



TEST DATA

ON

2 GHz TO 12 GHz

VERY HIGH ISOLATION (100dB)

ULTRA HIGH SPEED

RECTANGULAR
(SURFACE MOUNTABLE)

NON-REFLECTIVE/ABSORPTIVE

SP7T

SOLID STATE SWITCH

AMC MODEL No:
MSN-7DT-06-DEC-SP OPTION B05, 612
(Serial Number: 7MS00642)

PREPARED
BY
KATIE BAISEY

TESTED
BY
RENE AFABLE

AUGUST 15, 2000

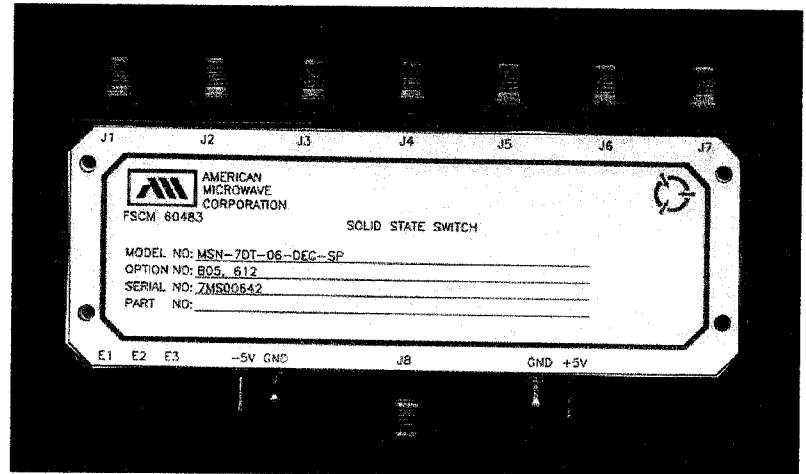


**AMERICAN MICROWAVE
CORPORATION**

VERY HIGH ISOLATION NON- REFLECTIVE/ABSORPTIVE SP7T SOLID STATE SWITCH

KEY FEATURES

- 2 GHz TO 12 GHz
- ULTRA HIGH SPEED
- VERY HIGH ISOLATION
- TTL LOGIC COMPATIBLE
- SURFACE MOUNTABLE



AMC MODEL No: MSN-7DT-06-DEC-SP OPTION B05, 612

SPECIFICATIONS: (NON-REFLECTIVE)

- | | | |
|-----------------------------------|---|---|
| • FREQUENCY RANGE | : | 2 GHz to 12 GHz |
| • INSERTION LOSS | : | 4.0 dB MAX. |
| | : | 2.25 dB TYP. @ 2.0 GHz |
| | : | 2.25 dB TYP. @ 6 GHz |
| | : | 4.0 dB TYP. @ 12 GHz |
| • ISOLATION | : | ≥ 90 dB MIN. |
| | : | ≥ 90 dB TYP. @ 2.0 GHz |
| | : | ≥ 100 dB TYP. @ 6 GHz |
| | : | ≥ 100 dB TYP. @ 12 GHz |
| • VSWR | : | 2.0:1 |
| • SWITCHING SPEED | : | "RISE" 5nS MAX., 10nS TYP. |
| | : | "FALL" 5nS MAX., 10nS TYP. |
| | : | "ON" 25nS MAX., 20nS TYP. |
| | : | "OFF" 25nS MAX., 20nS TYP. |
| • CONTROL | : | 3 Bit Decoder (Independent control available) |
| • VIDEO TRANSIENTS | : | ≤0.52V Peak to Peak @ 300 MHZ Bandwidth |
| | : | ≤60 mV Peak to Peak @ 20 MHZ Bandwidth |
| • RF INPUT POWER | : | +20 dBm (Other power Levels available) |
| • DC POWER SUPPLY | : | +5vdc @ 350mA MAX. |
| (Other supply voltages available) | : | - 5vdc @ 100mA MAX. |
| • SIZE | : | 1.5"(L) X 4.10"(W) X 0.50"(H) |
| • WEIGHT | : | ≤ 5.5 oz. |

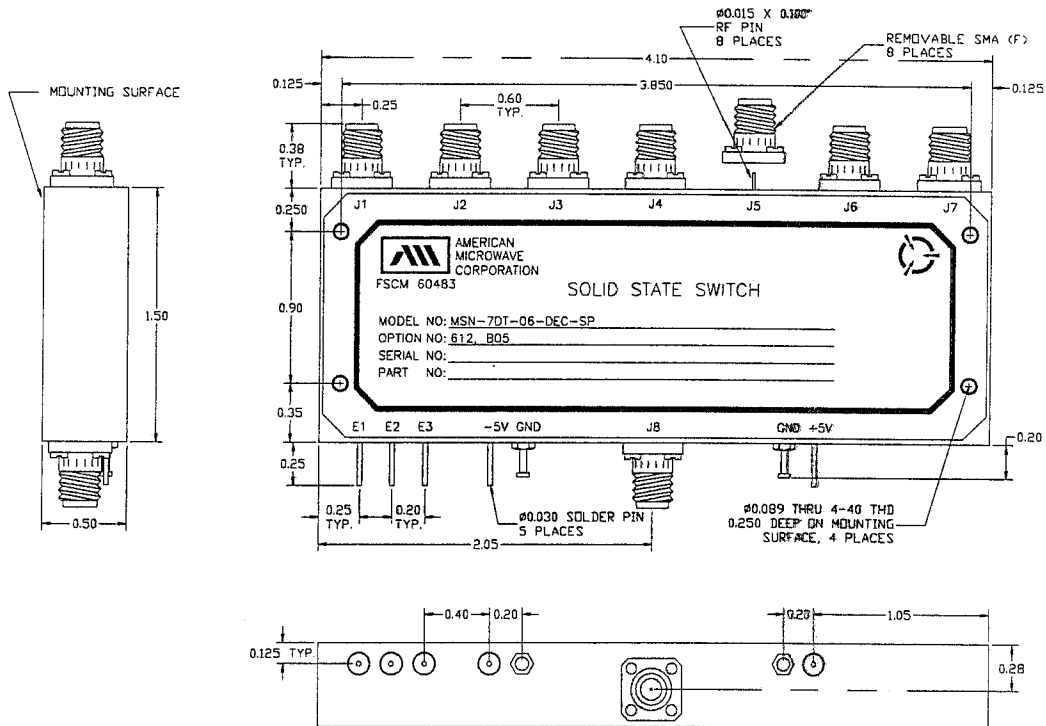
AUGUST 15, 2000

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



SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ +188mA; -5vdc @ 45mA



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.

AUGUST 15, 2000

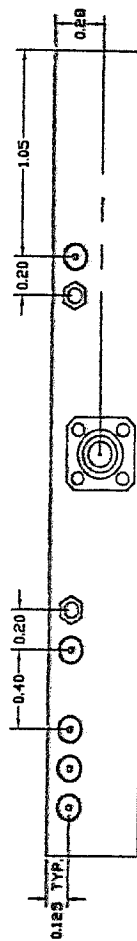
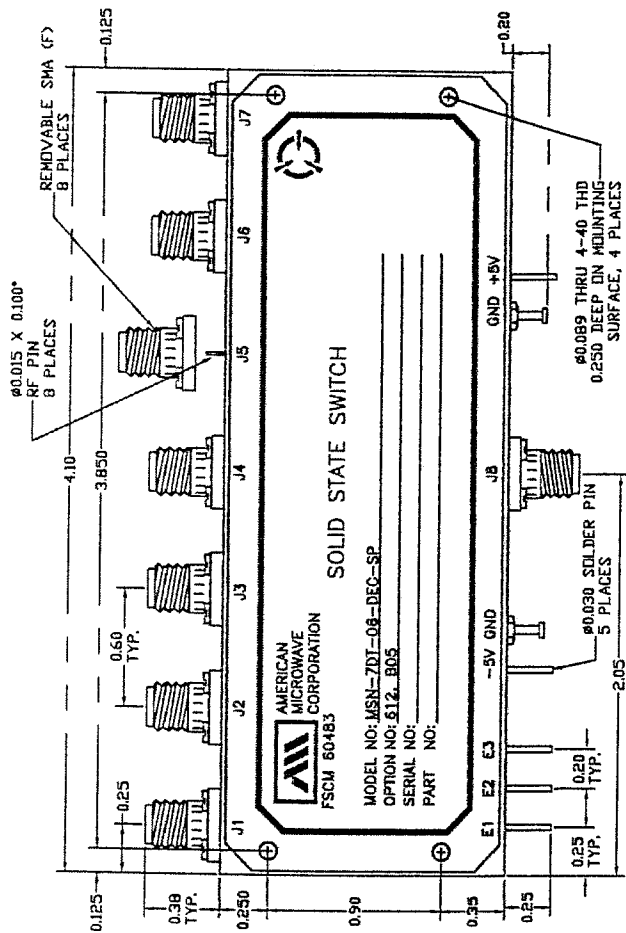
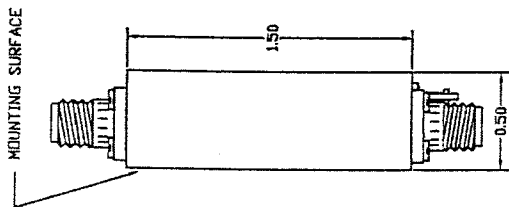
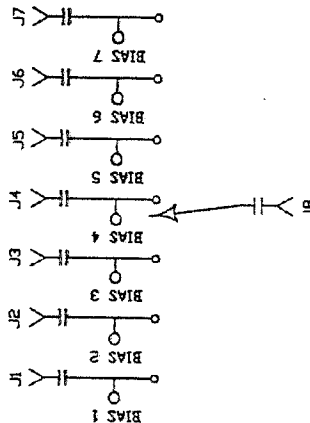
DESCRIPTION:

AMC MODEL MS4 JT-06-DEC-SP OPTION 612, B05 IS A SINGLE POLE SEVEN THROW, ABSORPTIVE/NON-REFLECTIVE SWITCH MODULE WITH VERY HIGH ISOLATION, LOW INSERTION LOSS AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR THE 6 TO 12 GHZ BANDWIDTH.

SPECIFICATIONS:

- FREQUENCY: 6 GHZ TO 12 GHZ
- INSERTION LOSS: 3.5db TYPICAL, 4.0db MAX.
- ISOLATION: 6 GHZ TO 12 GHZ: 100db
- VSWR: ABSORPTIVE IN/OUT: 2.0:1
ABSORPTIVE OUT/OFF: 2.0:1
- SPEED: DELAY ON: 20ns MAX.
DELAY OFF: 20ns MAX.
- CONTROL CONNECTORS: SOLDER PINS
- POWER INPUT: +10 dBm (HIGH SPEED)
- CONTROL: TTL LOGIC "0"=ON "1"=OFF
- POWER SUPPLY: +5V @ 350 mA MAX.
-5V @ 100mA MAX.
- RF CONNECTORS: SMA FEMALE
- SIZE: 1.50 (L) X 4.10 (W) X 0.50 (H)
- WEIGHT: 5.5 OUNCES TYPICAL

BLOCK DIAGRAM



REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED
		ORIGINAL JOB# 003059E-2	05/20/00	

SOLID STATE SWITCH

AMERICAN MICROWAVE CORPORATION
FSCM 60483

MODEL NO: MSN-7DT-06-DEC-SP
OPTION NO: 612_B05
SERIAL NO:
PART NO:

CONFIDENTIAL AND PROPRIETARY

PART NO.		APPROVALS		DATE	
DRAWN	YPC	CHECKED	RA	ISSUED	YPC
					05/20/00
					05/20/00
					05/21/00

TITLE		SCALE N/S	
AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND		100-5424-1	
PRODUCT FEATURE		ENG NO.	
MSN-7DT-06-DEC-SP		60483	
OPTIONS 612, B05		REV.	
		1	
		OF 3	

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

ZONE	REV.	DESCRIPTION	DATE	APPROVED
		ORIGINAL RELEASE	3/11/00	

DESCRIPTION
 AMC MODEL MSN-7DR/DI-06-STANDARD IS A SINGLE POLE SEVEN THROW, REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SWITCH MODULE WITH HIGH ISOLATION, LOW LOSS, HIGH SPEED, AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR BROAD BAND OPERATIONS.

SPECIFICATIONS:

- FREQUENCY: 0.5 GHz TO 18 GHz
- REFLECTIVE: 3.75db
- ABSORPTIVE: 4.25db
- 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 @ 350 mA MAX.
-5V @ 75mA MAX.(REFLECTIVE)
-100mA MAX.(ABSORPTIVE/NON-REFLECTIVE)

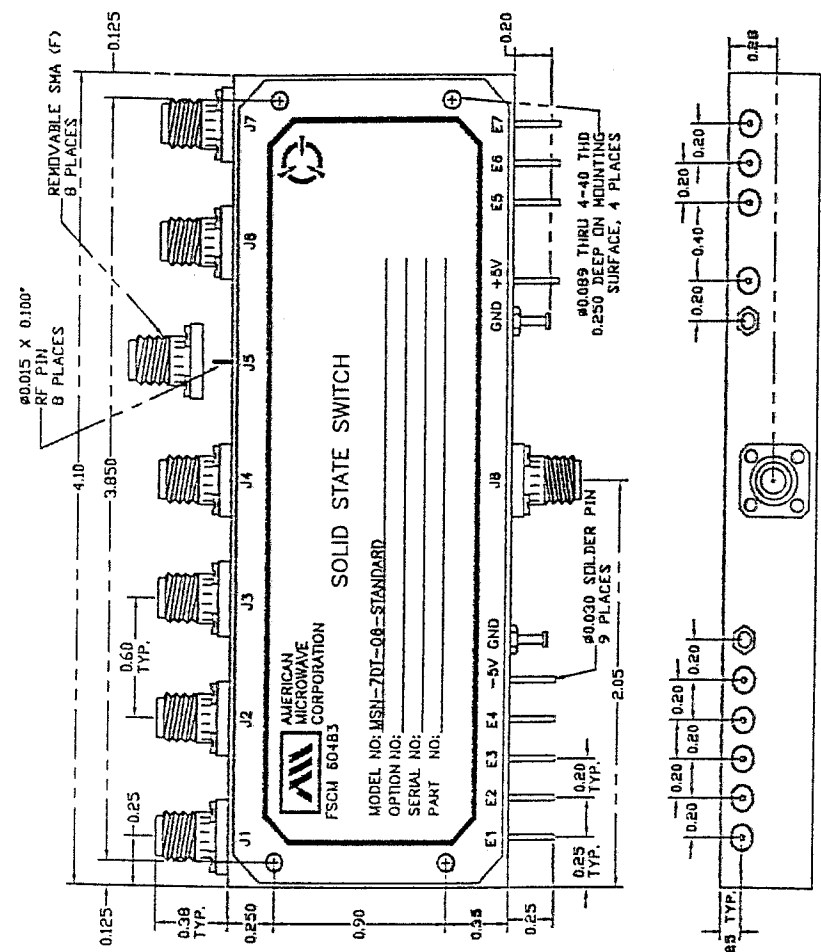
OPTIONS:

- INDEPENDENT CONTROL WITH SOLDER PIN STANDARD
- DEC-MP: 3 BIT DECODER WITH MULTIPIN
- DEC-SP: 3 BIT DECODER WITH SOLDER PIN
- MP-IND: INDEPENDENT CONTROL WITH MULTIPIN
- 10M1B: 10 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 10 MHz AND 0.5db AT 18 GHz)
- 100M1B: 100 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 0.5db AT 18 GHz)
- 11B: 1 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 21B: 2 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 41B: 4 GHz TO 12.4 GHz (NO CHANGE IN INSERTION LOSS)
- 61B: 6 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 121B: 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 25 nsec MAXIMUM WHEN APPLICABLE
- 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

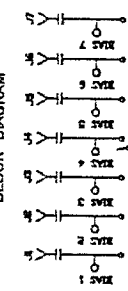
ENVIRONMENTAL RATINGS:

- 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



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



CONFIDENTIAL AND PROPRIETARY

PART NO.		APPROVALS		DATE	
DRAWN W.P.P. & R.R.A.		CHECKED P.A.		8/11/00	
ISSUED W.P.P.		REVISED R.R.A.		8/20/00	
TITLE AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND		PRODUCT FEATURE MSN-7DR/DI-06-STANDARD REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SOLID STATE SWITCH		REV. -	
SIZE A		FSDJ NO. 60483		DWG NO. 100-5424-2	
SCALE N/S		SHEET 1 of 3			

DESCRIPTION
 DT-06-DEC-SP IS A SINGLE POLE SEVEN THROW, REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SWITCH MODULE WITH HIGH ISOLATION, LOW LOSS, HIGH SPEED, AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR BROAD BAND OPERATIONS.

