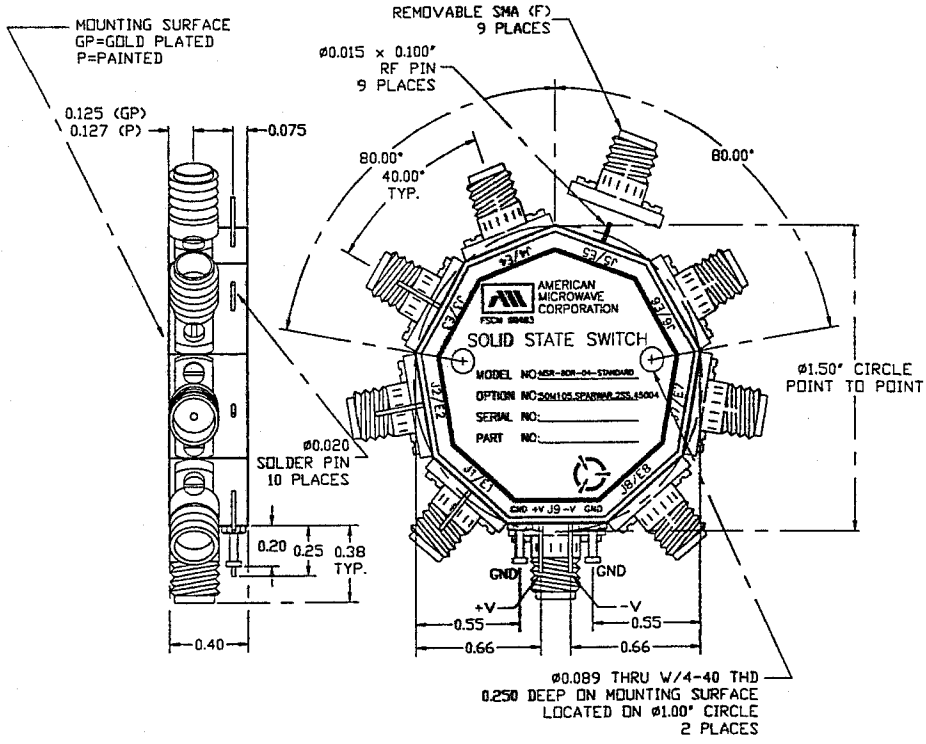
SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA



ALL DIMENSIONS ARE IN INCHES
TOLERANCES:

X.XX	±0.020
X.XXX	±0.010

ENVIRONMENTAL RATINGS:

- TEMPERATURE:..... -55°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.

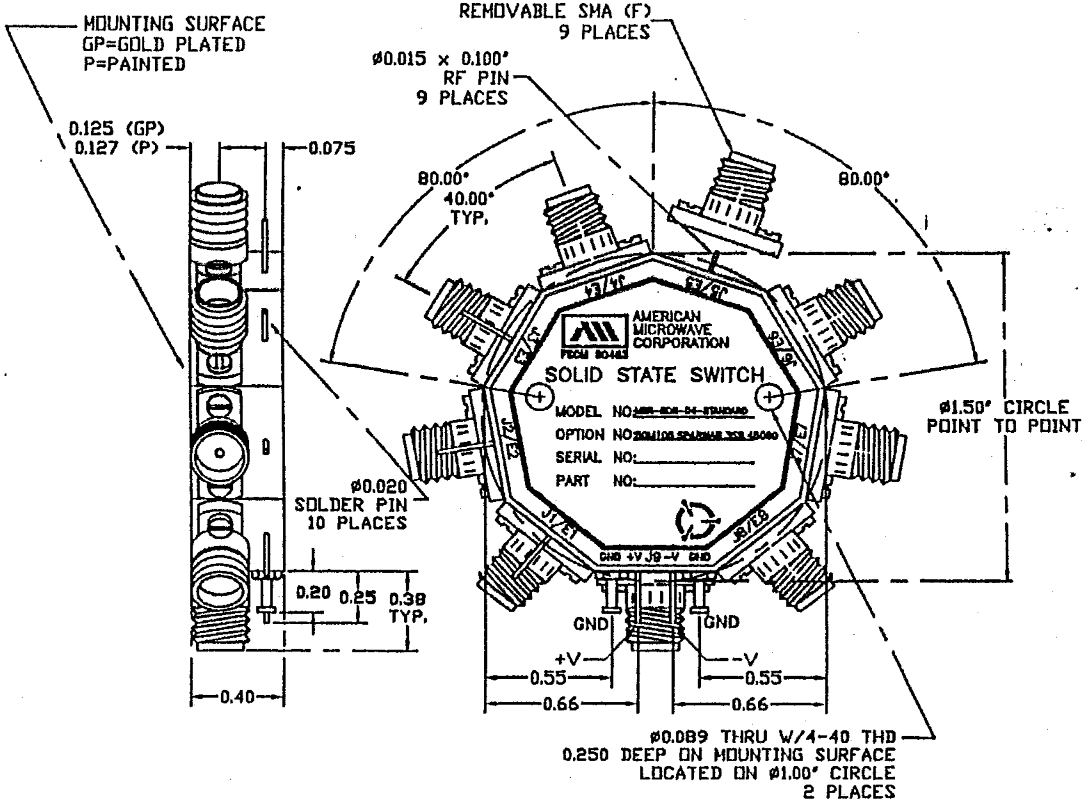
SEPTEMBER 15, 1999

ZONE	REV.	REVISIONS DESCRIPTION	DATE	APPROVED
	—	ORIGINAL RELEASE	0/-8/00	

DESCRIP[illegible]
AMC MODEL [illegible]R-04-STANDARD OPTIONS 50M105, SPARWAR, 3SS, 45060 IS A SINGLE POLE EIGHT THROW, REFLECTIVE SWITCH MODULE WITH PHASE AND AMPLITUDE BALANCE OF ±5° AND ±0.5dB RESPECTIVELY, LOW LOSS, AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR NARROW BAND.

SPECIFICATIONS:

- FREQUENCY: .... 50 MHz TO 1500 MHz
- INSERTION LOSS: ..... REFLECTIVE: 1.6 dB
- ISOLATION: .... 60dB MINIMUM
- VSWR: .... REFLECTIVE IN/OUT: 2.0:1
- SPEED: .... DELAY ON: 2uSec MAXIMUM
  DELAY OFF: 2uSec MAXIMUM
- POWER INPUT: .... +15dBm MAXIMUM
- OPERATING
  TEMPERATURE RANGE: 0 TO +70° C
- RF CONNECTORS: ..... SMA FEMALE
- POWER/LOGIC
  CONNECTORS: .... SOLDER PINS
- CONTROL: .... TTL COMPATIBLE LOGIC "0"=ON "1"=OFF
- POWER SUPPLY: ...... +5V @ 480 mA MAX.
  -5V @ 160mA MAX.(RELECTIVE)
- PHASE BALANCE: ...... ±3° TO 1000 MHz
  ±5° TO 1500 MHz
- AMPLITUDE BALANCE: ... ±5 dB
- SIZE .... ø1.500 CIRCLE POINT TO POINT X 0.400 (H)
- WEIGHT .... 2.5 OUNCES TYPICAL



NOTE:

DR=WITH DRIVER, REFLECTIVE

DT=WITH DRIVER, NON-REFLECTIVE/ABSORPTIVE

ENVIRONMENTAL RATINGS:

- TEMPERATURE: .... 0°C TO +70°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

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

PART NO.		
APPROVALS		DATE
DRAWN	WSP, RRA	8/28/00
CHECKED	WP	9/2/99
ISSUED	[illegible]	9/2/99

AMERICAN MICROWAVE CORPORATION
FREDERICK, MARYLAND

TITLE: OUTLINE DRAWING
MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 3SS, 45060
REFLECTIVE SOLID STATE SWITCH

SIZE	FSCM NO.	DWG NO.	REV.
A	60483	100-4191-5	—
SCALE N/S		SHEET 1 of 2	

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	–	ORIGINAL RELEASE	8/23/99	

DESCRIPT

AMC MODEL ___/DT-04-STANDARD IS A SINGLE POLE EIGHT THROW, REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SWITCH MODULE WITH LOW LOSS, HIGH SPEED AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR BROAD BAND OPERATIONS.

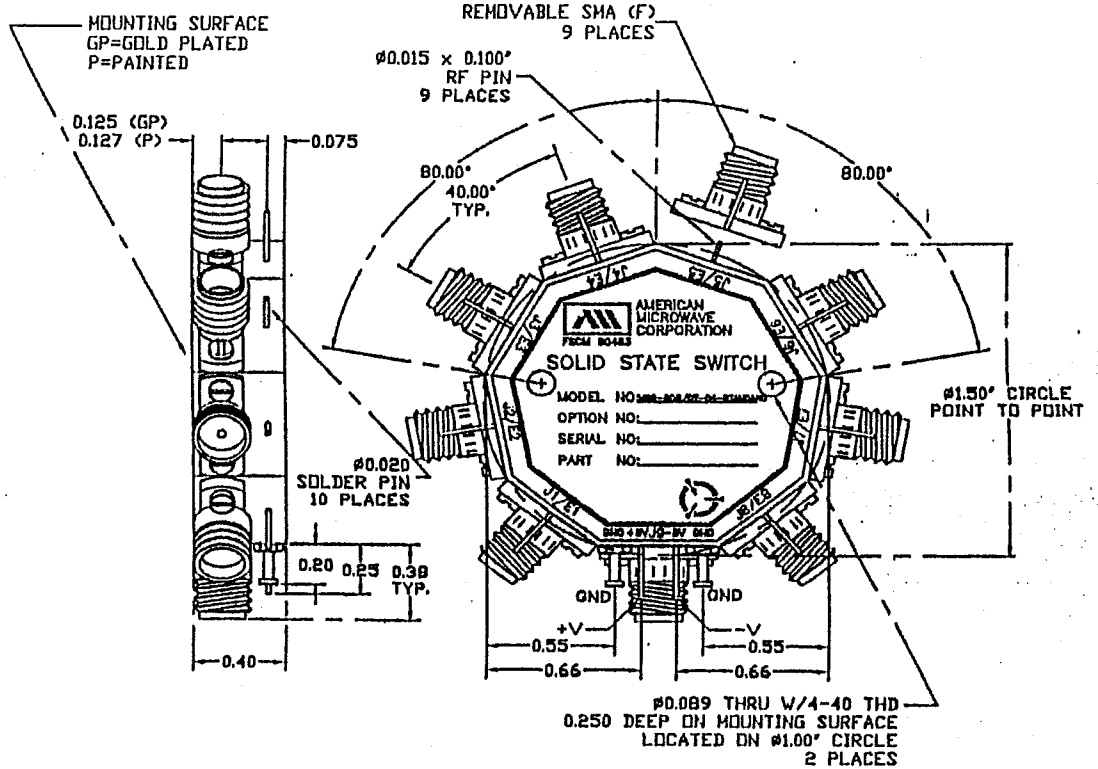
SPECIFICATIONS:

- FREQUENCY: ..... 0.5 GHz TO 18 GHz
- INSERTION LOSS: ..... REFLECTIVE: 4.0db
  ABSORPTIVE: 4.5db
- ISOLATION: ..... 0.5 GHz TO 2 GHz: 60db
  2 GHz TO 18 GHz: 70db
- VSWR: ..... REFLECTIVE IN/OUT: 2.0:1
  ABSORPTIVE IN/OUT: 2.0:1
  ABSORPTIVE OUT/OFF: 2.0:1
- SPEED: ..... RISE: 10ns TYPICAL, 15ns MAX.
  FALL: 10ns TYPICAL, 15ns MAX.
  DELAY ON: 75ns TYPICAL, 100ns MAX.
  DELAY OFF: 75ns TYPICAL, 100ns MAX.
- POWER INPUT: ..... (CW)+20dBm (STANDARD), +10 dBm (HIGH SPEED)
- SURVIVAL POWER: ..... 1 WATT CW, 10 WATTS PEAK 1 usec
- CONTROL: ..... TTL LOGIC "0"=ON "1"=OFF
- POWER SUPPLY: ..... +5V @ 400 mA MAX.
  -5V @ 75mA MAX.(RELECTIVE)
  100mA MAX.(ABSORPTIVE/NON-REFLECTIVE)
- SIZE ..... ø1.500 CIRCLE POINT TO POINT X 0.400 (H)
- WEIGHT ..... 2.5 OUNCES TYPICAL

OPTIONS:

INDEPENDENT CONTROL WITH SOLDER PIN STANDARD

DEC-SP ..... 3 BIT DECODER WITH SOLDER PIN
10M18 ..... 10 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 10 MHz AND 0.5db AT 18 GHz)
100M18 ..... 100 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 0.5db AT 18 GHz)
118 ..... 1 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
218 ..... 2 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
412 ..... 4 GHz TO 12.4 GHz (NO CHANGE IN INSERTION LOSS)
618 ..... 6 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
1218 ..... 12 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
100M20 ..... 100 MHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 1.0db AT 20 GHz)
220 ..... 2 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
1020 ..... 10 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
B01 ..... -12V POWER SUPPLIES
B02 ..... -15V POWER SUPPLIES
B03 ..... REVERSE LOGIC "1"=ON "0"=OFF
B04 ..... DRIVERLESS, CURRENT CONTROLLED
B05 ..... HIGH SPEED, TURNON/TURNOFF 20 nsec MAXIMUM WHEN APPLICABLE OR OPTION HS
B06 ..... HIGH POWER – SPECIFY CW POWER, PEAK POWER, PULSE WIDTH, DUTY CYCLE, RF FREQUENCY AND BANDWIDTH
B07 ..... CUSTOM DESIGNED PRODUCT– SPECIFY INITIALS OF CUSTOMER
B08 ..... LOW VIDEO TRANSIENTS – SPECIFY VIDEO BANDWIDTH
B09 ..... LOW INSERTION LOSS VERSION
B10 ..... HIGHER ISOLATION VERSION



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

ENVIRONMENTAL RATINGS:

- TEMPERATURE: ..... -55°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

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

PART NO.		
APPROVALS		DATE
DRAWN	WSP, RRA	8/23/99
CHECKED	WSP	8/31/99
ISSUED		8/31/99

AMERICAN MICROWAVE CORPORATION
FREDERICK, MARYLAND

TITLE: OUTLINE DRAWING
MSR-8DR/DT-04-STANDARD
REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE
SOLID STATE SWITCH

SIZE	FSCM NO.	DWG NO.	REV.
A	60483	100-4191-1	–

SCALE N/S SHEET 1 of 2

REVISIONS				
ZONE	REV.	DESCRIPTION	E	APPROVED
	–	ORIGINAL RELEASE	8/28/99	

DESCRIPT

AMC MODEL MSR-8DR/DT-04-DEC-SP IS A SINGLE POLE EIGHT THROW, REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SWITCH MODULE WITH LOW LOSS, HIGH SPEED AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR BROAD BAND OPERATIONS.

SPECIFICATIONS:

- FREQUENCY: ..... 0.5 GHz TO 18 GHz
- INSERTION LOSS: ..... REFLECTIVE: 4.0db
  ABSORPTIVE: 4.5db
- ISOLATION: ..... 0.5 GHz TO 2 GHz: 60db
  2 GHz TO 18 GHz: 70db
- VSWR: ..... REFLECTIVE IN/OUT: 2.0:1
  ABSORPTIVE IN/OUT: 2.0:1
  ABSORPTIVE OUT/OFF: 2.0:1
- SPEED: ..... RISE: 10ns TYPICAL, 15ns MAX.
  FALL: 10ns TYPICAL, 15ns MAX.
  DELAY ON: 75ns TYPICAL, 100ns MAX.
  DELAY OFF: 75ns TYPICAL, 100ns MAX.
- POWER INPUT: ..... (CW)+20dBm (STANDARD), +10 dBm (HIGH SPEED)
- SURVIVAL POWER: ..... 1 WATT CW, 10 WATTS PEAK 1 usec
- CONTROL: ..... SEE LOGIC TABLE
- POWER SUPPLY: ..... +5V @ 400 mA MAX.
  −5V @ 75mA MAX.(RELECTIVE)
  100mA MAX.(ABSORPTIVE/NON-REFLECTIVE)
- SIZE ..... ø1.500 CIRCLE POINT TO POINT X 0.400 (H)
- WEIGHT ..... 2.5 OUNCES TYPICAL

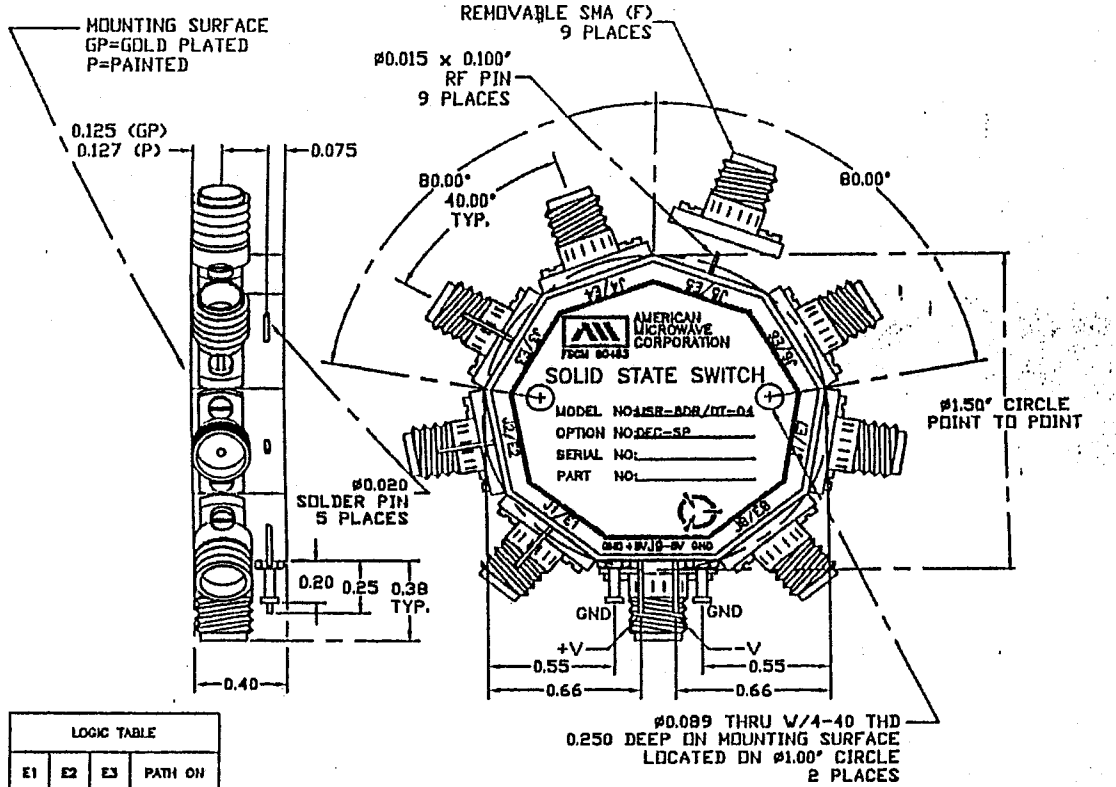
OPTIONS:

