

January 24, 2002

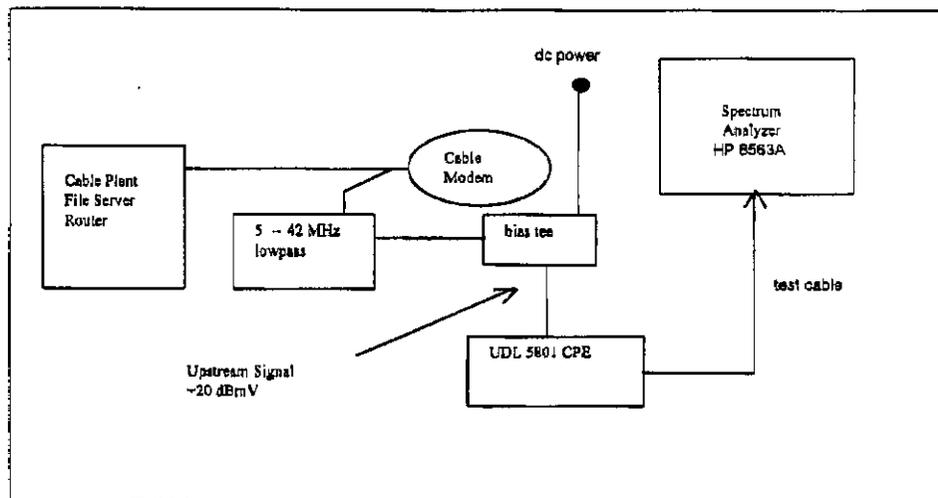
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 Phone: (978) 635-8542
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Of Pages: 27

Nick,

I've completed the set of measurements for you to look at. Below is a diagram of the test set-up.



The 5801 CPE is configured for maximum transmitter power via switches in the access panel. Transmit output power measured at spectrum analyzer (in 1 MHz BW) including test cable loss is .67 dBm + 2.0 dBm = 2.67 dBm. To correct for the 3.2 MHz occupied bandwidth I add 5.05 dB (10 Log 3.2). Thus, the total average power calculates to be 2.67 + 5.05 = 7.72 dBm. I use a 6.6 dB peak-to-average factor (2.6 dB for 16 QAM and 4.0 dB for raised cosine pulses with an excess bandwidth of 25%). Therefore the peak transmitter power is calculated to be: 7.72 + 6.6 = 14.77 dBm peak.

S1 through S11 are the data taken for a 5727.000 MHz modulated carrier. S1 shows the spectra using a 1 MHz RBW and a 5 MHz span. S10 shows the entire 5725 to 5825 MHz band. S2 and S11 show the emissions within the 10 MHz bands below and above the pass band. It is apparent the worst-case emissions are represented in the data of S2 (the 10 MHz below the pass band). S5 shows the lower 10 MHz out-of-band emissions using a 100 KHz RBW. S6, S7, and S8 show the measurements taken from 5722 MHz to 5725 MHz using 100 KHz RBW. S9 shows the format I used to calculate the power in each MHz.

S12, S13, and S14 show the reduction in emissions when the transmit power is reduced via the access panel switches.

S15, S16, S17, and S18 are plots with a 5733.000 MHz modulated carrier. S19, S20, S21, and S22 are plots with a 5740.000 MHz modulated carrier.

Test Equipment:

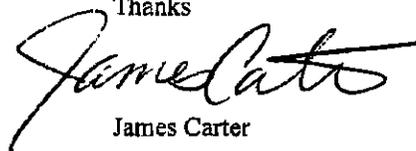
Spectrum Analyzer HP 8563A
S/N 3222A02237
Calibration Date 1/21/2002 SIMCO Electronics

Test Cable WHU18-1818-48
QMI 64023 9711

- * test cable measured and plotted using: HP8510, S/N 2622101117, Calibration due 7/5/2002
- * test Cable plots are S23, S24, S25

If you have any further questions or require another measurement, feel free to contact me.