SPECIFICATIONS:

- FREQUENCY: 0.5 GHz TO 18 GHz
- REFLECTIVE: 3.75db
- ABSORPTIVE: 4.25db
- 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 350 mA MAX.
- -5V 75mA MAX.(RELECTIVE)
- 100mA MAX.(ABSORPTIVE/NON-REFLECTIVE)

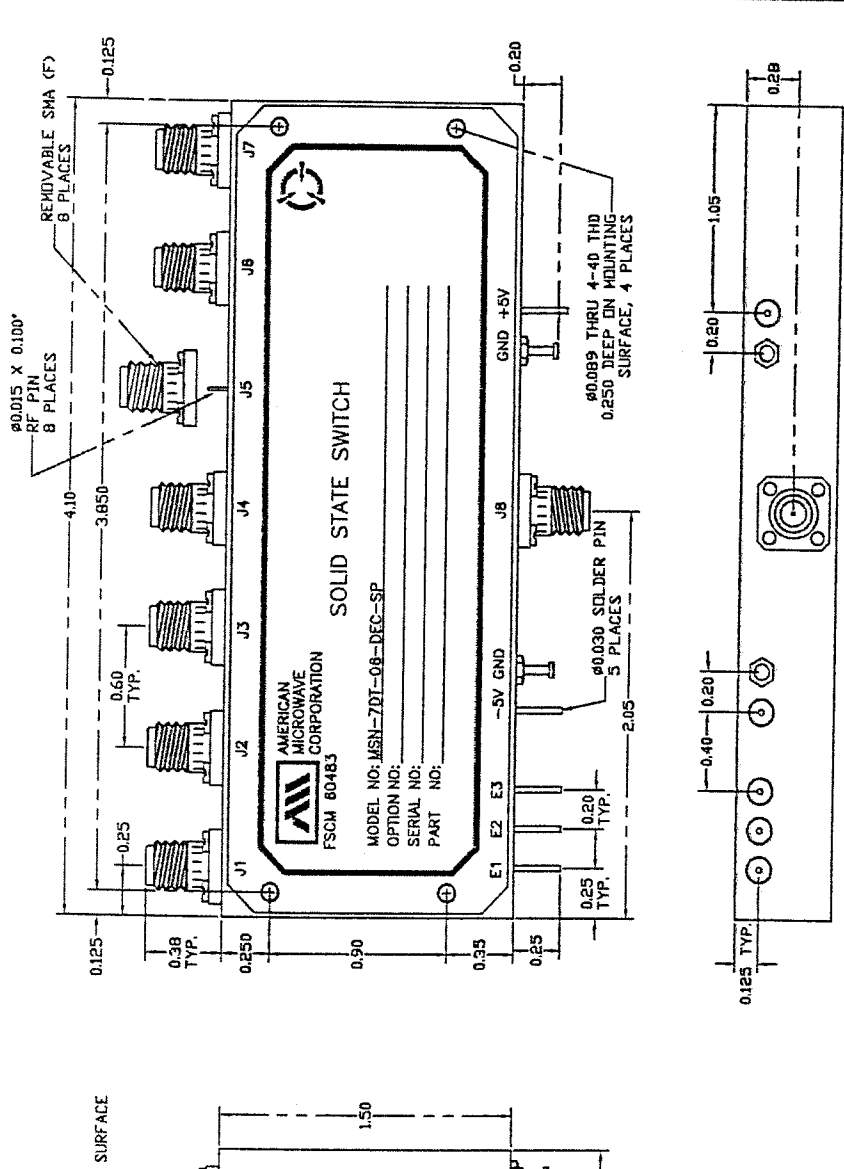
OPTIONS:

- INDEPENDENT CONTROL WITH SOLDER PIN STANDARD
- DEC-MP 3 BIT DECODER WITH MULTIPIN
- DEC-SP 3 BIT DECODER WITH SOLDER PIN
- MP-IND INDEPENDENT CONTROL WITH MULTIPIN
- 10M1B 10 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 10 MHz AND 0.5db AT 18 GHz)
- 100M1B 100 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 0.5db AT 18 GHz)
- 11B 1 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 21B 2 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 41B 4 GHz TO 12.4 GHz (NO CHANGE IN INSERTION LOSS)
- 61B 6 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 121B 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 25 nsec MAXIMUM WHEN APPLICABLE
- 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 TRANSMISSIONS - 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

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

CONFIDENTIAL AND PROPRIETARY

AMERICAN MICROWAVE CORPORATION
 FREDERICK, MARYLAND

PRODUCT FEATURE
 MSN-7DR/DT-06-DEC-SP
 REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE
 SOLID STATE SWITCH

APPROVALS: [Signatures] DATE: 8/11/00
 DRAWN: WCP & RBL DATE: 8/11/00
 CHECKED: [Signature] DATE: 8/21/00
 ISSUED: [Signature] DATE: 8/21/00

REV. 100-5424-3
 DWG NO. 60483
 SIZE A
 SCALE N/S

SHEET 1 of 1

DESCRIPTION:
 AMC MODEL MSN-7DR/DT-06-MP-IND IS A SINGLE POLE SEVEN THROW, REFLECTIVE OR NON-REFLECTIVE SWITCH MODULE WITH HIGH ISOLATION, LOW LOSS, HIGH SPEED, AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR BROAD BAND OPERATIONS.

SPECIFICATIONS:

- FREQUENCY: 0.5 GHz TO 18 GHz
- REFLECTIVE: 3.75db
- ABSORPTIVE: 4.25db
- 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 @ 350 mA MAX.
- -5V @ 75mA MAX.(REFLECTIVE)
- 100mA MAX.(ABSORPTIVE/NON-REFLECTIVE)

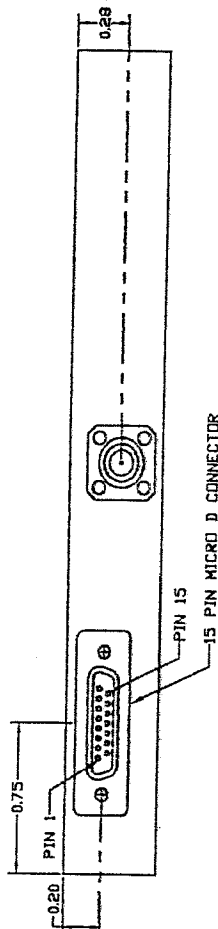
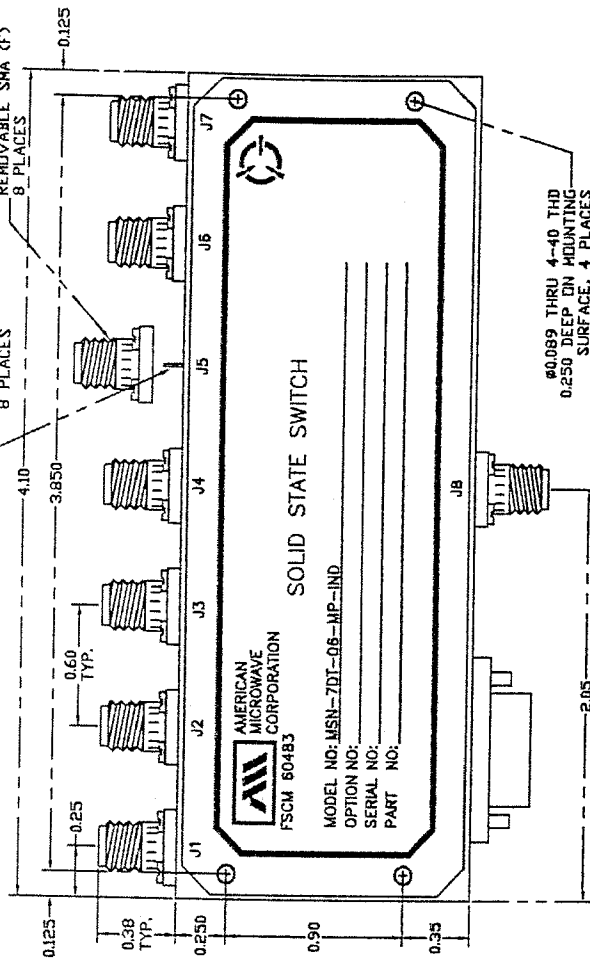
OPTIONS:

- INDEPENDENT CONTROL WITH SOLDER PIN STANDARD
- DEC-MP 3 BIT DECODER WITH MULTIPIN
- DEC-SP 3 BIT DECODER WITH SOLDER PIN
- MP-IND INDEPENDENT CONTROL WITH MULTIPIN
- 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 25 nsec MAXIMUM WHEN APPLICABLE
- 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



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

PIN NO.	FUNCTION
1	E1
2	E2
3	E3
4	E4
5	E5
6	E6
7	E7
8	N/C
9	N/C
10	N/C
11	N/C
12	GND
13	+V
14	-V
15	GND

CONFIDENTIAL AND PROPRIETARY

AMERICAN MICROWAVE CORPORATION
 FREDERICK, MARYLAND

PRODUCT FEATURE
 MSN-7DR/DT-06-MP-IND
 REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE
 SOLID STATE SWITCH

APPROVALS: *WJP* & *RBd* DATE: 8/11/00
 CHECKED: *WJP* DATE: 8/20/00
 ISSUED: *WJP* DATE: 8/21/00

PART NO. A 60483 DWG NO. 100-5424-4
 SCALE N/S SHEET 1 of 3

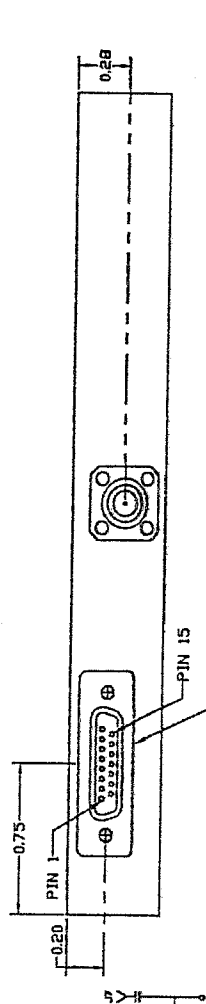
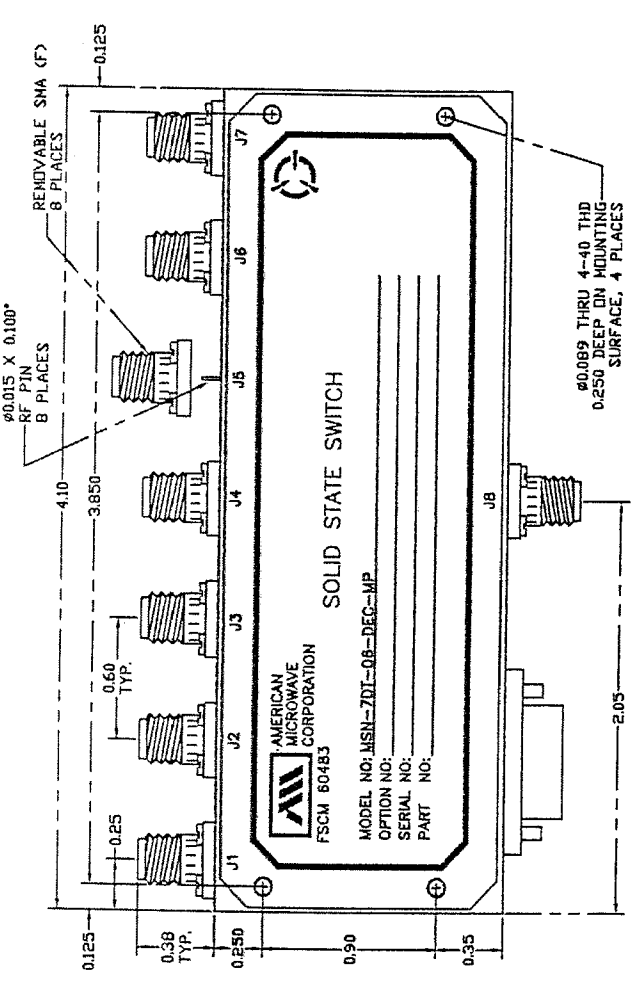
DESCRIPTION:
 AMC MODEL MSN-7DR/DT-06-DEC-MP IS A SINGLE POLE SEVEN THROW, REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SWITCH MODULE WITH HIGH ISOLATION, LOW LOSS, HIGH SPEED, AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR BROAD BAND OPERATIONS.

- SPECIFICATIONS:**
- FREQUENCY: 0.5 GHz TO 18 GHz
 - INSERTION LOSS: REFLECTIVE: 3.75db
ABSORPTIVE: 4.25db
 - 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 350 mA MAX.
-5V 75mA MAX.(REFLECTIVE)
100mA MAX.(ABSORPTIVE/NON-REFLECTIVE)

- OPTIONS:**
- INDEPENDENT CONTROL WITH SOLDER PIN STANDARD
 - DEC-MP 3 BIT DECODER WITH MULTIPIN
 - DEC-SP 3 BIT DECODER WITH SOLDER PIN
 - MP-IND INDEPENDENT CONTROL WITH MULTIPIN
 - 10M1B 10 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 10 MHz AND 0.5db AT 18 GHz)
 - 100M1B 100 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 0.5db AT 18 GHz)
 - 11B 1 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
 - 21B 2 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
 - 41B 4 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
 - 61B 6 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
 - 121B 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 25 nsec MAXIMUM WHEN APPLICABLE
 - 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)
-85°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



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

PIN NO.	FUNCTION
1	E1
2	E2
3	E3
4	N/C
5	N/C
6	N/C
7	N/C
8	N/C
9	N/C
10	N/C
11	N/C
12	GND
13	+V
14	-V
15	GND

CONFIDENTIAL AND PROPRIETARY

AMERICAN MICROWAVE CORPORATION
 FREDERICK, MARYLAND

PRODUCT FEATURE
 MSN-7DR/DT-06-DEC-MP
 REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE
 SOLID STATE SWITCH

APPROVALS: DATE: 8/11/00
 DRAWN: WYP & RJA
 CHECKED: [Signature]
 ISSUED: [Signature]

