

**Exhibit 3****SECTION 2.983 (d)**

Technical description of the equipment sufficiently complete to develop all the factors concerning compliance with the technical standards of the applicable rules part. The description shall include the following items:

**SECTION 2.983 (d) (1)**

Type or types of emission.

**RESPONSE:**

The AS5CMP-22 is capable of amplifying transmissions involving the following types of emissions:

**1M23G9W**

**SECTION 2.983 (d) (2)**

Frequency Range.

**RESPONSE: 869.00 - 894.00 MHz**

**SECTION 2.983 (d) (3)**

Range of operating power values or specific operating power levels, and description of any means provided for variation of operating power.

**RESPONSE:**

The AS5CMP-22 amplifier is capable of operating from 0.3 to 20.0 Watts at the amplifier output. The output power that is delivered to the J4 output connector of the cabinet in which the AS5CMP-22 is mounted is reduced from this maximum value by filter insertion loss, RF transmission losses and margin for long term reliability. The power is also under continuous software control. When installed in a cabinet with applicable filters the long term average rated power at the J4 output connector is 4 Watts +2 /-4 dB. The short term peak power, due to channel activity fluctuations, is 7.0 Watts.

**SECTION 2.983 (d) (4)**

Maximum power rating as defined in the applicable part of the rules.

**RESPONSE:** The maximum average power output of the AS5CMP-22 at the Cabinet Output J4 connector is 7.0 Watts.

**Exhibit 3** *continued***SECTION 2.983 (d) (5)**

The dc voltages applied to and dc currents into the several elements of the final radio frequency amplifying device for normal operation over the power range.

RESPONSE: The TPA nominally uses the following voltages and maximum currents :

- +5 VDC @ 2.0 A max. ( These are the Sum of BCS<sup>^</sup> and BCR5 currents. )
- 15 VDC @ 0.5 A max. ( These are the Sum of BCS<sup>^</sup> and BCR5 currents. )
- +15 VDC @ 1.5 A max. ( These are the Sum of BCS<sup>^</sup> and BCR5 currents. )
- +25 VDC @ 3.0 A max. ( These are the Sum of BCS<sup>^</sup> and BCR5 currents. )

**Exhibit 9****SECTION 2.983 (d) (11)**

A description of any circuits or devices employed for suppression of spurious radiation, for limiting modulation and for limiting power.

RESPONSE: The modulation control and power limiting functions are controlled by the AS5CMP-12 (FCC equipment authorization June 7, 1995) which supplies the signals to be amplified. The BCR5 sub-unit of the TPA, the Low Power Linearizer RF Circuit Pack, suppresses intermodulation distortion and spectral regrowth. A description of the BCR5 circuits are included in Exhibit 5c. External to the TPA there are cavity type Transmit Filters which limit spurious and harmonic content. The performance characteristics of these filters are included in Figures 9a, 9b and 9c

Complete circuit diagrams.

RESPONSE:

The complete circuit diagrams for the Amplifier Linearizer (BCR5) are included with the documents for which confidential status has been requested and are included in Exhibit 5c.

**COMPLETE CIRCUIT DIAGRAMS**

Please see Exhibit 5c

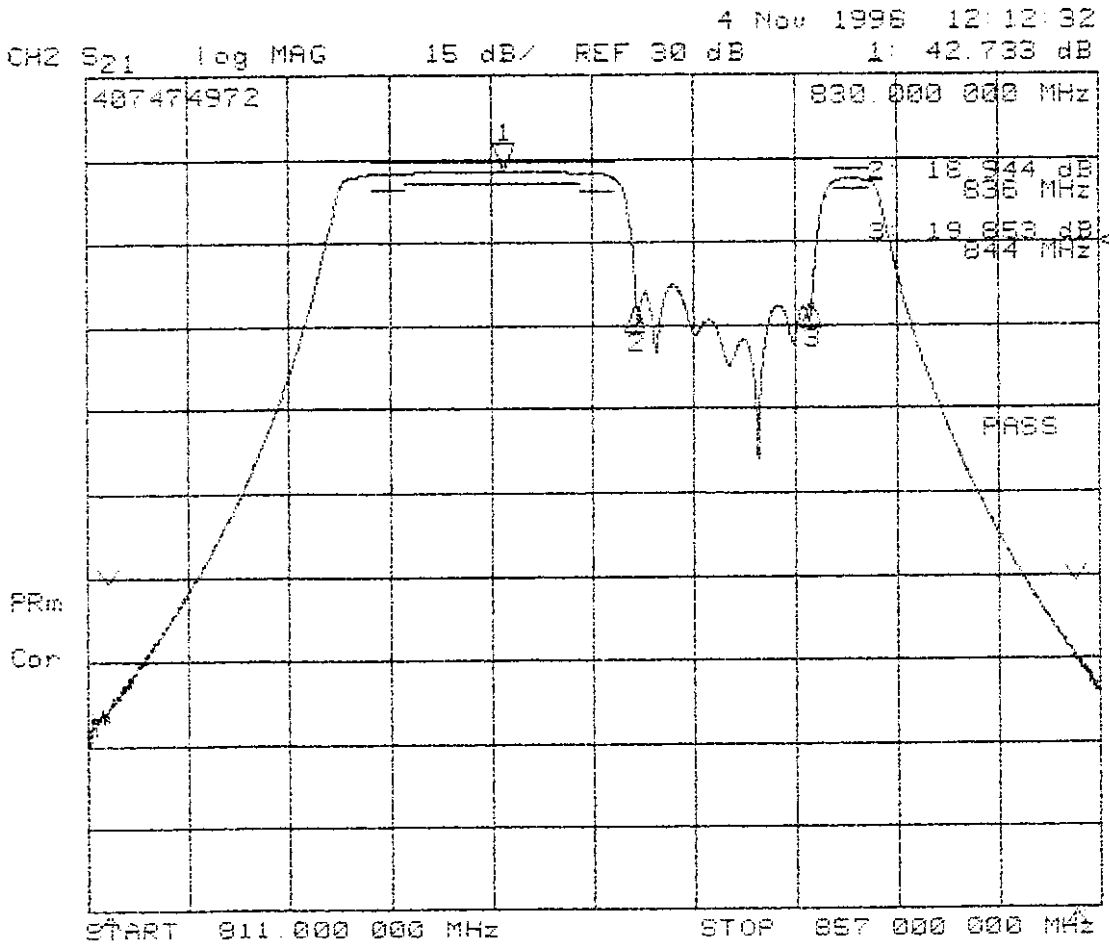
(LUCENT TECHNOLOGIES CONFIDENTIAL PROPRIETARY INFORMATION)

Exhibit 9 continued

### Figure 9a A Band Duplex Filter

| Name                       | Specification # | S/N             | Date of Mfg |
|----------------------------|-----------------|-----------------|-------------|
| A Band Duplex Filter Panel | KS 24170,L2     | SN 969K11008450 | 10/31/96    |
| A Band Duplex Filter       | BM109-795       | SN 0404         | 9/17/96     |
| A Band Tx Filter Panel     | KS-24166,L3     | SN 3571         |             |

### RF Performance



*A Band Duplex*

Exhibit 9 continued

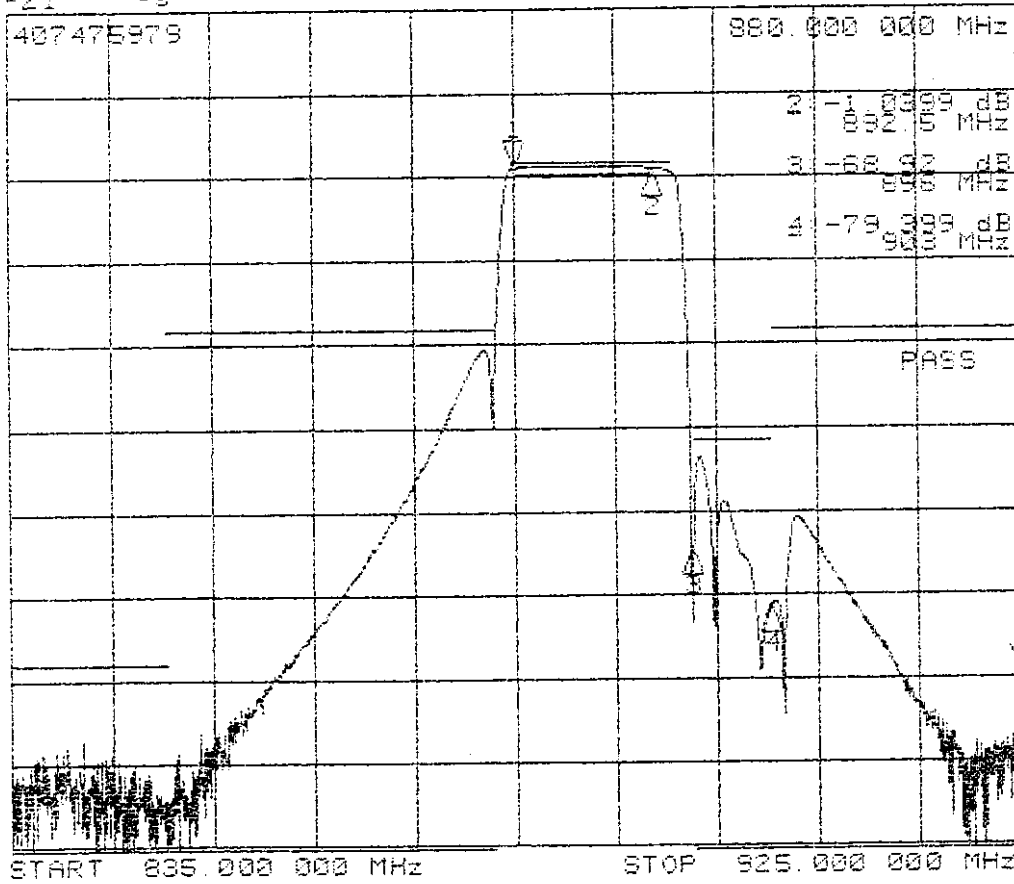
Figure 9b B Band Duplex Filter

| <u>Name</u>                | <u>Specification #</u> | <u>S/N</u> | <u>Date of Mfg.</u> |
|----------------------------|------------------------|------------|---------------------|
| B Band Duplex Filter Panel | KS 24170,L2            | SN 1083    | 2/24/97             |
| B Band Notch and Cascade   | KS 24299,L1            | SN CDK 174 | 2/97                |

RF Performance

21 Feb 1997 10:03:15

CH2 S21 Log MAG 15 dB/ REF -2.7 dB 1 -1.0483 dB



B Band Notch & Cascade Filter Panel

## Exhibit 10

### SECTION 2.983 (d) (12)

For equipment employing digital modulation techniques, a detailed description of the modulation system to be use, including response characteristics of any filters provided, and a description of the modulating wavetrain, shall be submitted for the maximum rated conditions under which the equipment will be operated.

### RESPONSE:

These functions are controlled by the AS5CMP-12 (FCC equipment authorization June 7, 1995) which supplies the signals to be amplified.

## Exhibit 11

### SECTION 2.983 (e)

The data required by Section 2.985 through 2.997, inclusive, measured in accordance with the procedures set out in Section 2.999.

### RESPONSE:

The following pages include the data required for the Type Acceptance authorization of the FCC ID: **AS5CMP-22**, measured in accordance with the procedures set out in Section 2.999 of the Rules.

Each required measurement and its corresponding exhibit number are:

- Exhibit 12: Section 2.985 RF Power Output
- Exhibit 13: Section 2.987 Modulation Characteristics
- Exhibit 14: Section 2.989 Occupied Bandwidth
- Exhibit 15: Section 2.991 Spurious Emissions at Antenna Terminals
- Exhibit 16: Section 2.993 Field Strength of Spurious Radiation

**Exhibit 12**

**SECTION 2.985**

**MEASUREMENT OF RADIO FREQUENCY POWER OUTPUT**

The test arrangements used to measure the radio frequency power output of the FCC ID: **AS5CMP-22** Transmit Power Amplifier is on the following page. Measurements were made respectively at each frequency where occupied Bandwidth measurements were performed. The use of the TPA is for a single CDMA carrier. This requires that the J4 power level be calibrated for the specific channel of use. The test configuration, Figure 12a, allowed the measurement of output power for each channel investigated for Occupied Bandwidth. These included the upper lower band edges and at the center channel for each Band.

The TPA system has a maximum power output at the antenna terminals of 7.0 Watts (38.5 dBm) +2 / -4 dB, it also has a minimum power output at the antenna terminals of 0.3 Watts (29.1 dBm +2 / -4 dB, across the Cellular band (869.00 - 894.00 MHz). The signal applied to the TPA is defined in Table 12.1. The power was reset to a minimum of 7.2 Watts at each measurement frequency to verify the spectral performance at that power level at each specific frequency of interest. The attenuation range was also verified. The specific Frequencies and channels and set power level was documented on each "Occupied Bandwidth" sheet.

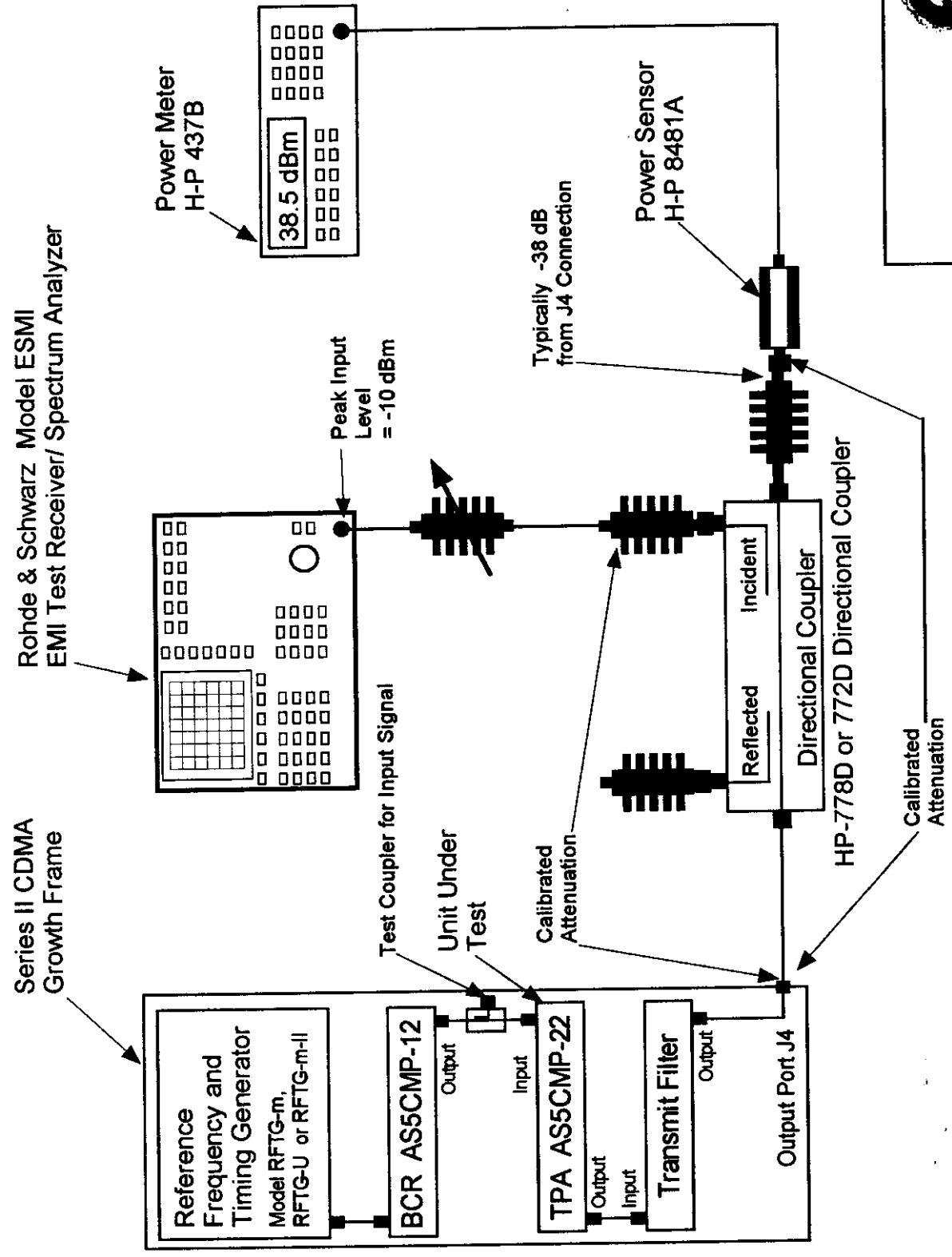
| Type    | Number of Channels | Fraction of Power (Linear) | Fraction of Power (dB) | Comments                                   |
|---------|--------------------|----------------------------|------------------------|--|
| Pilot   | 1                  | 0.2000                     | -7.0                   | Walsh 0                                    |
| Sync    | 1                  | 0.0471                     | -13.3                  | Walsh 32, always 1/8 rate                  |
| Paging  | 1                  | 0.1882                     | -7.3                   | Walsh 1, full rate only                    |
| Traffic | 6                  | 0.09412 each               | -10.3 each             | Variable Walsh Assignments, full rate only |

**TABLE 12.1 Base Station Test Model, Nominal**





**Figure 12A. Test Configuration For RF Power Output**



All components are calibrated over the frequency range of interest

## Exhibit 12

### TEST SETUP FOR MEASUREMENT OF RADIO FREQUENCY POWER OUTPUT

#### EQUIPMENT :

|                             |  |
|-----------------------------|--|
| <b>RFTG:</b>                | <b>Reference Frequency and Timing Generator, 15 MHz</b>                    |
| <b>BCR:</b>                 | <b>Baseband Combiner and Radio</b>   |
| <b>TPA:</b>                 | <b>Transmit Power Amplifier Unit (FCC ID: AS5CMP-22)</b>                   |
| <b>Transmit Filter:</b>     | <b>Cellular Band Transmit Filter appropriate for the investigated Band</b> |
| <b>Directional Coupler:</b> | <b>HP 778D Dual Directional Coupler</b>                                    |
| <b>Power Meter:</b>         | <b>HP 437B with HP 8481A Power Head</b>                                    |
| <b>Plotter:</b>             | <b>HP Model 7470A Plotter</b>  |
| <b>Spectrum Analyzer:</b>   | <b>Rohde &amp; Schwarz ESMI EMI Test Receiver</b>                          |

**Exhibit 12**

**FCC ID: AS5CMP-22**

**RESULTS:**

The TPA was configured in the test setup shown in Figure 12A. When measured at the J4 output connection the TPA delivered 7.0 Watts +2 dB -0 at all cellular channels/ frequencies of operation. The Occupied Bandwidth measurements document the power level measured at each frequency of measurement. The TPA is a single CDMA channel amplifier and its maximum power level is verified at each cell site during installation of the CBR. FCC ID: AS5CMP-12

## Exhibit 13

### SECTION 2.987

#### MEASUREMENT OF MODULATION CHARACTERISTICS

The modulation characteristics and accuracy of the TPA are a function of the input signal which is provided by the BCR (FCC ID: AS5CMP-12). The Authorization Grant by the FCC for the BCR is dated 6/7/95.