Thanks

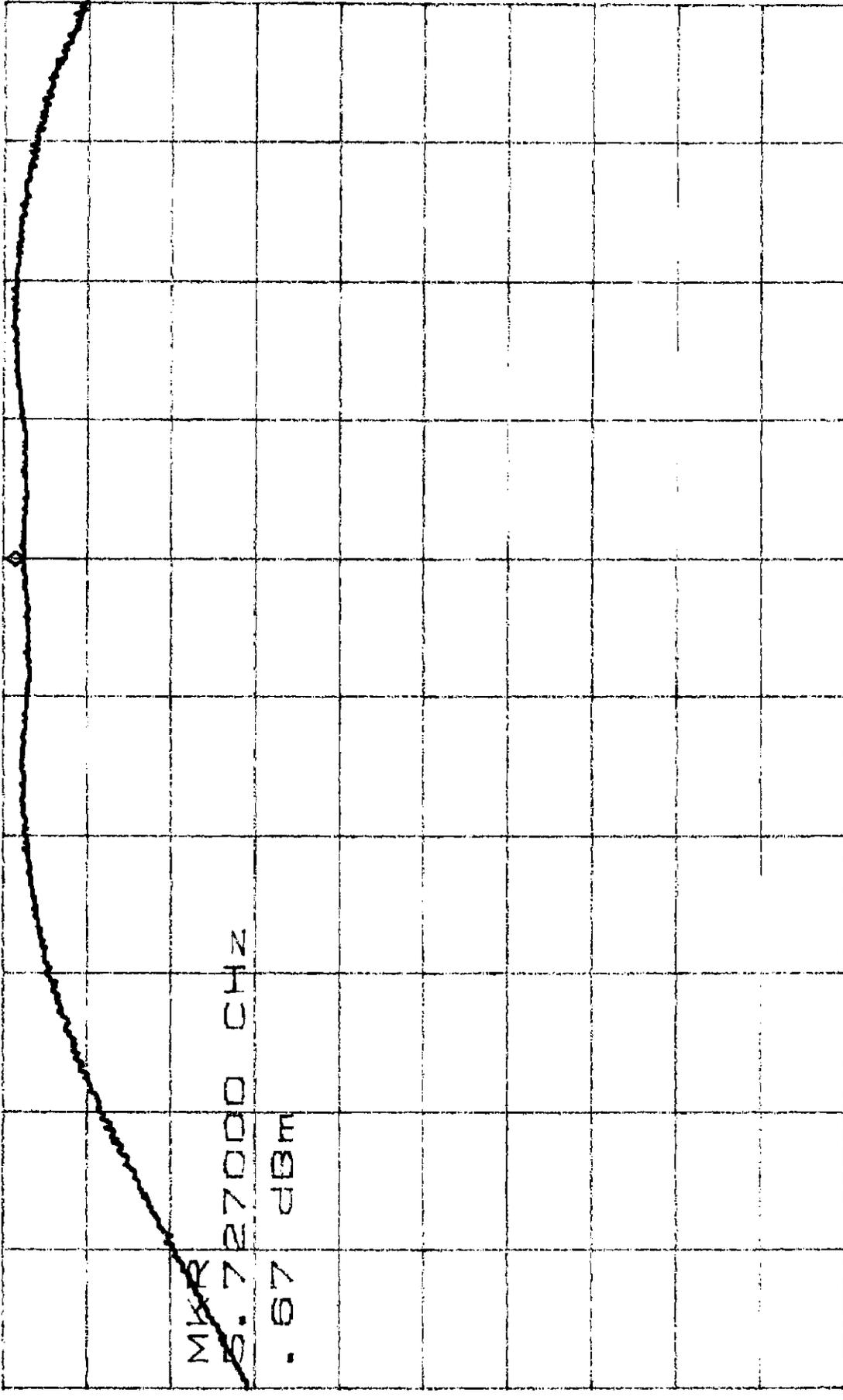


James Carter

Carrier = 5727.000 MHz

S1

ATTEN 20dB
RL 3.0dBm
MKR .67dBm
5.727000GHZ
10dB/



MKR
5.727000 CHZ
.67 dBm

START 5.724000CHZ STOP 5.729000CHZ
*RBW 1.0MHZ *VBW 3.0MHZ SWP 50ms

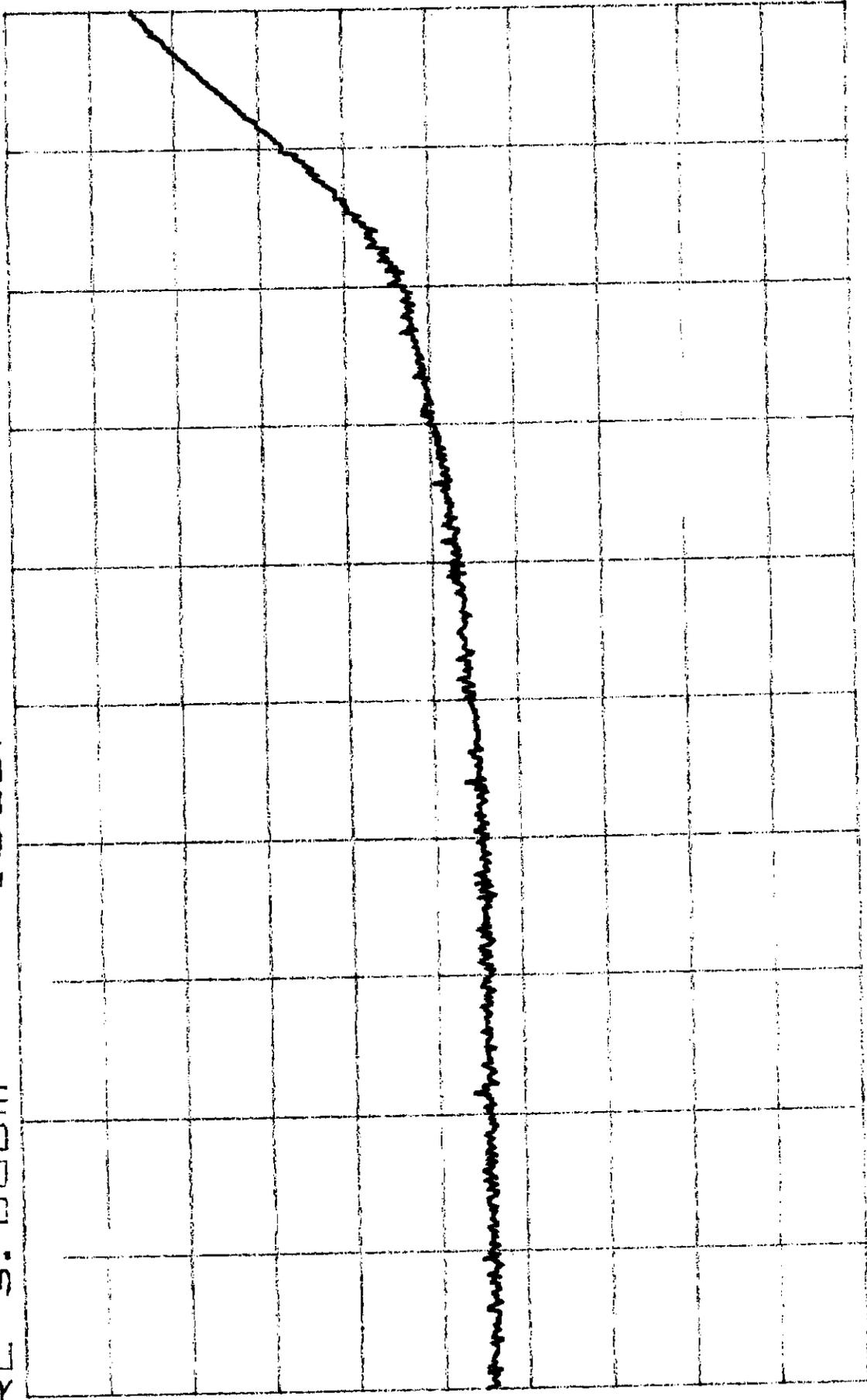
1/22/02 James White
52

Carrier = 5727.000 MHz

ATTEN 20dB

RL 3.0dBm

10dB/



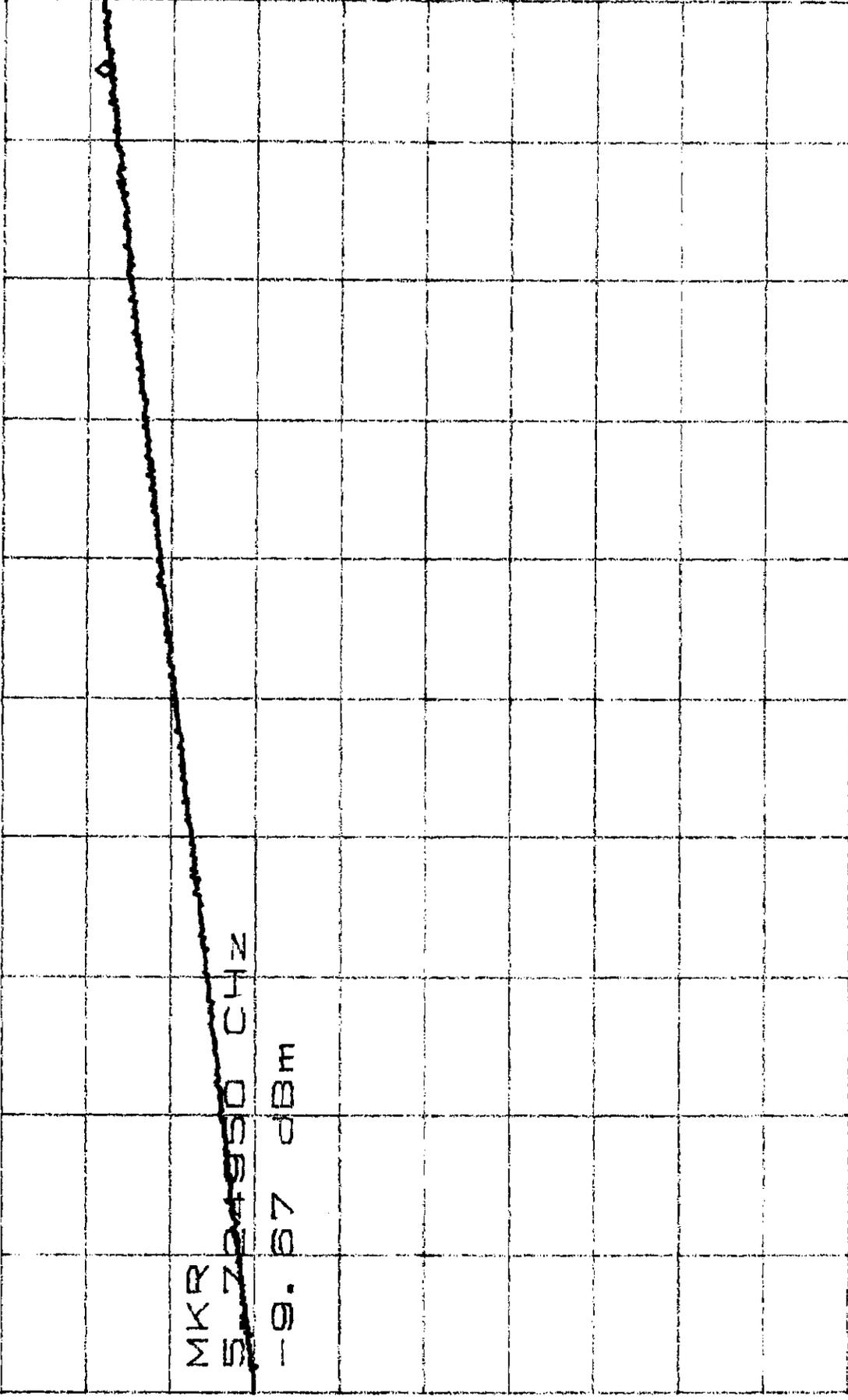
D

START 5.715000CHZ STOP 5.725000CHZ
 *RBW 1.0MHZ *VBW 3.0MHZ SWP 50ms

1/22/02 *Ymedlata*

S3

ATTEN 20dB MKR 9.67dBm
RL 3.0dBm 10dB/ 5.724950CHz



MKR
5.724950 CHz
-9.67 dBm

START 5.724000GHZ STOP 5.725000GHZ
*RBW 1.0MHZ *VBW 3.0MHZ SWP 50ms

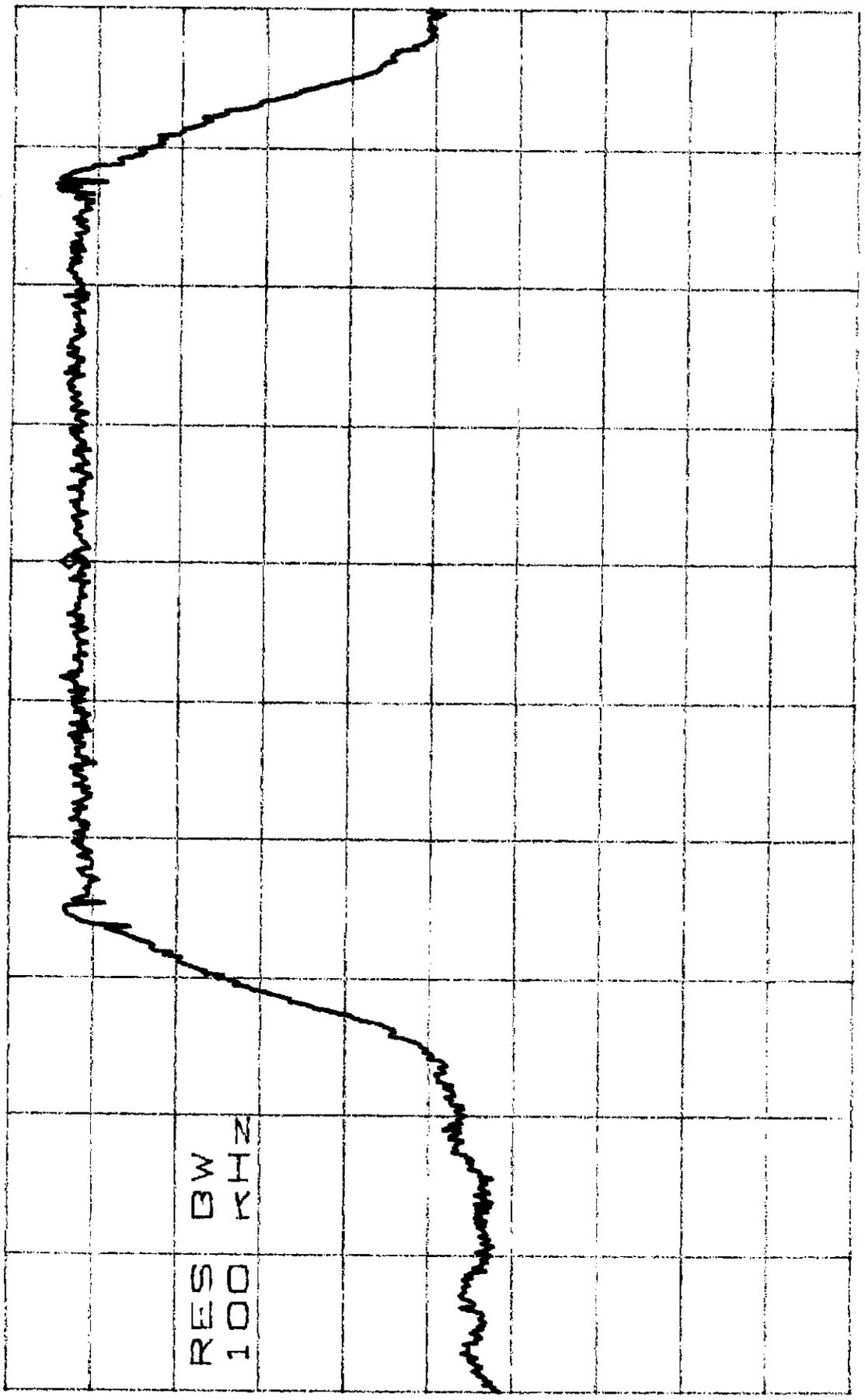
carrier = 5727 MHz

Carrier = 5727.000 MHz

1/22/02 James L. ...