INDEPENDENT CONTROL WITH SOLDER PIN STANDARD
DEC-SP ..... 3 BIT DECODER WITH SOLDER PIN
10M18 ..... 10 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 10 MHz AND 0.5db AT 18 GHz)
100M18 ..... 100 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 0.5db AT 18 GHz)
118 ..... 1 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
218 ..... 2 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
412 ..... 4 GHz TO 12.4 GHz (NO CHANGE IN INSERTION LOSS)
618 ..... 6 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
1218 ..... 12 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
100M20 ..... 100 MHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 1.0db AT 20 GHz)
220 ..... 2 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
1020 ..... 10 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
B01 ..... −12V POWER SUPPLIES
B02 ..... −15V POWER SUPPLIES
B03 ..... REVERSE LOGIC "1"=ON "0"=OFF
B04 ..... DRIVERLESS, CURRENT CONTROLLED
B05 ..... HIGH SPEED, TURNON/TURNOFF 20 nsec MAXIMUM WHEN APPLICABLE OR OPTION HS
B06 ..... HIGH POWER – SPECIFY CW POWER, PEAK POWER, PULSE WIDTH, DUTY CYCLE, RF FREQUENCY AND BANDWIDTH
B07 ..... CUSTOM DESIGNED PRODUCT– SPECIFY INITIALS OF CUSTOMER
B08 ..... LOW VIDEO TRANSIENTS – SPECIFY VIDEO BANDWIDTH
B09 ..... LOW INSERTION LOSS VERSION
B10 ..... HIGHER ISOLATION VERSION

ENVIRONMENTAL RATINGS:

- TEMPERATURE: ..... −55°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



LOGIC TABLE			
E1	E2	E3	PATH ON
L	L	L	J1
H	L	L	J2
L	H	L	J3
H	H	L	J4
L	L	H	J5
H	L	H	J6
L	H	H	J7
H	H	H	J8

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

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

PART NO.		
APPROVALS		DATE
DRAWN	WSP, RRA	8/28/99
CHECKED	WP	8/31/99
ISSUED	RK	8/31/99

AMERICAN MICROWAVE CORPORATION
FREDERICK, MARYLAND

TITLE: OUTLINE DRAWING
MSR-8DR/DT-04-DEC-SP
REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE
SOLID STATE SWITCH

SIZE	FSCM NO.	DWG NO.	REV.
A	60483	100-4191-2	–

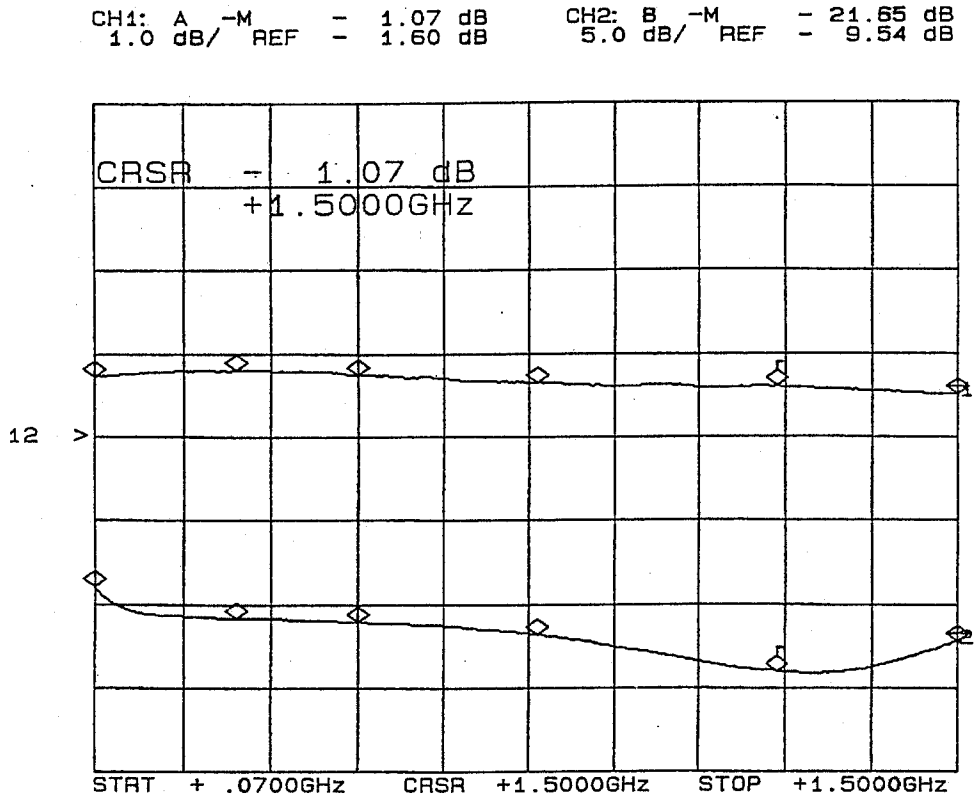
SCALE 1:1 SHEET 1 of 2

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J1



*J9: INPUT ARM

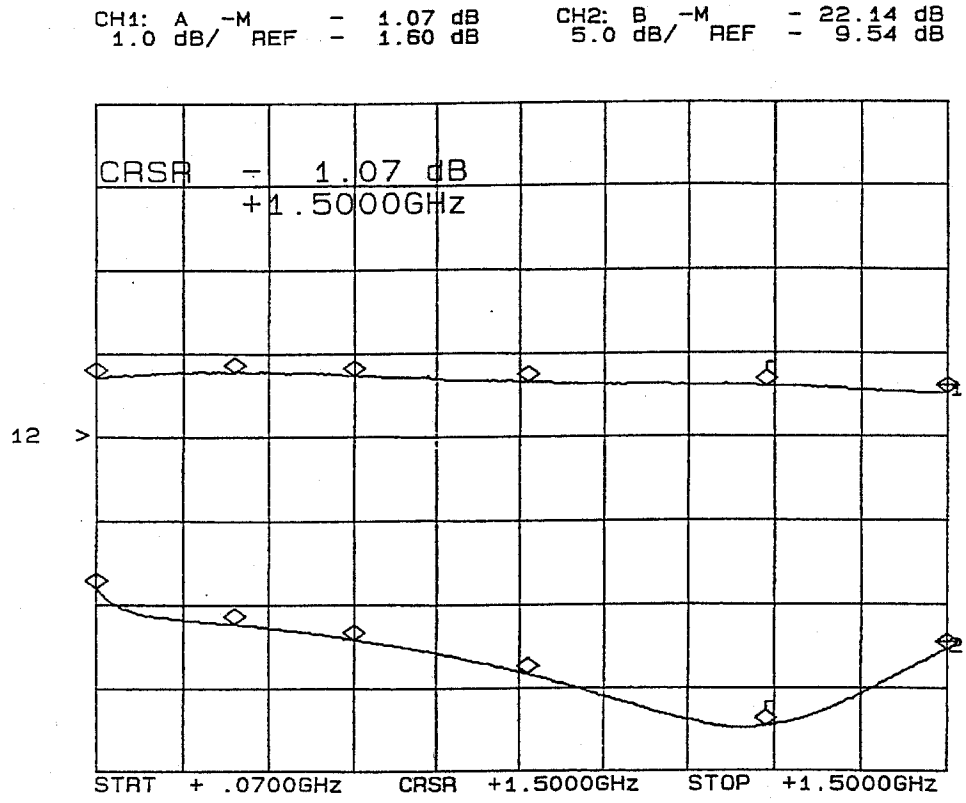
FREQUENCY	INSERTION LOSS	RETURN LOSS
70 MHz	0.85 dB	18.4 dB
300 MHz	0.78 dB	20.3 dB
500 MHz	0.83 dB	20.5 dB
800 MHz	0.93 dB	21.3 dB
1.2 GHz	0.98 dB	23.4 dB
1.5 GHz	1.07 dB	21.6 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J2



*J9: INPUT ARM

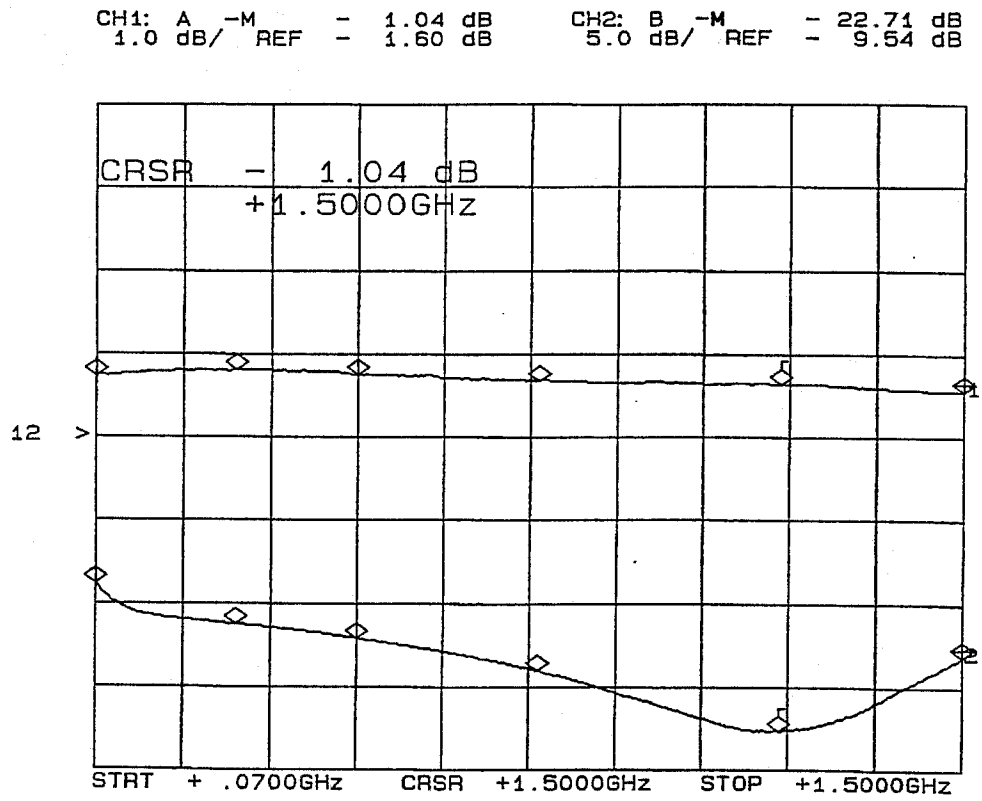
FREQUENCY	INSERTION LOSS	RETURN LOSS
70 MHz	0.88 dB	18.5 dB
300 MHz	0.82 dB	20.6 dB
500 MHz	0.86 dB	21.5 dB
800 MHz	0.93 dB	23.6 dB
1.2 GHz	0.98 dB	26.8 dB
1.5 GHz	1.07 dB	22.1 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J3



*J9: INPUT ARM

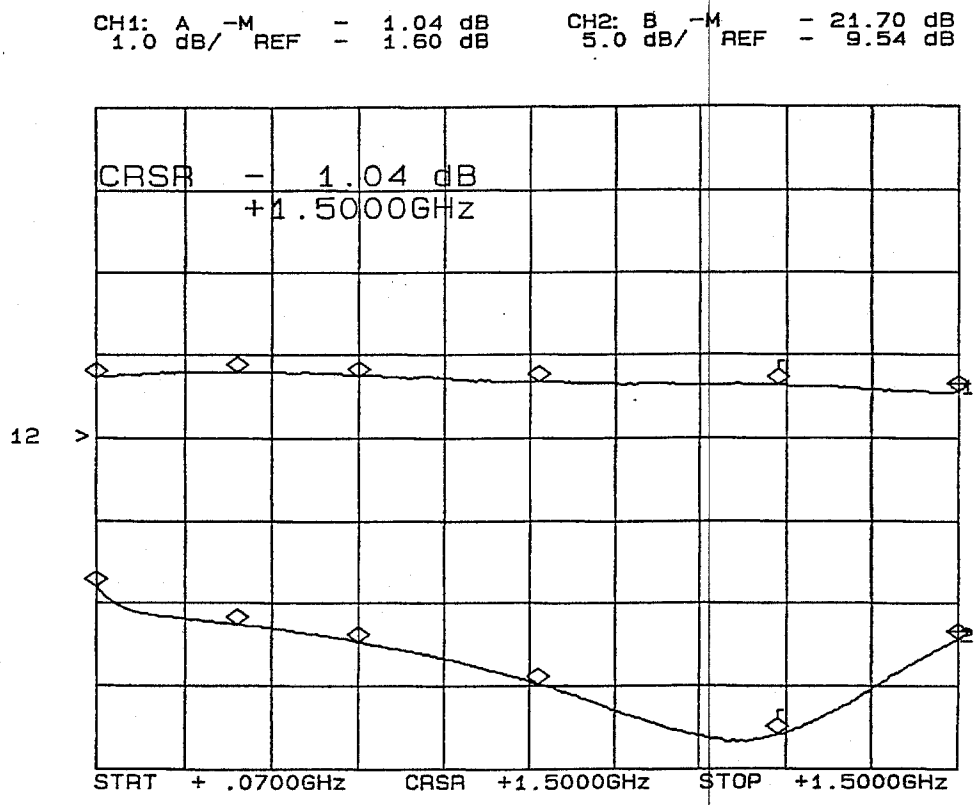
FREQUENCY	INSERTION LOSS	RETURN LOSS
70 MHz	0.85 dB	18.3 dB
300 MHz	0.78 dB	20.7 dB
500 MHz	0.83 dB	21.5 dB
800 MHz	0.90 dB	23.5 dB
1.2 GHz	0.94 dB	27.1 dB
1.5 GHz	1.04 dB	22.7 dB

SUMMARY TEST DATA

MODEL NUMBER	**: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004**
SERIAL NUMBER	**: 8MS90646**
ENGINEER	**: RENE AFABLE**
VOLTAGE & CURRENT DRAW	**: +5vdc: @+3.9mA; -5vdc: @ -51.2mA**

INSERTION LOSS & RETURN LOSS*

J9-J4



***J9: INPUT ARM**

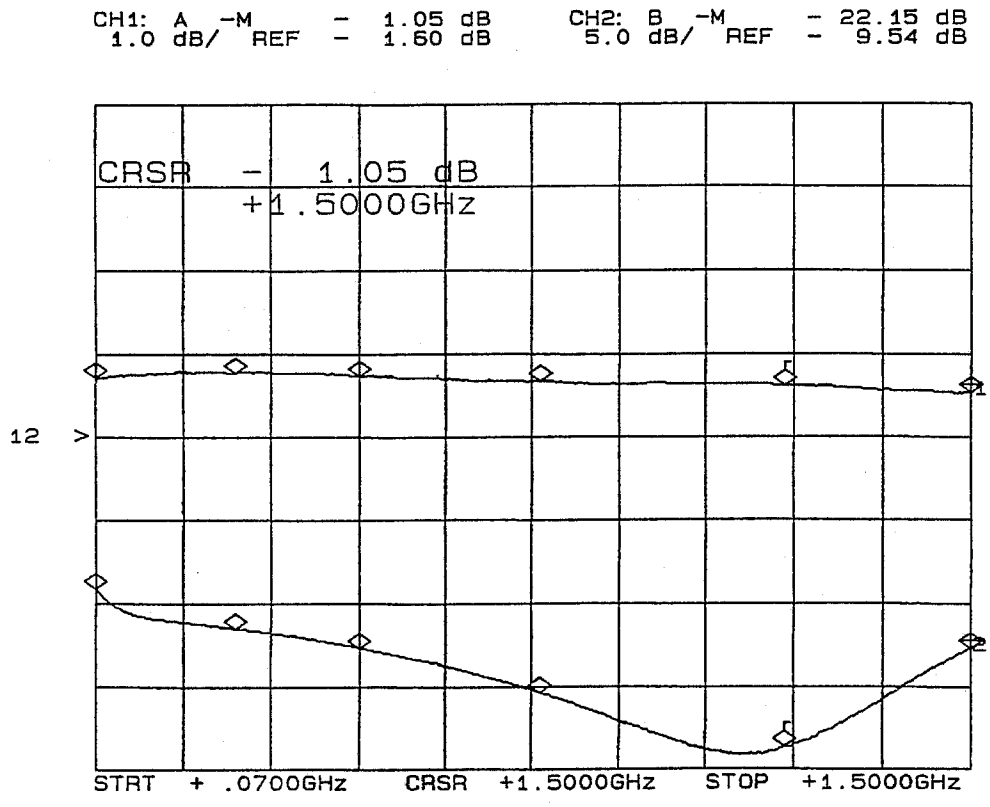
FREQUENCY	INSERTION LOSS	RETURN LOSS
70 MHz	0.87 dB	18.5 dB
300 MHz	0.80 dB	20.8 dB
500 MHz	0.85 dB	21.8 dB
800 MHz	0.91 dB	24.3 dB
1.2 GHz	0.96 dB	27.4 dB
1.5 GHz	1.04 dB	21.7 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J5



*J9: INPUT ARM

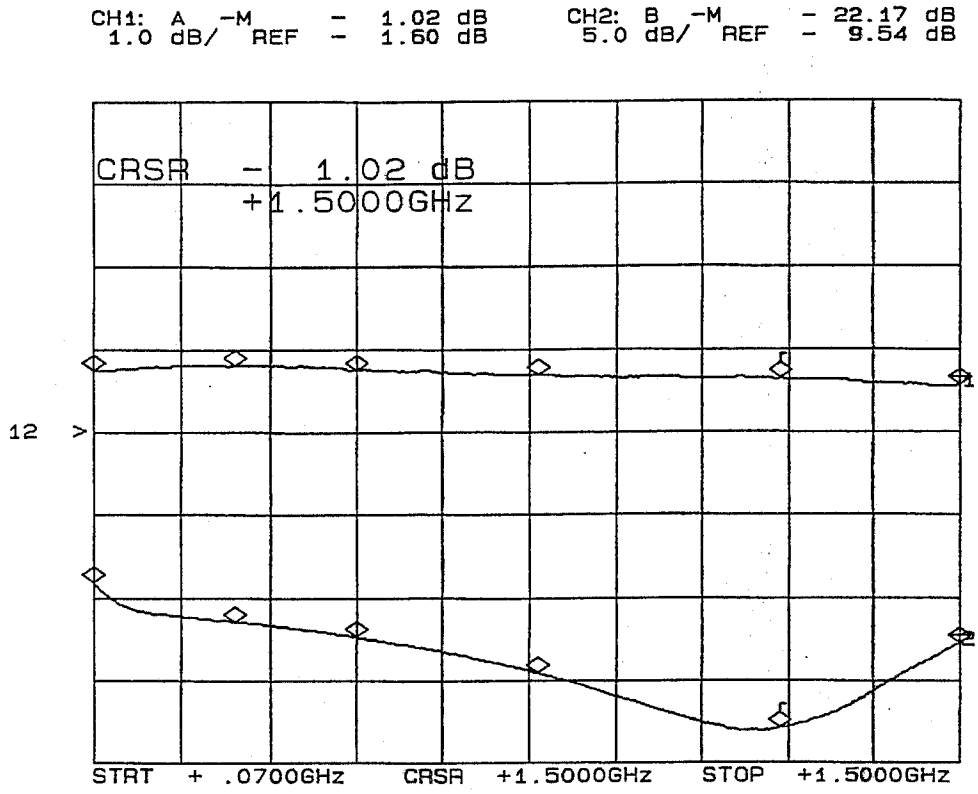
FREQUENCY	INSERTION LOSS	RETURN LOSS
70 MHz	0.88 dB	18.5 dB
300 MHz	0.81 dB	20.9 dB
500 MHz	0.85 dB	22.1 dB
800 MHz	0.92 dB	24.8 dB
1.2 GHz	0.97 dB	28.1 dB
1.5 GHz	1.05 dB	22.1 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J6