**Exhibit 14****SECTION 2.989****MEASUREMENT OF OCCUPIED BANDWIDTH**

The occupied bandwidth of the FCC ID: AS5CMP-22 TPA was measured using a Rohde & Schwarz ESMI EMI Test Receiver and an HP Model 7470A Plotter. The RF power level was measured and adjusted via the test setup in Figure 14A. The RF output from the transmitter was reduced (to an amplitude usable by the spectrum analyzer) by using a calibrated attenuator. This attenuation was offset on the display and the signal adjusted to the -16.1 dBc level corresponding to the corrected RF power level for a 30 kHz resolution bandwidth. The power calibration was verified for a 1.25 MHz resolution bandwidth which corresponds to the top of the display.

*The frequencies and channels used are tabulated on the bottom of each plot. Input and output signals are plotted at each frequency/ channel. Plots are provided for Left Edge, Center and Right Edge of each cellular band. These frequencies were chosen to show the occupied bandwidth in the channels in each of the cellular bands in which this radio can be operated, in compliance with Section 22.902 (c) of the Commission code. There are no SAT or Wide band data signals associated with CDMA. The signal used to show the occupied bandwidth is defined in table 14.1. This is the signal recommended in IS-95 section 10. The power output level was adjusted to provide the documented power levels at the bottom of each chart..*

| Type    | Number of Channels | Fraction of Power (Linear) | Fraction of Power (dB) | Comments                                   |
|---------|--------------------|----------------------------|------------------------|--|
| Pilot   | 1                  | 0.2000                     | -7.0                   | Walsh 0                                    |
| Sync    | 1                  | 0.0471                     | -13.3                  | Walsh 32, always 1/8 rate                  |
| Paging  | 1                  | 0.1882                     | -7.3                   | Walsh 1, full rate only                    |
| Traffic | 6                  | 0.09412 each               | -10.3 each             | Variable Walsh Assignments, full rate only |

**TABLE 14.1 Base Station Test Model, Nominal**

**Exhibit 14**

The minimum standard presented in PN-3383 Section 4.5.1.3.1 was followed.

**“Suppression Inside the Licensee’s Frequency Block(s)”**

For all frequencies within the base station transmit band of 869.00 to 894.00 MHz that are within the specific block(s) allocated to the operator's system, the total conducted spurious emissions in any 30kHz band greater than 750 kHz for the CDMA channel center frequency shall not exceed a level of -45 dBc....

A Resolution Bandwidth of 30 kHz is based on our experience with Section 22.917 of The Code and lacking other guidance.

The spectrum analysis output plot shows the peak of the CDMA channel signal 16.1 dB below the zero line of the spectrum analyzer for the following reason: For the CDMA system there is no carrier without modulation. This relationship was used to provide the correct level for an unmodulated carrier vs. The modulated signal.

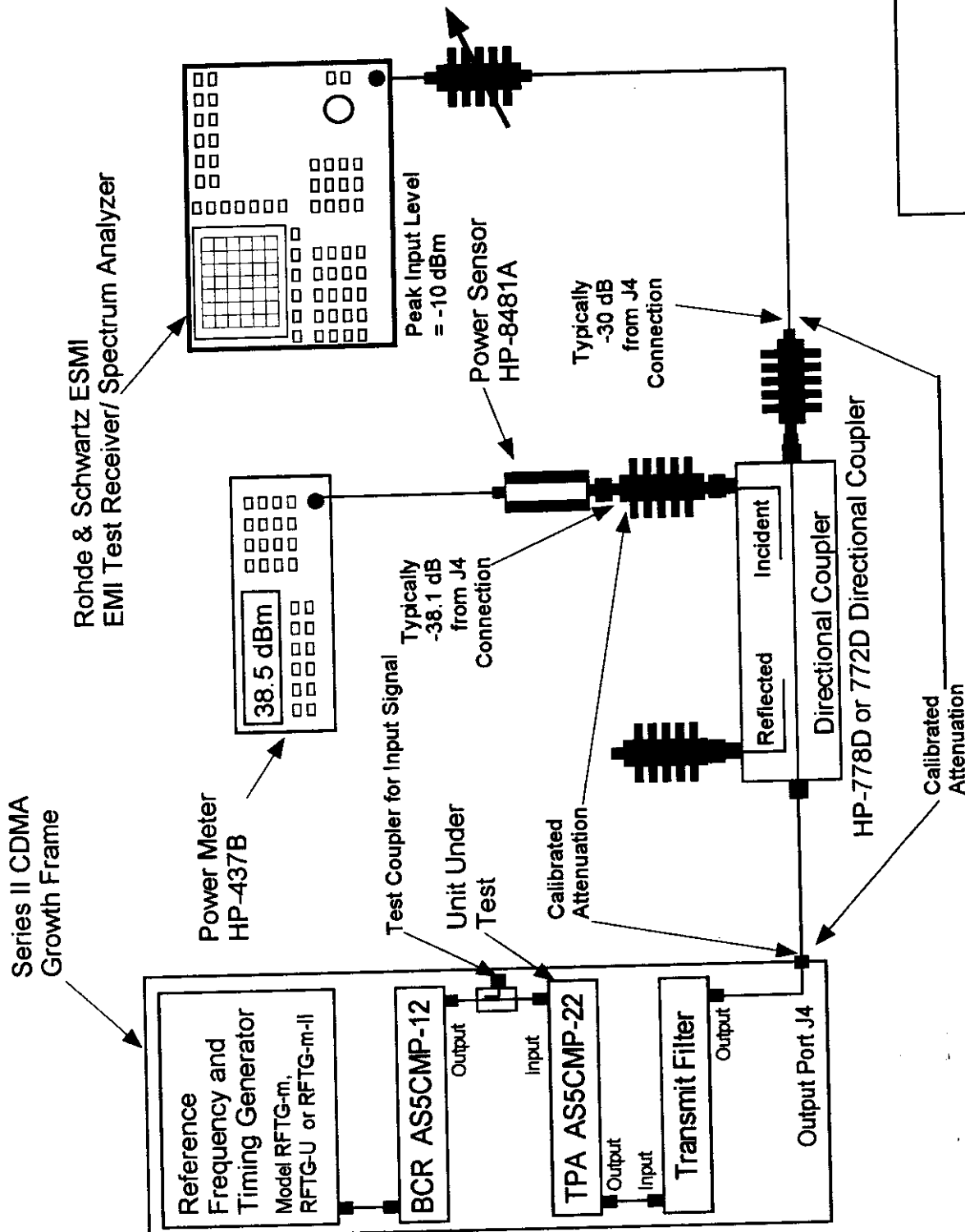
$10\log (\text{Transmit Bandwidth} / \text{Resolution Bandwidth})$

$$10\log (1.23 \text{ MHz} / 30 \text{ kHz}) = 16.1 \text{ dB}$$



Lucent Technologies  
Best Labs Innovations

Figure 14A. Test Configuration For Occupied Bandwidth



## Exhibit 14

### TEST SETUP FOR MEASUREMENT OF OCCUPIED BANDWIDTH

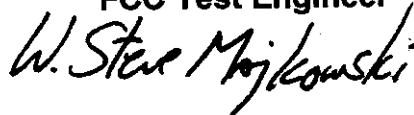
#### EQUIPMENT

|                      |   |
|----------------------|---|
| RFTG:                | Reference Frequency and Timing Generator, 15 MHz                    |
| BCR:                 | Baseband Combiner and Radio   |
| TPA:                 | Transmit Power Amplifier Unit (FCC ID: AS5CMP-22)                   |
| Transmit Filter:     | Cellular Band Transmit Filter appropriate for the investigated Band |
| Directional Coupler: | HP 778D Dual Directional Coupler                                    |
| Power Meter:         | HP 437B with HP 8481A Power Head                                    |
| Plotter:             | HP Model 7470A Plotter  |
| Spectrum Analyzer:   | Rohde & Schwarz ESMI EMI Test Receiver                              |

RESULTS: The following exhibits illustrate the spectrums investigated and document compliance.

Very truly yours

W. Steve Majkowski  
FCC Test Engineer







LVLOFF

Date 08.May.'98 Time 05:46:32

Ref.Lvl 10.00 dBm

Marker -6.70 dBm

869.922 MHz

Res.Bw 30.0 kHz [3dB]

TG.Lvl -20.00 dBm

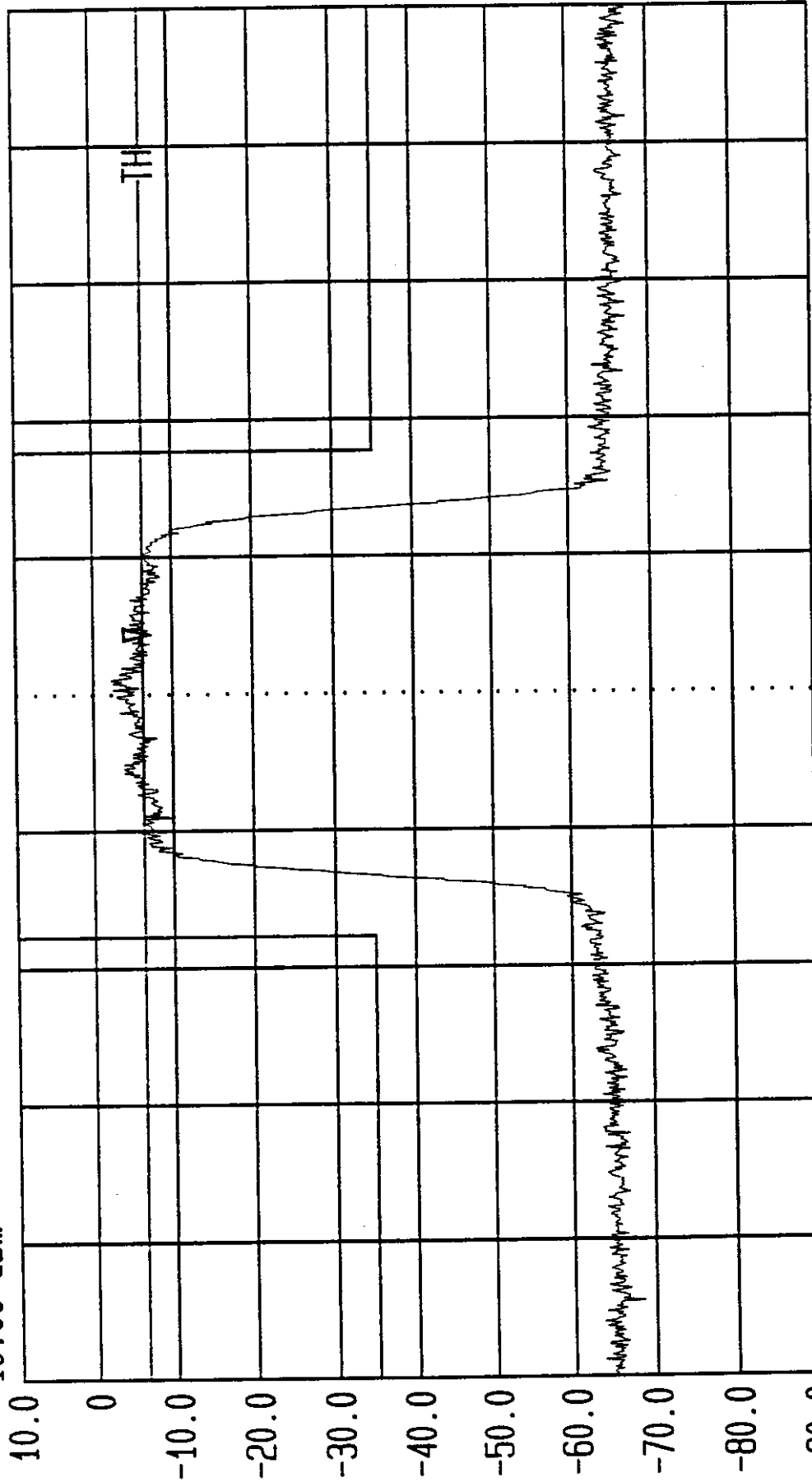
CF.Stp 500.000 kHz

Thresh -6.20 dBm

Vid.Bw 300 kHz

RF.Att 0 dB

Unit [dBm]



Start 867.2 MHz

Span 5 MHz

Center 869.7 MHz

Sweep 20 ms

Stop 872.2 MHz

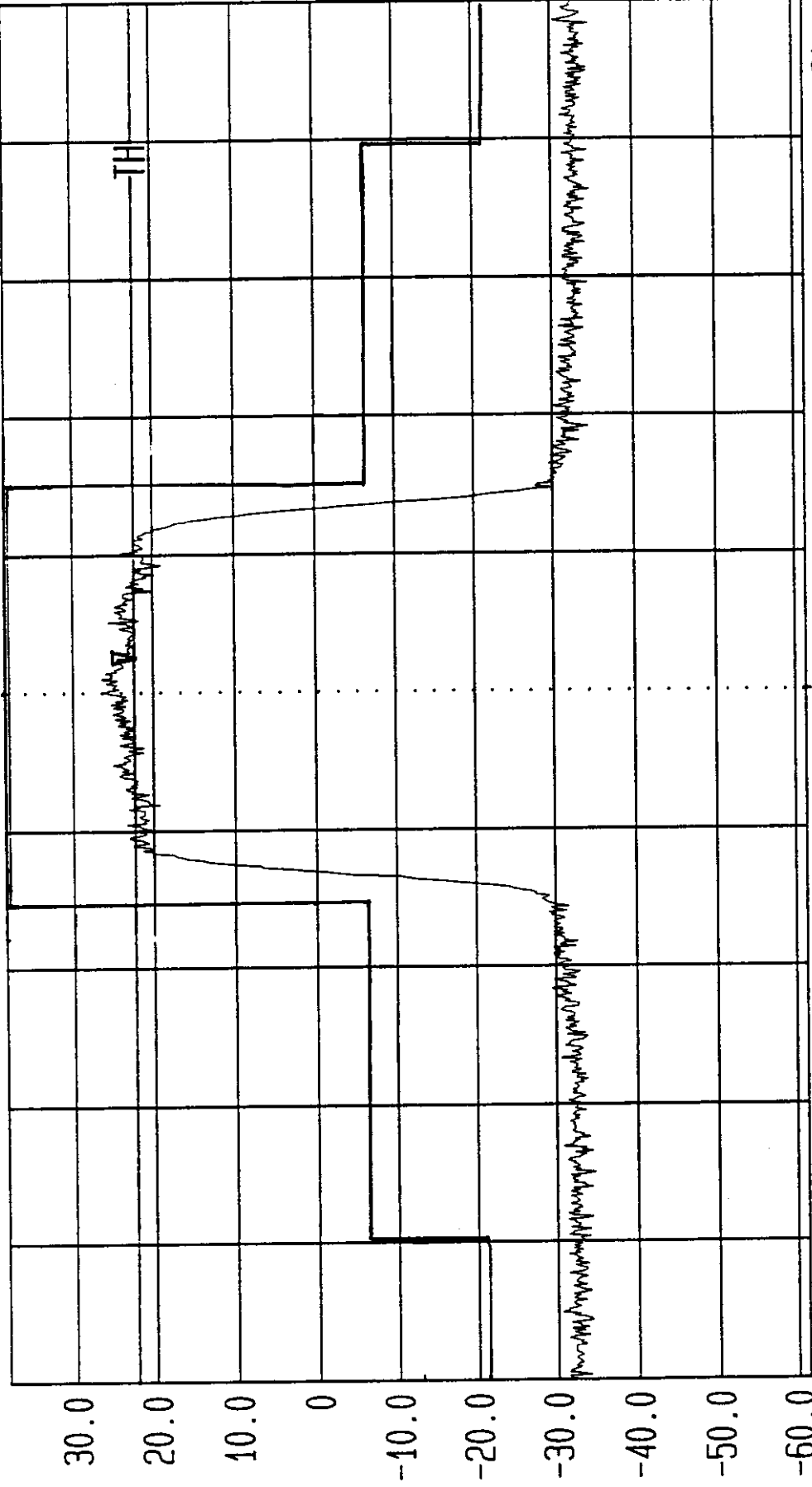
AS5CMP-22 TPA Input OCCUPIED BANDWIDTH A BAND CHANNEL 1013



LVLOFF  
 Date 08.May.'98 Time 04:29:31  
 Ref.Lvl 38.50 dBm

Res.Bw 30.0 kHz [3dB] Vid.Bw 300 kHz  
 TG.Lvl -20.00 dBm  
 CF.Stp 500.000 kHz RF.Att 40 dB  
 Thresh 22.38 dBm Unit [dBm]

Marker 22.00 dBm  
 869.827 MHz

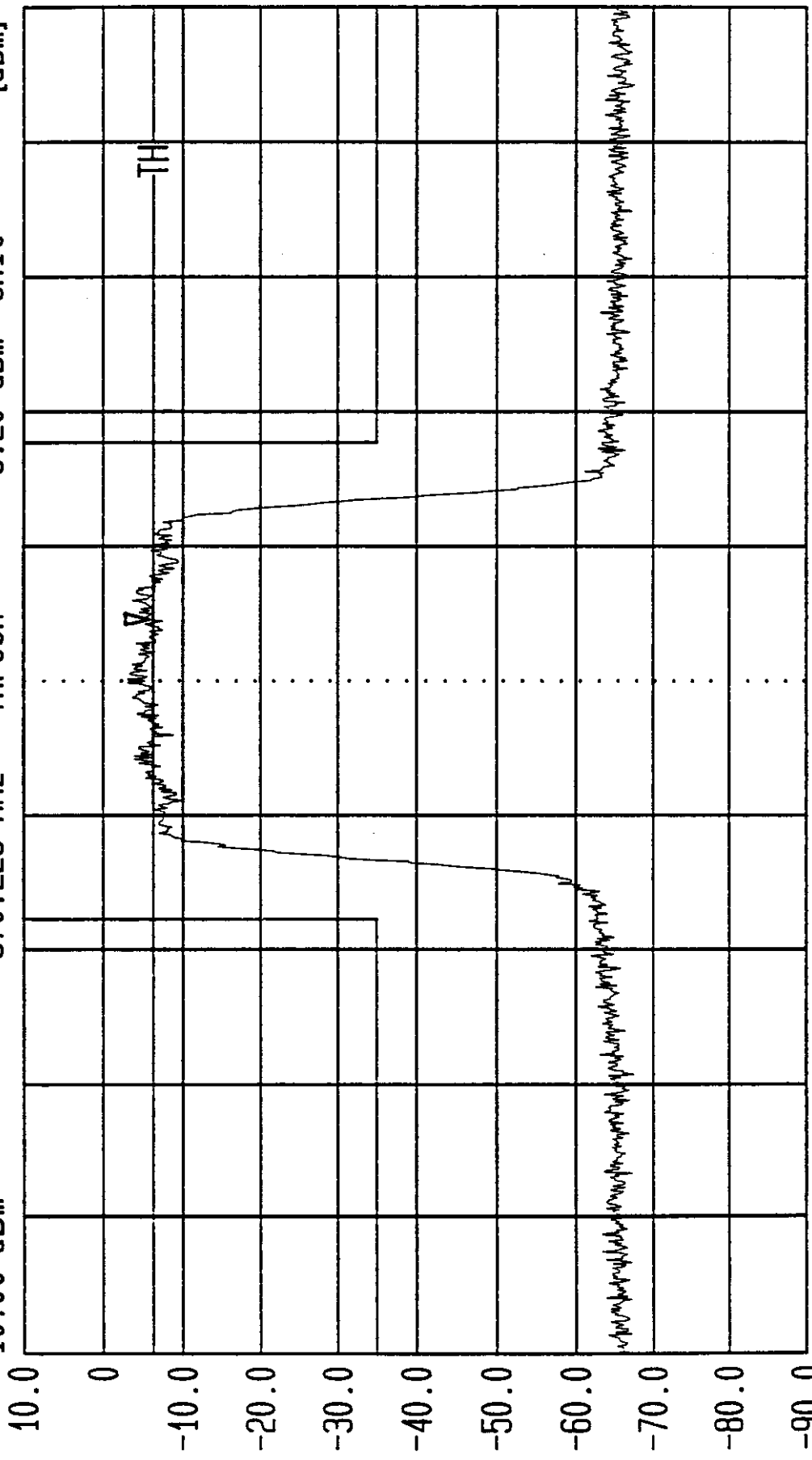


Start 867.2 MHz Center 869.7 MHz Stop 872.2 MHz  
 Span 5 MHz Sweep 20 ms  
 Channel 1013

