

**TEST DATA**

**ON**

**2.0 TO 18.0 GHz**

**-70 dBm TO +10 dBm DYNAMIC RANGE**

**TRUELY DC-COUPLED**

**SUCCESSIVE DETECTION  
LOG VIDEO AMPLIFIER  
(SDLVA)**

**PMI MODEL No:  
SDLVA-2020-70**

**SERIAL NUMBERS: SDL61027 (Option 218), SDL50102, SDL308151, SDL40709 (Option 212),  
SDL41212 (Option 26), SDL51033 (Option 079),**

**DESIGNED  
BY  
A. K. GORWARA**

**TESTED  
BY  
B. BAKER**

**REPORTED  
BY  
P. WOOD**

**MARCH 1, 1997**

***PLANAR MONOLITHICS INDUSTRIES, INC.***  
**ENGINEERING AND CORPORATE OFFICES: 1112 PERKIOMENVILLE ROAD, PERKIOMENVILLE, PA 18074**  
**MANUFACTURING AND SALES OFFICES: 7311-G GROVE ROAD, FREDERICK, MD 21704**  
**TELEPHONE: 301-662-4700, FAX: 301-662-4938**



# PMI MODEL No: SDLVA-2020-70

- TRULEY DC-COUPLED
- WIDE BANDWITHS
- FAST RISE TIMES
- EXTENDED DYNAMIC RANGE
- SUPERIOR ACCURACY
- SHORT RECOVERY TIMES

### SPECIFICATIONS:

- FREQUENCY RANGE : 2.0 to 18.0 GHz (Option 218)
- FREQUENCY FLATNESS :  $\pm 2.5$  dB
- TSS : -68 dBm Min. -70 dBm Typ.
- VSWR : 3.0:1 @ -20 dBm
- LOGGING RANGE : -65 dBm to +10 dBm
- LOG LINEARITY :  $\pm 1.75$  dB Max. (-65 to +10dBm)
- LOG TEMPERATURE STABILITY :  $\pm 1.75$  dB Max. (0°C to +60°C)
- LOG SLOPE : 50 mV/dB ( $\pm 10\%$  Tolerance)
- RISE TIME (10% to 90% Points) : 30 nS Max., 20 nS Typ.
- RECOVERY TIME : 350 nS Max., 250 nS Typ.
- OUTPUT VIDEO LOAD : 100  $\Omega$   $\pm 10\%$  (Or as desired)
- VIDEO BANDWIDTH : 20 MHz Min., 25 MHz Typ.
- LIMITED RF OUTPUT : +10 dBm Min., +13 dBm Typ.
- LIMITED RF OUTPUT FLATNESS :  $\pm 2.5$  dB Typ.
- RF GAIN : 60 dB Min., 70 dB Typ.
- DC POWER SUPPLY (No Load) : +15 vdc @ 650 mA Max.  
: -15 vdc @ 175 mA Max.
- SIZE : 3.5" x 3.0" x 0.5"
- WEIGHT : < 7.3 oz.

### ENVIRONMENTAL CONDITIONS:

- TEMPERATURE : -54°C TO + 85°C (OPERATING)  
: -65°C TO + 100°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.

**MARCH 1, 1997**

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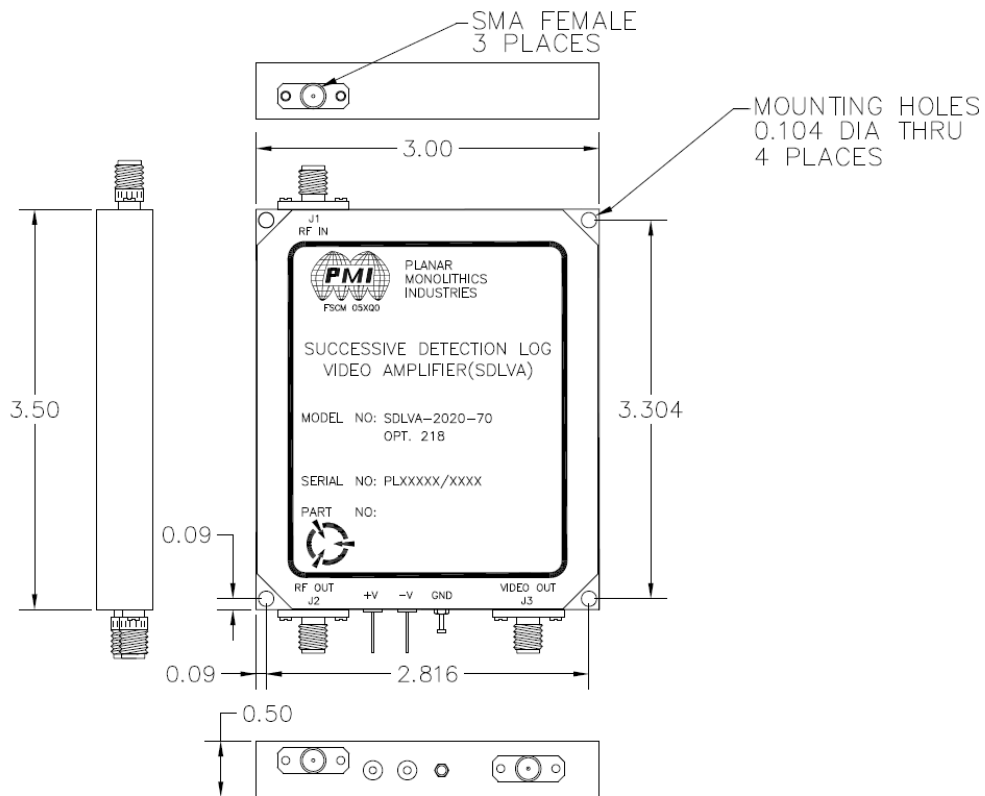
**PMI MODEL No: SDLVA-2020-70**

**SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER**

**PAGE 3**

# PMI MODEL No: SDLVA-2020-70

## MECHANICAL OUTLINE:



**DIMENSIONS ARE IN INCHES. TOLERANCES : X.XX,  $\pm 0.020$  & X.XXX,  $\pm 0.010$**

**MARCH 1, 1997**

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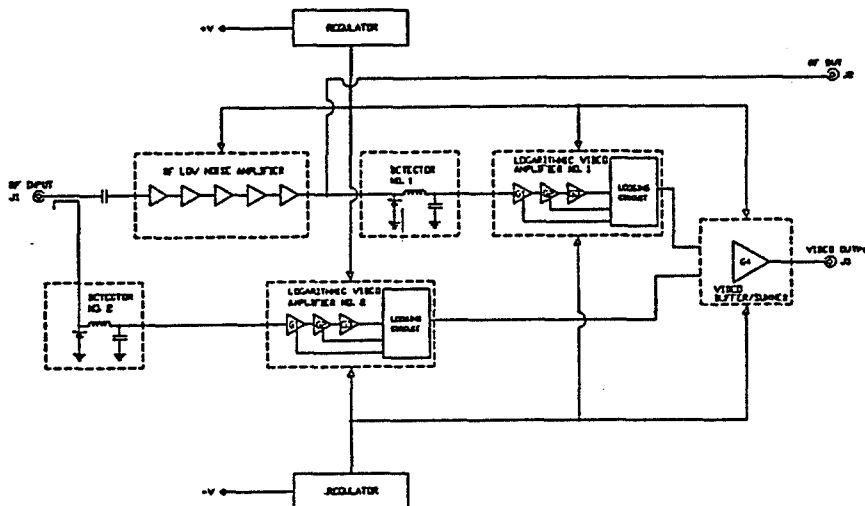
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# PMI MODEL No: SDLVA-2020-70

