

**SUMMARY
TEST DATA**

ON

**HIGH SPEED
2.4 TO 5.4 GHz**

(OTHER FREQUENCY RANGES ALSO AVAILABLE)

-45 dBm TO +5 dBm DYNAMIC RANGE

**HIGH SPEED
50 dB, LIMITED RF OUTPUT**

**SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS
(SDLVA'S)**

**WITH
60 dB RF GAIN
AND**

LIMITED RF POWER OUTPUT OF +10 dBm MINIMUM

PMI MODEL NO:

◆ SDLVA-2020-50 OPTION 26, INDRA ◆
(SERIAL NUMBERS: *PM90888-PM90890 & PM10556-PM10571*)

**DESIGNED
BY
ASH K. GORWARA**

**TESTED
BY
BRENT BAKER**

**TEST REPORT
BY
EMILY KING**

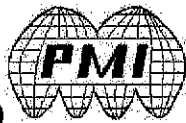
MARCH 27, 2002

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7311G-2 GROVE ROAD, FREDERICK, MD 21704 • USA •

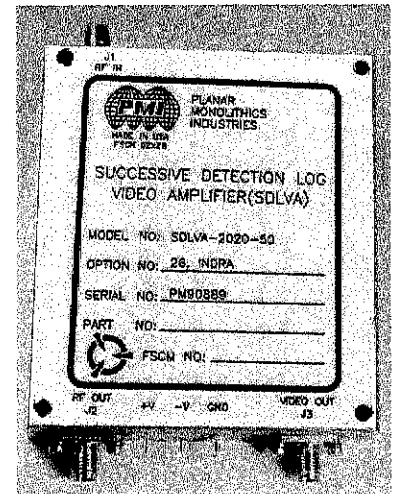
TEL: 301-631-1579 • FAX: 301-662-2029

WEBSITE: www.planarmonolithicsindustries.com, E-MAIL: sales@planarmonolithics.com



**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

- ◆ FREQUENCY: 2.4 TO 5.4 GHz
- ◆ TRULY DC COUPLED
- ◆ HIGH SPEED PERFORMANCE
- ◆ OUTSTANDING RELIABILITY
- ◆ SUPERIOR STATE-OF-THE-ART HYBRID MIC/MMIC



● SPECIFICATIONS:

- | | | |
|--|---|---|
| ◆ DYNAMIC RANGE | : | -45 dBm to +5 dBm minimum |
| ◆ RF GAIN | : | 60 dB minimum |
| ◆ LIMITED RF POWER OUTPUT | : | +14 dBm typical, +10 dBm minimum |
| ◆ FREQUENCY FLATNESS | : | ±2.0 dB (2.4 – 5.4 GHz) |
| ◆ VSWR | : | 3.0:1 @ -20 dBm, 2.4 – 5.4 GHz |
| ◆ LOG SLOPE | : | 20 mV/dB (± 10% TOLERANCE) |
| ◆ LOG LINEARITY | : | ±1.75 dB maximum, (-45 dBm to +5 dBm) |
| ◆ LOG TEMPERATURE STABILITY | : | ±1.75 dB (0°C to 60°C) |
| ◆ RISE TIME (10% TO 90% POINTS) | : | 30 nsec max., 20 nsec typical |
| ◆ RECOVERY TIME | : | 250 nsec maximum, 150 nsec typical
(-45 dBm to +5 dBm) |
| ◆ PROPAGATION DELAY (From 10% of
RF Input signal to 90% output video) | : | 35 nsec typical, 45 nsec maximum |
| ◆ OUTPUT VIDEO LOAD | : | 100 Ohms ± 10% OR AS DESIRED |
| ◆ DC POWER SUPPLY | : | +15 VOLTS @ 600 mA
-15 VOLTS @ 200 mA |
| ◆ SIZE | : | 3.5" x 3.0" x 0.5" |
| ◆ WEIGHT | : | 7.2 ounces typical |

● ENVIRONMENTAL RATINGS:

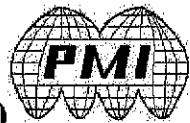
- | | | |
|---------------------|---|-------------------------------------|
| ◆ TEMPERATURE | : | -54°C TO +85°C (OPERATING) |
| | : | -65°C TO +100°C (STORAGE) |
| ◆ HUMIDITY | : | MIL-STD-202F, METHOD 103B, COND. B. |
| ◆ SHOCK | : | MIL-STD-202F, METHOD 213B, COND. B. |
| ◆ VIBRATION | : | MIL-STD-202F, 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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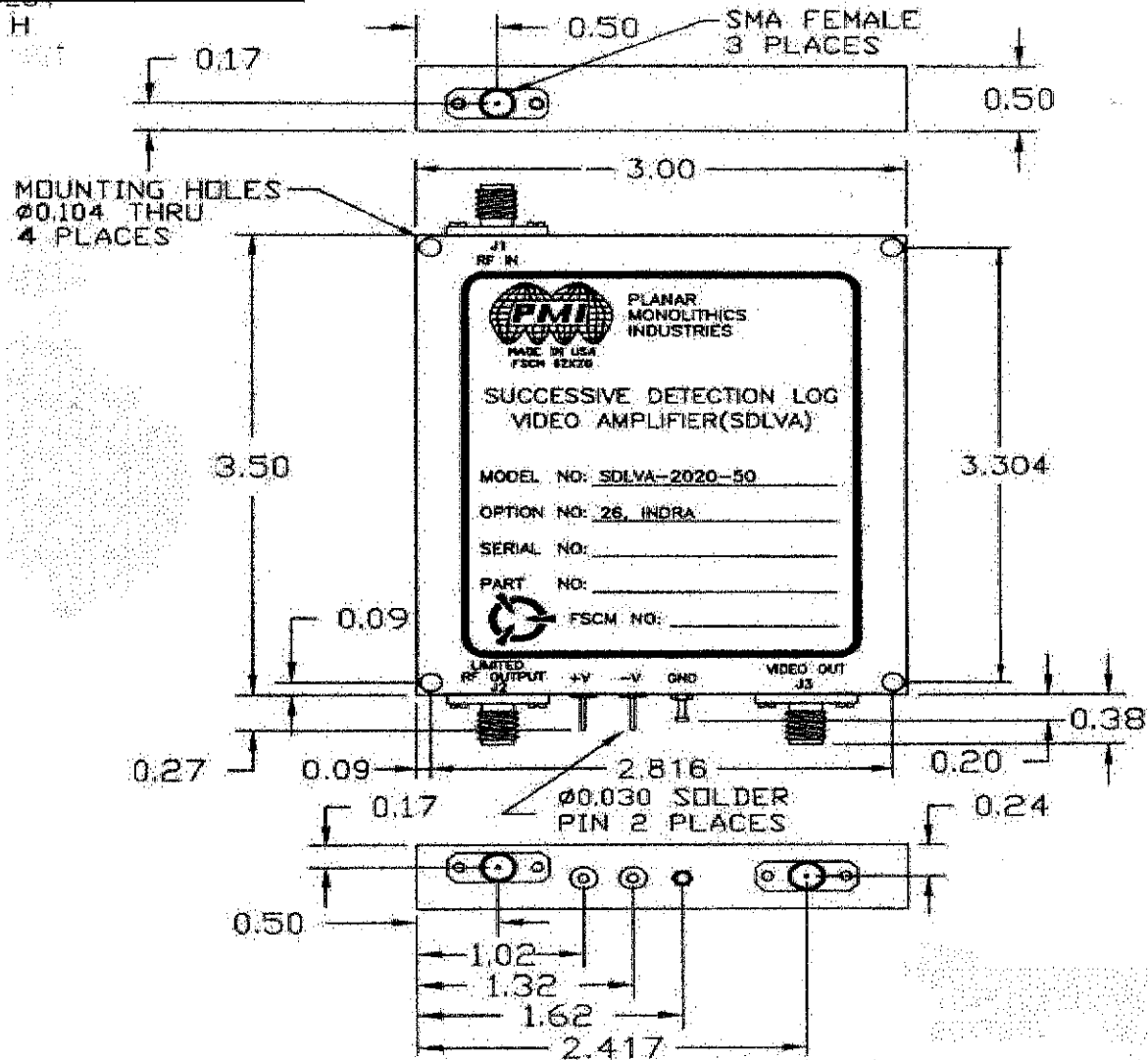
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

MECHANICAL OUTLINE



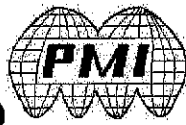
DIMENSIONS ARE IN INCHES. TOLERANCES: X.XX, ± 0.020 & X.XXX, ± 0.010

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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

REV	DESCRIPTION	DATE	APPROVED
	ORIGINAL JOB # 90411PE	3/18/02	

MECHANICAL OUTLINE

DESCRIPTION
THE SDLVA-2020-50 OPTION 26, INDRA, A TRULY DC-COUPLED SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVA) HAS A DYNAMIC RANGE OF 50 dB OVER THE 2-6 GHz BANDWIDTH, WITH TRUE DC COUPLING. UNITS EMPLOY PLANAR DIODE DETECTORS AND INTEGRATED VIDEO CIRCUITRY FOR HIGH SPEED PERFORMANCE AND OUTSTANDING RELIABILITY. THE SDLVA'S ARE OF SUPERIOR CONSTRUCTION USING STATE-OF-THE-ART HYBRID MIC/MIMIC TECHNOLOGY. THE SIZE IS 3.5" x 3.0" x 0.5".

SPECIFICATIONS

- **FREQUENCY RANGE:** 2.4 GHz - 5.4 GHz (OTHER FREQUENCY RANGES AVAILABLE)
- **DYNAMIC RANGE:** -45 dBm TO +5 dBm
- **RF GAIN:** 60 dB MINIMUM
- **LIMITED RF POWER OUTPUT:** +14 dBm TYPICAL, +10 dBm MINIMUM
- **FREQUENCY FLATNESS:** ±2.0dB (2.4-5.4 GHz)
- **VSWR:** 3.0:1 (@ -20 dBm, 2.4 - 5.4 GHz)
- **LOG SLOPE:** 20mV/dB (±10% TOLERANCE)
- **LOG LINEARITY:** ±1.75dB MAXIMUM (-45 dBm TO +5 dBm)
- **LOG TEMPERATURE STABILITY:** ±1.75dB (0°C TO 60°C)
- **RISE TIME (10% TO 90% POINTS):** 30ns MAXIMUM, 20ns TYPICAL
- **RECOVERY TIME:** 250ns MAXIMUM, 150ns TYPICAL (-45 dBm TO +5 dBm)
- **PROPAGATION DELAY:** 35 ns TYPICAL, 45 ns MAXIMUM (10% OF RF INPUT SIGNAL TO 90% OUTPUT VIDEO)
- **OUTPUT VIDEO LOAD:** 100 OHMS ±10% OR AS DESIRED
- **DC POWER (NO LOAD):** +V: +15V @ 600mA MAXIMUM
-V: -15V @ 200mA MAXIMUM
- **SIZES:** 3.5" (L) x 3.0" (W) x 0.5" (H)
- **WEIGHT:** 7.2 OUNCES TYPICAL

ENVIRONMENTAL RATINGS:

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

CONFIDENTIAL AND PROPRIETARY

DATE	DESCRIPTION	DATE	APPROVED
3/18/02	SDLVA-2020-50 OPTION 26, INDRA		

PRODUCT FEATURE

2.4 - 5.4 GHz, 50 dB, TRULY DC-COUPLED SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER

DATE	DESCRIPTION	DATE	APPROVED
4/10/02			

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FREDERICK, MARYLAND

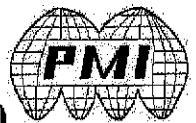
CONFIDENTIAL AND PROPRIETARY

SHEET 1 OF 3

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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 90411PE

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

CUSTOMER: INDRA SISTEMAS
JOB NO: 90411PE
MODEL NO: SDLVA-2020-50, OPTION 26, IND
SERIAL NO: PM 90889

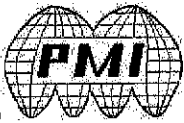
TESTED BY: B.B.
TEMPERATURE: 0 TO 60°C
DATE: 11/29/99

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.45:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 to +5 dBm	PLOT ATTACHED	0.41 to 1.42 VOLTS	✓
3	RF GAIN	60 dB (min.)	~ 70dB	✓
4	POUT SATURATION	+14 dBm (typ.) +10 dBm (min.)	+16 dBm	✓
5	LOG SLOPE (± 10% tolerance)	20 mV/dB	20.1 TO 20.7 MV/dB	✓
6	LOG LINEARITY @ -45 to +5 dBm	±1.75 dB (max)	-1.0 dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±0.7 dB	✓
8	LOG TEMPERATURE STABILITY (0° TO 60°C)	±1.75 dB	±1.2 dB	✓
9	RECOVERY TIME @ -45 to +5 dBm	250 ns (max.) 150 ns (typ.)	< 200 nSEC	✓
10	RISE TIME (10% TO 90% POINTS)	30 ns (max.) 20 ns (typ.)	15 nSEC	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typ.) 45 ns (max.)	< 35 nSEC	✓
12	OUTPUT VIDEO LOAD	100 Ω ±10% NOMINAL	N/A	✓
13	D.C. POWER (NO LOAD) @ +15 V *	600 mA (max.)	500 mA	✓
14	D.C. POWER (NO LOAD) @ -15 V *	200 mA (max.)	126 mA	✓

* SUPPLIES CAN BE REDUCED TO 1/2 VOLTS TO CONSERVE POWER.
 PRODUCTION MANAGER APPROVAL: [Signature] DATED: 11/30/99
 QA/QC APPROVAL: [Signature] DATED: 11/30/99

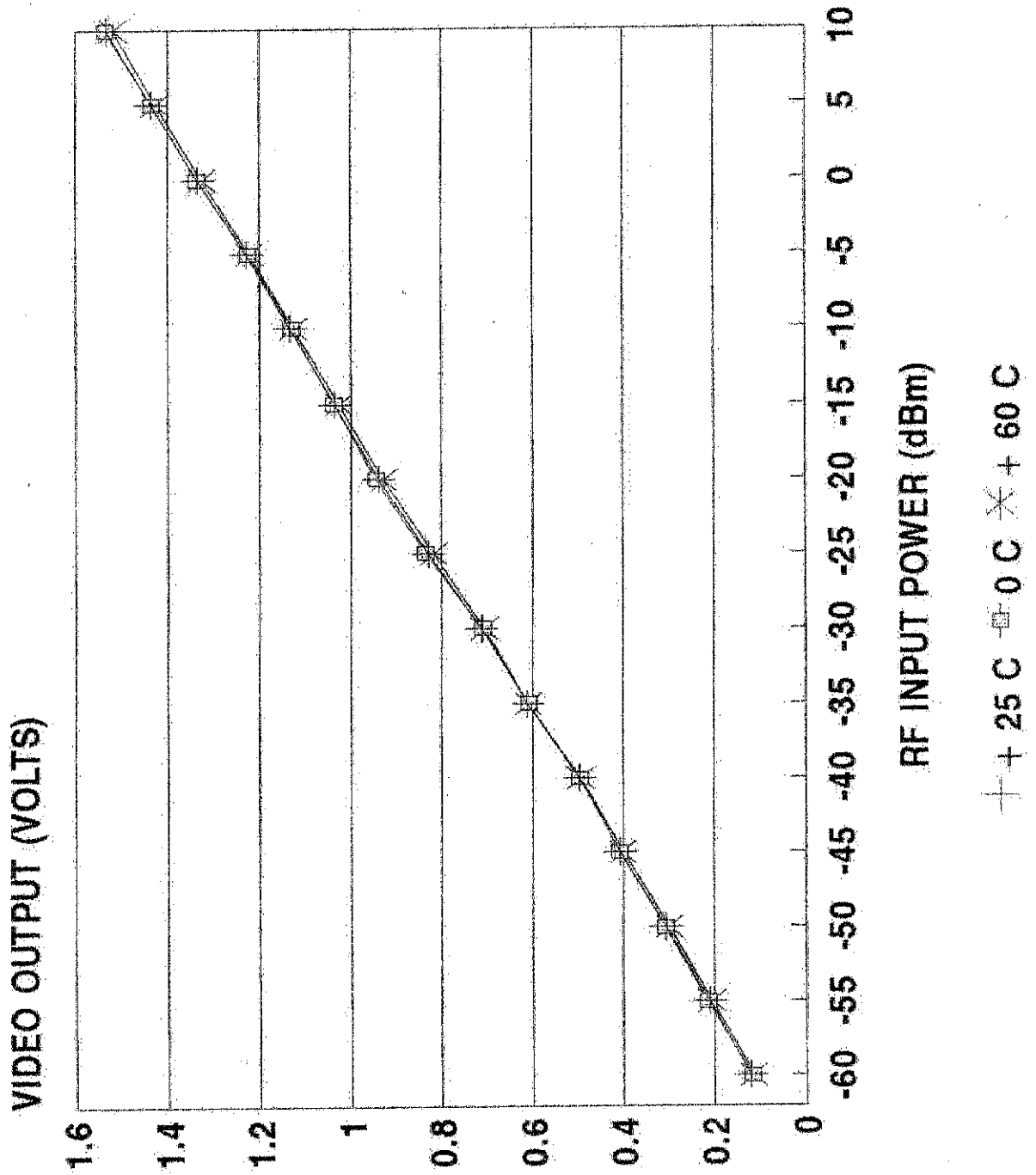
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MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)