PART NO. A 60483
 SCALE N/S
 REV. NO. 100-5424-5
 SHEET 1 of 3

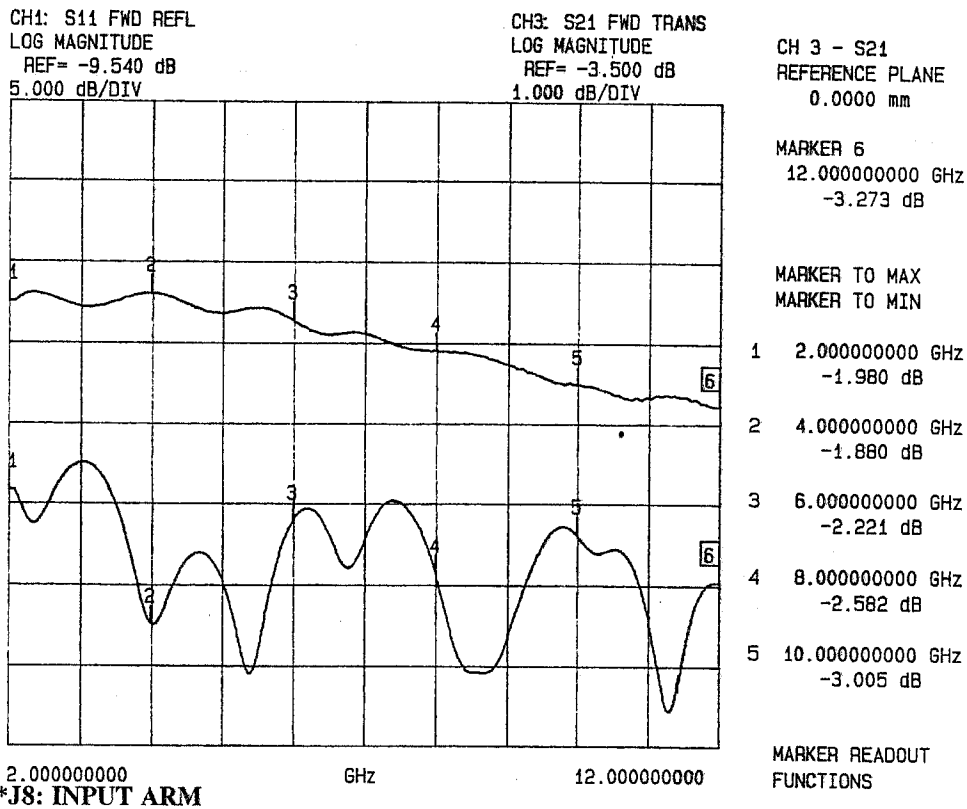


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

INSERTION LOSS & RETURN LOSS*

J8-J1



FREQUENCY	INSERTION LOSS	RETURN LOSS
2.0 GHz	1.98 dB	13.6 dB
4.0 GHz	1.88 dB	21.9 dB
6.0 GHz	2.22 dB	15.5 dB
8.0 GHz	2.58 dB	18.8 dB
10.0 GHz	3.00 dB	16.4 dB
12.0 GHz	3.27 dB	19.3 dB

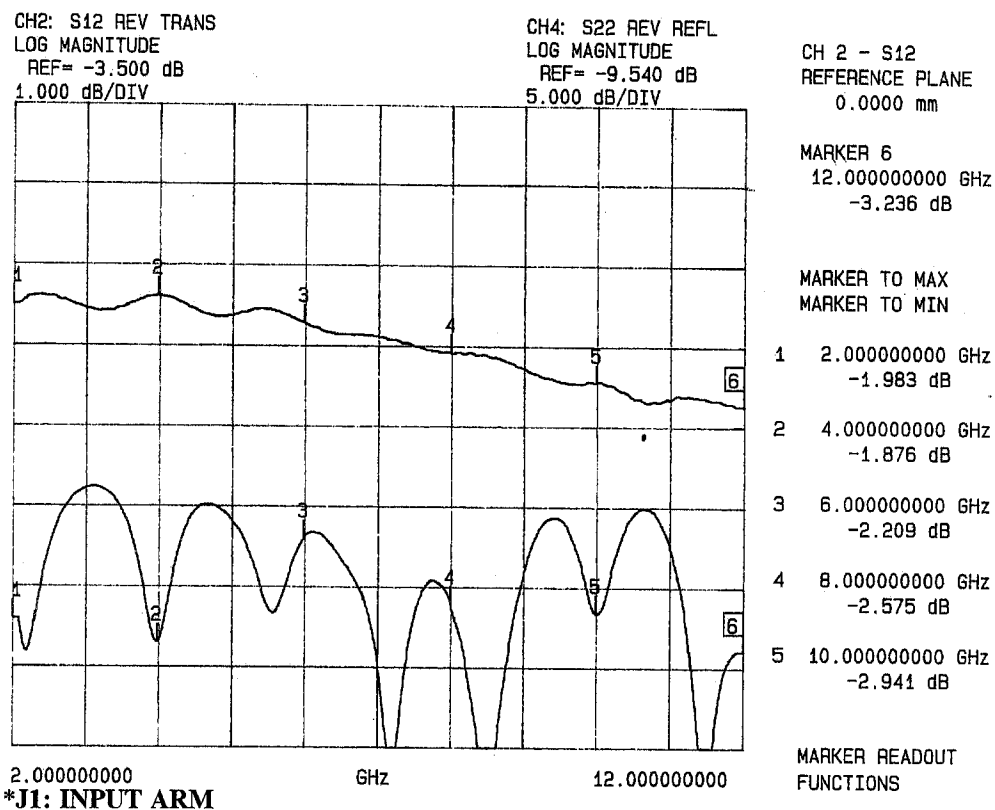


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

INSERTION LOSS & RETURN LOSS*

J1-J8



FREQUENCY	INSERTION LOSS	RETURN LOSS
2.0 GHz	1.98 dB	21.5 dB
4.0 GHz	1.87 dB	22.9 dB
6.0 GHz	2.20 dB	16.4 dB
8.0 GHz	2.57 dB	20.5 dB
10.0 GHz	2.94 dB	21.1 dB
12.0 GHz	3.23 dB	23.4 dB

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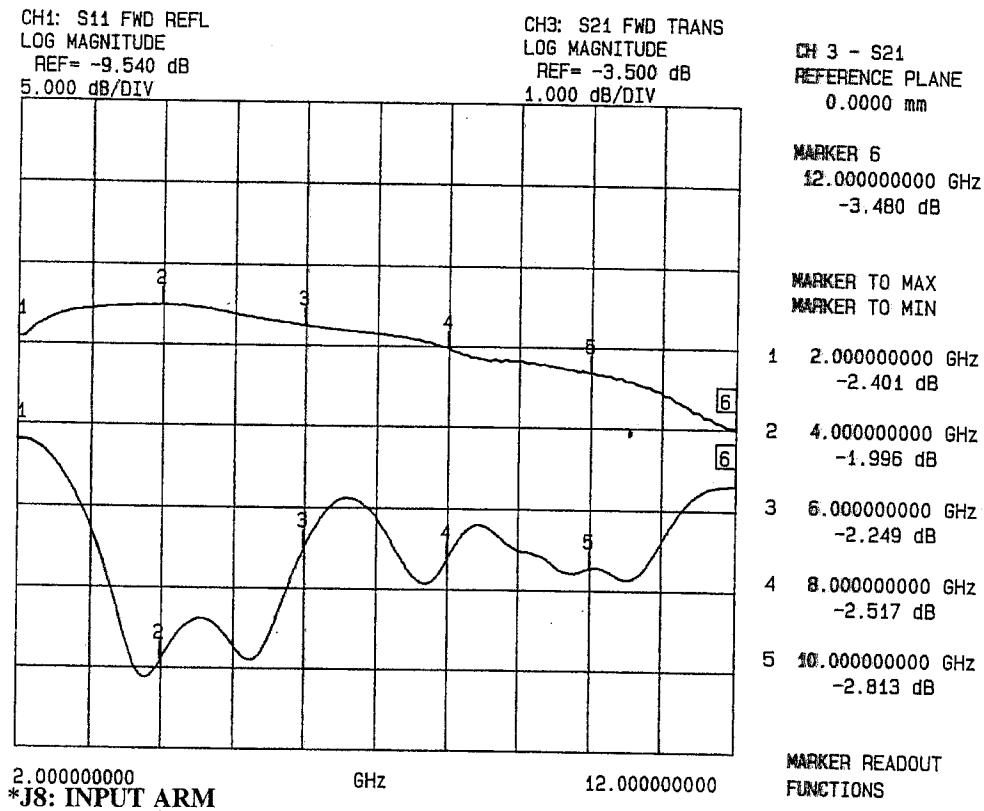


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

INSERTION LOSS & RETURN LOSS*

J8-J2



FREQUENCY	INSERTION LOSS	RETURN LOSS
2.0 GHz	2.40 dB	10.5 dB
4.0 GHz	1.99 dB	24.0 dB
6.0 GHz	2.24 dB	17.0 dB
8.0 GHz	2.51 dB	17.6 dB
10.0 GHz	2.81 dB	18.1 dB
12.0 GHz	3.48 dB	12.9 dB

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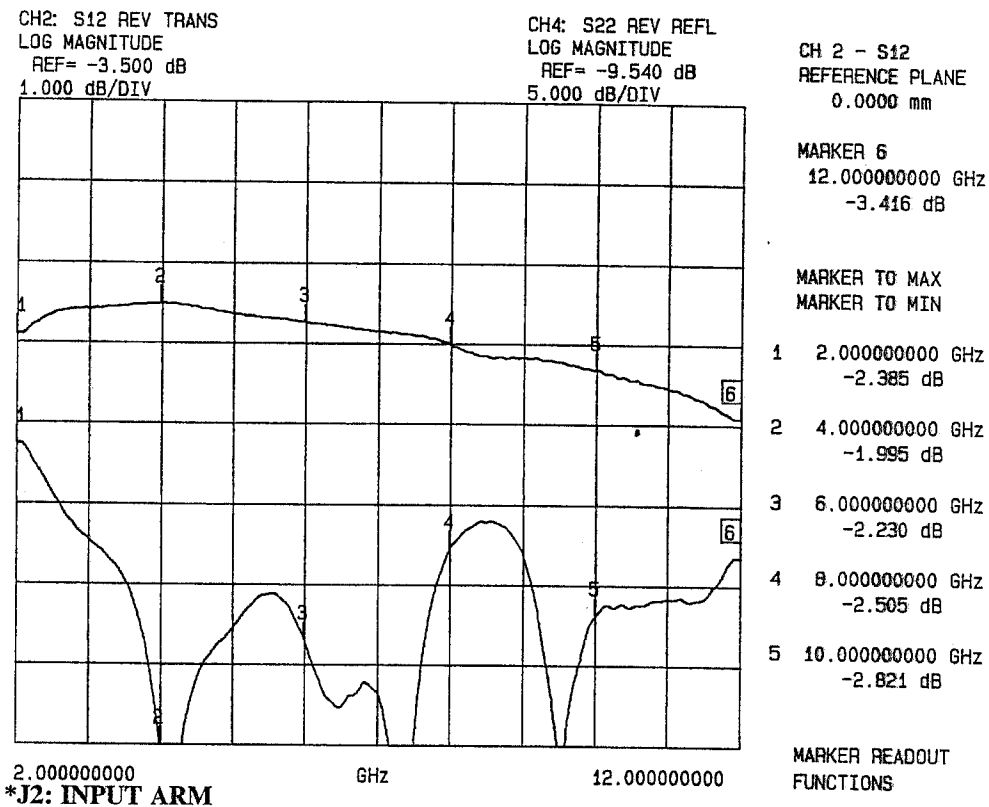


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

INSERTION LOSS & RETURN LOSS*

J2-J8



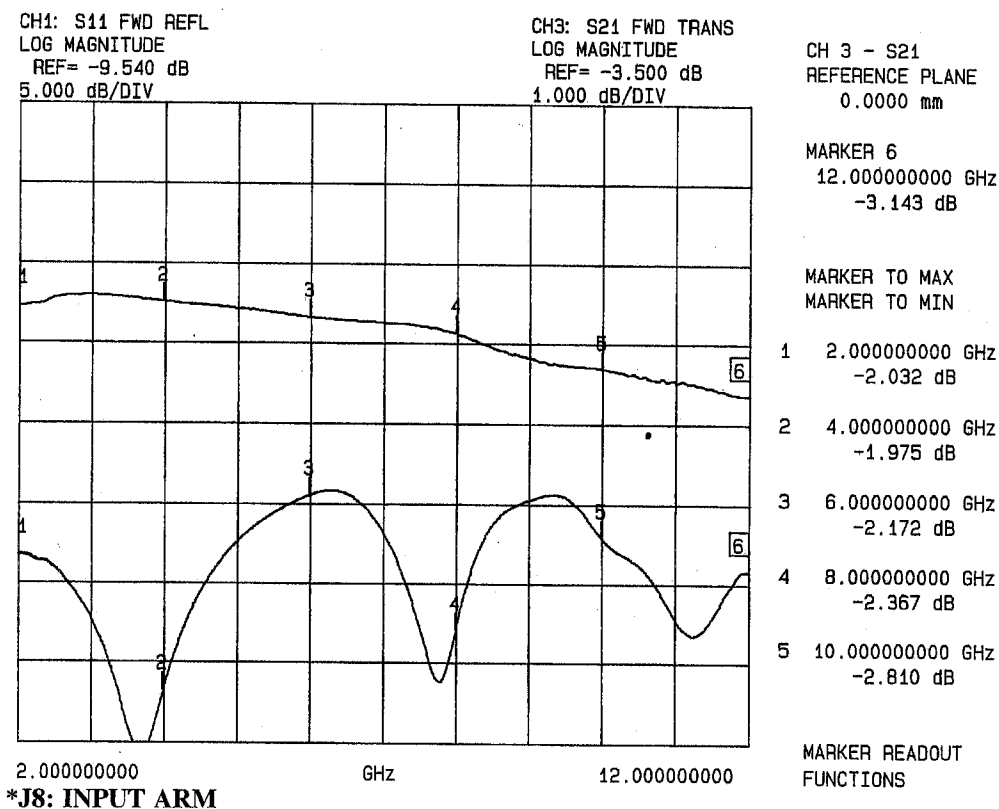
FREQUENCY	INSERTION LOSS	RETURN LOSS
2.0 GHz	2.38 dB	10.8 dB
4.0 GHz	1.99 dB	29.8 dB
6.0 GHz	2.23 dB	22.9 dB
8.0 GHz	2.50 dB	17.2 dB
10.0 GHz	2.82 dB	21.4 dB
12.0 GHz	3.41 dB	17.7 dB



SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

INSERTION LOSS & RETURN LOSS* J8-J3



FREQUENCY	INSERTION LOSS	RETURN LOSS
2.0 GHz	2.03 dB	17.7 dB
4.0 GHz	1.97 dB	26.3 dB
6.0 GHz	2.17 dB	13.9 dB
8.0 GHz	2.36 dB	22.5 dB
10.0 GHz	2.81 dB	16.5 dB
12.0 GHz	3.14 dB	18.6 dB

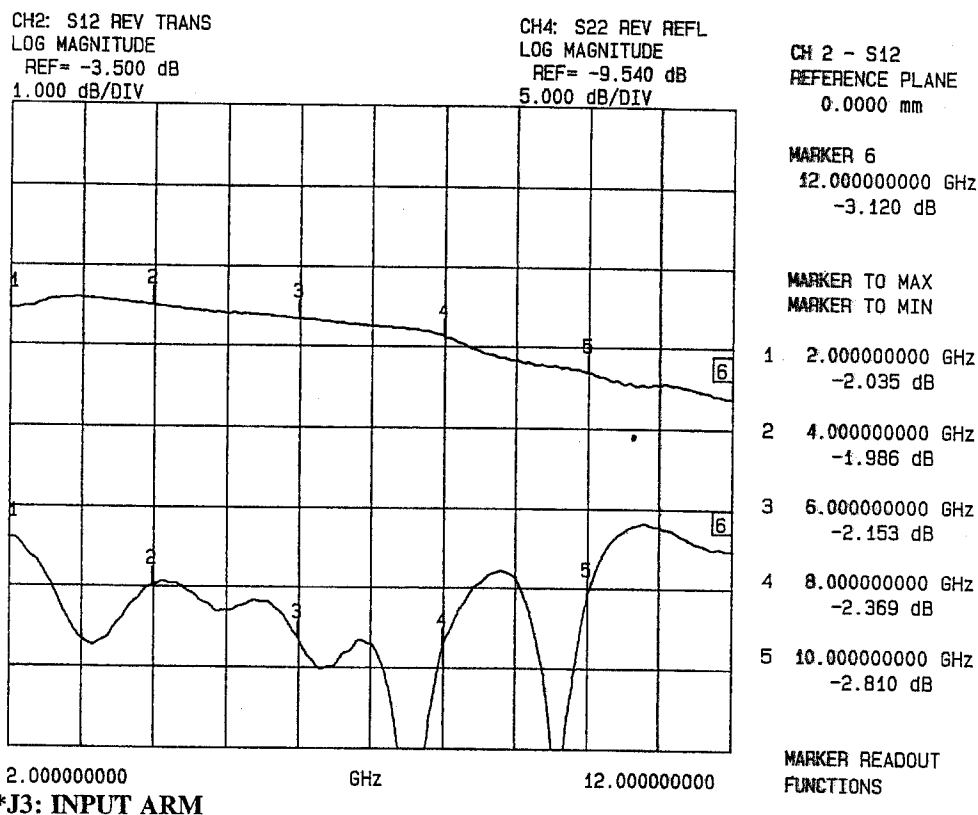


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

INSERTION LOSS & RETURN LOSS*

J3-J8



FREQUENCY	INSERTION LOSS	RETURN LOSS
2.0 GHz	2.03 dB	16.4 dB
4.0 GHz	1.98 dB	19.4 dB
6.0 GHz	2.15 dB	22.7 dB
8.0 GHz	2.36 dB	23.1 dB
10.0 GHz	2.81 dB	20.0 dB
12.0 GHz	3.12 dB	17.1 dB

