



PLANAR MONOLITHIC INDUSTRIES, INC.

TEST DATA

ON

2.0 TO 18.0 GHz

6nS ULTRA-HIGH SPEED

MINIATURE

ECL OUTPUT LOGIC

WITH

-20dBm TO +10dBm DYNAMIC RANGE

THRESHOLD DETECTOR

PMI MODEL No: TD-30E-SHS-218

(Serial Number: 50943)

**DESIGNED BY
A. K. GORWARA**

**TESTED BY
R. AFABLE**

**REPORTED BY
P. WOOD**

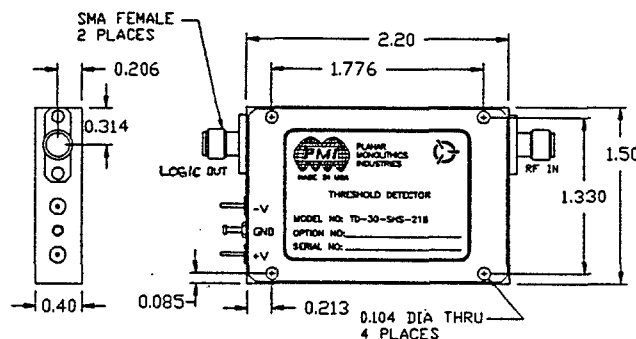
NOVEMBER 22, 1995

**PLANAR MONOLITHICS INDUSTRIES, INC.
1112 PERKIOMENVILLE ROAD, PERKIOMENVILLE, PA 18074
SALES OFFICE: 301-662-4700, FAX: 301-662-4938**



6nS ULTRA-HIGH SPEED, 2.0 TO 18.0 GHz THRESHOLD DETECTOR

- 2.0 To 18.0 GHz
- 6nS Propagation Delay
- -20 TO +10dBm Dynamic Range
- ECL or TTL Logic Output
- Miniature Size



PMI MODEL No: TD-30E-SHS-218

(ECL LOGIC VERSION, TTL ALSO AVAILABLE)

SPECIFICATIONS:

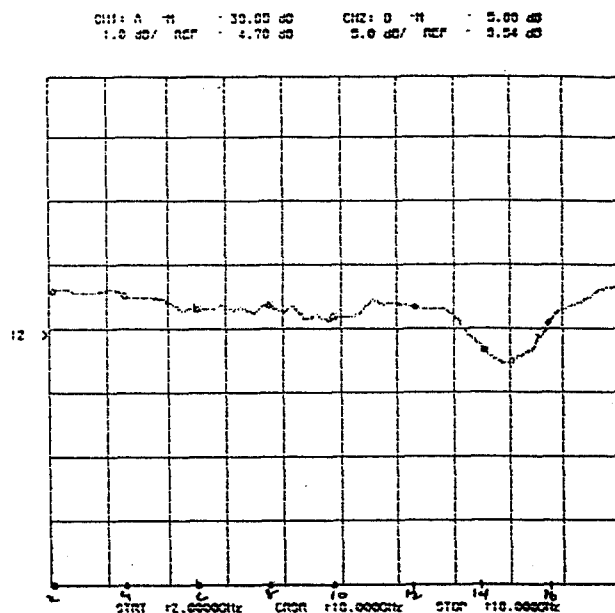
● FREQUENCY RANGE	:	2.0 TO 18.0 GHz (USABLE DOWN TO 0.5 GHz)
● VSWR	:	3.0:1 @ -20 dBm
● MINIMUM SIGNAL LEVEL FOR LOGIC 1	:	-20 dBm @ 2 GHz
● MINIMUM SIGNAL LEVEL FOR LOGIC 0	:	-17 dBm @ 18 GHz
● THRESHOLD VARIATION OVER FREQUENCY FOR ANY 1 GHz WINDOW	:	-25 dBm
● PROPAGATION DELAY FROM 50% LOGIC OUTPUT ON LEADING EDGE FOR AN INPUT OF -20 dBm	:	±0.5 dB
● PROPAGATION DELAY FROM 50% RF INPUT TO 50% LOGIC WHEN INPUT IS +10 dBm	:	6 nS MAX., 4nS TYP.
● OUTPUT PULSE WIDTH (50% POINTS) WHEN INPUT IS BETWEEN -20 dBm TO -10 dBm	:	6 nS MAX., 4nS TYP.
● OUTPUT PULSE WIDTH (50% POINTS) WHEN INPUT IS BETWEEN -20 dBm TO +10 dBm	:	WITHIN 10 nS OF INPUT PULSE WIDTH
● DC POWER (NO LOAD)	:	WITHIN 25 nS OF INPUT PULSE WIDTH
● SIZE/WEIGHT	:	±15 vdc @ ±100 mA MAX., ±50 mA TYP.
	:	2.2" X 1.5" X 0.4", ≤3 oz.