*J9: INPUT ARM

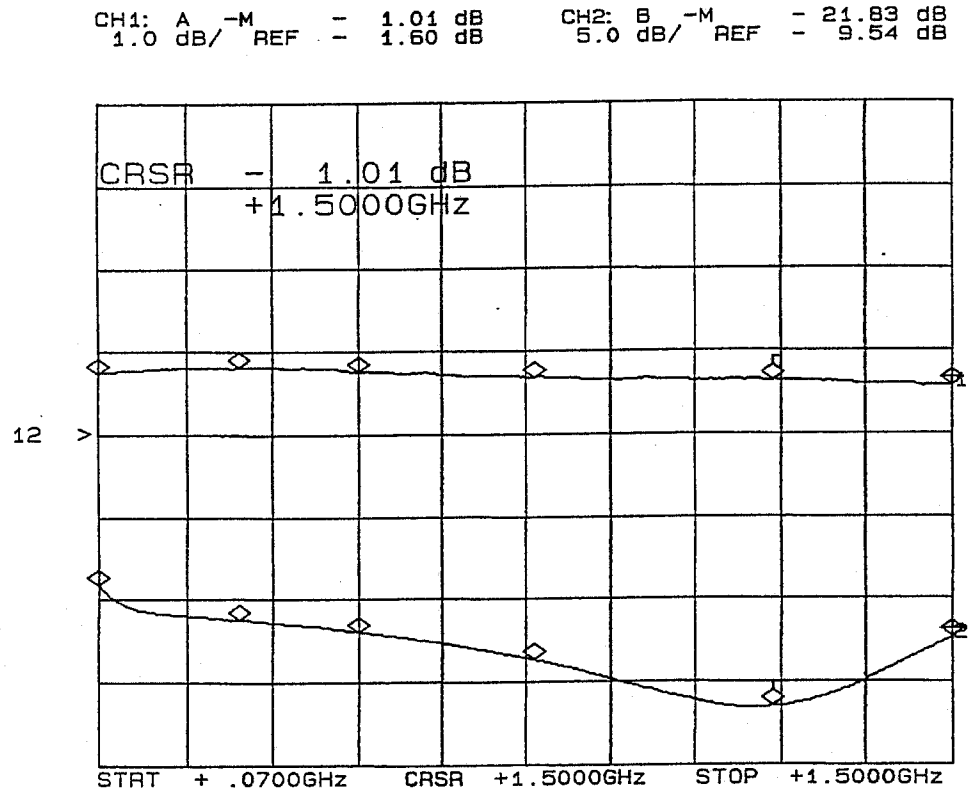
FREQUENCY	INSERTION LOSS	RETURN LOSS
70 MHz	0.84 dB	18.5 dB
300 MHz	0.78 dB	20.8 dB
500 MHz	0.83 dB	21.8 dB
800 MHz	0.90 dB	24.0 dB
1.2 GHz	0.94 dB	27.3 dB
1.5 GHz	1.02 dB	22.1 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J7



*J9: INPUT ARM

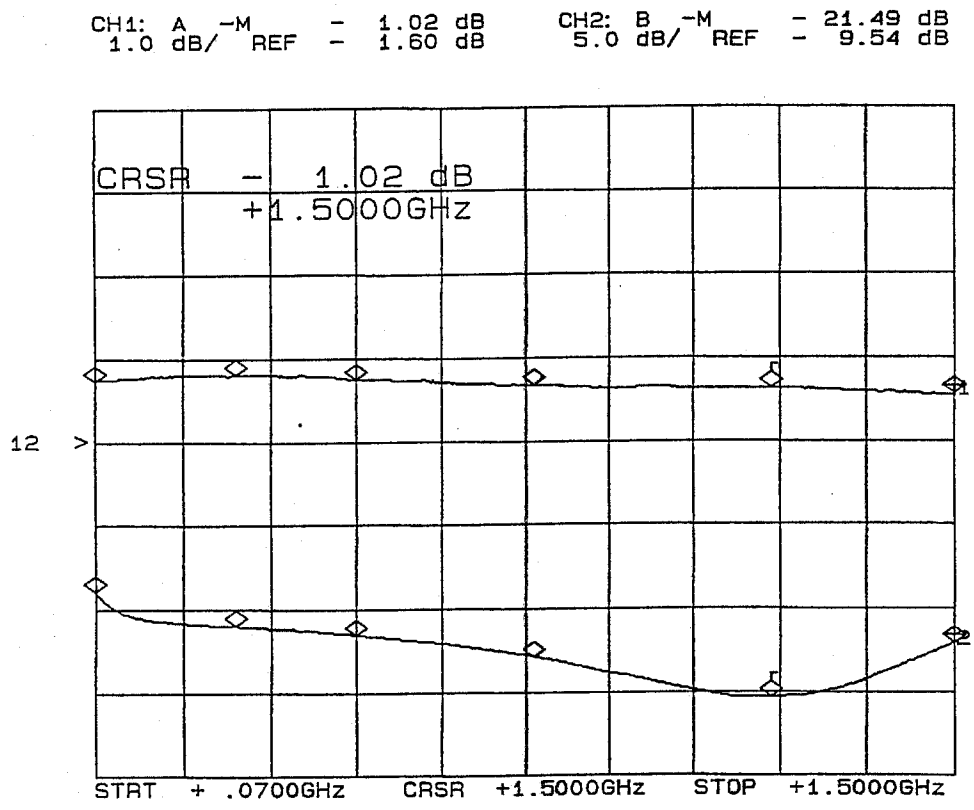
FREQUENCY	INSERTION LOSS	RETURN LOSS
70 MHz	0.85 dB	18.6 dB
300 MHz	0.78 dB	20.7 dB
500 MHz	0.83 dB	21.4 dB
800 MHz	0.90 dB	23.1 dB
1.2 GHz	0.94 dB	25.9 dB
1.5 GHz	1.01 dB	21.8 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J9-J8



*J9: INPUT ARM

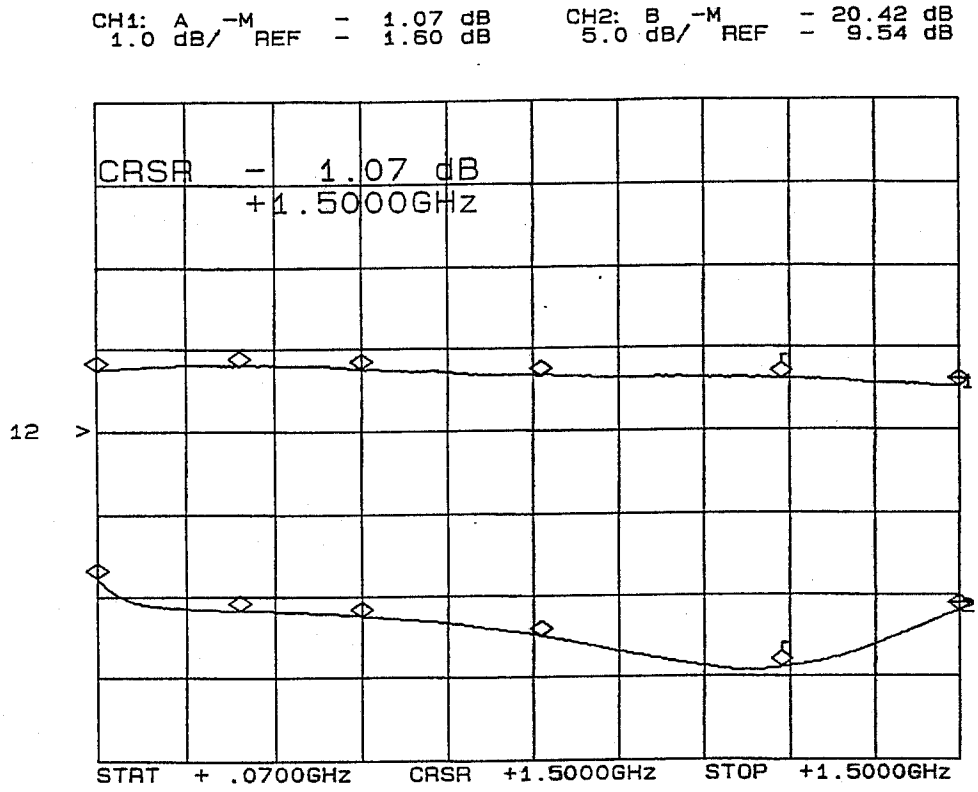
FREQUENCY	INSERTION LOSS	RETURN LOSS
70 MHz	0.86 dB	18.4 dB
300 MHz	0.78 dB	20.4 dB
500 MHz	0.83 dB	21.0 dB
800 MHz	0.91 dB	22.3 dB
1.2 GHz	0.95 dB	24.7 dB
1.5 GHz	1.02 dB	21.4 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J1-J9



***J1: INPUT ARM**

FREQUENCY	INSERTION LOSS	RETURN LOSS
70 MHz	0.85 dB	18.3 dB
300 MHz	0.79 dB	20.3 dB
500 MHz	0.84 dB	20.7 dB
800 MHz	0.93 dB	21.9 dB
1.2 GHz	0.97 dB	23.9 dB
1.5 GHz	1.07 dB	20.4 dB

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

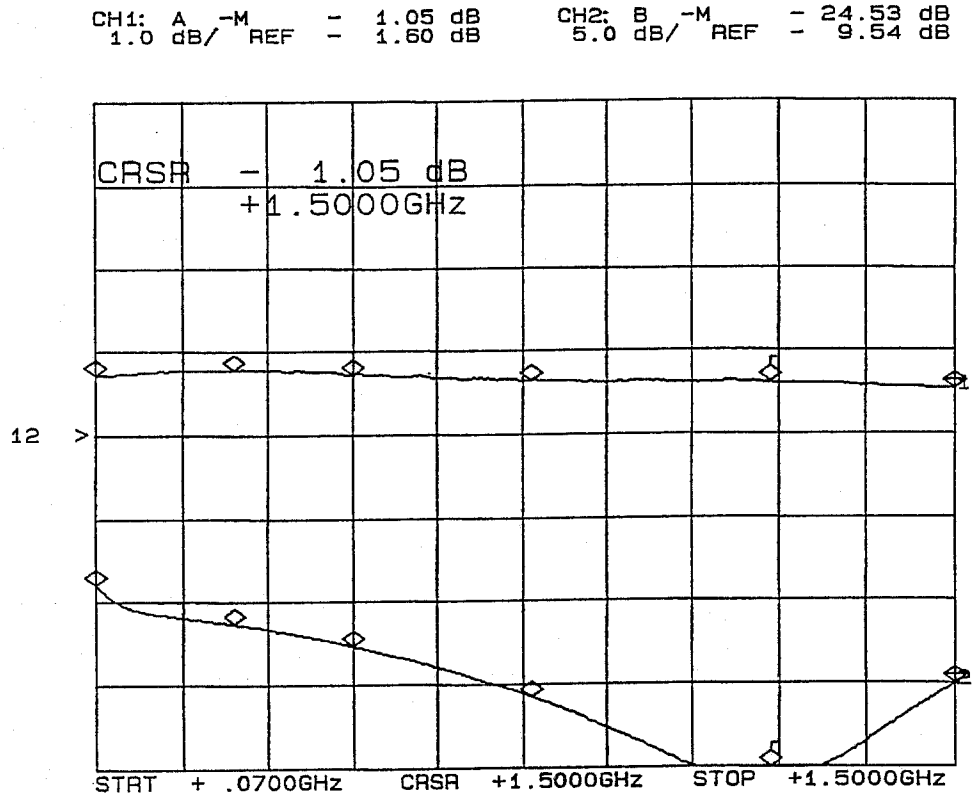
SERIAL NUMBER : 8MS90646

ENGINEER : RENE AFABLE

VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J2-J9



*J2: INPUT ARM

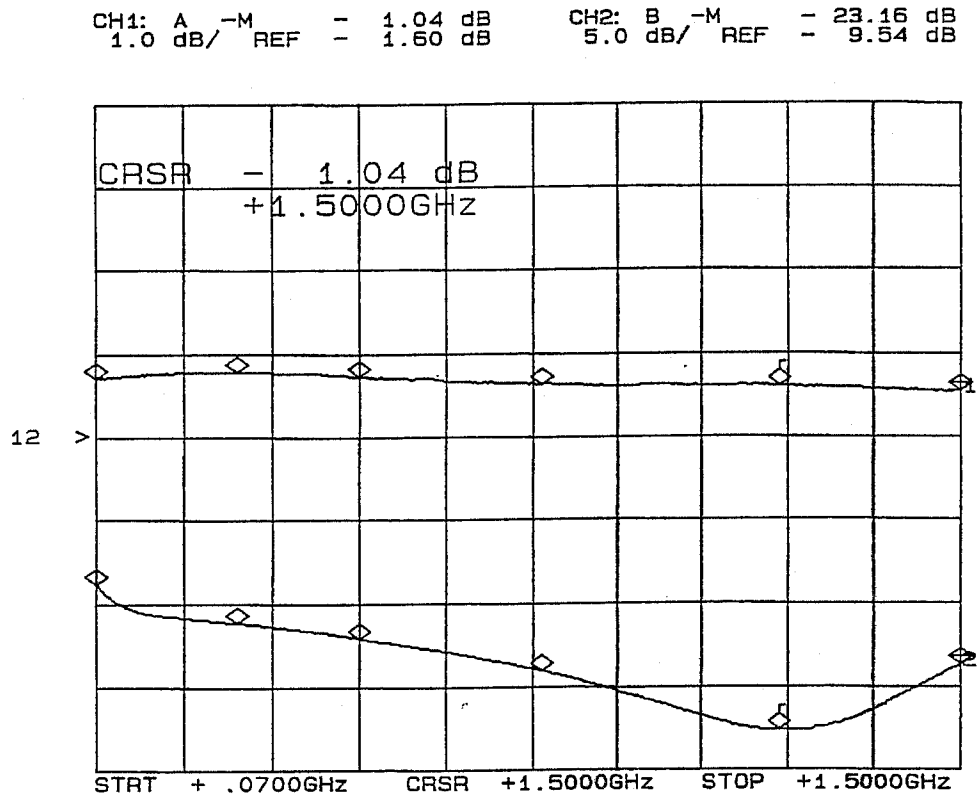
FREQUENCY	INSERTION LOSS	RETURN LOSS
70 MHz	0.88 dB	18.4 dB
300 MHz	0.82 dB	20.8 dB
500 MHz	0.87 dB	22.1 dB
800 MHz	0.94 dB	25.2 dB
1.2 GHz	0.98 dB	30.5 dB
1.5 GHz	1.05 dB	24.5 dB

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

INSERTION LOSS & RETURN LOSS*

J8-J9



*J8: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
70 MHz	0.87 dB	18.3 dB
300 MHz	0.81 dB	20.6 dB
500 MHz	0.86 dB	21.5 dB
800 MHz	0.94 dB	23.5 dB
1.2 GHz	0.97 dB	27.0 dB
1.5 GHz	1.04 dB	23.1 dB

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)

FREQUENCY	J1	J2	J3	J4	J5	J6	J7	J8
70 MHz	68 dB	70 dB	70 dB	74 dB	75 dB	76 dB	76 dB	72 dB
100 MHz	71 dB	71 dB	72 dB	73 dB	74 dB	74 dB	74 dB	71 dB
500 MHz	60 dB	63 dB	62 dB	63 dB	64 dB	62 dB	63 dB	64 dB
1 GHz	59 dB	60 dB	61 dB	62 dB	62 dB	62 dB	62 dB	60 dB
1.5 GHz	56 dB	59 dB	58 dB	58 dB	59 dB	58 dB	55 dB	60 dB
2 GHz	56 dB	56 dB	56 dB	60 dB	60 dB	60 dB	55 dB	55 dB
4 GHz	50 dB	53 dB	52 dB	53 dB	53 dB	53 dB	50 dB	50 dB
6 GHz	44 dB	44 dB	46 dB	47 dB	47 dB	47 dB	47 dB	45 dB
8 GHz	42 dB	43 dB	43 dB	44 dB	44 dB	43 dB	40 dB	43 dB
10 GHz	40 dB	37 dB	39 dB	40 dB	41 dB	40 dB	40 dB	40 dB
12 GHz	41 dB	41 dB	41 dB	41 dB	40 dB	41 dB	40 dB	42 dB
14 GHz	41 dB	37 dB	41 dB	39 dB	47 dB	45 dB	37 dB	40 dB
16 GHz	39 dB	38 dB	36 dB	39 dB	38 dB	36 dB	34 dB	39 dB
18 GHz	41 dB	40 dB	37 dB	40 dB	33 dB	36 dB	36 dB	38 dB

* J9: INPUT ARM

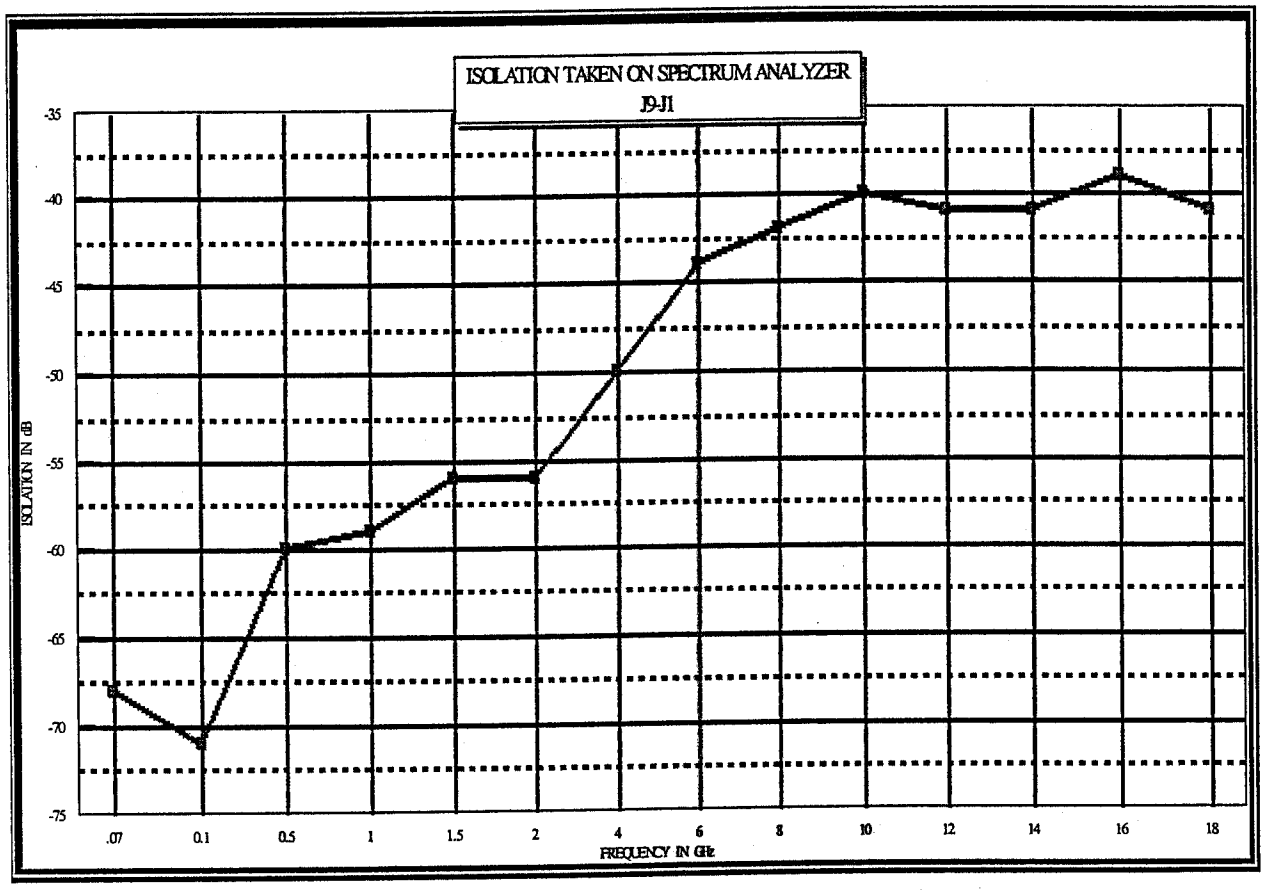
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)
J9-J1