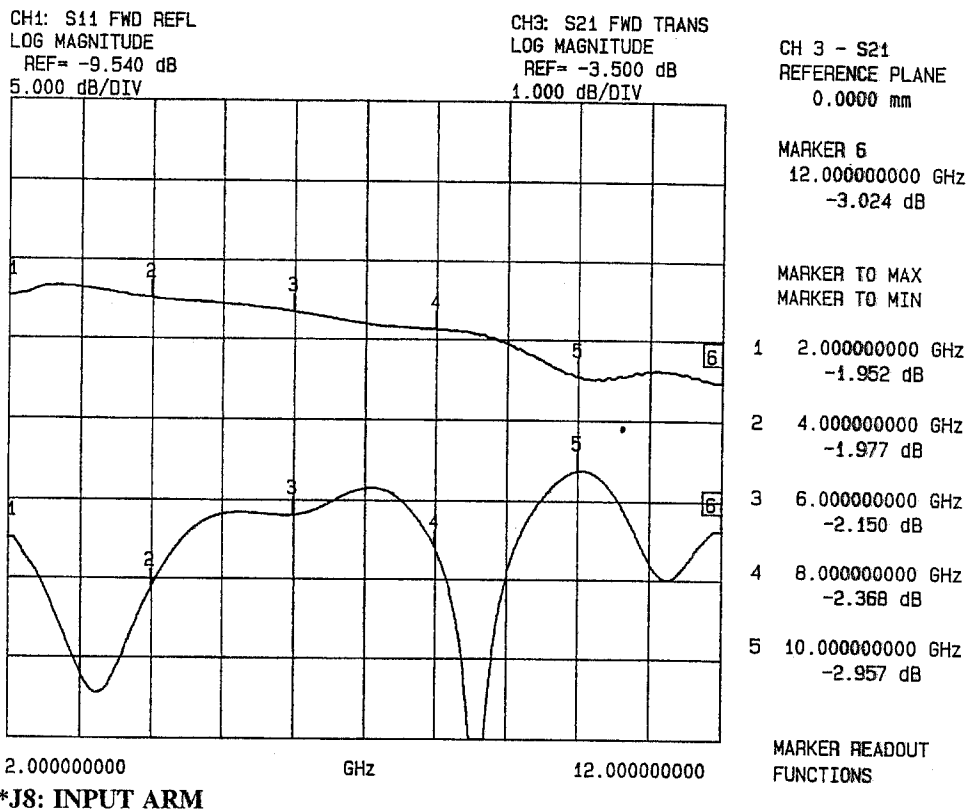


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

INSERTION LOSS & RETURN LOSS*

J8-J4



FREQUENCY	INSERTION LOSS	RETURN LOSS
2.0 GHz	1.95 dB	16.9 dB
4.0 GHz	1.97 dB	20.0 dB
6.0 GHz	2.15 dB	15.4 dB
8.0 GHz	2.36 dB	17.5 dB
10.0 GHz	2.95 dB	12.6 dB
12.0 GHz	3.02 dB	16.3 dB

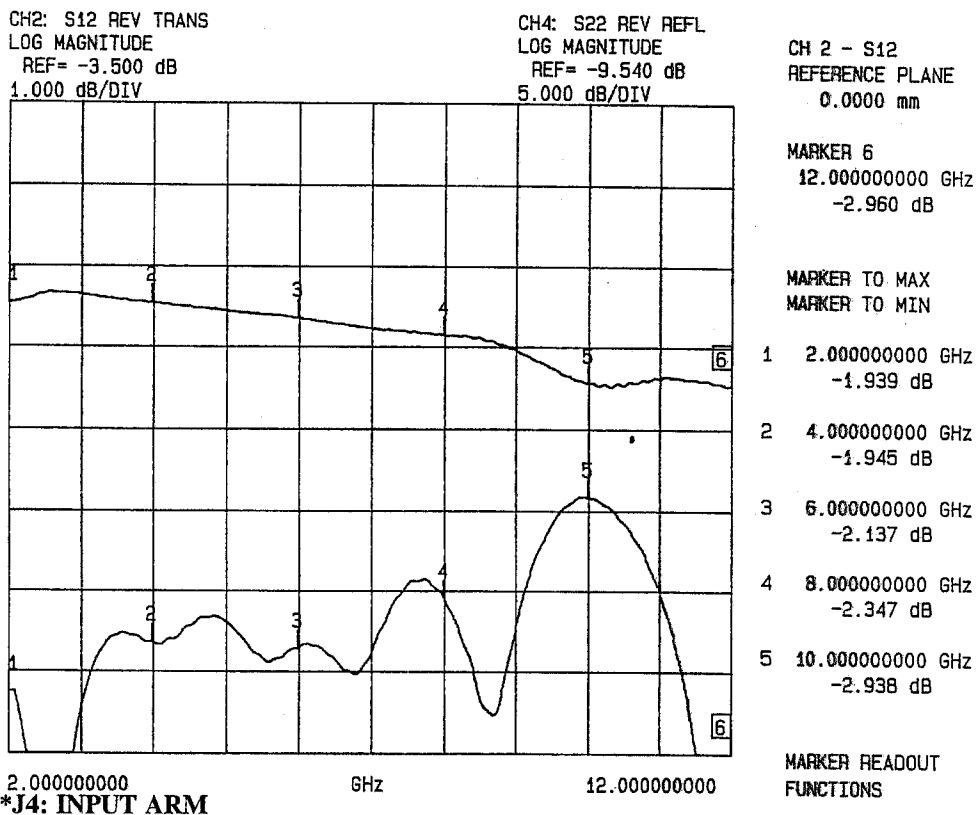


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

INSERTION LOSS & RETURN LOSS*

J4-J8



FREQUENCY	INSERTION LOSS	RETURN LOSS
2.0 GHz	1.93 dB	25.7 dB
4.0 GHz	1.94 dB	22.7 dB
6.0 GHz	2.13 dB	23.0 dB
8.0 GHz	2.34 dB	19.9 dB
10.0 GHz	2.93 dB	13.6 dB
12.0 GHz	2.96 dB	38.7 dB

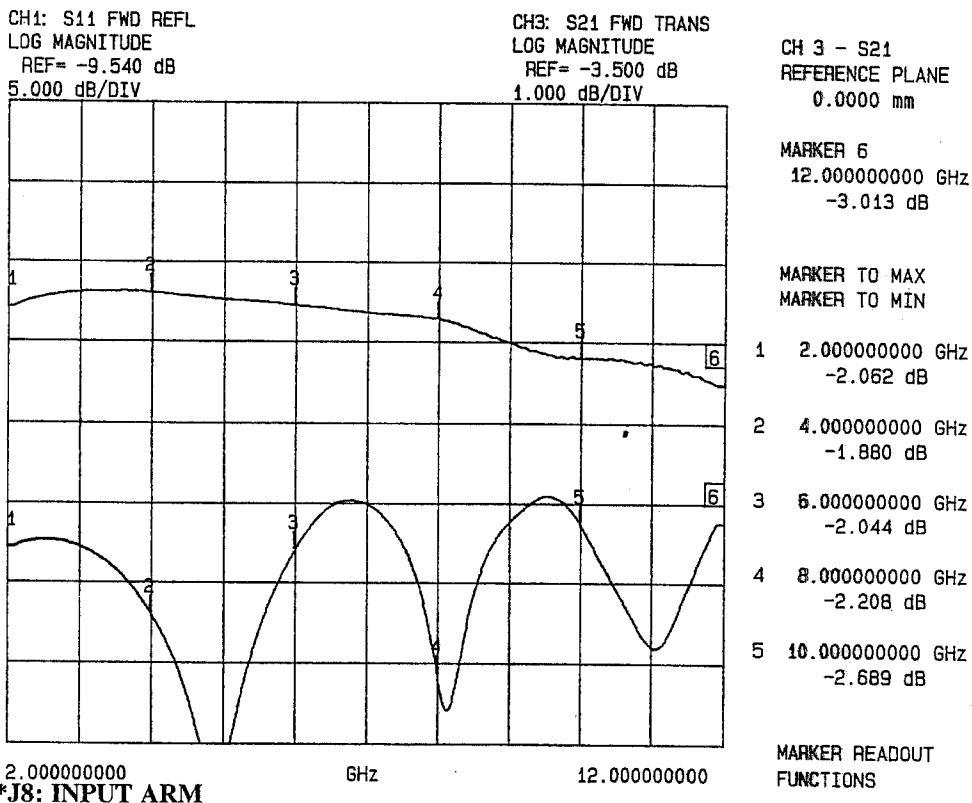


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

INSERTION LOSS & RETURN LOSS*

J8-J5



FREQUENCY	INSERTION LOSS	RETURN LOSS
2.0 GHz	2.06 dB	17.3 dB
4.0 GHz	1.88 dB	21.5 dB
6.0 GHz	2.04 dB	17.4 dB
8.0 GHz	2.20 dB	25.1 dB
10.0 GHz	2.68 dB	15.7 dB
12.0 GHz	3.01 dB	15.7 dB

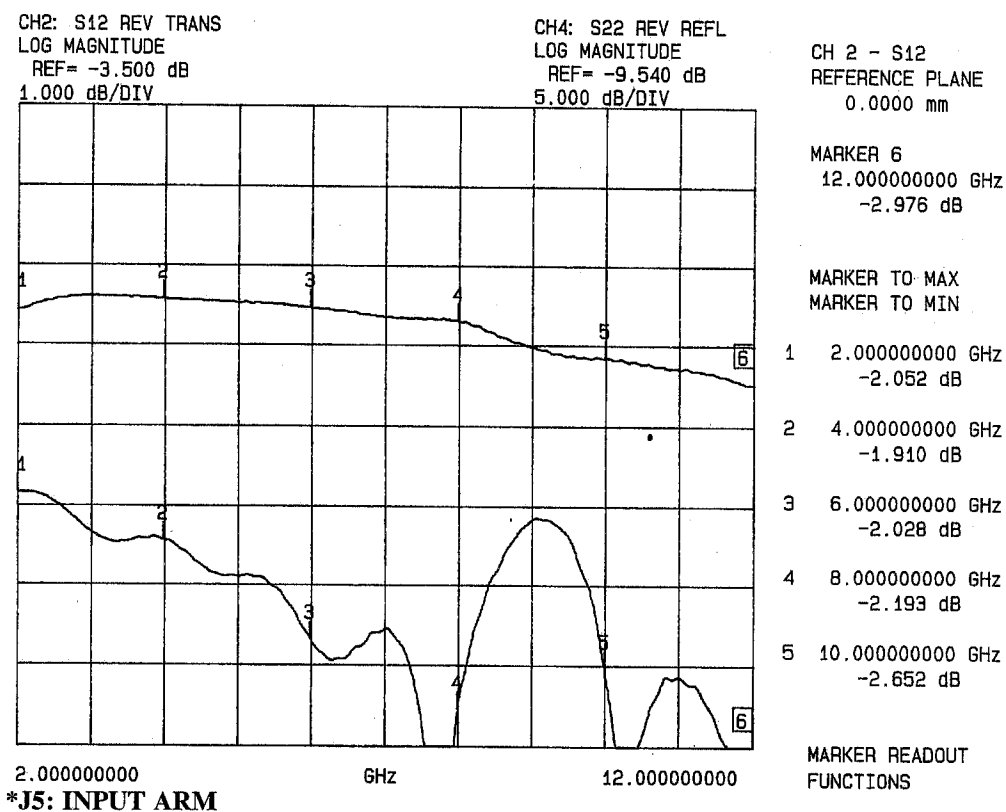


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

INSERTION LOSS & RETURN LOSS*

J5-J8



FREQUENCY	INSERTION LOSS	RETURN LOSS
2.0 GHz	2.05 dB	13.7 dB
4.0 GHz	1.91 dB	16.7 dB
6.0 GHz	2.02 dB	22.9 dB
8.0 GHz	2.19 dB	27.2 dB
10.0 GHz	2.65 dB	24.7 dB
12.0 GHz	2.97 dB	29.7 dB



SUMMARY TEST DATA

MODEL NUMBER : MSN-7DT-06-DEC-SP
OPTION NUMBER : B05, 612
SERIAL NUMBER : 7MS00642
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc @ 188mA; -5vdc @ 45mA

INSERTION LOSS & RETURN LOSS*

J8-J6

CH1: S11 FWD REFL
 LOG MAGNITUDE
 REF= -9.540 dB
 5.000 dB/DIV

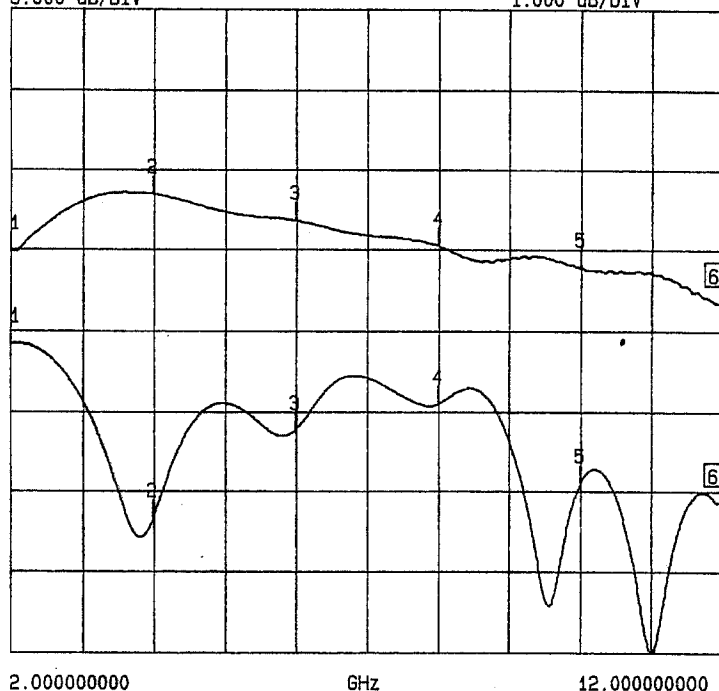
CH3: S21 FWD TRANS
 LOG MAGNITUDE
 REF= -3.500 dB
 1.000 dB/DIV

CH 3 - S21
 REFERENCE PLANE
 0.0000 mm

MARKER 6
 12.000000000 GHz
 -3.152 dB

MARKER TO MAX
 MARKER TO MIN

1 2.000000000 GHz
 -2.515 dB
 2 4.000000000 GHz
 -1.799 dB
 3 6.000000000 GHz
 -2.137 dB
 4 8.000000000 GHz
 -2.449 dB
 5 10.000000000 GHz
 -2.720 dB