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SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 3	TECHNICIAN: RENE AFABLE

RETURN LOSS @ -20 dBm INPUT POWER



FREQUENCY	RETURN LOSS
2.0 GHz	-6.41 dBr
4.0 GHz	-6.73 dBr
6.0 GHz	-7.83 dBr
8.0 GHz	-7.56 dBr
10.0 GHz	-8.49 dBr
12.0 GHz	-7.64 dBr
14.0 GHz	-10.85 dBr
16.0 GHz	-8.66 dBr
18.0 GHz	-5.88 dBr

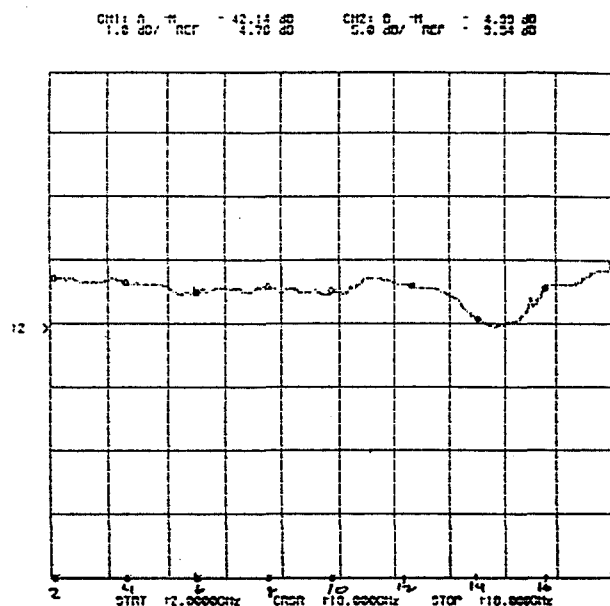
OCTOBER 15, 1995

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SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 4	TECHNICIAN: RENE AFABLE

RETURN LOSS @ -10 dBm INPUT POWER



FREQUENCY	RETURN LOSS
2.0 GHz	-5.81 dBr
4.0 GHz	-6.01 dBr
6.0 GHz	-6.94 dBr
8.0 GHz	-6.42 dBr
10.0 GHz	-6.78 dBr
12.0 GHz	-6.37 dBr
14.0 GHz	-9.18 dBr
16.0 GHz	-6.60 dBr
18.0 GHz	-4.99 dBr

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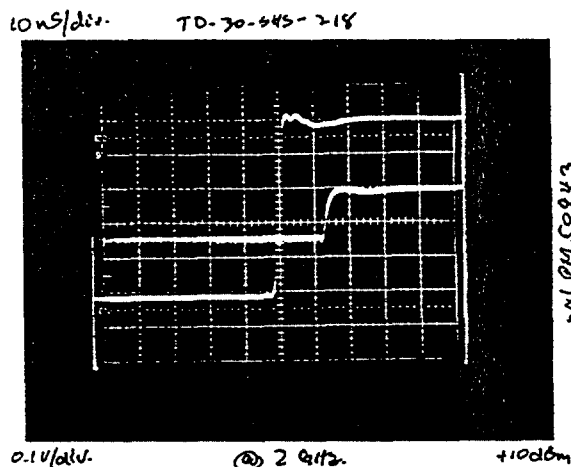


SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 5	TECHNICIAN: RENE AFABLE

PROPAGATION DELAY @ 2 GHz
PULSE LEADING EDGE

VERTICAL SCALE:
0.1 Volt Per Division

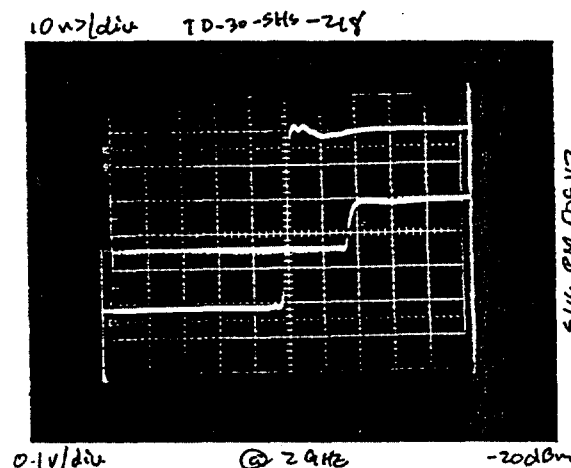
HORIZONTAL SCALE:
10nS Per Division



+10 dBm INPUT POWER

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10nS Per Division



-20 dBm INPUT POWER

(SUBTRACT 12nS DELAY THROUGH SWITCHING SET UP FOR ALL LEADING EDGE PHOTOS)