54

ATTEN 20dB MKR -4.83dBm
RL 3.0dBm 5.727000GHZ
10dB/



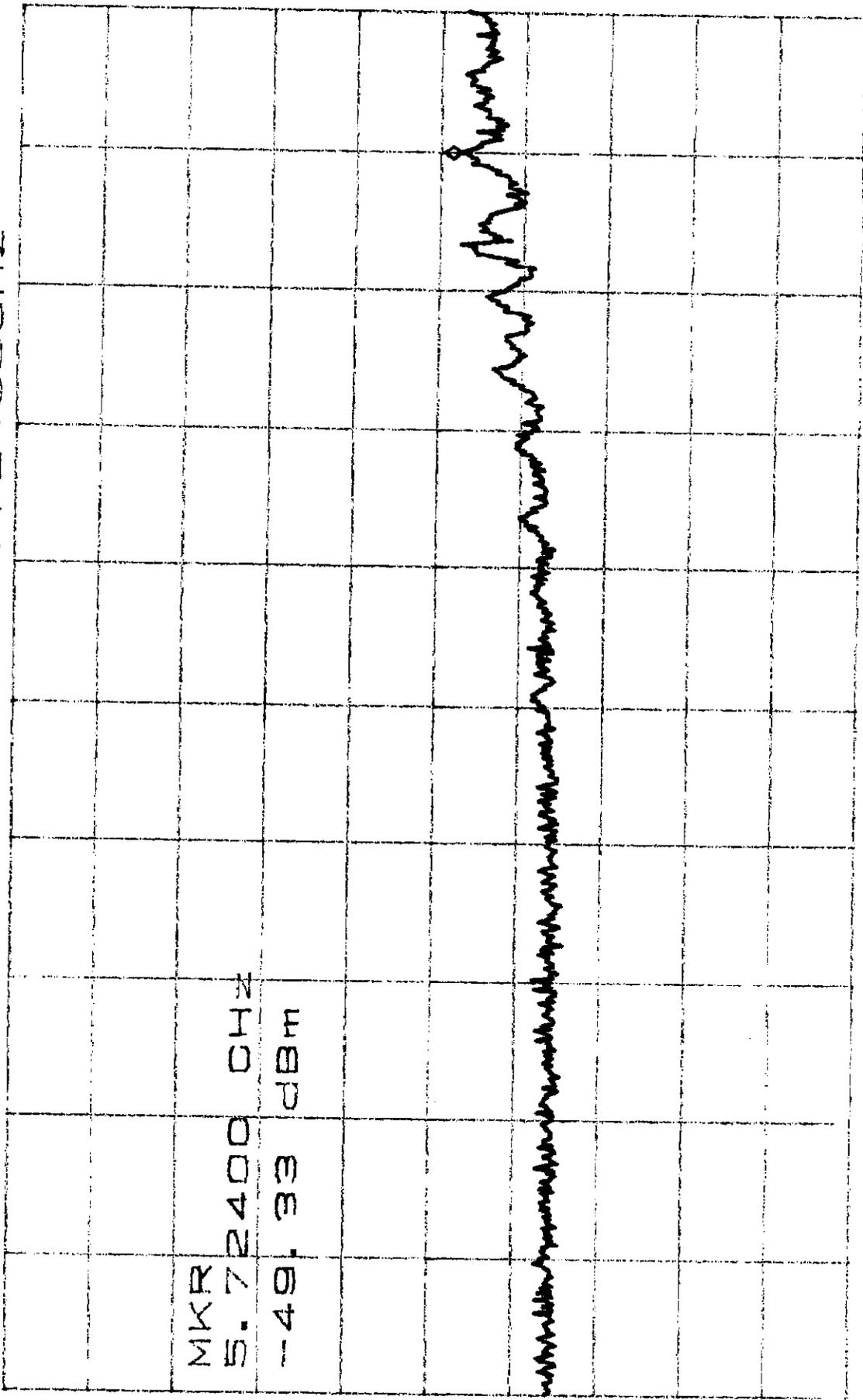
RES BW
100 KHZ

START 5.724000GHZ STOP 5.729000GHZ
*RBW 100KHZ *VBW 3.0MHZ SWP 50MS

D

1/23/02 *Yanick*
55

ATTEN 20dB MKR -49.33dBm
RL 3.0dBm 5.72400GHZ
10dB/



START 5.71500GHZ STOP 5.72500GHZ
*RBW 100KHZ *VBW 3.0MHZ SWP 50ms

Carrier @ 5727.000 MHz

D

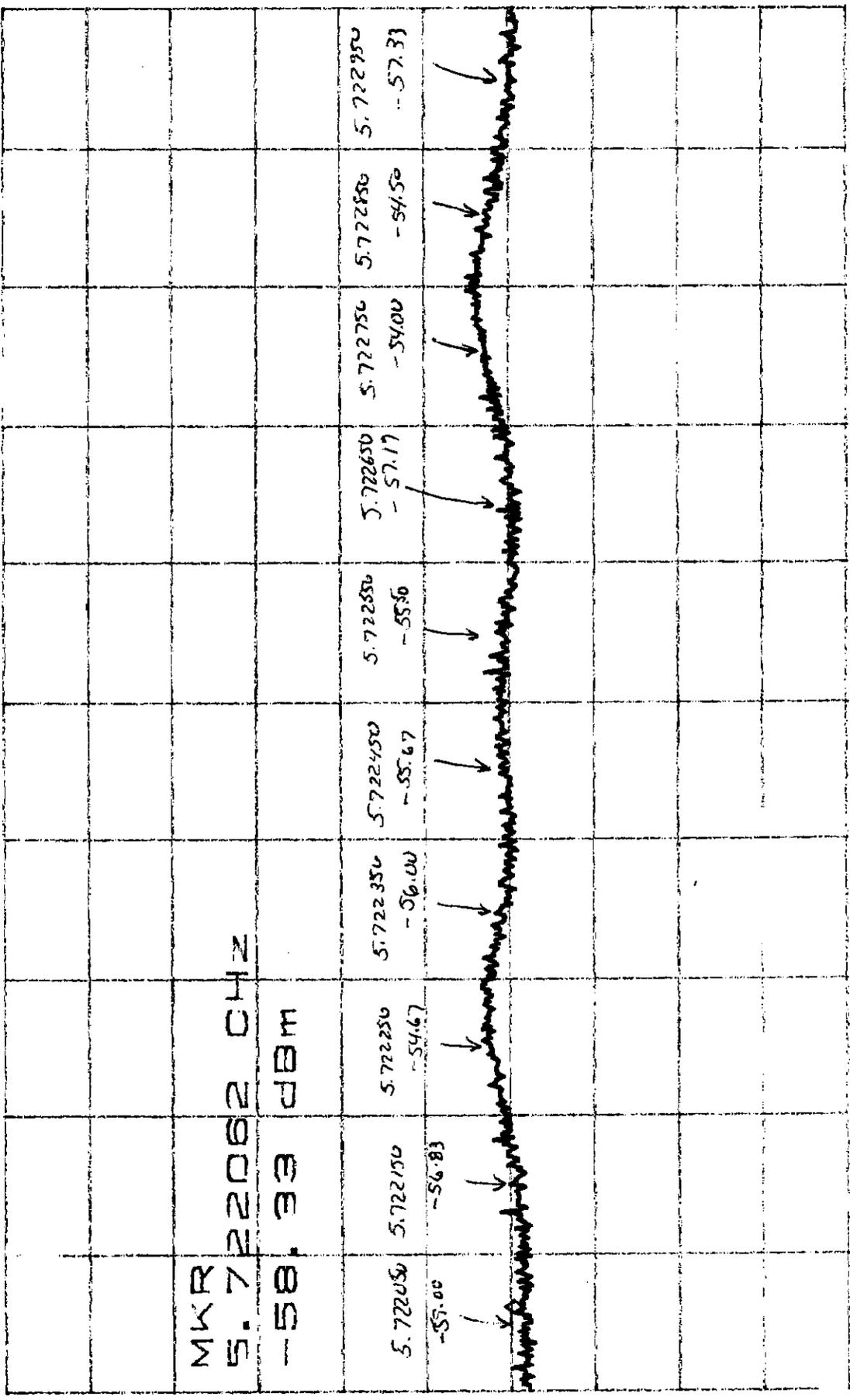
1/23/02 James C. [unclear]

F_{center} = 5727.000 MHz

56

ATTEN 20dB MKR -58.33dBm

RL 3.0dBm 10dB/ 5.722062GHz



MKR
5.722062 CHZ
-58.33 dBm

START 5.722000CHZ STOP 5.723000GHZ

*RBW 100KHZ *VBW 3.0MHZ SWP 50MS

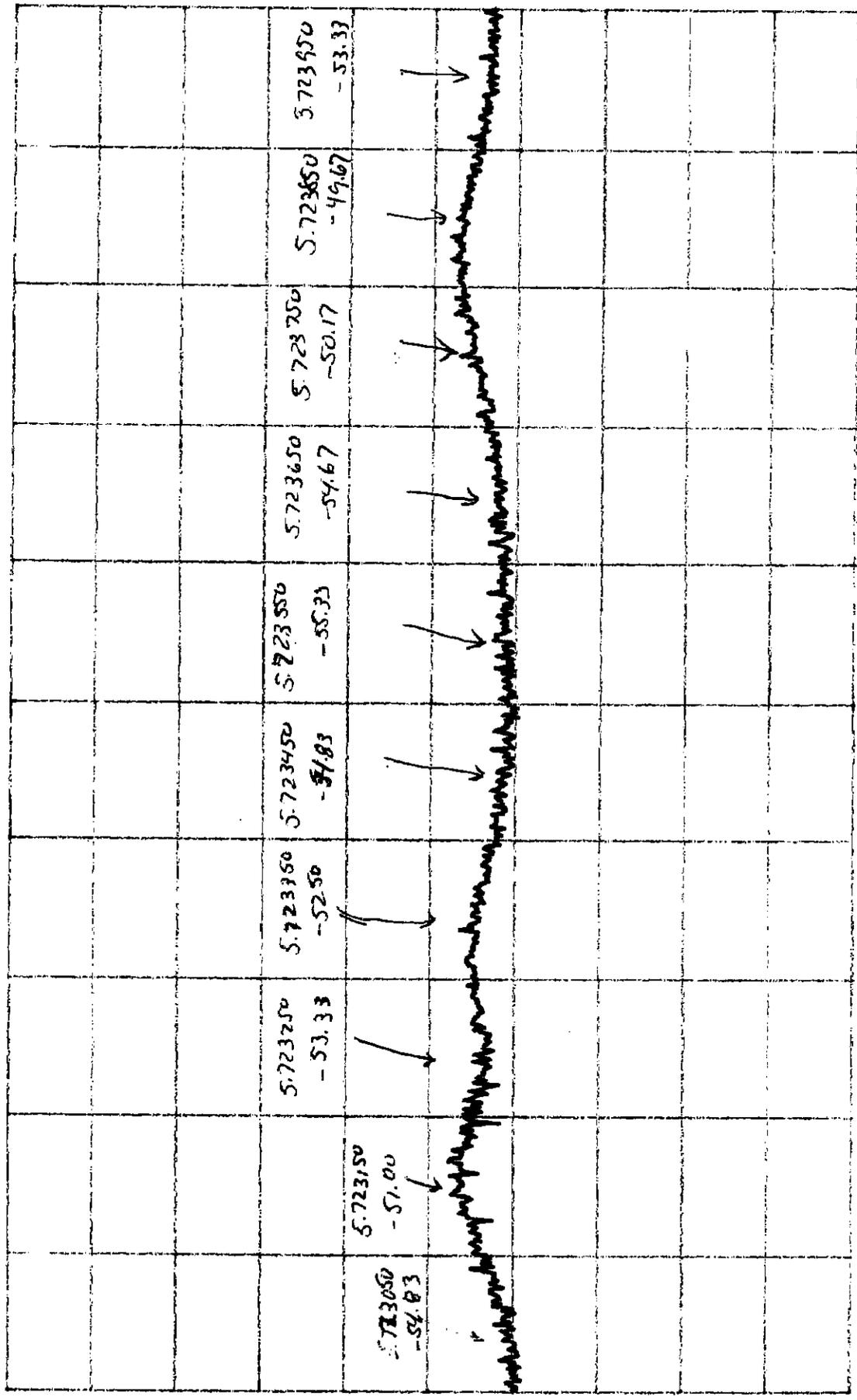
D

1/23/02 James G. [unclear]

57

F_{carrier} = 5727.000 MHz

ATTEN 20dB
RL 3.0dBm 10dB/



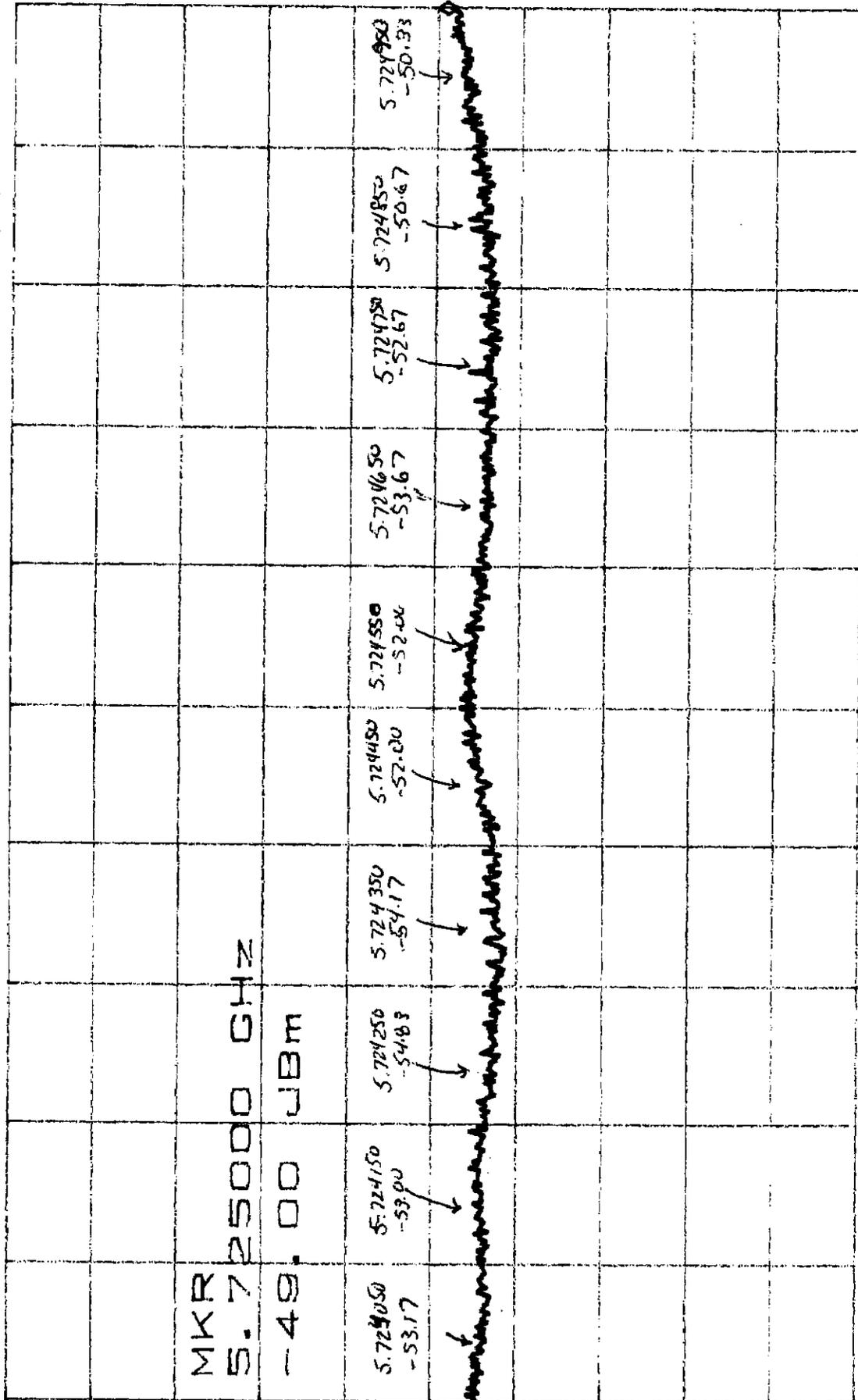
START 5.723000CHZ STOP 5.724000GHZ
*RBW 100KHZ *VBW 3.0MHZ SWP 50ms

1/24/02 JamesL...