2.000000000
 *J8: INPUT ARM

MARKER READOUT
 FUNCTIONS

FREQUENCY	INSERTION LOSS	RETURN LOSS
2.0 GHz	2.51 dB	10.2 dB
4.0 GHz	1.79 dB	21.1 dB
6.0 GHz	2.13 dB	15.6 dB
8.0 GHz	2.44 dB	14.0 dB
10.0 GHz	2.72 dB	19.0 dB
12.0 GHz	3.15 dB	20.2 dB

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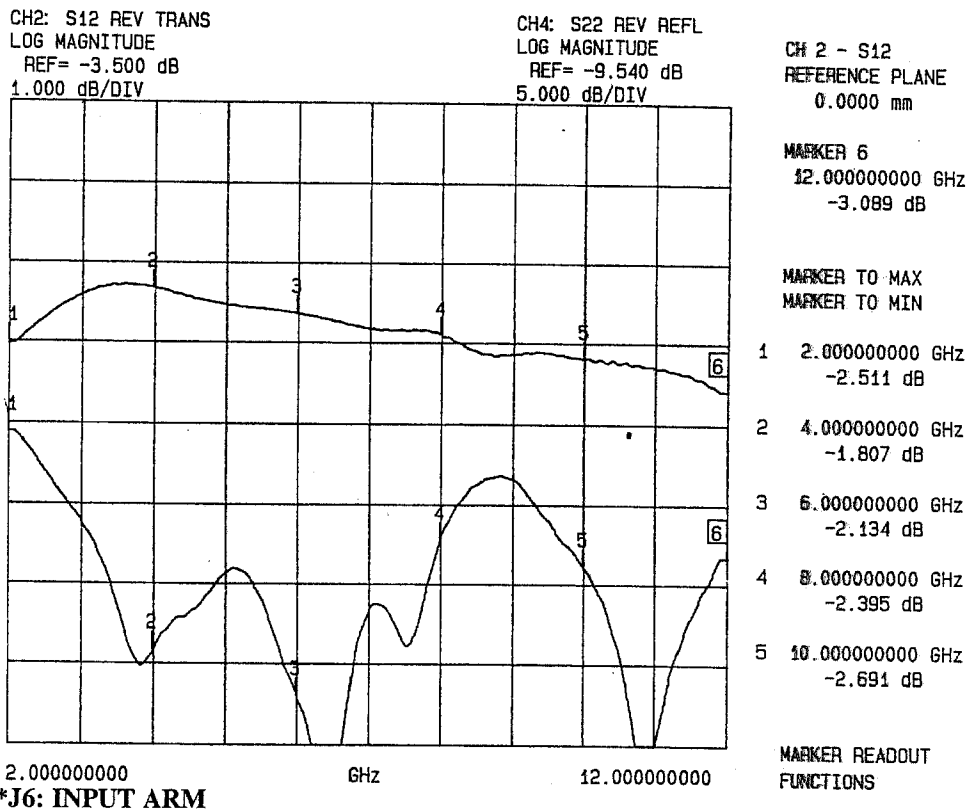


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

INSERTION LOSS & RETURN LOSS*

J6-J8



FREQUENCY	INSERTION LOSS	RETURN LOSS
2.0 GHz	2.51 dB	10.0 dB
4.0 GHz	1.80 dB	23.7 dB
6.0 GHz	2.13 dB	26.5 dB
8.0 GHz	2.39 dB	16.6 dB
10.0 GHz	2.69 dB	18.3 dB
12.0 GHz	3.08 dB	17.8 dB

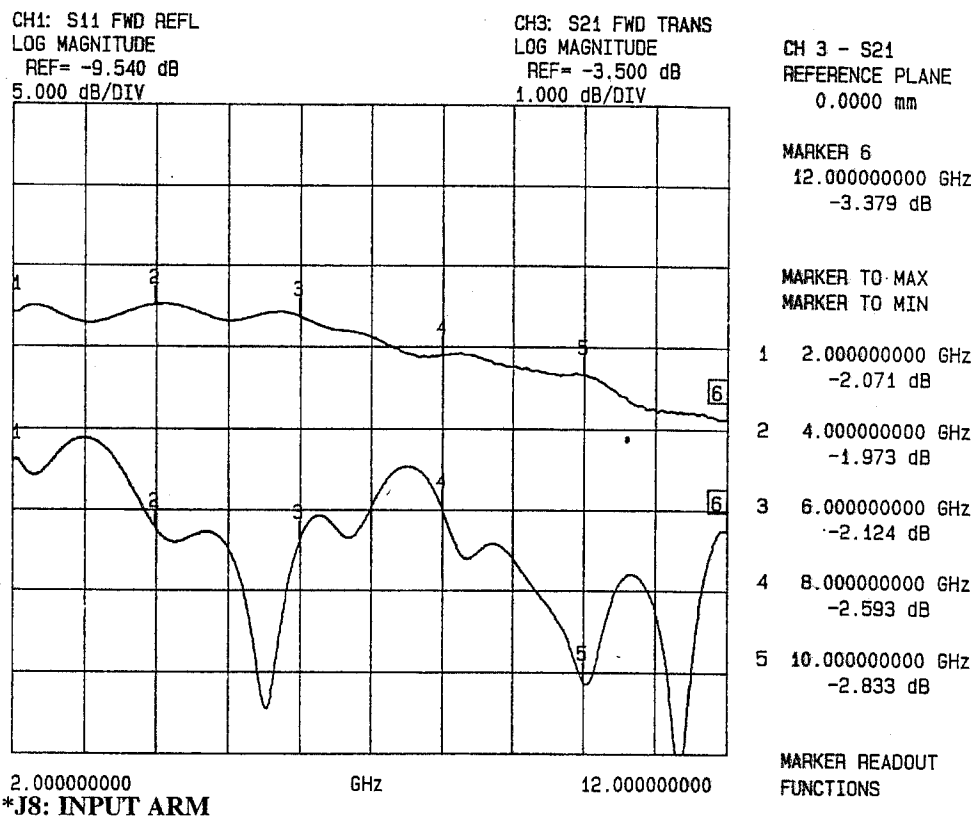


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

INSERTION LOSS & RETURN LOSS*

J8-J7



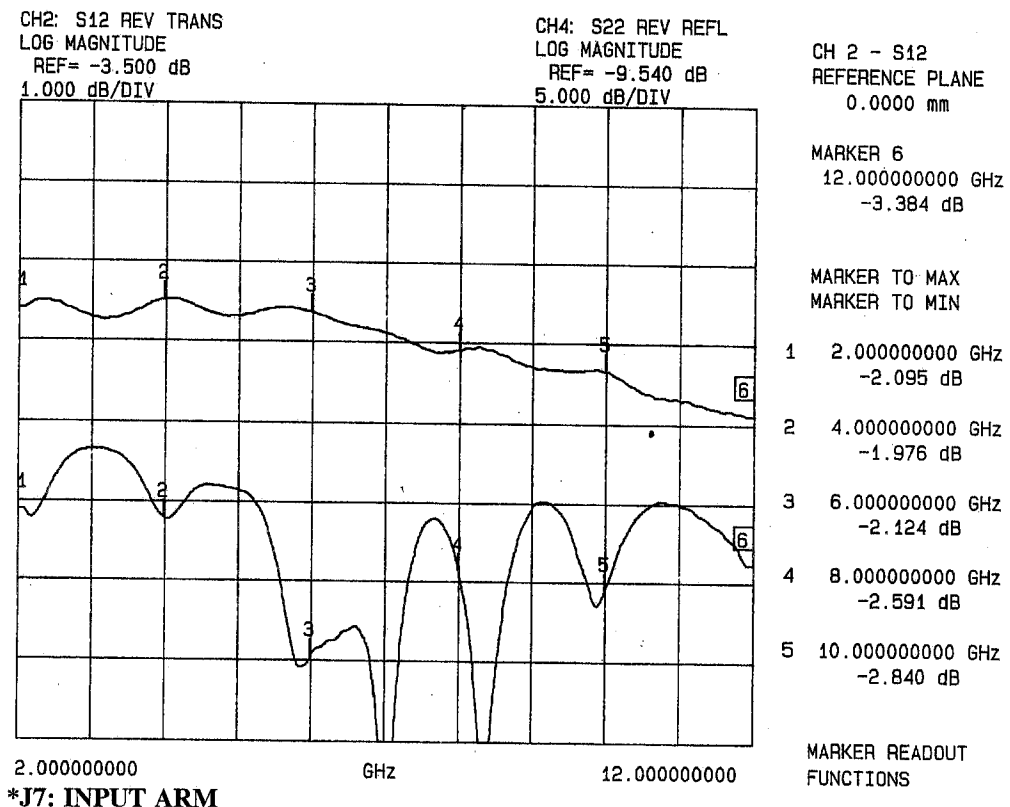
FREQUENCY	INSERTION LOSS	RETURN LOSS
2.0 GHz	2.07 dB	11.4 dB
4.0 GHz	1.97 dB	15.6 dB
6.0 GHz	2.12 dB	16.4 dB
8.0 GHz	2.59 dB	14.4 dB
10.0 GHz	2.83 dB	25.1 dB
12.0 GHz	3.37 dB	15.7 dB



SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

INSERTION LOSS & RETURN LOSS* J7-J8



FREQUENCY	INSERTION LOSS	RETURN LOSS
2.0 GHz	2.09 dB	15.0 dB
4.0 GHz	1.97 dB	15.5 dB
6.0 GHz	2.12 dB	24.3 dB
8.0 GHz	2.59 dB	18.7 dB
10.0 GHz	2.84 dB	20.0 dB
12.0 GHz	3.38 dB	18.3 dB



SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ +188mA; -5vdc @ 45mA

ISOLATION*

(AS MEASURED ON A VECTOR NETWORK ANALYZER CW MODE)

FREQUENCY	J1	J2	J3	J4	J5	J6	J7
500 MHz	45 dB	44 dB	41 dB	61 dB	38 dB	54 dB	62 dB
1 GHz	70 dB	75 dB	79 dB	68 dB	88 dB	71 dB	90 dB
2 GHz	91 dB	103 dB	90 dB	101 dB	89 dB	97 dB	103 dB
4 GHz	100 dB	101 dB	102 dB	103 dB	102 dB	101 dB	102 dB
6 GHz	102 dB	104 dB	104 dB	103 dB	102 dB	103 dB	101 dB
8 GHz	102 dB	102 dB	104 dB	102 dB	104 dB	102 dB	105 dB
10 GHz	102 dB	104 dB	103 dB	104 dB	101 dB	102 dB	104 dB
12 GHz	103 dB	101 dB	101 dB	105 dB	102 dB	104 dB	104 dB
14 GHz	102 dB	98 dB	97 dB	100 dB	101 dB	102 dB	100 dB
16 GHz	98 dB	101 dB	95 dB	94 dB	101 dB	100 dB	101 dB
18 GHz	93 dB	98 dB	92 dB	97 dB	88 dB	95 dB	96 dB

*J1: INPUT ARM

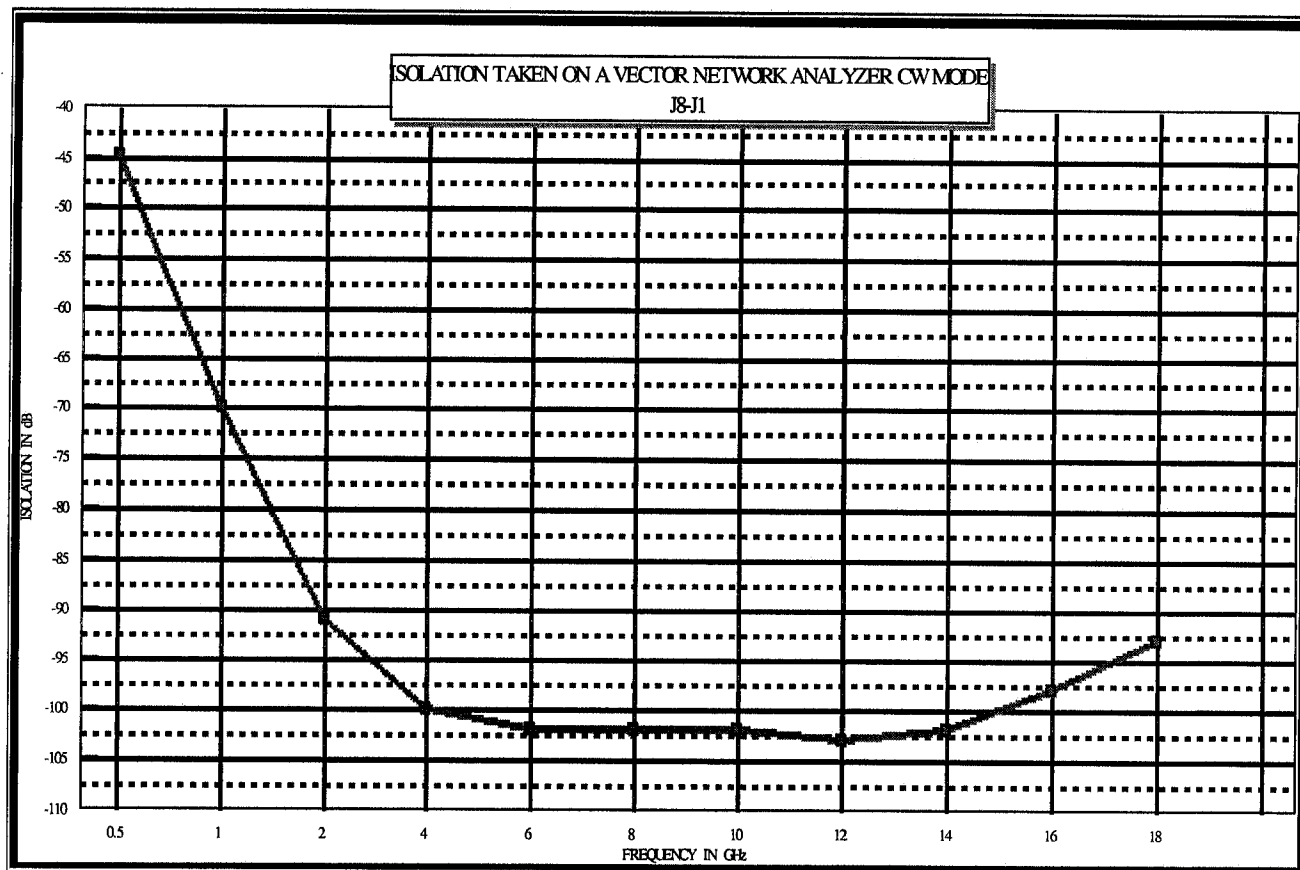
AUGUST 15, 2000



MODEL NUMBER
OPTION NUMBER
SERIAL NUMBER
ENGINEER
VOLTAGE & CURRENT DRAW

: MSN-7DT-06-DEC-SP
 : B05, 612
 : 7MS00642
 : RENE AFABLE
 : +5vdc: @+188mA; -5vdc: @ 45mA