ASSCMP-22 TPA Output OCCUPIED BANDWIDTH A" BAND CHANNEL 1013  
 Output Level 38.5 dBm/ 7.2 Watts



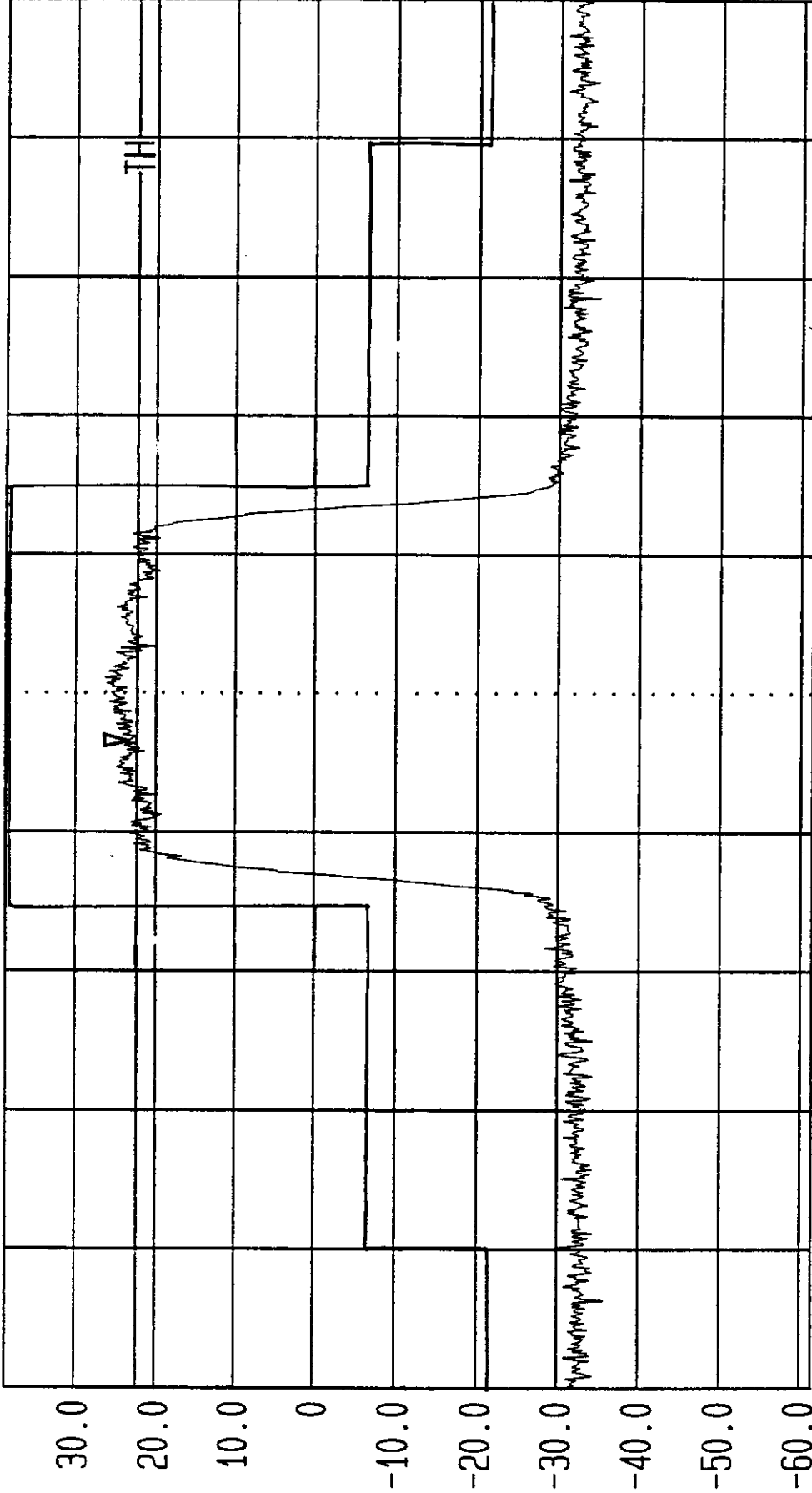
LVLOFF  
 Date 08. May. '98 Time 05: 43: 10  
 Ref. Lvl 10.00 dBm  
 Marker 870.229 MHz  
 Res. Bw 30.0 kHz [3dB]  
 TG. Lvl -20.00 dBm  
 CF. Stp 500.000 kHz  
 Thresh -6.20 dBm  
 Vid. Bw 300 kHz  
 RF. Att 0 dB  
 Unit [dBm]



Start 867.5 MHz  
 Stop 872.5 MHz  
 Span 5 MHz  
 Center 870 MHz  
 Sweep 20 ms  
 Channel 1023  
 AS5CMP-22 TPA Input  
 OCCUPIED BANDWIDTH A" BAND



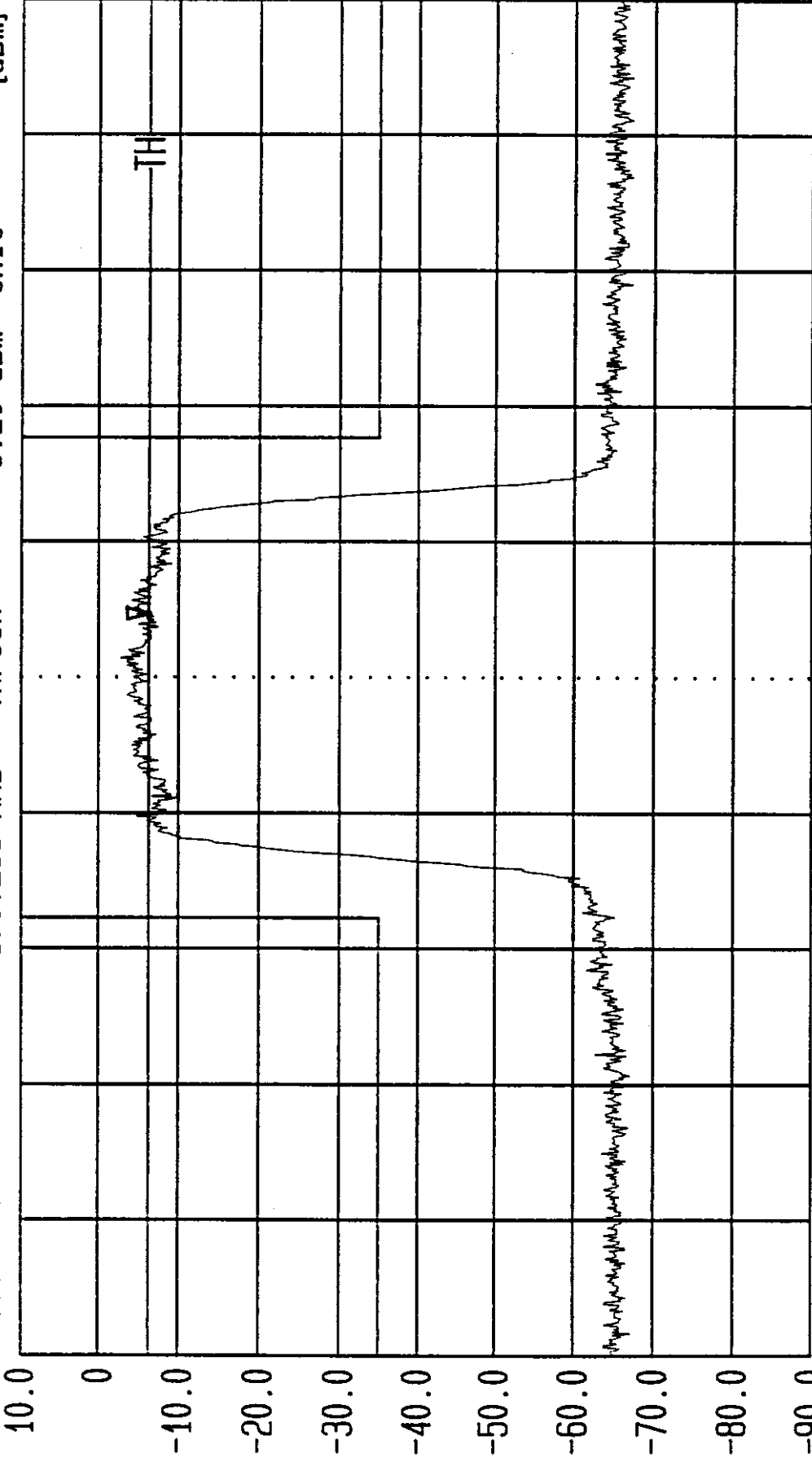
LVLOFF  
 Date 08.May.'98 Time 04:42:00  
 Ref.Lvl 38.50 dBm  
 Marker 23.27 dBm  
 869.827 MHz  
 Res.Bw 30.0 kHz [3dB]  
 TG.Lvl -20.00 dBm  
 CF.Stp 500.000 kHz  
 Thresh 22.38 dBm  
 Vid.Bw 300 kHz  
 AF.Att 40 dB  
 Unit [dBm]



Start 867.5 MHz  
 Stop 872.5 MHz  
 Span 5 MHz  
 Center 870 MHz  
 Sweep 20 ms  
 AS5CMP-22 TPA Output  
 Output Level 38.5 dBm/ 7.2 Watts  
 A" BAND CHANNEL 1023



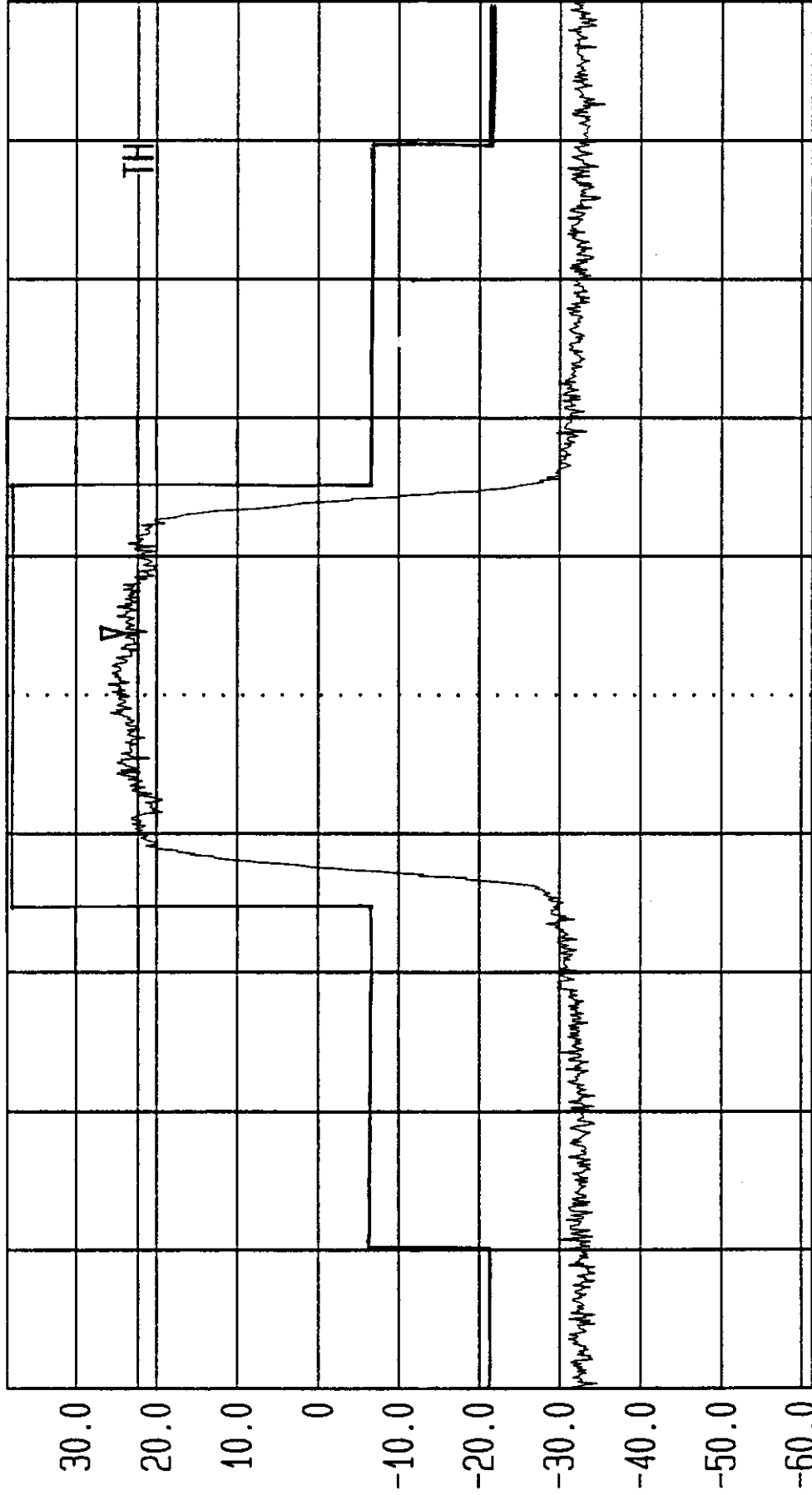
LVL OFF  
 Date 08. May. '98 Time 05:37:57  
 Ref. Lvl 10.00 dBm  
 Marker -6.48 dBm  
 870.268 MHz  
 Res. Bw 30.0 kHz [3dB]  
 TG. Lvl -20.00 dBm  
 CF. Stp 500.000 kHz  
 Thresh -6.20 dBm  
 Vid. Bw 300 kHz  
 RF. Att 0 dB  
 Unit [dBm]



Start 867.53 MHz  
 Span 5 MHz  
 Center 870.03 MHz  
 Sweep 20 ms  
 Stop 872.53 MHz  
 AS5CMP-22 TPA Input OCCUPIED BANDWIDTH A BAND CHANNEL 1



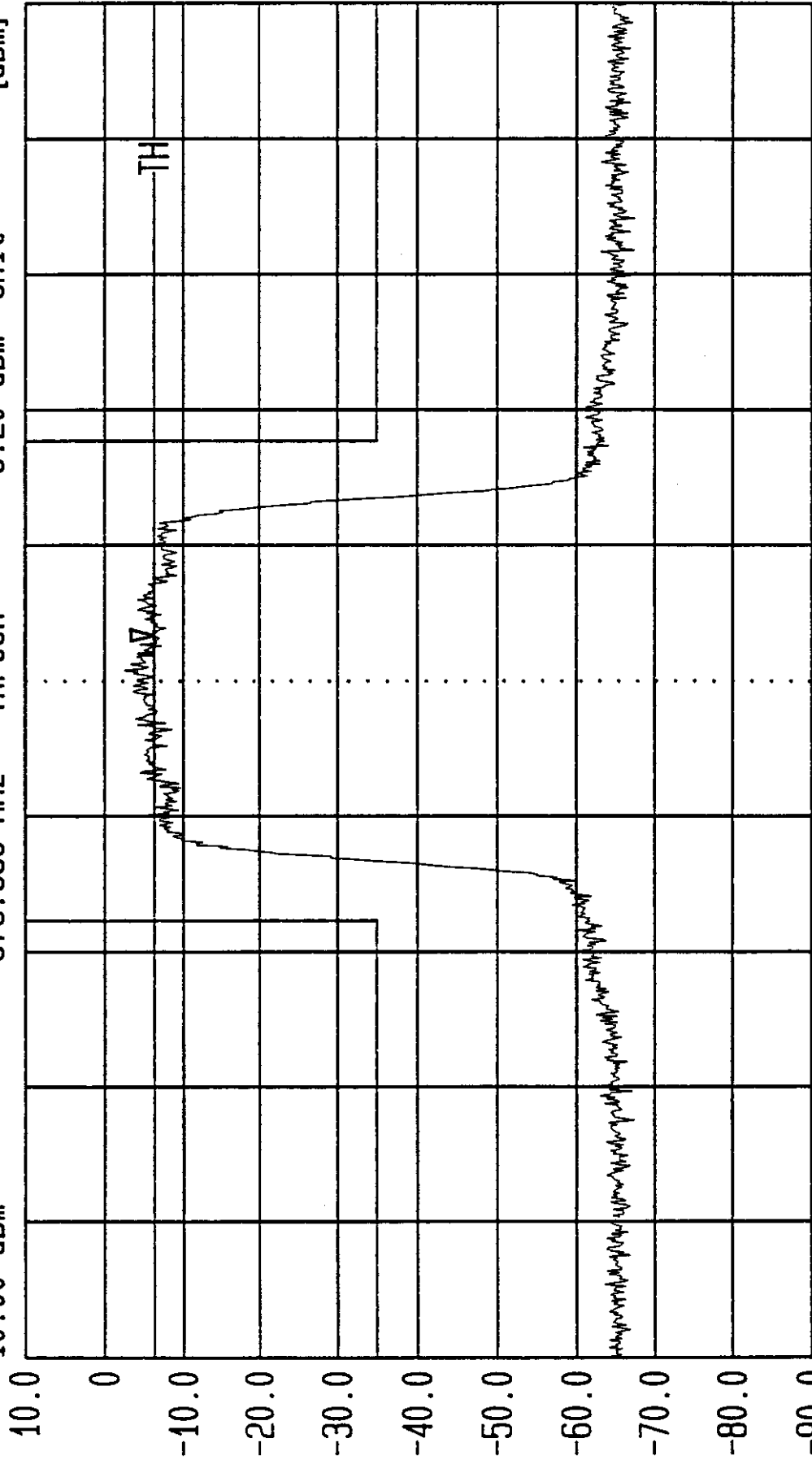
LVLOFF  
 Date 08.May.'98 Time 04:53:43  
 Ref.Lvl 38.50 dBm  
 Marker 870.222 MHz  
 Res.Bw 30.0 kHz [3dB]  
 TG.Lvl -20.00 dBm  
 CF.Stp 500.000 kHz  
 Thresh 22.38 dBm  
 Vid.Bw 300 kHz  
 RF.Att 40 dB  
 Unit [dBm]



