



TEST REPORT

ON

2.0 to 18.0 GHz

ABSORPTIVE

HIGH SPEED

SP6T, PIN DIODE SWITCH

AMC MODEL No:

MSN-6DT-SBI

SERIAL NUMBER: 6MS412034

DESIGNED

BY

A. GORWARA AND R. AFABLE

TESTED

BY

R. AFABLE & T. PHUNG

REPORT

BY

P. WOOD

JANUARY 23, 2005

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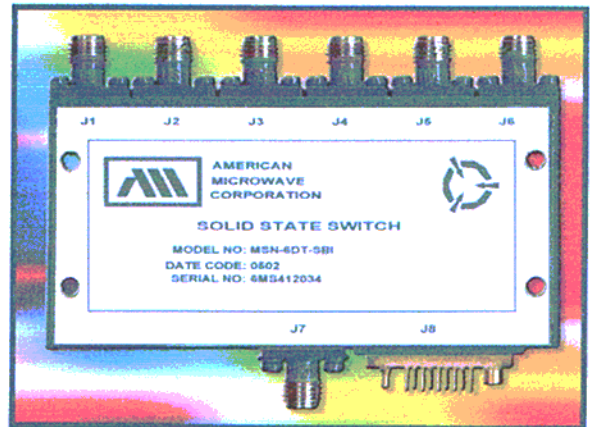
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2.0 TO 18.0 GHz, ABSORPTIVE, SP6T, HIGH SPEED, PIN DIODE SWITCH

KEY FEATURES:

- ABSORPTIVE
- 2.0 TO 18.0 GHz
- ≥ 60 dB ISOLATION
- LOW INSERTION LOSS



SPECIFICATIONS:

- FREQUENCY RANGE : 2.0 TO 18.0 GHz (OTHER FREQUENCIES AVAILABLE)
- INSERTION LOSS : 3.5 dB MAXIMUM @ 18 GHz, <3 dB TYPICAL
- VSWR (IN/OUT & ON/OFF) : 2.0:1 MAXIMUM
- ISOLATION : 60 dB MINIMUM, 70 dB TYPICAL
- RISE & FALL TIME : 15 nS MAXIMUM, <10 nS TYPICAL
- ON & OFF TIME : 50 nS MAXIMUM, <40 nS TYPICAL
- RF INPUT POWER : +20 dBm (CW) (STANDARD), +10 dBm (High Speed)
- RF INPUT SURVIVAL POWER : 1 WATT CW, 10 WATTS PEAK, 1 μ S Pulse
- DC POWER SUPPLY : +15 vdc @ 120 mA MAXIMUM
- : - 15 vdc @ 50 mA MAXIMUM
- SIZE : 3.00" X 1.50" X 0.40"

ENVIRONMENTAL RATINGS:

- TEMPERATURE : -55 C TO +85 C (OPERATING)
- : -65 C TO +125 C (STORAGE)
- HUMIDITY : MIL-STD-202F, METHOD 103B, CONDITION B
- SHOCK : MIL-STD-202F, METHOD 213B, CONDITION B
- VIBRATION : MIL-STD-202F, METHOD 204D, CONDITION B
- ALTITUDE : MIL-STD-202F, METHOD 105C, CONDITION B
- TEMPERATURE CYCLE : MIL-STD-202F, METHOD 107D, CONDITION A

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PRODUCT FEATURE

REVISIONS	DESCRIPTION	DATE	APPROVED
1	ORIGINAL RELEASE JOB# 409220PE	12/15/04	

DESCRIPTION
 AMC MODEL MSN-6DT-SBI IS A SINGLE POLE SIX THROW ABSORPTIVE/NON-REFLECTIVE SWITCH DESIGNED TO OPERATE OVER THE FULL 2 TO 18 GHz FREQUENCY RANGE. IT IS CONTROLLED THROUGH A 14 PIN MULTIPIN CONNECTOR (MATING CONNECTOR IS FURNISHED).

SPECIFICATIONS

- FREQUENCY RANGE: 2 TO 18 GHz
- INSERTION LOSS: 3.5 dB MAXIMUM
- ISOLATION: 60 dB MINIMUM
- VSWR: 2.0:1 ON/OFF
- RISE / FALL TIME: 15 nS MAXIMUM, 10 nS TYPICAL
- ON/OFF TIME: 50 nS MAXIMUM, 40 nS TYPICAL
- POWER INPUT: (CW)+20 dBm (STANDARD), +10 dBm (HIGH SPEED)
- SURVIVAL POWER: 1 WATT CW, 10 WATTS PEAK 1 uSec
- CONTROL: SEE TABLE
- POWER SUPPLY: +15V @ 120 mA MAXIMUM
-5V @ 50 mA MAXIMUM
- SIZE: 3.00" (L) x 1.50" (W) x 0.40" (H)

BLOCK DIAGRAM

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: SPECIFICATIONS WILL VARY OVER OPERATING TEMPERATURE
 NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

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 ISO 9001:2000 CERTIFIED

PRODUCT FEATURE
 MSN-6DT-SBI
 2 - 18 GHz, SINGLE POLE SIX THROW SWITCH

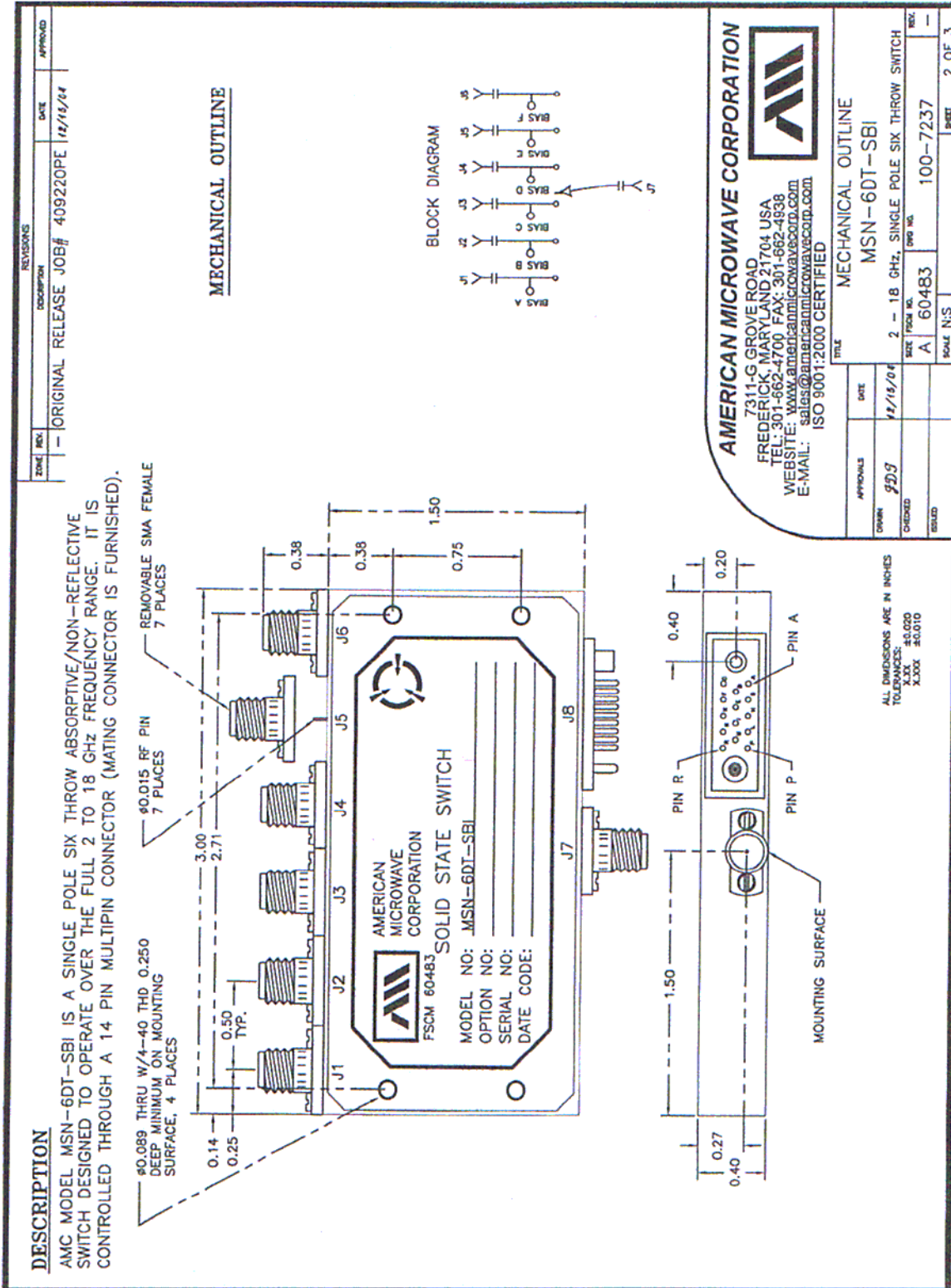
DRAWN	DATE	REV	REV	REV	REV
gds	12/15/04	A	60483	100-7237	1 OF 3

ALL DIMENSIONS ARE IN INCHES
 TOLERANCES: .0020
 .0005 .0010
 .0005 .0010

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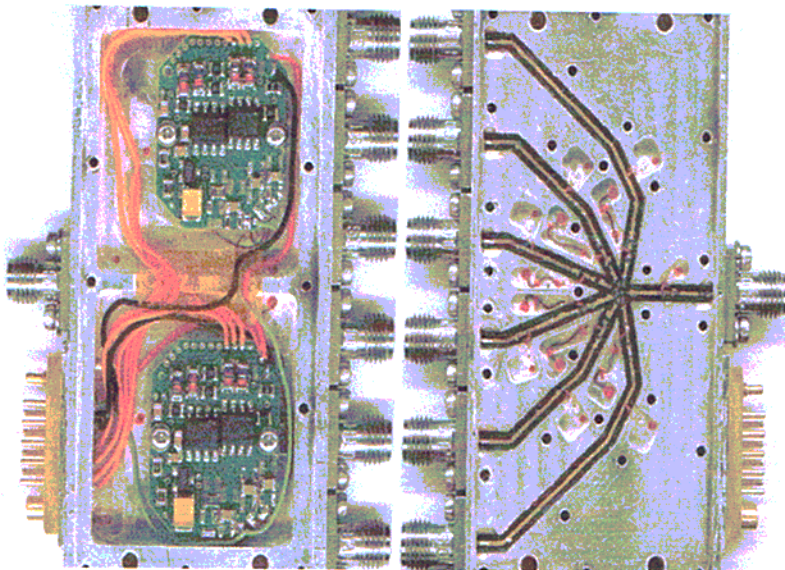
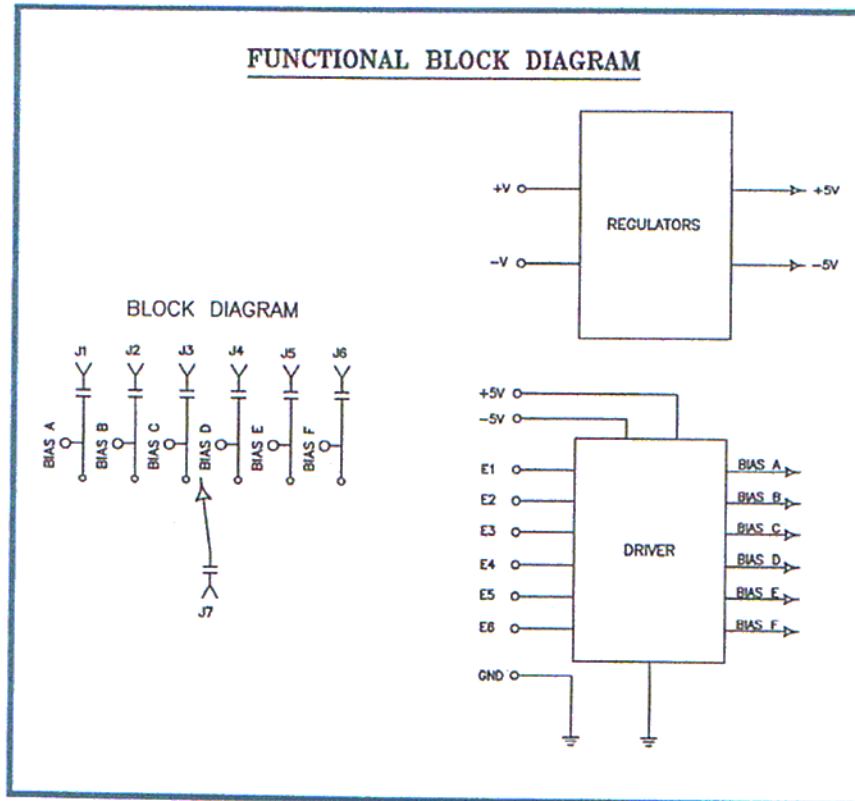
MECHANICAL OUTLINE