ISOLATION*
 (AS MEASURED ON A VECTOR NETWORK ANALYZER CW MODE)
J8-J1



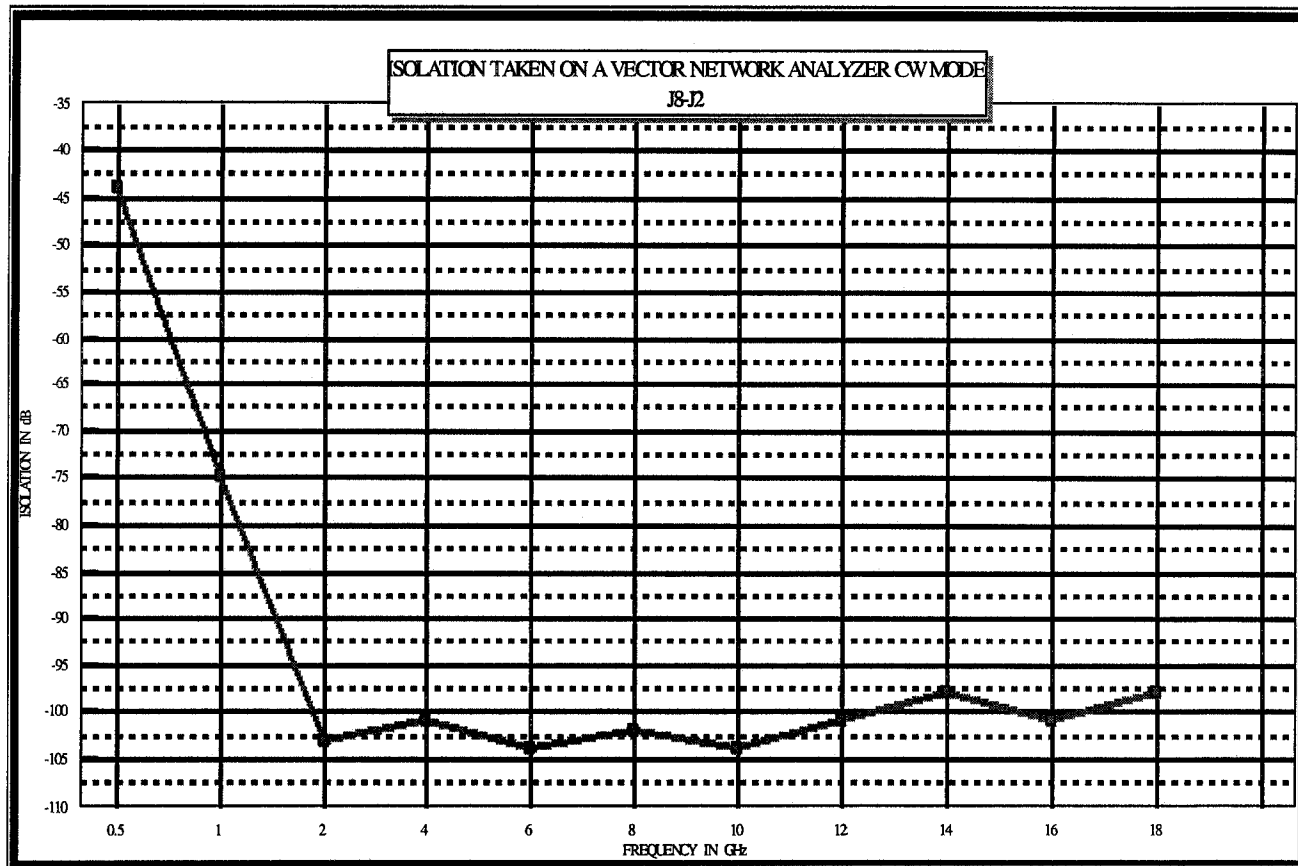
*J8: INPUT ARM



MODEL NUMBER
 OPTION NUMBER
 SERIAL NUMBER
 ENGINEER
 VOLTAGE & CURRENT DRAW

: MSN-7DT-06-DEC-SP
 : B05, 612
 : 7MS00642
 : RENE AFABLE
 : +5vdc: @+188mA; -5vdc: @ 45mA

ISOLATION*
 (AS MEASURED ON A VECTOR NETWORK ANALYZER CW MODE)
J8-J2



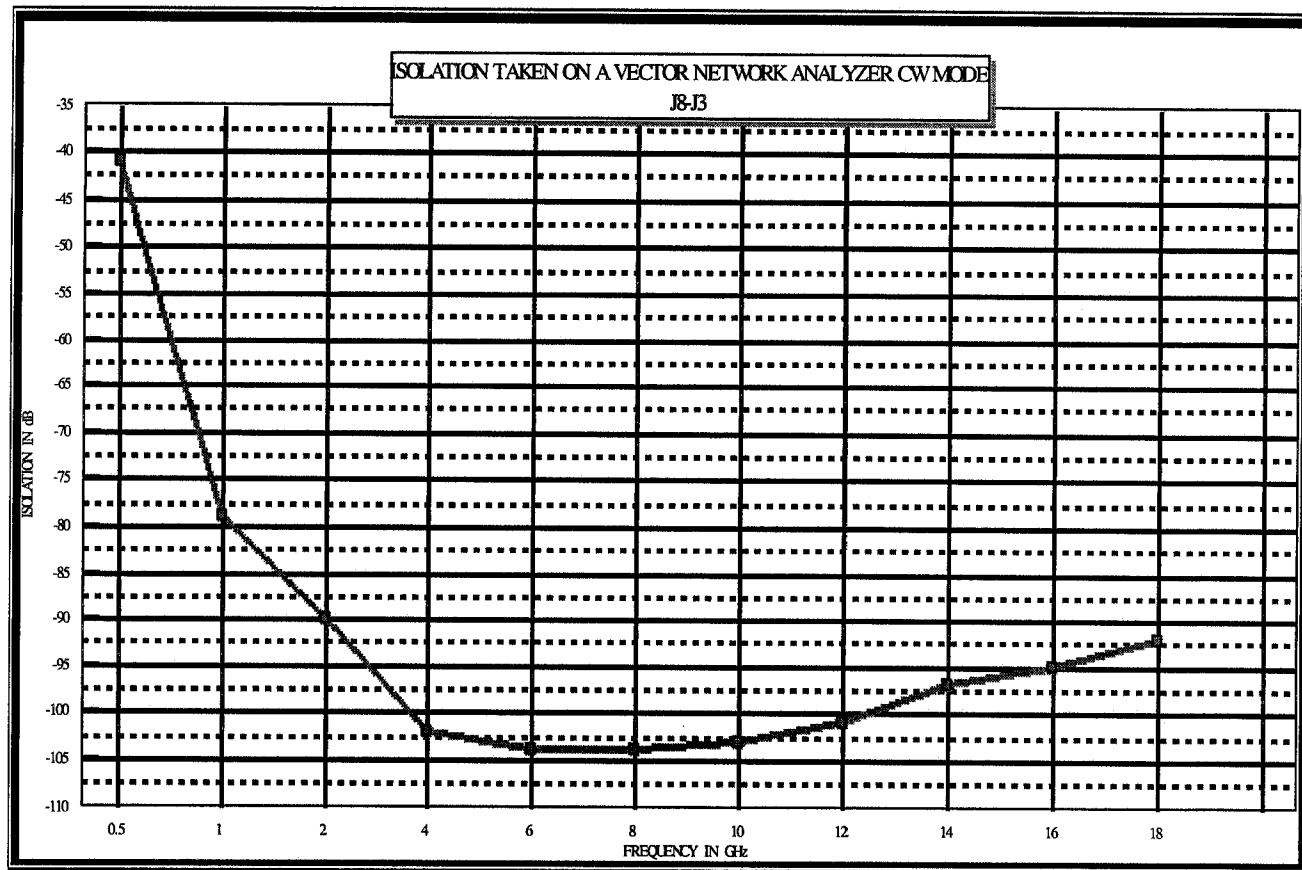
*J8: INPUT ARM



MODEL NUMBER
OPTION NUMBER
SERIAL NUMBER
ENGINEER
VOLTAGE & CURRENT DRAW

: MSN-7DT-06-DEC-SP
: B05, 612
: 7MS00642
: RENE AFABLE
: +5vdc: @+188mA; -5vdc: @ 45mA