Start 867.5 MHz  
 Span 5 MHz  
 Center 870 MHz  
 Sweep 20 ms  
 Stop 872.5 MHz  
 ASSCMP-22 TPA Output  
 Output Level 38.5 dBm/ 7.2 Watts  
 A BAND CHANNEL 1



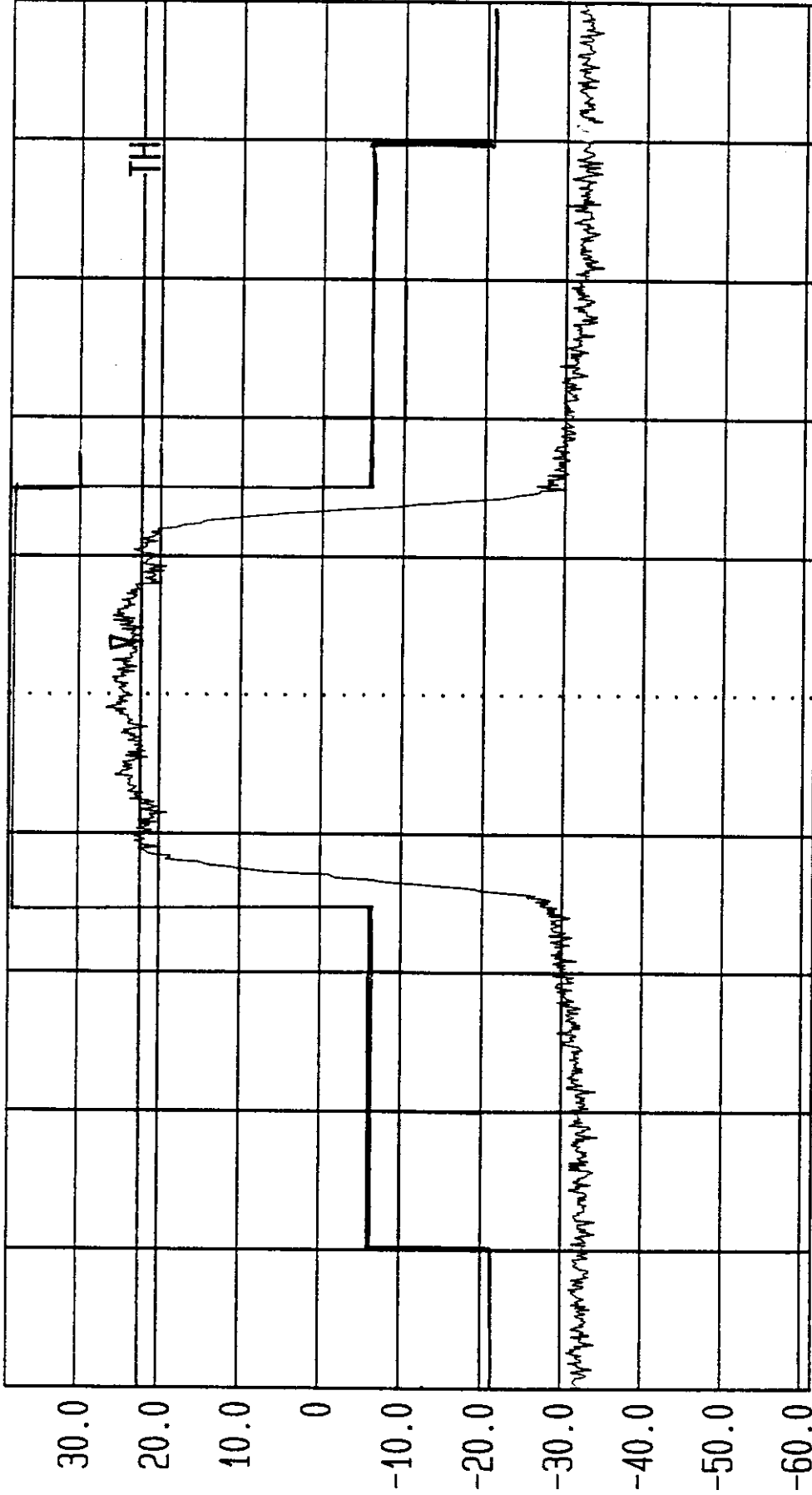
LVLOFF  
 Date 08.May.'98 Time 05:34:34  
 Ref.Lvl 10.00 dBm  
 Marker -6.27 dBm  
 878.656 MHz  
 Res.Bw 30.0 kHz [3dB]  
 TG.Lvl -20.00 dBm  
 CF.Stp 500.000 kHz  
 Thresh -6.20 dBm  
 Vid.Bw 300 kHz  
 RF.Att 0 dB  
 Unit [dBm]



Start 875.99 MHz  
 Stop 880.99 MHz  
 Center 878.49 MHz  
 Span 5 MHz  
 Sweep 20 ms  
 Channel 283  
 AS5CMP-22 TPA Input  
 OCCUPIED BANDWIDTH A BAND



LVLOFF  
 Date 08.May.'98 Time 04:58:55  
 Ref.Lvl 38.50 dBm  
 Marker 878.673 MHz  
 Res.Bw 30.0 kHz [3dB]  
 TG.Lvl -20.00 dBm  
 CF.Stp 500.000 kHz  
 Thresh 22.38 dBm  
 Vid.Bw 300 kHz  
 RF.Att 40 dB  
 Unit [dBm]

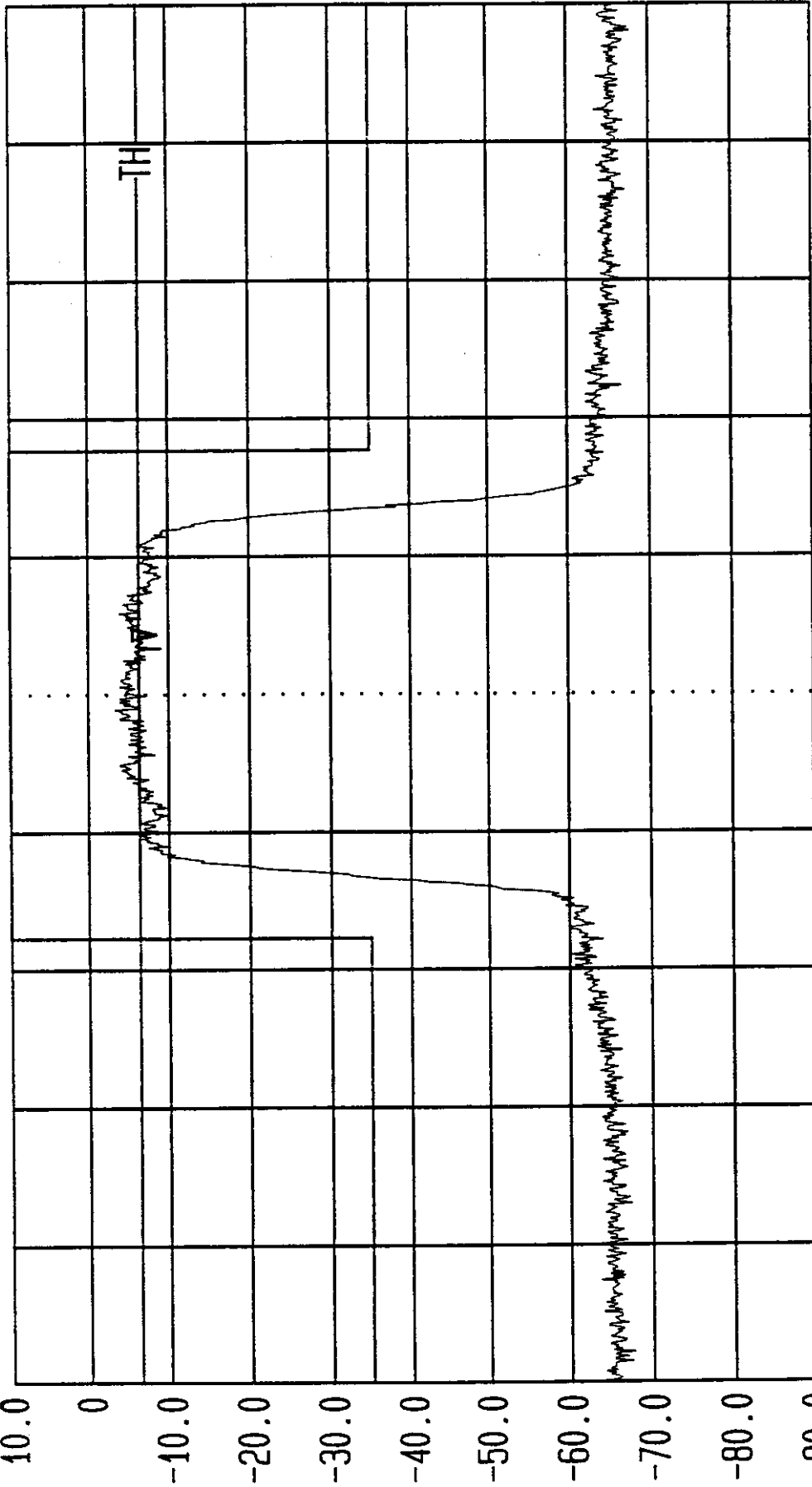


Start 875.99 MHz  
 Stop 880.99 MHz  
 Span 5 MHz  
 Center 878.49 MHz  
 Sweep 20 ms  
 AS5CMP-22 TPA Output  
 Output Level 38.5 dBm / 7.2 Watts  
 A BAND CHANNEL 283





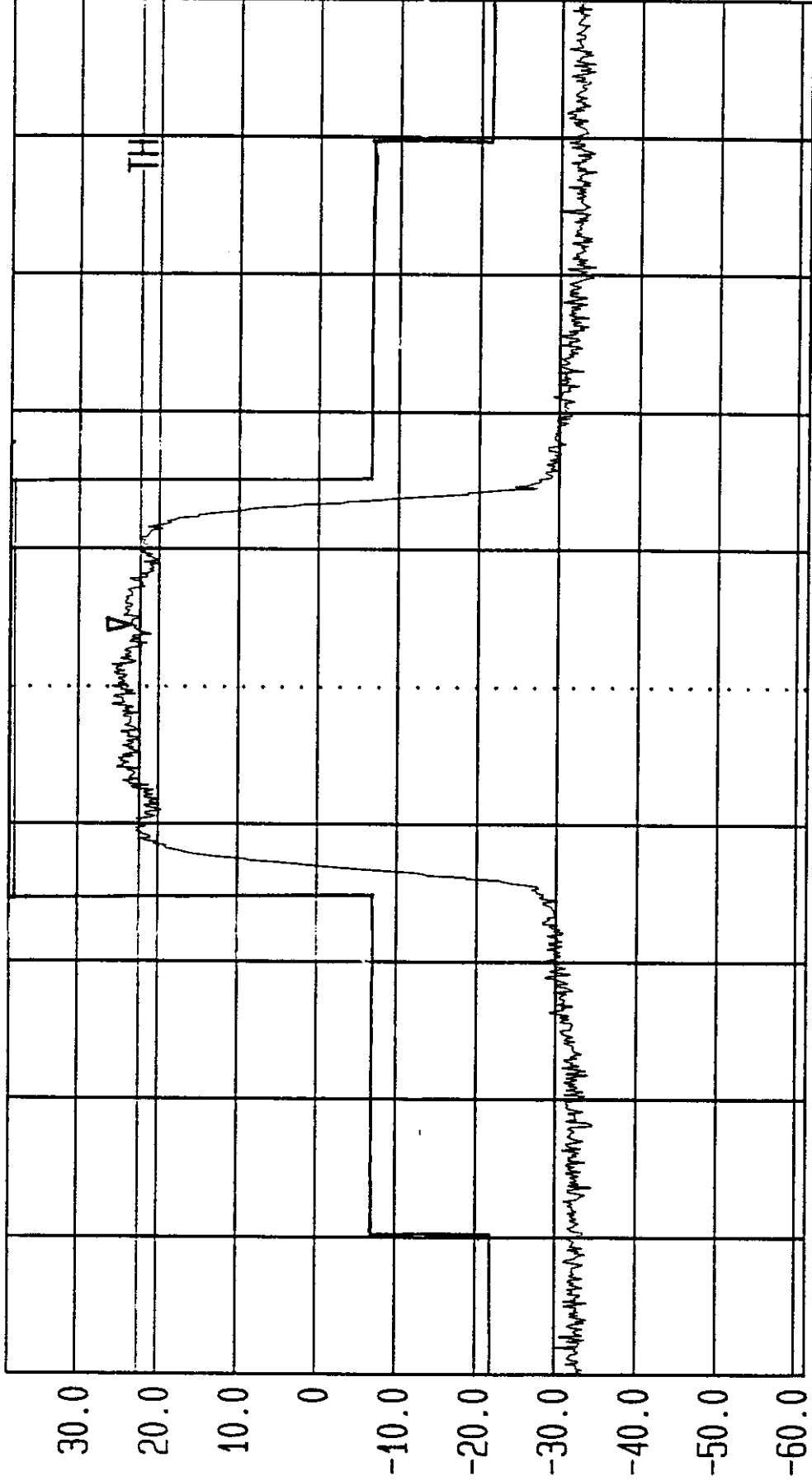
LVLOFF  
 Date 08.May.'98 Time 05:29:59  
 Ref.Lvl 10.00 dBm  
 Marker 879.546 MHz  
 Res.Bw 30.0 kHz [3dB]  
 TG.Lvl -20.00 dBm  
 CF.Stp 500.000 kHz  
 Thresh -6.20 dBm  
 Vid.Bw 300 kHz  
 RF.Att 0 dB  
 Unit [dBm]



Start 876.83 MHz  
 Stop 881.83 MHz  
 Center 879.33 MHz  
 Span 5 MHz  
 Sweep 20 ms  
 Channel 311  
 A BAND  
 OCCUPIED BANDWIDTH  
 TPA Input



LVL OFF  
 Date 08. May. '98 Time 05:02:51  
 Ref. Lvl 38.50 dBm  
 Marker 23.37 dBm  
 879.557 MHz  
 Res. Bw 30.0 kHz [3dB]  
 TG. Lvl -20.00 dBm  
 CF. Stp 500.000 kHz  
 Thresh 22.38 dBm  
 Vid. Bw 300 kHz  
 RF. Att 40 dB  
 Unit [dBm]



Start 876.83 MHz  
 Span 5 MHz  
 Center 879.33 MHz  
 Sweep 20 ms  
 Stop 881.83 MHz  
 AS5CMP-22 TPA Output  
 Output Level 38.5 dBm / 7.2 Watts  
 A BAND CHANNEL 311





LVL OFF

Date 08.May.'98 Time 05:06:47

Ref.Lvl 38.50 dBm

Marker 22.71 dBm

890.858 MHz

Res.Bw 30.0 kHz [3dB]

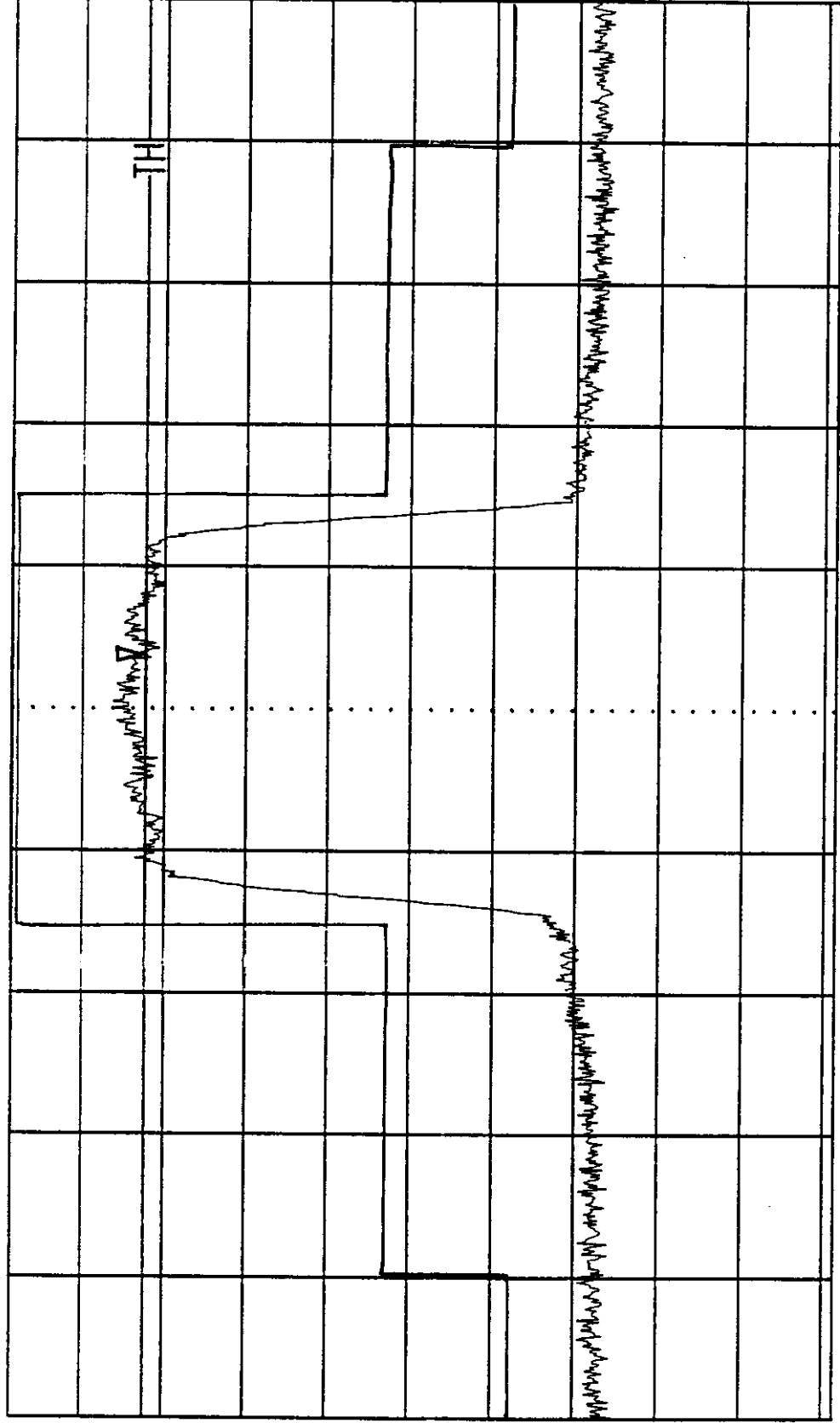
TG.Lvl -20.00 dBm

CF.Stp 500.000 kHz

Thresh 22.38 dBm

Vid.Bw 300 kHz

RF.Att 40 dB [dBm]