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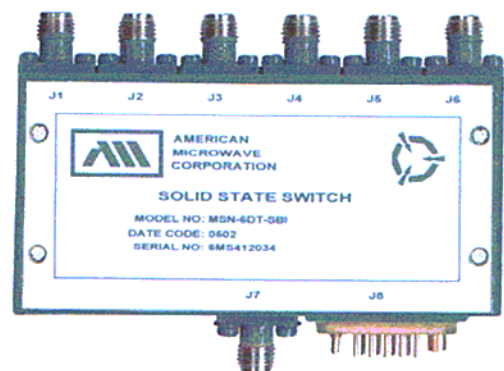
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FUNCTIONAL BLOCK DIAGRAM



DRIVER SIDE SHOWING
 DRIVER AND CONTROL BOARDS

RF SIDE SHOWING
 RF TRACKS AND BIAS LINES



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FINAL TEST DATA

FORM: 553-SW-DTA
 DATE: 6 January 2005



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 ISO 9001:2000 CERTIFIED

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: EDO /TSO
 JOB NO: 409220PE
 MODEL NO: MSN-6DT-SBI
 SERIAL NO: 6MS412034
 CURRENT DRAW: + 15 VDC @ 98mA; - 5 VDC @ 40mA

TECHNICIAN: T.PHUNG E #29
 OPTION NO:
 SPECIFICATION:
 FREQUENCY RANGE: 2 - 18 GHz

INSERTION LOSS (WORST CASE)		RETURN LOSS (WORST CASE)					
		INPUT dB	INPUT VSWR	OUTPUT ON db	OUTPUT ON VSWR	OUTPUT OFF db	OUTPUT OFF VSWR
J7-J1	3.48 dB @ 2-18 GHz	9.60 dB	1.98 : 1	10.82 dB	1.80 : 1	11.16 dB	1.76 : 1
J7-J2	3.19 dB @ 2-18 GHz	10.05 dB	1.91 : 1	10.56 dB	1.84 : 1	10.30 dB	1.87 : 1
J7-J3	3.07 dB @ 2-18 GHz	9.57 dB	1.99 : 1	9.72 dB	1.97 : 1	9.94 dB	1.93 : 1
J7-J4	3.22 dB @ 2-18 GHz	9.60 dB	1.98 : 1	10.08 dB	1.91 : 1	10.51 dB	1.85 : 1
J7-J5	3.25 dB @ 2-18 GHz	9.80 dB	1.95 : 1	10.35 dB	1.86 : 1	9.63dB	1.98 : 1
J7-J6	3.35 dB @ 2-18 GHz	10.12 dB	1.90 : 1	11.47 dB	1.72 : 1	11.16 dB	1.76 : 1
	dB @ GHz	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB @ GHz	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB @ GHz	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB @ GHz	dB	1. : 1	dB	1. : 1	dB	1. : 1

ISOLATION		SWITCHING SPEED			
		DELAY ON	RISE TIME	DELAY OFF	FALLTIME
J7-J1	72 dB @ 2-18 GHz	nS	9 nS	nS	8 nS
J7-J2	70 dB @ 2-18 GHz	nS	9 nS	nS	8 nS
J7-J3	63 dB @ 2-18 GHz	nS	9 nS	nS	8 nS
J7-J4	64 dB @ 2-18 GHz	nS	9 nS	nS	8 nS
J7-J5	68 dB @ 2-18 GHz	nS	9 nS	nS	8 nS
J7-J6	68 dB @ 2-18 GHz	nS	9 nS	nS	8 nS
	dB @ GHz	nS	nS	nS	nS
	dB @ GHz	nS	nS	nS	nS
	dB @ GHz	nS	nS	nS	nS
	dB @ GHz	nS	nS	nS	nS

NOTE: Any additional test data on back

TESTED ON: HP8722ES,E3631A,TDS3014B.

QA/QC APPROVAL:

DATED: 1/14/05

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MEASURED TEST DATA
FOR
INSERTION LOSS, RETURN LOSS, ISOLATION
AND
OFF ARM TERMINATIONS

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INSERTION LOSS AND RETURN LOSS

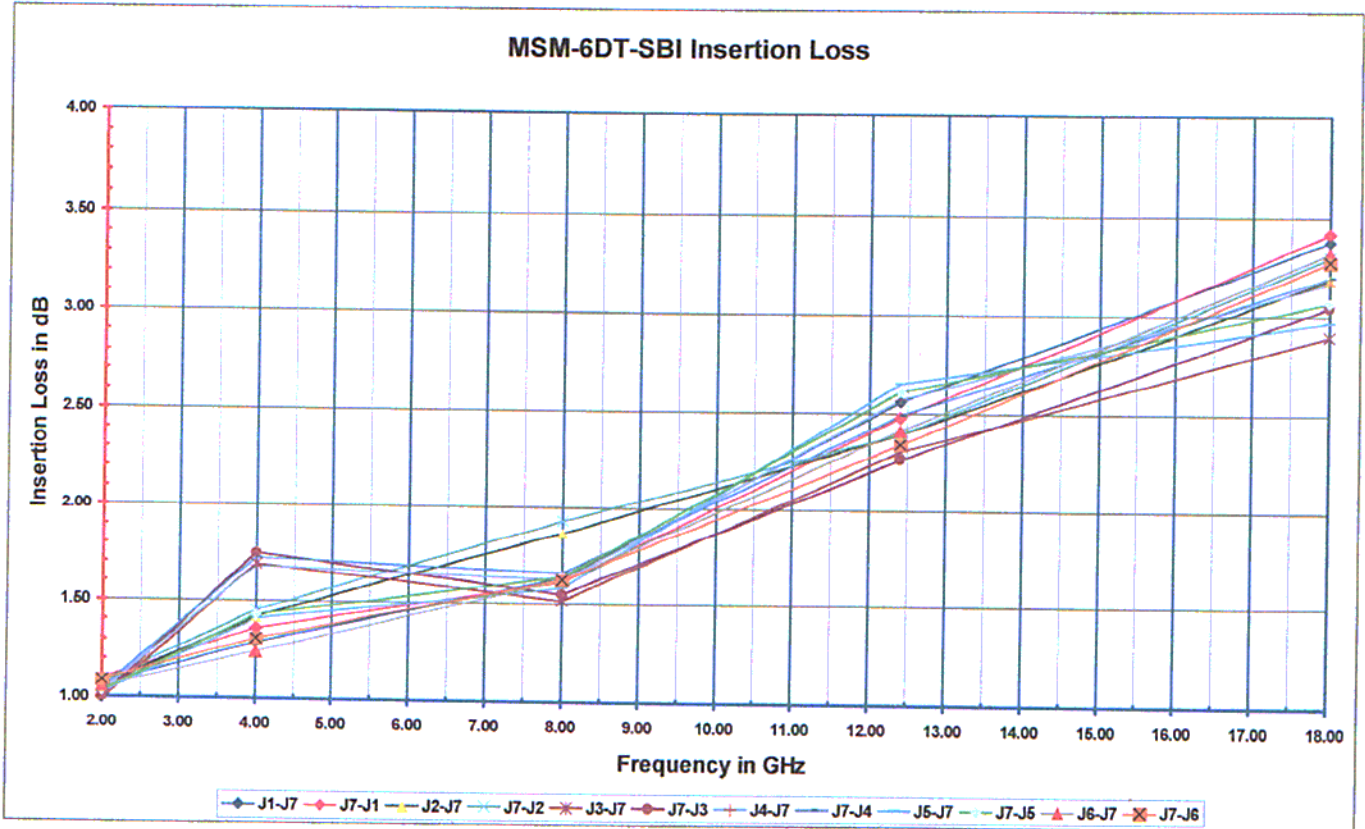
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INSERTION LOSS AND RETURN LOSS
AS MEASURED FROM 2.0 TO 18.0 GHz



INSERTION LOSS	2.00 GHz	4.00 GHz	8.00 GHz	12.40 GHz	18.00 GHz
J1-J7	1.07	1.29	1.63	2.56	3.38
J7-J1	1.10	1.36	1.61	2.48	3.42
J2-J7	1.06	1.42	1.87	2.39	3.19
J7-J2	1.08	1.45	1.93	2.39	3.30
J3-J7	0.99	1.69	1.52	2.30	2.90
J7-J3	1.00	1.75	1.55	2.26	3.05
J4-J7	1.03	1.68	1.62	2.57	3.17
J7-J4	1.04	1.72	1.66	2.49	3.20
J5-J7	1.02	1.41	1.58	2.65	2.97
J7-J5	1.03	1.43	1.64	2.61	3.07
J6-J7	1.06	1.24	1.62	2.41	3.32
J7-J6	1.09	1.31	1.62	2.34	3.28

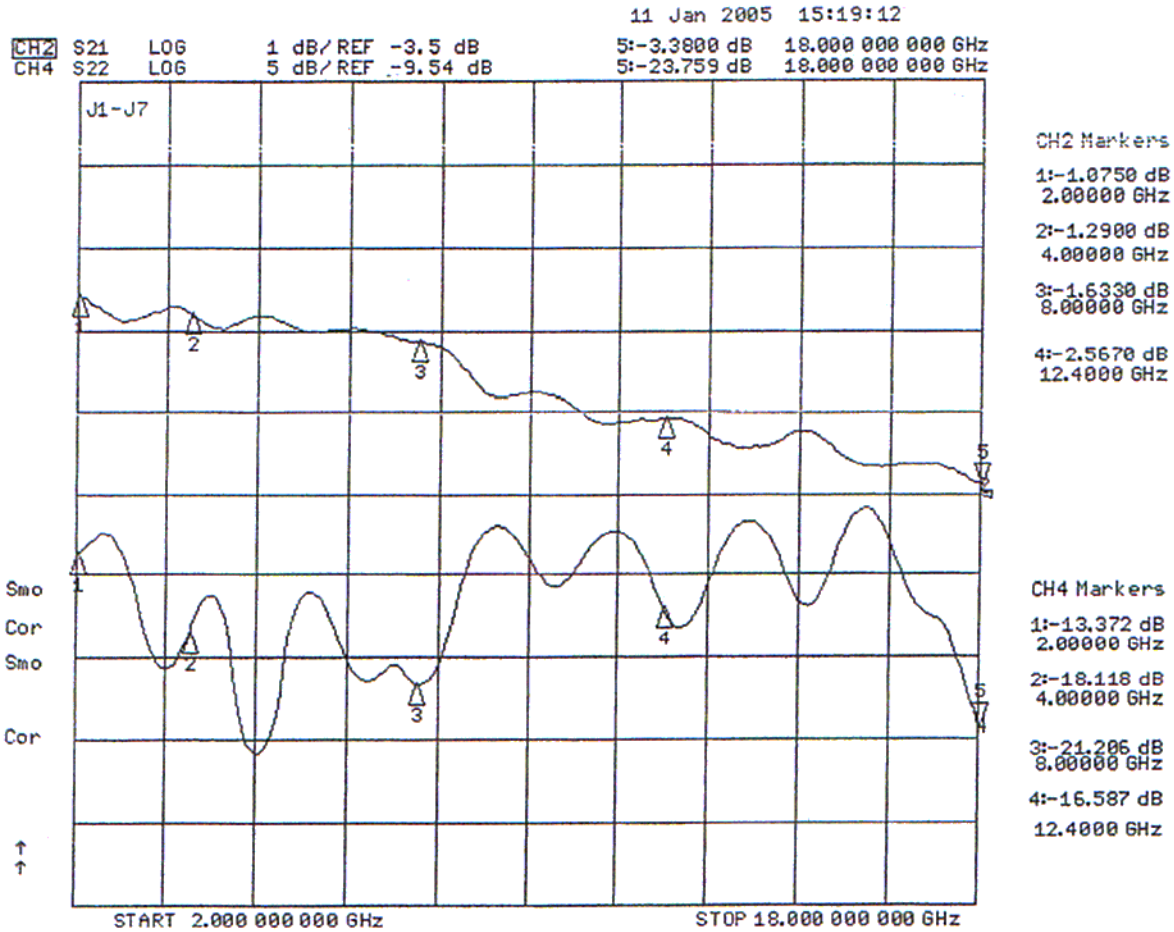
RETURN LOSS	2.00 GHz	4.00 GHz	8.00 GHz	12.40 GHz	18.00 GHz
J1-J7	13.37	18.12	21.21	16.58	23.75
J7-J1	11.97	19.74	18.20	11.10	24.08
J2-J7	17.11	15.82	13.00	14.66	17.65
J7-J2	18.17	13.91	21.61	11.80	15.30
J3-J7	18.83	9.75	17.30	12.73	11.95
J7-J3	27.69	10.45	13.94	11.18	14.44
J4-J7	15.29	10.36	15.32	10.47	13.25
J7-J4	21.74	10.37	12.77	9.93	13.81
J5-J7	17.75	15.71	21.34	11.22	19.49
J7-J5	19.39	13.11	28.87	9.98	18.44
J6-J7	13.31	18.32	15.98	15.17	16.49
J7-J6	11.86	18.99	16.75	11.38	21.43