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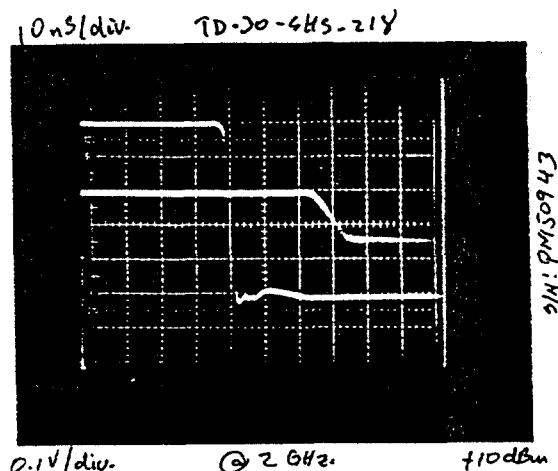


SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 6	TECHNICIAN: RENE AFABLE

PROPAGATION DELAY @ 2 GHz
PULSE TRAILING EDGE

VERTICAL SCALE:
0.1 Volt Per Division

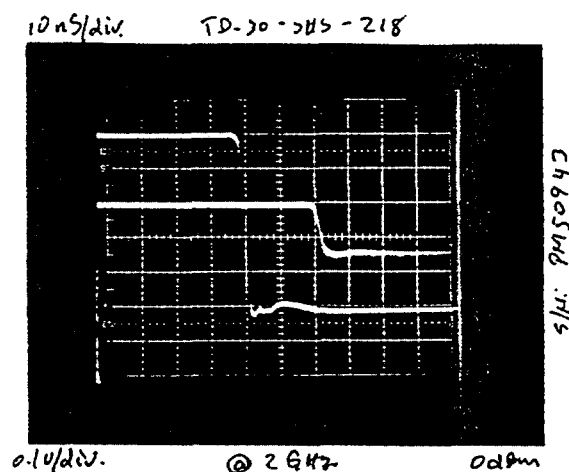
HORIZONTAL SCALE:
10nS Per Division



+ 10 dBm INPUT POWER

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10nS Per Division



0 dBm INPUT POWER

(SUBTRACT 6nS DELAY THROUGH SWITCHING SET UP FOR ALL TRAILING EDGE PHOTOS)

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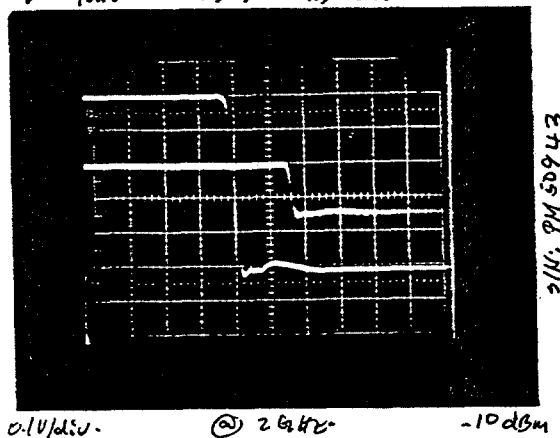
SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 7	TECHNICIAN: RENE AFABLE

PROPAGATION DELAY @ 2 GHz
PULSE TRAILING EDGE

10 ns/div TD-30-SHS-218

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10 ns Per Division

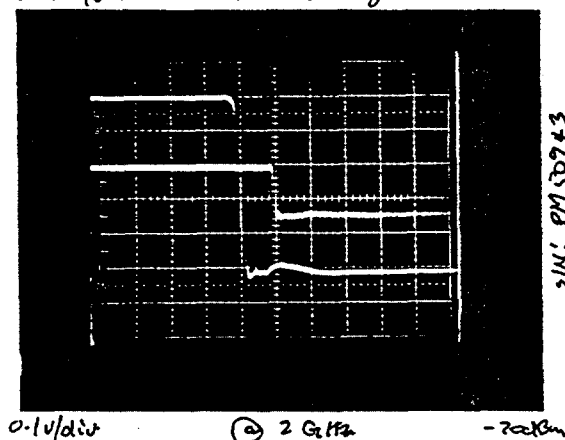


-10 dBm INPUT POWER

10 ns/div TD-30-SHS-218

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10 ns Per Division



-20 dBm INPUT POWER

(SUBTRACT 6 ns DELAY THROUGH SWITCHING SET UP FOR ALL TRAILING EDGE PHOTOS)

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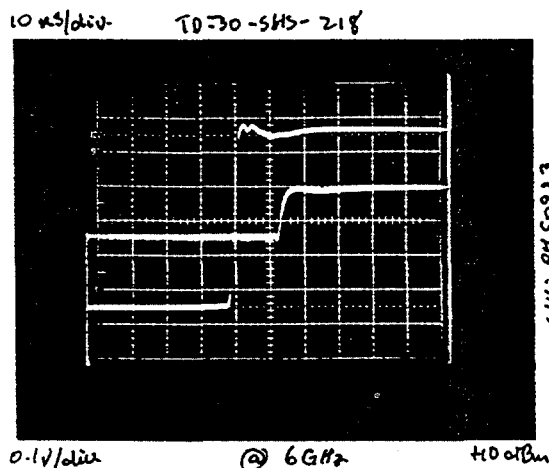


SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 8	TECHNICIAN: RENE AFABLE

PROPAGATION DELAY @ 6 GHz
PULSE LEADING EDGE

VERTICAL SCALE:
0.1 Volt Per Division

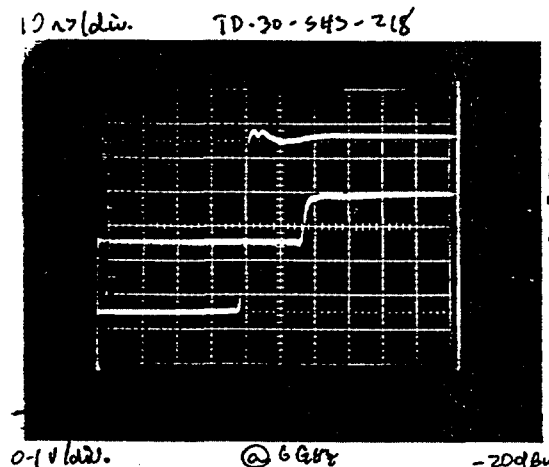
HORIZONTAL SCALE:
10nS Per Division



+10 dBm INPUT POWER

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10nS Per Division



-20 dBm INPUT POWER

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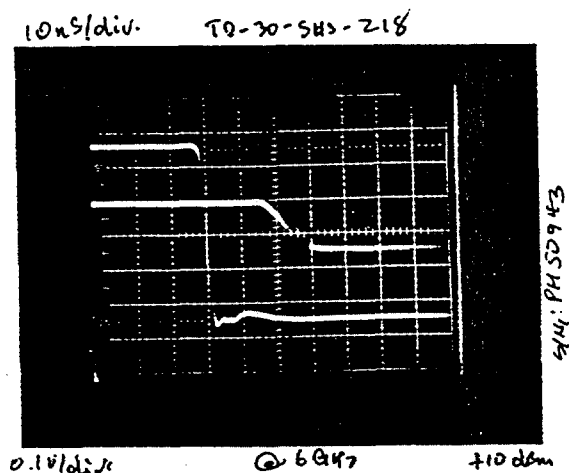


SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 9	TECHNICIAN: RENE AFABLE

PROPAGATION DELAY @ 6 GHz
PULSE TRAILING EDGE

VERTICAL SCALE:
0.1 Volt Per Division

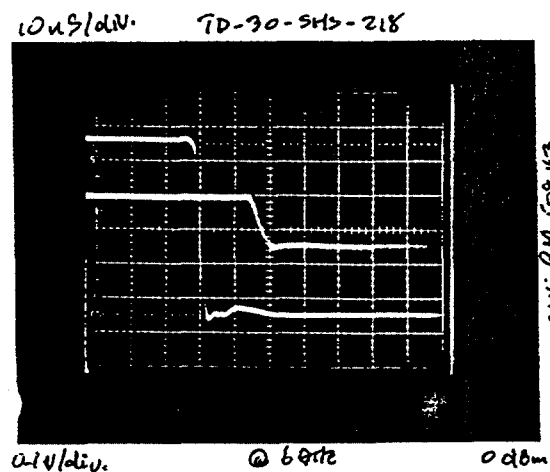
HORIZONTAL SCALE:
10ns Per Division



+ 10 dBm INPUT POWER

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10ns Per Division



0 dBm INPUT POWER

(SUBTRACT 6ns DELAY THROUGH SWITCHING SET UP FOR ALL TRAILING EDGE PHOTOS)

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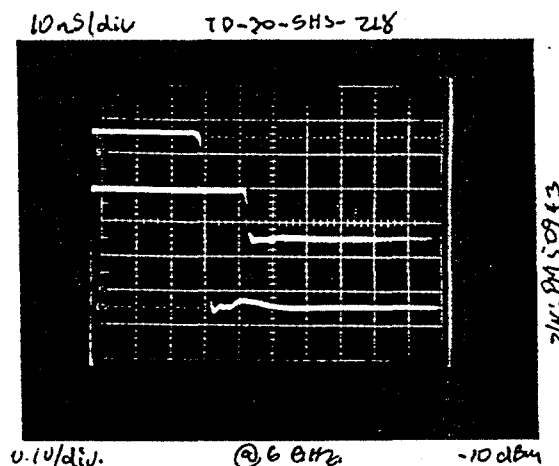


SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 10	TECHNICIAN: RENE AFABLE