**FUNCTIONAL BLOCK DIAGRAM:**




**AVAILABLE OPTIONS:**

- A01 : ANY FREQUENCY BANDWIDTH IN THE 0.2 TO 20 GHz RANGE  
 FOR EXAMPLE : OPTION 218 (2.0 TO 18.0 GHz)  
 : OPTION 079 (0.7 TO 8.5 GHz)  
 : OPTION 26 (2.0 TO 6.0 GHz)  
 : OPTION 212 (2.0 TO 12.0 GHz)
- A02 : ± 1.5 dB FREQUENCY FLATNESS AT ANY FREQUENCY IN THE 0.2 TO 20 GHz RANGE
- A03 : FASTER RISE/RECOVERY TIMES
- A04 : ALTERNATE LOG SLOPES
- A05 : HIGH POWER RF CW/PEAK PROTECTION
- A06 : EXTENDED LOGGING RANGE
- A07 : OTHER VIDEO LOADS

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<b>PLANAR MONOLITHICS INDUSTRIES, INC.</b>	
PMI MODEL No: <b>SDLVA-2020-70</b>	
<b>SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER</b>	<b>PAGE 5</b>

SERIAL NUMBER : **SDL61027**

**MEASURED TEST DATA ON OPTION 218 UNIT**

FORM: **SDLVA-121/0297.**

JOB NO: **60913P**

SUMMARY TEST DATA  
ON  
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVA)

CUSTOMER: **SYTECH**  
JOB NO: **60913P**  
MODEL NO: **SDLVA-2020-70-218-NRL**  
SERIAL NO: **SDL61027**

TESTED BY: **B.B**  
TEMPERATURE: **0 TO +60°C**  
DATE: **1/25/97**

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2 - 18 GHz)	3.0:1	1.7:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -70 dBm to +10 dBm	PLOT ATTACHED	0.06 TO 465 VOLTS	✓
3	TSS (2 - 18 GHz)	-68 dBm (min)	-68 dBm	✓
4	LOG SLOPE (± 10% TOL)	20 mV/dB	20 mV/dB	✓
5	LOG LINEARITY @ -70 dBm TO +10 dBm	±1.75 dB (max)	+1.0 dB	✓
6	FREQUENCY FLATNESS (2 - 18 GHz) @ -20 dBm	±2.5 dB	±1.5 dB	✓
7	RECOVERY TIME (max) -70 to +10 dBm	500 nSEC 250 nSEC TYPICAL	500 nSEC	✓
8	OUTPUT STABILITY (0 to 60°C)	±1.75 dB (max)	±1.0 dB	✓
9	RISE TIME (10% TO 90% POINTS)	30 NS (max)	22 nSEC	✓
10	D.C. POWER @ +15 V	600 mA (max)	480 mA	✓
11	D.C. POWER @ -15 V	200 mA (max)	131 mA	✓

PRODUCTION MANAGER APPROVAL: K. Habel DATED: 2/3/97  
QA/QC APPROVAL: H8 DATED: 2/3/97

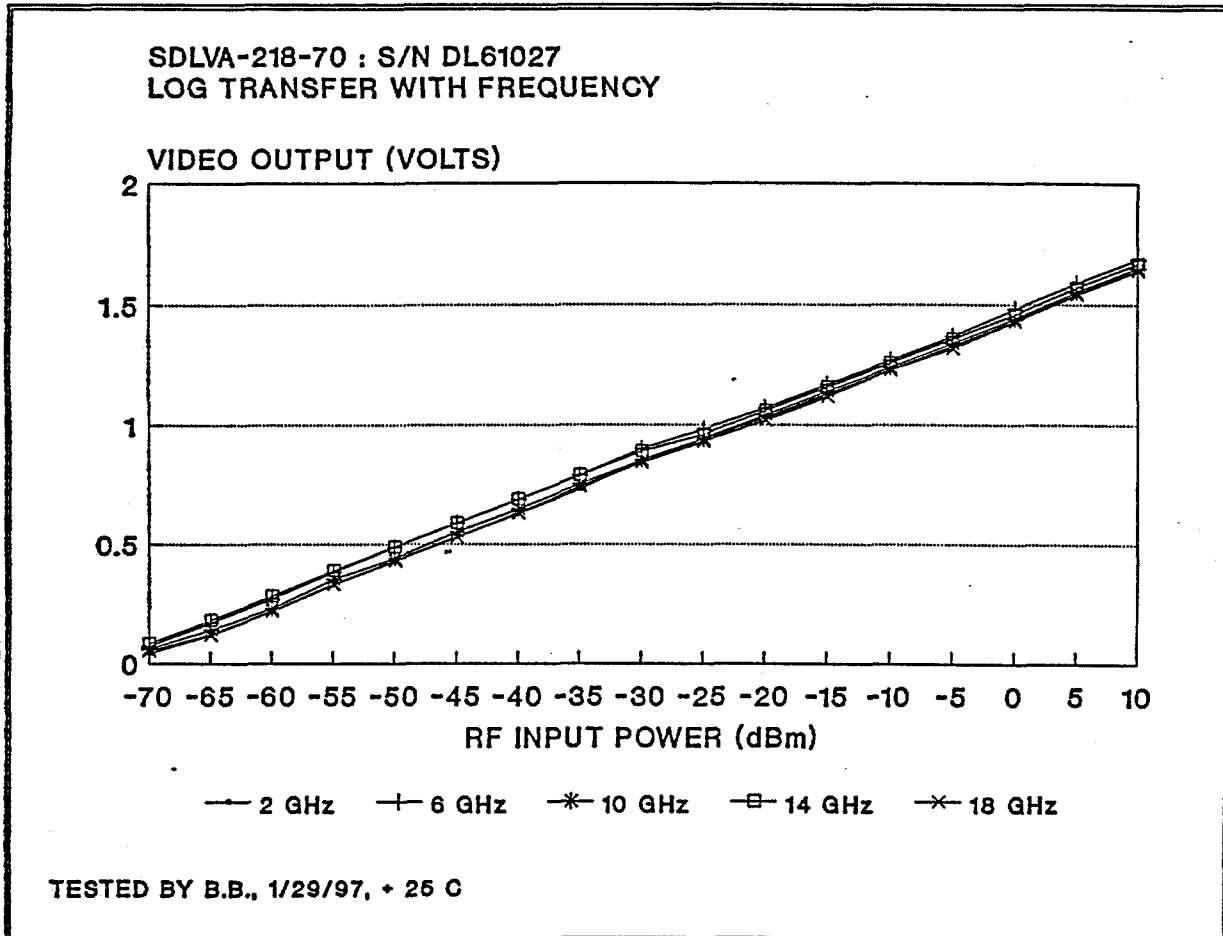
**MARCH 1, 1997**

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**SERIAL NUMBER : SDL61027**