SDLVA-2020-70: S/N PM90889
LOG TRANSFER WITH TEMPERATURE



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MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)

JOB NO: 90411PE

SUMMARY TEST DATA
ON

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVA)

CUSTOMER: INDRA SISTEMAS
JOB NO: 90411PE
MODEL NO: SDLVA-2020-50, OPTION 26, IND
SERIAL NO: PM 90888

TESTED BY: B.B.
TEMPERATURE: 0 TO 60°C
DATE: 11/30/99

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.55:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 to +5 dBm	PLOT ATTACHED	0.4 TO 1.39 VOLTS	✓
3	RF GAIN	60 dB (min.)	68 to 70 dB	✓
4	POUT SATURATION	+14 dBm (typ.) +10 dBm (min.)	+16 dBm	✓
5	LOG SLOPE (± 10% tolerance)	20 mV/dB	19.2 TO 20.6 mV/dB	✓
6	LOG LINEARITY @ -45 to +5 dBm	±1.75 dB (max)	-1.0 dB	✓
7	FREQUENCY FLATNESS (2.4 - 5.4 GHz) @ -20 dBm	±2.0 dB	±1.0 dB	✓
8	LOG TEMPERATURE STABILITY (0° TO 60°C)	±1.75 dB	±1.0 dB	✓
9	RECOVERY TIME @ -45 to +5 dBm	250 ns (max.) 150 ns (typ.)	125 n SEC	✓
10	RISE TIME (10% TO 90% POINTS)	30 ns (max.) 20 ns (typ.)	14 n SEC	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typ.) 45 ns (max.)	< 35 n SEC	✓
12	OUTPUT VIDEO LOAD	100 Ω ±10% NOMINAL	N/A	✓
13	D.C. POWER (NO LOAD) @ +15 V *	600 mA (max.)	490 mA	✓
14	D.C. POWER (NO LOAD) @ -15 V *	200 mA (max.)	124 mA	✓

* SUPPLIES CAN BE REDUCED TO 1/4 VOLT TO CONSERVE POWER
PRODUCTION MANAGER APPROVAL: *[Signature]* DATED: 11/30/99

QA/QC APPROVAL: *[Signature]*

DATED: 11/30/99

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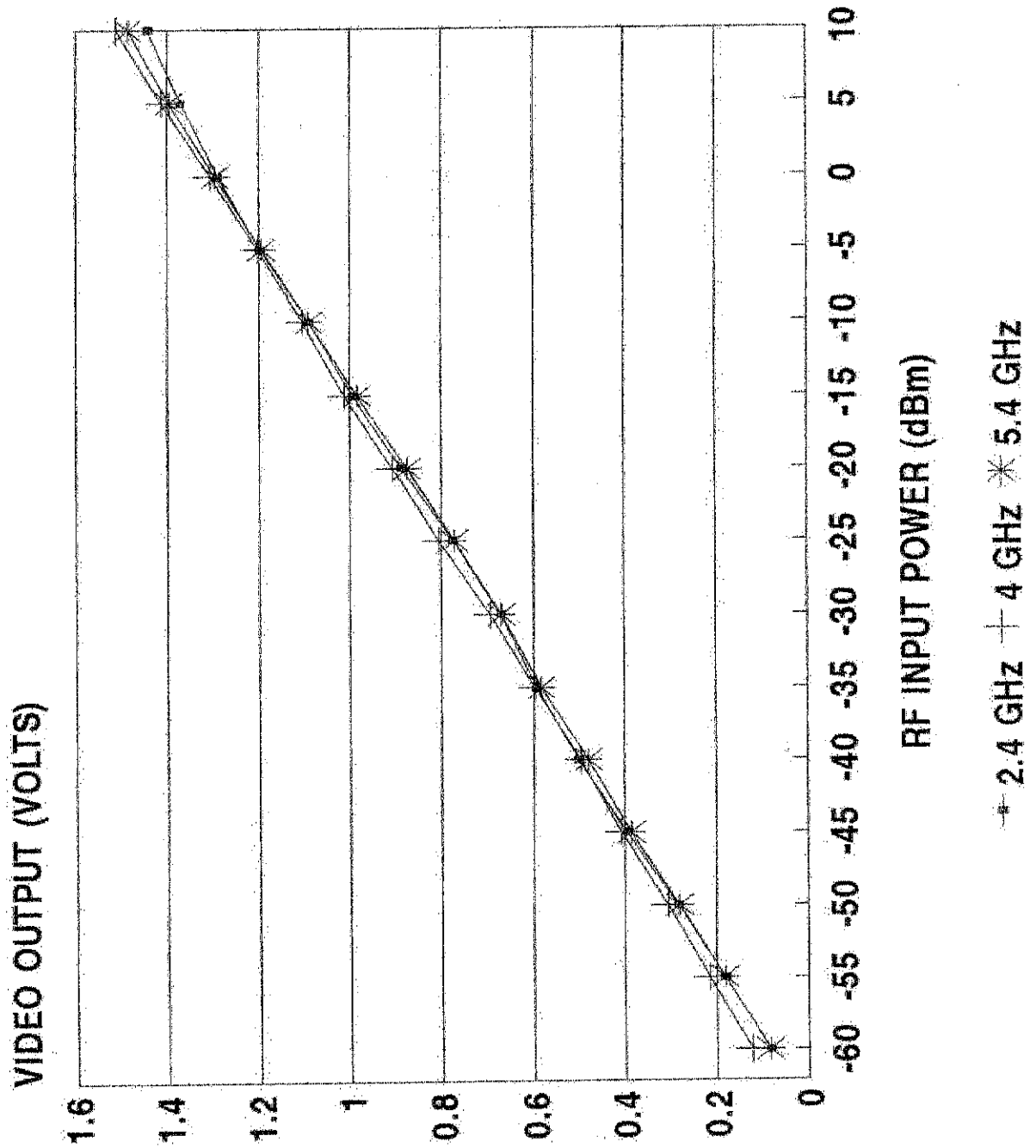
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

SDLVA-2020-70: S/N PM90888
LOG TRANSFER WITH FREQUENCY



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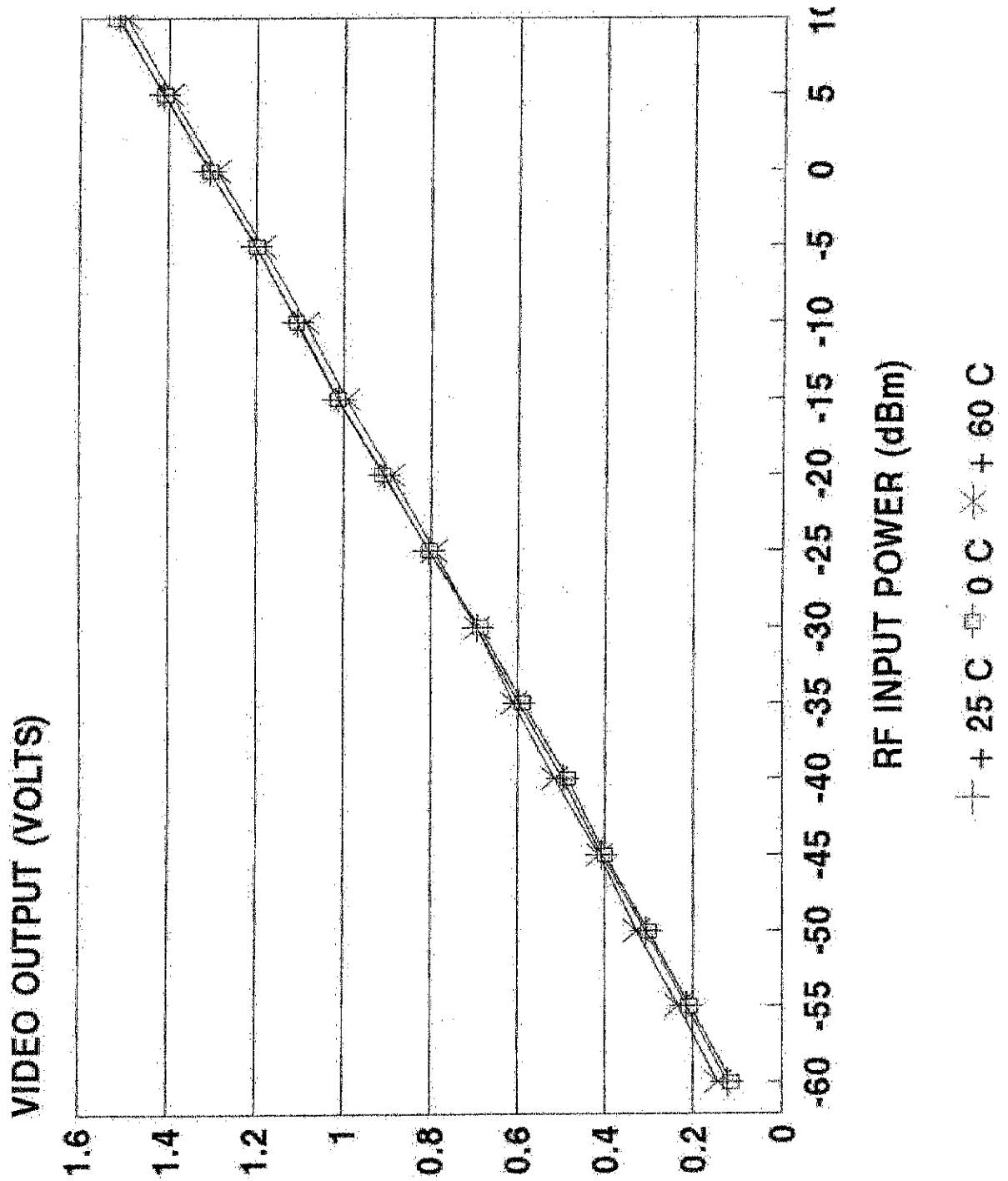
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

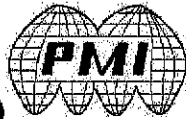
**SDLVA-2020-70: S\N PM90888
LOG TRANSFER WITH TEMPERATURE**



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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 90411PE

**SUMMARY TEST DATA
ON**

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVA)

CUSTOMER: INDRA SISTEMAS
 JOB NO: 90411PE
 MODEL NO: SDLVA-2020-50, OPTION 26, IND
 SERIAL NO: PM90890

TESTED BY: D.B.
 TEMPERATURE: 0 TO 60°C
 DATE: 11/19/96

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.5:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 to +5 dBm	PLOT ATTACHED	+0.39 TO 1.39 VOLTS	✓
3	RF GAIN	60 dB (min.)	~ 73dB	✓
4	POUT SATURATION	+14 dBm (typ.) +10 dBm (min.)	+16dBm	✓
5	LOG SLOPE (± 10% tolerance)	20 mV/dB	19.5 TO 20.2 mV/dB	✓
6	LOG LINEARITY @ -45 to +5 dBm	±1.75 dB (max)	-0.9dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±0.6dB	✓
8	LOG TEMPERATURE STABILITY (0° TO 60°C)	±1.75 dB	±1.0dB	✓
9	RECOVERY TIME @ -45 to +5 dBm	250 ns (max.) 150 ns (typ.)	< 200NSEC	✓
10	RISE TIME (10% TO 90% POINTS)	30 ns (max.) 20 ns (typ.)	14NSEC	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typ.) 45 ns (max.)	28NSEC	✓
12	OUTPUT VIDEO LOAD NOMINAL	100 Ω ±10%	N/A	✓
13	D.C. POWER (NO LOAD) @ +15 V *	600 mA (max.)	510mA	✓
14	D.C. POWER (NO LOAD) @ -15 V *	200 mA (max.)	125mA	✓

* SUPPLIES CAN BE REDUCED TO 1.9 VOLTS IF POWER CONSUMPTION IS IMPORTANT
 PRODUCTION MANAGER APPROVAL: [Signature] DATED: 11/30/99

QA/QC APPROVAL: _____

DATED: 11/30/99

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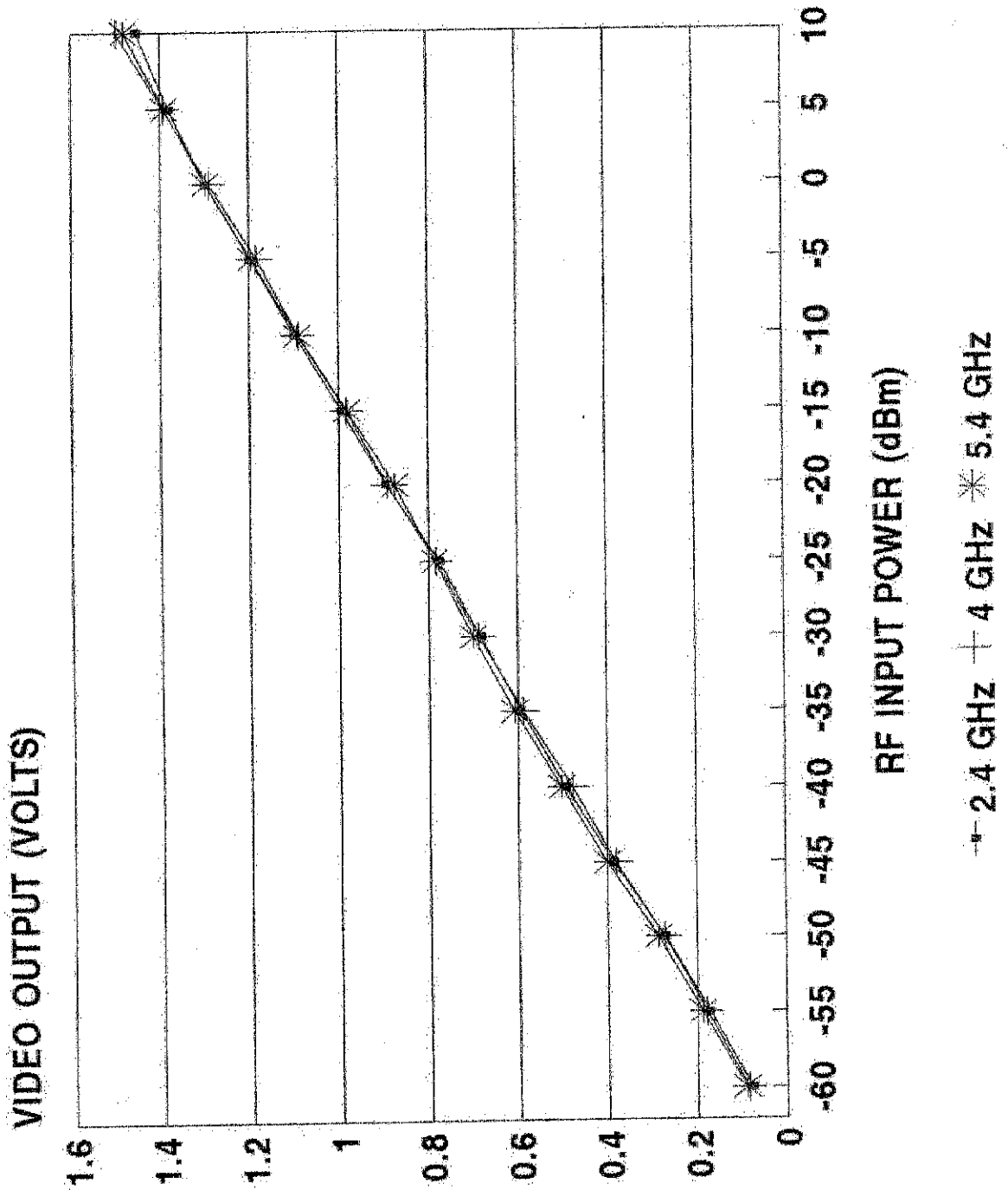
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SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