58

F_{carrier} = 5727.000

ATTEN 20dB MKR -49.00dBm
RL 3.0dBm 5.725000GHZ
10dB/



START 5.724000GHZ STOP 5.725000GHZ
*RBW 100KHZ *VBW 3.0MHZ SWP 50MS

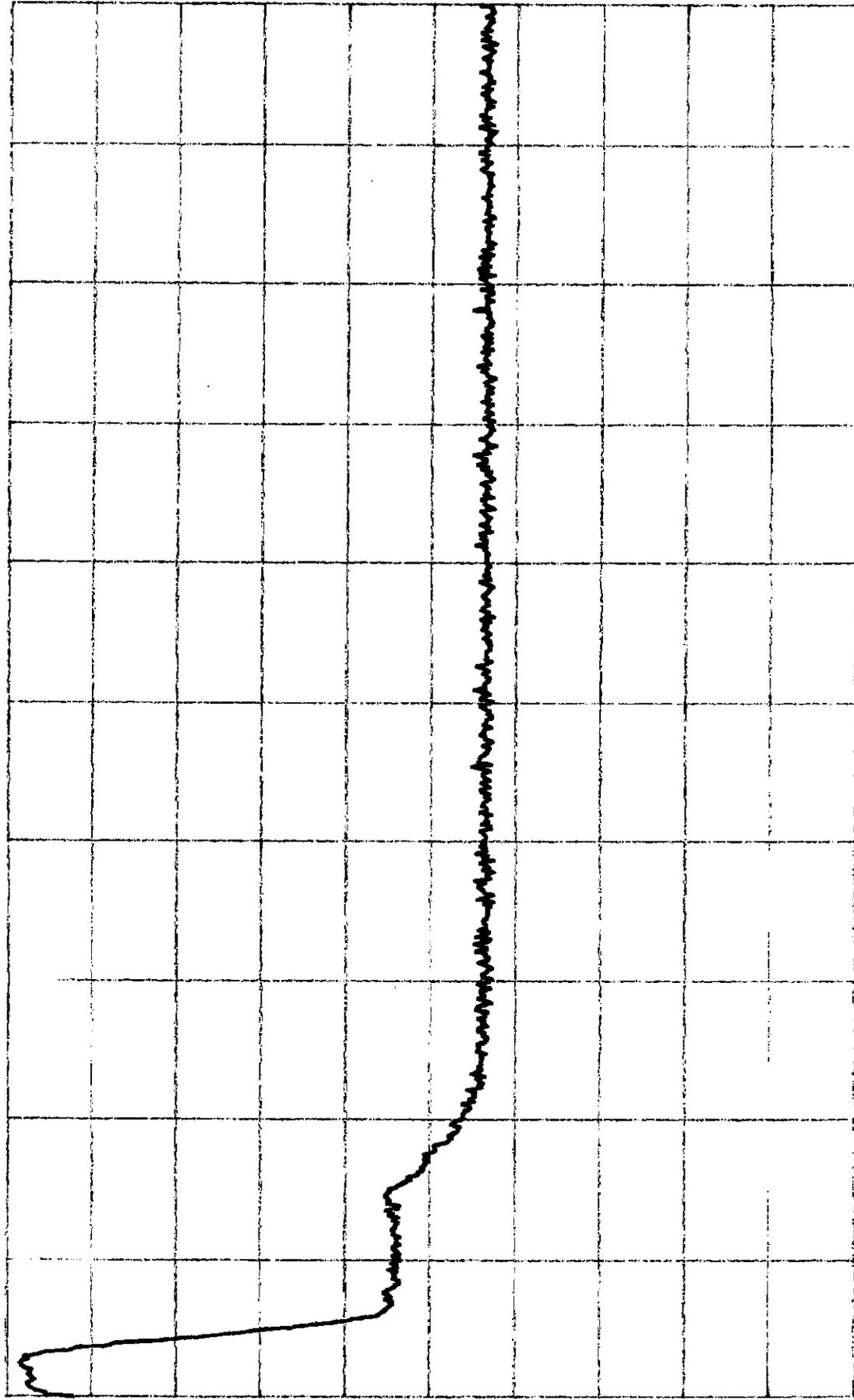
1/28/02 J. Lantz

S10

ATTEN 20dB

RL 3.0dBm

10dB/



START 5.7250CHZ STOP 5.8250CHZ
 *RBW 1.0MHZ *VBW 3.0MHZ SWP 50ms

min = 5727.000 MHz

freq = 5727.000 MHz

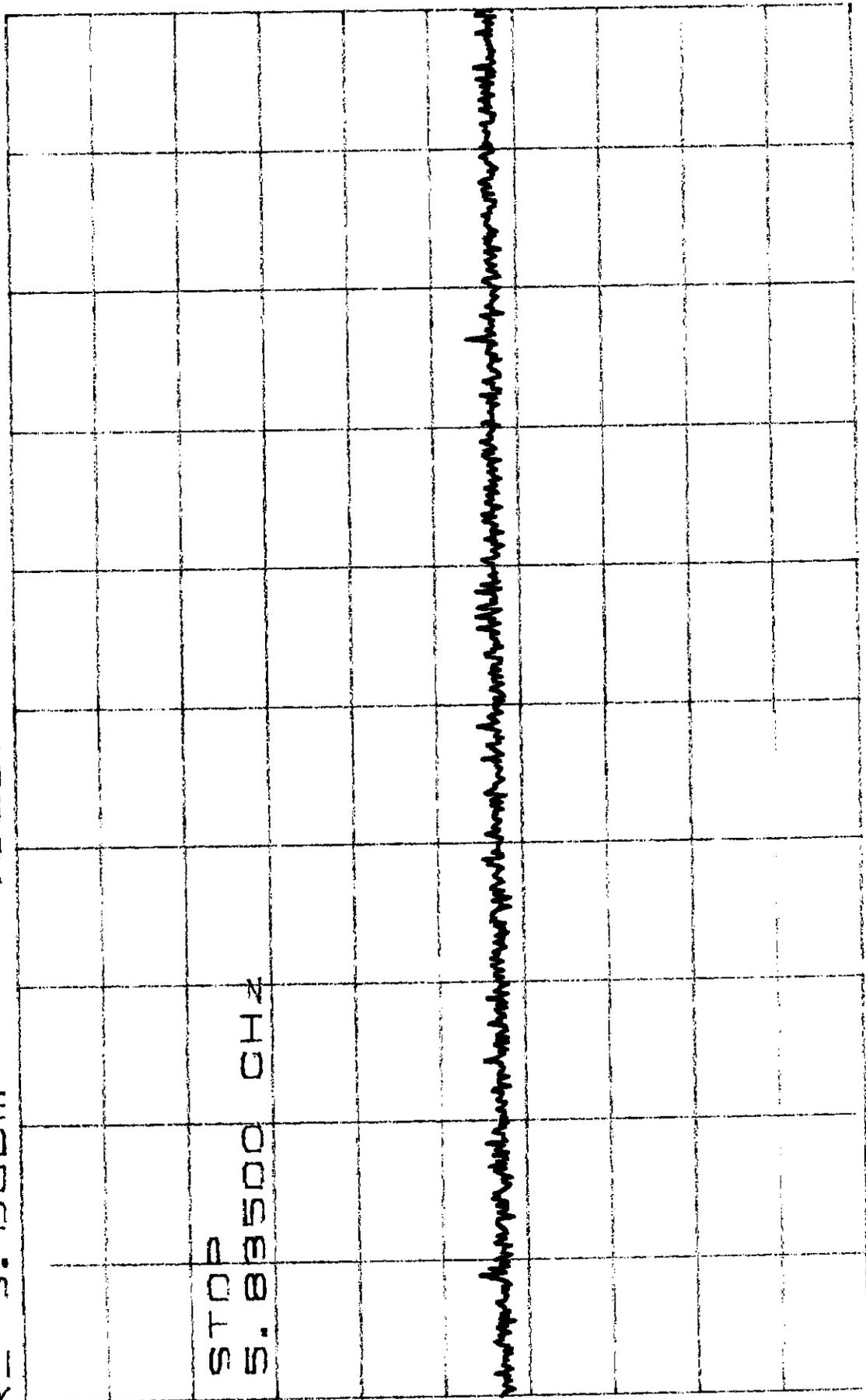
1/23/02 JLD

511

ATTEN 20dB

R_ 3.0JGm

10dB/



STOP
5.83500 CHZ

D

START 5.82500GHZ STOP 5.83500GHZ
*RBW 1.0MHZ *VBW 3.0MHZ SWP 50ms

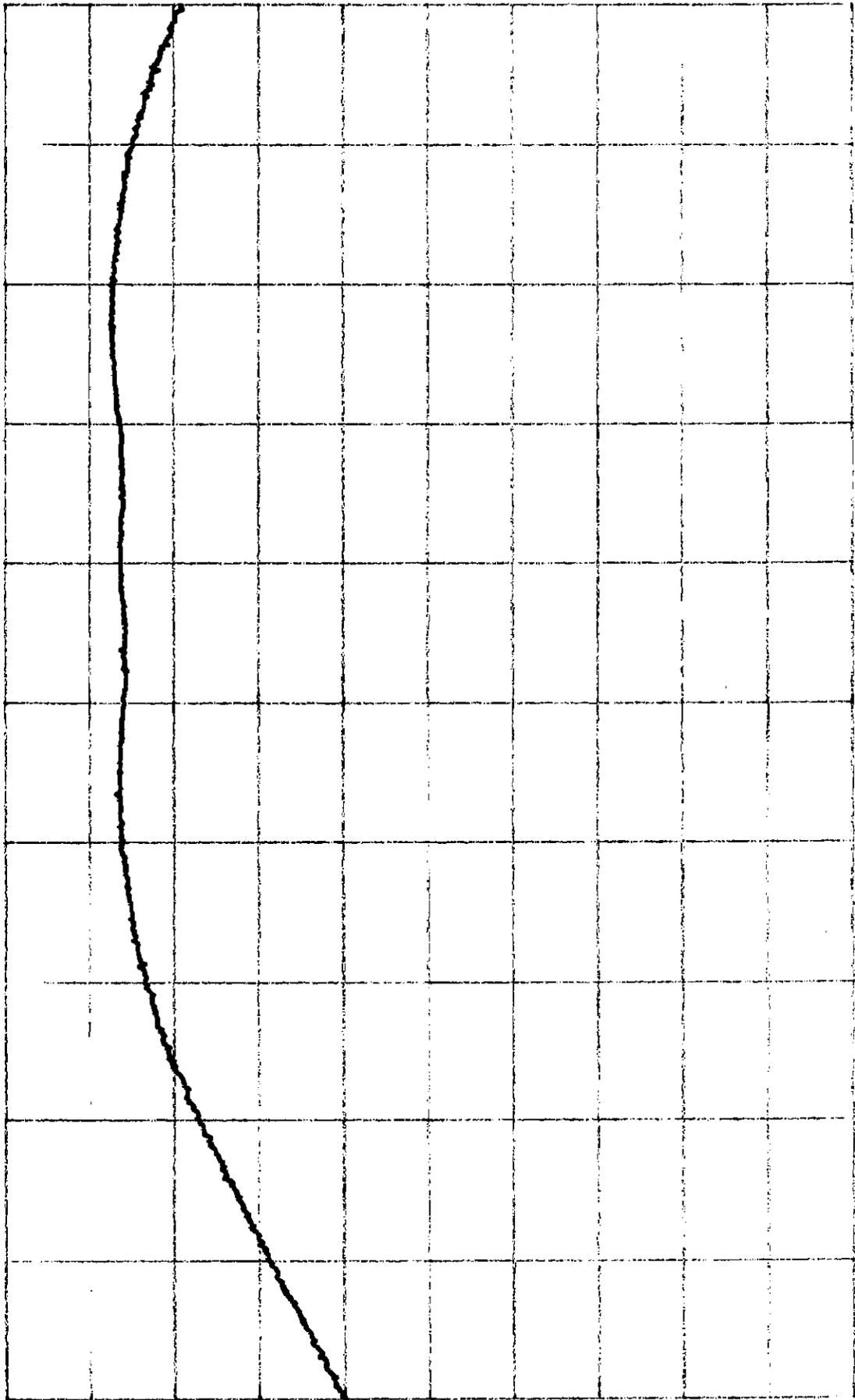
1/25/2002
Jens Carter
512