ISOLATION*
(AS MEASURED ON A VECTOR NETWORK ANALYZER CW MODE)
J8-J3

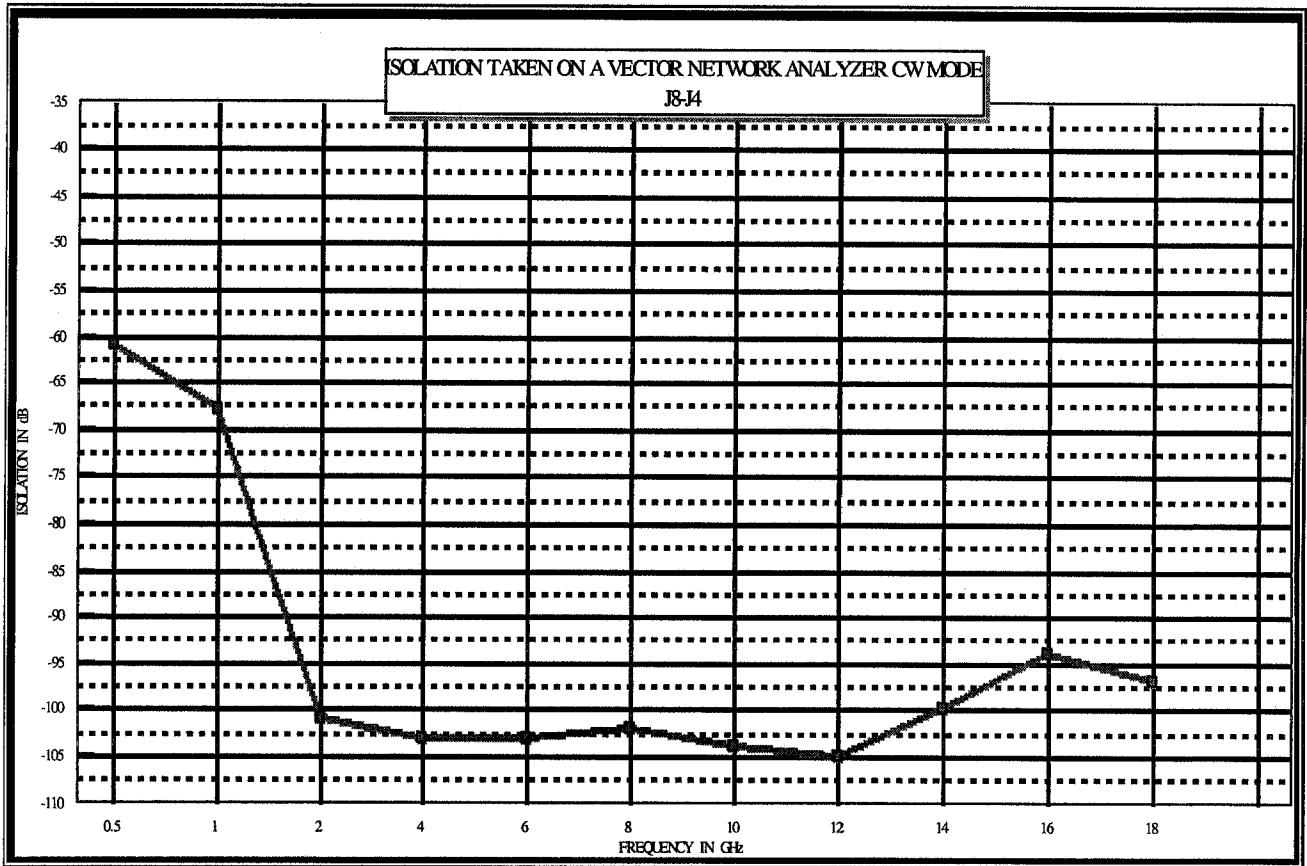


*J8: INPUT ARM



MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+188mA; -5vdc: @ 45mA

ISOLATION*
 (AS MEASURED ON A VECTOR NETWORK ANALYZER CW MODE)
J8-J4

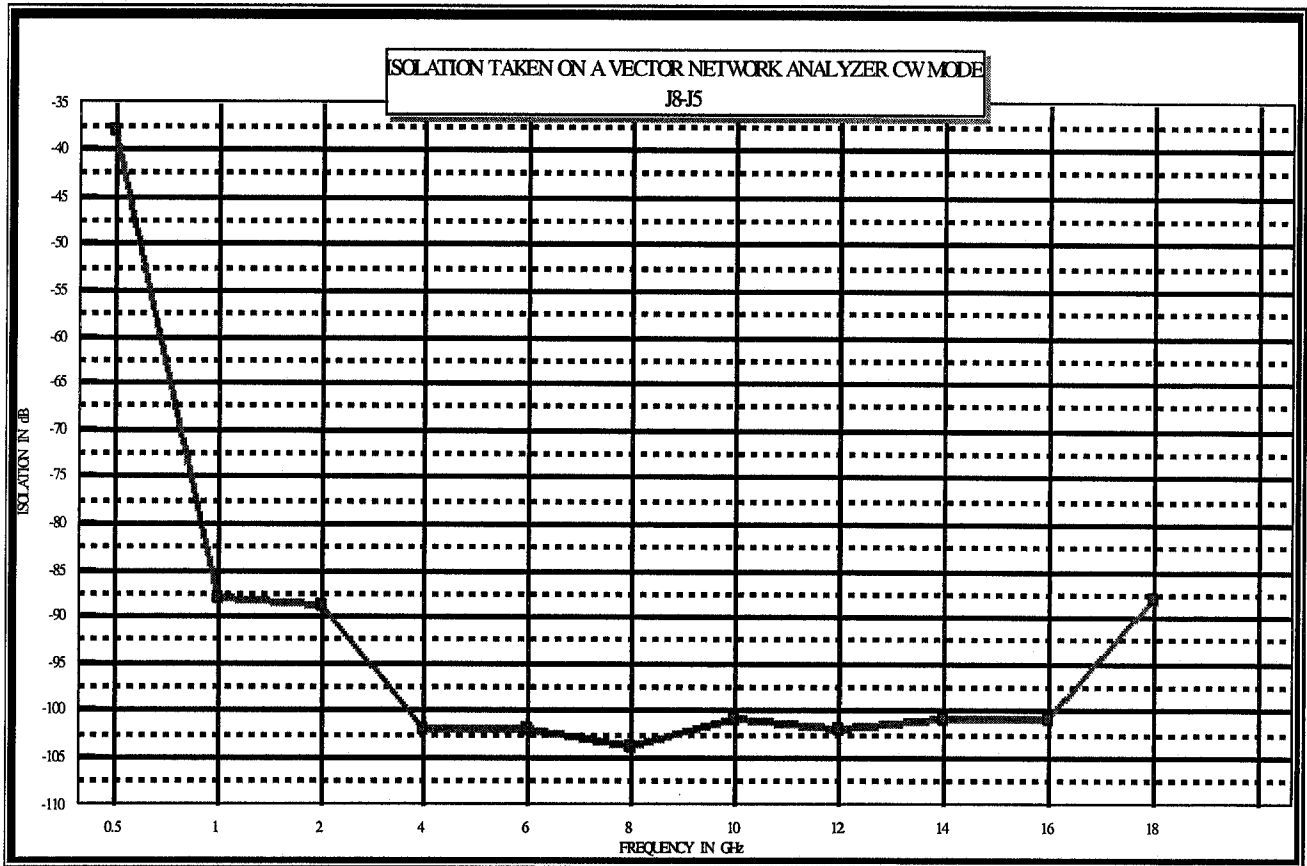


***J8: INPUT ARM**



MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+188mA; -5vdc: @ 45mA

ISOLATION*
 (AS MEASURED ON A VECTOR NETWORK ANALYZER CW MODE)
J8-J5



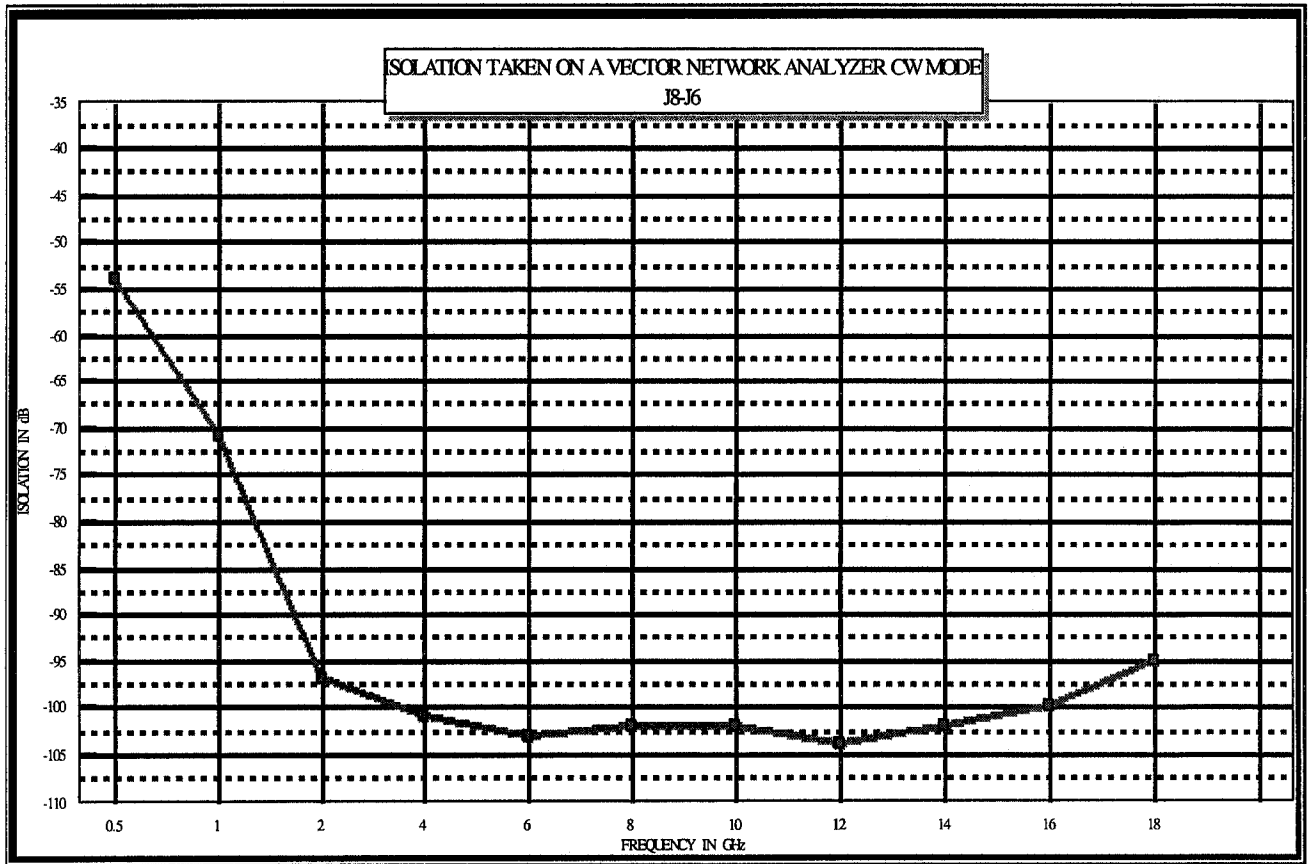
***J8: INPUT ARM**



MODEL NUMBER
 OPTION NUMBER
 SERIAL NUMBER
 ENGINEER
 VOLTAGE & CURRENT DRAW

: MSN-7DT-06-DEC-SP
 : B05, 612
 : 7MS00642
 : RENE AFABLE
 : +5vdc: @+188mA; -5vdc: @ 45mA

ISOLATION*
 (AS MEASURED ON A VECTOR NETWORK ANALYZER CW MODE)
J8-J6



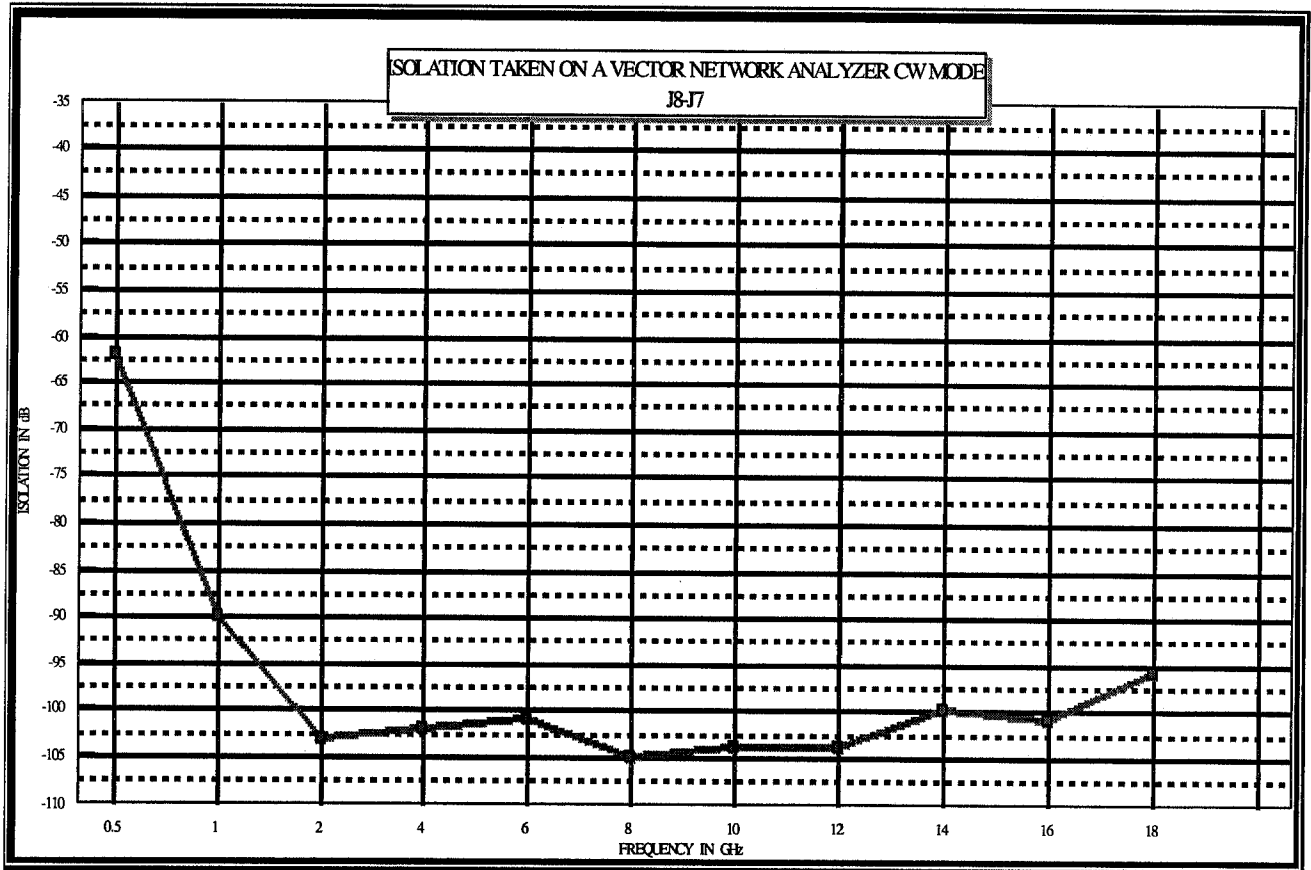
*J8: INPUT ARM



MODEL NUMBER
 OPTION NUMBER
 SERIAL NUMBER
 ENGINEER
 VOLTAGE & CURRENT DRAW

: MSN-7DT-06-DEC-SP
 : B05, 612
 : 7MS00642
 : RENE AFABLE
 : +5vdc: @+188mA; -5vdc: @ 45mA

ISOLATION*
 (AS MEASURED ON A VECTOR NETWORK ANALYZER CW MODE)
J8-J7



*J8: INPUT ARM



SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ +188mA; -5vdc @ 45mA

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

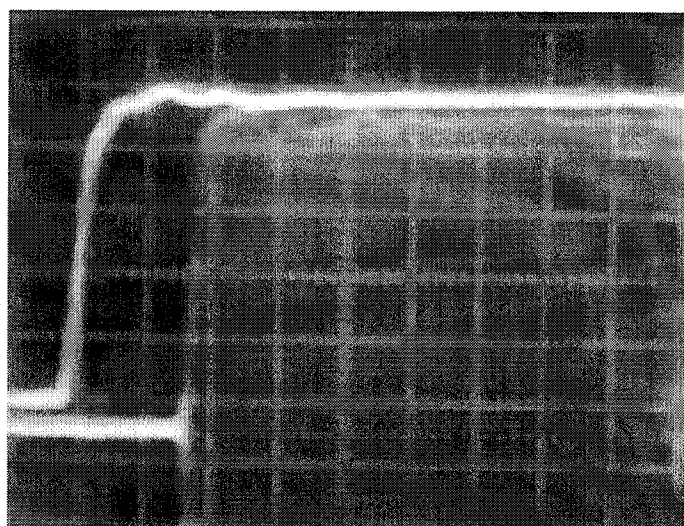
TYPICAL OF ALL ARMS

"DELAY ON": 18 nS

"RISE TIME": 2 nS

HORIZONTAL SCALE:
10 nS PER DIVISION

VERTICAL SCALE:
10 mV PER DIVISION

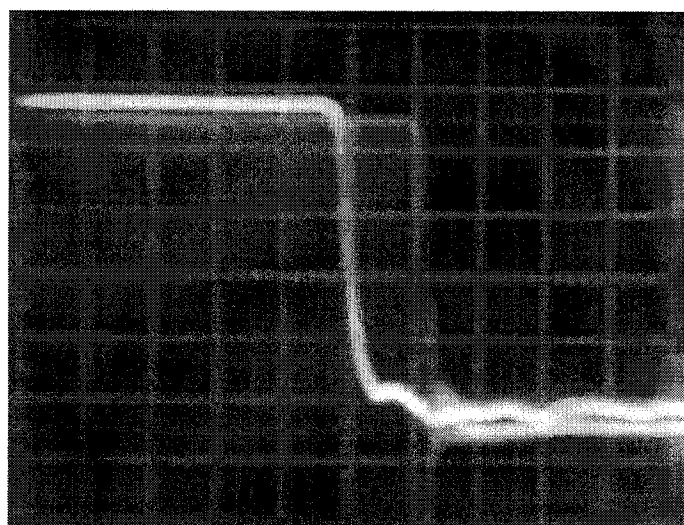


"DELAY OFF": 16 nS

"FALL TIME": 6 nS

HORIZONTAL SCALE:
10 nS PER DIVISION

VERTICAL SCALE:
10 mV PER DIVISION



AUGUST 15, 2000

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SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ +188mA; -5vdc @ 45mA

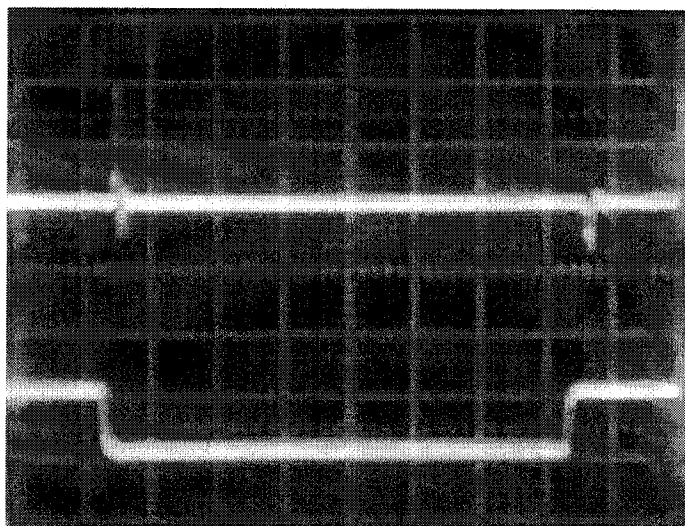
VIDEO TRANSIENTS

TYPICAL OF ALL ARMS

≤ 0.52 V P-P
MEASURED IN A
300 MHZ BANDWIDTH

VERTICAL SCALE:
0.2 V PER DIVISION

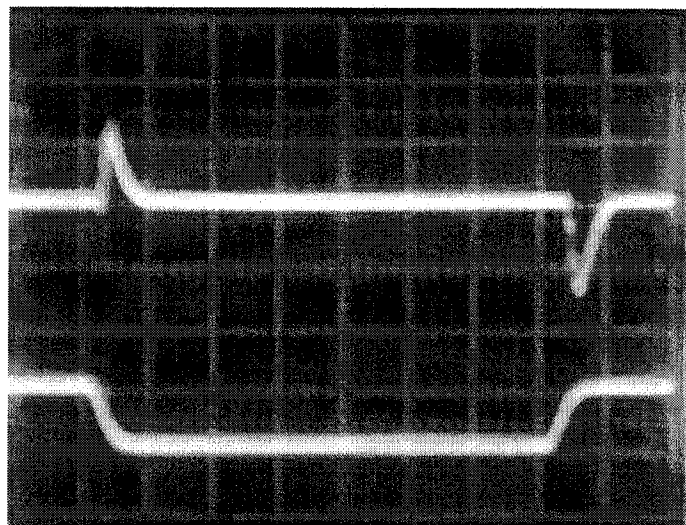
HORIZONTAL SCALE:
50 nS PER DIVISION



≤ 60 mV P-P
MEASURED IN A
20 MHZ BANDWIDTH

VERTICAL SCALE:
20 mV PER DIVISION

HORIZONTAL SCALE:
50 nS PER DIVISION



The logo for American Microwave Corporation is located in the top-left corner. It features a stylized graphic of three slanted parallel lines above the company name, which is written in a bold, sans-serif font and rotated diagonally to fit within a triangular shape.

**AMERICAN MICROWAVE
CORPORATION**

APPENDIX A
MISCELLANEOUS
TEST DATA AND PLOTS
ON
ISOLATION
AS
MEASURED
ON A VECTOR NETWORK ANALYZER
ON A
SP7T
SOLID STATE SWITCH

AMC MODEL No:
MSN-7DT-06-DEC-SP OPTION B05, 612
(Serial Number: 7MS00642)

PREPARED
BY
KATIE BAISEY

TESTED
BY
RENE AFABLE

AUGUST 15, 2000

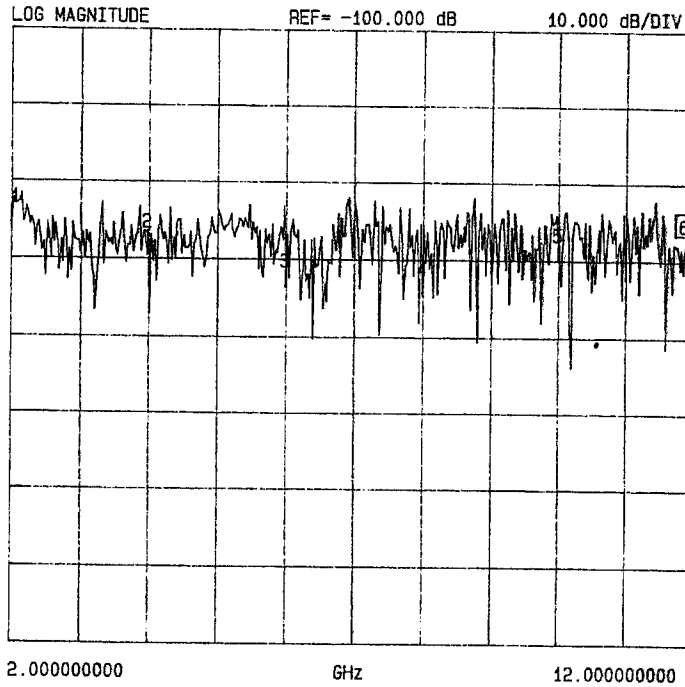


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

ISOLATION* (AS MEASURED ON A VECTOR NETWORK ANALYZER) J8-J1

S21 FORWARD TRANSMISSION



CH 3 - S21
REFERENCE PLANE
0.0000 mm

MARKER 6
12.000000000 GHz
-88.702 dB

- MARKER TO MAX
MARKER TO MIN
- 1 2.000000000 GHz
-85.385 dB
 - 2 4.000000000 GHz
-88.611 dB
 - 3 6.000000000 GHz
-93.579 dB
 - 4 8.000000000 GHz
-94.529 dB
 - 5 10.000000000 GHz
-90.053 dB

MARKER READOUT
FUNCTIONS

*J8: INPUT ARM

FREQUENCY	ISOLATION
2.0 GHz	85.38 dB
4.0 GHz	88.61 dB
6.0 GHz	93.57 dB
8.0 GHz	94.52 dB
10.0 GHz	90.05 dB
12.0 GHz	88.70 dB