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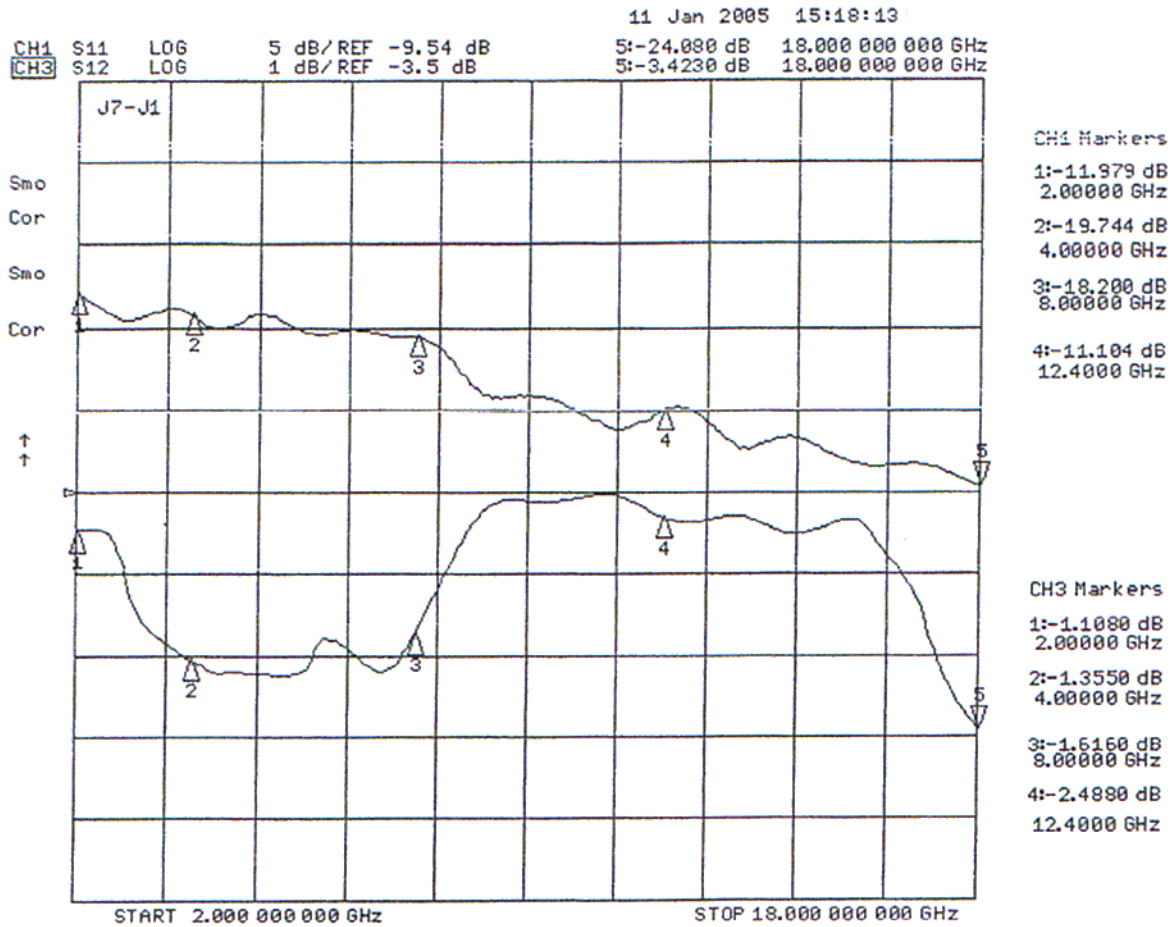


J1 TO J7: INSERTION LOSS AND RETURN LOSS, J1: INPUT ARM





J7 TO J1: INSERTION LOSS AND RETURN LOSS, J7: INPUT ARM

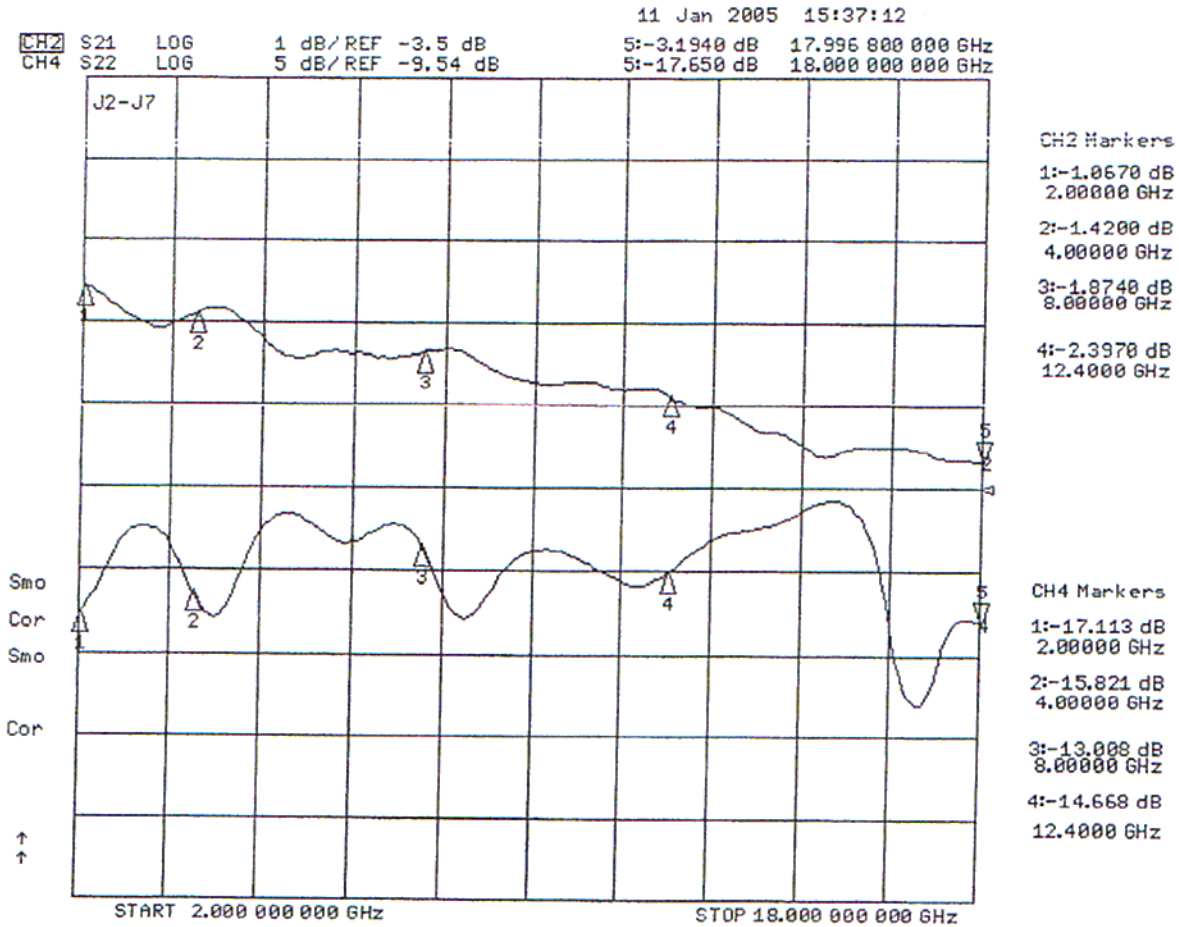


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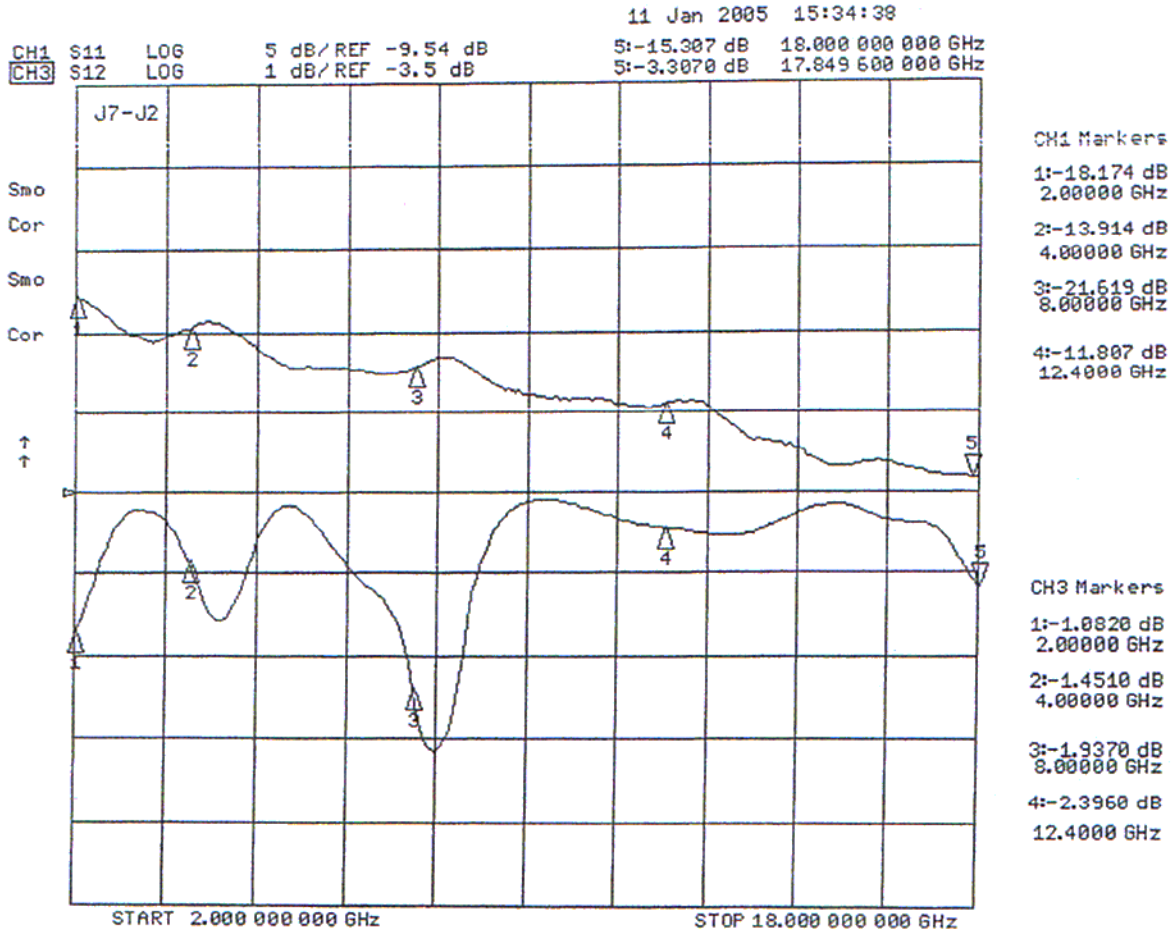
J2 TO J7: INSERTION LOSS AND RETURN LOSS, J2: INPUT ARM