freq = 5727.000 MHz
Power reduction 10dB

ATTEN 20dB

RL 3.0dBm

10dB/



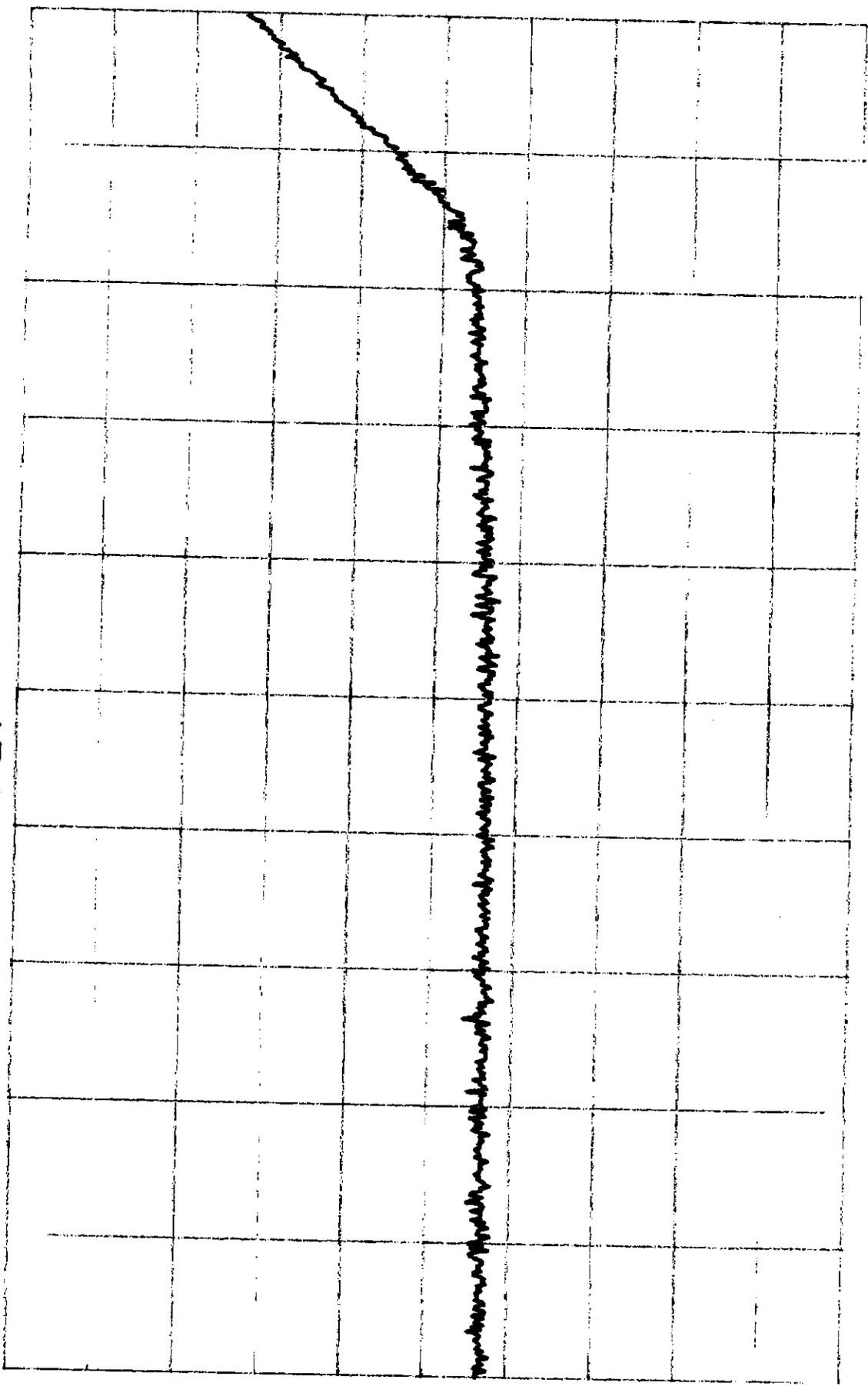
D

START 5.724000GHz STOP 5.729000GHz
*RBW 1.0MHz *VBW 3.0MHz SWP 50ms

1/23/2002 James C. [Signature]
SB

min = 5727.000 MHz
: power reduction 10dB

ATTEN 20dB
RL 3.0dBm 10dB/

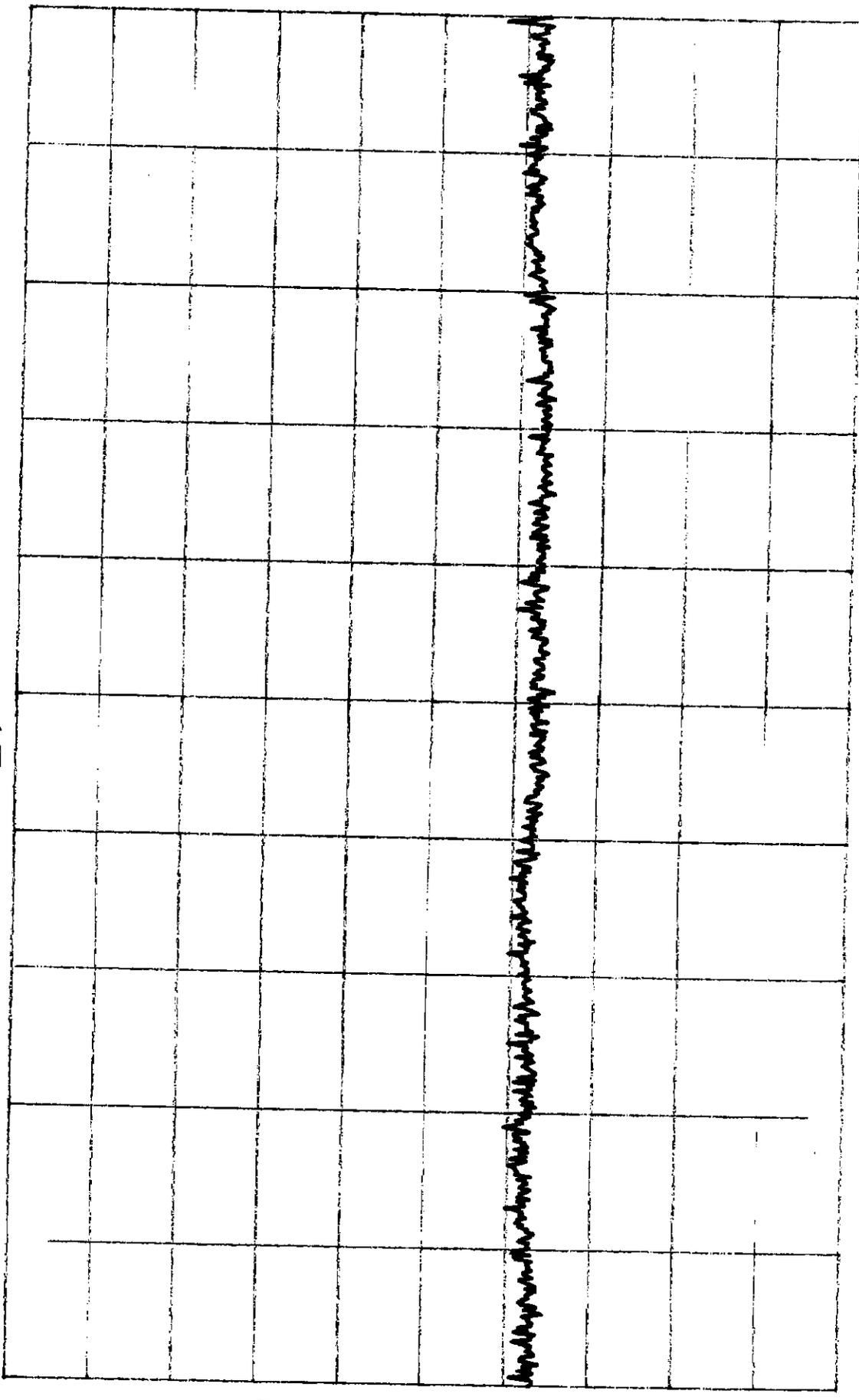


START 5.715000GHZ STOP 5.725000GHZ
*RBW 1.0MHZ *VBW 3.0MHZ SWP 50ms

11/23/2002 James (initials)
514

min = 5727.000 MHz
: power reduction 10db

ATTEN 20dB
R- 3.0dBm 10dB/



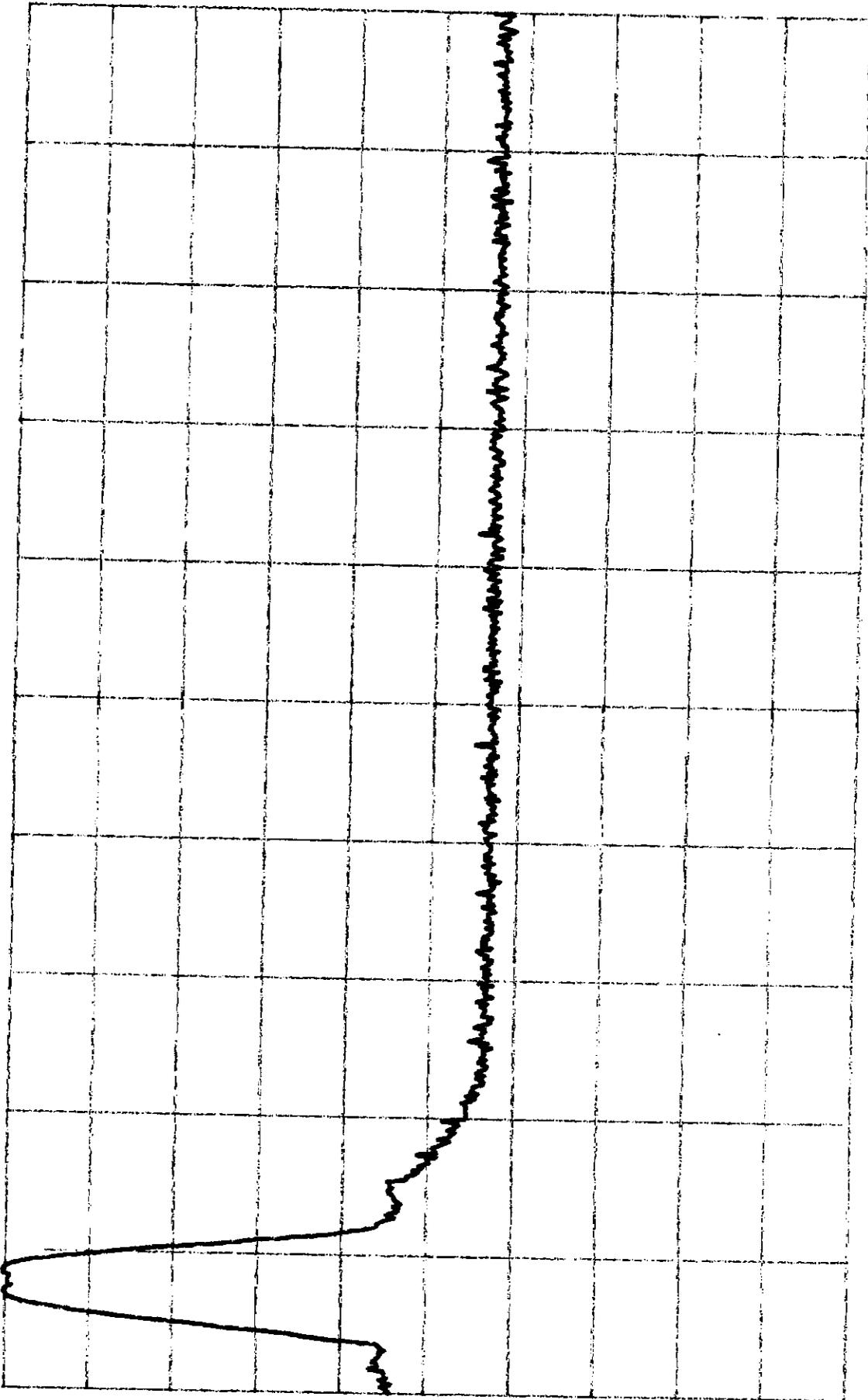
START 5.724000GHZ STOP 5.725000GHZ
*RBW 100KHZ *VBW 3.0MHZ SWP 50ms