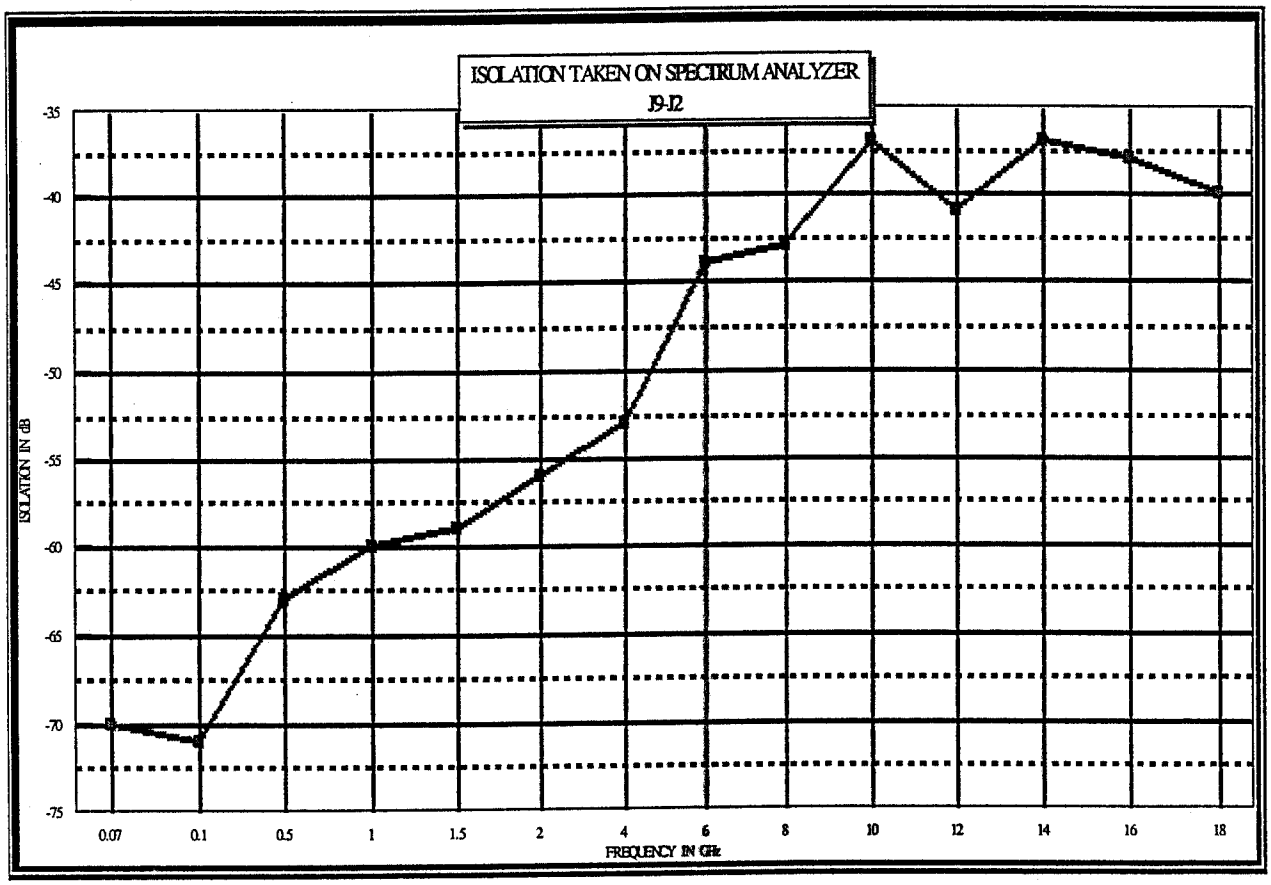
*J9: INPUT ARM

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)
J9-J2



*J9: INPUT ARM

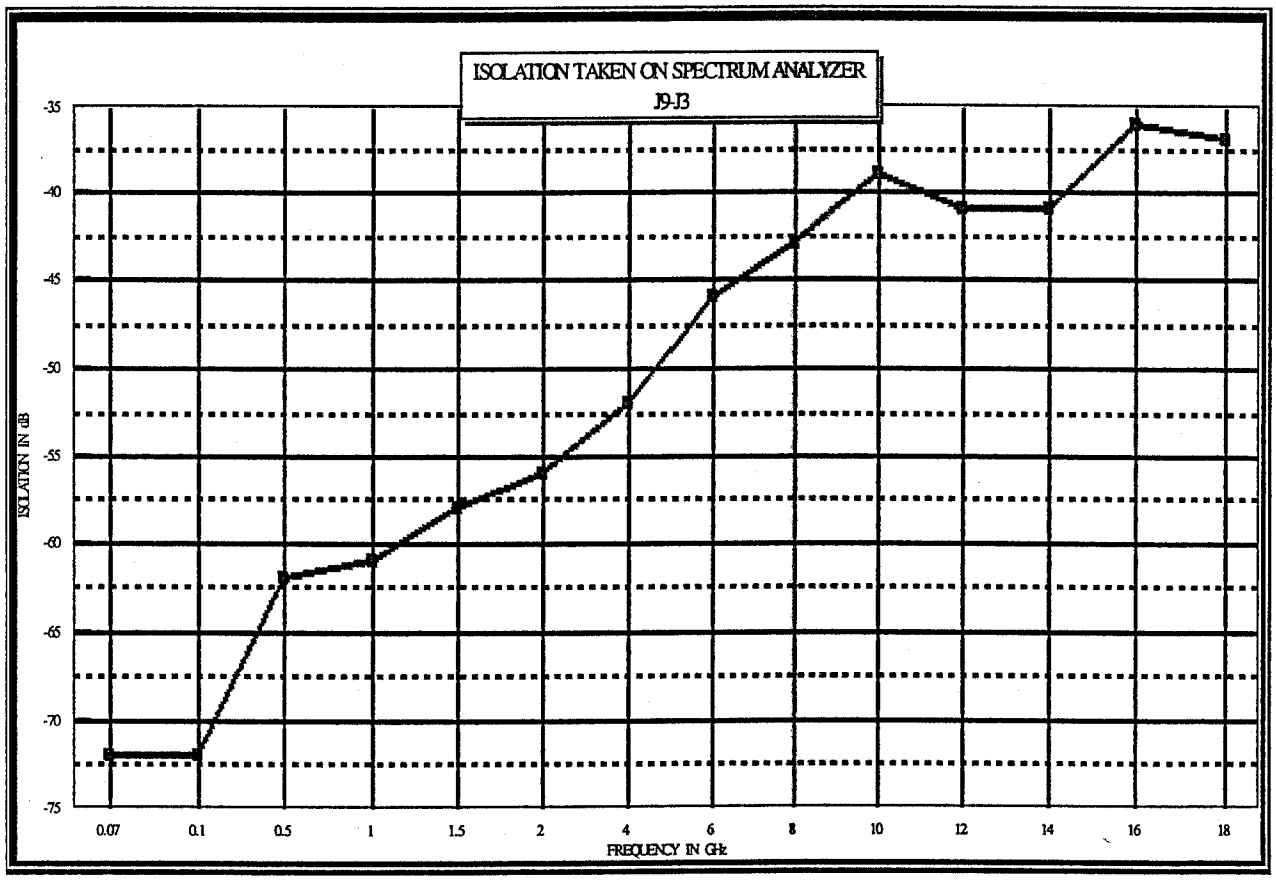
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)
J9-J3



*J9: INPUT ARM

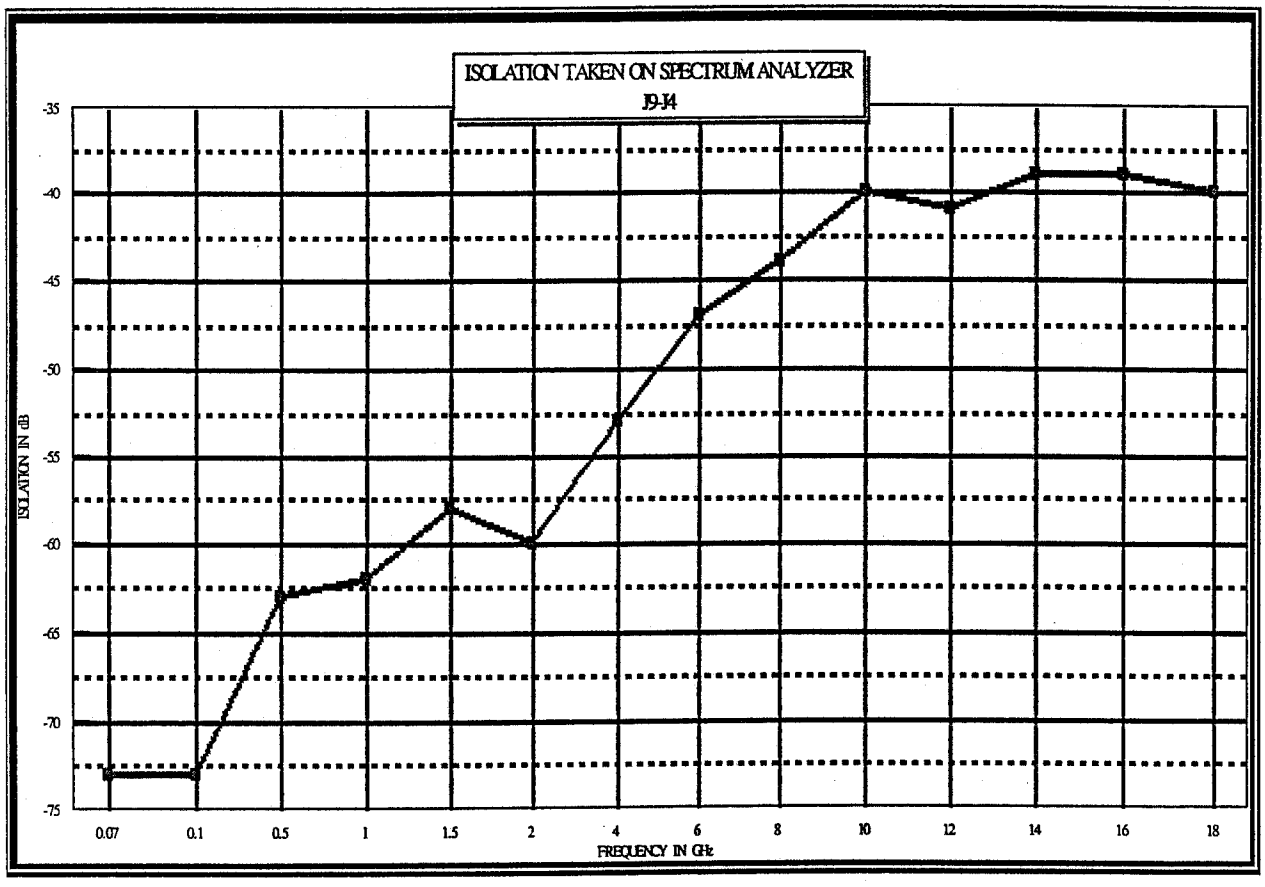
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)
J9-J4



*J9: INPUT ARM

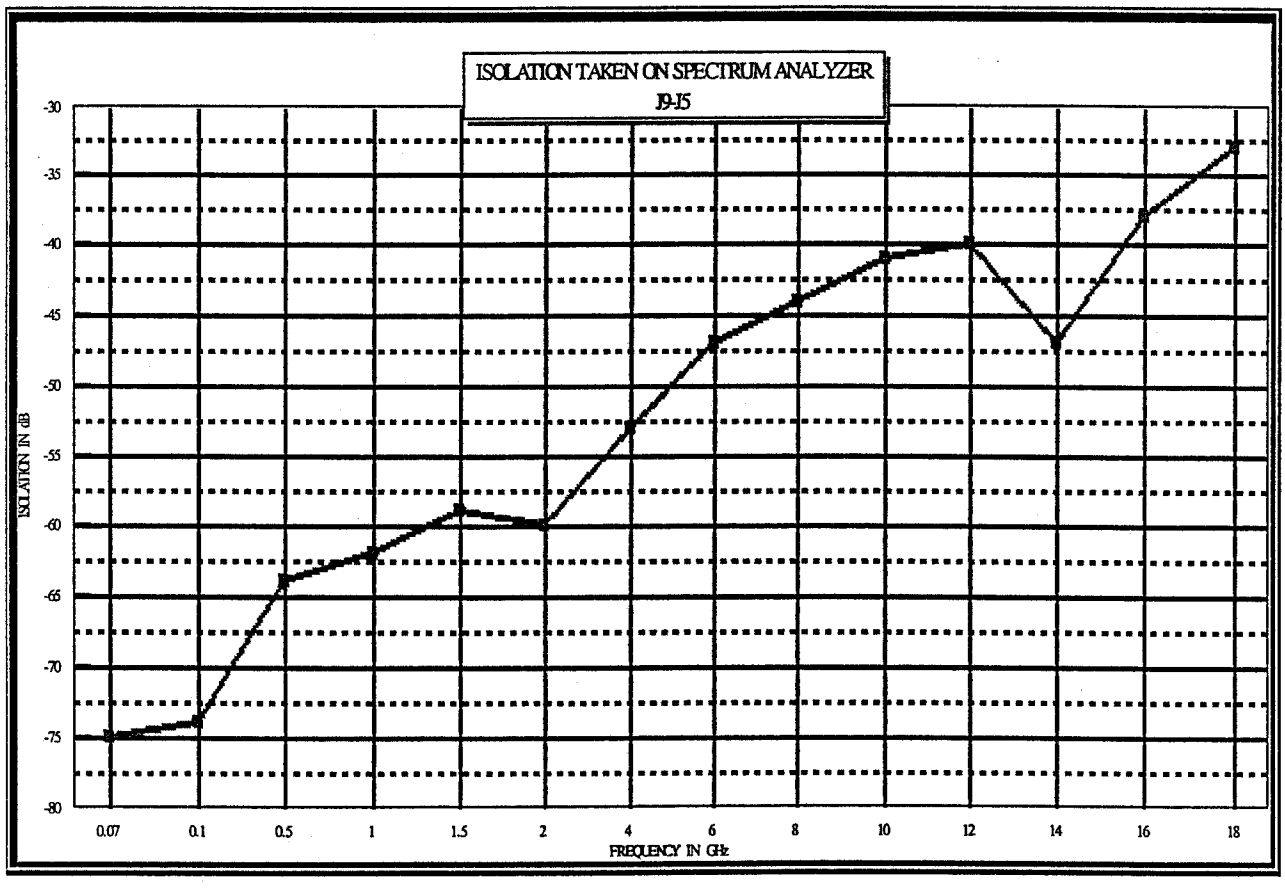
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)
J9-J5



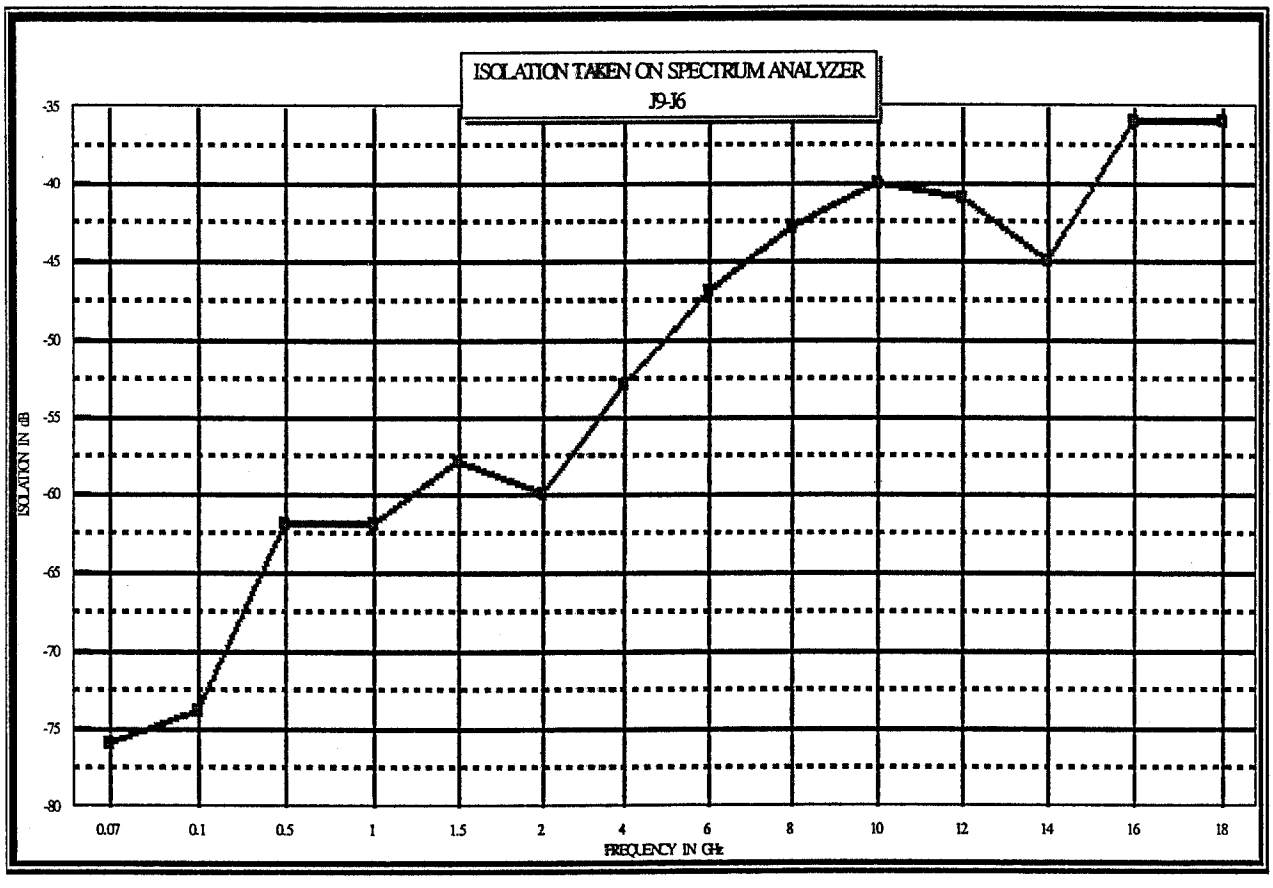
*J9: INPUT ARM

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)
J9-J6



*J9: INPUT ARM

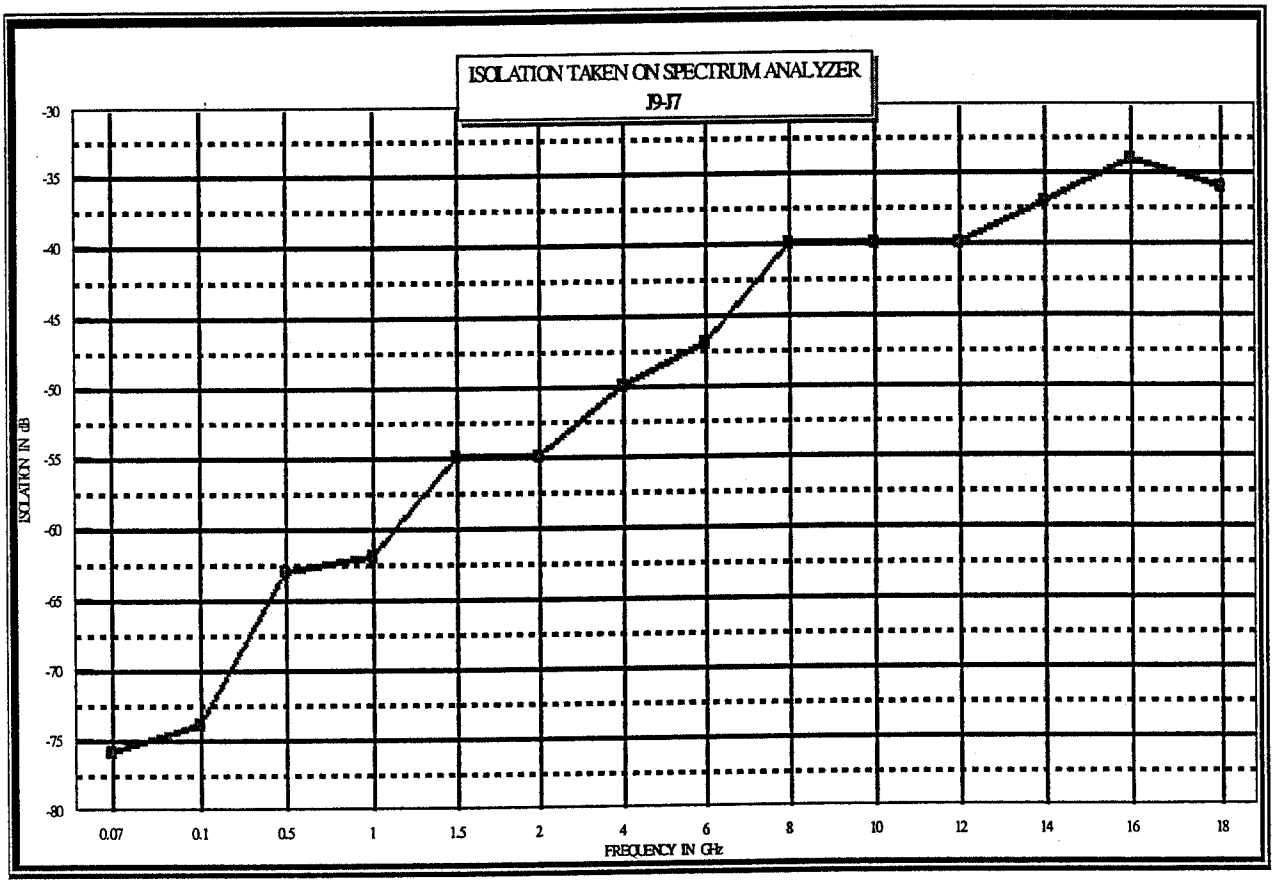
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)
J9-J7