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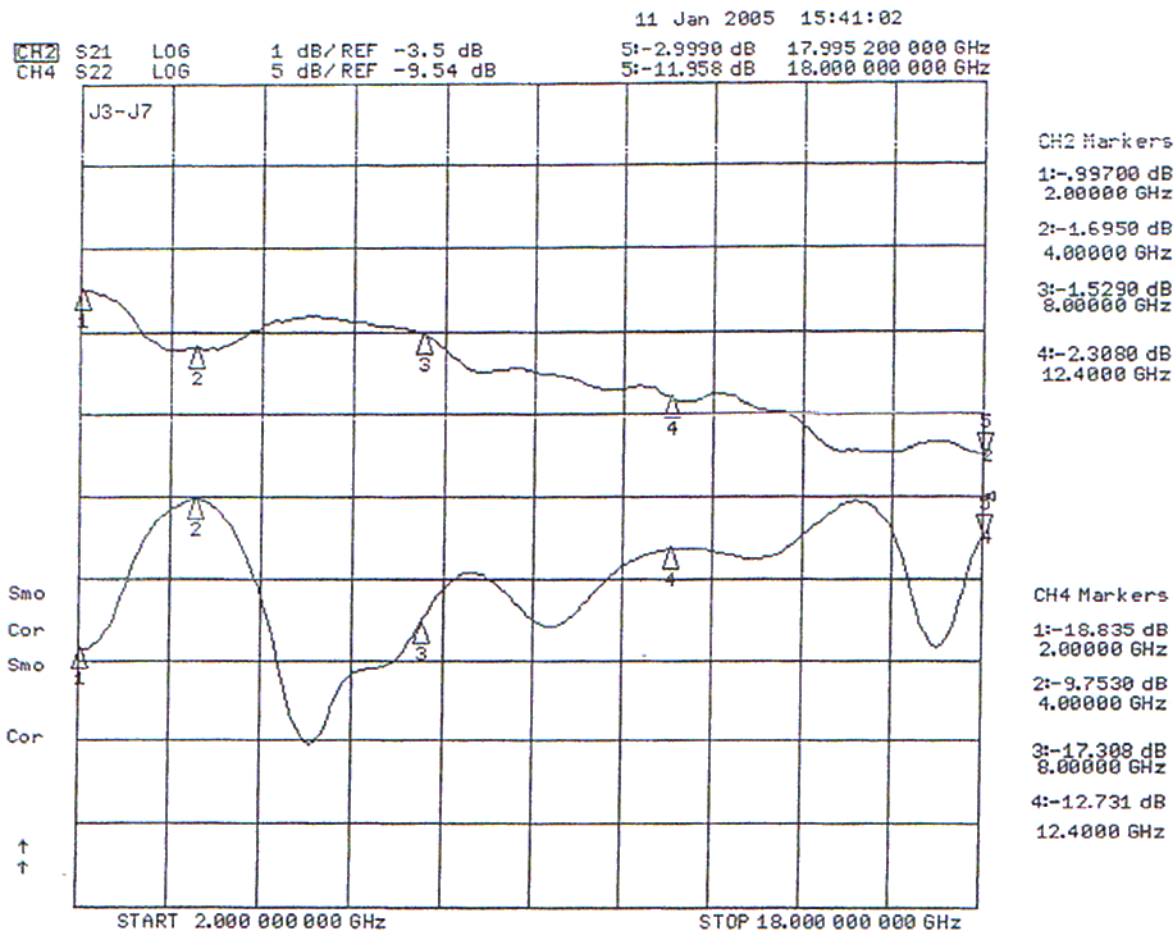
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J7 TO J2: INSERTION LOSS AND RETURN LOSS, J7: INPUT ARM