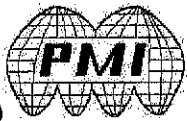
**SDLVA-2020-70: S/N PM90890
LOG TRANSFER WITH FREQUENCY**



F30 C, 11/19/99

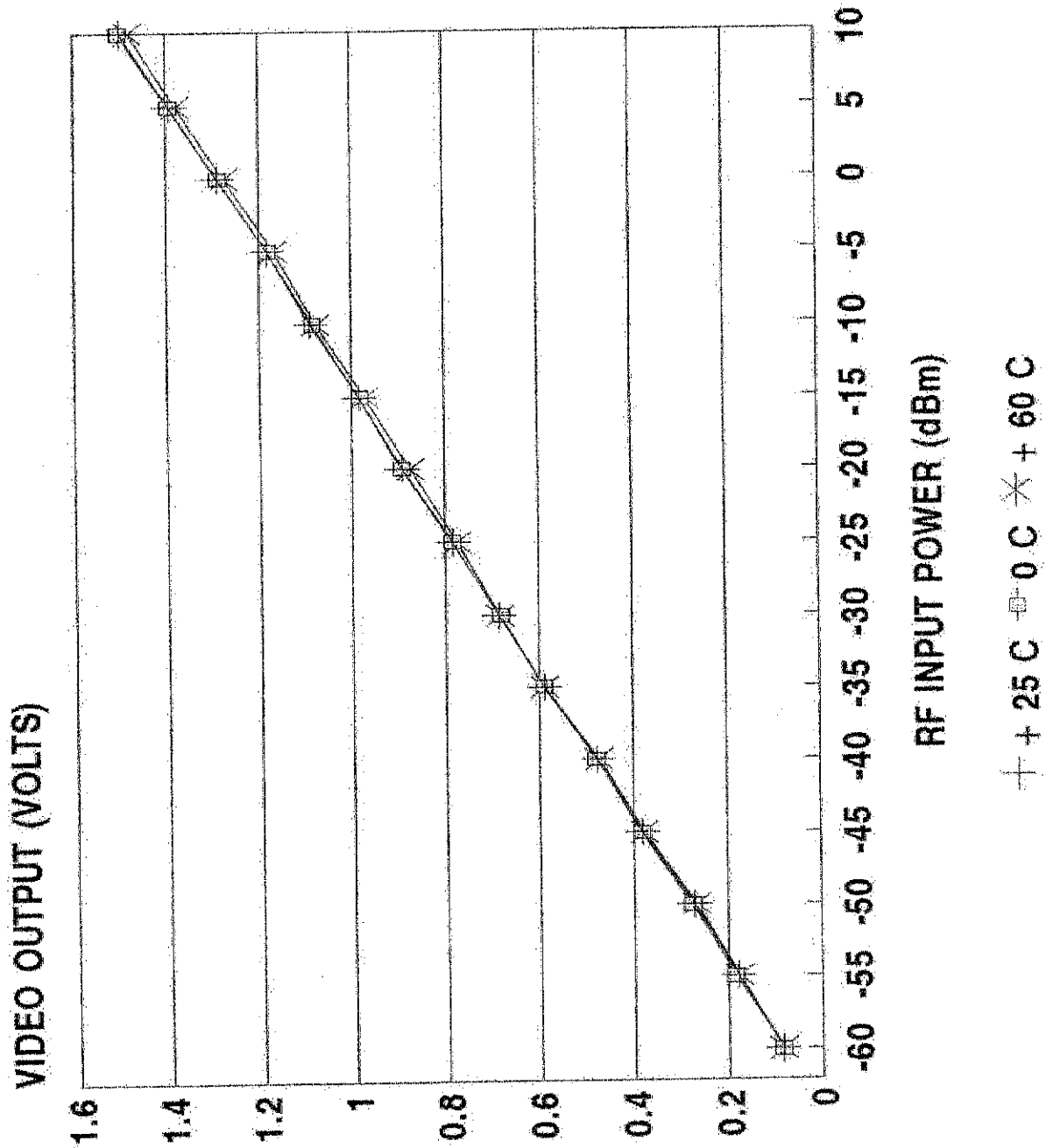
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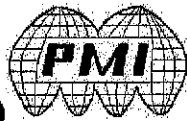
**SDLVA-2020-70: S/N PM90890
LOG TRANSFER WITH TEMPERATURE**



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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

**SUMMARY TEST DATA
ON**

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER--SDLVA

CUSTOMER: INDRA SISTEMAS

TESTED BY: DV

JOB NO: 00628P

TEMPERATURE: 0°C TO 60°C

MODEL NO: SDLVA-2020-50, OPTION 26, IND

DATE: 12/15/00

SERIAL NO: PM01059

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.8:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED		
3	RF GAIN	60 dB (minimum)	60 dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	11.7 - 14 dBm	✓
5	LOG SLOPE (±10% TOLERANCE)	20 mV/dB	19.34 - 21.32 ^{dB} _{dB}	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	+1.02 dB -1.43 dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±1.18 dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	±0.75 dB	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	150 ns	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	25 ns	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	40 ns	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%		
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	620 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	140 mA	✓

PRODUCTION MANAGER APPROVAL:

DATED: 12/14/00

QA/QC APPROVAL:

DATED: 12/14/00

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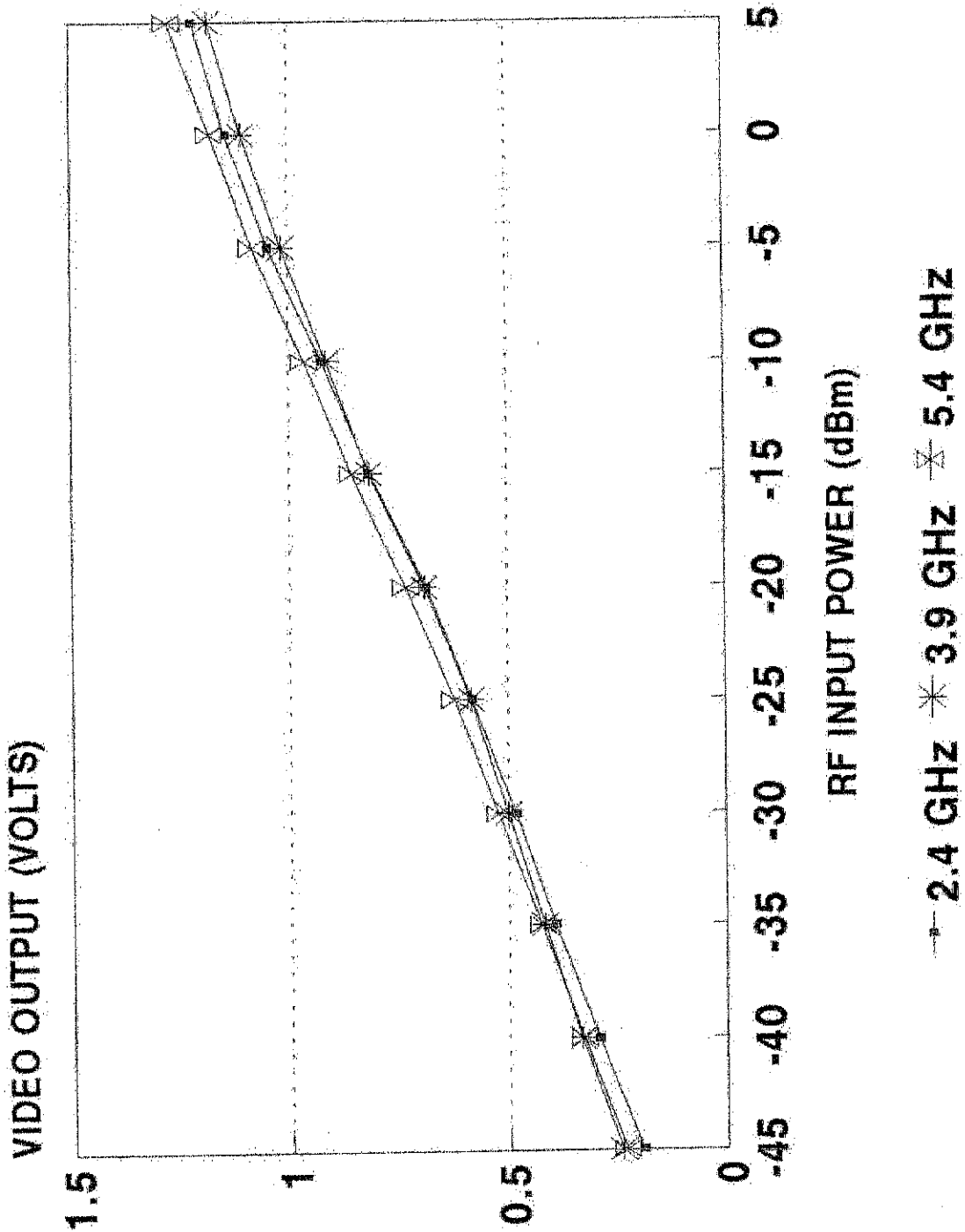
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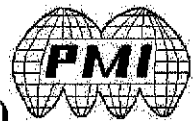
**SDLVA-2020-50 OPT. 26, IND S/N PM010559
LOG TRANSFER WITH FREQUENCY**



**TESTED BY: D.V., 12/15/00
25 C**

PLANAR MONOLITHICS INDUSTRIES, INC.

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WEBSITE: www.planarmonolithicsindustries.com, E-MAIL: sales@planarmonolithics.com



**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

**SUMMARY TEST DATA
ON**

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER--SDLVA

CUSTOMER: INDRA SISTEMAS
 JOB NO: 00628P
 MODEL NO: SDLVA-2020-50, OPTION 26, IND
 SERIAL NO: PM00560

TESTED BY: D.V.
 TEMPERATURE: 0°C TO 60°C
 DATE: 12/15/00

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.8:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED		✓
3	RF GAIN	60 dB (minimum)	61 dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	14.0... 16.2 dBm	✓
5	LOG SLOPE (+10% TOLERANCE)	20 mV/dB	19.71... 22.10 mV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	+1.48 dB -1.38 dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±1.48 dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	±0.7 dB	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	175 ns	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	25 ns	✓
11	PROPAGATION DELAY (10% of rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	35 ns	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%		
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	435 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	146 mA	✓

PRODUCTION MANAGER APPROVAL: _____

DATED: 12/14/00

QA/QC APPROVAL: _____

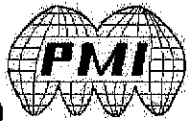
DATED: 12/14/00

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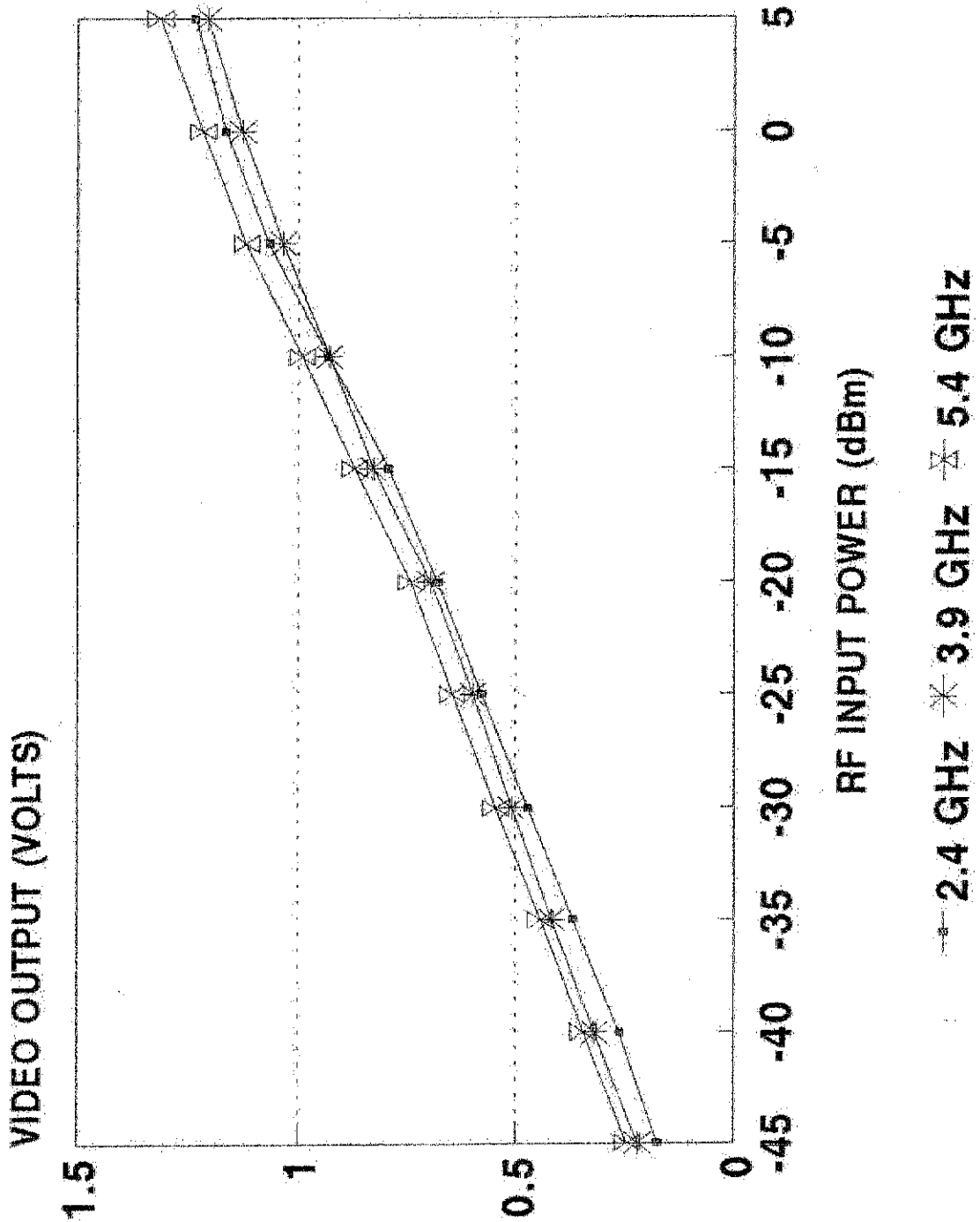
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

**SDLVA-2020-50 OPT. 26, IND S/N PM010560
LOG TRANSFER WITH FREQUENCY**

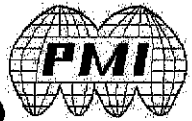


**TESTED BY: D.V., 12/15/00
25 C**

PLANAR MONOLITHICS INDUSTRIES, INC.