*J9: INPUT ARM

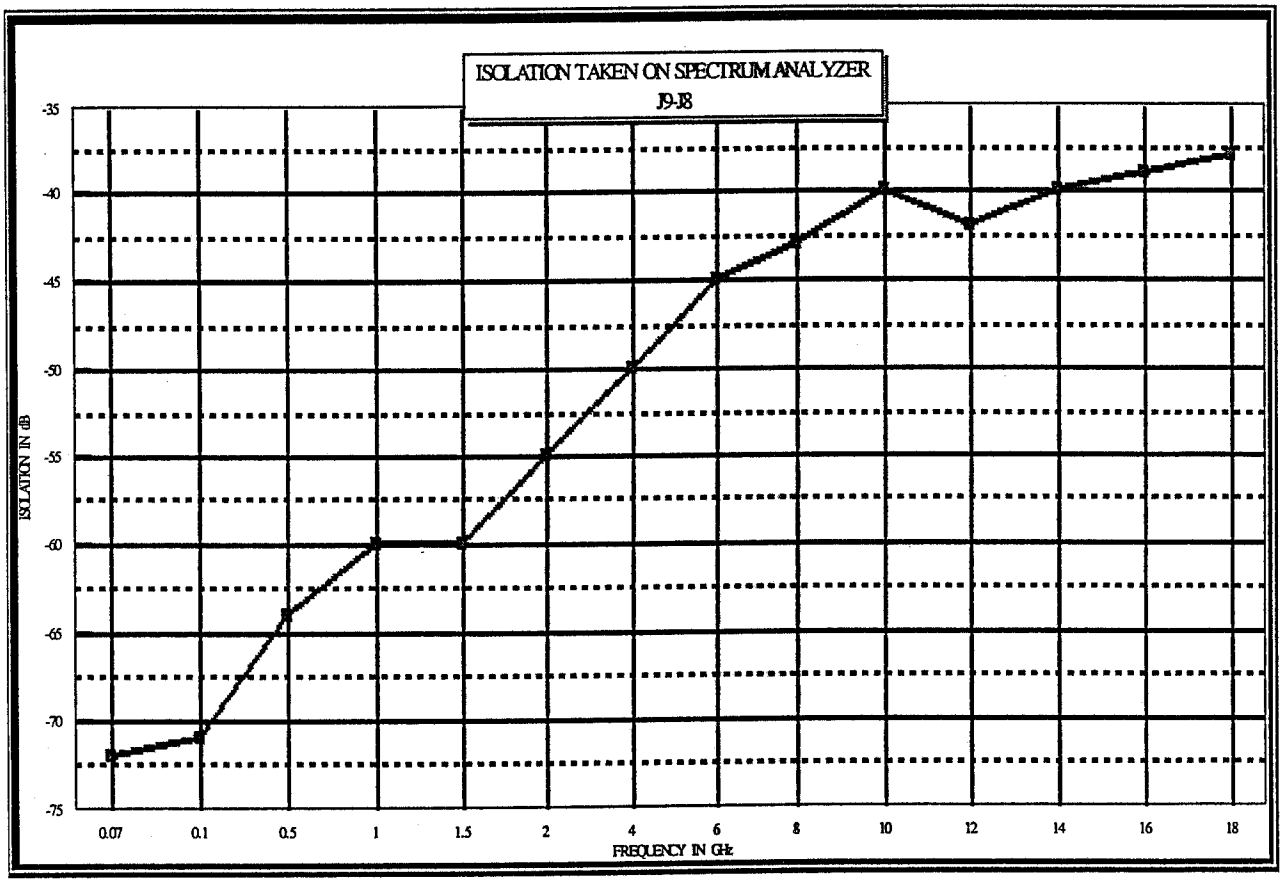
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)
J9-J8



*J9: INPUT ARM

SEPTEMBER 15, 1999

AMERICAN MICROWAVE CORPORATION

AMPLITUDE

DATA

BETWEEN

PORT TO PORT

FROM

70 MHz TO 1.5 GHz

ON A

SP8T

RADIAL SOLID STATE SWITCH
(SURFACE MOUNTABLE)

AMC MODEL No:
MSR-8DR-04-STANDARS
OPTIONS 50M105, SPARWAR, 2SS, 45004
(Serial Number: 8MS90646)

REPORTED AND PREPARED
BY
RENE AFABLE

SEPTEMBER 15, 1999

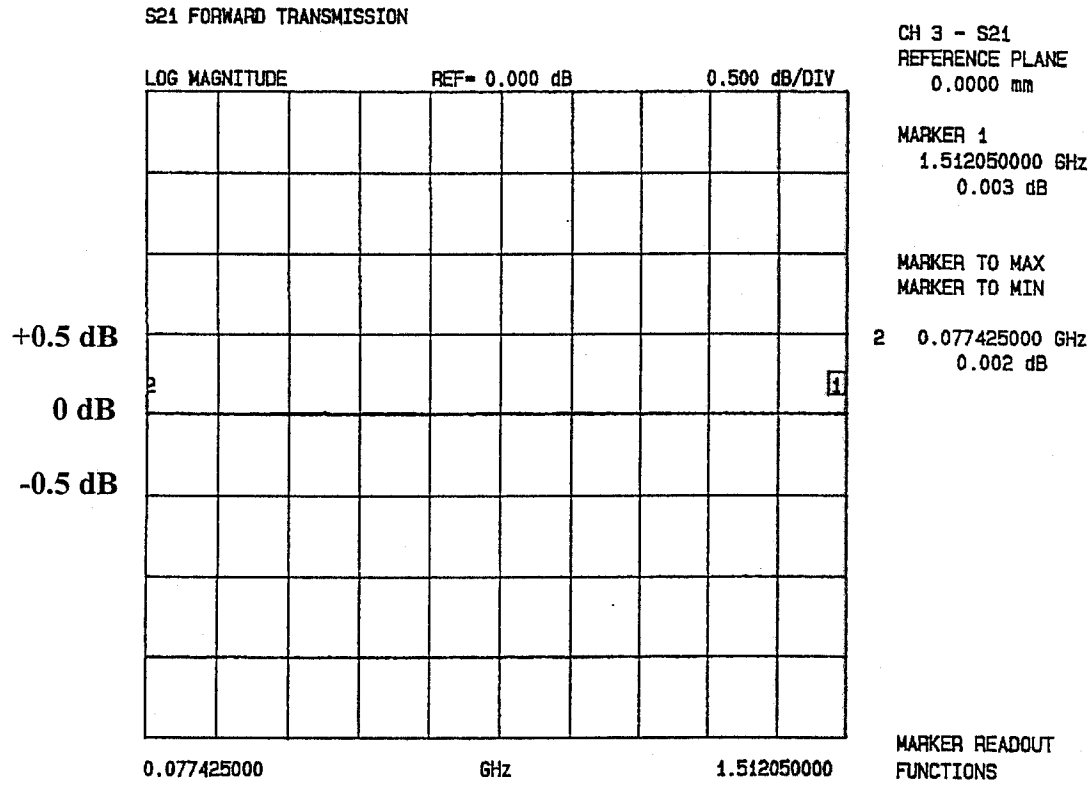
7311 G GROVE ROAD, FREDERICK, MARYLAND 21704 • Tel. (301) 662-4700 • Fax (301) 662-4938

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J1 (REFERENCE)



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
1.51 GHZ	0.003 dB	
77 MHz	0.002 dB	

SEPTEMBER 15, 1999

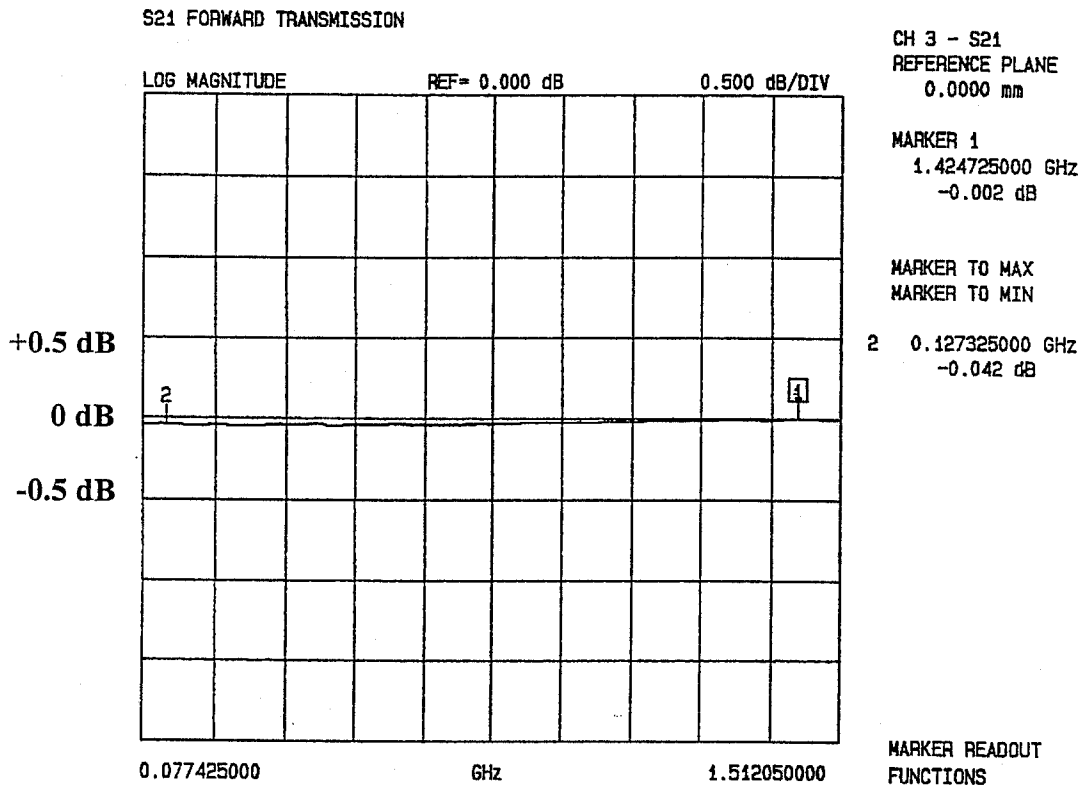
SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J2



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
1.42 GHZ		-0.002 dB
127 MHz		-0.042 dB

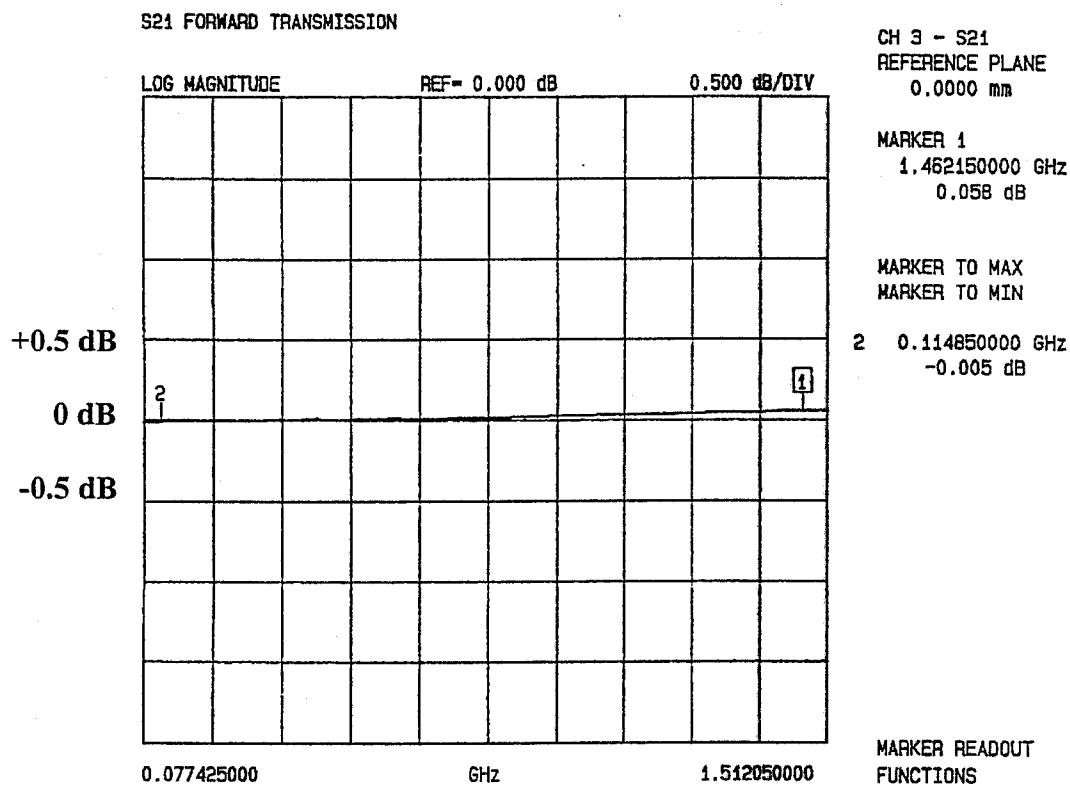
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J3



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
1.46 GHZ	0.058 dB	
114 MHz		-0.005 dB

SEPTEMBER 15, 1999

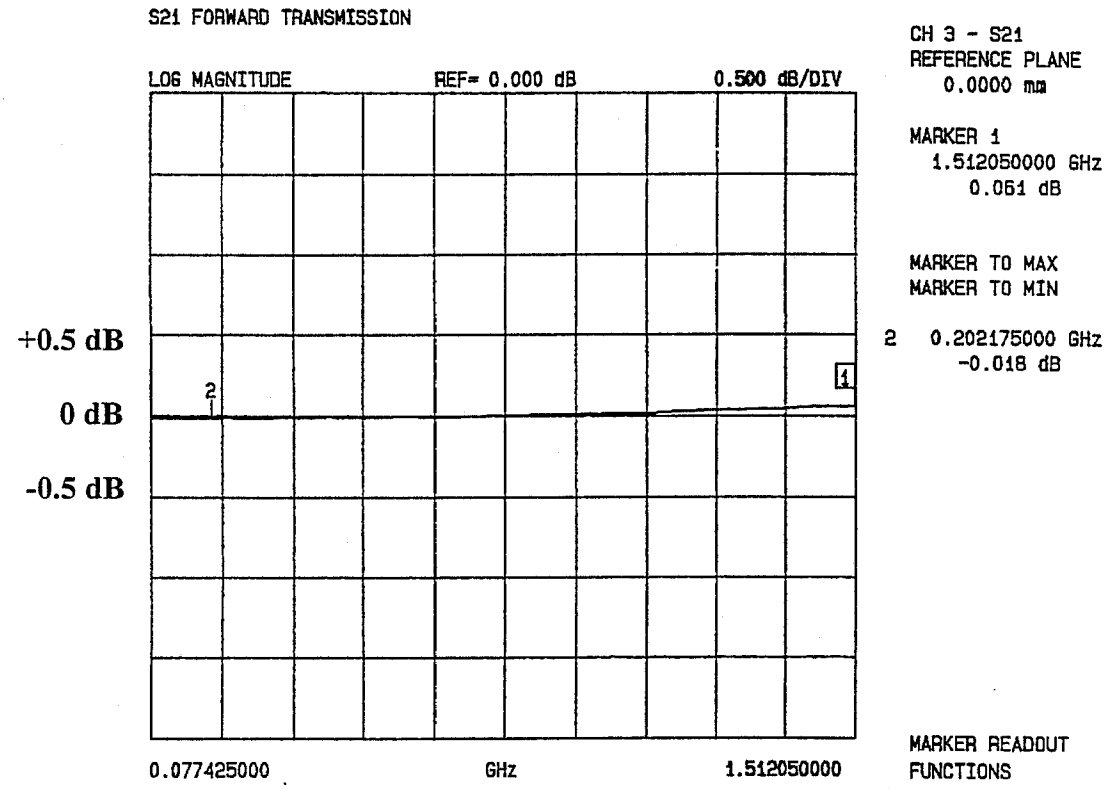
SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J4



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
1.51 GHZ	0.061 dB	
202 MHz		-0.018 dB