**MEASURED TEST DATA ON OPTION 218 UNIT**



**MARCH 1, 1997**

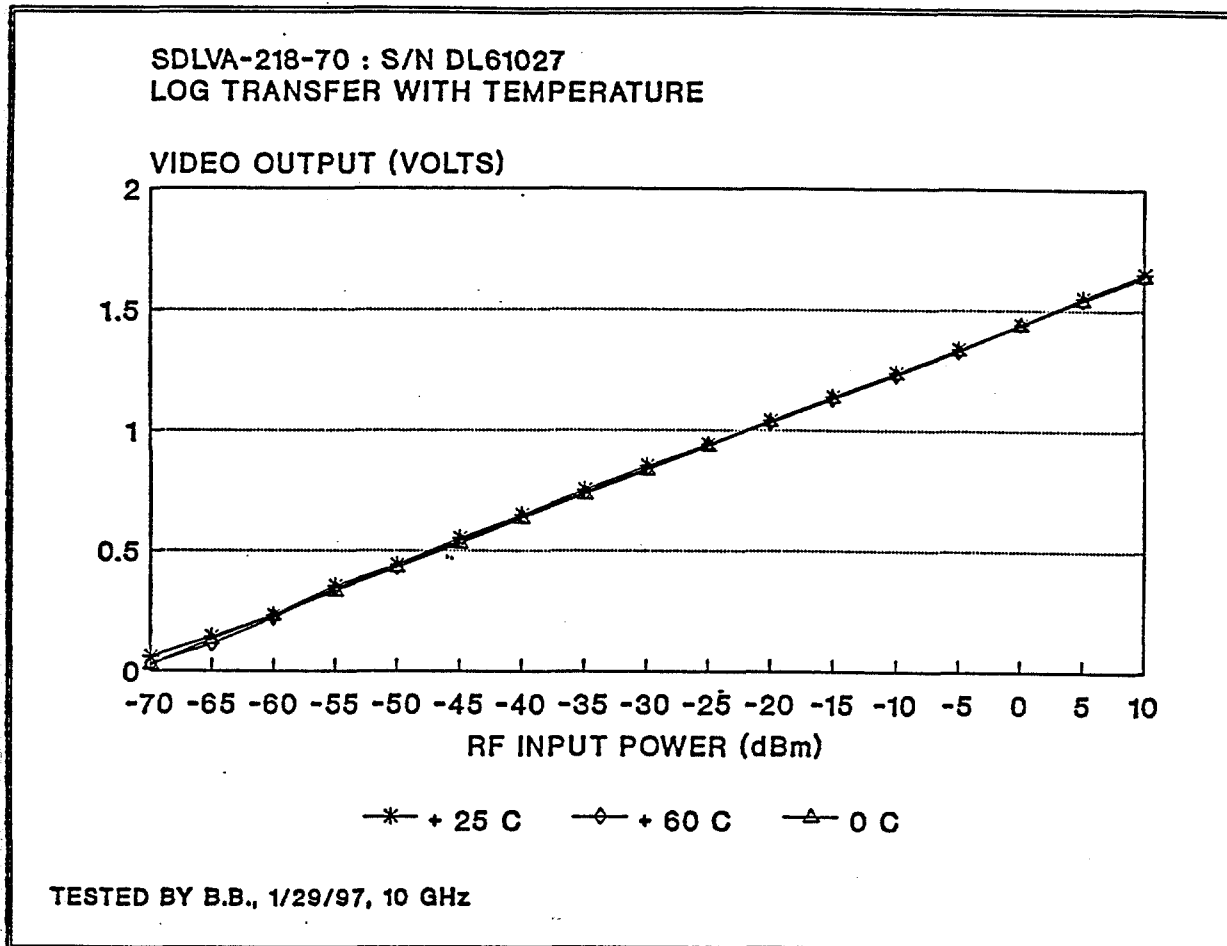
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SERIAL NUMBER : SDL61027

**MEASURED TEST DATA ON OPTION 218 UNIT**



MARCH 1, 1997

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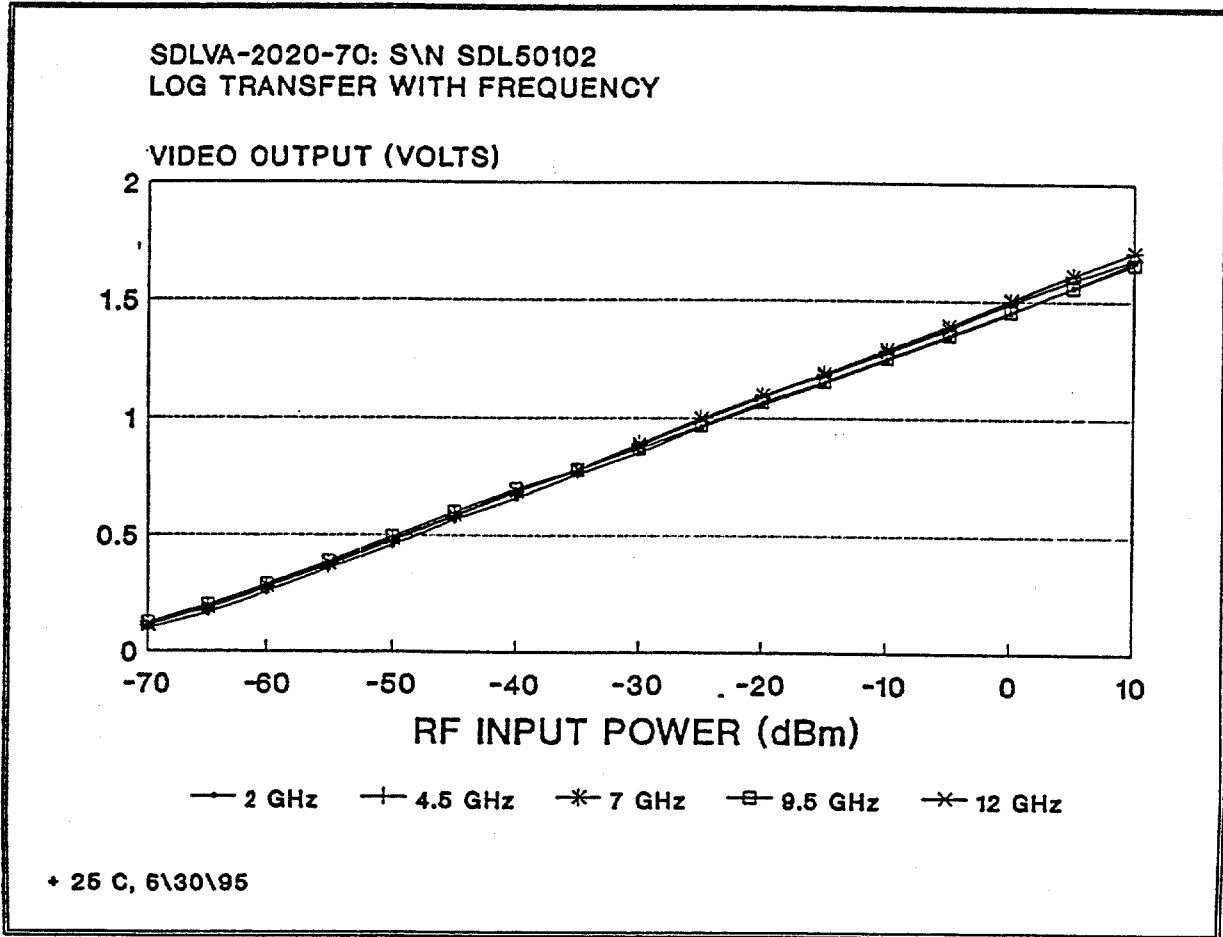






**SERIAL NUMBER : SDL50102**

**MEASURED TEST DATA ON OPTION 212 UNIT**



**MARCH 1, 1997**

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ENGINEERING AND CORPORATE OFFICES: 1112 PERKIOMENVILLE ROAD, PERKIOMENVILLE, PA 18074

MANUFACTURING AND SALES OFFICES: 7311-G GROVE ROAD, FREDERICK, MD 21704

TELEPHONE: 301-662-4700, FAX: 301-662-4938



SERIAL NUMBER : SDL308151

**MEASURED TEST DATA ON OPTION 212 UNIT**

FORM: DLVA-21/0793

JOB NO: 307144

SUMMARY TEST DATA  
ON  
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVA)