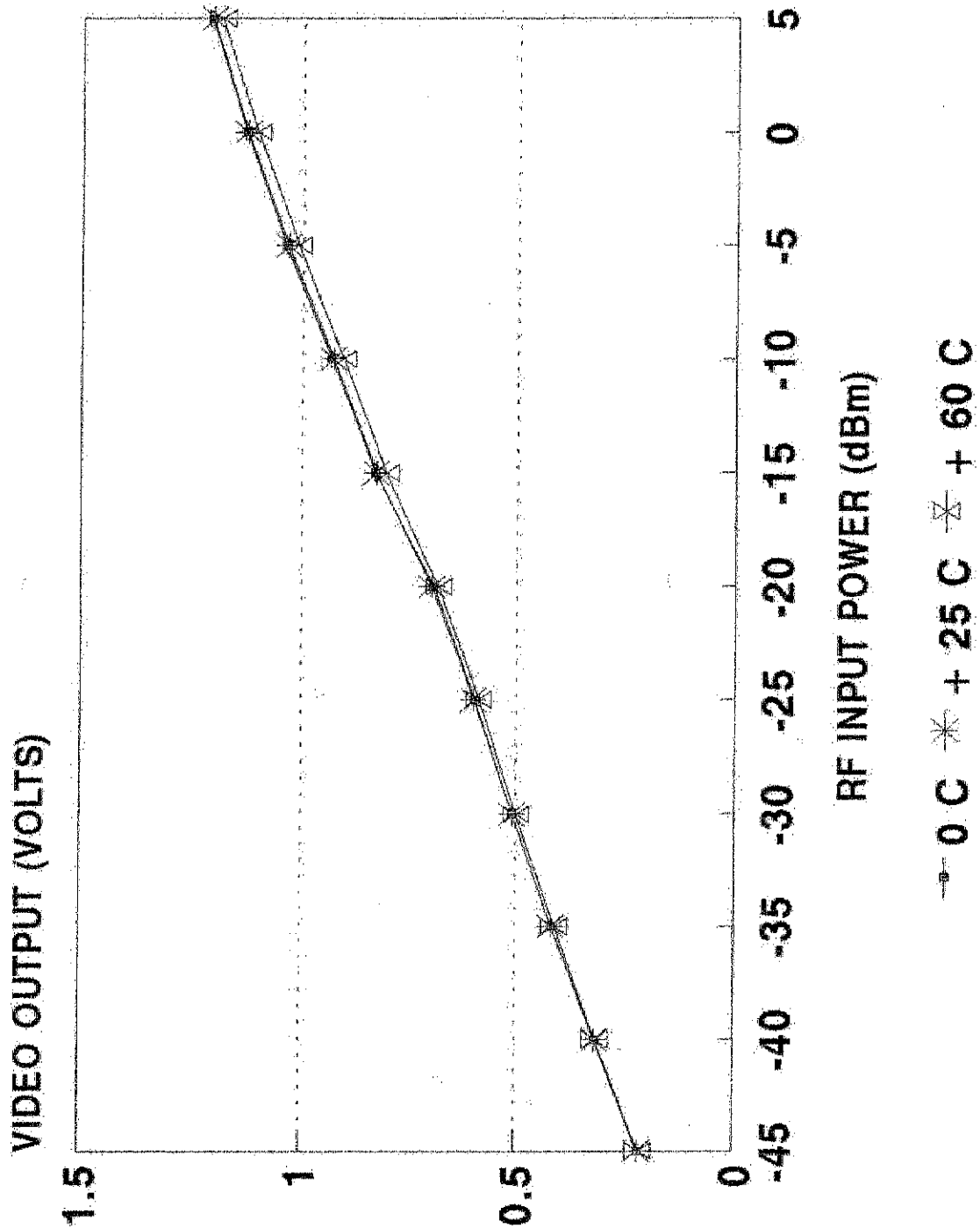
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

**SDLVA-2020-50 OPT. 26, IND S/N PM010560
LOG TRANSFER WITH TEMPERATURE**



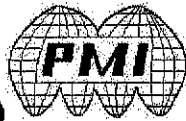
**TESTED BY: D.V., 12/15/00
3.9 GHz**

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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

**SUMMARY TEST DATA
ON**

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER--SDLVA

CUSTOMER: INDRA SISTEMASTESTED BY: D.V.JOB NO: 00628PTEMPERATURE: 0°C TO 60°CMODEL NO: SDLVA-2020-50, OPTION 26, INDDATE: 12/15/00SERIAL NO: PM010561

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.8:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED		
3	RF GAIN	60 dB (minimum)	61 dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	+12.13...+16.01 dBm	✓
5	LOG SLOPE (±10% TOLERANCE)	20 mV/dB	19.92...22.17 mV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	+1.68 dB -1.46 dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±1.8 dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	±0.68 dB	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	150 ns	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	25 ns	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	35 ns	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%		
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	440 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	140 mA	✓

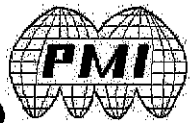
PRODUCTION MANAGER APPROVAL: DATED: 12/14/00QA/QC APPROVAL: DATED: 12/14/00

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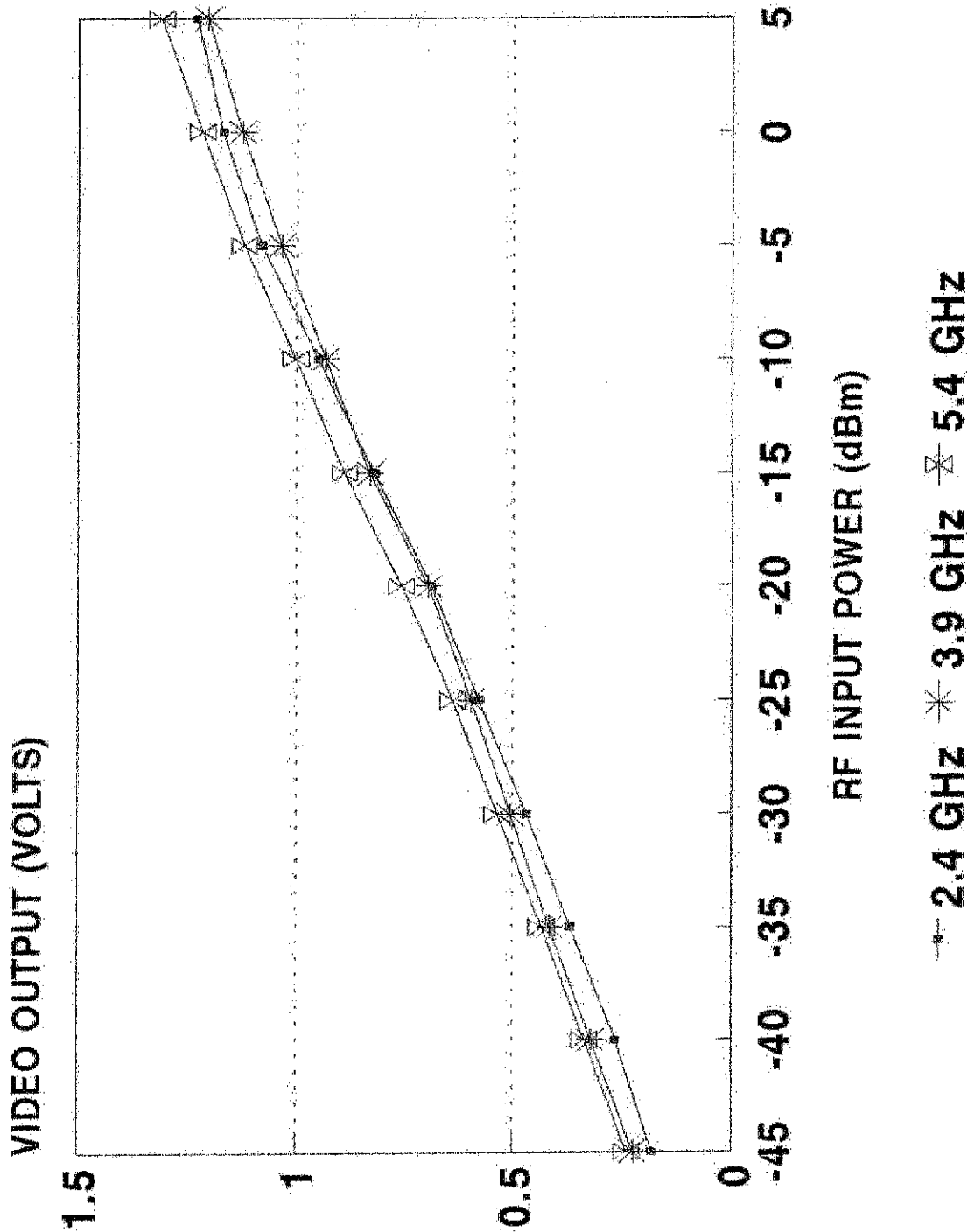
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

**SDLVA-2020-50 OPT. 26, IND S/N PM010561
LOG TRANSFER WITH FREQUENCY**



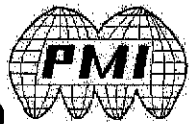
**TESTED BY: D.V., 12/15/00
25 C**

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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

SUMMARY TEST DATA

ON

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER--SDLVA

CUSTOMER: INDRA SISTEMAS
 JOB NO: 00628P
 MODEL NO: SDLVA-2020-50, OPTION 26, IND
 SERIAL NO: PM010563

TESTED BY: D.V.
 TEMPERATURE: 0°C TO 60°C
 DATE: 12/15/00

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.9:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED		
3	RF GAIN	60 dB (minimum)	60 dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	12.3...15.1 dBm	✓
5	LOG SLOPE (±10% TOLERANCE)	20 mV/dB	20.34...21.54 mV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	+0.98 dB -0.78 dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±1.05 dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	±0.93 dB	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	170 ns	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	23 ns	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	40 ns	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%		
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	425 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	145 mA	✓

PRODUCTION MANAGER APPROVAL:

DATED: 12/14/00

QA/QC APPROVAL:

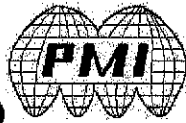
DATED: 12/14/00

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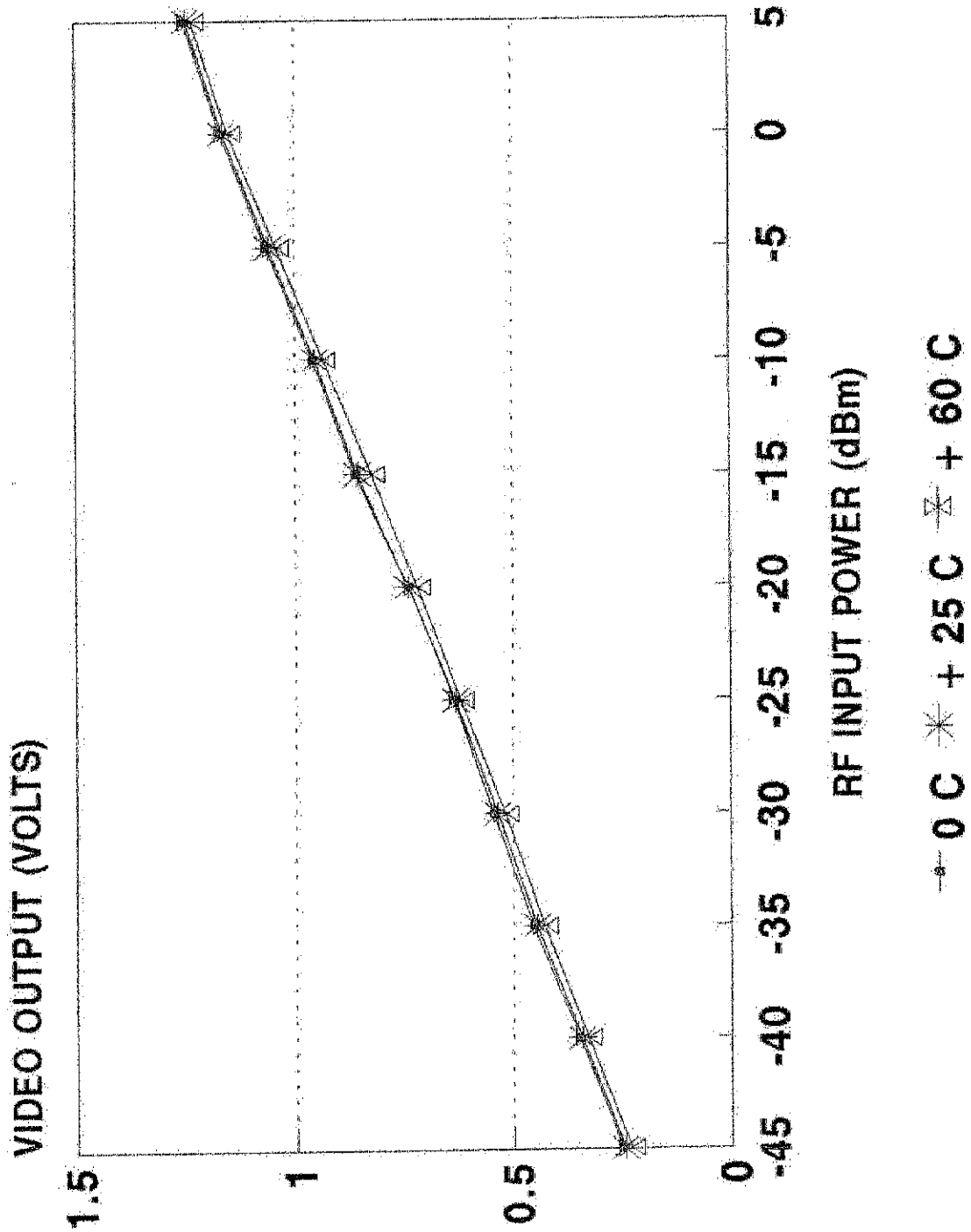
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

**SDLVA-2020-50 OPT. 26, IND S/N PM010563
LOG TRANSFER WITH TEMPERATURE**

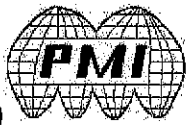


**TESTED BY: D.V., 12/15/00
3.9 GHZ**

PLANAR MONOLITHICS INDUSTRIES, INC.