D

11/23/2002 Jendata

S15

ATTEN 20dB
RL 3.0dBm 10dB/



START 5.7250GHZ STOP 5.8250GHZ
 *RBW 1.0MHz *VBW 3.0MHz SWP 50ms

carrier = 5733.000 MHz

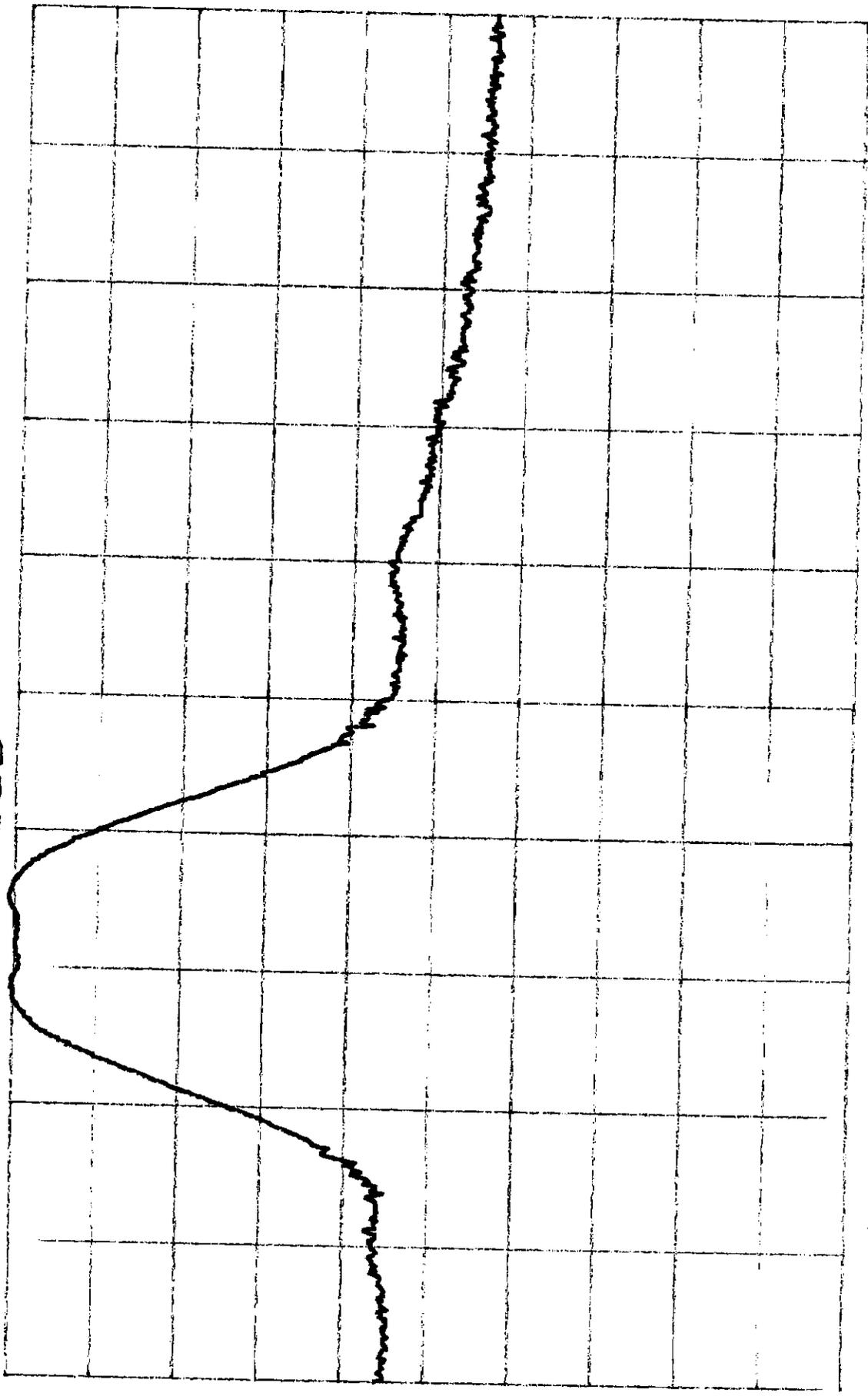
1/23/2002 Kintu

S16

ATTEN 20dB

RL 3.0dBm

10dB/



D

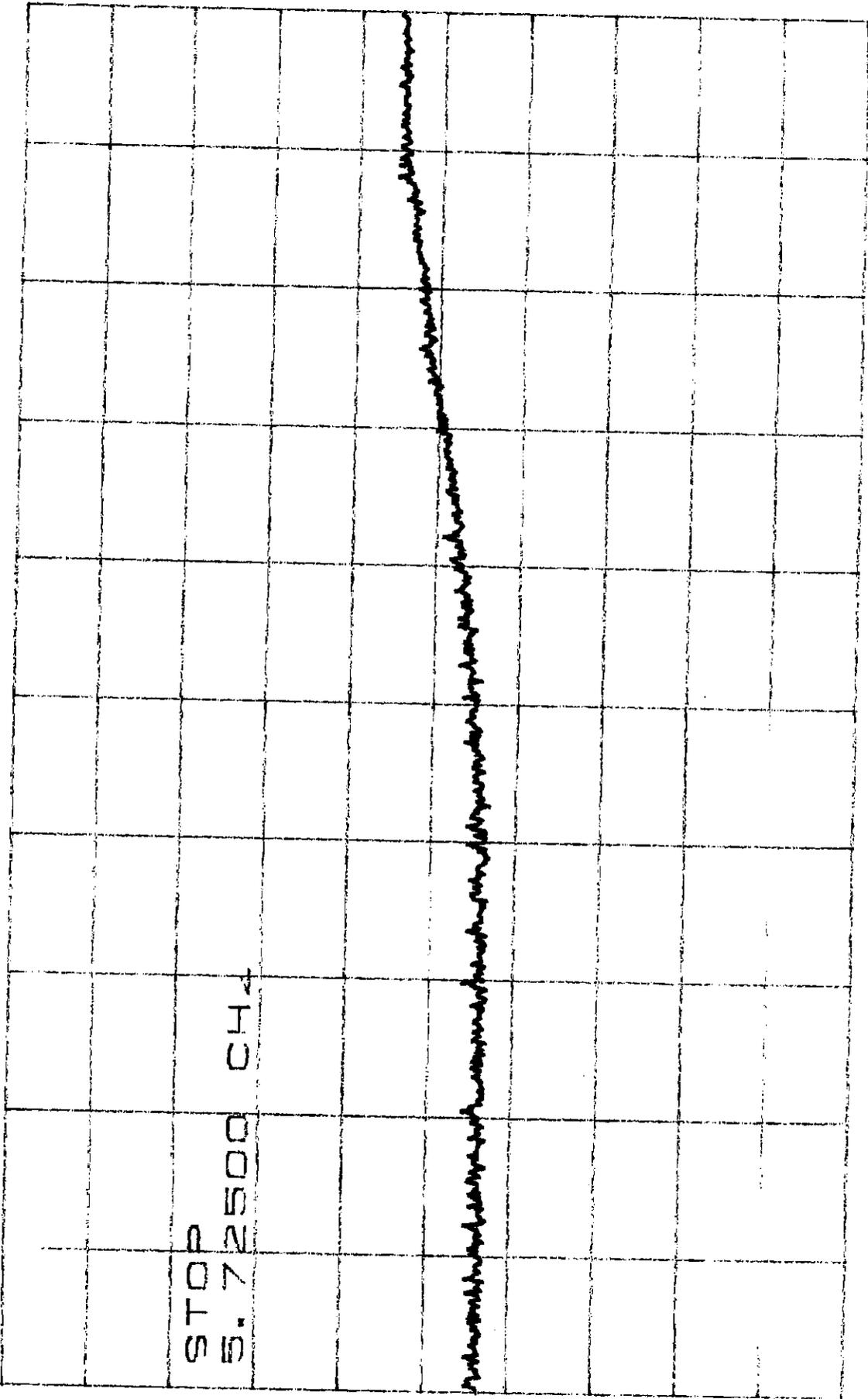
START 5.72500GHZ STOP 5.75000GHZ
 *RBW 1.0MHZ *VBW 3.0MHZ SWP 50MS

F_{center} = 5733.000 MHz

Carrier = 5733.000 MHz

U292002 Jan 23
S17

ATTEN 20dB
RL 3.0JGm 10dB/



STOP
5.72500 CH

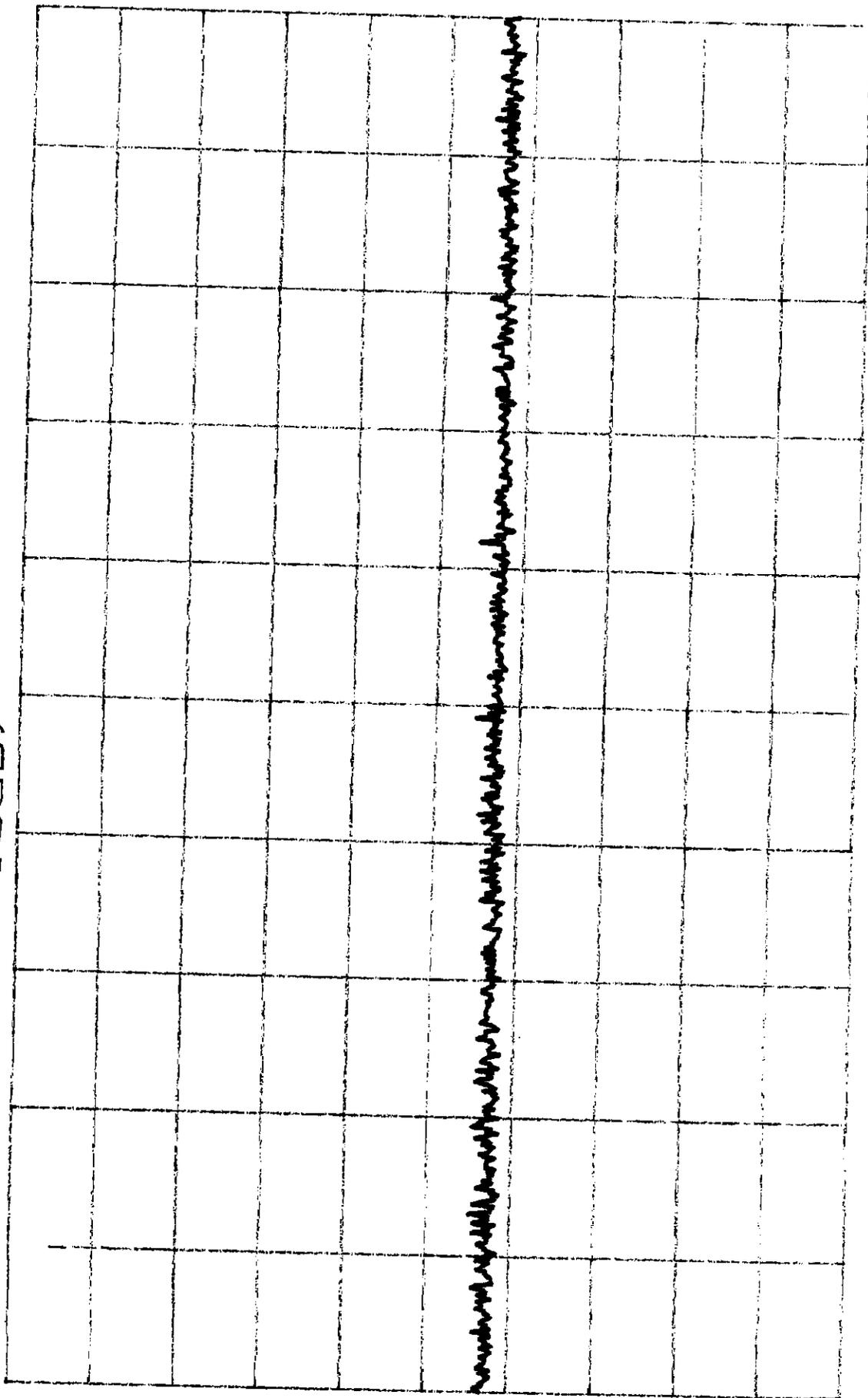
START 5.71500CHZ STOP 5.72500CHZ
*RBW 1.0MHZ *VBW 3.0MHZ SWP 50MS