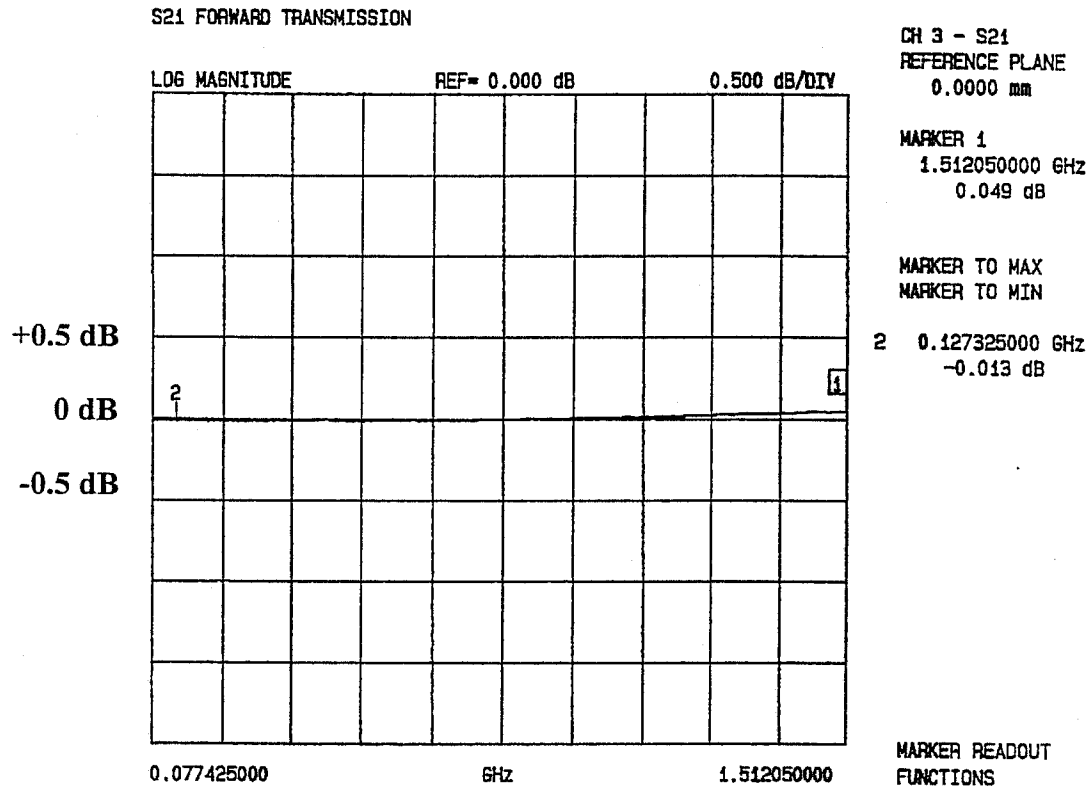
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J6



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
1.51 GHZ	0.049 dB	
127 MHz		-0.013 dB

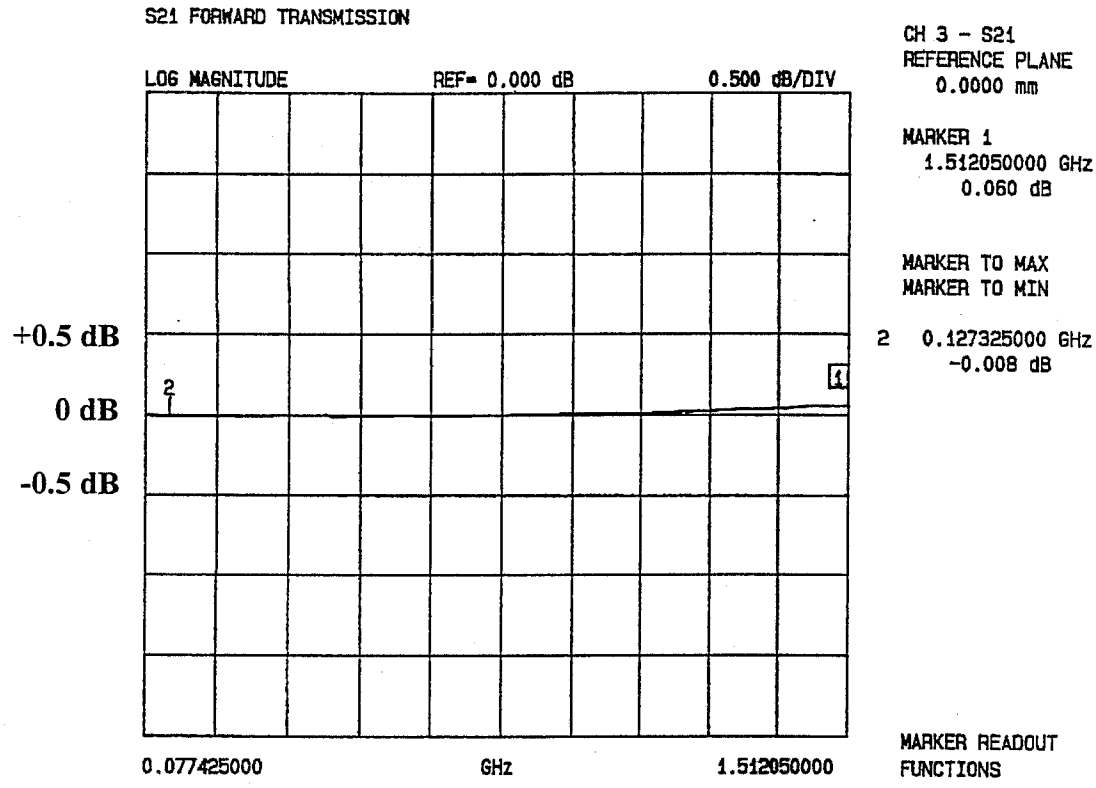
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J7



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
1.51 GHZ	0.060 dB	
127 MHz		-0.008 dB

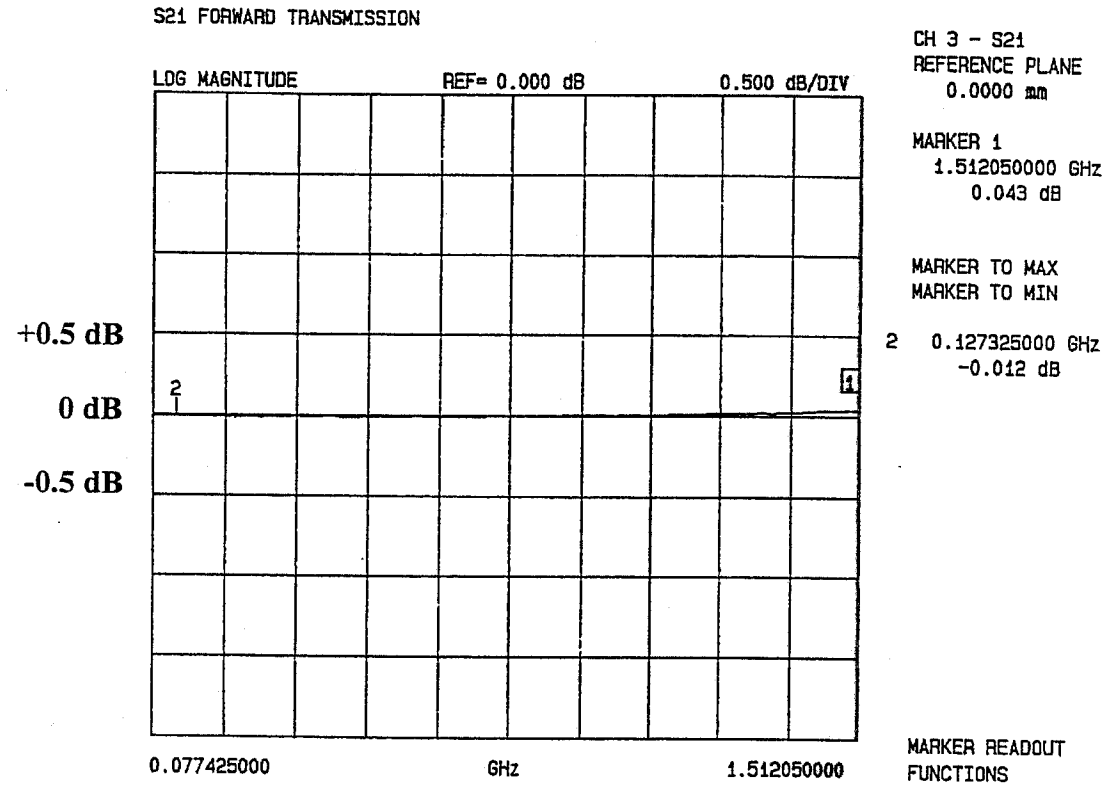
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

AMPLITUDE*

J9-J8



*J9: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
1.51 GHZ	0.043 dB	
127 MHz		-0.012 dB

SEPTEMBER 15, 1999

AMERICAN MICROWAVE CORPORATION

PHASE

DATA

BETWEEN

PORT TO PORT

FROM

70 MHz TO 1.5 GHz

ON A

SP8T

RADIAL SOLID STATE SWITCH

(SURFACE MOUNTABLE)

AMC MODEL No:
MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

(Serial Number: 8MS90646)

REPORTED AND PREPARED
BY
RENE AFABLE

SEPTEMBER 15, 1999

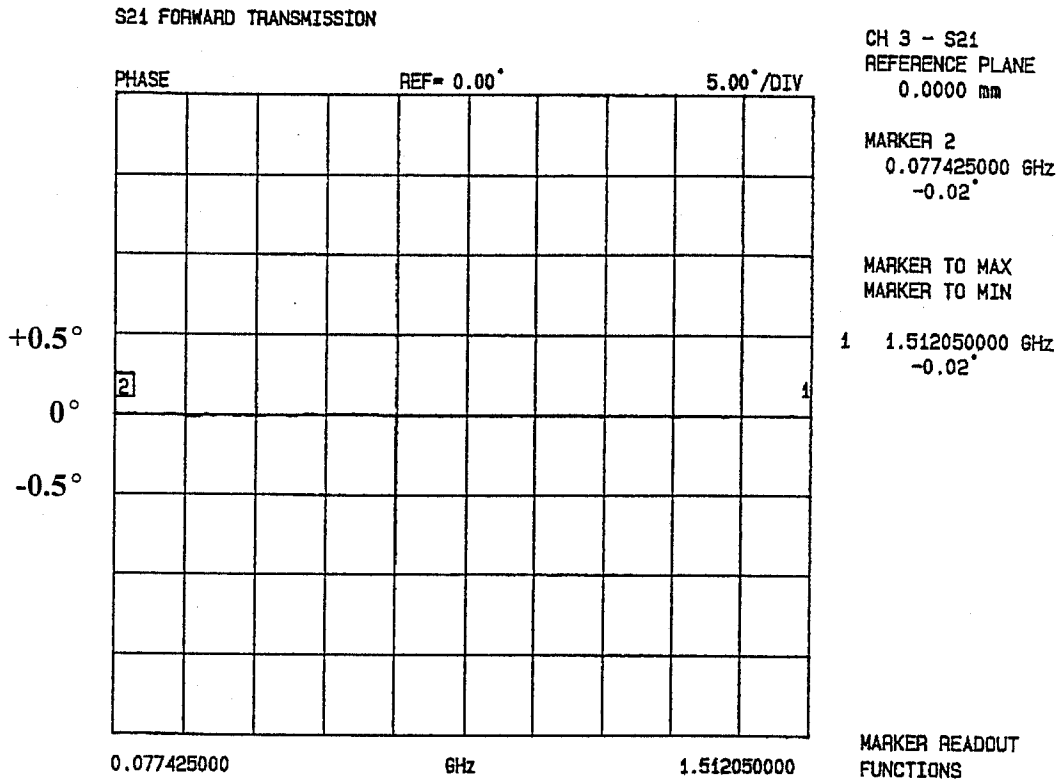
7311 G GROVE ROAD, FREDERICK, MARYLAND 21704 • Tel. (301) 662-4700 • Fax (301) 662-4938

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*
J9-J1 (REFERENCE)



*J9: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
77 MHZ		-0.02°
1.51 GHz		-0.02°

SEPTEMBER 15, 1999

SUMMARY TEST DATA

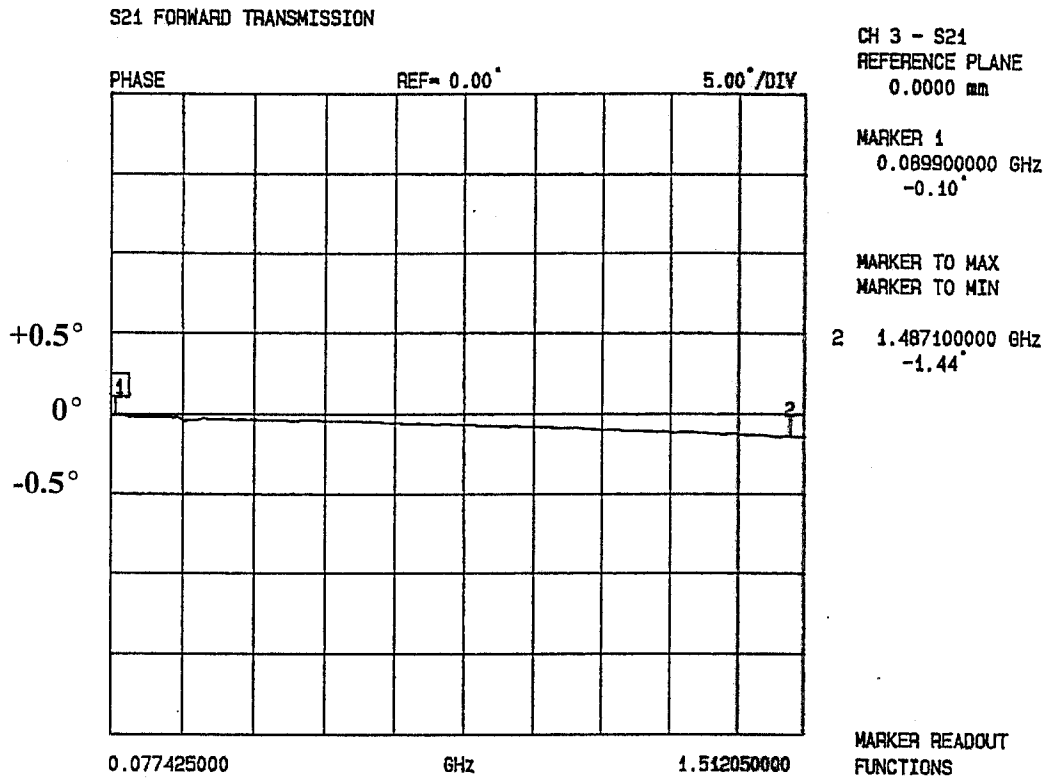
MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646

ENGINEER : RENE AFABLE

VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*
J9-J2



*J9: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
89 MHZ		-0.10°
1.48 GHz		-1.44°

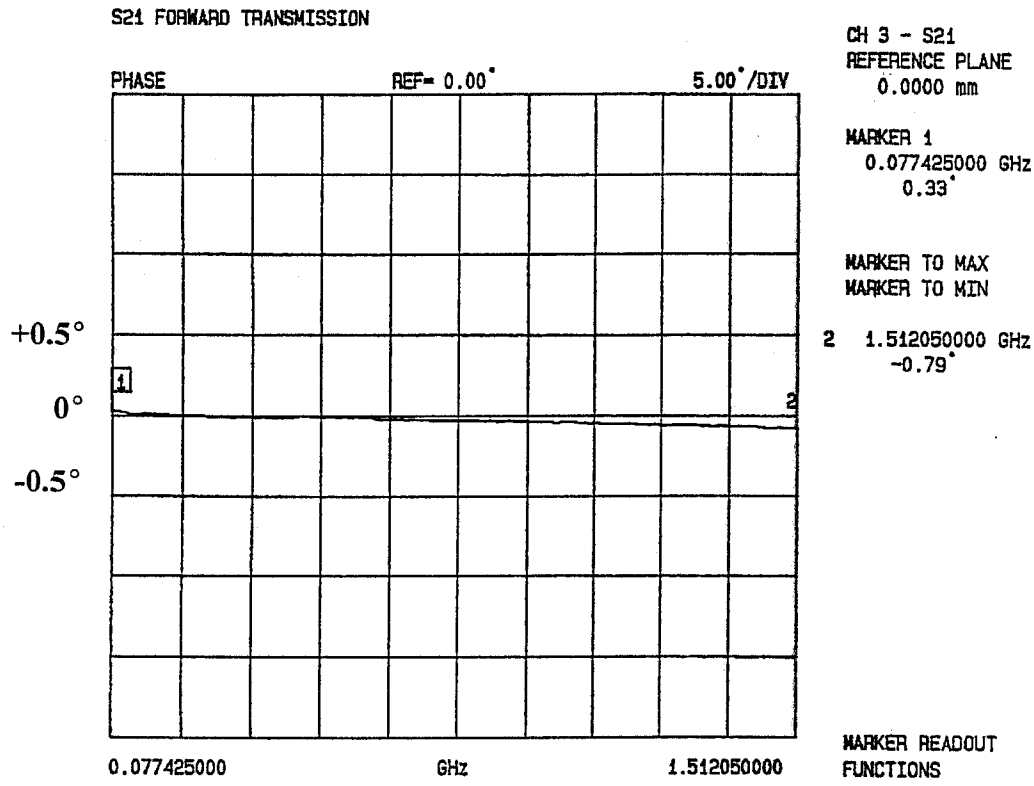
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*

J9-J3



*J9: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
77 MHZ	0.33°	
1.51 GHz		-0.79°

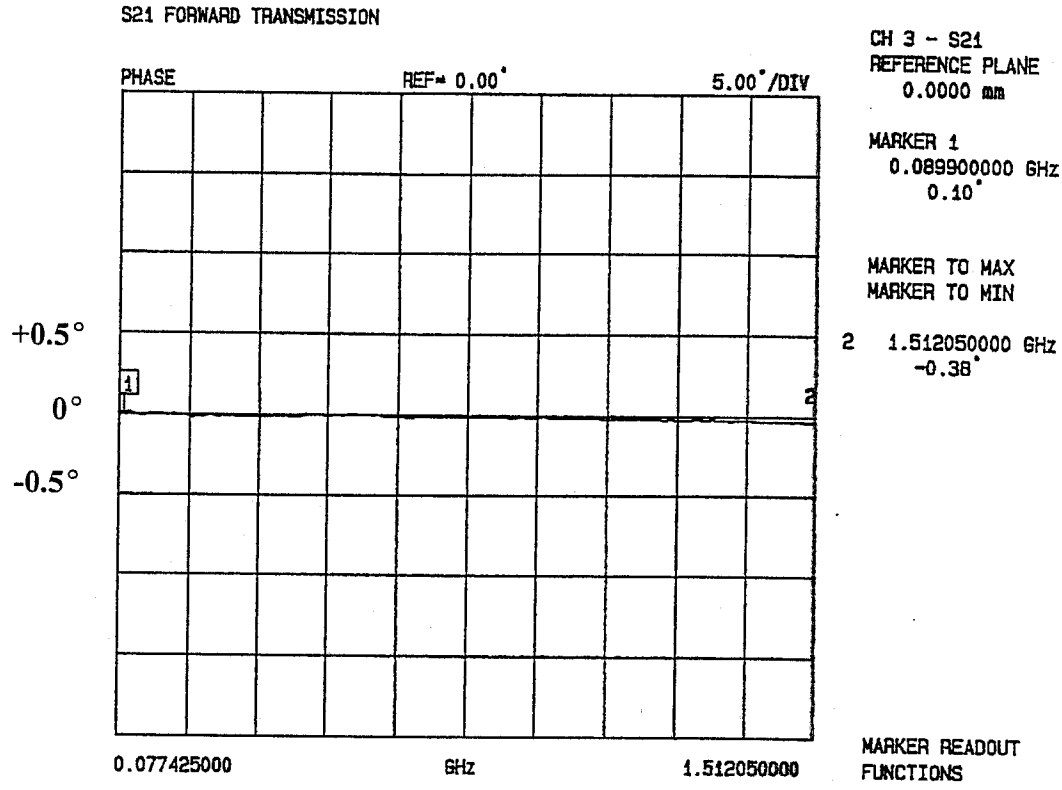
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*
J9-J4