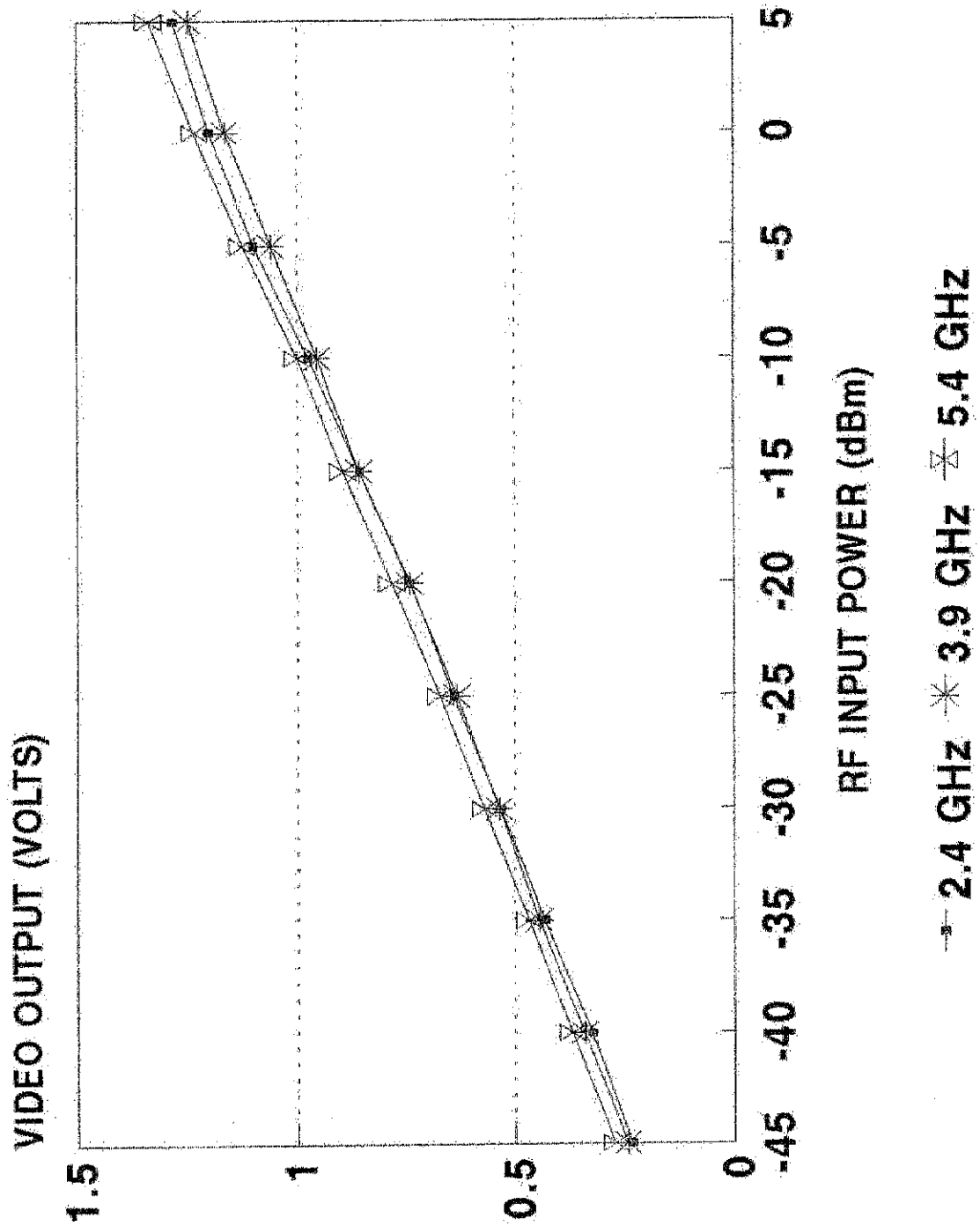
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

**SDLVA-2020-50 OPT. 26, IND S/N PM010563
LOG TRANSFER WITH FREQUENCY**



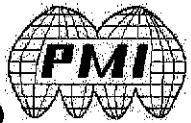
**TESTED BY: D.V., 12/15/00
25 C**

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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

SUMMARY TEST DATA

ON

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER-SDLVA

CUSTOMER: INDRA SISTEMAS
 JOB NO: 00628P
 MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
 SERIAL NO: P4010556

TESTED BY: B. B.
 TEMPERATURE: 0°C TO 60°C
 DATE: 01/31/01

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.5:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED	0.25 TO 1.25 VOLTS	✓
3	RF GAIN	60 dB (minimum)	≥ 60 dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	+16 dBm	✓
5	LOG SLOPE (±10% TOLERANCE)	20 mV/dB	19.8 TO 20.5 MV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	-0.9 dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±1.5 dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	PASS	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	150 ns	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	18 ns	✓
11	PROPAGATION DELAY (10% of rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	PASS	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%	PASS	✓
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	440 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	128 mA	✓

PRODUCTION MANAGER APPROVAL: Raymond Powell DATED: 2/7/01
 QA/QC APPROVAL: Donald Hassner DATED: 2/7/01

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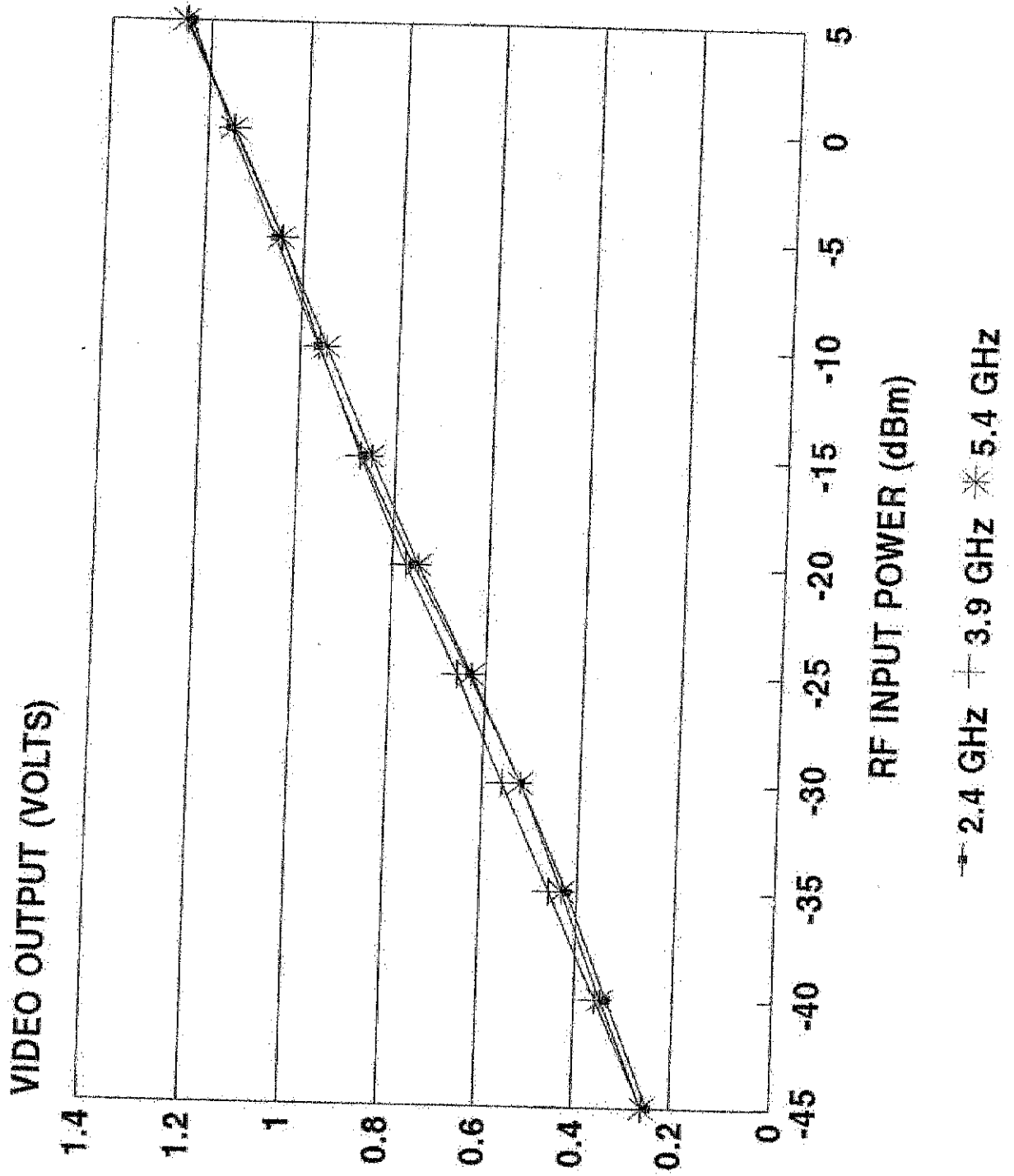
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

**SDLVA-2020-70: S\N PM010556
-OG TRANSFER WITH FREQUENCY**

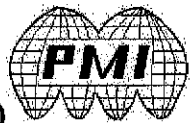


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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

**SUMMARY TEST DATA
ON**

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER-SDLVA

CUSTOMER: INDRA SISTEMAS
JOB NO: 00628P
MODEL NO: SDLVA-2020-50, OPTION 26, INDRA
SERIAL NO: PH010557

TESTED BY: P.B.
TEMPERATURE: 0°C TO 60°C
DATE: 01/22/01

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.6:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED	0.37 TO 1.37 VOLTS	✓
3	RF GAIN	60 dB (minimum)	>60 dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	+16 dBm	✓
5	LOG SLOPE (±10% TOLERANCE)	20 mV/dB	19.6 TO 20.4 mV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	-0.9 dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±0.9 dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	PASS	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	150 NS	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	17 NS	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	PASS	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%	PASS	✓
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	480 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	127 mA	✓

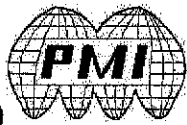
PRODUCTION MANAGER APPROVAL: Raymond Kelly DATED: 2/7/01
QA/QC APPROVAL: Donald Harmon DATED: 2/7/01

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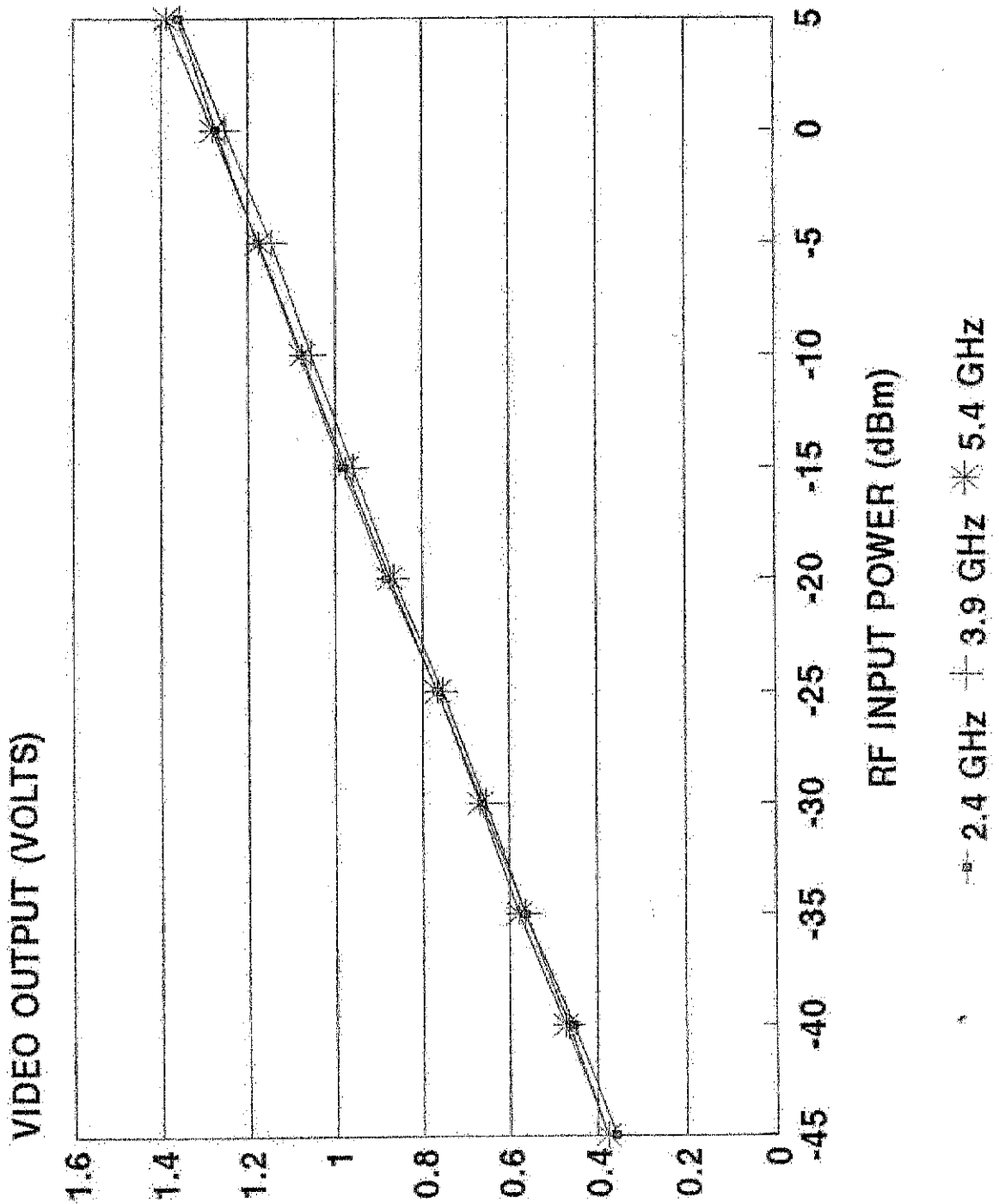
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

SDLVA-2020-70: S\N PM010557
LOG TRANSFER WITH FREQUENCY



+ 25 C, 01/22/01

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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

TEL: 301-631-1579 FAX: 301-662-2029

JOB NO: 00628P

**SUMMARY TEST DATA
ON**

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER--SDLVA

CUSTOMER: INDRA SISTEMAS
JOB NO: 00628P
MODEL NO: SDLVA-2020-50, OPTION 26, INDRA
SERIAL NO: PM010558

TESTED BY: B.B.
TEMPERATURE: 0°C TO 60°C
DATE: 01/26/01

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.5:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED	0.34 TO 1.34 VOLTS	✓
3	RF GAIN	60 dB (minimum)	260dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	+16dBm	✓
5	LOG SLOPE (±10% TOLERANCE)	20 mV/dB	19.6 TO 20.4 MV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	+0.7dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±1.0dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	PASS	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	200 nSEC	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	18 nSEC	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	PASS	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%	PASS	✓
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	500mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	127mA	✓

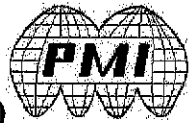
PRODUCTION MANAGER APPROVAL: [Signature] DATED: 2/7/01
QA/QC APPROVAL: [Signature] DATED: 2/7/01

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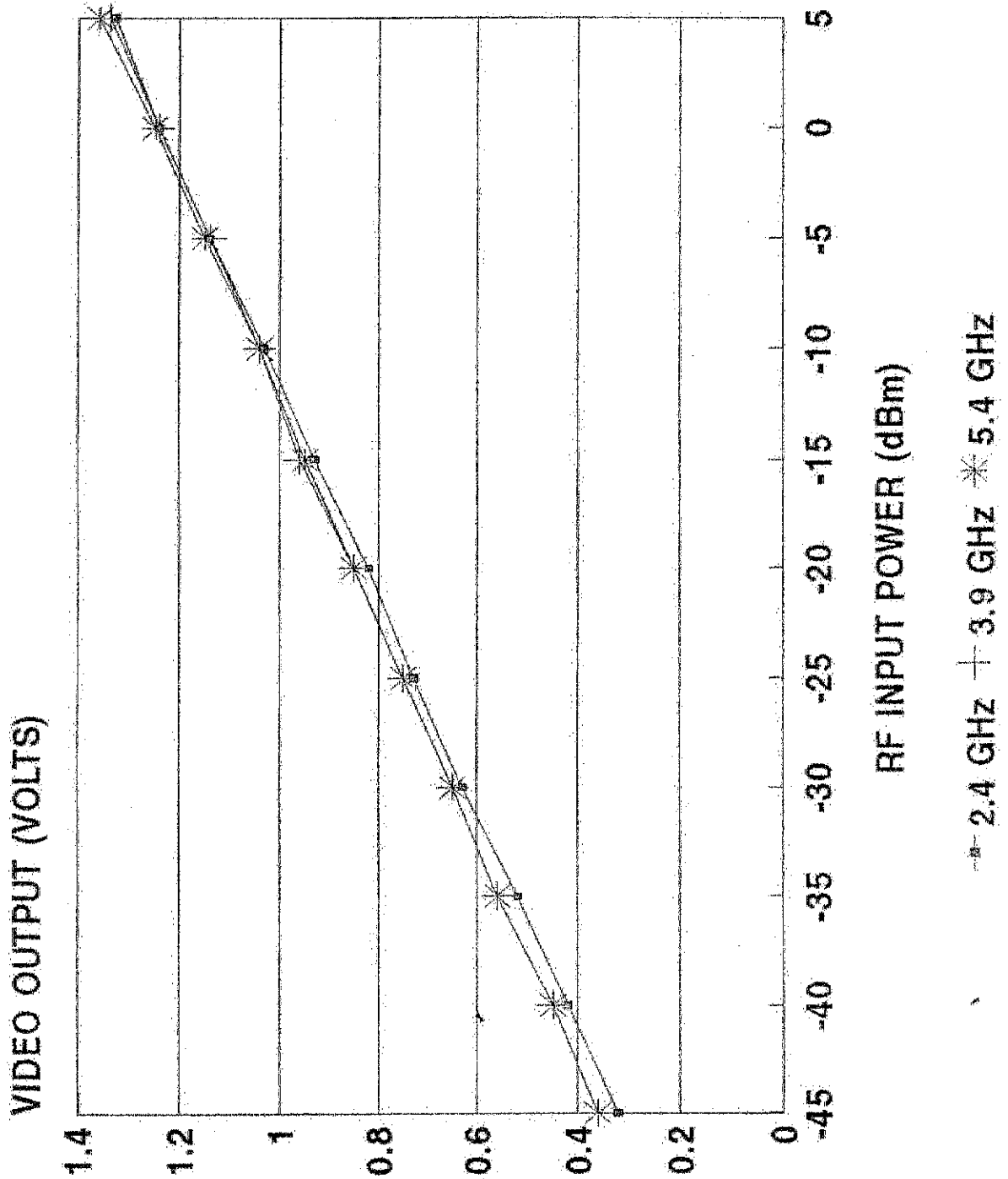
TEL: 301-631-1579 • FAX: 301-662-2029