CUSTOMER: NRL  
JOB NO: 307144  
MODEL NO: SDLVA-2020-70  
SERIAL NO: DL308151

TESTED BY: B.B.  
TEMPERATURE: 0 to +60°C  
DATE: 8/31/93

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2 - 12 GHz)	3.0:1	2.6:1	
2	TYPICAL OUTPUT VOLTAGE @ -70 dBm to +10 dBm	PLOT ATTACHED	0.15 to 1.75 VOLTS	
3	TSS (2 - 12 GHz)	-68 dBm (min)	-68 dBm	
4	LOG SLOPE (± 10% TOL)	20 mV/dB	19-21 mV/dB	
5	LOG LINEARITY @ -70 dBm TO +10 dBm	±1.75 dB (max)	±1.5dB	
6	FREQUENCY FLATNESS (2 - 12 GHz) @ -20 dBm	±2.0 dB	±1.0dB	
7	RECOVERY TIME (max) -70 to +10 dBm	250 nSEC 150 nSEC TYPICAL	200 nSEC	
8	OUTPUT STABILITY (0 to 60°C)	±1.75 dB (max)	±1.2dB	
9	RISE TIME (10% TO 90% POINTS)	30 NS (max)	16 nSEC	
10	D.C. POWER @ +15 V	600 mA (max)	550 mA	
11	D.C. POWER @ -15 V	200 mA (max)	127 mA	

PRODUCTION MANAGER APPROVAL: \_\_\_\_\_

SKR DATED: 8/31/93

QA/QC APPROVAL: top/Don

DATED: 8/31/93

MARCH 1, 1997

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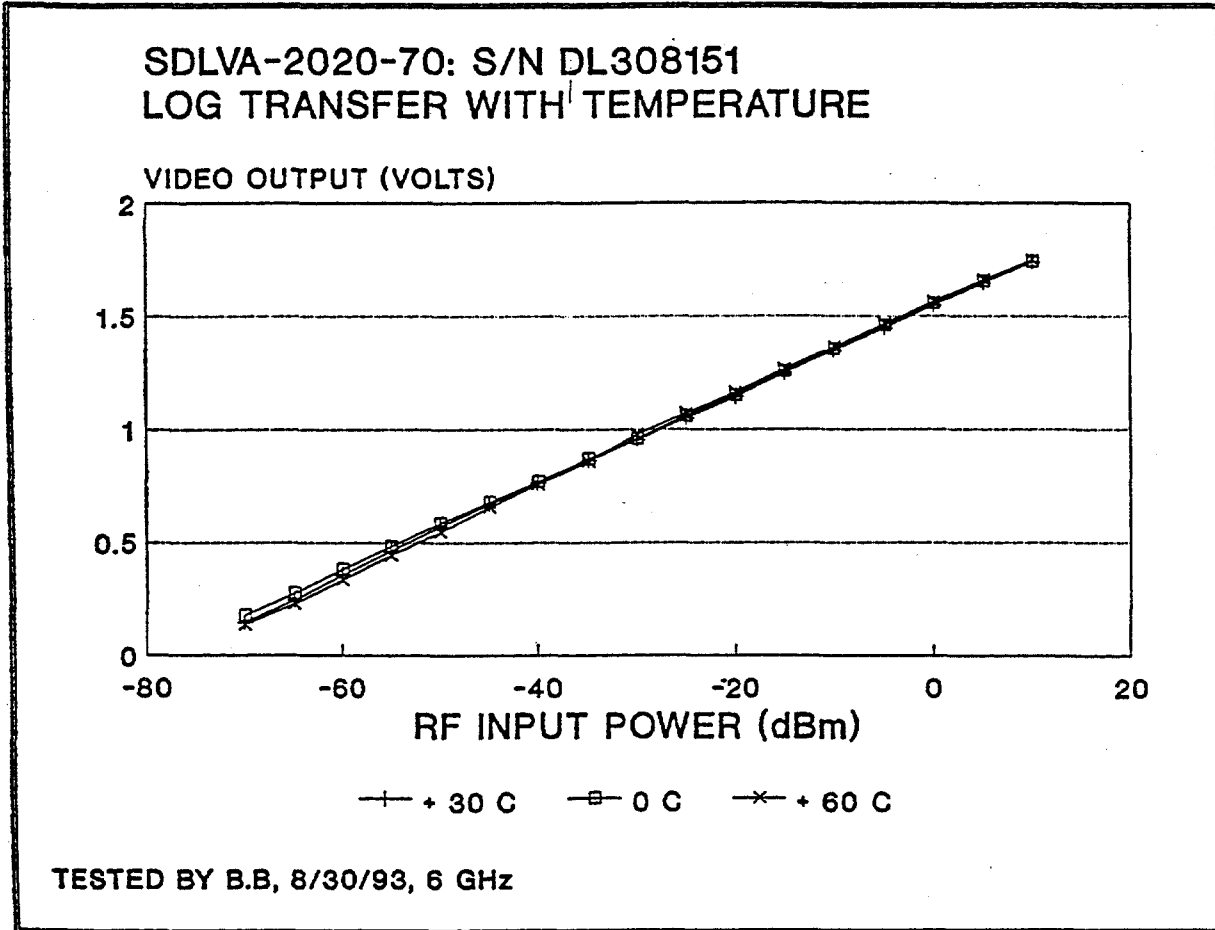
MANUFACTURING AND SALES OFFICES: 7311-G GROVE ROAD, FREDERICK, MD 21704

TELEPHONE: 301-662-4700, FAX: 301-662-4938



**SERIAL NUMBER : SDL308151**

**MEASURED TEST DATA ON OPTION 212 UNIT**



**MARCH 1, 1997**

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ENGINEERING AND CORPORATE OFFICES: 1112 PERKIOMENVILLE ROAD, PERKIOMENVILLE, PA 18074

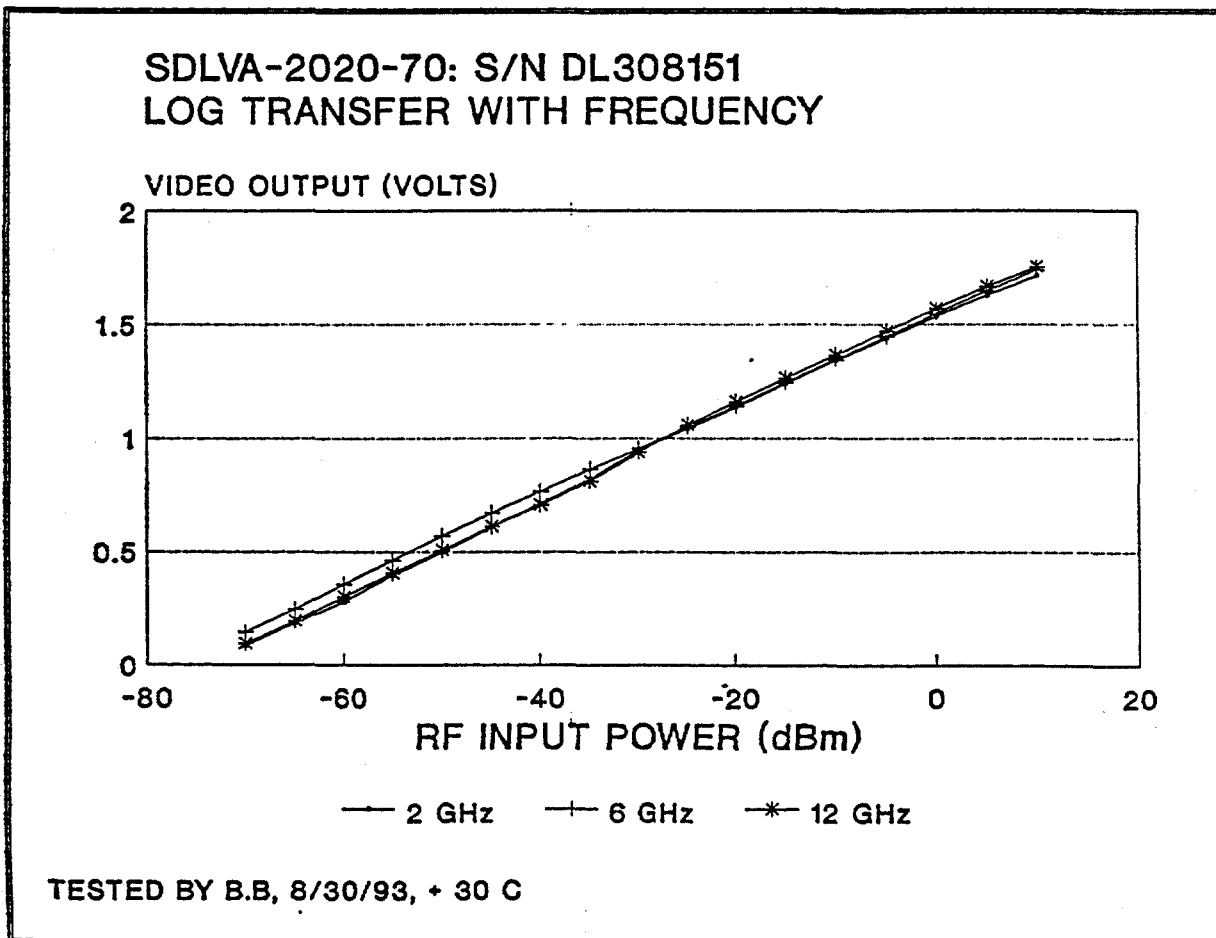
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**SERIAL NUMBER : SDL308151**