Start

888.17 MHz

Span

5 MHz

Center

890.67 MHz

Sweep

20 ms

Stop

893.17 MHz

AS5CMP-22 TPA Output OCCUPIED BANDWIDTH A' BAND CHANNEL 689

Output Level 38.5 dBm/ 7.2 Watts



LVL OFF

Date 08.May.'98 Time 05:22:35

Ref.Lvl 10.00 dBm

Marker -4.34 dBm

891.014 MHz

Res.Bw 30.0 KHz [3dB]

TG.Lvl -20.00 dBm

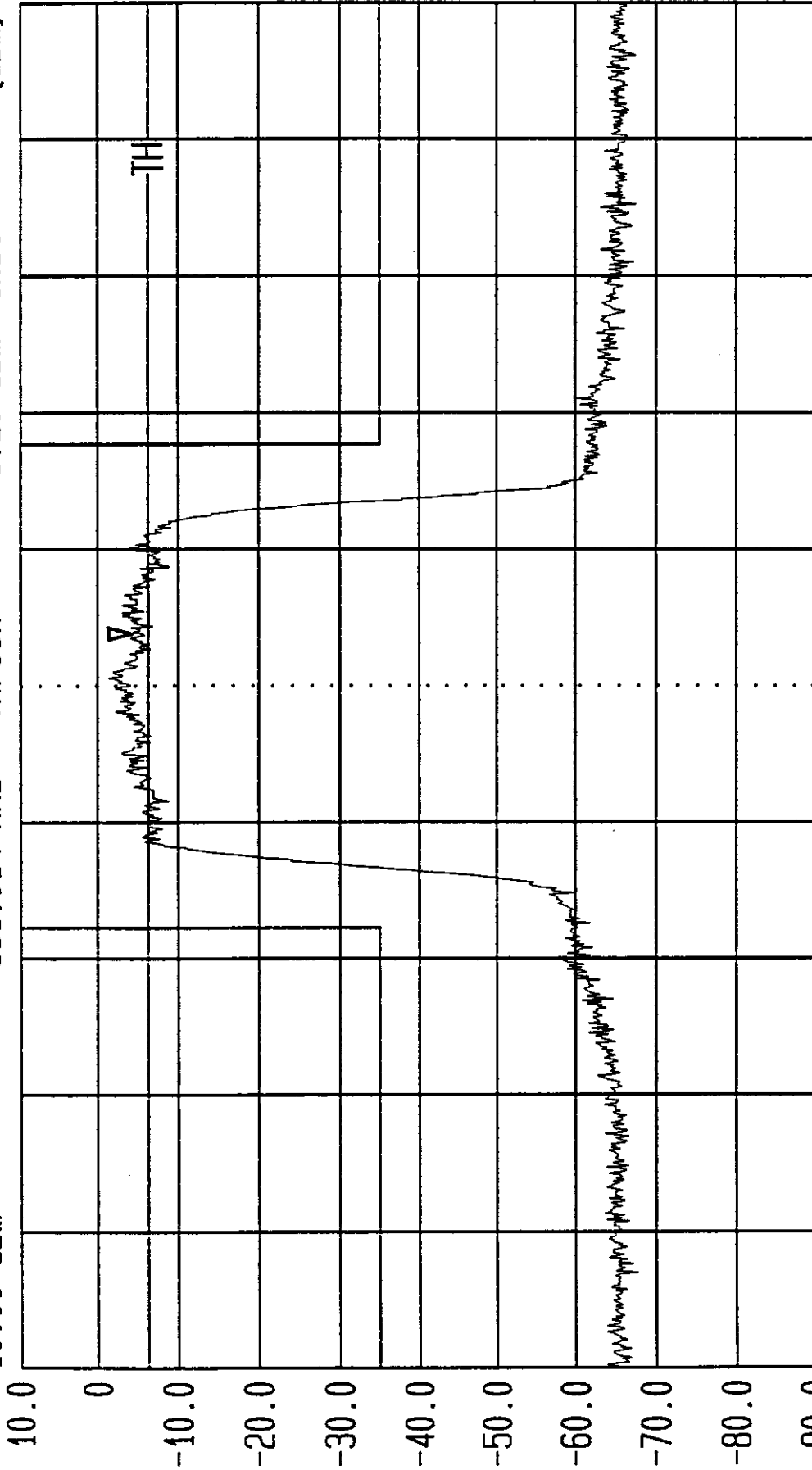
CF.Stp 500.000 KHz

Thresh -6.20 dBm

Vid.Bw 300 KHz

RF.Att 0 dB

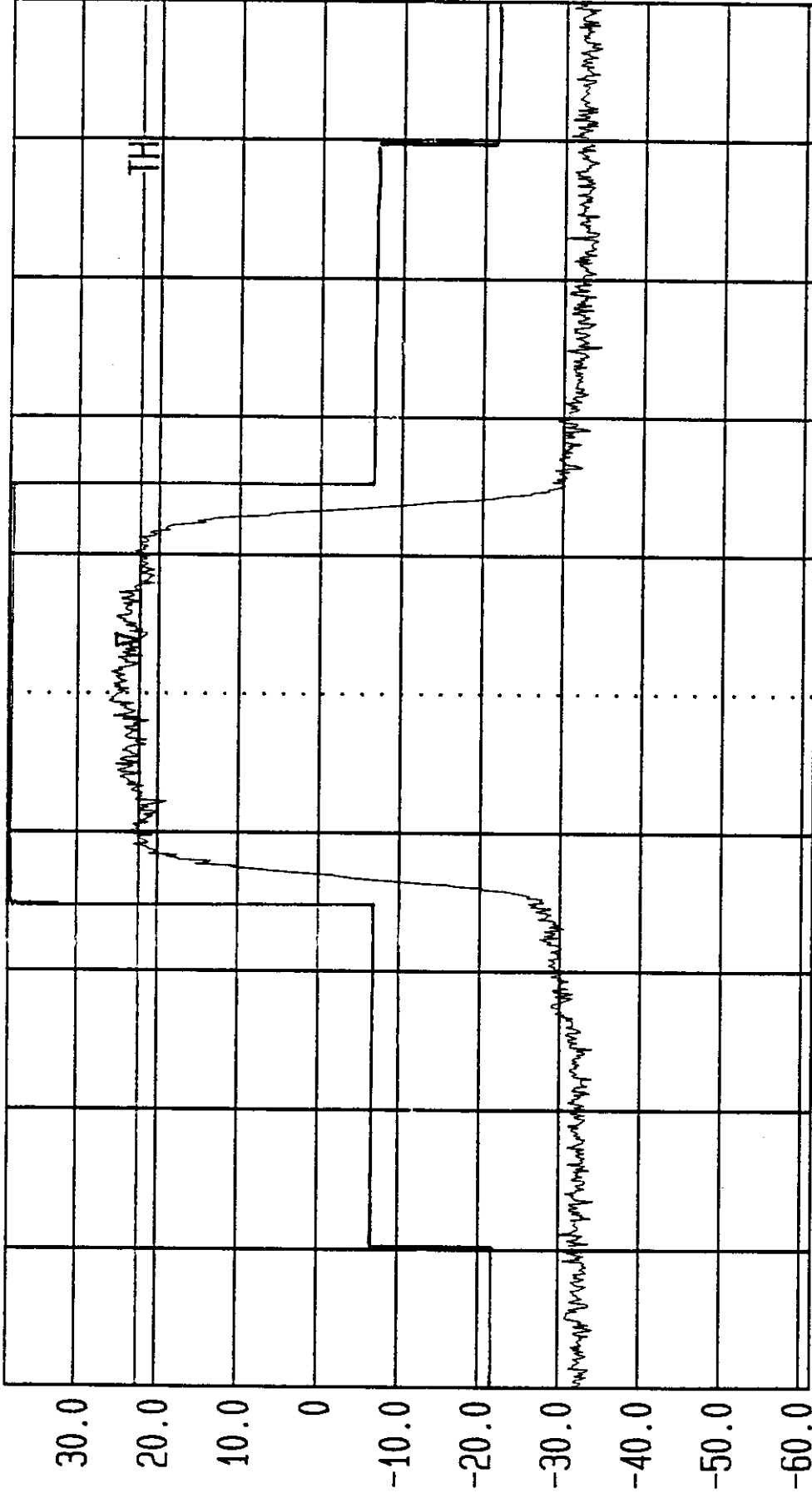
Unit [dBm]



AS5CMP-22 TPA Input OCCUPIED BANDWIDTH A' BAND CHANNEL 694



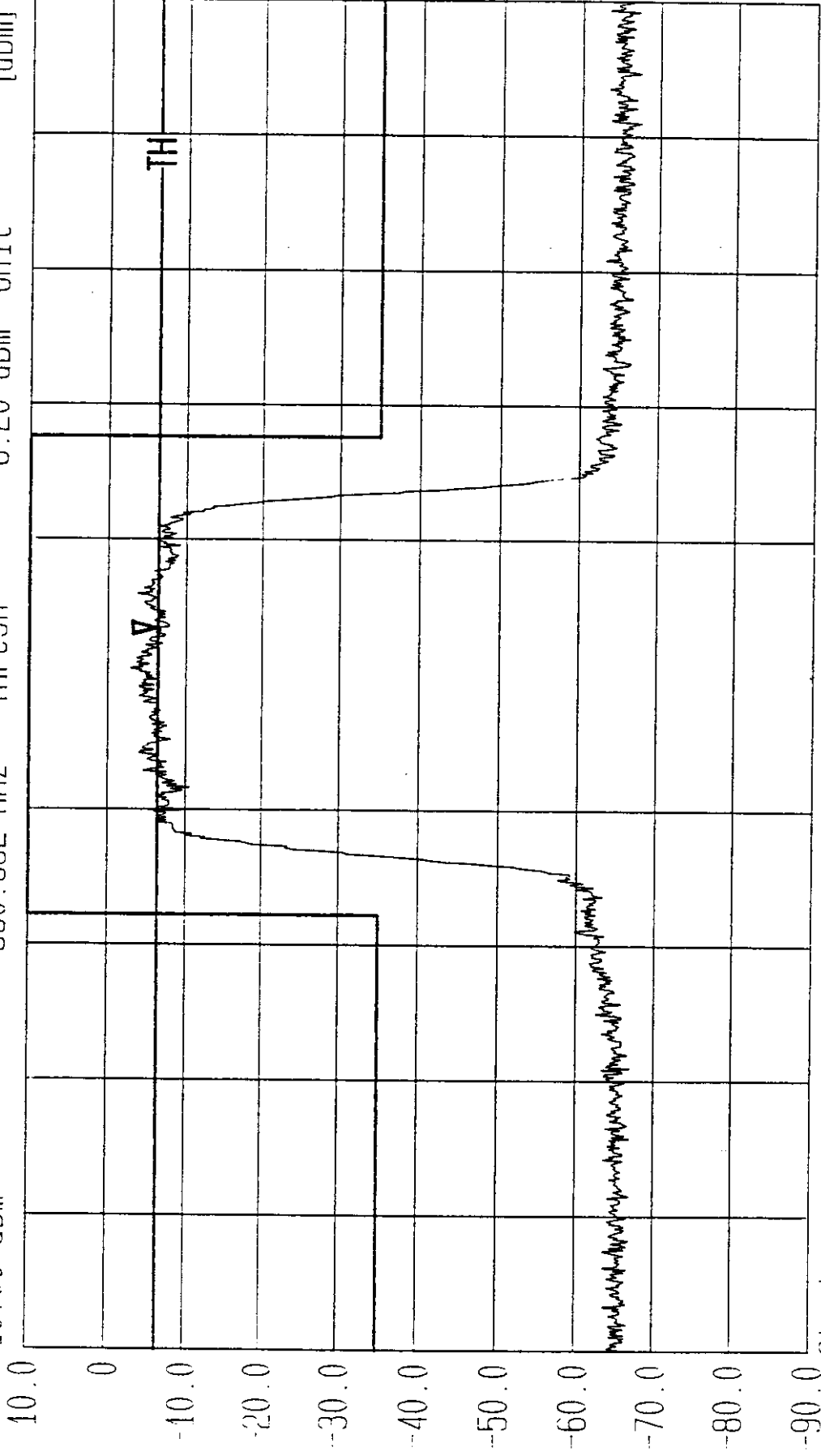
LVLOFF '98 Time 05:10:50 Res.Bw 30.0 kHz [3dB] Vid.Bw 300 kHz  
Date 08.May.'98 Marker 22.30 dBm TG.Lvl -20.00 dBm  
Ref.Lvl 38.50 dBm CF.Stp 500.000 kHz RF.Att 40 dB  
891.014 MHz Thresh 22.38 dBm Unit [dBm]



Start 888.32 MHz Span 5 MHz Center 890.82 MHz Sweep 20 ms Stop 893.32 MHz  
AS5CMP-22 TPA-Output OCCUPIED BANDWIDTH A' BAND CHANNEL 694  
Output Level 38.5 dBm/ 7.2 Watts



LVLOFF  
 Date 08. May. '98 Time 02:39:33  
 Ref. Lvl 10.00 dBm  
 Marker -6.07 dBm  
 880.852 MHz  
 Res. Bw 30.0 kHz [3dB]  
 TG. Lvl -20.00 dBm  
 CF. Stp 500.000 kHz  
 Thresh -6.20 dBm  
 Vid. Bw 300 kHz  
 RF. Att 0 dB  
 Unit [dBm]



Start 878.18 MHz  
 Span 5 MHz  
 Center 880.68 MHz  
 Sweep 20 ms  
 Stop 883.18 MHz  
 AS5CMP-22 TPA Input OCCUPIED BANDWIDTH B BAND CHANNEL 356



LVL OFF

Date 08.May.'98 Time 03:09:45

Ref.Lvl 38.50 dBm

Marker 23.42 dBm

880.852 MHz

Res.Bw 30.0 kHz [3dB]

TG.Lvl -20.00 dBm

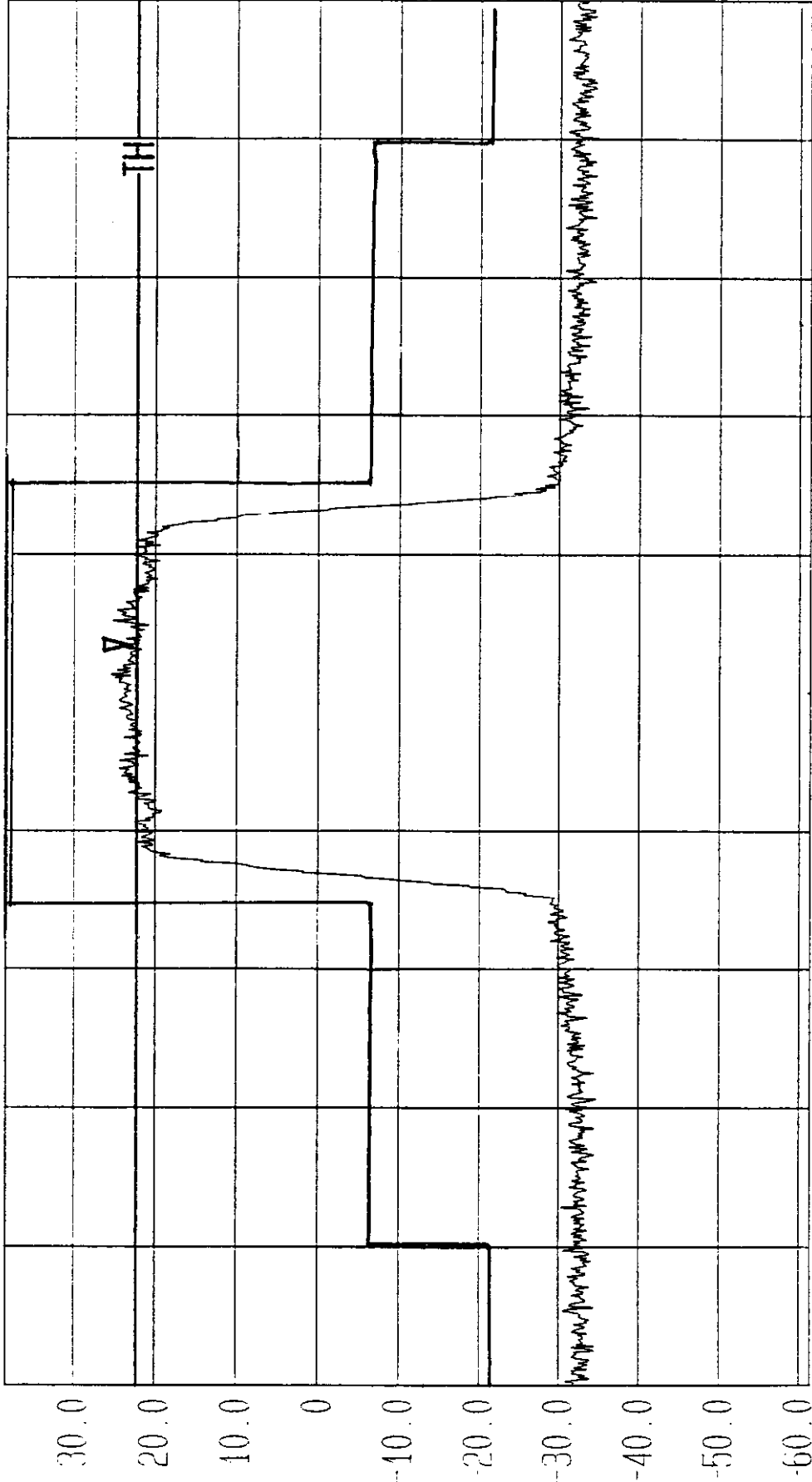
CF.Stp 500.000 kHz

Thresh 22.38 dBm

Vid.Bw 300 kHz

RF.Att 40 dB

Unit [dBm]



|       |            |        |            |       |       |      |            |
|-------|------------|--------|------------|-------|-------|------|------------|
| Start | 878.18 MHz | Center | 880.68 MHz | Sweep | 20 ms | Stop | 883.18 MHz |
|-------|------------|--------|------------|-------|-------|------|------------|

AS5CMP-22 TPA Output OCCUPIED BANDWIDTH B BAND CHANNEL 356  
 Output Level 38.5 dBm/ 7.2 Watts