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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

**SDLVA-2020-70: S\N PM010558
LOG TRANSFER WITH FREQUENCY**



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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

SUMMARY TEST DATA

ON

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER-SDLVA

CUSTOMER: INDRA SISTEMAS
 JOB NO: 00628P
 MODEL NO: SDLVA-2020-50, OPTION 26, INDRA
 SERIAL NO: PM010566

TESTED BY: B.B.
 TEMPERATURE: 0°C TO 60°C
 DATE: 03/30/01

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.6:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED	0.36 TO 1.38 VOLTS	✓
3	RF GAIN	60 dB (minimum)	+62 dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	+17 dBm	✓
5	LOG SLOPE (±10% TOLERANCE)	20 mV/dB	19.9 TO 21.0 mV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	-1.1 dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±2.0 dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	PASS	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	200 nSEC	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	18 nSEC	✓
11	PROPAGATION DELAY (10% of rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	PASS	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%	PASS	✓
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	510 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	126 mA	✓

PRODUCTION MANAGER APPROVAL:

DATED:

QA/QC APPROVAL:

DATED:

4/4/01

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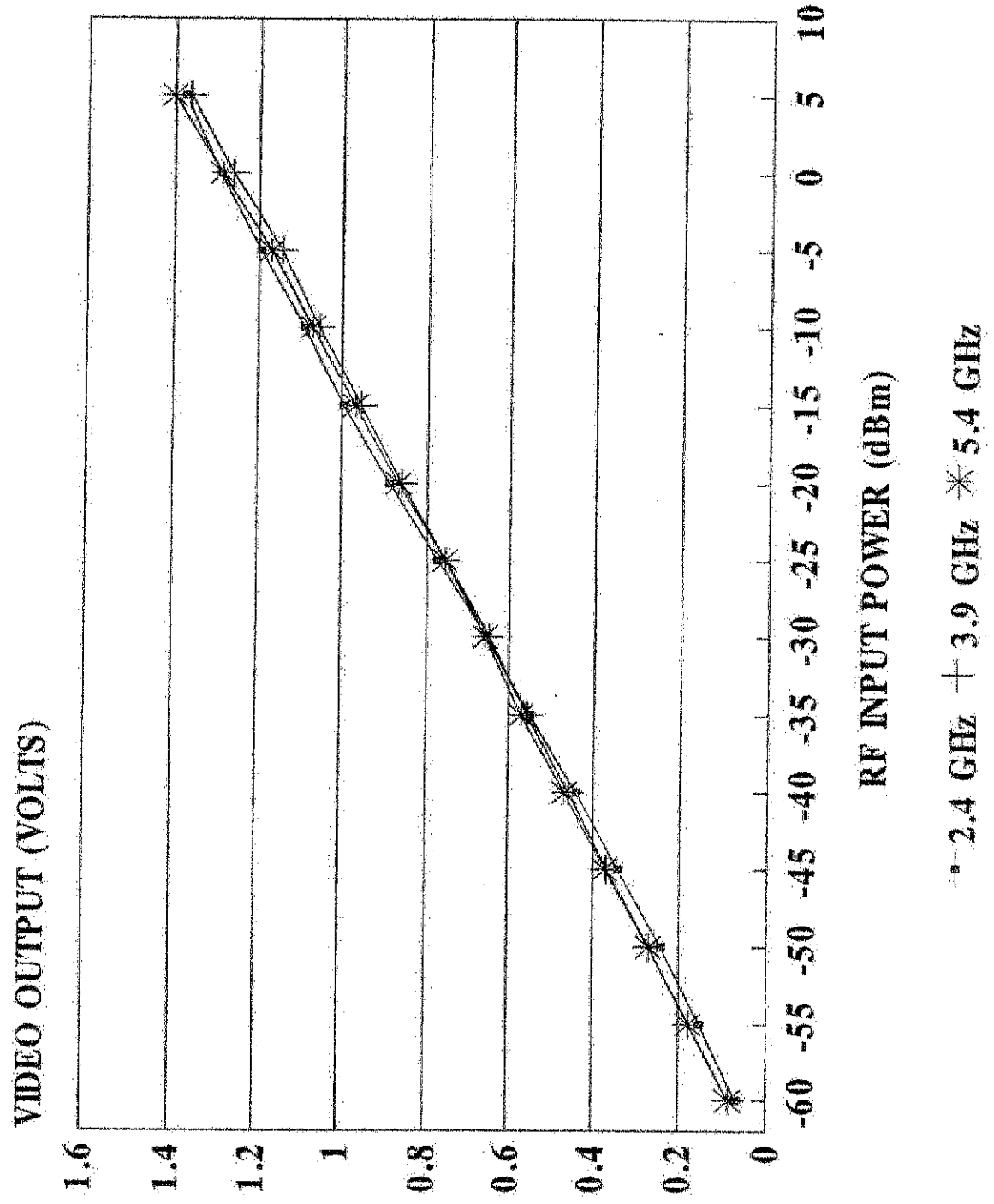
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WEBSITE: www.planarmonolithicsindustries.com, E-MAIL: sales@planarmonolithics.com



**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

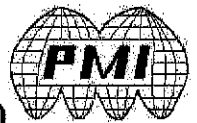
SDLVA-2020-70: SIN PM010566
LOG TRANSFER WITH FREQUENCY



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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

**SUMMARY TEST DATA
ON**

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER-SDLVA

CUSTOMER: INDRA SISTEMAS
 JOB NO: 00628P
 MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
 SERIAL NO: PM010565

TESTED BY: B.B.
 TEMPERATURE: 0°C TO 60°C
 DATE: 03/18/01

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.6:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED	0.51 TO 1.52 VOLTS	✓
3	RF GAIN	60 dB (minimum)	> 70dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	+17dBm	✓
5	LOG SLOPE (±10% TOLERANCE)	20 mV/dB	20.1 TO 20.9 mV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	-1.1dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±1.5dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	PASS	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	250 nSEC	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	18 nSEC	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	PASS	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%	PASS	✓
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	550 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	127 mA	✓

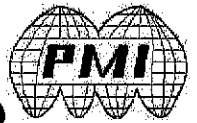
PRODUCTION MANAGER APPROVAL: Raymond Shulley DATED: 4/4/01
 QA/QC APPROVAL: Donald Harmon DATED: 4/4/01

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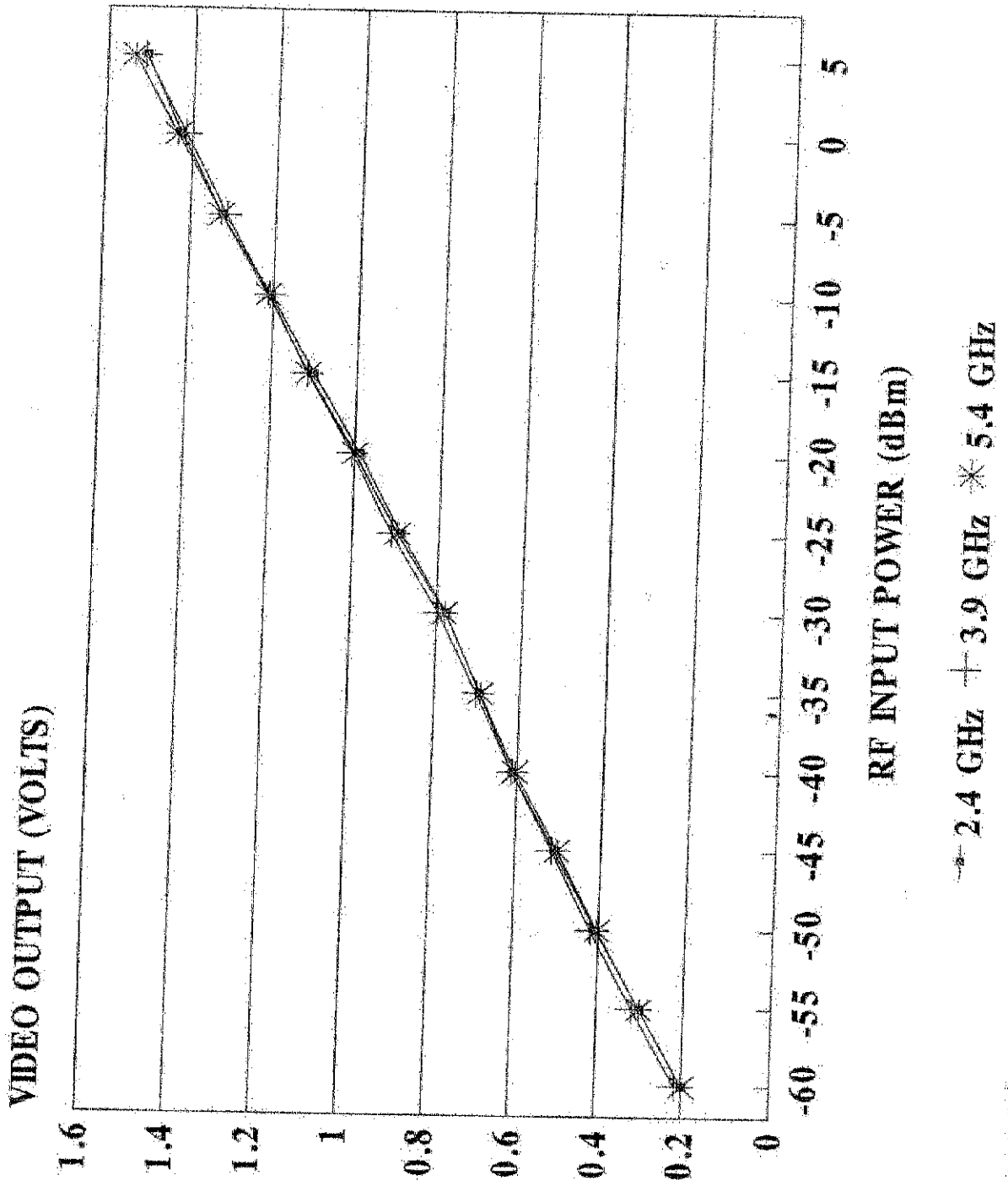
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

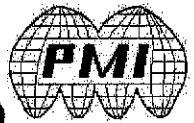
**SDLVA-2020-70: SIN PM010565
LOG TRANSFER WITH FREQUENCY**



+ 25 C, 03/18/01

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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

**SUMMARY TEST DATA
ON**

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER--SDLVA

CUSTOMER: INDRA SISTEMAS
 JOB NO: 00628P
 MODEL NO: SDLVA-2020-50, OPTION 26, INDRA
 SERIAL NO: P4510567

TESTED BY: B.B.
 TEMPERATURE: 0°C TO 60°C
 DATE: 03/18/01

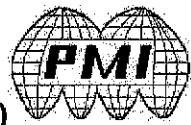
TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.6:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED	0.43 TO 1.42 VOLTS	✓
3	RF GAIN	60 dB (minimum)	> 70 dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	+17 dBm	✓
5	LOG SLOPE (±10% TOLERANCE)	20 mV/dB	19.3 TO 21.2 mV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	-1.0 dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±1.25 dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	PASS	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	250 NS SEC	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	18 NS SEC	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	PASS	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%	PASS	✓
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	496 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	126 mA	✓

PRODUCTION MANAGER APPROVAL: Raymond Shulley DATED: 4/4/01
 QA/QC APPROVAL: Donald Harmon DATED: 4/4/01

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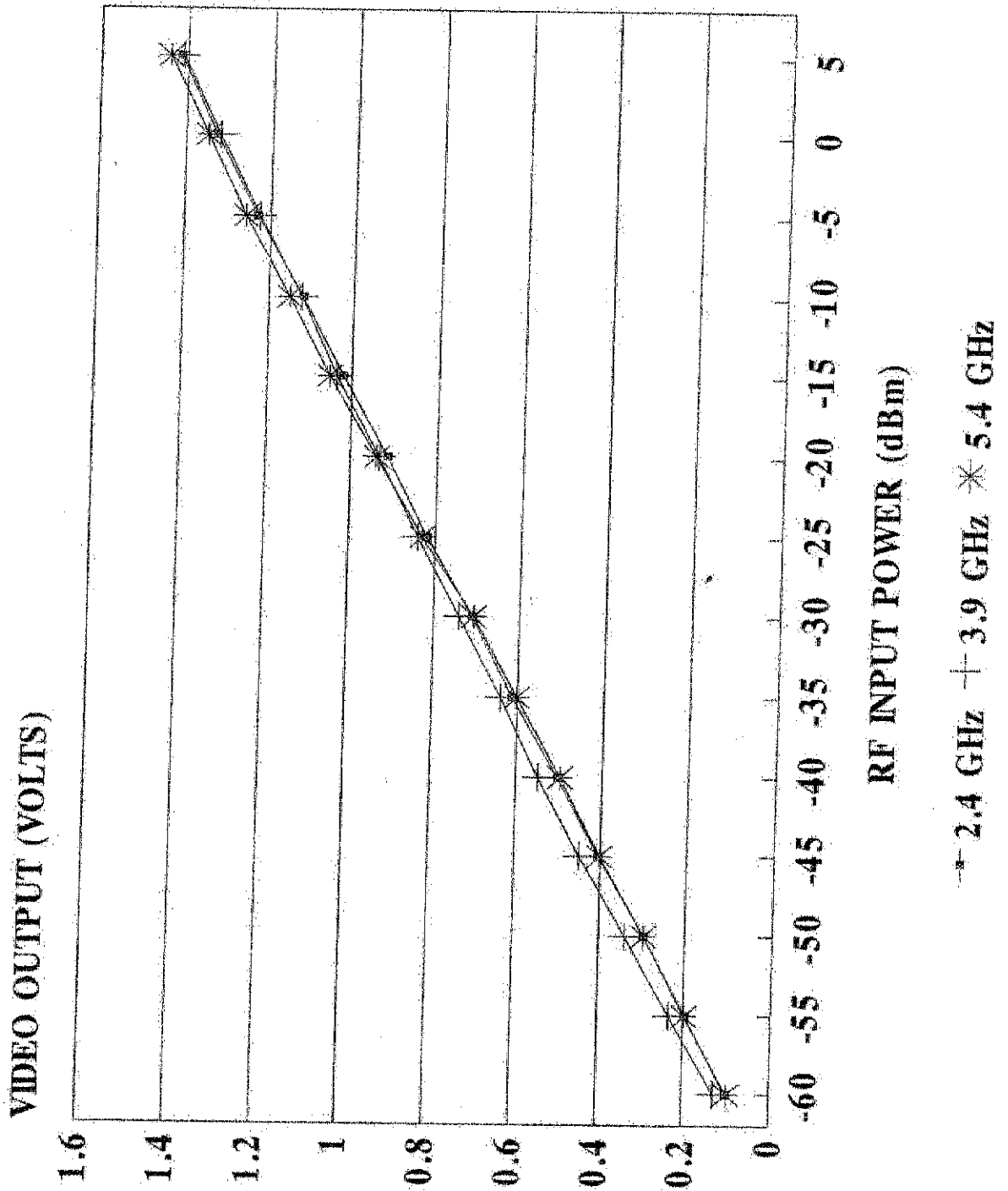
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

**SDLVA-2020-70: S\N PM010567
LOG TRANSFER WITH FREQUENCY**

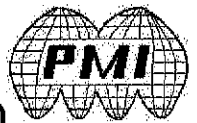


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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

SUMMARY TEST DATA

ON

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER--SDLVA

CUSTOMER: INDRA SISTEMAS

TESTED BY: B. D.