PROPAGATION DELAY @ 6 GHz
PULSE TRAILING EDGE

VERTICAL SCALE:
0.1 Volt Per Division

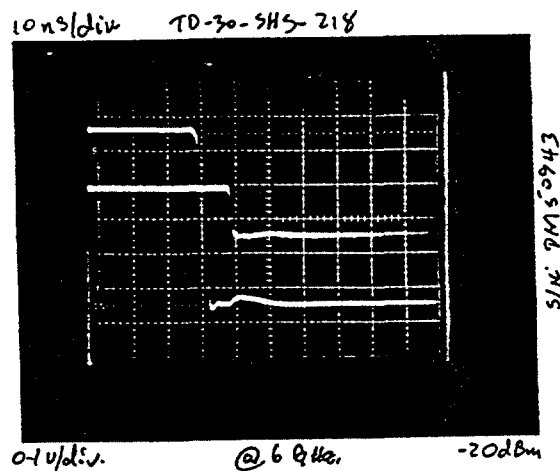
HORIZONTAL SCALE:
10nS Per Division



-10 dBm INPUT POWER

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10nS Per Division



-20 dBm INPUT POWER

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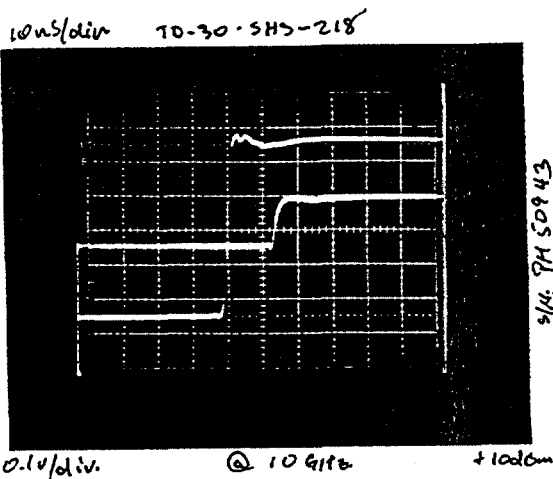


SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 11	TECHNICIAN: RENE AFABLE

PROPAGATION DELAY @ 10 GHz
PULSE LEADING EDGE

VERTICAL SCALE:
0.1 Volt Per Division

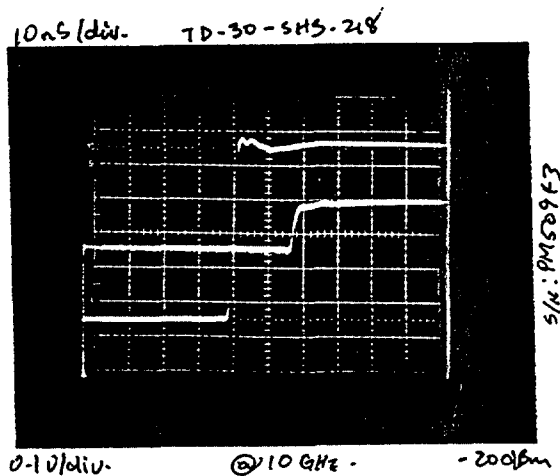
HORIZONTAL SCALE:
10nS Per Division



+10 dBm INPUT POWER

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10nS Per Division



-20 dBm INPUT POWER

(SUBTRACT 12nS DELAY THROUGH SWITCHING SET UP FOR ALL LEADING EDGE PHOTOS)

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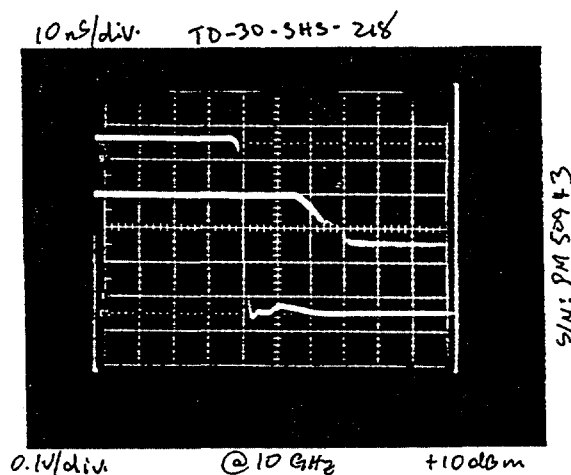


SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 12	TECHNICIAN: RENE AFABLE

PROPAGATION DELAY @ 10 GHz
PULSE TRAILING EDGE

VERTICAL SCALE:
0.1 Volt Per Division

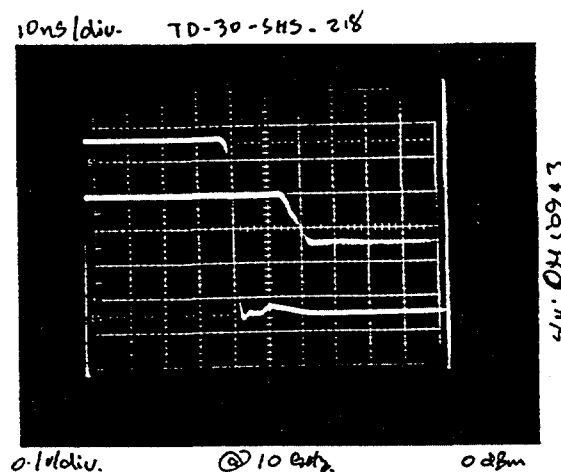
HORIZONTAL SCALE:
10nS Per Division



+ 10 dBm INPUT POWER

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10nS Per Division



0 dBm INPUT POWER

(SUBTRACT 6nS DELAY THROUGH SWITCHING SET UP FOR ALL TRAILING EDGE PHOTOS)