**MEASURED TEST DATA ON OPTION 212 UNIT**



**MARCH 1, 1997**

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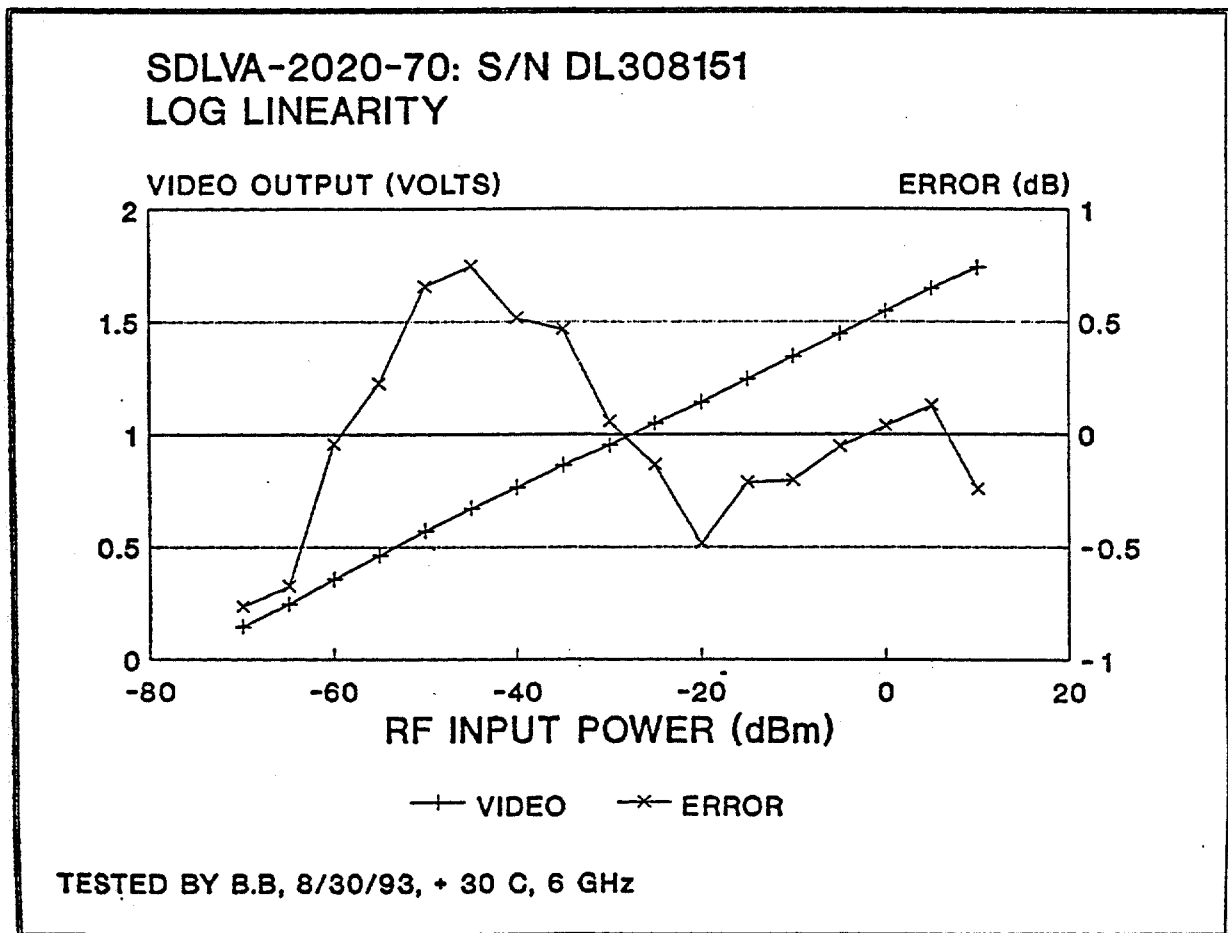
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**SERIAL NUMBER : SDL308151**

**MEASURED TEST DATA ON OPTION 212 UNIT**




**MARCH 1, 1997**

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<b>PLANAR MONOLITHICS INDUSTRIES, INC.</b>	
PMI MODEL No: <b>SDLVA-2020-70</b>	
<b>SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER</b>	<b>PAGE 14</b>

**SERIAL NUMBER : SDL40709**

**MEASURED TEST DATA ON OPTION 212 UNIT**

FORM: DLVA-50/0794

JOB NO:

SUMMARY TEST DATA -  
ON  
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVA)

CUSTOMER: NRL  
JOB NO: 40609P  
MODEL NO: SDLVA-2020-70  
SERIAL NO: SDL 40709

TESTED BY: B.B  
TEMPERATURE: 0 to +60°C  
DATE: 8/26/94

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2 - 12 GHz)	3.0:1	2.2:1	
2	TYPICAL OUTPUT VOLTAGE @ TSS to +10 dBm	PLOT ATTACHED	0.05 TO 1.53 volts	
3	TSS (2 - 12 GHz)	-66 dBm (min)	-66 dBm	
4	LOG SLOPE (± 10% TOL)	20 mV/dB	20 mV/dB	
5	LOG LINEARITY @ TSS TO +10 dBm	±1.75 dB (max)	+1.59 dB	
6	FREQUENCY FLATNESS (2 - 12 GHz) @ -20 dBm	±2.5 dB	±1.5 dB	
7	RECOVERY TIME (max) OVER DYNAMIC RANGE	500 nSEC (max)	450 nSEC	
8	OUTPUT STABILITY (0 to 60°C)	±1.75 dB (max)	±0.85 dB	
9	RISE TIME (10% TO 90% POINTS)	40 NS (max)	22 nSEC	
10	D.C. POWER @ +15 V	600 mA (max)	540 mA	
11	D.C. POWER @ -15 V	200 mA (max)	130 mA	