*J9: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
89 MHZ	0.10°	
1.51 GHz		-0.38°

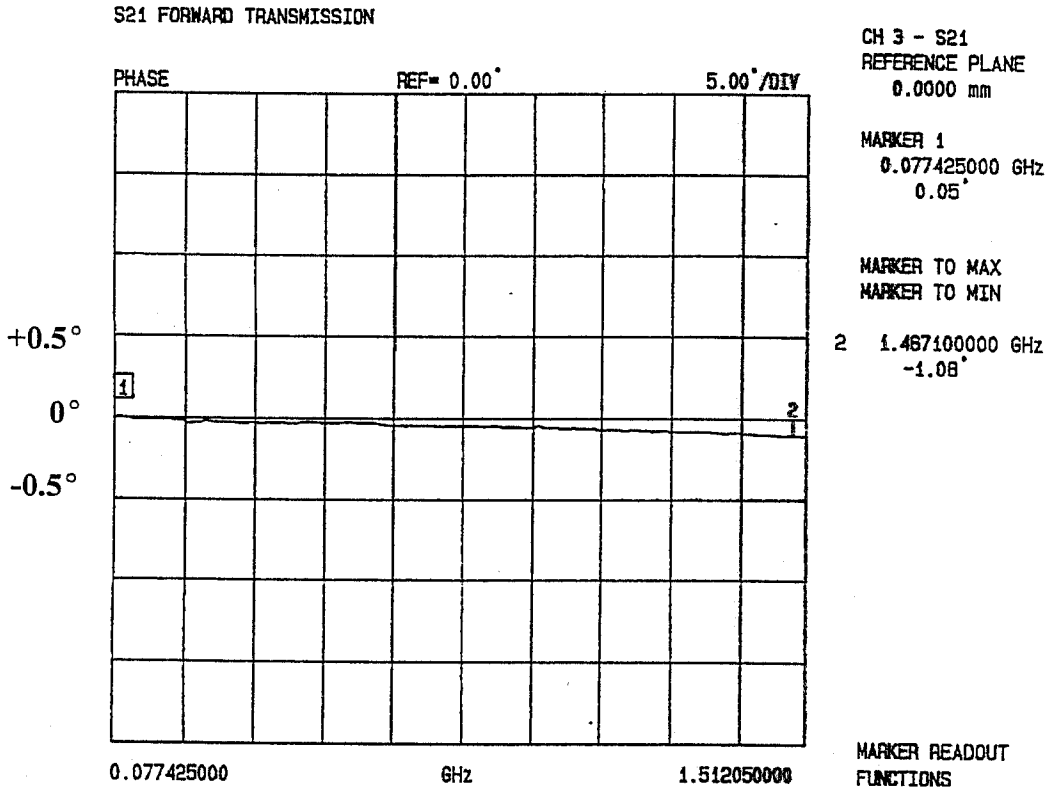
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*

J9-J5



*J9: INPUT ARM

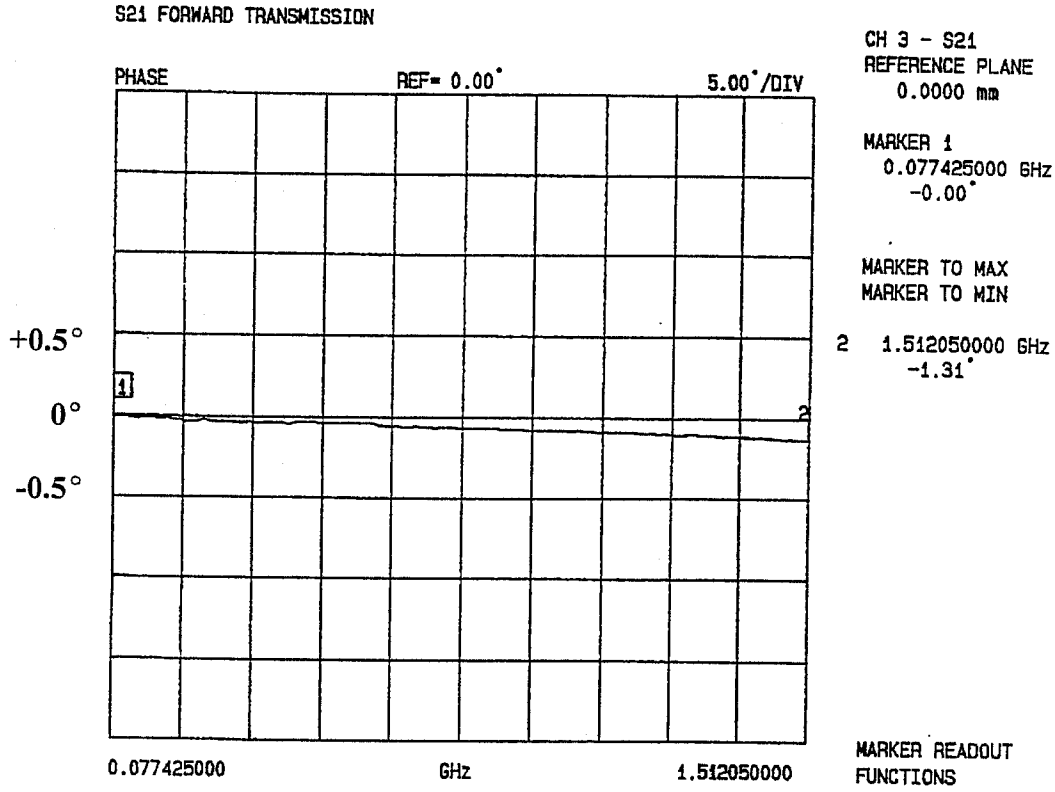
FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
77 MHZ	0.05°	
1.48 GHz		-1.08°

SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*
J9-J6



*J9: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
77 MHZ	0.00°	
1.51 GHz		-1.31°

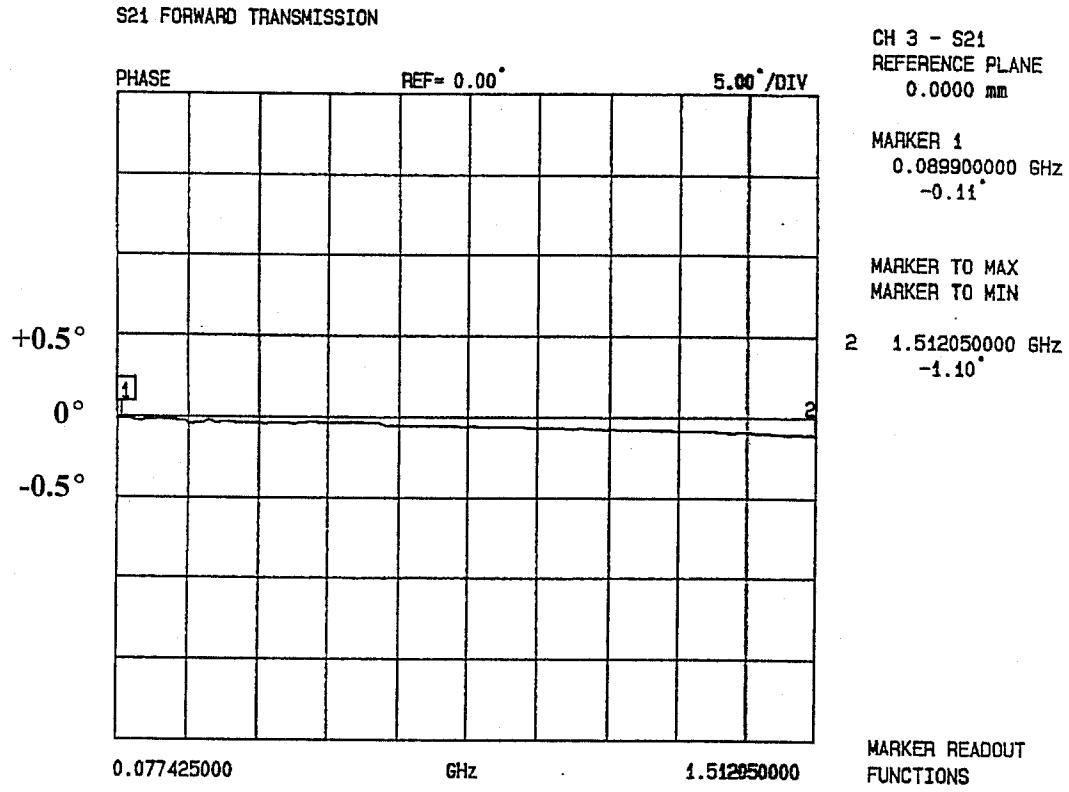
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*
J9-J7



*J9: INPUT ARM

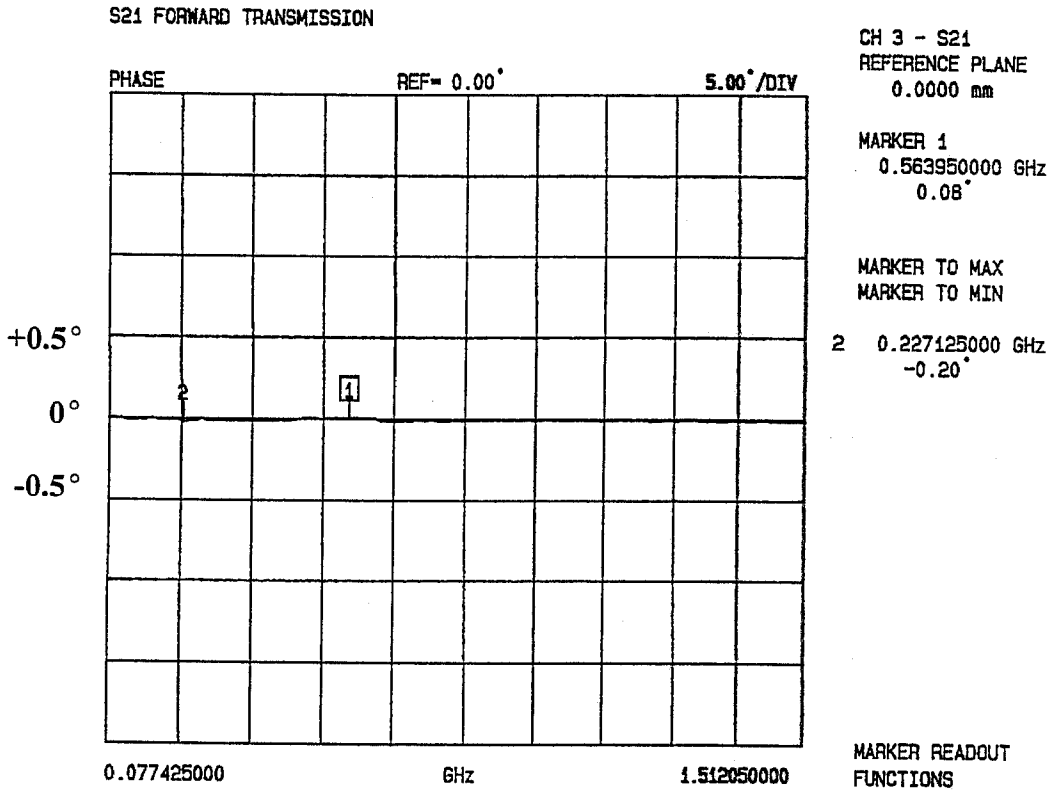
FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
89 MHZ		-0.11°
1.51 GHz		-1.10°

SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

PHASE*
J9-J8



*J9: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
563 MHZ	0.08°	
227 MHz		-0.20°

SEPTEMBER 15, 1999

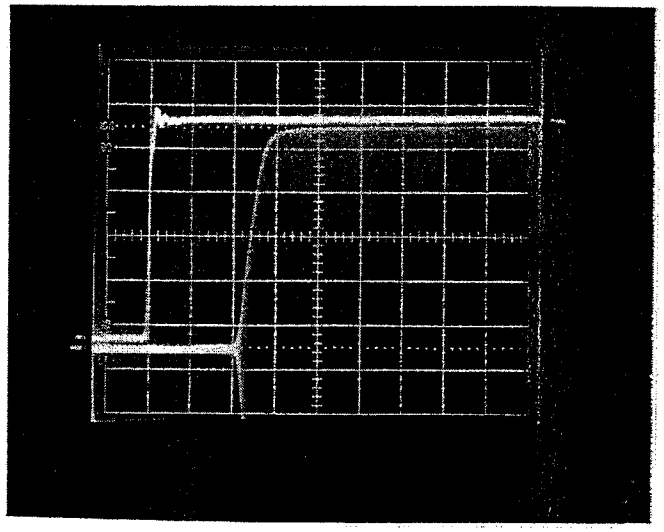
SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

SWITCHING SPEED

"Rise/Fall" Time: 10% RF to 90% RF & 90% RF to 10% RF
"On/Off" Time: 50% TTL to 90% RF or 10% RF

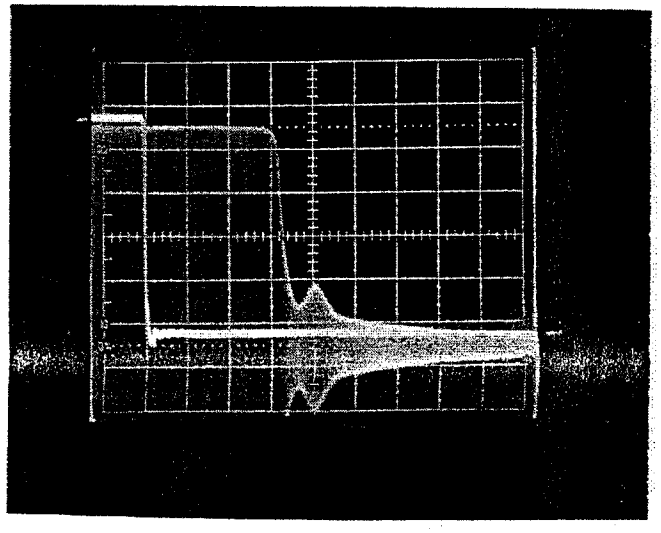
TYPICAL OF ALL ARMS



"DELAY ON": 135 nS
"RISE TIME": 25 nS

HORIZONTAL SCALE:
50 nS PER DIVISION

VERTICAL SCALE:
10 mV PER DIVISION



"DELAY OFF": 250nS
"FALL TIME": 100 nS

HORIZONTAL SCALE:
50 nS PER DIVISION

VERTICAL SCALE:
10 mV PER DIVISION

SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

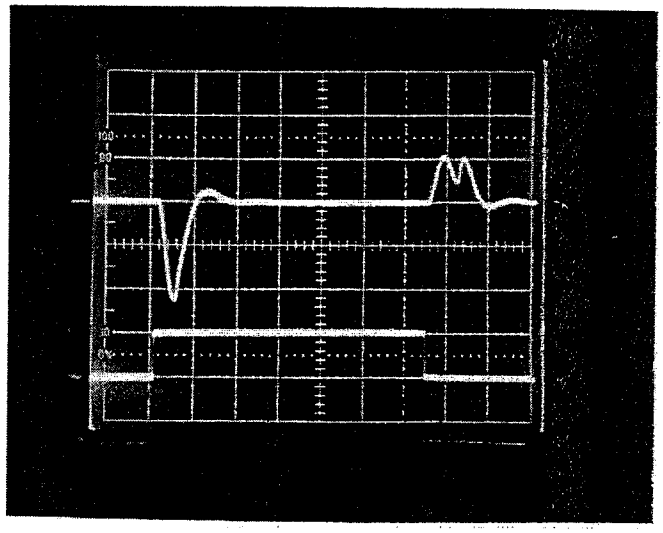
VIDEO TRANSIENTS

TYPICAL OF ALL ARMS

≤3.4 V P-P
MEASURED IN A
300 MHZ BANDWIDTH

VERTICAL SCALE:
1 V PER DIVISION

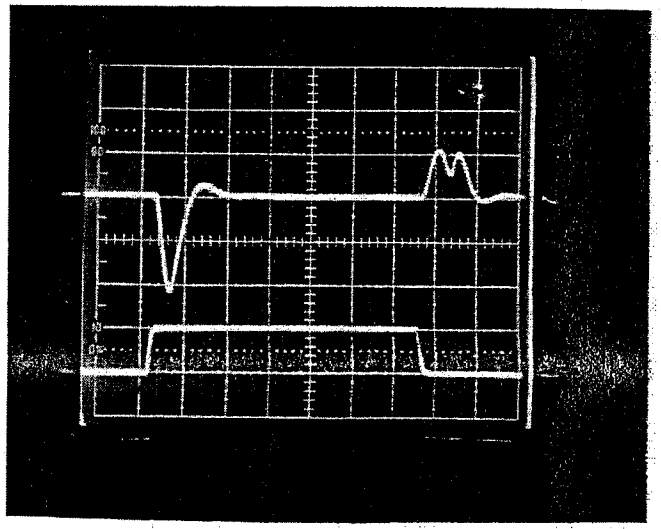
HORIZONTAL SCALE:
0.2 uS PER DIVISION



≤3.25 V P-P
MEASURED IN A
20 MHZ BANDWIDTH

VERTICAL SCALE:
1 V PER DIVISION

HORIZONTAL SCALE:
0.2 uS PER DIVISION



SEPTEMBER 15, 1999

AMERICAN MICROWAVE CORPORATION

APPENDIX A

MISCELLANEOUS

TEST DATA AND PLOTS

ON

ISOLATION

AS

MEASURED

ON A SCALAR NETWORK

ANALYZER

(NOISE FLOOR OF SCALAR NETWORK ANALYZER IS -70 dB)

ON A

SP8T

RADIAL SOLID STATE SWITCH

(SURFACE MOUNTABLE)

AMC MODEL No:
MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

(Serial Number: 8MS90646)

FROM 70 MHz TO 1.5 GHz

REPORTED AND PREPARED
BY
RENE AFABLE

SEPTEMBER 15, 1999

7311 G GROVE ROAD, FREDERICK, MARYLAND 21704 • Tel. (301) 662-4700 • Fax (301) 662-4938

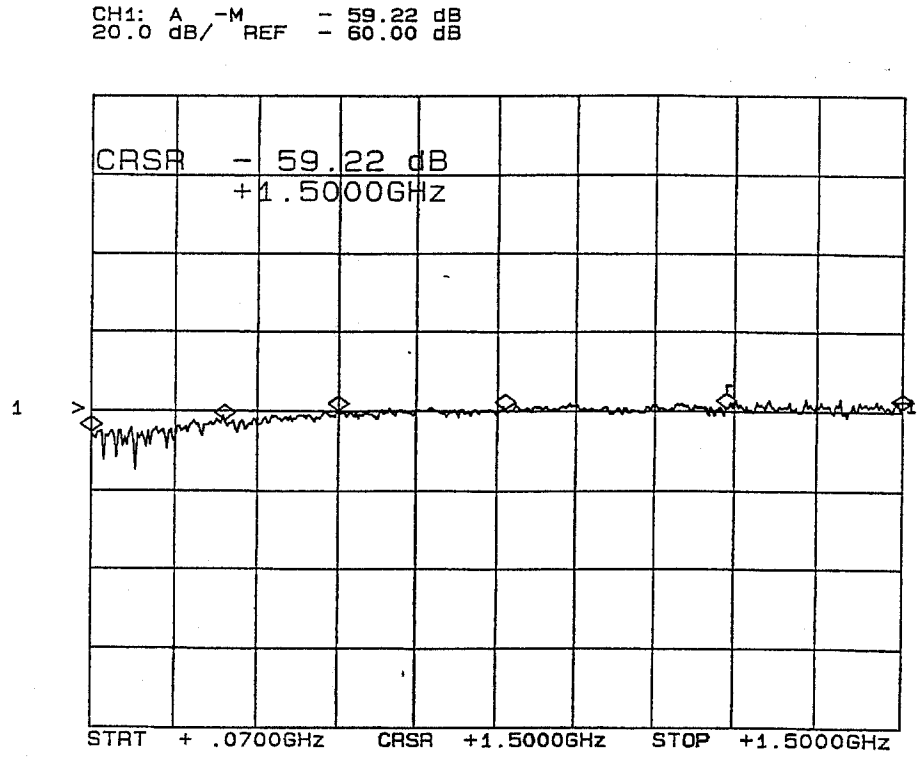
SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J9-J1