D

carrier = 5733,000 MHz

1/23/2002 James Carter
S18

ATTEN 20dB
RL 3.0dBm 10dB/



D

START 5.825000GHz STOP 5.835000GHz
*RBW 1.0MHz *VBW 3.0MHz SWP 50ms

1/23/2002 yandl

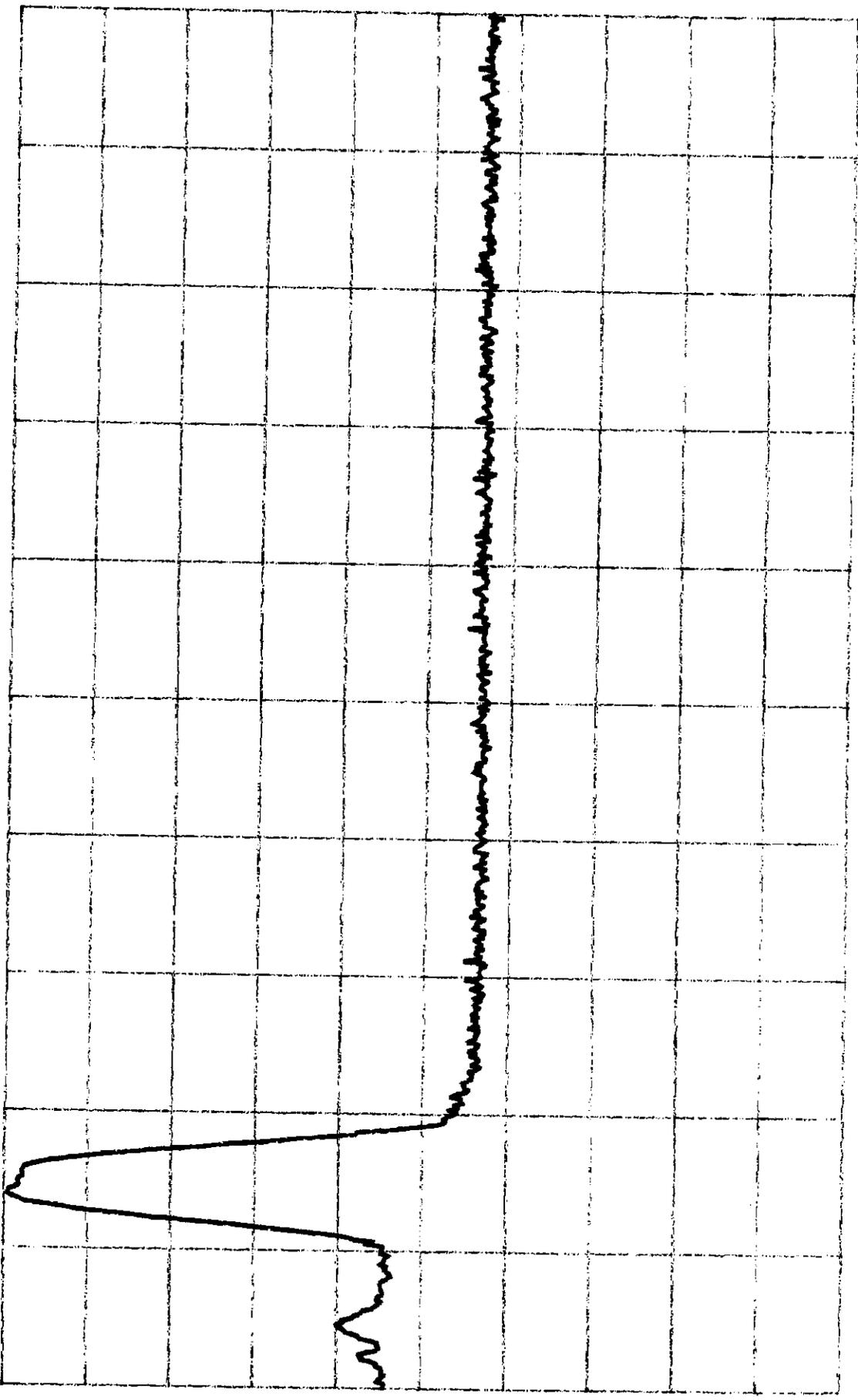
619

Carrier = 5740.000 MHz

ATTEN 20dB

RL 3.0dB

10dB

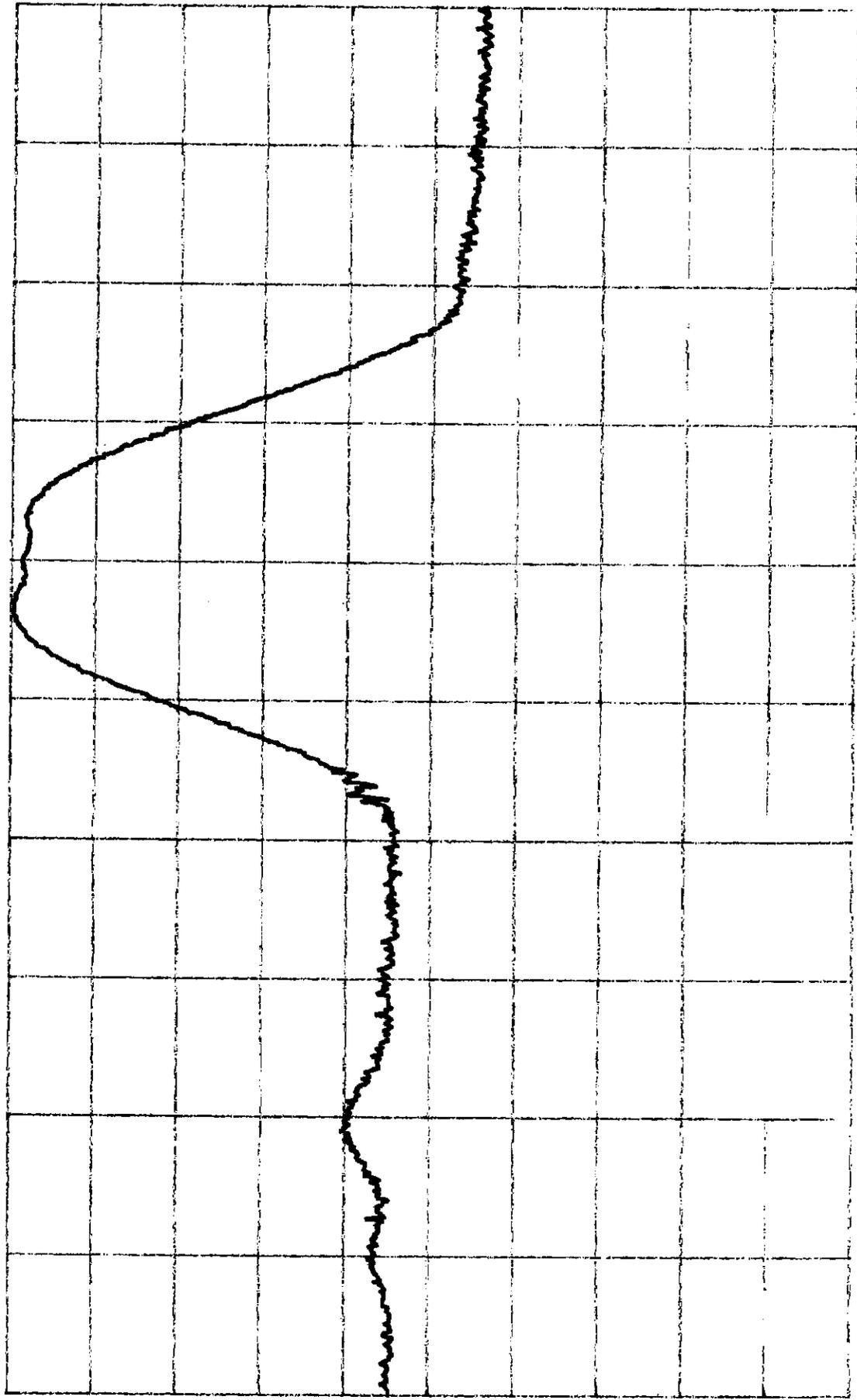


START 5.7250GHZ STOP 5.8250GHZ
 *RBW 1.0MHZ *VBW 3.0MHZ SWP 50MS

carrier = 5740.000 MHz

1/23/2002 Jem
520

ATTEN 20dB
RL 3.0dBm 10dB/



D

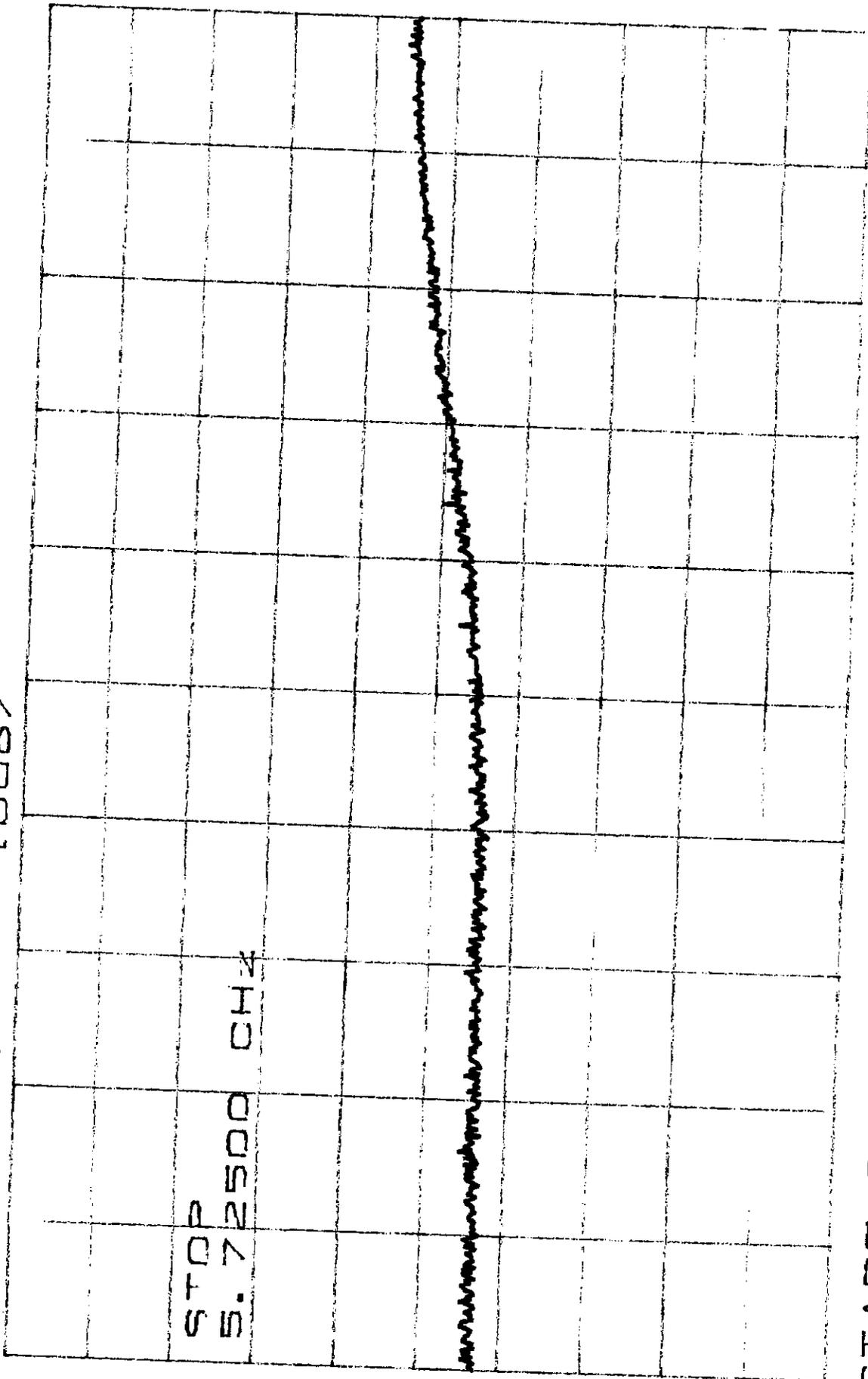
START 5.72500GHZ STOP 5.75000GHZ
*RBW 1.0MHZ *VBW 3.0MHZ SWP 50ms