PRODUCTION MANAGER APPROVAL: R. Mohr DATED: 8/22/94  
QA/QC APPROVAL: [Signature] DATED: 8/21/94

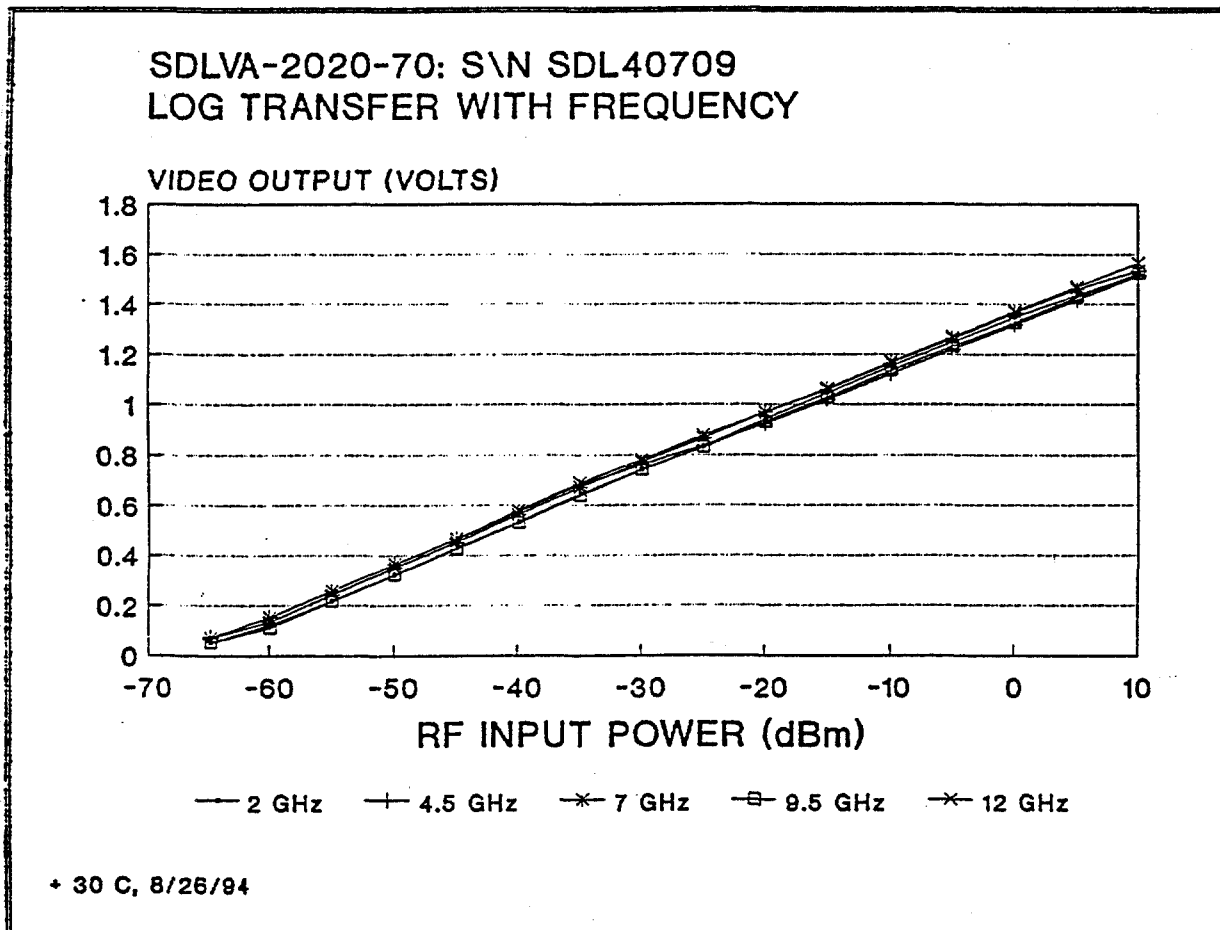
**MARCH 1, 1997**

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**SERIAL NUMBER : SDL40709**

**MEASURED TEST DATA ON OPTION 212 UNIT**



**MARCH 1, 1997**

**PLANAR MONOLITHICS INDUSTRIES, INC.**

ENGINEERING AND CORPORATE OFFICES: 1112 PERKIOMENVILLE ROAD, PERKIOMENVILLE, PA 18074

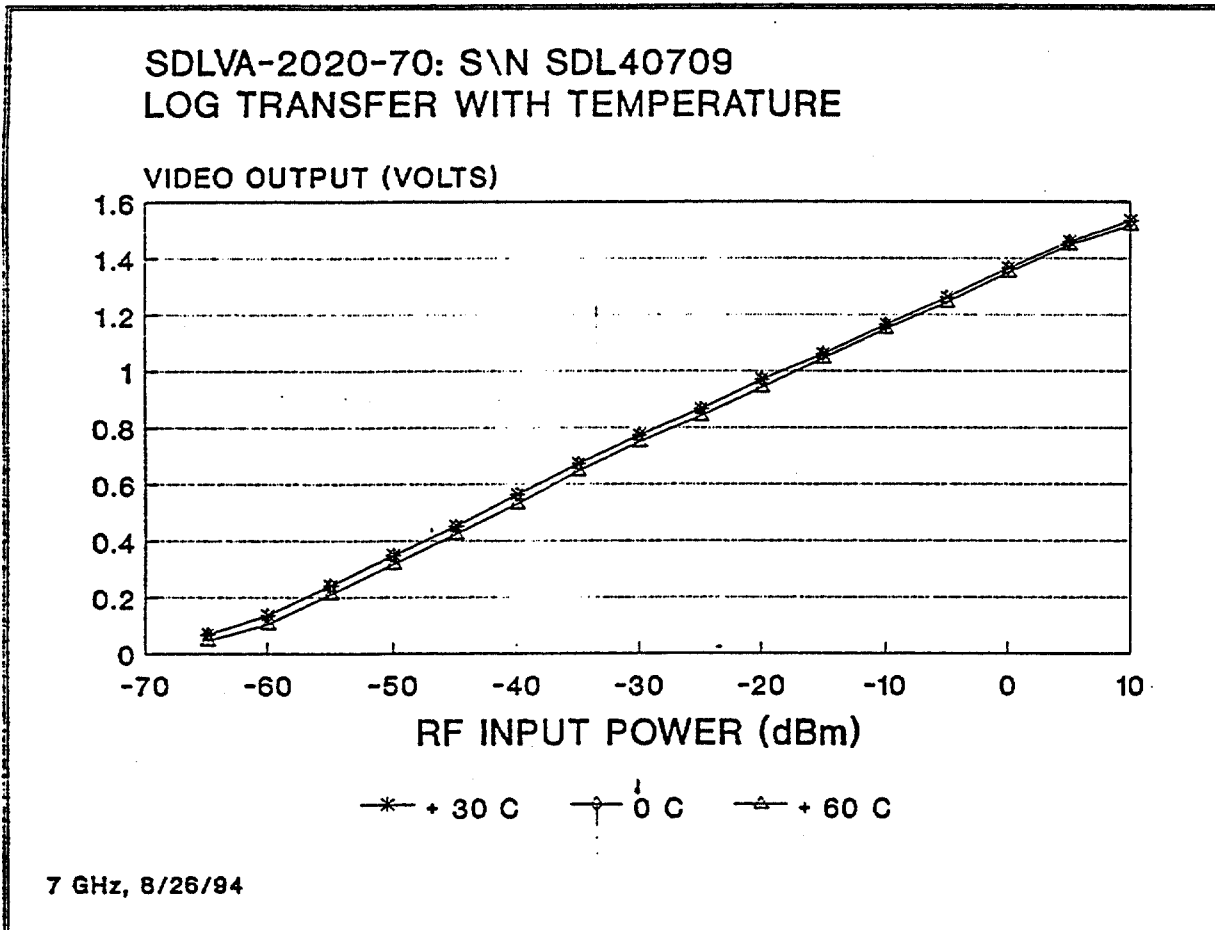
MANUFACTURING AND SALES OFFICES: 7311-G GROVE ROAD, FREDERICK, MD 21704

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**SERIAL NUMBER : SDL40709**

**MEASURED TEST DATA ON OPTION 212 UNIT**



**MARCH 1, 1997**


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<b>PLANAR MONOLITHICS INDUSTRIES, INC.</b>	
PMI MODEL No: <b>SDLVA-2020-70</b>	
<b>SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER</b>	<b>PAGE 17</b>