J3 TO J7: INSERTION LOSS AND RETURN LOSS, J3: INPUT ARM

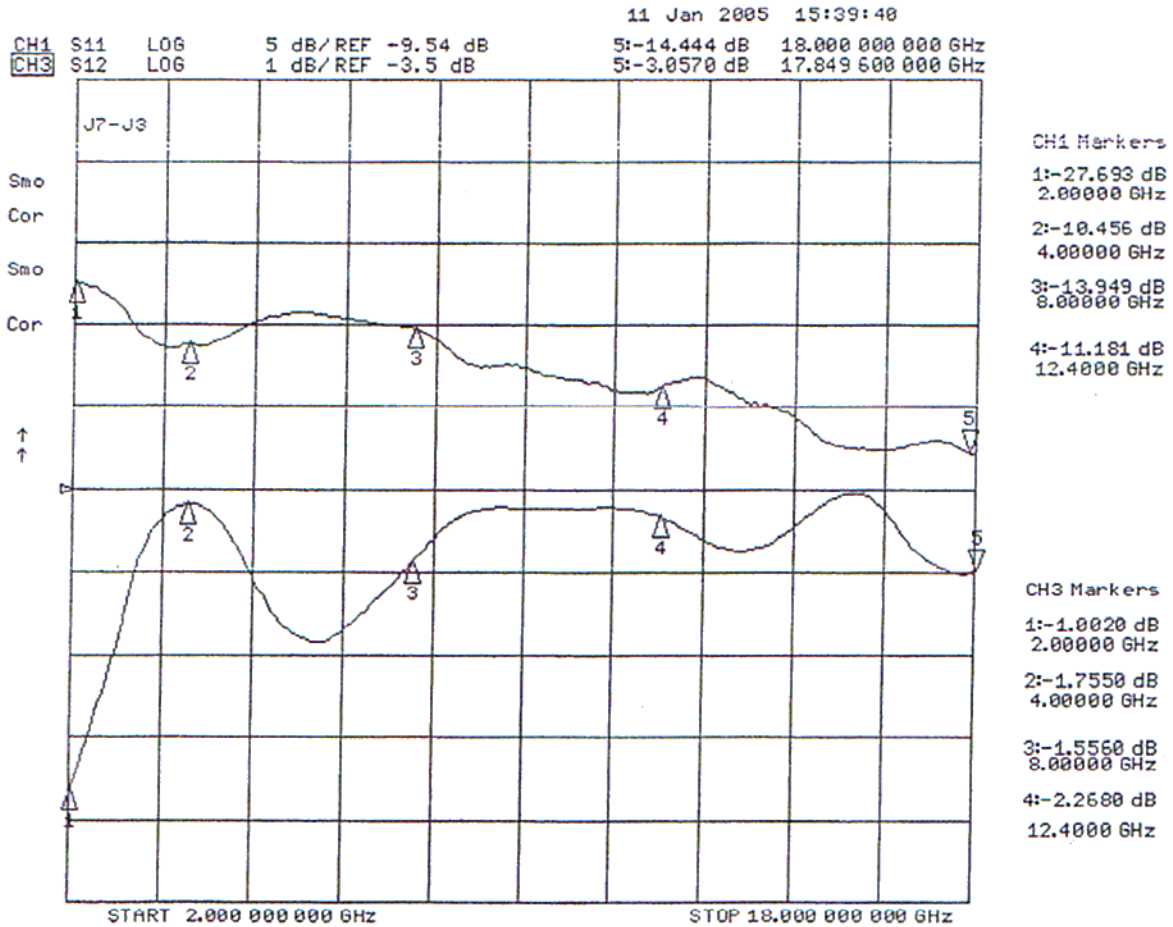


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J7 TO J3: INSERTION LOSS AND RETURN LOSS, J7: INPUT ARM

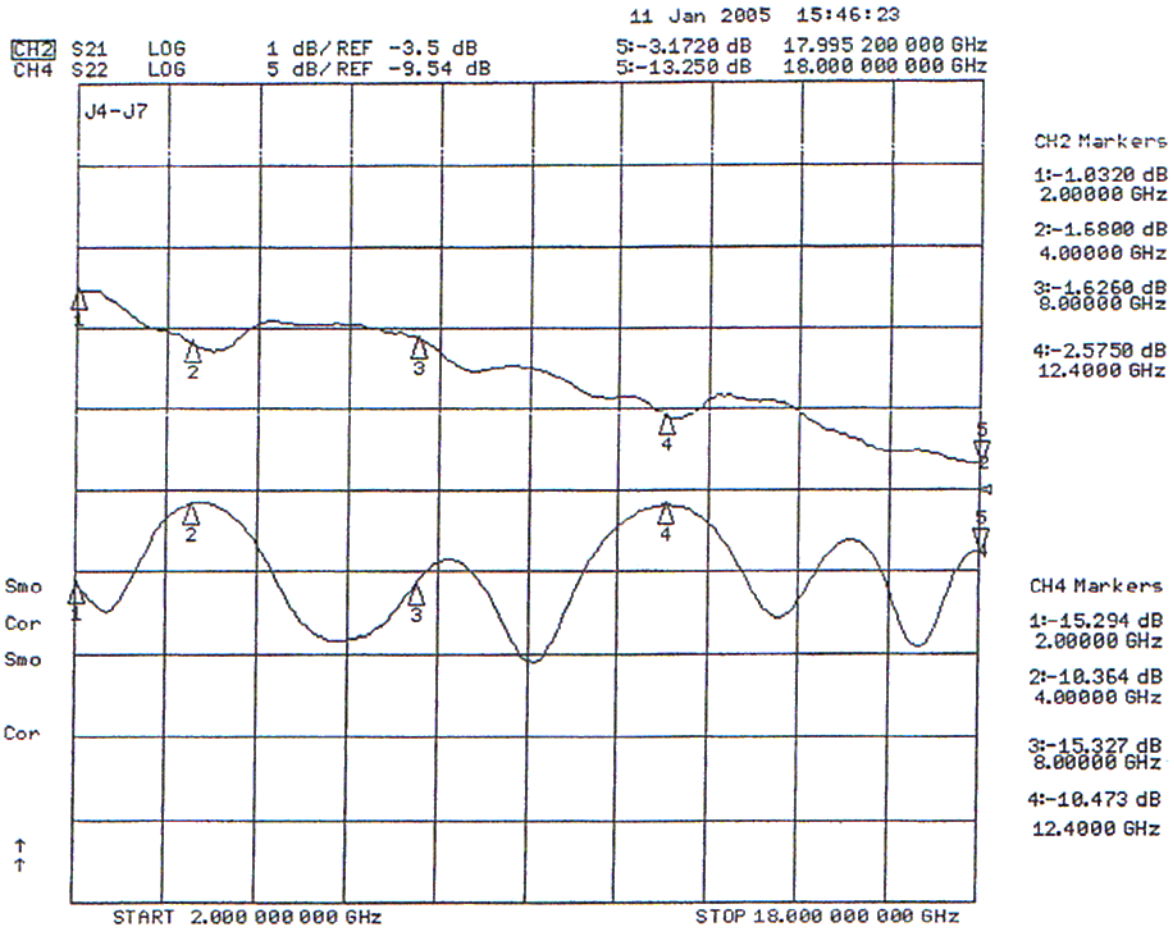


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J4 TO J7: INSERTION LOSS AND RETURN LOSS, J4: INPUT ARM

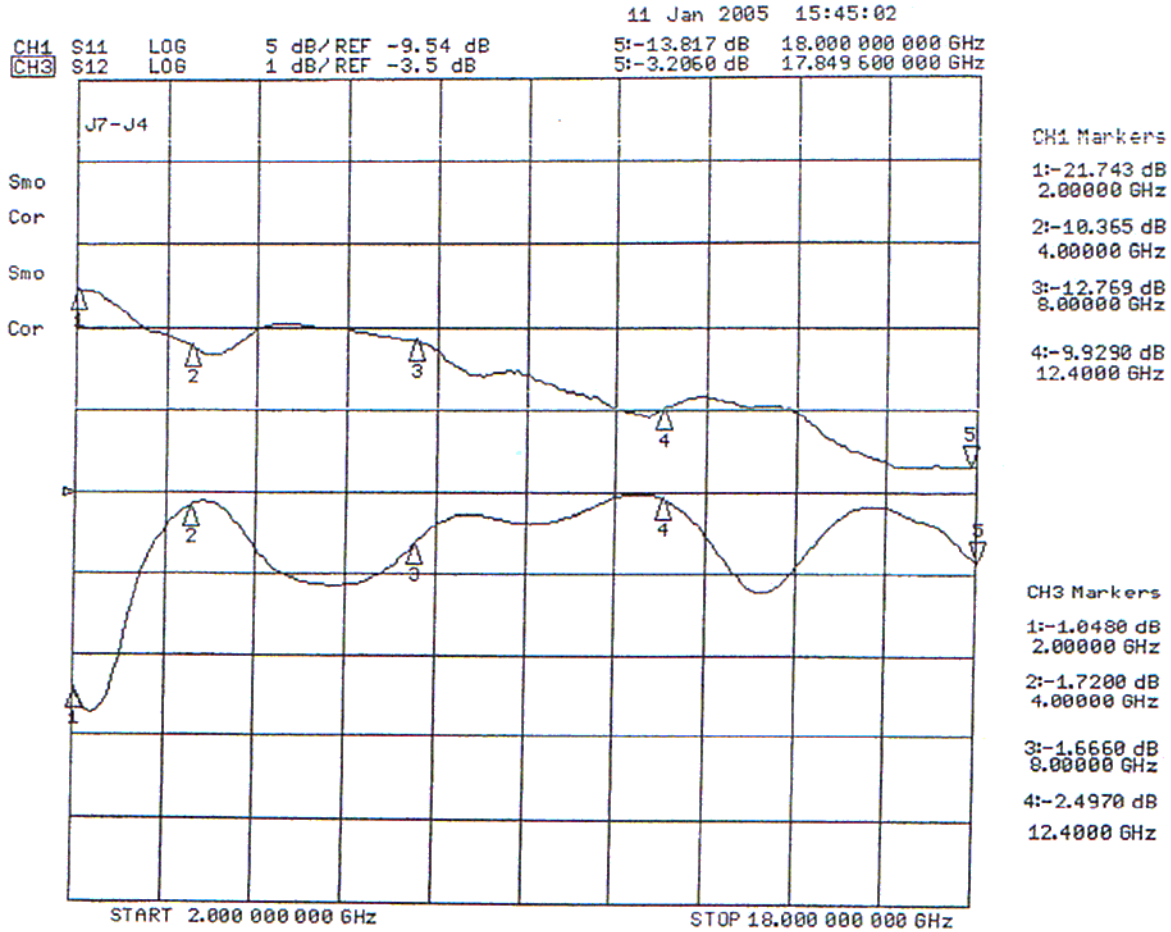


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J7 TO J4: INSERTION LOSS AND RETURN LOSS, J7: INPUT ARM

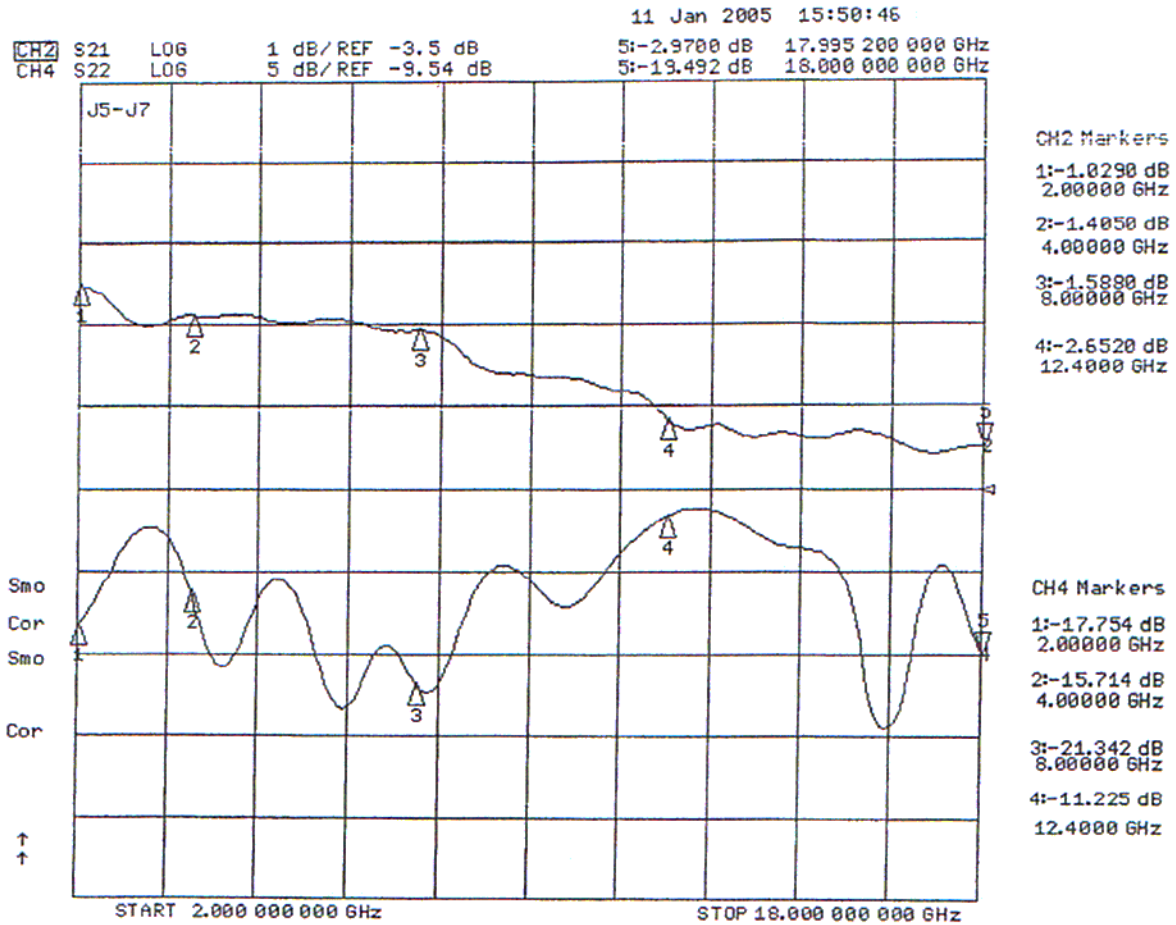


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J5 TO J7: INSERTION LOSS AND RETURN LOSS, J5: INPUT ARM

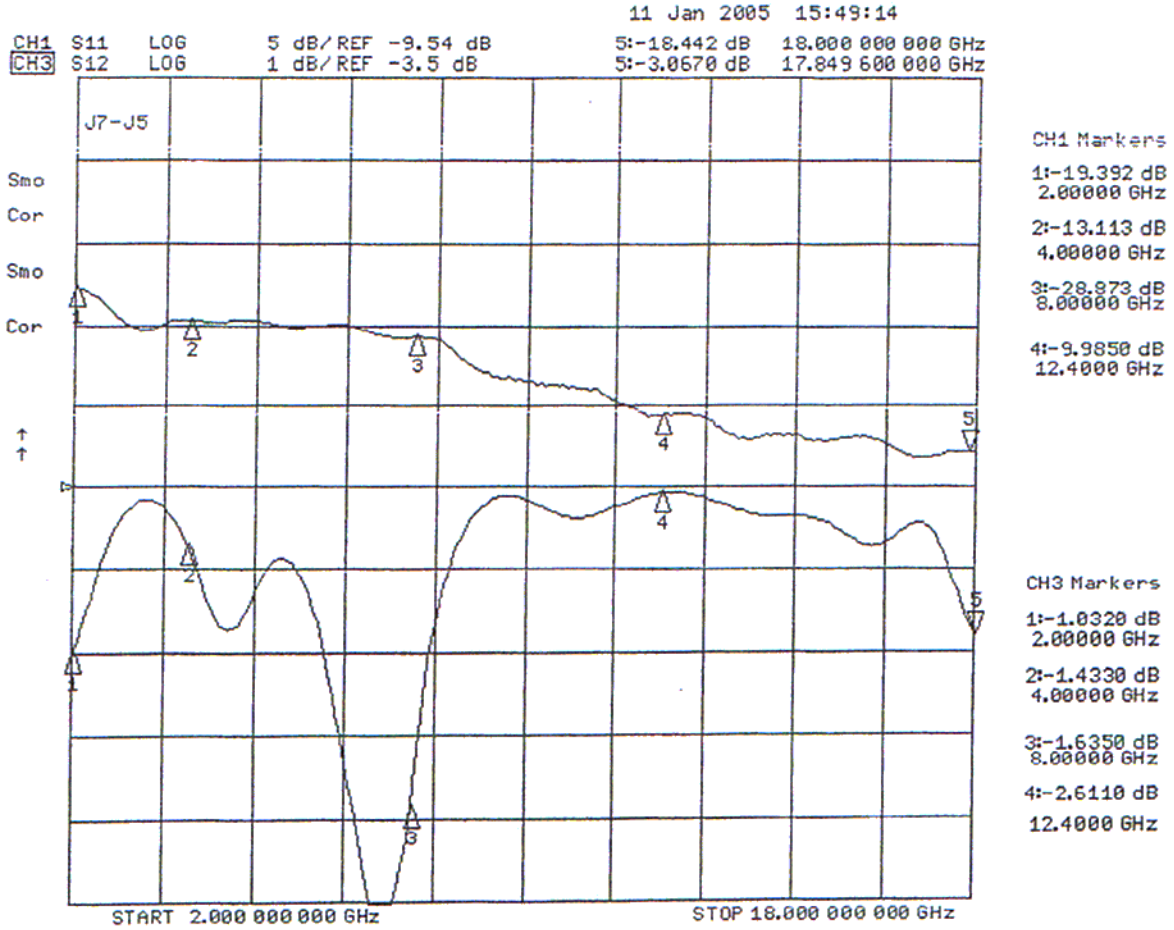


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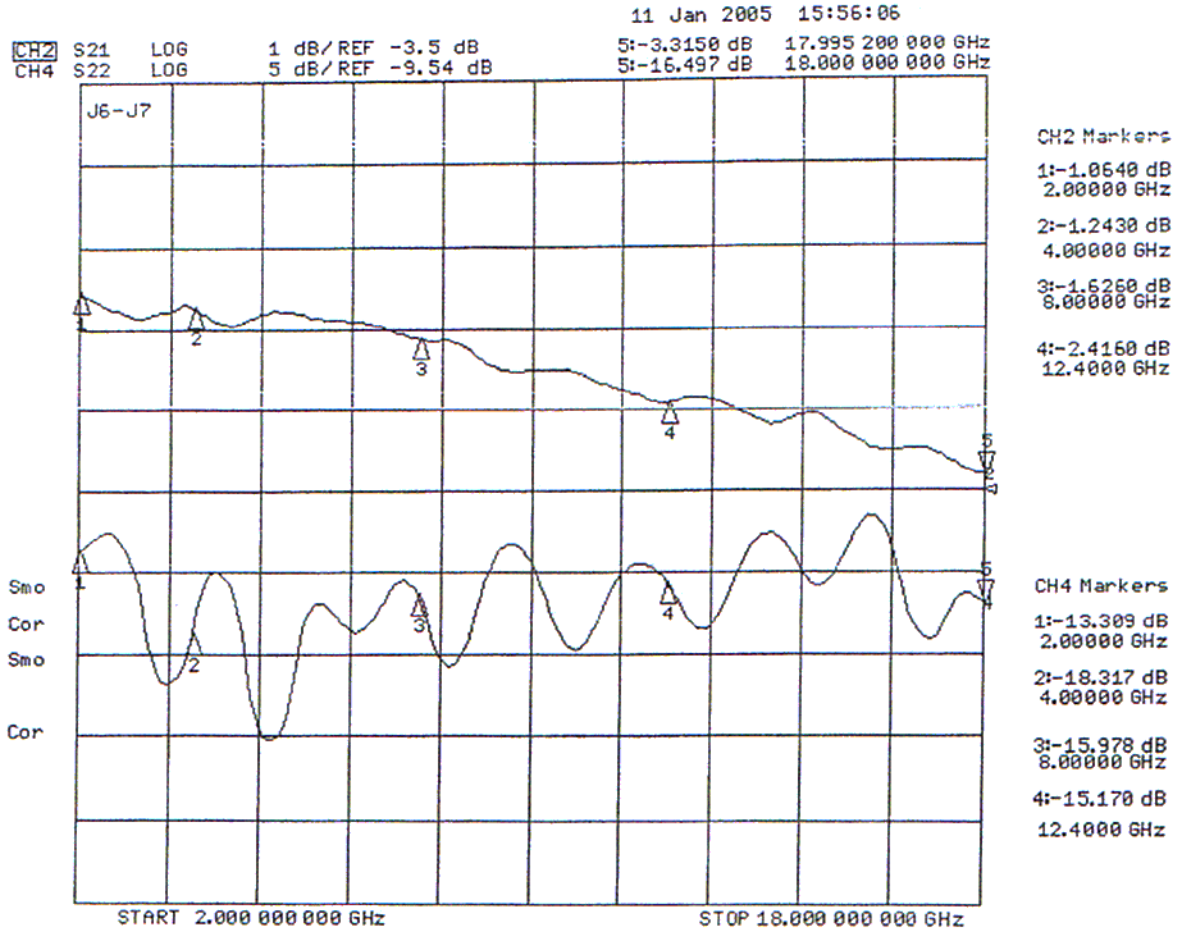