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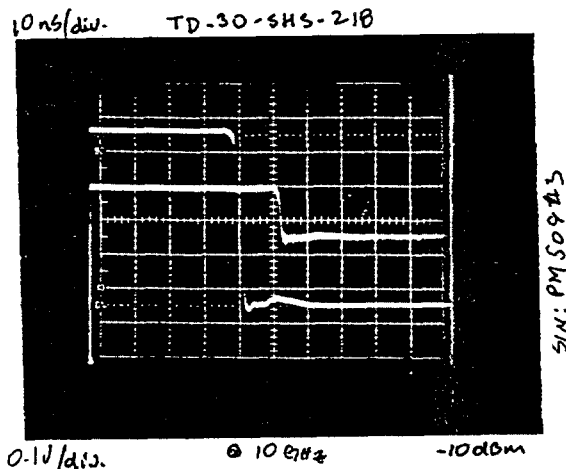


SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 13	TECHNICIAN: RENE AFABLE

PROPAGATION DELAY @ 10 GHz
PULSE TRAILING EDGE

VERTICAL SCALE:
0.1 Volt Per Division

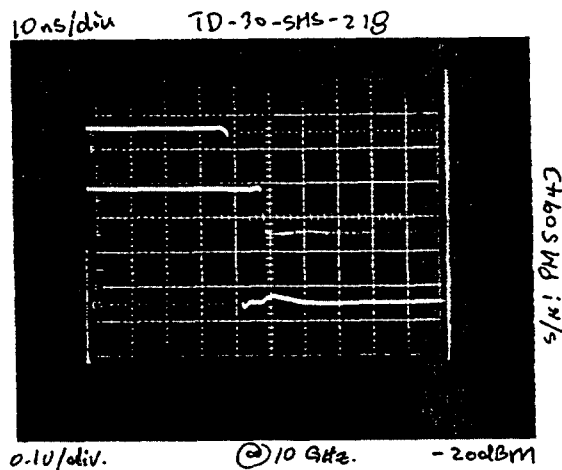
HORIZONTAL SCALE:
10ns Per Division



-10 dBm INPUT POWER

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10ns Per Division



-20 dBm INPUT POWER

(SUBTRACT 6ns DELAY THROUGH SWITCHING SET UP FOR ALL TRAILING EDGE PHOTOS)

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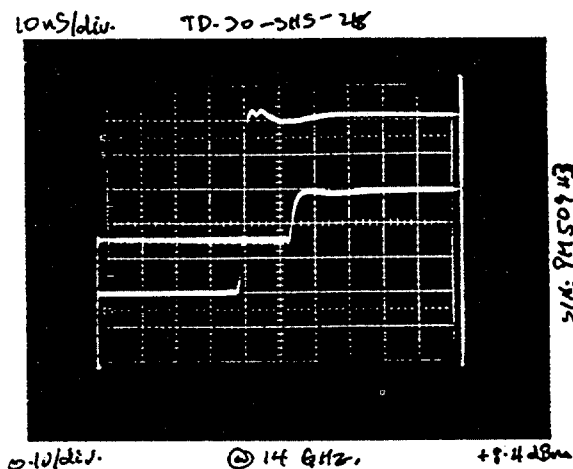


SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 14	TECHNICIAN: RENE AFABLE

PROPAGATION DELAY @ 14 GHz
PULSE LEADING EDGE

VERTICAL SCALE:
0.1 Volt Per Division

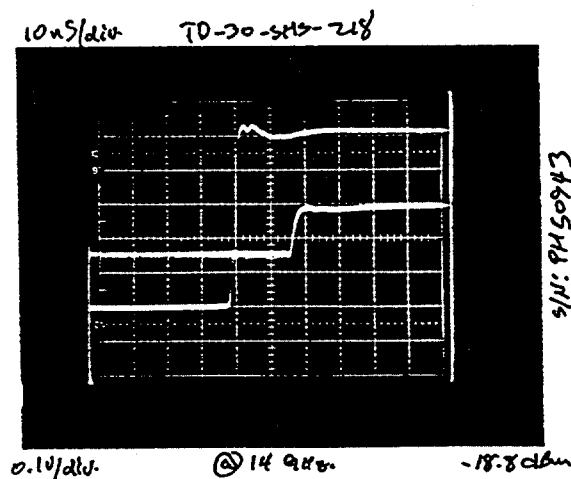
HORIZONTAL SCALE:
10ns Per Division



+8.4 dBm INPUT POWER

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10ns Per Division



-18.8 dBm INPUT POWER

(SUBTRACT 12ns DELAY THROUGH SWITCHING SET UP FOR ALL LEADING EDGE PHOTOS)