SERIAL NUMBER : **SDL41212**

**MEASURED TEST DATA ON OPTION 26 UNIT**

FORM: **SDLVA-19/1294**



JOB NO: 41114P

**SUMMARY TEST DATA  
ON  
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVA)**

CUSTOMER: WESTINGHOUSE  
 JOB NO: 41114P  
 MODEL NO: SDLVA-2020-70  
 SERIAL NO: SDL41212

TESTED BY: B. B  
 TEMPERATURE: Room  
 DATE: 12/29/94

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2 - 6 GHz)	3.0:1	2.5:1	
2	TYPICAL OUTPUT VOLTAGE @ -70 dBm to +10 dBm	PLOT ATTACHED	0.15 to 1.72 volts	
3	TSS (2 - 12 GHz)	-68 dBm (min)	-72 dBm	
4	LOG SLOPE ( $\pm 10\%$ TOL)	20 mV/dB	19 to 20 mV/dB	
5	LOG LINEARITY @ -70 dBm TO +10 dBm	$\pm 1.75$ dB (max)	-1.5 dB	
6	FREQUENCY FLATNESS (2 - 12 GHz) @ -20 dBm	$\pm 2.0$ dB	$\pm 1.7$ dB	
7	RECOVERY TIME (max) -70 to +10 dBm	250 nSEC 150 nSEC TYPICAL	250 nSEC	
8	RISE TIME (10% TO 90% POINTS)	30 NS (max)	13 nSEC	
9	D.C. POWER @ +15 V	700 mA (max)	650 mA	
10	D.C. POWER @ -15 V	200 mA (max)	130 mA	

PRODUCTION MANAGER APPROVAL: [Signature] DATED: 1/7/95  
 QA/QC APPROVAL: [Signature] DATED: 1/3/95

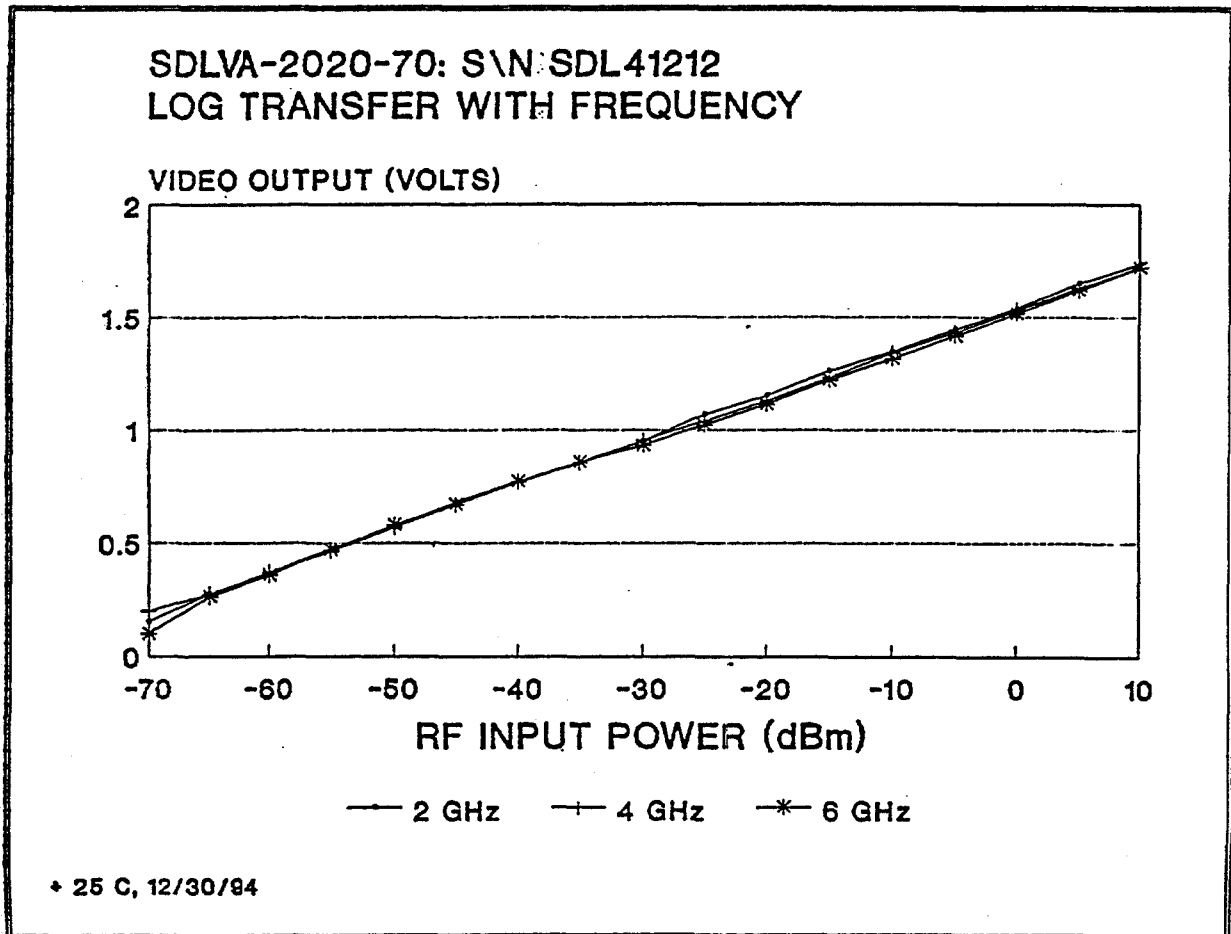
**MARCH 1, 1997**

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**SERIAL NUMBER : SDL41212**

**MEASURED TEST DATA ON OPTION 26 UNIT**



**MARCH 1, 1997**

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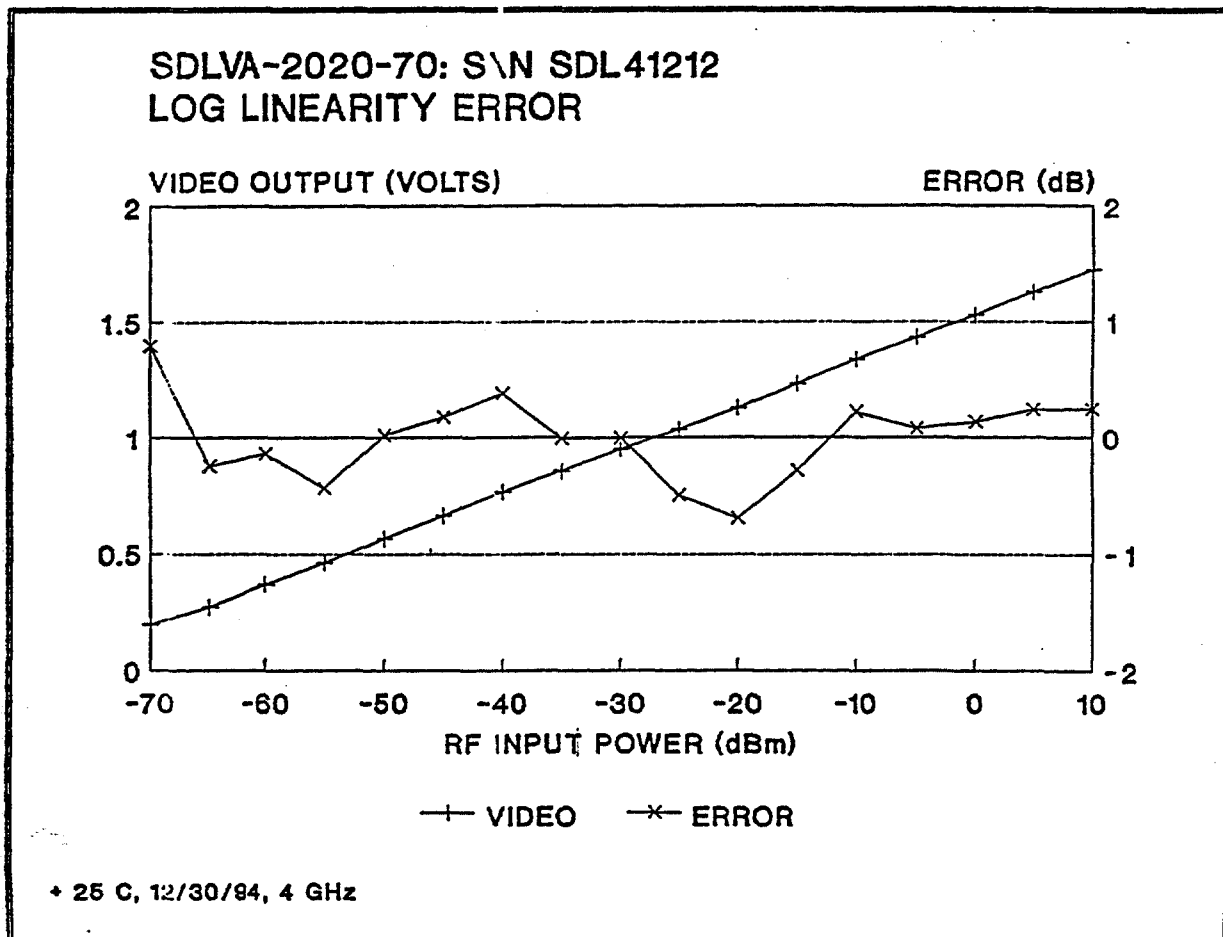
MANUFACTURING AND SALES OFFICES: 7311-G GROVE ROAD, FREDERICK, MD 21704