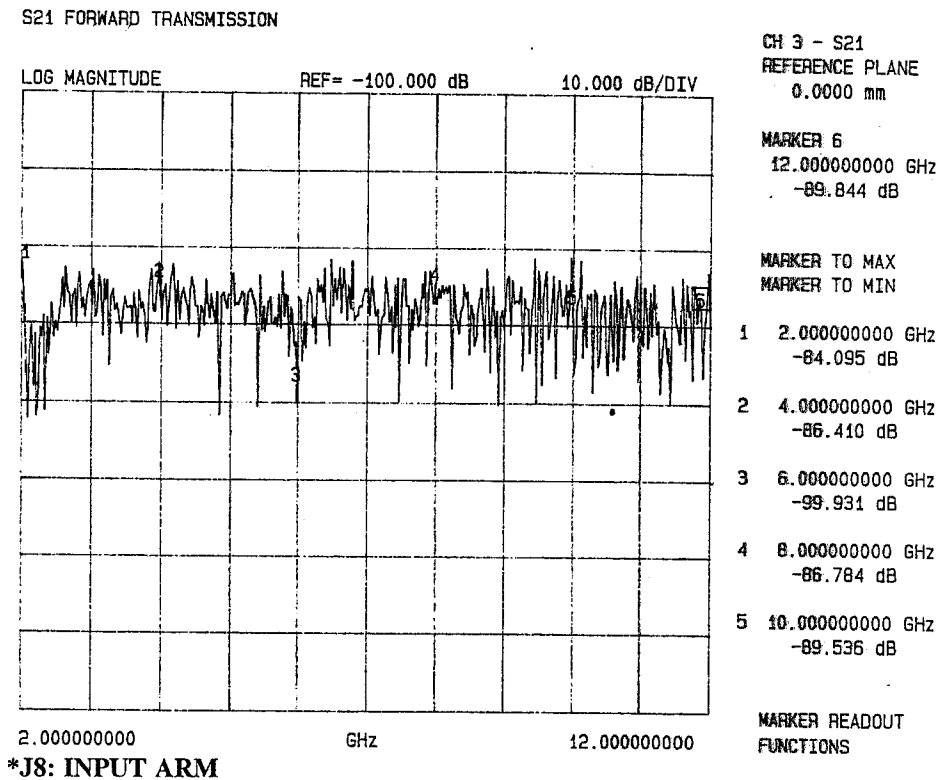
AUGUST 15, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

ISOLATION*
(AS MEASURED ON A VECTOR NETWORK ANALYZER)
J8-J2



FREQUENCY	ISOLATION
2.0 GHz	84.09 dB
4.0 GHz	86.41 dB
6.0 GHz	99.93 dB
8.0 GHz	86.78 dB
10.0 GHz	89.53 dB
12.0 GHz	89.84 dB

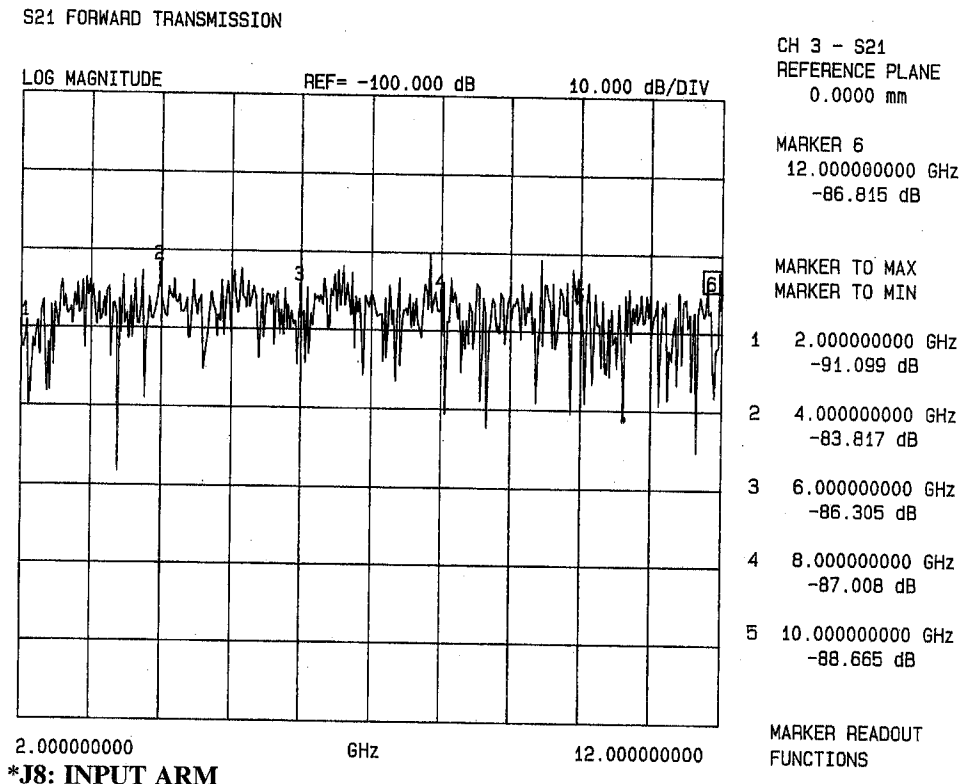
AUGUST 15, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

ISOLATION* (AS MEASURED ON A VECTOR NETWORK ANALYZER) J8-J3



FREQUENCY	ISOLATION
2.0 GHz	91.09 dB
4.0 GHz	83.81 dB
6.0 GHz	86.30 dB
8.0 GHz	87.00 dB
10.0 GHz	88.66 dB
12.0 GHz	86.81 dB

AUGUST 15, 2000

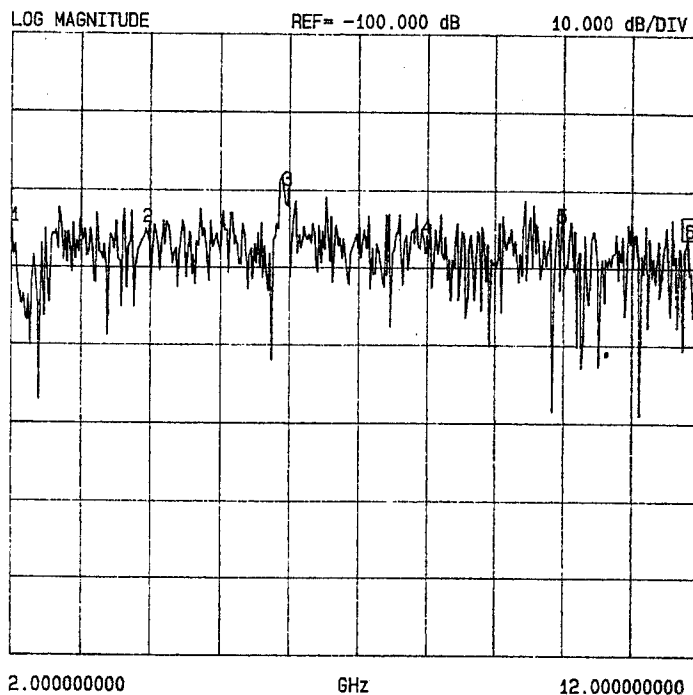


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

ISOLATION* (AS MEASURED ON A VECTOR NETWORK ANALYZER) J8-J4

S21 FORWARD TRANSMISSION



CH 3 - S21
REFERENCE PLANE
0.0000 mm

MARKER 6
12.000000000 GHz
-88.281 dB

MARKER TO MAX
MARKER TO MIN

1	2.000000000 GHz	-86.639 dB
2	4.000000000 GHz	-86.677 dB
3	6.000000000 GHz	-81.947 dB
4	8.000000000 GHz	-87.951 dB
5	10.000000000 GHz	-86.481 dB

MARKER READOUT
FUNCTIONS

*J8: INPUT ARM

FREQUENCY	ISOLATION
2.0 GHz	86.63 dB
4.0 GHz	86.67 dB
6.0 GHz	81.94 dB
8.0 GHz	87.95 dB
10.0 GHz	86.48 dB
12.0 GHz	88.28 dB

AUGUST 15, 2000

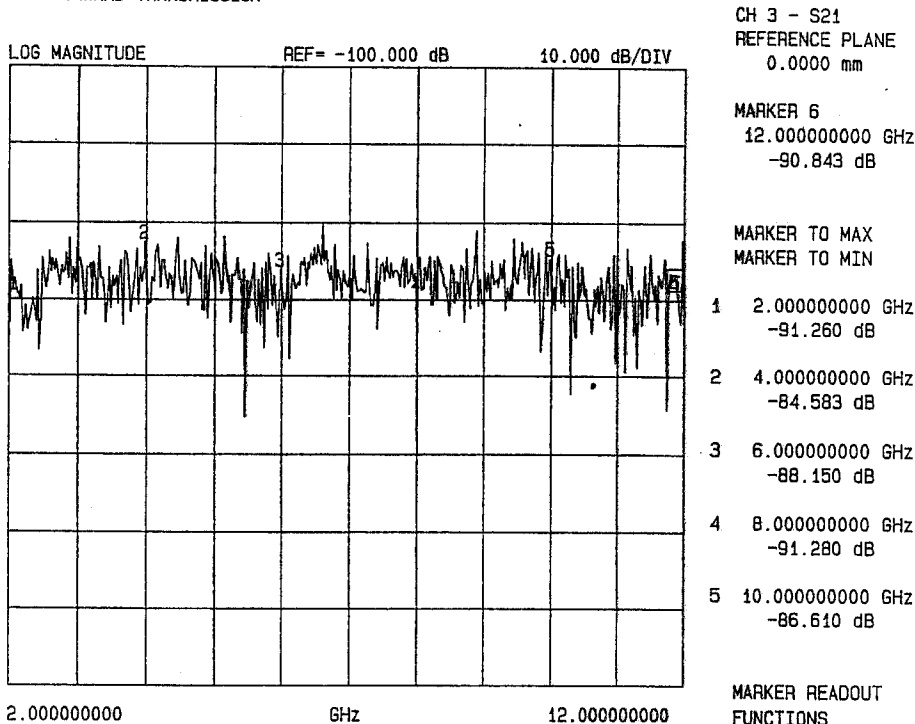


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

ISOLATION*
(AS MEASURED ON A VECTOR NETWORK ANALYZER)
J8-J5

S21 FORWARD TRANSMISSION



*J8: INPUT ARM

FREQUENCY	ISOLATION
2.0 GHz	91.26 dB
4.0 GHz	84.58 dB
6.0 GHz	88.15 dB
8.0 GHz	91.28 dB
10.0 GHz	86.61 dB
12.0 GHz	90.84 dB

AUGUST 15, 2000

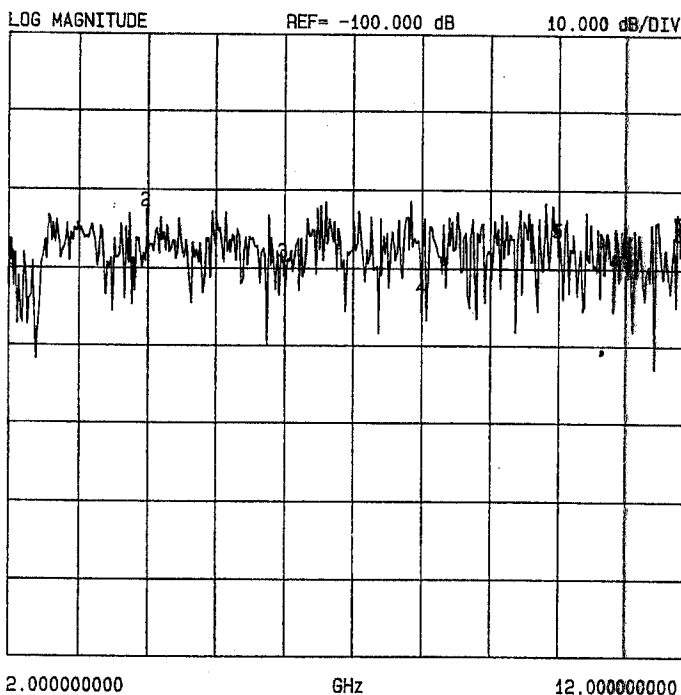


SUMMARY TEST DATA

MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

ISOLATION*
(AS MEASURED ON A VECTOR NETWORK ANALYZER)
J8-J6

S21 FORWARD TRANSMISSION



CH 3 - S21
REFERENCE PLANE
0.0000 mm

MARKER 6
12.000000000 GHz
-88.377 dB

MARKER TO MAX
MARKER TO MIN

1 2.000000000 GHz
-92.126 dB

2 4.000000000 GHz
-84.699 dB

3 6.000000000 GHz
-90.998 dB

4 8.000000000 GHz
-95.652 dB

5 10.000000000 GHz
-88.316 dB

MARKER READOUT
FUNCTIONS

*J8: INPUT ARM

FREQUENCY	ISOLATION
2.0 GHz	92.12 dB
4.0 GHz	84.69 dB
6.0 GHz	90.99 dB
8.0 GHz	95.65 dB
10.0 GHz	88.31 dB
12.0 GHz	88.37 dB

AUGUST 15, 2000



SUMMARY TEST DATA

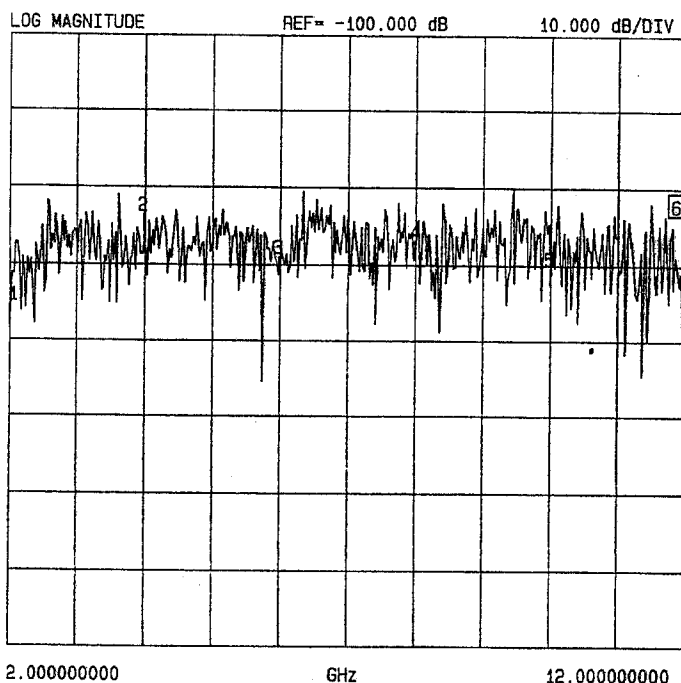
MODEL NUMBER	: MSN-7DT-06-DEC-SP
OPTION NUMBER	: B05, 612
SERIAL NUMBER	: 7MS00642
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 188mA; -5vdc @ 45mA

ISOLATION*

(AS MEASURED ON A VECTOR NETWORK ANALYZER)

J8-J7

S21 FORWARD TRANSMISSION



CH 3 - S21
 REFERENCE PLANE
 0.0000 mm

MARKER 6
 12.000000000 GHz
 -85.737 dB

MARKER TO MAX
 MARKER TO MIN

1	2.000000000 GHz	-97.394 dB
2	4.000000000 GHz	-85.566 dB
3	6.000000000 GHz	-91.015 dB
4	8.000000000 GHz	-89.002 dB
5	10.000000000 GHz	-92.638 dB

MARKER READOUT
 FUNCTIONS

*J8: INPUT ARM

FREQUENCY	ISOLATION
2.0 GHz	97.39 dB
4.0 GHz	85.56 dB
6.0 GHz	91.01 dB
8.0 GHz	89.00 dB
10.0 GHz	92.63 dB
12.0 GHz	85.73 dB

AUGUST 15, 2000