J7 TO J5: INSERTION LOSS AND RETURN LOSS, J7: INPUT ARM





J6 TO J7: INSERTION LOSS AND RETURN LOSS, J6: INPUT ARM

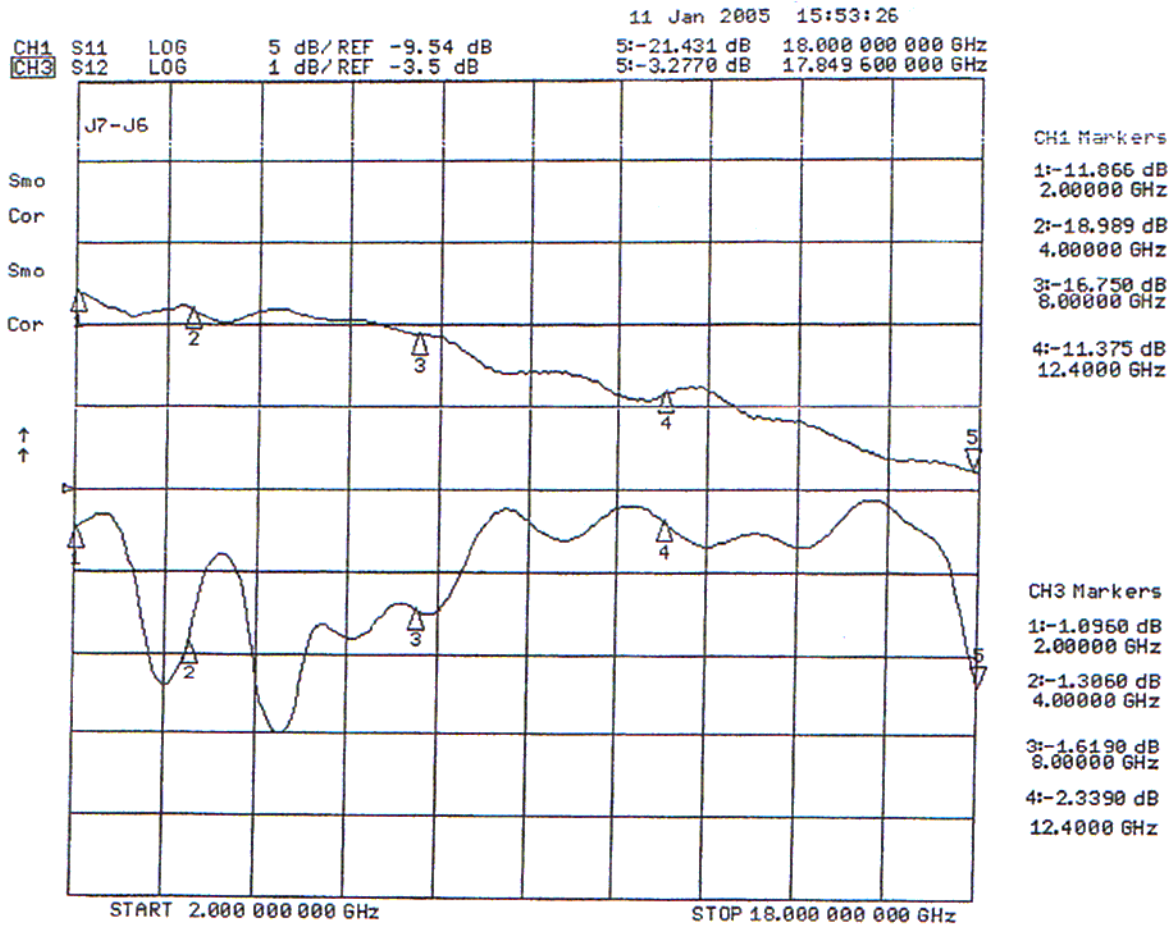


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J7 TO J6: INSERTION LOSS AND RETURN LOSS, J7: INPUT ARM



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ISOLATION
AND
OFF ARM TERMINATIONS

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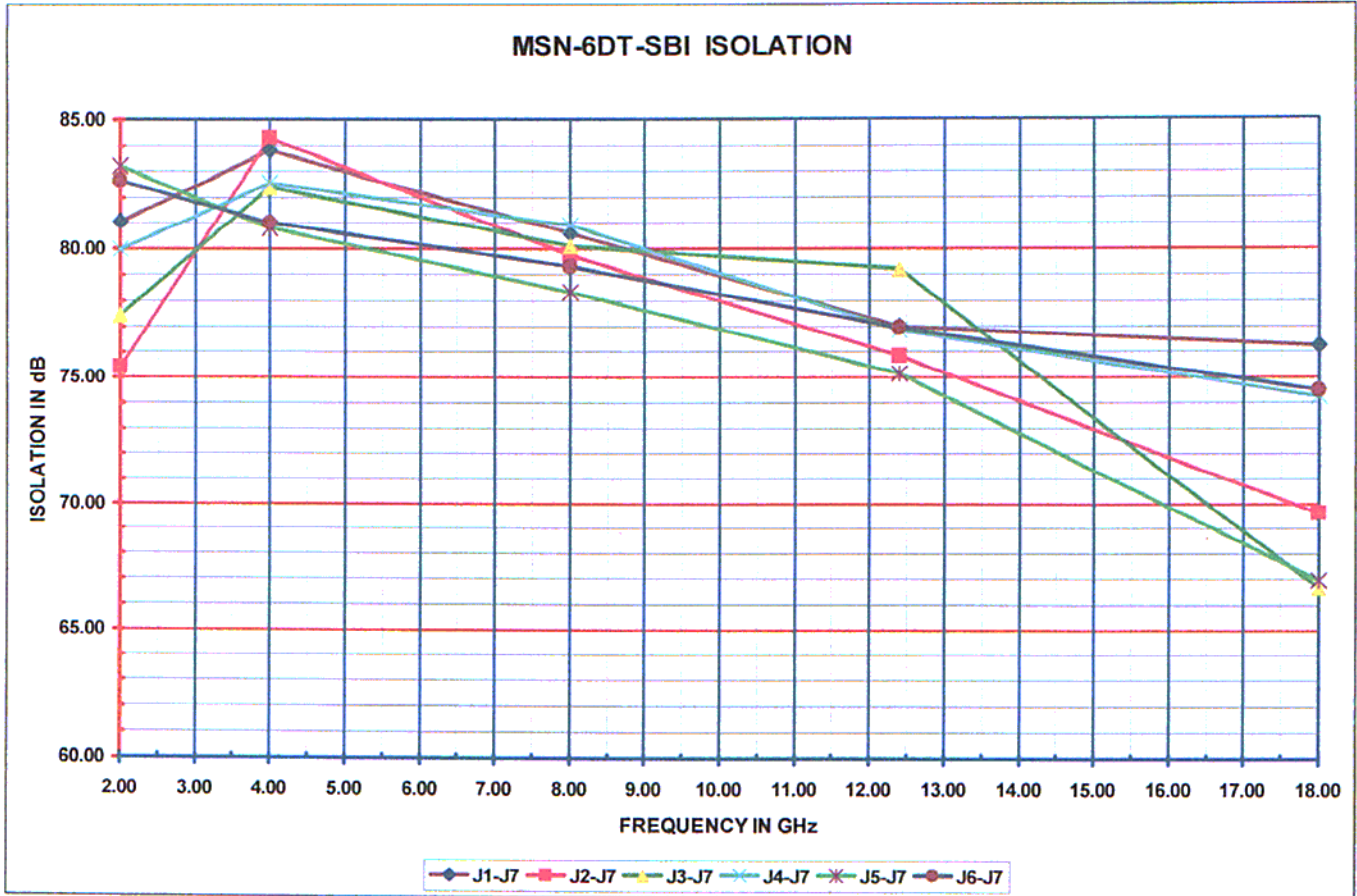
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I S O L A T I O N
AS MEASURED FROM 2.0 TO 18.0 GHz



ISOLATION	2.00 GHz	4.00 GHz	8.00 GHz	12.40 GHz	18.00 GHz
J1-J7	81.06	83.79	80.61	76.99	76.25
J2-J7	75.41	84.28	79.79	75.82	69.65
J3-J7	77.41	82.40	80.10	79.20	66.65
J4-J7	79.98	82.55	80.90	76.82	74.23
J5-J7	83.20	80.80	78.35	75.12	66.97
J6-J7	82.67	81.02	79.31	76.92	74.49