JOB NO: 00628P

TEMPERATURE: 0°C TO 60°C

MODEL NO: SDLVA-2020-50, OPTION 26, INDRA

DATE: 03/17/01

SERIAL NO: PM 010568

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.55:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED	0.42 TO 1.4 VOLTS	✓
3	RF GAIN	60 dB (minimum)	+67dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	+17dBm	✓
5	LOG SLOPE (+10% TOLERANCE)	20 mV/dB	19.3 TO 20.3 mV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	-0.6dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	PASS	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	PASS	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	200 n SEC	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	18 n SEC	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	PASS	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%	PASS	✓
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	490 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	130 mA	✓

PRODUCTION MANAGER APPROVAL: Raymond Purley DATED: 4/4/01QA/QC APPROVAL: Donald Harman DATED: 4/4/01

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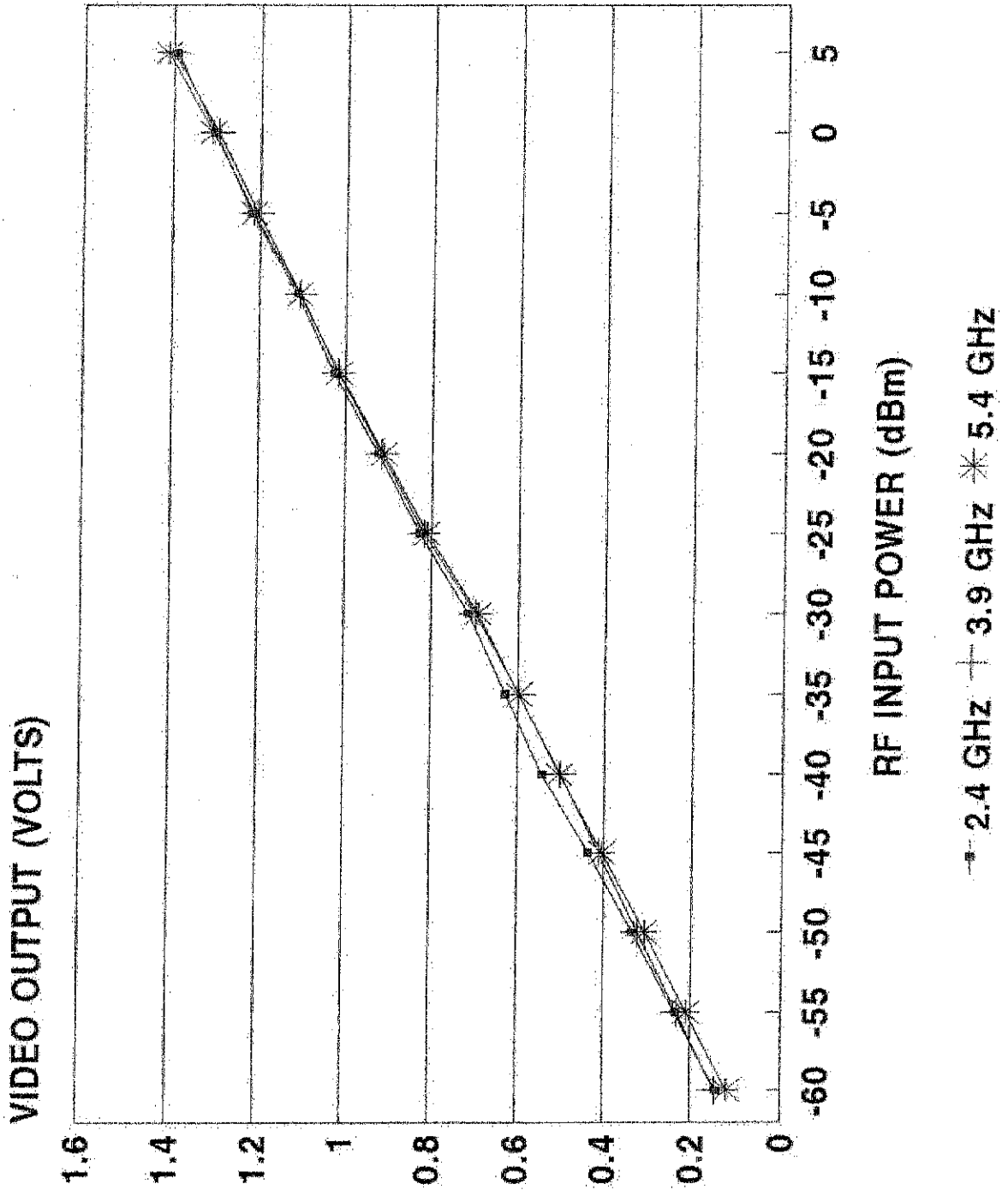
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

**SDLVA-2020-70: S\N PM010568
LOG TRANSFER WITH FREQUENCY**



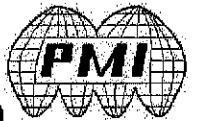
+ 25 C, 03/17/01

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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

**SUMMARY TEST DATA
ON**

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER--SDLVA

CUSTOMER: INDRA SISTEMAS
JOB NO: 00628P
MODEL NO: SDLVA-2020-50, OPTION 26, INDRA
SERIAL NO: PM010569

TESTED BY: B.B.
TEMPERATURE: 0°C TO 60°C
DATE: 03/18/01

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.55:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED	0.4 TO 1.45 VOLTS	✓
3	RF GAIN	60 dB (minimum)	+69 dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	+17 dBm	✓
5	LOG SLOPE (+10% TOLERANCE)	20 mV/dB	20.7 TO 21.4 mV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	+0.6 dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±2.0 dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	PASS	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	150 NSEC	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	18 NSEC	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	PASS	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%	PASS	✓
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	500 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	127 mA	✓

PRODUCTION MANAGER APPROVAL: Raymond Dudley DATED: 4/4/01
QA/QC APPROVAL: Donald Harmon DATED: 4/4/01

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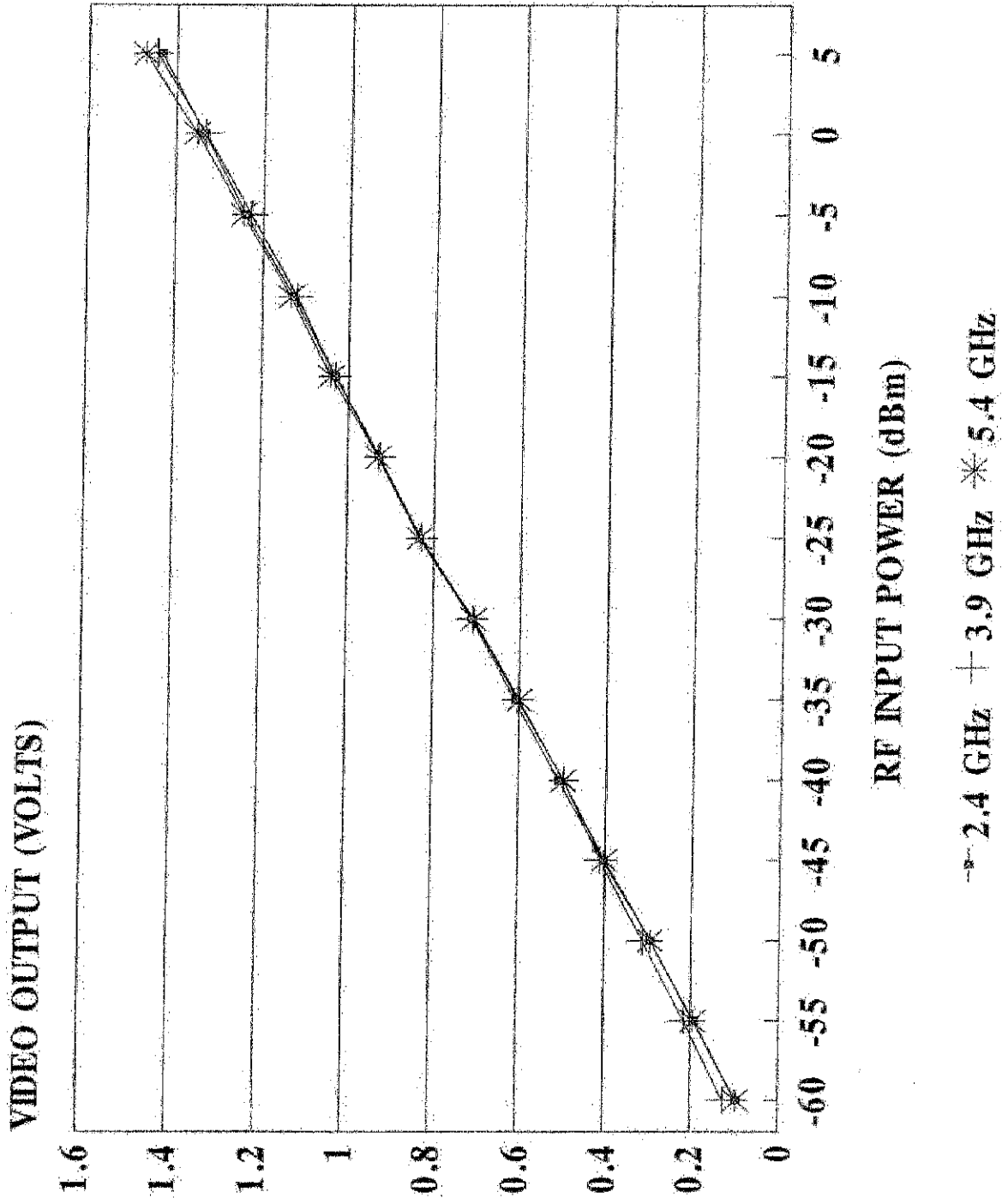
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

**SDLVA-2020-70: S/N PM010569
LOG TRANSFER WITH FREQUENCY**

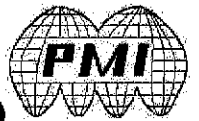


+25 C, 03/18/01

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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

**SUMMARY TEST DATA
ON**

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER--SDLVA

CUSTOMER: INDRA SISTEMAS
 JOB NO: 00628P
 MODEL NO: SDLVA-2020-50, OPTION 26, INDRA
 SERIAL NO: PM010570

TESTED BY: B. D.
 TEMPERATURE: 0°C TO 60°C
 DATE: 03/18/01

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.6:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED	0.48 TO 1.49 VOLTS	✓
3	RF GAIN	60 dB (minimum)	69 dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	+17 dBm	✓
5	LOG SLOPE (±10% TOLERANCE)	20 mV/dB	19.8 TO 20.9 MV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	+1.0 dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±1.5 dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	PASS	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	250 nSEC	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	18 nSEC	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	PASS	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%	PASS	✓
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	480 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	129 mA	✓

PRODUCTION MANAGER APPROVAL: Raymond Hurlley DATED: 4/4/01
 QA/QC APPROVAL: Donald Harmon DATED: 4/4/01

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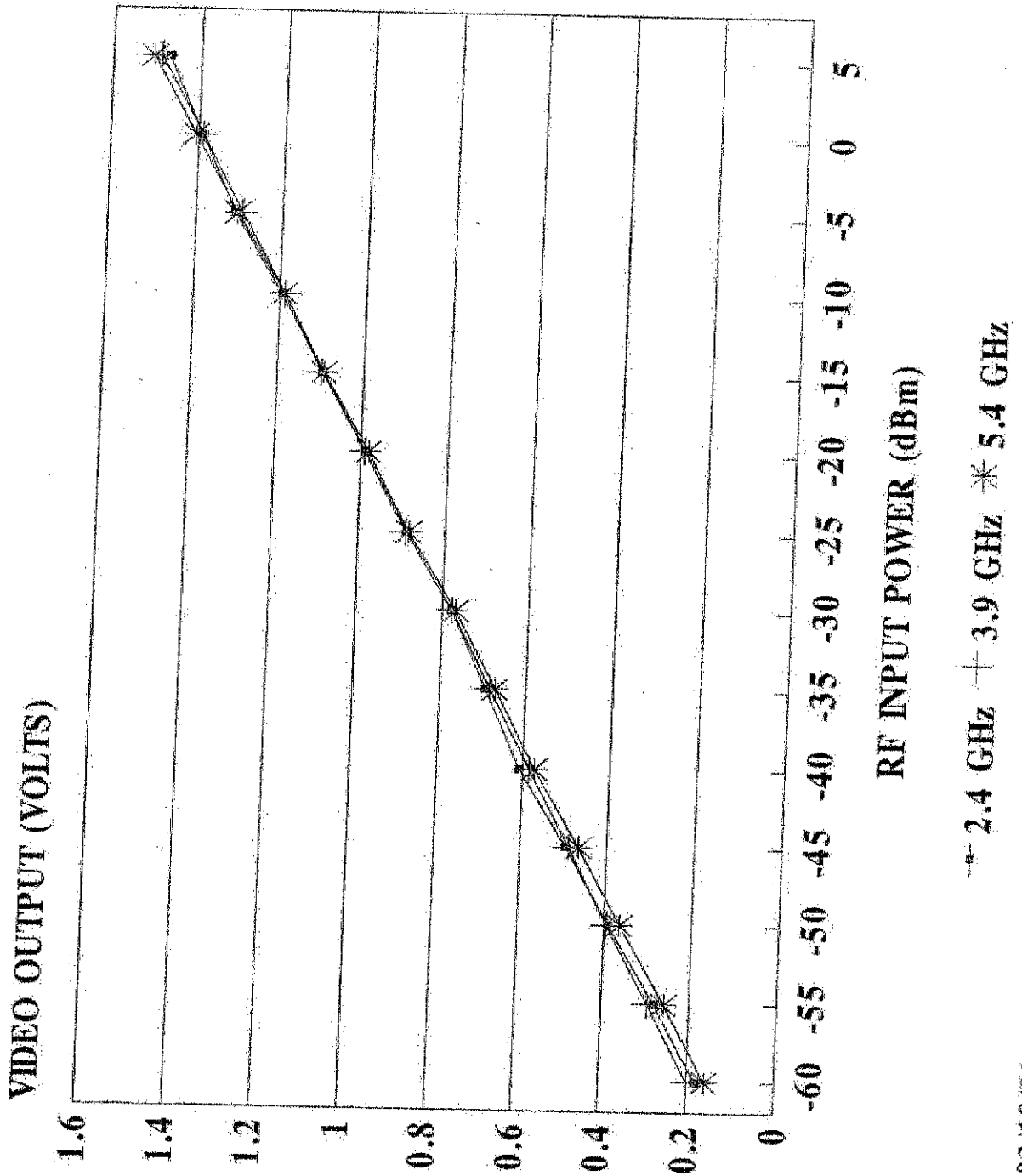
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

**SDLVA-2020-70: SIN PM010570
LOG TRANSFER WITH FREQUENCY**



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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

**SUMMARY TEST DATA
ON**

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER--SDLVA

CUSTOMER: INDRA SISTEMAS
 JOB NO: 00628P
 MODEL NO: SDLVA-2020-50, OPTION 26, INDRA
 SERIAL NO: PM010571

TESTED BY: BB
 TEMPERATURE: 0°C TO 60°C
 DATE: 03/30/01

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.6:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED	0.46 TO 1.45 VOLTS	✓
3	RF GAIN	60 dB (minimum)	> 70 dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	+17 dBm	✓
5	LOG SLOPE (±10% TOLERANCE)	20 mV/dB	19.7 TO 20.2 mV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	+0.9 dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±1.5 dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	PASS	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	250 SEC	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	18 N SEC	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	PASS	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%	PASS	✓
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	490 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	120 mA	✓