LVL OFF

Date 08.May.'98 Time 01:37:17

Ref.Lvl 10.00 dBm

Marker -4.55 dBm

882.938 MHz

Res.Bw 30.0 kHz [3dB]

TG.Lvl -20.00 dBm

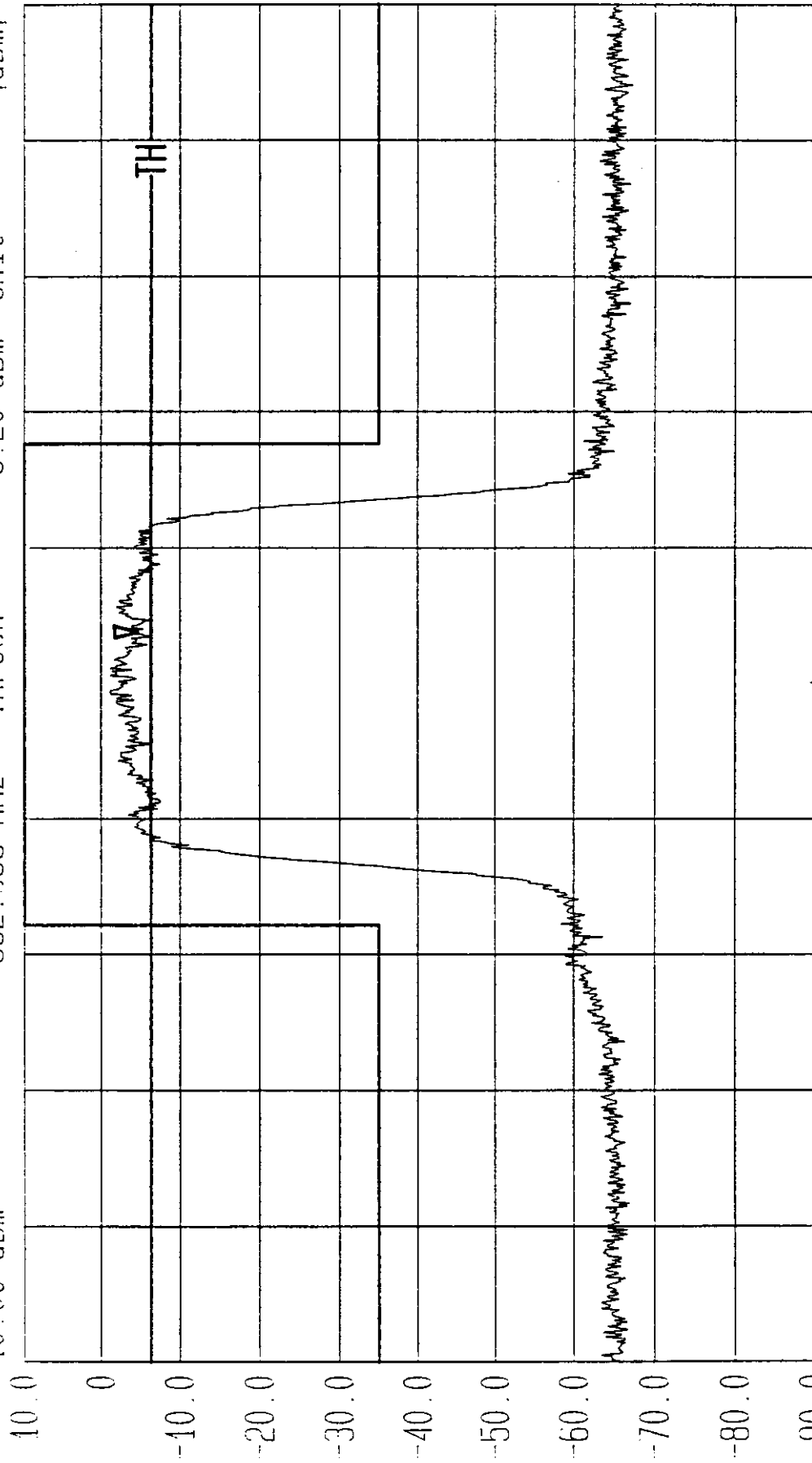
CF.Stp 500.000 kHz

Thresh -6.20 dBm

Vid.Bw 300 kHz

RF.Att 0 dB

Unit [dBm]



Start 880.25 MHz      Stop 885.25 MHz  
 Center 882.75 MHz  
 Span 5 MHz      Sweep 20 ms  
 Occupied Bandwidth 425

AS55CMP-22      TPA Input



Date 08.May.'98 Time 03:17:33

Ref.Lvl 38.50 dBm

Marker 23.60 dBm

882.872 MHz

Res.Bw 30.0 kHz [3dB]

TG.Lvl -20.00 dBm

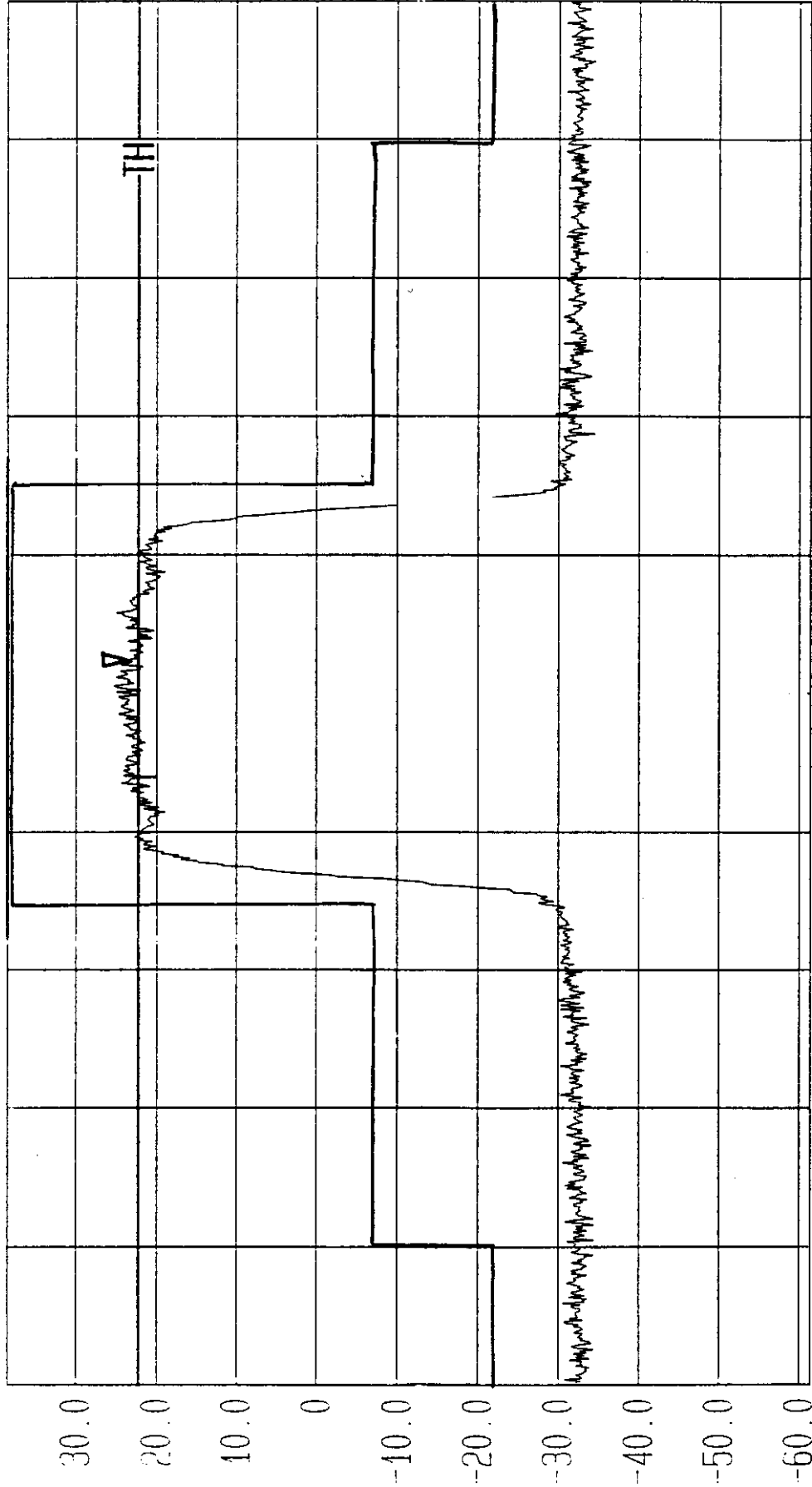
CF.Stp 500.000 kHz

Thresh 22.38 dBm

Vid.Bw 300 kHz

RF.Att 40 dB

Unit [dBm]



Start 880.25 MHz

Span 5 MHz

Center 882.75 MHz

Sweep 20 ms

Stop 885.25 MHz

AS5CMP-22 TPA Output OCCUPIED BANDWIDTH B BAND CHANNEL 425  
Output Level 38.5 dBm/ 7.2 Watts



LVL OFF

Date 08.May.'98 Time 01:25:34

Ref.Lvl 10.00 dBm

Marker -64.68 dBm

891.820 MHz

Res.Bw 30.0 kHz [3dB]

TG.Lvl -20.00 dBm

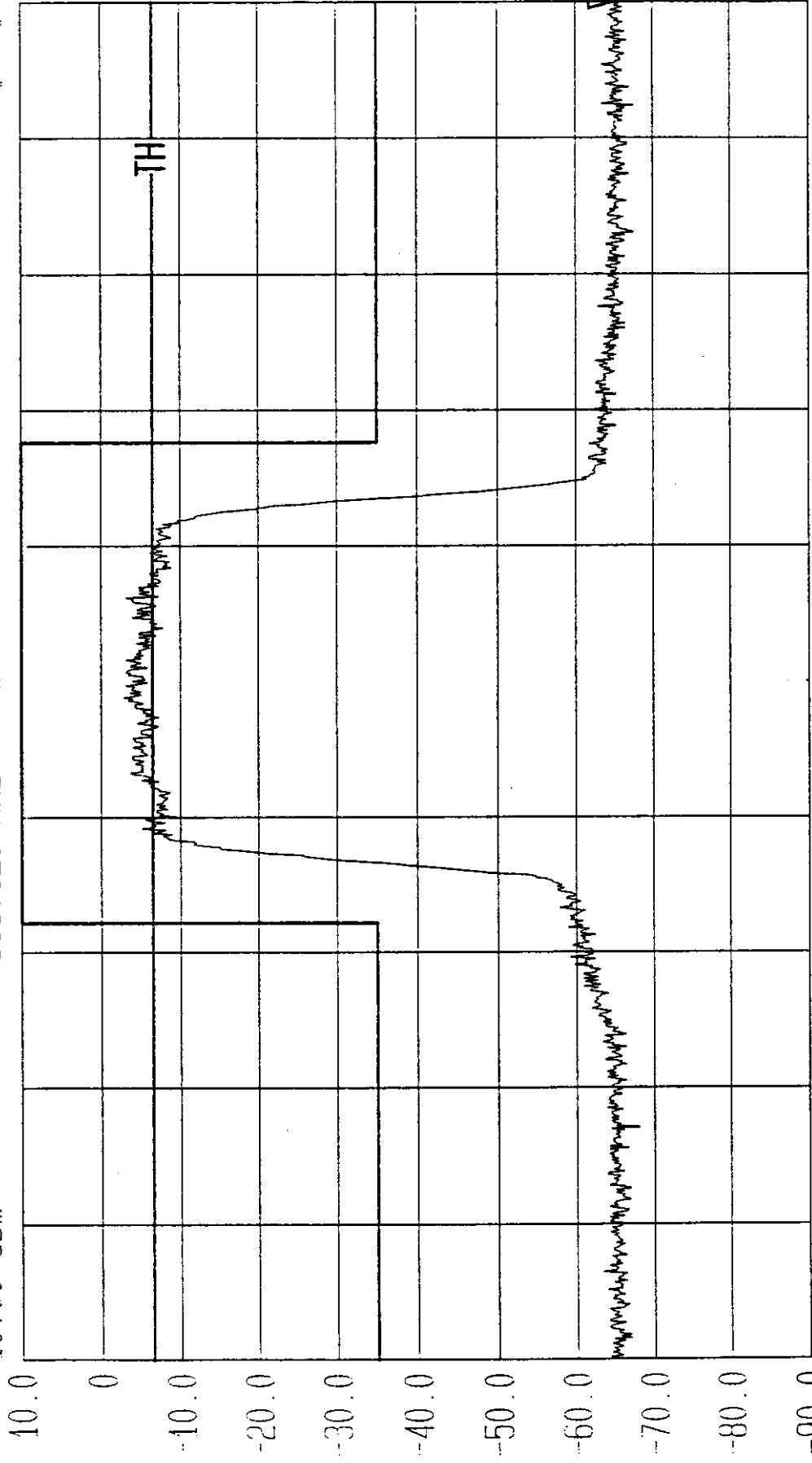
CF.Stp 500.000 kHz

Thresh -6.20 dBm

Vid.Bw 300 kHz

RF.Att 0 dB

Unit [dBm]



Start 886.82 MHz    Center 891.82 MHz    Stop 891.82 MHz  
 Span 5 MHz    Sweep 20 ms

AS5CMP-22    TPA Input    OCCUPIED BANDWIDTH    B BAND CHANNEL 644



LVL OFF

Date 08.May.'98 Time 03:21:55

Ref.Lvl 38.50 dBm

Marker 21.77 dBm

889.481 MHz

Res. Bw 30.0 kHz [3dB]

TG.Lvl -20.00 dBm

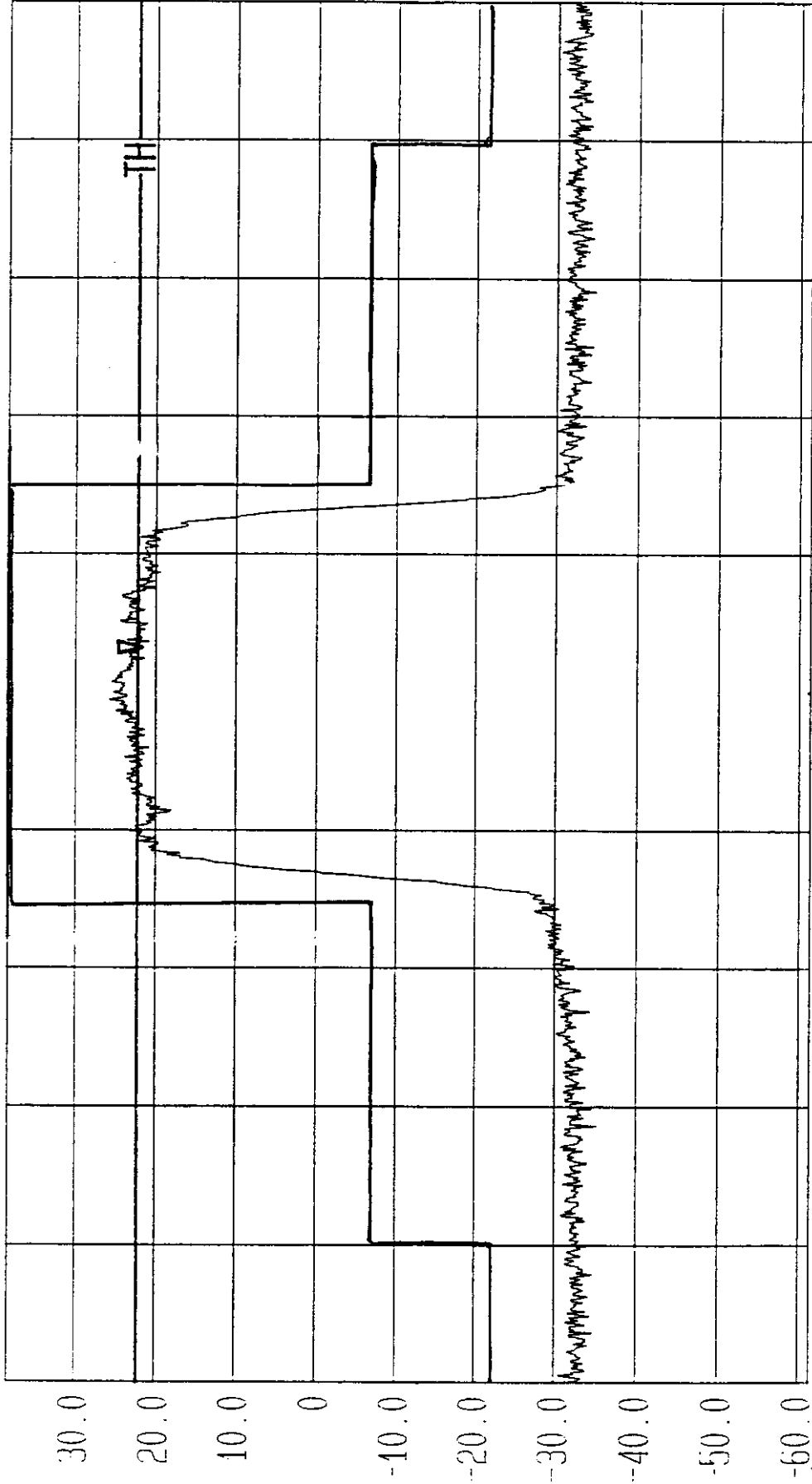
CF.Stp 500.000 kHz

Thresh 22.38 dBm

Vid.Bw 300 kHz

RF.Att 40 dB

Unit [dBm]



Start 886.82 MHz      Span 5 MHz      Center 889.32 MHz      Sweep 20 ms      Stop 891.82 MHz