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**SERIAL NUMBER : SDL41212**

**MEASURED TEST DATA ON OPTION 26 UNIT**



**MARCH 1, 1997**

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TELEPHONE: 301-662-4700, FAX: 301-662-4938

**SERIAL NUMBER : SDL51033**

**MEASURED TEST DATA ON OPTION 079 UNIT**

RM: SDLVA-27/1195

JOB NO: 50915P

SUMMARY TEST DATA  
ON  
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVA)

CUSTOMER: RADAR SYSTEMS  
 JOB NO: 50915P  
 MODEL NO: SDLVA-2020-70 (OPTION 079)  
 SERIAL NO: SDL51033

TESTED BY: B. B.  
 TEMPERATURE: -25 to +85°C  
 DATE: 11/20/95

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QAJQC
1	INPUT VSWR @ -20 dBm (0.7 TO 8.5 GHz)	2.0:1	2.0:1	
2	TYPICAL OUTPUT VOLTAGE @ -70 dBm to 0 dBm	PLOT ATTACHED	0.1 to 1.8 VOLTS	
3	LOG SLOPE (± 10% TOL)	25 mV/dB	24.7 mV/dB	
4	LOG LINEARITY @ -70 dBm TO 0 dBm	±2.0 dB (max)	+1.9 dB	
5	FREQUENCY FLATNESS (0.7 TO 8.5 GHz)	±2.0 dB	±2.0 dB	
6	RECOVERY TIME (max) -70 to 0 dBm	200 nSEC (max)	100 nSEC	
7	OUTPUT STABILITY (-25 to +85°C)	±2.0 dB (max)	±2.0 dB	
8	RISE TIME (10% TO 90% POINTS)	15 NS (max)	15 nSEC	
9	D.C. POWER @ +15 V	550 mA (max)	525 mA	
10	D.C. POWER @ -15 V	200 mA (max)	150 mA	
11	2nd HARMONIC	-10dB (min)	-16 dB	
12	FALL TIME	125 nSEC (max)	80 nSEC	
13	VIDEO OUTPUT NOISE LEVEL	200 mV (max)	130 mV p-p	
14	VIDEO OUTPUT OFFSET	100 mV (max)	< 50 mV	
15	RF GAIN	45 dB (min)	49 dB (MIN)	✓

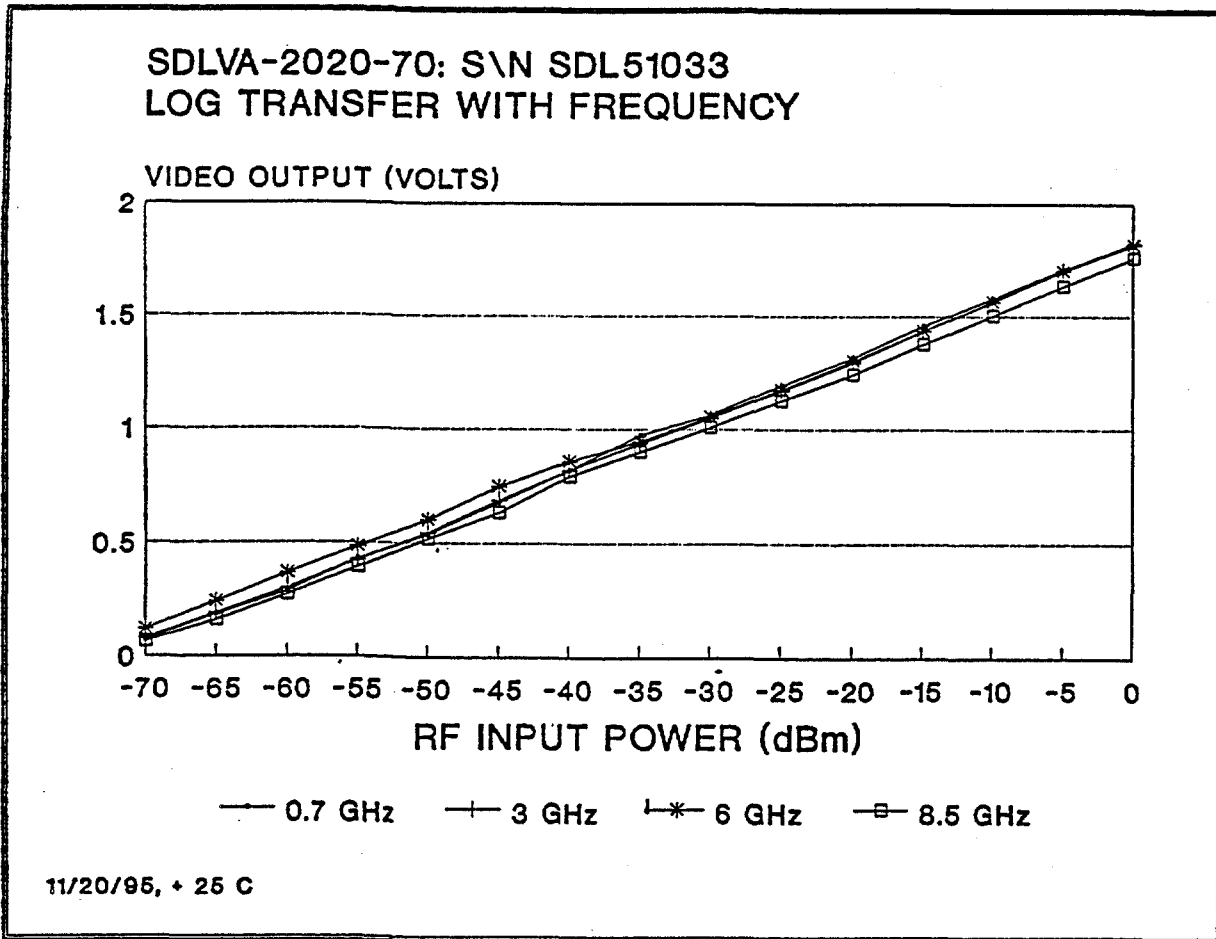
PRODUCTION MANAGER APPROVAL: [Signature] DATED: 11/20/95  
 QA/QC APPROVAL: VLB DATED: 11/20/95

**MARCH 1, 1997**



**SERIAL NUMBER : SDL51033**

**MEASURED TEST DATA ON OPTION 079 UNIT**



**MARCH 1, 1997**

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