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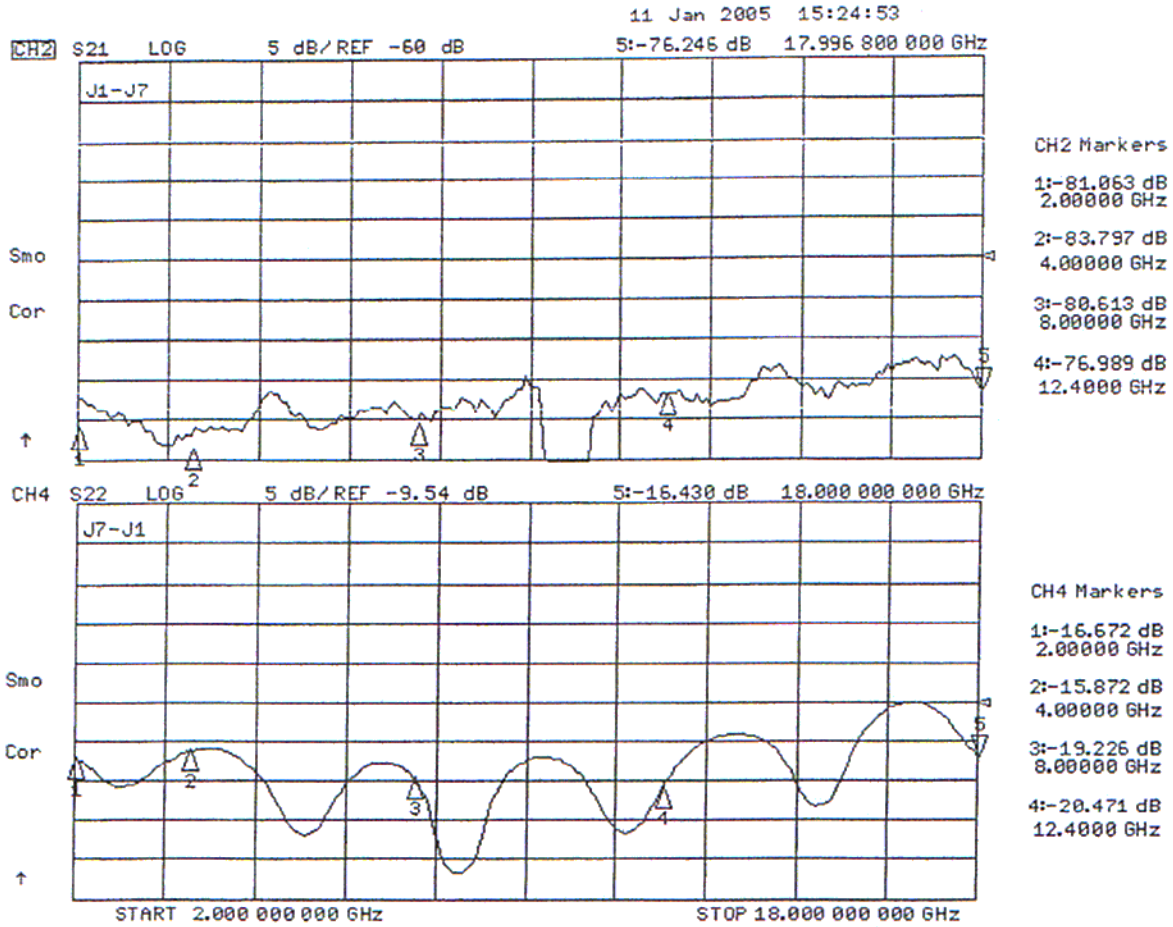
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J1 TO J7: ISOLATION & OFF ARM TERMINATION

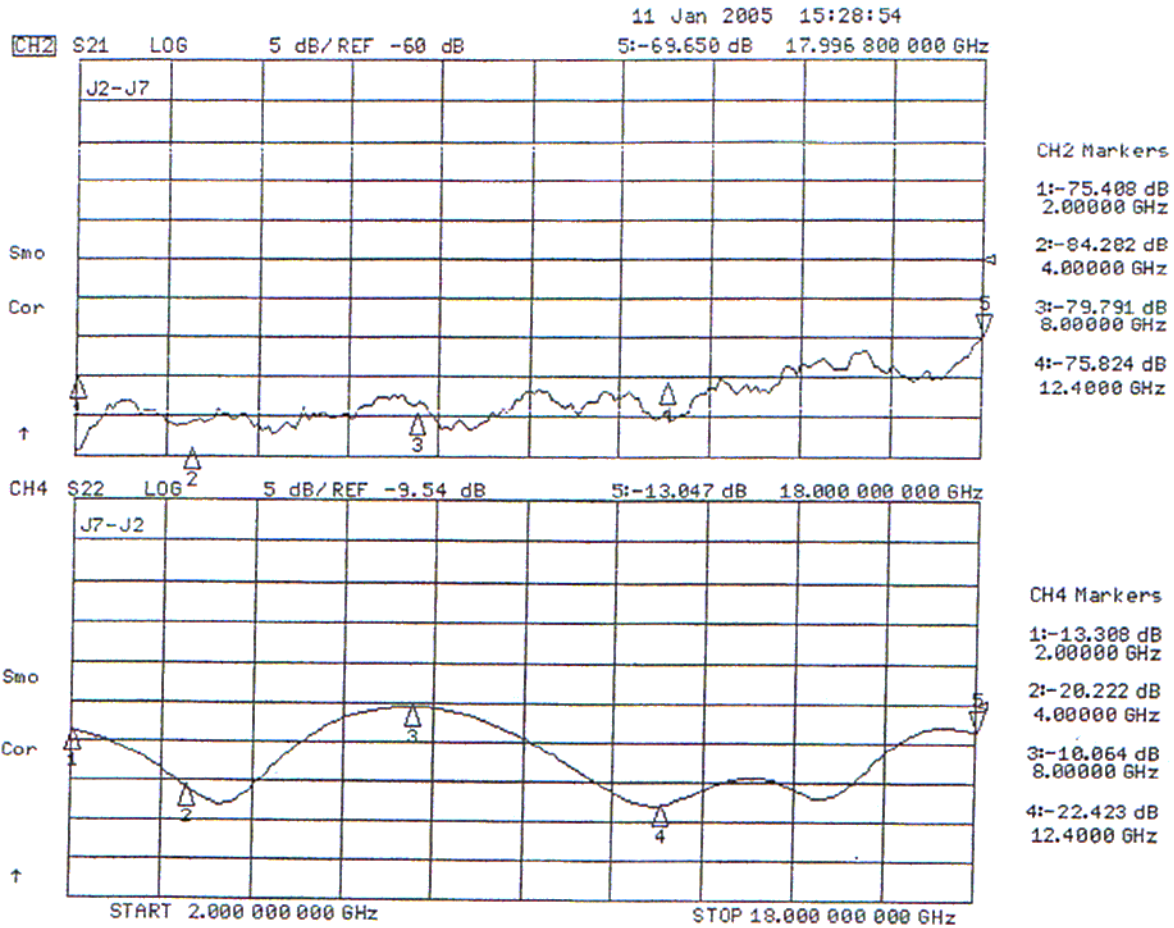


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J2 TO J7: ISOLATION & OFF ARM TERMINATION

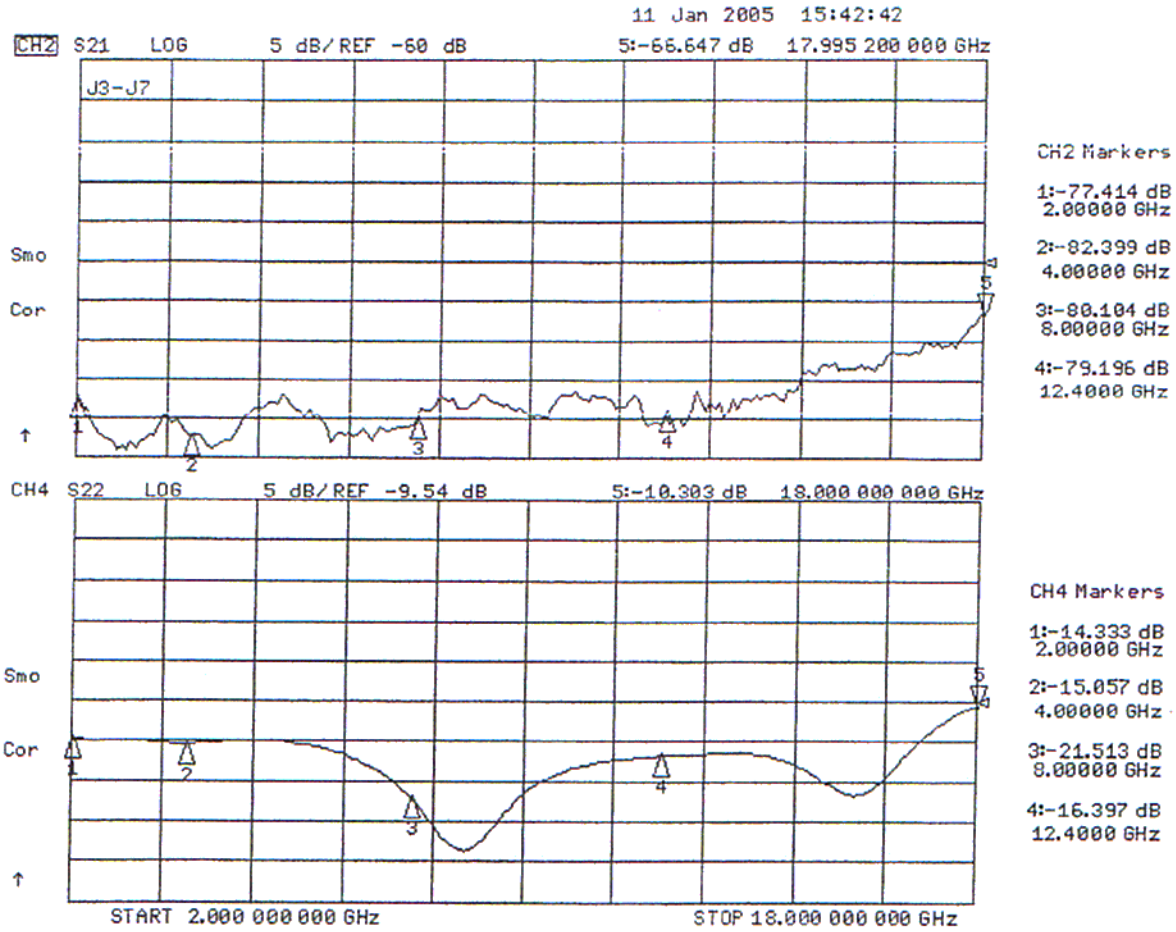


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J3 TO J7: ISOLATION & OFF ARM TERMINATION

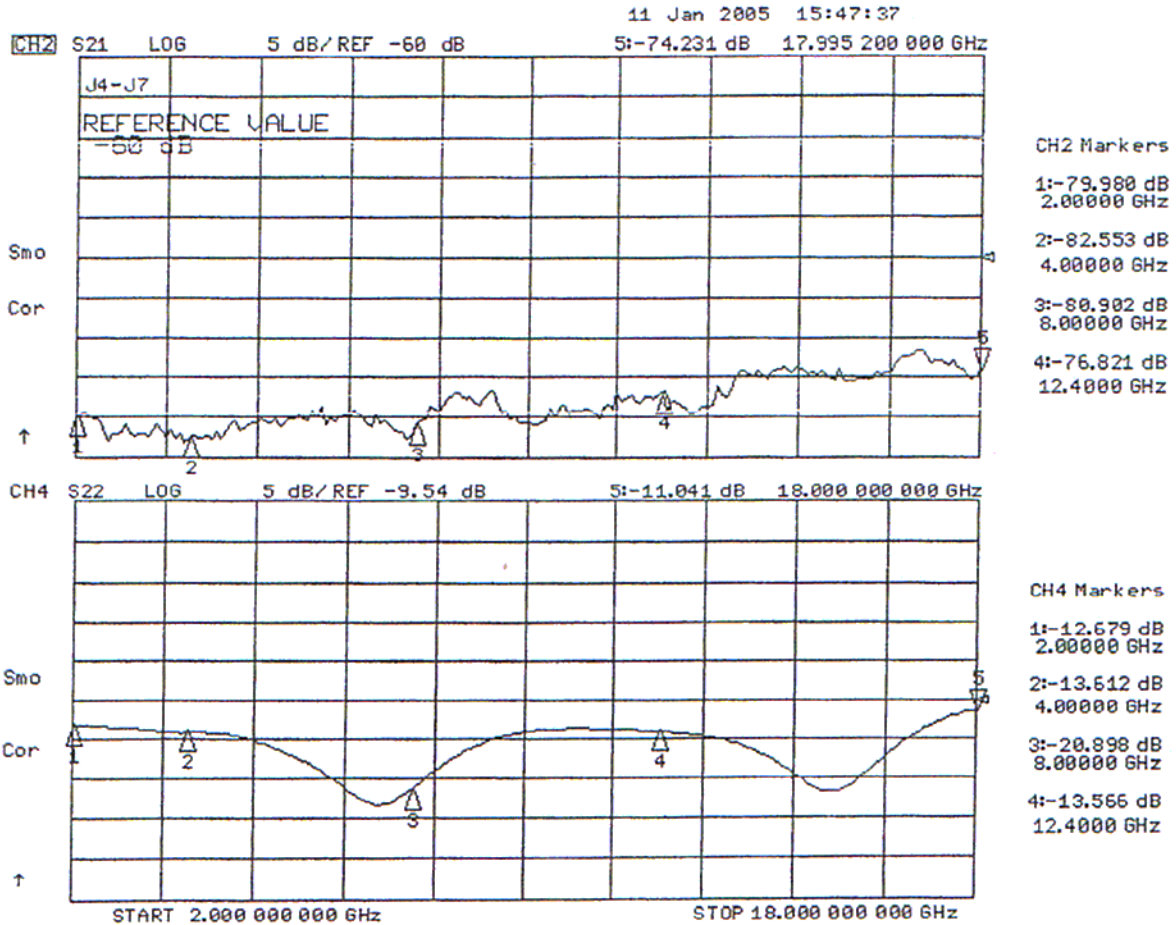


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J4 TO J7: ISOLATION & OFF ARM TERMINATION