PRODUCTION MANAGER APPROVAL: Raymond Paddy DATED: 4/4/01
 QA/QC APPROVAL: Donald Harmon DATED: 4/4/01

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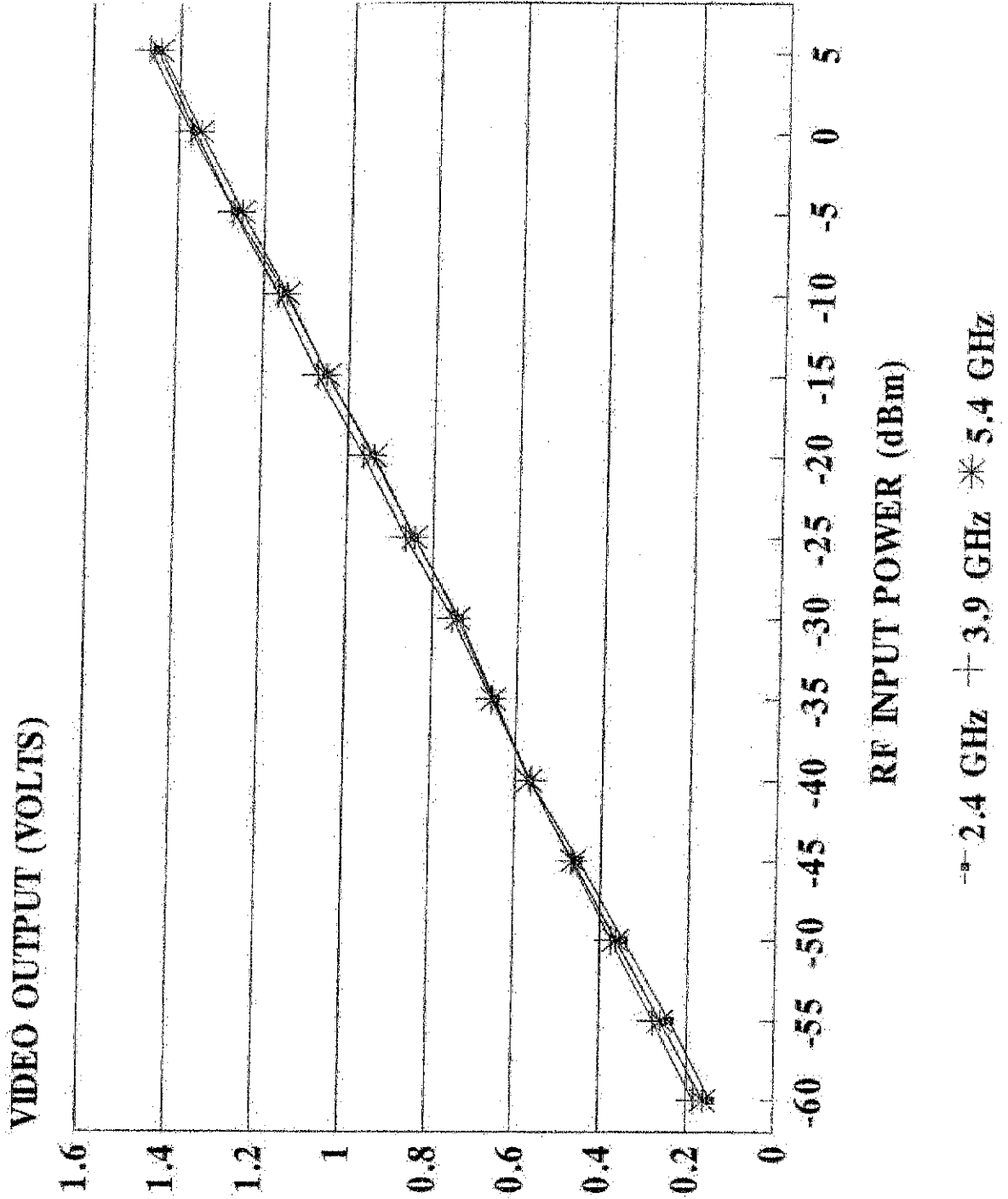
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

**SDLVA-2020-70: S/N PM010571
LOG TRANSFER WITH FREQUENCY**

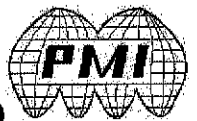


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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

**SUMMARY TEST DATA
ON**

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER-SDLVA

CUSTOMER: INDRA SISTEMAS / SEMATRON
 JOB NO: 00628P
 MODEL NO: SDLVA-2020-50, OPTION 26, IND
 SERIAL NO: PM010562

TESTED BY: B.B
 TEMPERATURE: 0°C TO 60°C
 DATE: 02/12/01

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.18:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED	0.35 TO 1.38 VOLTS	✓
3	RF GAIN	60 dB (minimum)	~63 dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	~+16 dBm	✓
5	LOG SLOPE (±10% TOLERANCE)	20 mV/dB	20.4 TO 21.0 mV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	-0.65 dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±1.0 dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	PASS	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	150 nSEC	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	18 nSEC	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	PASS	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%	PASS	✓
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	430 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	127 mA	✓

PRODUCTION MANAGER APPROVAL: Raymond Hurlley DATED: 2/23/01

QA/QC APPROVAL: Q4 Donald Harmon DATED: 2/20/01

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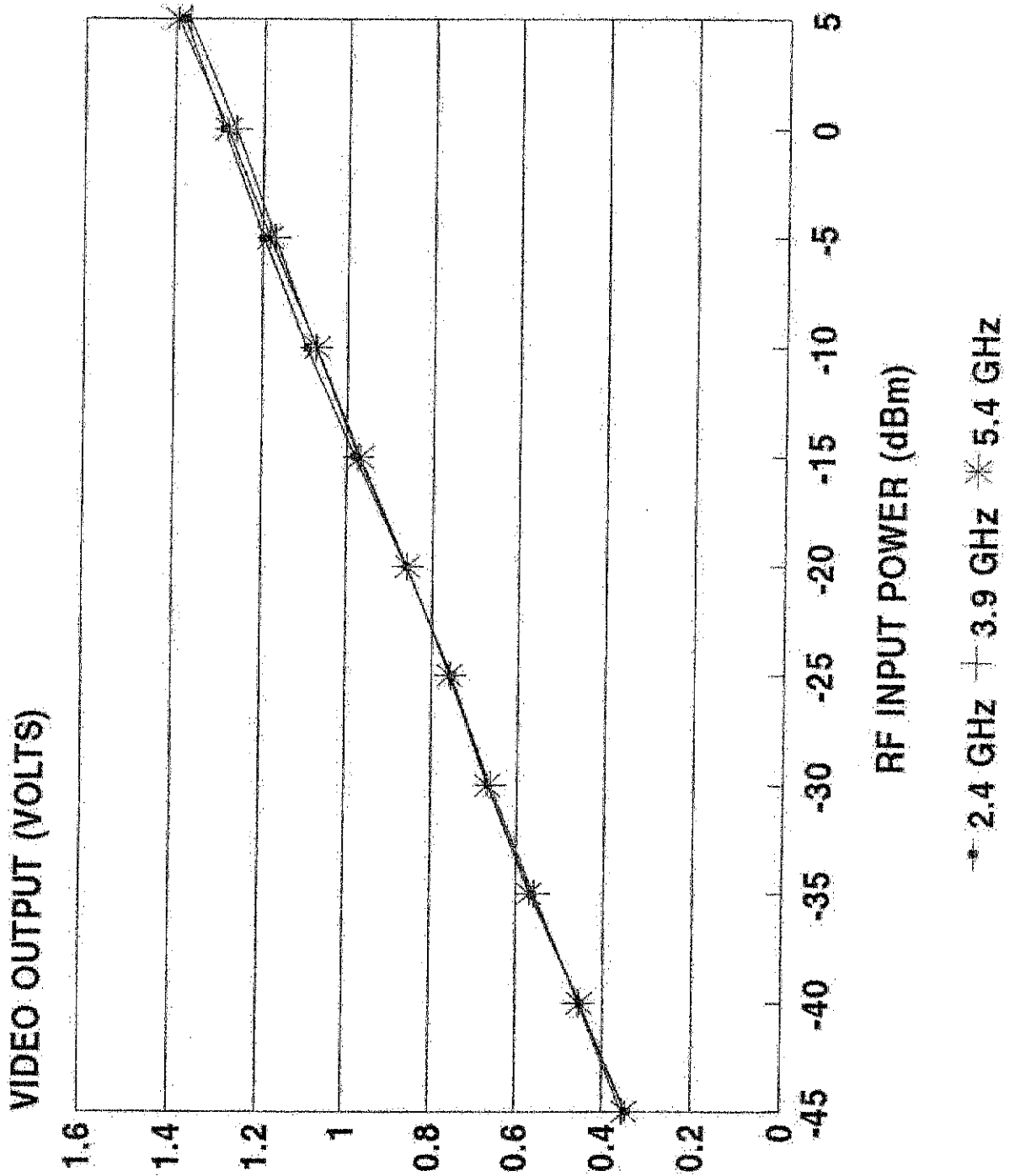
7311G-2 GROVE ROAD, FREDERICK, MD 21704 • USA •
 TEL: 301-631-1579 • FAX: 301-662-2029

WEBSITE: www.planarmonolithicsindustries.com, E-MAIL: sales@planarmonolithics.com



**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

**SDLVA-2020-70: S\N PM010562
LOG TRANSFER WITH FREQUENCY**



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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

JOB NO: 00628P

**SUMMARY TEST DATA
ON**

SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER--SDLVA

CUSTOMER: INDRA SISTEMAS / SEMATRON
 JOB NO: 00628P
 MODEL NO: SDLVA-2020-50, OPTION 26, IND
 SERIAL NO: PM010564

TESTED BY: D.B.
 TEMPERATURE: 0°C TO 60°C
 DATE: 02/08/01

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	INPUT VSWR @ -20 dBm (2.4 - 5.4 GHz)	3.0:1	1.45:1	✓
2	TYPICAL OUTPUT VOLTAGE @ -45 TO +5 dBm	PLOT ATTACHED	0.35 TO 1.34 VOLTS	✓
3	RF GAIN	60 dB (minimum)	~63dB	✓
4	POUT SATURATION	+14 dBm (typical) +10 dBm (minimum)	~ +16dBm	✓
5	LOG SLOPE (±10% TOLERANCE)	20 mV/dB	19.5 TO 20.3 mV/dB	✓
6	LOG LINEARITY @ -45 TO +5 dBm	±1.75 dB (maximum)	-0.9dB	✓
7	FREQUENCY FLATNESS (2.4-5.4 GHz) @ -20 dBm	±2.0 dB	±1.2dB	✓
8	LOG TEMPERATURE STABILITY (0° TO +60°C)	±1.75 dB	±1.0dB	✓
9	RECOVERY TIME @ -45 TO +5 dBm	250 ns (maximum) 150 ns (typical)	250 nSEC	✓
10	RISE TIME (10% to 90% POINTS)	30 ns (maximum) 20 ns (typical)	19 nSEC	✓
11	PROPAGATION DELAY (10% or rf input signal to 90% output video signal)	35 ns (typical) 45 ns (maximum)	PASS	✓
12	OUTPUT VIDEO LOAD	100 Ω ± 10%	PASS	✓
13	DC POWER (NO LOAD) @ +15V	600 mA (maximum)	460 mA	✓
14	DC POWER (NO LOAD) @ -15V	200 mA (maximum)	125 mA	✓

PRODUCTION MANAGER APPROVAL: Raymond Pulley DATED: 2/25/01
 QA/QC APPROVAL: Donald Harmon DATED: 2/20/01

PLANAR MONOLITHICS INDUSTRIES, INC.

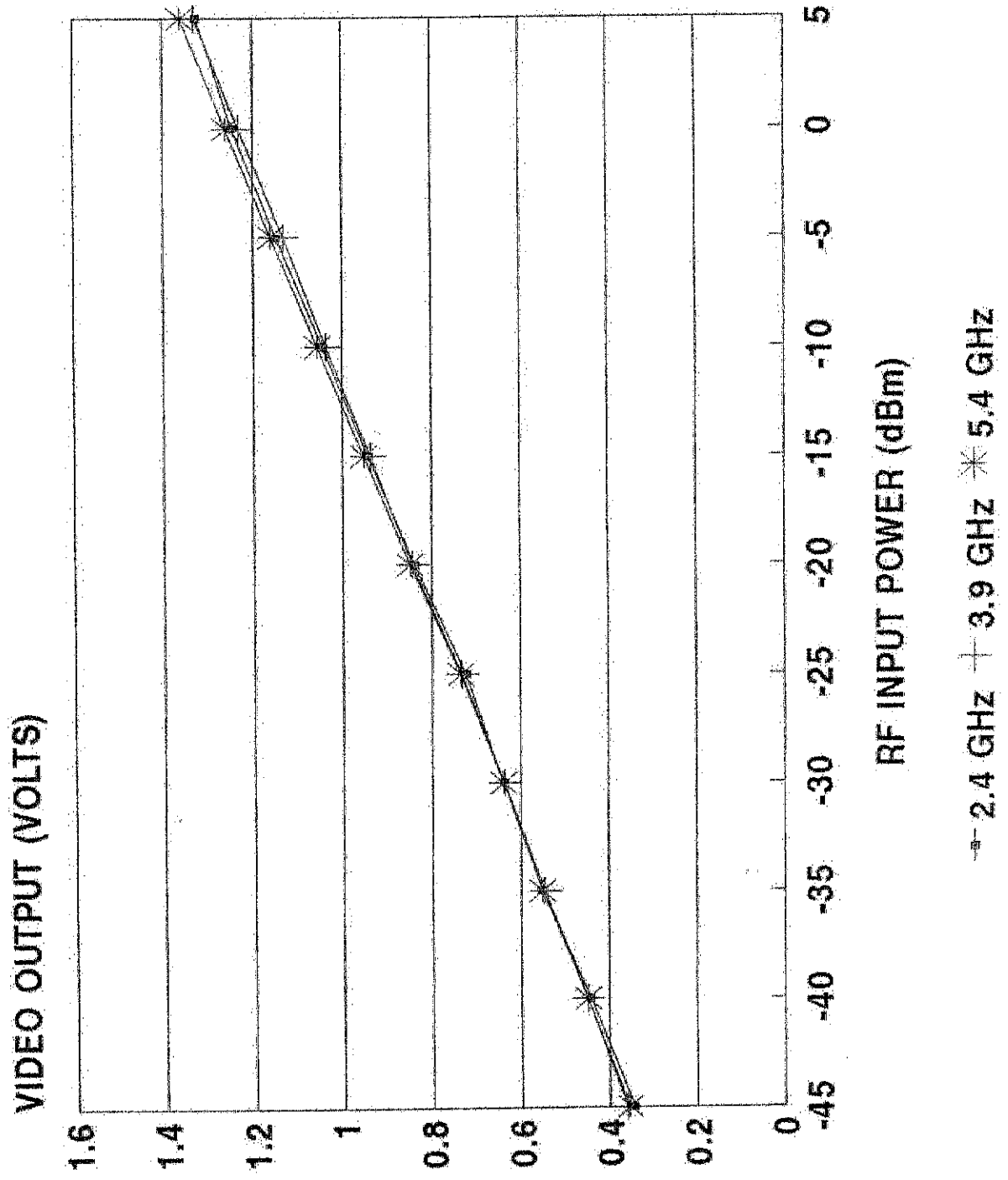
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**MODEL NO: SDLVA-2020-50 OPTION 26, INDRA
SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S)**

SDLVA-2020-70: S\N PM010564
LOG TRANSFER WITH FREQUENCY



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