Carrier = 5740.000 MHz

1/23/2002 Stewart

521

ATTEN 20dB
RF 3.0dBm
10dB/



STOP
5.72500 CHZ

START 5.71500GHZ
*RBW 1.0MHZ *VBW 3.0MHZ SWP 50ms
STOP 5.72500GHZ

center = 5740.000 MHz

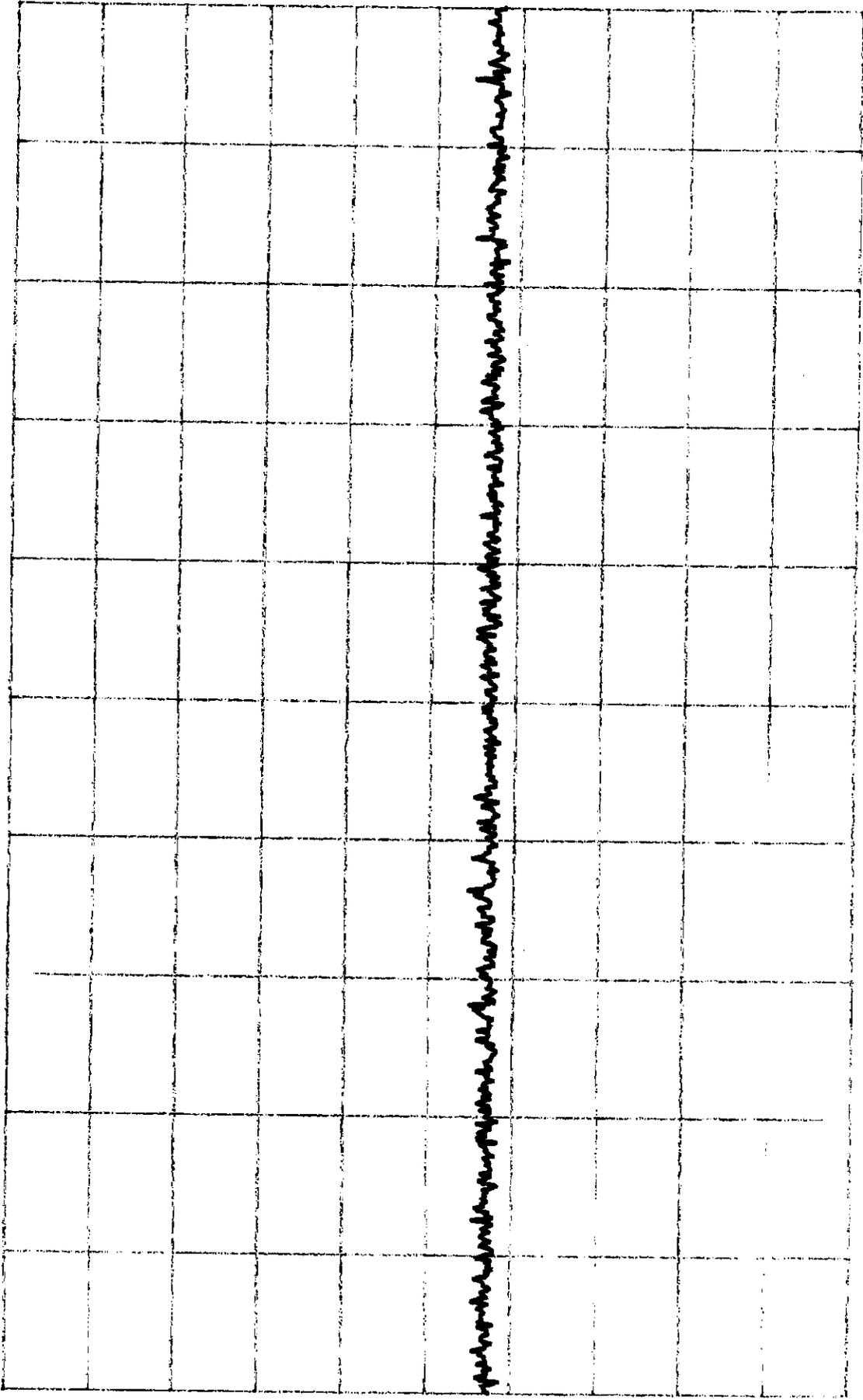
1/25/2002
Kantel

ATTEN 20dB

RL 3.0dB

10dB

522



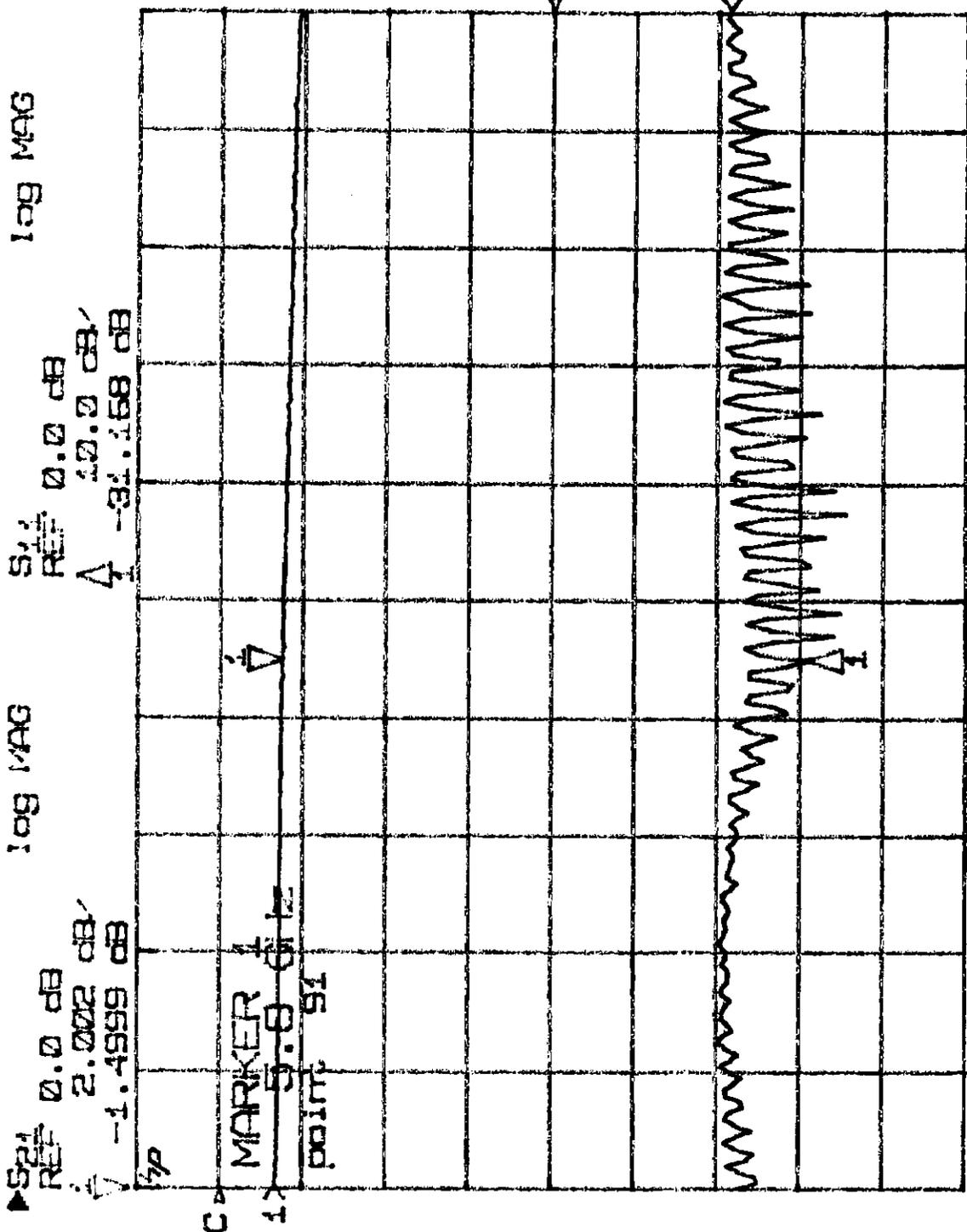
START 5.825000GHZ STOP 5.835000GHZ
 RBW 1.0MHZ *VBW 3.0MHZ SWP 50MS

1/24/02
523

WVU 18-1818-048
QMT 64023 9711

88510C S/N 2622A01117
CALONE 7/5/02

MARKER 1
5.8 GHz
-1.4999 dB



START 4.00000000 GHz
STOP 8.00000000 GHz

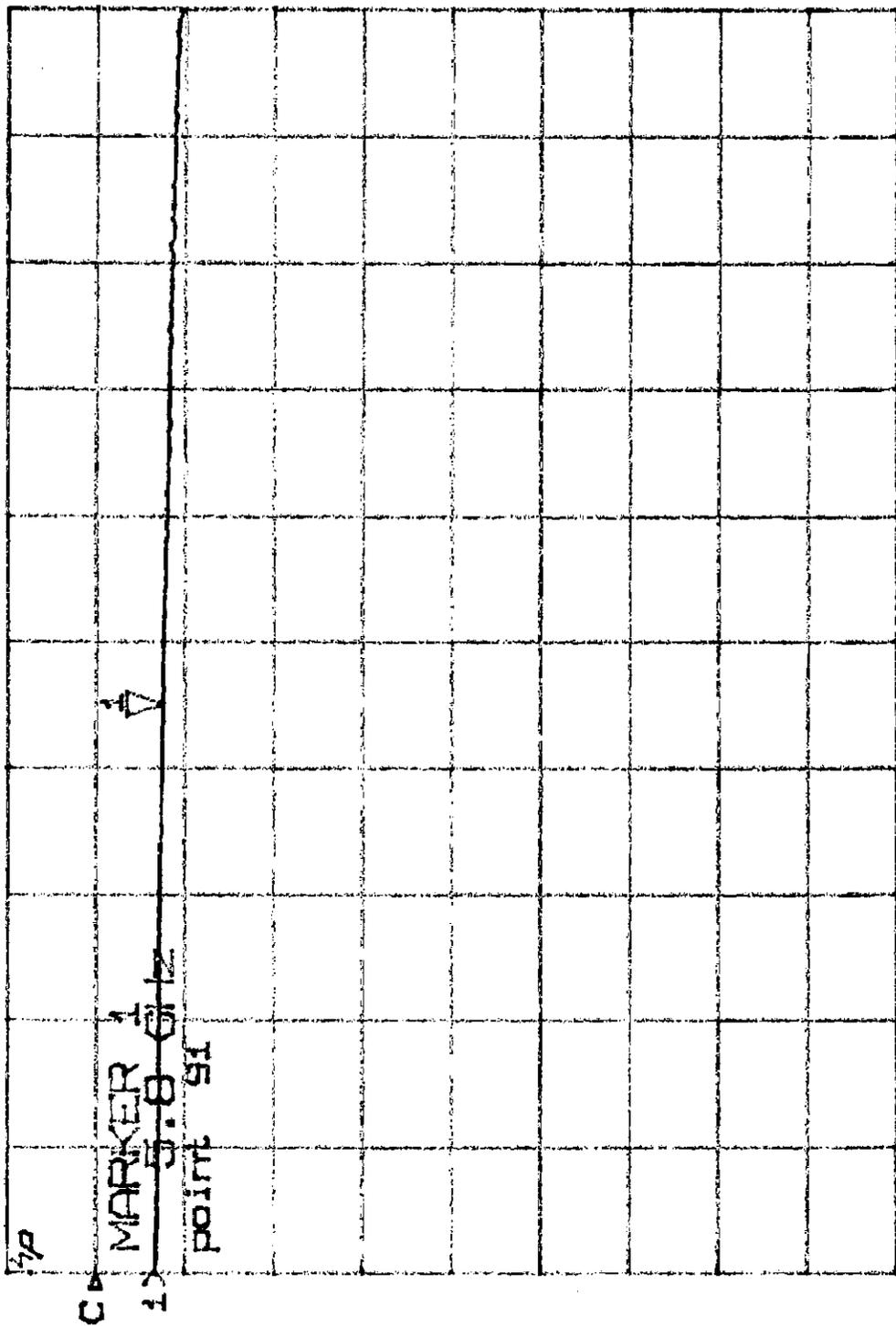
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1/22/2002 J. L. K. S. 24



log MAG

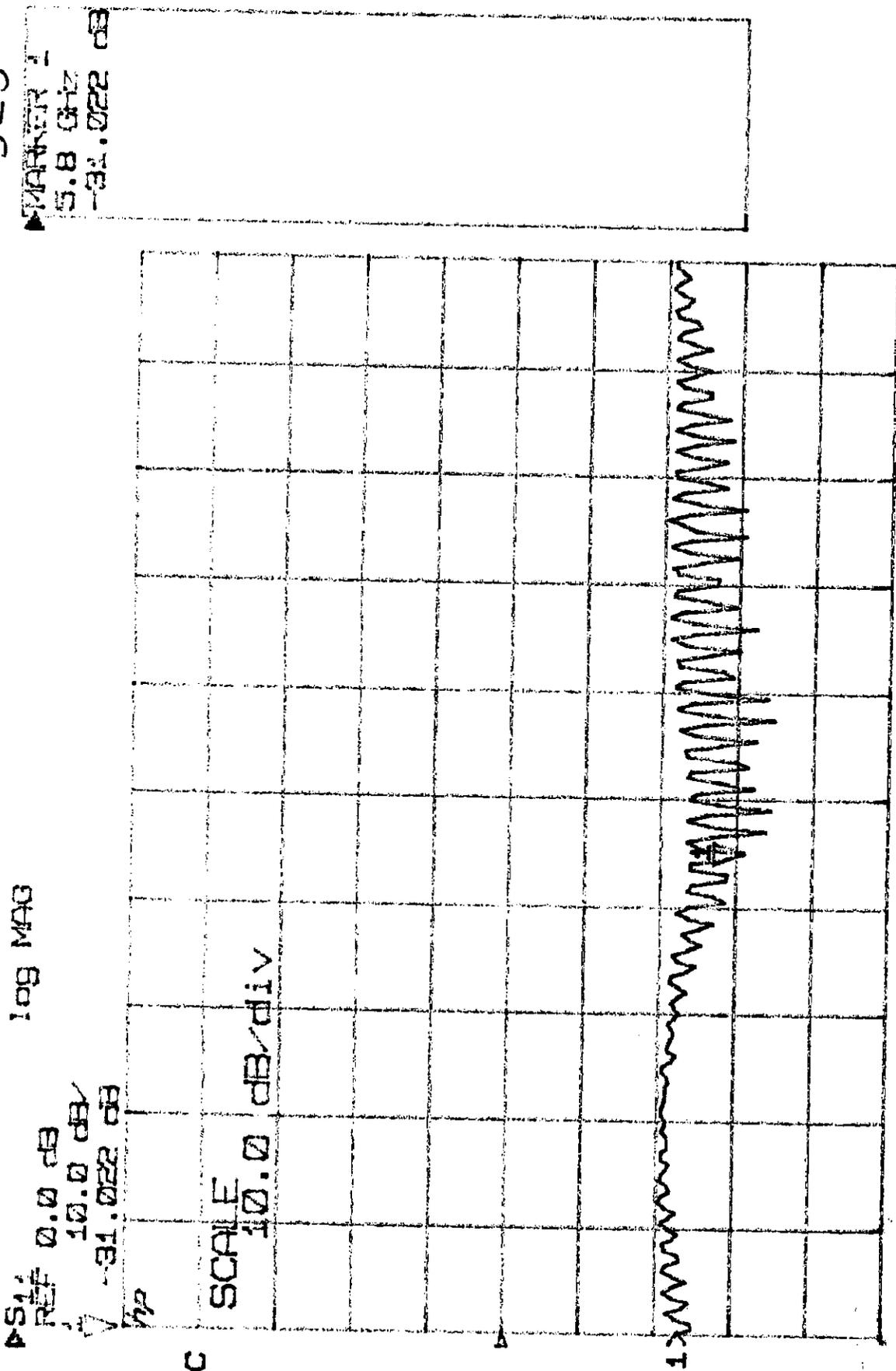
S2: 0.0 dB
 REF 2.002 dB
 -1.4985 dB



START 4.00000000 GHz
STOP 8.00000000 GHz

18 2 of 3

1/22/2002 8:02 AM
525



START 4.00000000 GHz

STOP 8.00000000 GHz

83d3