*J9: INPUT ARM

FREQUENCY	ISOLATION
70 MHz	65.2 dB
300 MHz	62.2 dB
500 MHz	59.9 dB
800 MHz	59.5 dB
1.2 GHz	59.0 dB
1.5 GHz	59.2 dB

SEPTEMBER 15, 1999

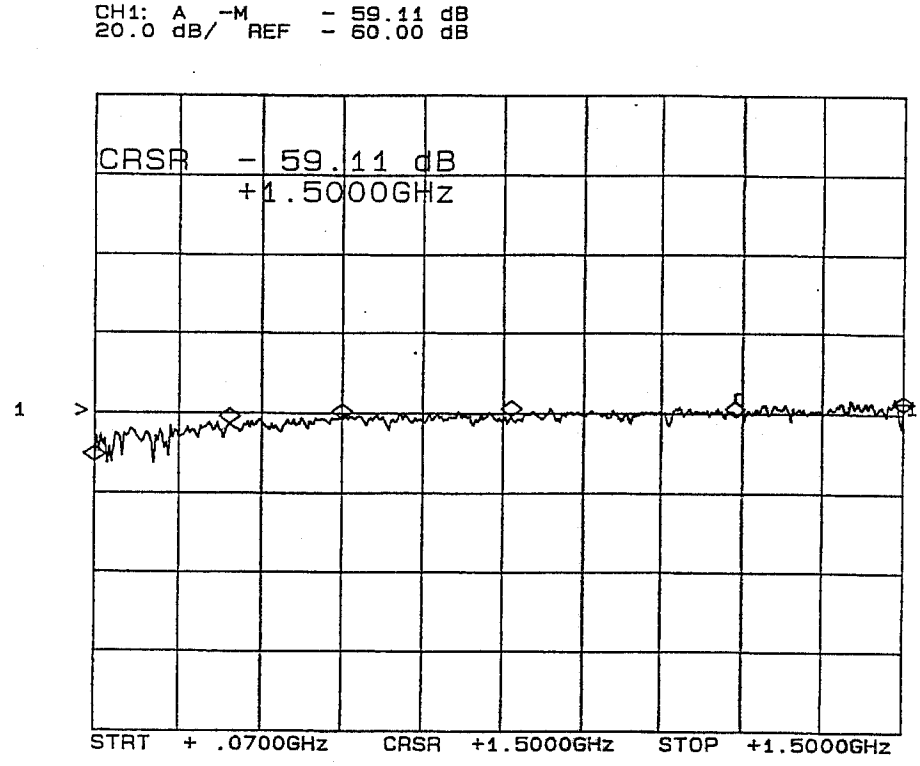
SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J9-J2



*J9: INPUT ARM

FREQUENCY	ISOLATION
70 MHz	71.9 dB
300 MHz	62.5 dB
500 MHz	61.4 dB
800 MHz	60.4 dB
1.2 GHz	60.4 dB
1.5 GHz	59.1 dB

SEPTEMBER 15, 1999

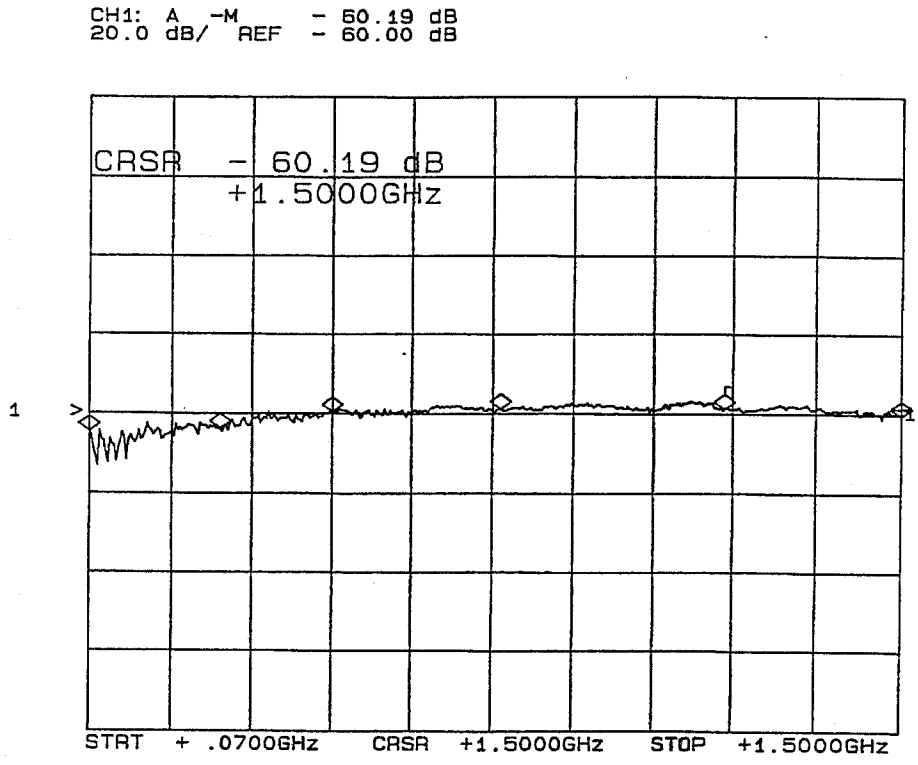
SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J9-J3



*J9: INPUT ARM

FREQUENCY	ISOLATION
70 MHz	64.6 dB
300 MHz	63.5 dB
500 MHz	59.3 dB
800 MHz	58.7 dB
1.2 GHz	58.5 dB
1.5 GHz	60.1 dB

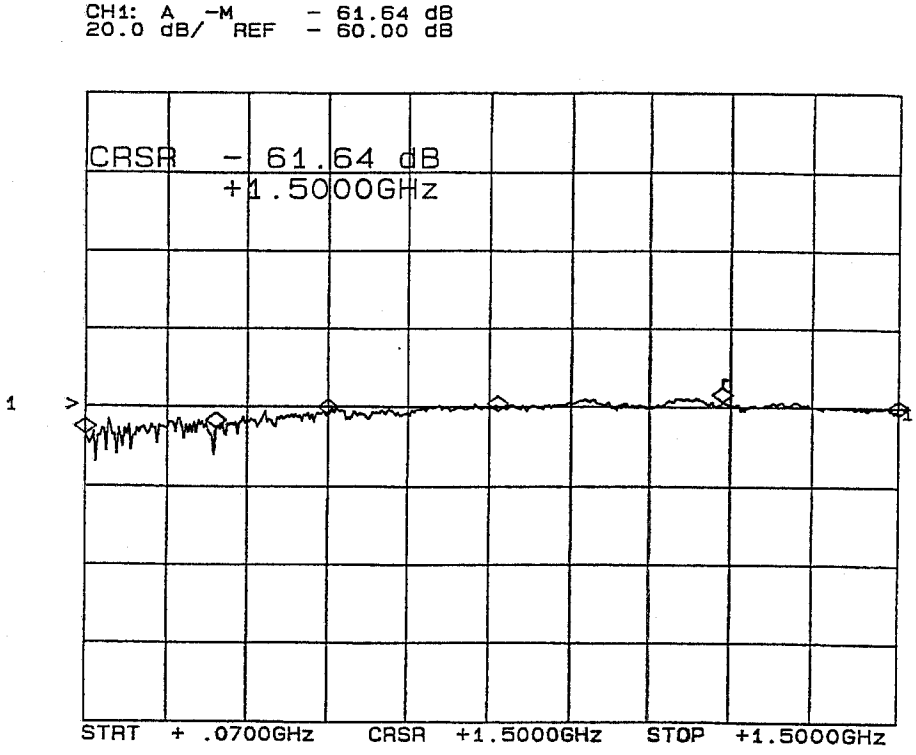
SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)
J9-J4



*J9: INPUT ARM

FREQUENCY	ISOLATION
70 MHz	66.8 dB
300 MHz	65.2 dB
500 MHz	61.7 dB
800 MHz	60.8 dB
1.2 GHz	58.6 dB
1.5 GHz	61.6 dB

SEPTEMBER 15, 1999

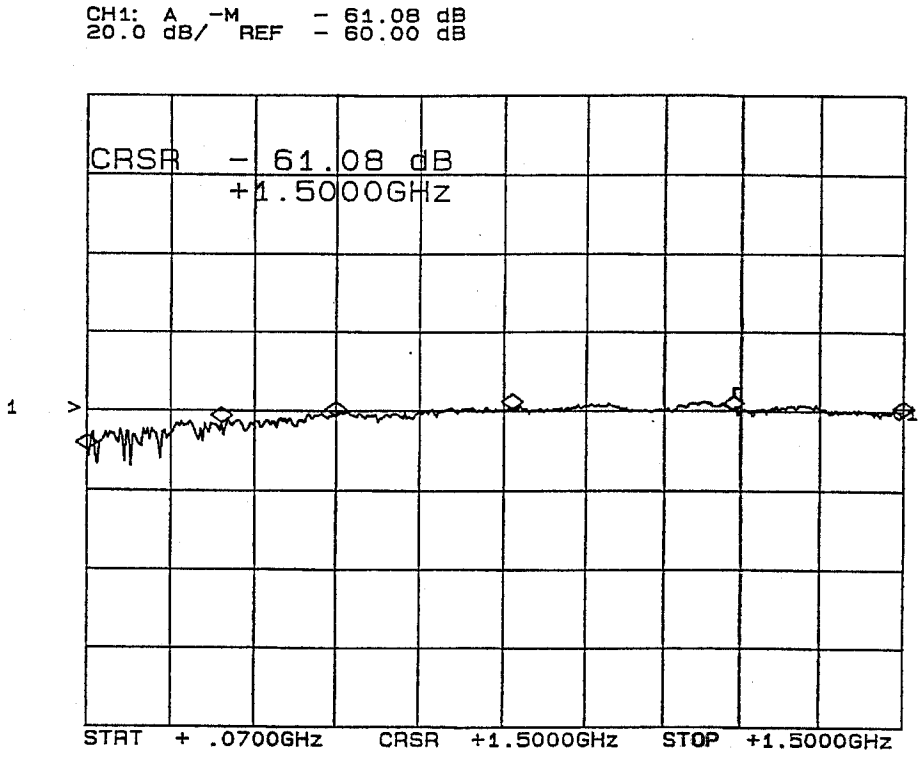
SUMMARY TEST DATA

MODEL NUMBER	: MSR-8DR-04-STANDARD OPTIONS 50M105, SPARWAR, 2SS, 45004
SERIAL NUMBER	: 8MS90646
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J9-J5



***J9: INPUT ARM**

FREQUENCY	ISOLATION
70 MHz	69.6 dB
300 MHz	62.6 dB
500 MHz	61.1 dB
800 MHz	59.4 dB
1.2 GHz	59.6 dB
1.5 GHz	61.0 dB

SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646

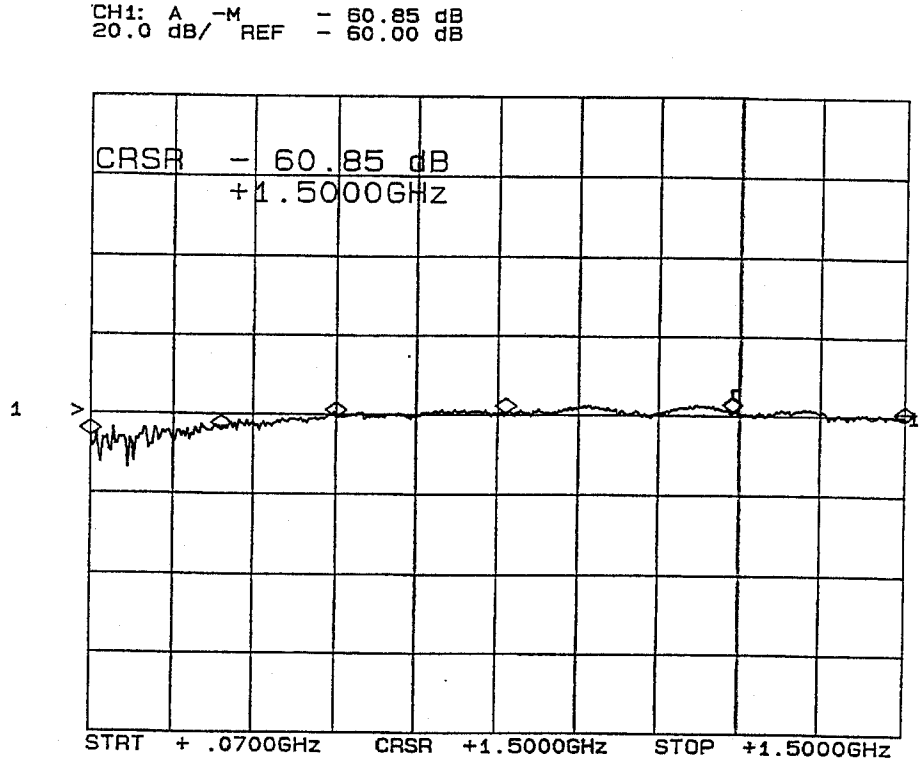
ENGINEER : RENE AFABLE

VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J9-J6



*J9: INPUT ARM

FREQUENCY	ISOLATION
70 MHz	65.4 dB
300 MHz	63.8 dB
500 MHz	60.5 dB
800 MHz	59.5 dB
1.2 GHz	59.1 dB
1.5 GHz	60.8 dB

SEPTEMBER 15, 1999

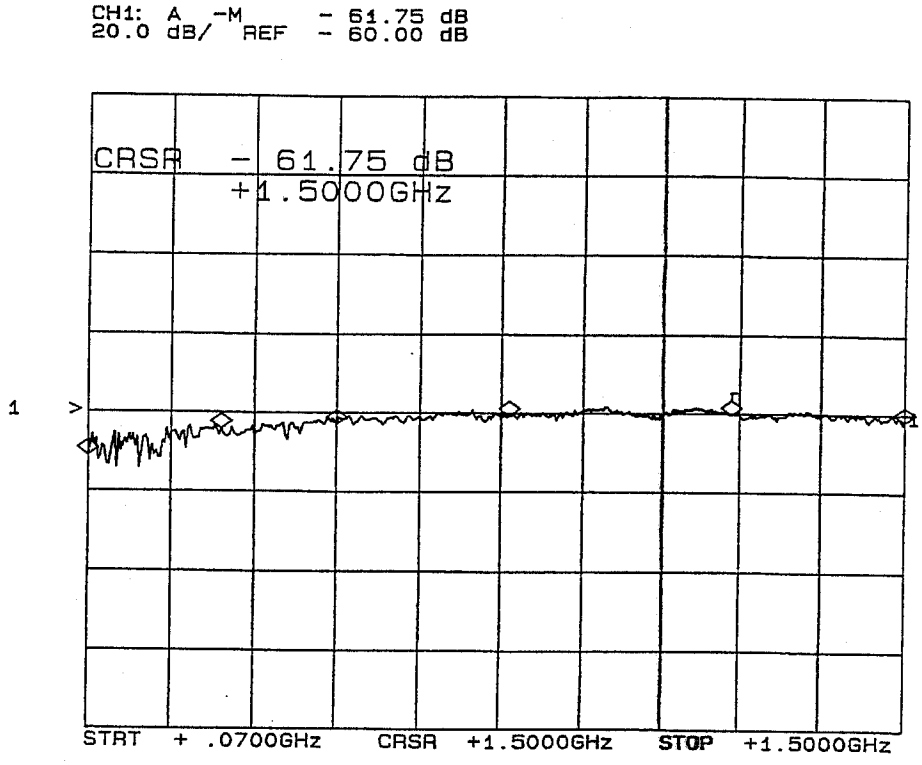
SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)
J9-J7



*J9: INPUT ARM

FREQUENCY	ISOLATION
70 MHz	70.7 dB
300 MHz	63.9 dB
500 MHz	62.8 dB
800 MHz	60.3 dB
1.2 GHz	60.3 dB
1.5 GHz	61.7 dB

SEPTEMBER 15, 1999

SUMMARY TEST DATA

MODEL NUMBER : MSR-8DR-04-STANDARD
OPTIONS 50M105, SPARWAR, 2SS, 45004

SERIAL NUMBER : 8MS90646

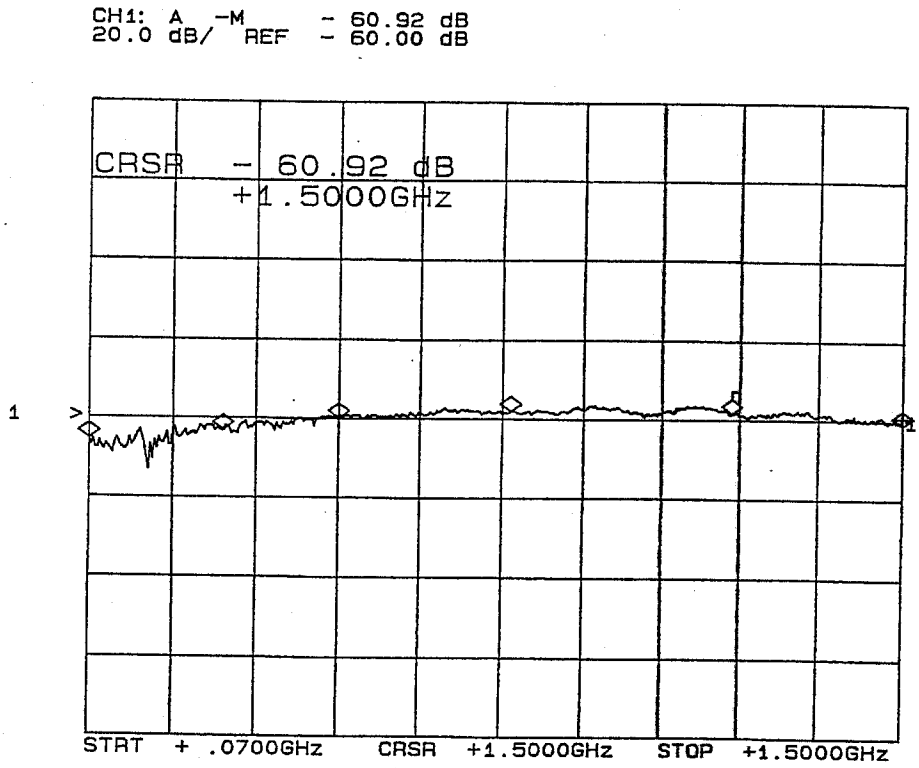
ENGINEER : RENE AFABLE

VOLTAGE & CURRENT DRAW : +5vdc: @+3.9mA; -5vdc: @ -51.2mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J9-J8



*J9: INPUT ARM

FREQUENCY	ISOLATION
70 MHz	65.1 dB
300 MHz	63.0 dB
500 MHz	59.8 dB
800 MHz	57.8 dB
1.2 GHz	58.2 dB
1.5 GHz	60.9 dB

SEPTEMBER 15, 1999