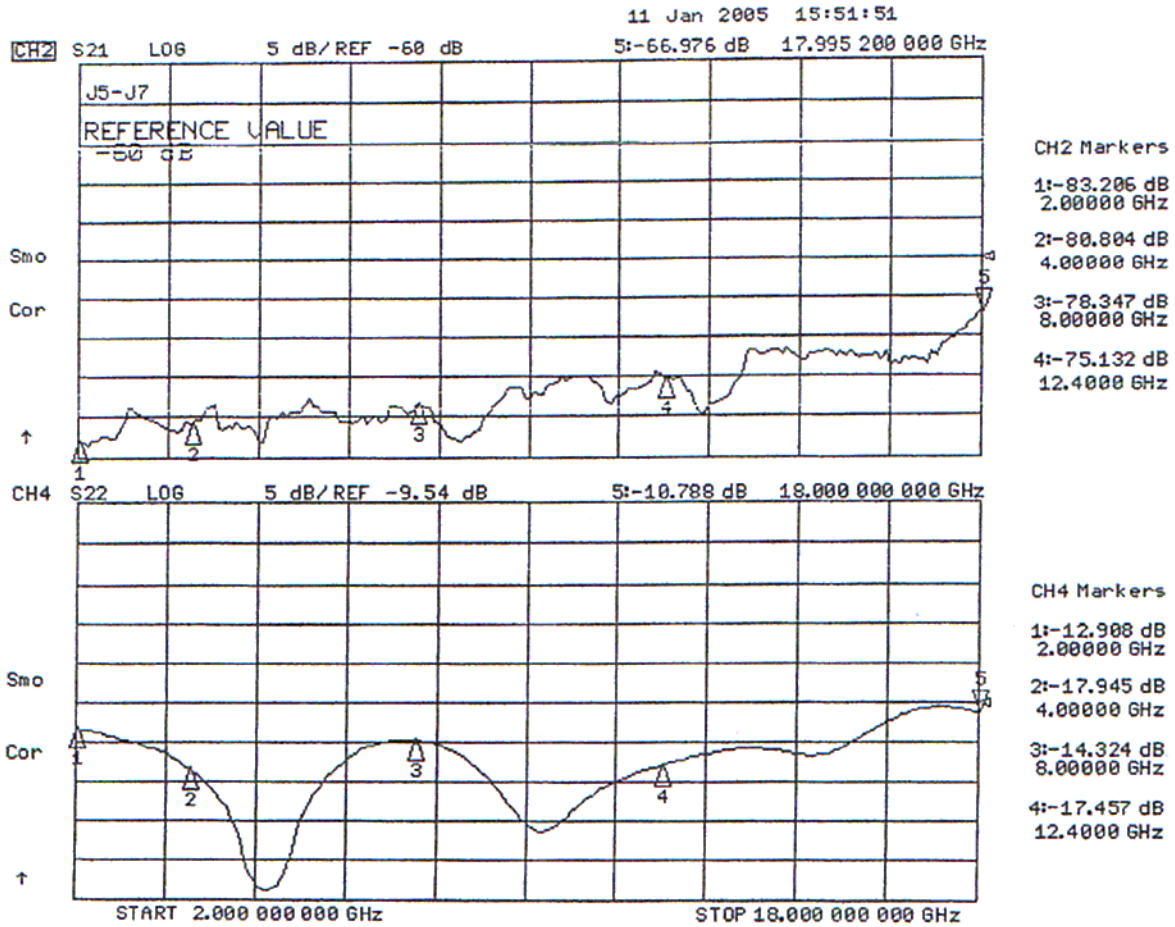


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J5 TO J7: ISOLATION & OFF ARM TERMINATION

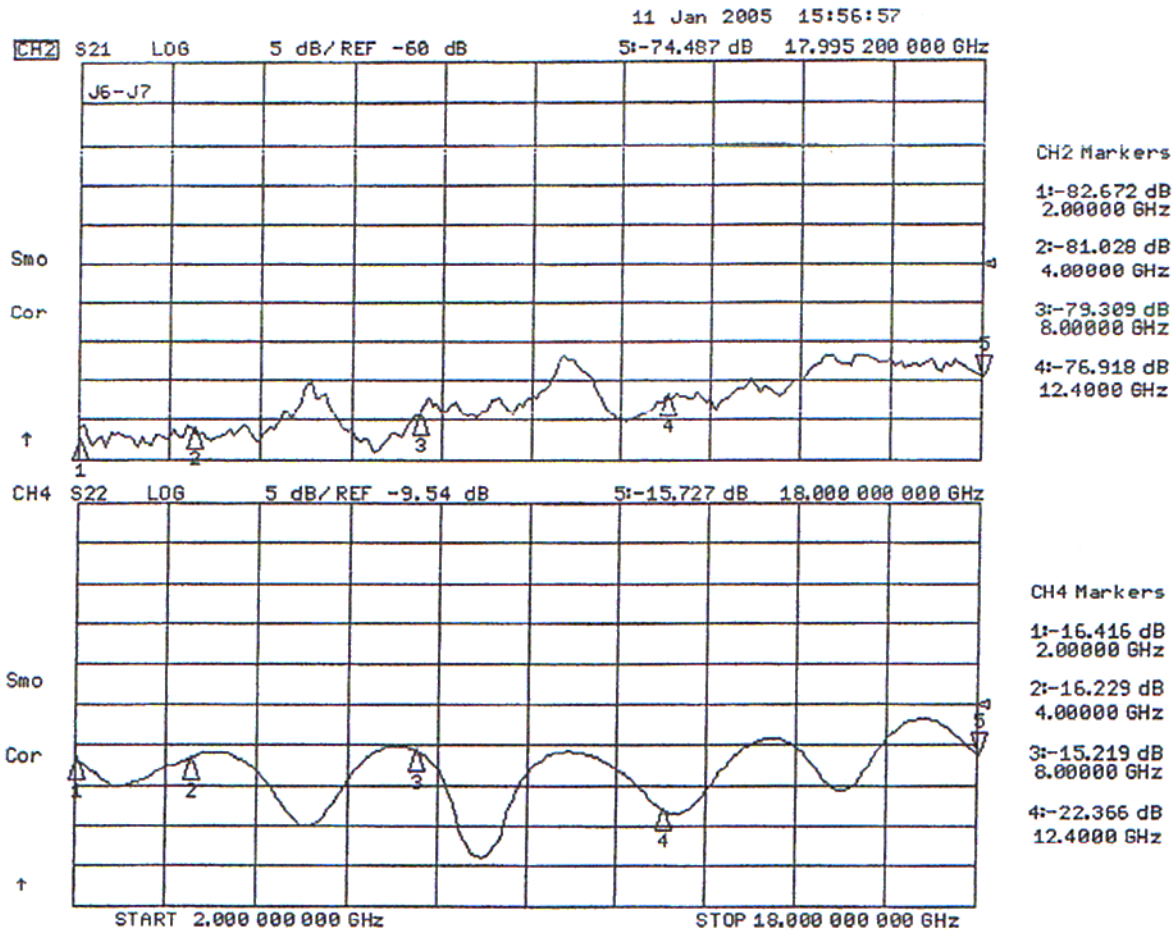


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J6 TO J7: ISOLATION & OFF ARM TERMINATION

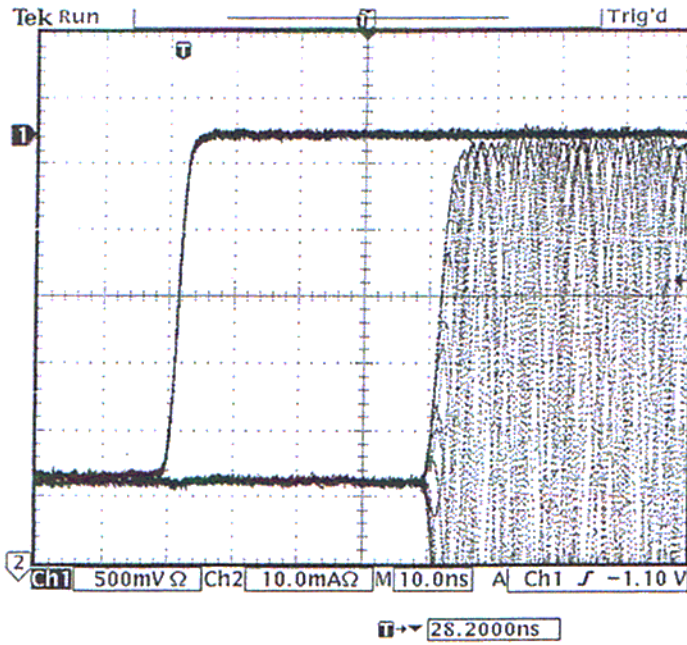


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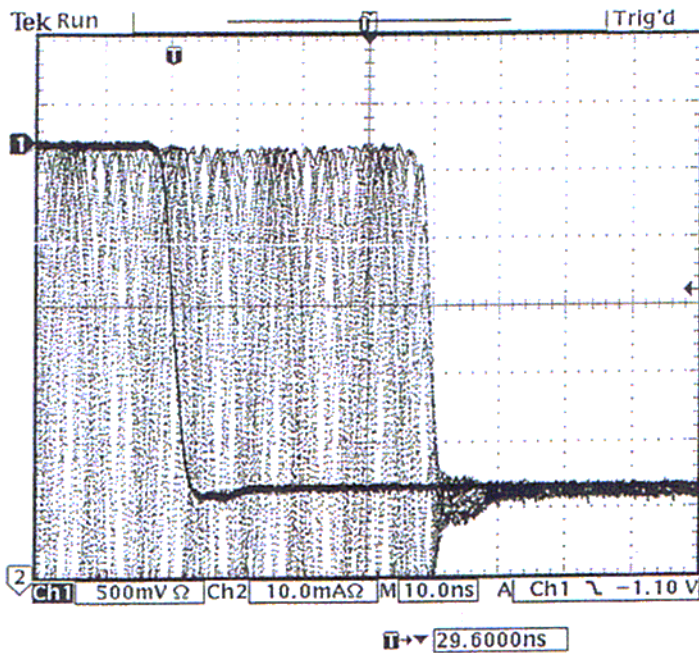
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SWITCHING SPEED



11 Jan 2005
13:38:24



11 Jan 2005
13:39:13

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