AS5CMP-22      TPA-Output      OCCUPIED BANDWIDTH      B BAND CHANNEL 644

Output Level 38.5 dBm/ 7.2 Watts



LVL OFF

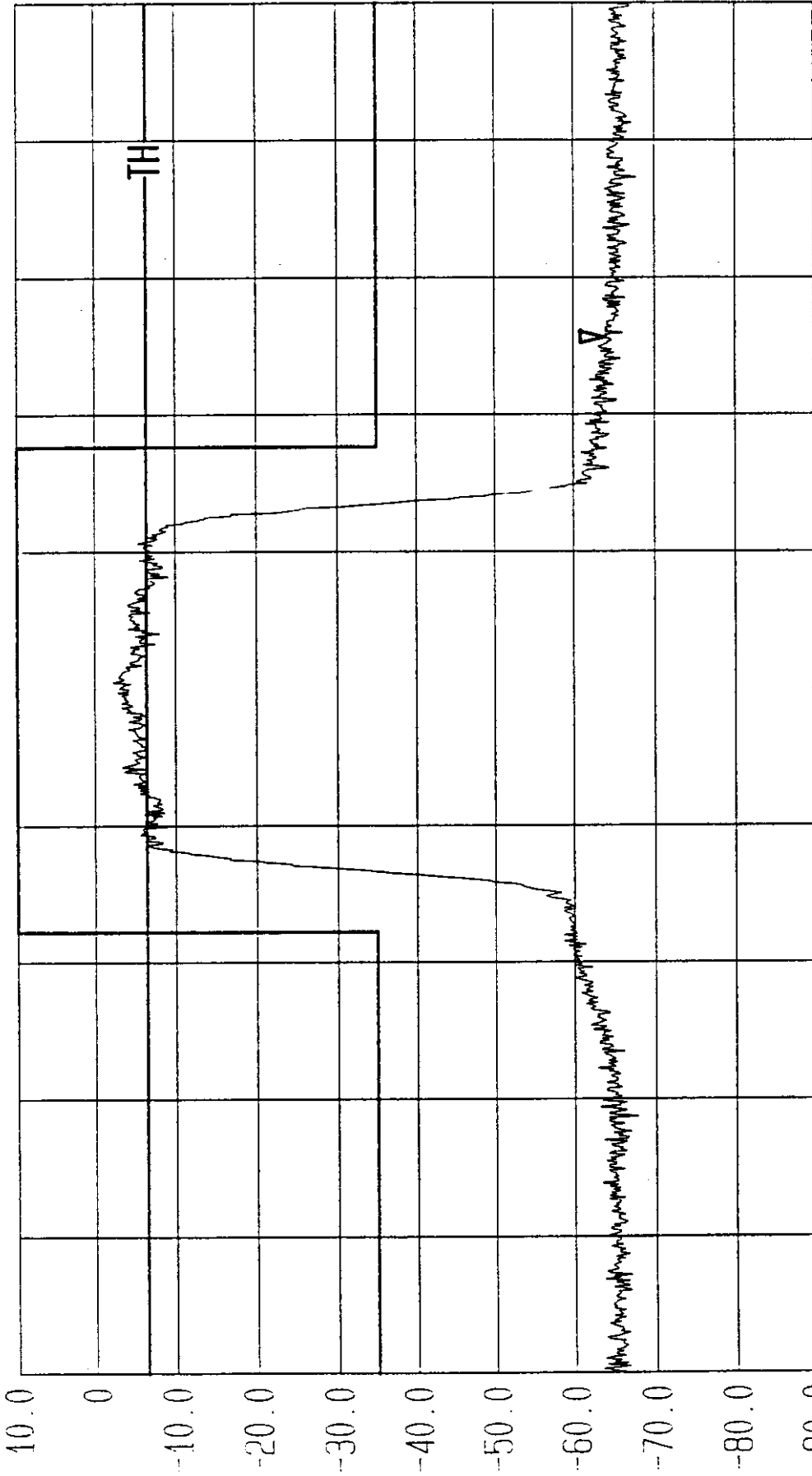
Date 08.May.'98 Time 00:07:14

Ref.Lvl 10.00 dBm  
Marker -63.86 dBm  
893.454 MHz

Res.Bw 30.0 kHz [3dB]  
IG.Lvl -20.00 dBm  
CF.Stp 500.000 kHz  
Thresh -6.20 dBm

Vid.Bw 300 kHz

AF.Att 0 dB  
Unit [dBm]



Start 889.67 MHz

Span 5 MHz

Center 892.17 MHz

Sweep 20 ms

Stop 894.67 MHz

AS5CMP-22 TPA Input

OCCUPIED BANDWIDTH

B' BAND CHANNEL 739



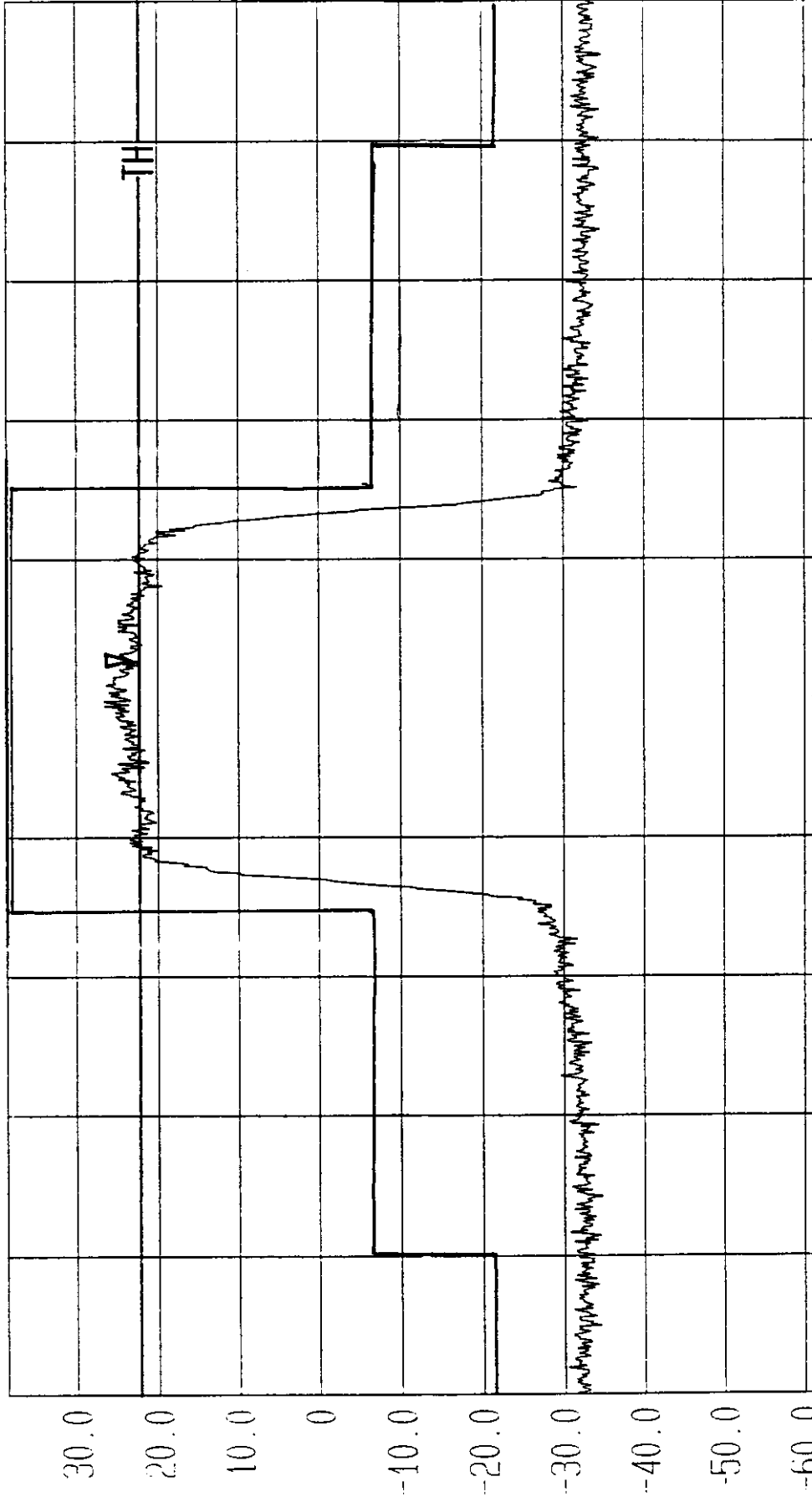
LVLOFF

Date 08.May.'98 Time 03:40:08

Ref.Lvl 38.50 dBm  
Marker 23.50 dBm  
892.308 MHz

Res.Bw 30.0 kHz [3dB]  
TG.Lvl -20.00 dBm  
CF.Stp 500.000 kHz  
Thresh 22.38 dBm

VID.Bw 300 kHz  
RF.Att 40 dB  
Unit [dBm]

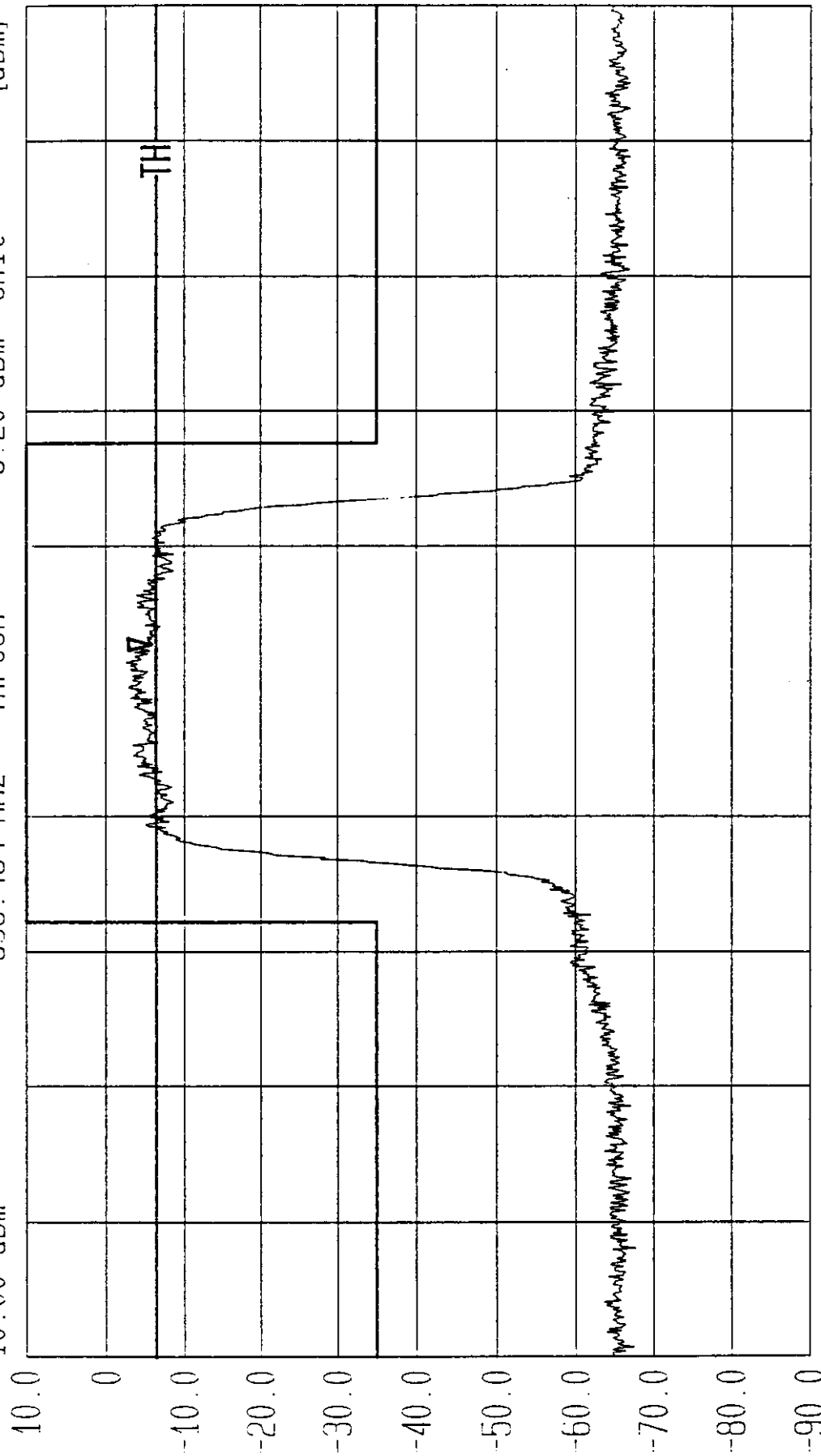


|            |            |       |            |
|------------|------------|-------|------------|
| Start      | Center     | Sweep | Stop       |
| 889.67 MHz | 892.17 MHz | 20 ms | 894.67 MHz |

AS5CMP-22 IPA Output OCCUPIED BANDWIDTH B BAND CHANNEL 739  
Output Level 38.5 dBm/ 7.2 Watts



LVLOFF  
 Date 08.May.'98 Time 00:03:59  
 Ref.Lvl 10.00 dBm  
 Marker -5.64 dBm  
 893.454 MHz  
 Res.Bw 30.0 kHz [3dB]  
 TG.Lvl -20.00 dBm  
 CF.Stp 500.000 kHz  
 Thresh -6.20 dBm  
 Vid.Bw 300 kHz  
 RF.Att 0 dB  
 Unit [dBm]

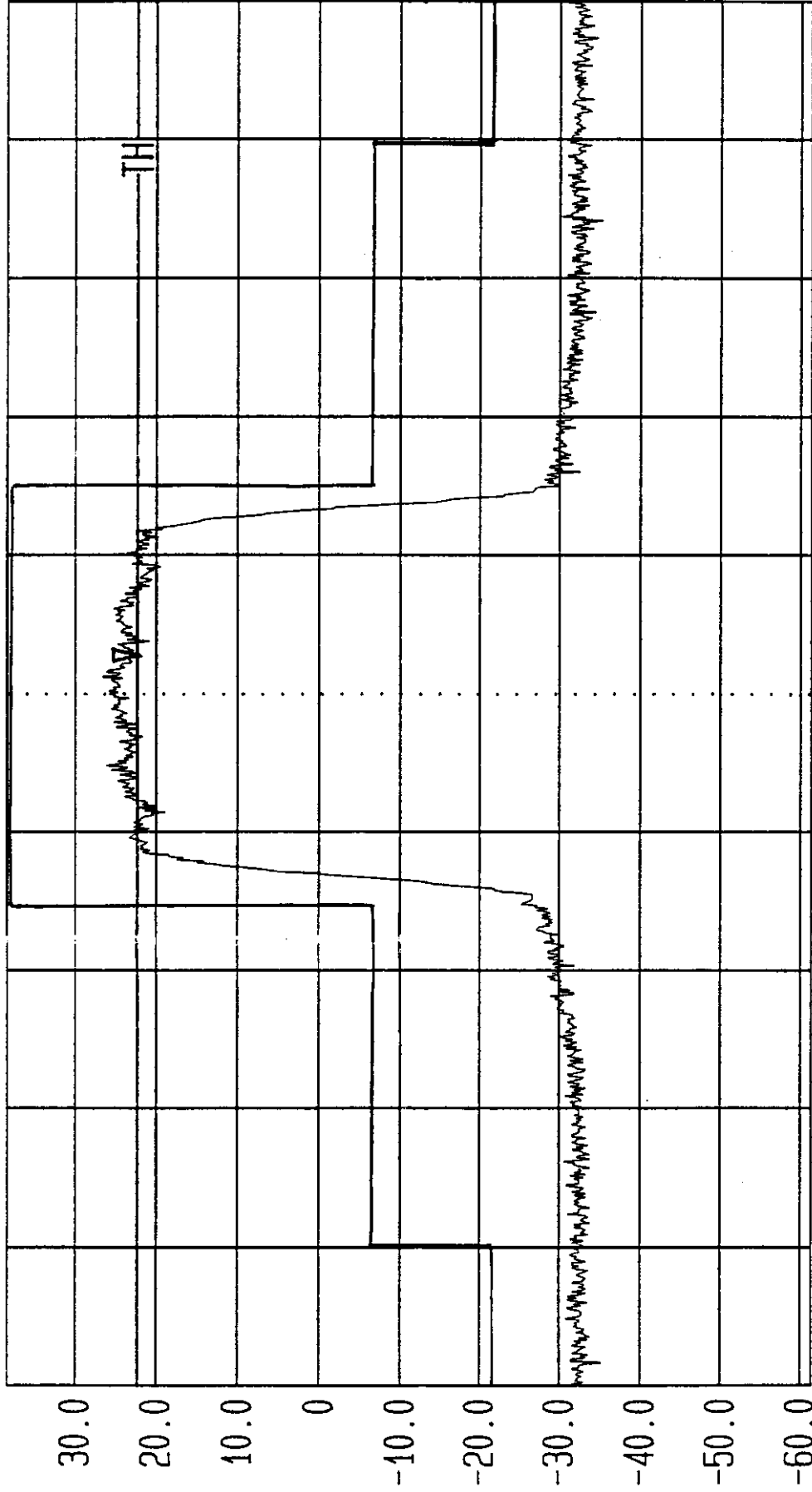


Start 890.81 MHz  
 Center 893.31 MHz  
 Stop 895.81 MHz  
 Span 5 MHz  
 Sweep 20 ms

AS5CMP-22 TPA Input OCCUPIED BANDWIDTH B' BAND CHANNEL 777



LVLOFF  
 Date 08.May.'98 Time 03:59:23  
 Ref.Lvl 38.50 dBm  
 Marker 22.38 dBm  
 893.454 MHz  
 Res.Bw 30.0 kHz [3dB]  
 TG.Lvl -20.00 dBm  
 CF.Stp 500.000 kHz  
 Thresh 22.38 dBm  
 Vid.Bw 300 kHz  
 RF.Att 40 dB  
 Unit [dBm]



Start 890.81 MHz  
 Span 5 MHz  
 Center 893.31 MHz  
 Sweep 20 ms  
 Stop 895.81 MHz  
 AS5CMP-22 TPA Output  
 Output Level 38.5 dBm/ 7.2 Watts  
 B' BAND CHANNEL 777



**Exhibit 15:****Section 2.991****Spurious Emissions at Antenna Terminals**

Spurious Emissions at the antenna terminals were investigated over the frequency range of 10 MHz to the 10th harmonic of the carrier frequency. The test setup was as described in figure 15A. Measurements were made using a Rohde & Schwarz ESMI EMI Test Receiver and an HP Model 7470A Plotter. The RF output from the transmitter was reduced (to an amplitude usable by the spectrum analyzer) by using a calibrated attenuator. The RF power level was continuously monitored via the test setup in Figure 15A. The required emission limitation specified in Section 22.907 of the Code was applied to these tests. The applied signal met the recommended characteristics per IS-95 section 10 as defined below.

Based upon the criterion given in Section 22.907 of the Code the required emission limitation is equal to -51.5 dBc or -13 dBm.

| Type    | Number of Channels | Fraction of Power (Linear) | Fraction of Power (dB) | Comments                                   |
|---------|--------------------|----------------------------|------------------------|--|
| Pilot   | 1                  | 0.2000                     | -7.0                   | Walsh 0                                    |
| Sync    | 1                  | 0.0471                     | -13.3                  | Walsh 32, always 1/8 rate                  |
| Paging  | 1                  | 0.1882                     | -7.3                   | Walsh 1, full rate only                    |
| Traffic | 6                  | 0.09412 each               | -10.3 each             | Variable Walsh Assignments, full rate only |

**TABLE 15.1 Base Station Test Model, Nominal**

**Results:**

The attached spectral plots document that there are no emissions above the applicable limit.