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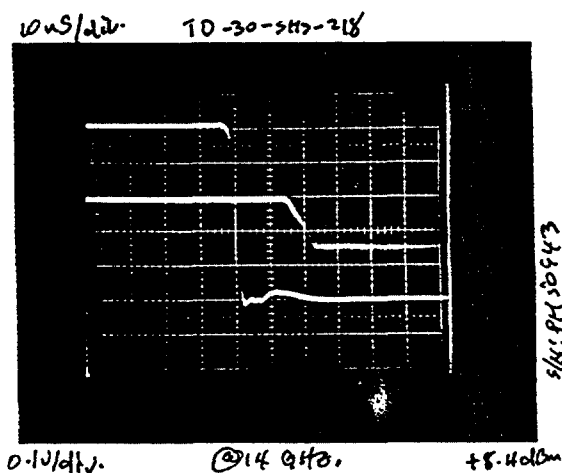


SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 15	TECHNICIAN: RENE AFABLE

PROPAGATION DELAY @ 14 GHz
PULSE TRAILING EDGE

VERTICAL SCALE:
0.1 Volt Per Division

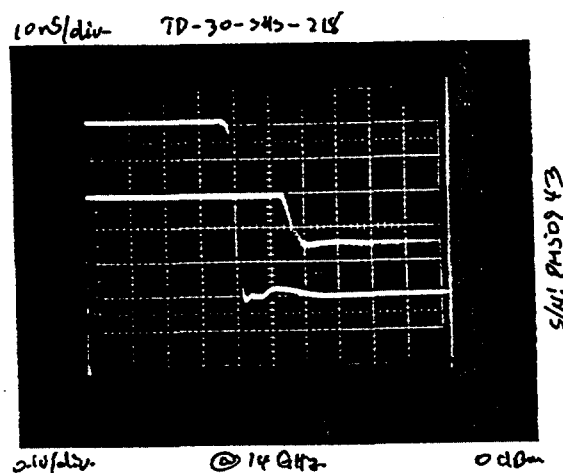
HORIZONTAL SCALE:
10nS Per Division



+8.4 dBm INPUT POWER

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10nS Per Division



0 dBm INPUT POWER

(SUBTRACT 6nS DELAY THROUGH SWITCHING SET UP FOR ALL TRAILING EDGE PHOTOS)

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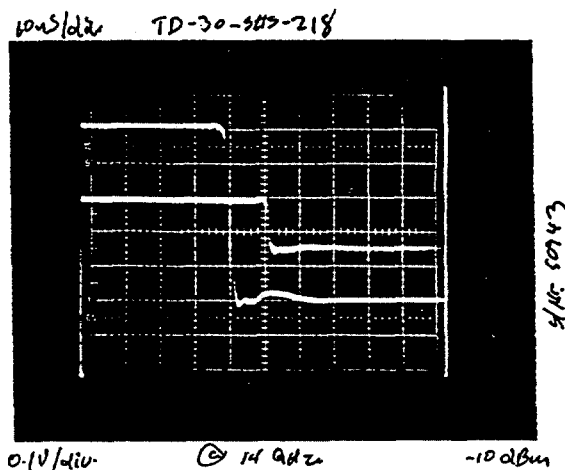


SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 16	TECHNICIAN: RENE AFABLE

PROPAGATION DELAY @ 14 GHz
PULSE TRAILING EDGE

VERTICAL SCALE:
0.1 Volt Per Division

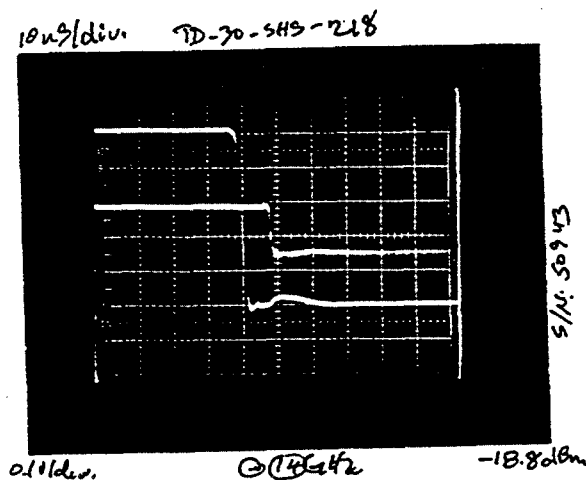
HORIZONTAL SCALE:
10ns Per Division



-10 dBm INPUT POWER

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10ns Per Division



-18.8 dBm INPUT POWER

(SUBTRACT 6ns DELAY THROUGH SWITCHING SET UP FOR ALL TRAILING EDGE PHOTOS)

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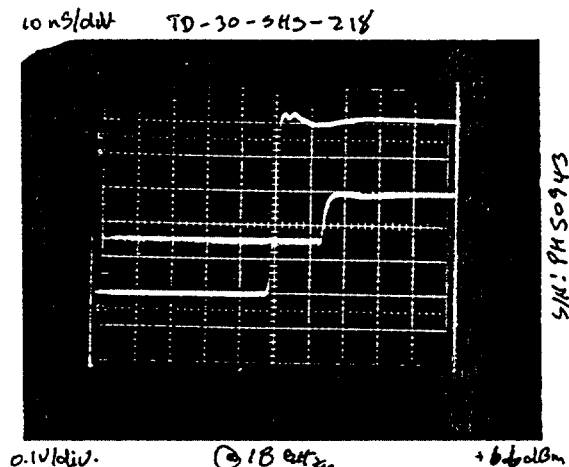


SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 17	TECHNICIAN: RENE AFABLE

PROPAGATION DELAY @ 18 GHz
PULSE LEADING EDGE

VERTICAL SCALE:
0.1 Volt Per Division

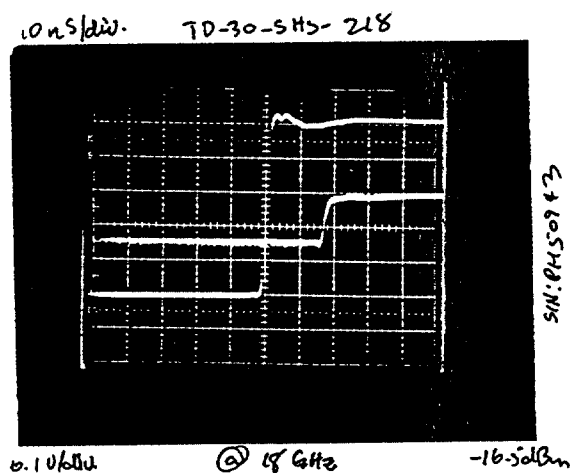
HORIZONTAL SCALE:
10ns Per Division



+6.6 dBm INPUT POWER

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10ns Per Division



-16.5 dBm INPUT POWER

(SUBTRACT 12ns DELAY THROUGH SWITCHING SET UP FOR ALL LEADING EDGE PHOTOS)

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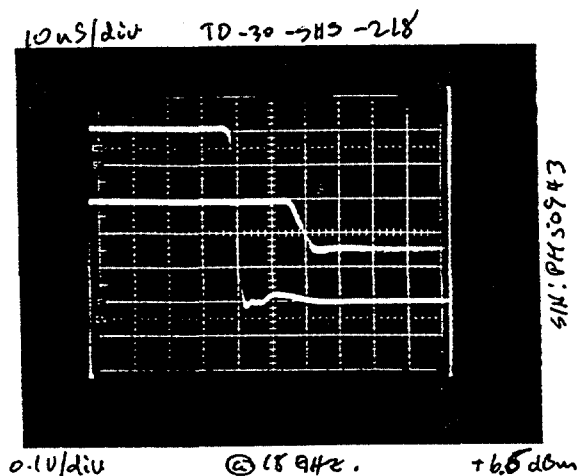


SUMMARY TEST DATA	THRESHOLD DETECTOR
MODEL No: TD-30E-SHS-218	SERIAL No: PM50943
PAGE: 18	TECHNICIAN: RENE AFABLE

PROPAGATION DELAY @ 18 GHz
PULSE TRAILING EDGE

VERTICAL SCALE:
0.1 Volt Per Division

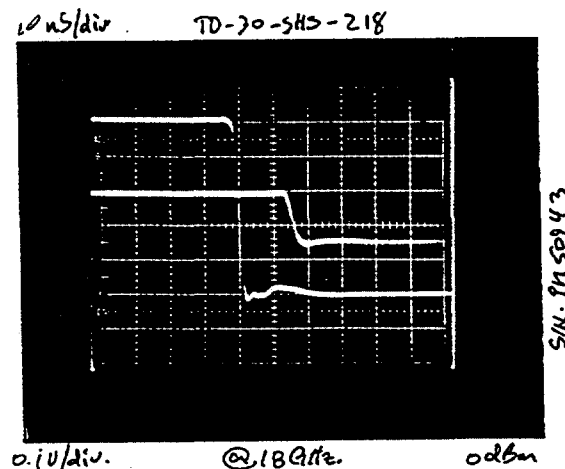
HORIZONTAL SCALE:
10nS Per Division



+ 6.5 dBm INPUT POWER

VERTICAL SCALE:
0.1 Volt Per Division

HORIZONTAL SCALE:
10nS Per Division



0 dBm INPUT POWER

(SUBTRACT 6nS DELAY THROUGH SWITCHING SET UP FOR ALL TRAILING EDGE PHOTOS)

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