LVL OFF

Date 11. May '98 Time 22: 08: 40

Ref. Lvl 38.50 dBm

Marker 38.67 dBm

884.5 MHz

Res. Bw 1.0 MHz [3dB]

TG. Lvl -20.00 dBm

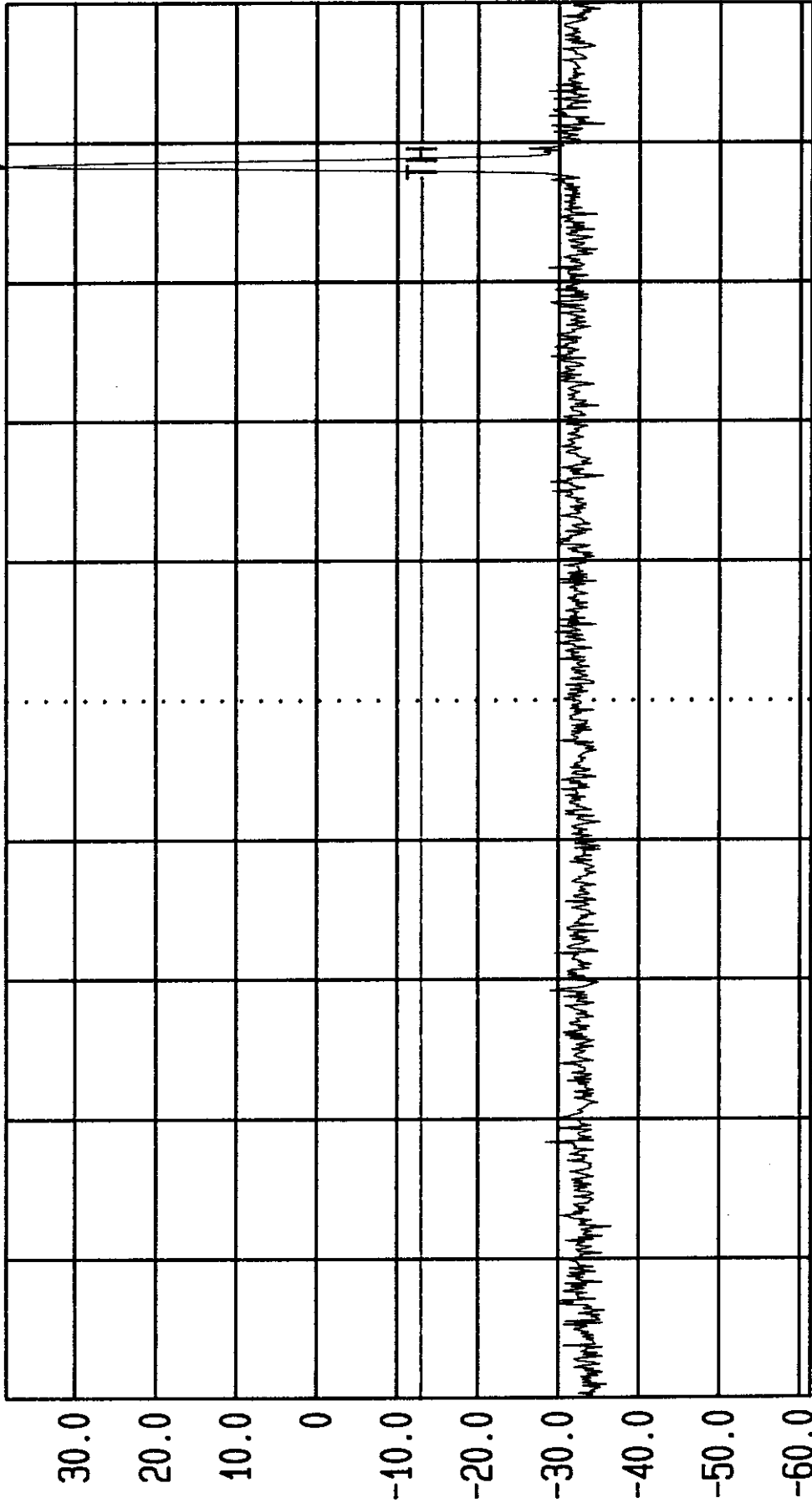
CF. Stp 99.000 MHz

Thresh -13.00 dBm

Vid. Bw 1 MHz

RF. Att 10 dB

Unit [dBm]



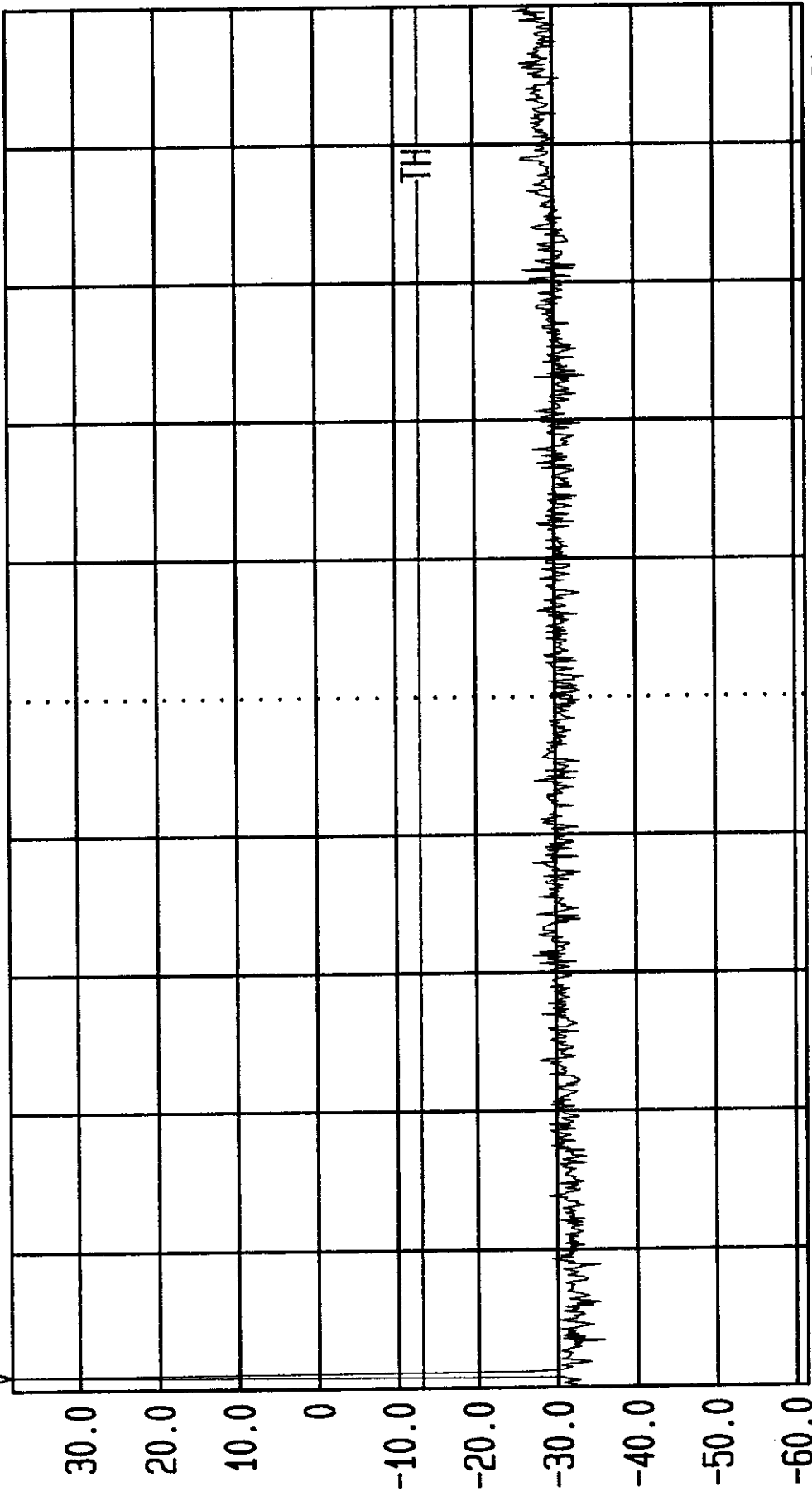
Start 10 MHz Stop 1 GHz  
 Span 990 MHz Sweep 20 ms  
 Center 505 MHz

AS5CMP-22 TPA Conducted Spurious Channel 384  
 Output Power 38.5 dBm / 7.2 Watts



LVLOFF  
Date 11. May. '98 Time 22: 26: 14  
Ref. Lvl 38.50 dBm  
Marker 38.52 dBm  
891.5 MHz

Res. Bw 1.0 MHz [3dB]  
TG. Lvl -20.00 dBm  
CF. Stp 415.000 MHz  
Thresh -13.00 dBm  
Vid. Bw 1 MHz  
RF. Att 10 dB  
Unit [dBm]

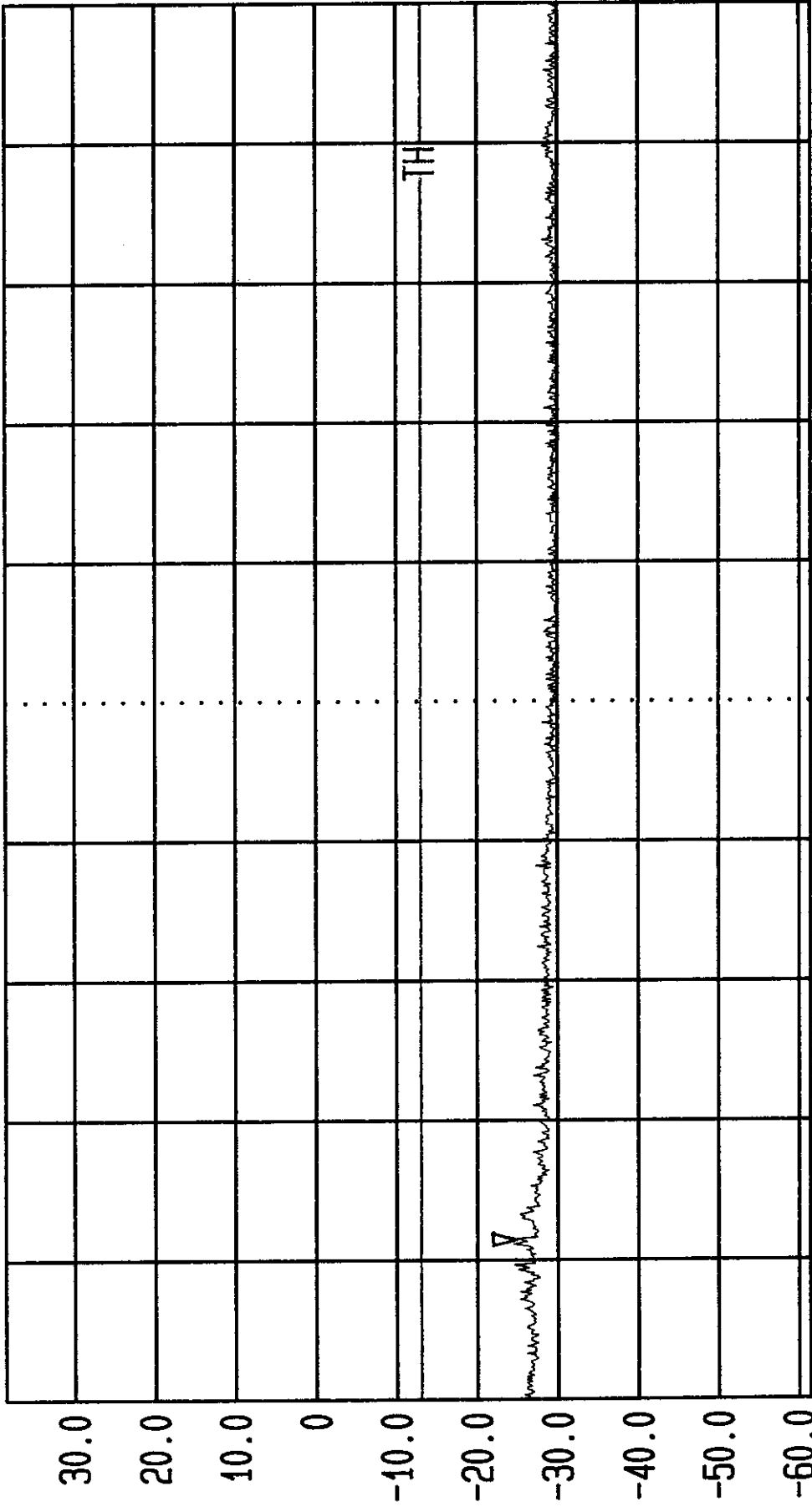


Start 0.850 GHz Center 2.925 GHz Stop 5 GHz  
Span 4.15 GHz Sweep 20 ms  
Conducted Spurious Channel 384  
Output Power 38.5 dBm / 7.2 Watts

AS5CMP-22 TPA



LVLOFF  
 Date 11.May.'98 Time 23:27:53  
 Ref.Lvl 38.50 dBm  
 Marker -25.11 dBm  
 5.5833 GHz  
 Res.Bw 1.0 MHz [3dB]  
 TG.Lvl off  
 CF.Stp 500.000 MHz  
 Thresh -13.00 dBm  
 Vid.Bw 1 MHz  
 RF.Att 10 dB  
 Unit [dBm]

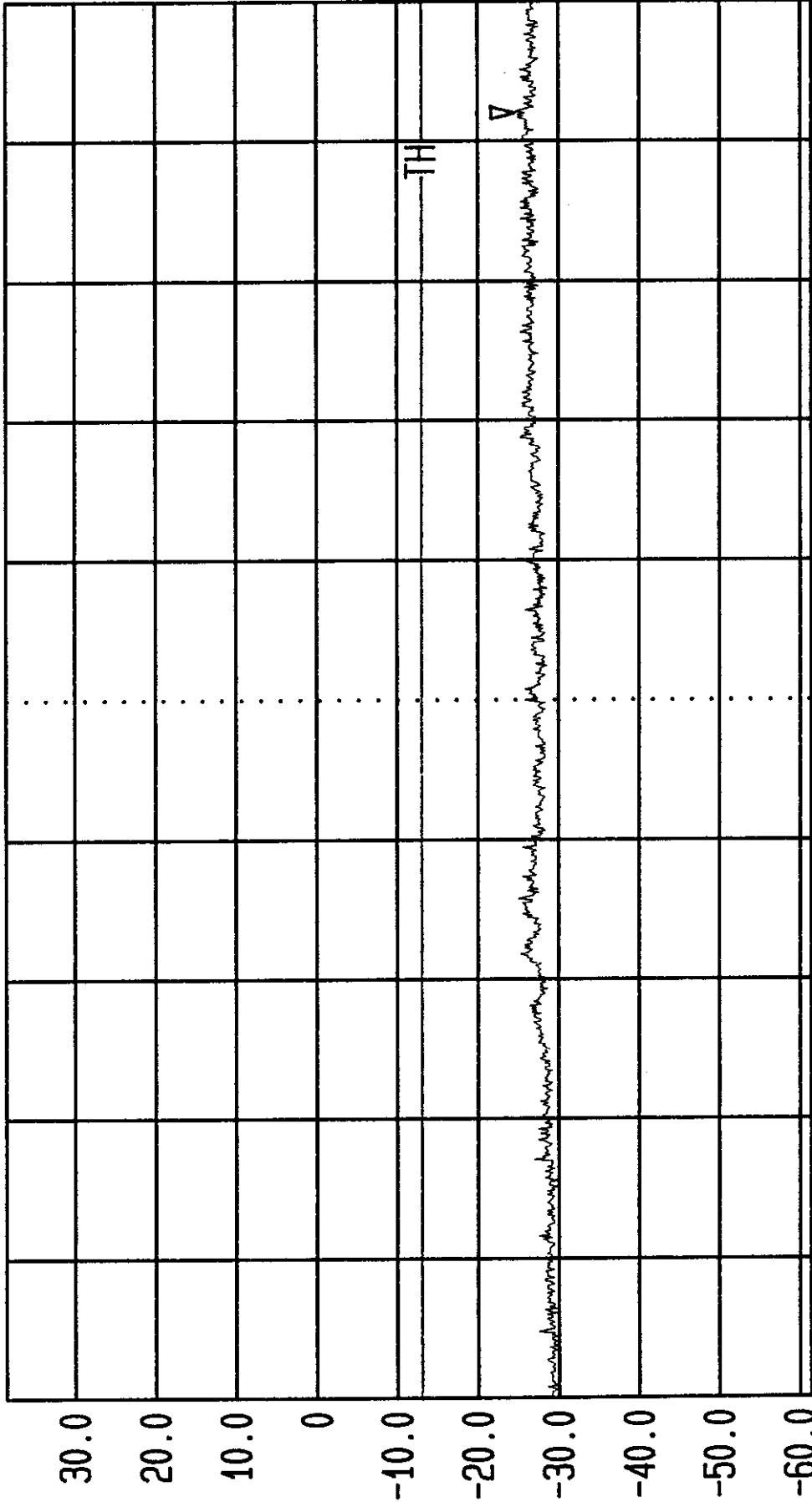


Start 5 GHz  
 Center 7.5 GHz  
 Stop 10 GHz  
 Span 5 GHz  
 Sweep 10.0 s

AS50MP-22 TPA Conducted Spurious Channel 384  
 Output Power 38.5 dBm / 7.2 Watts



LVLOFF  
 Date 11. May. '98 Time 23:38:32  
 Ref. Lvl 38.50 dBm  
 Marker -24.57 dBm  
 19.2111 GHz  
 Res. Bw 1.0 MHz [3dB]  
 TG. Lvl Off  
 CF. Stp 1.000 GHz  
 Thresh -13.00 dBm  
 Vid. Bw 1 MHz  
 RF. Att 10 dB  
 Unit



Start 10 GHz  
 Span 10 GHz  
 Center 15 GHz  
 Sweep 10.0 s  
 Stop 20 GHz

AS50MP-22 TPA Conducted Spurious Channel 384  
 Output Power 38.5 dBm / 7.2 Watts

**Exhibit 16****SECTION 2.993****FIELD STRENGTH OF SPURIOUS RADIATION**

Field strength measurements of radiated spurious emissions were made at a ten meter test site (open field) maintained by Lucent Technologies Bell Laboratories Department JC41AICOO in Whippany, New Jersey. A complete description and full measurement data for the site have been placed on file with the Commission.

The BCR was assembled with an TPA and all other associated equipment in a Series II CDMA expansion cabinet and Antenna Interface Frame. The spectrum from 10 MHz to the tenth harmonic of the carrier was searched for spurious radiation. Measurements were made using both horizontally and vertically polarized antennas. All emissions more than 20 dB below the specification limit were considered not reportable (Section 2.997).

The calculated emission levels were found by:

$$P_{\text{meas}} \text{ (dBm)} + \text{Cable Loss (dB)} + \text{Antenna Factor (dB)} + 107 \text{ (conv. factor)} \\ = \text{Field Strength (dBmicroV/m)}$$

Section 22.907 contains the requirements for the levels of spurious radiation as a function of the level of the unmodulated carrier. The reference level for the unmodulated carrier is calculated as the field produced by an ideal dipole excited by the transmitter output power according to the following relation taken from Reference Data for Radio Engineers, page 676, 4th edition, IT&T Corp.

$$E = [(49.2P)\exp(1/2)] / R$$

$$20 \log (E * 10\exp(6)) - (43 + 10 \log P) = 73.9 \text{ dB microV/meter}$$

E = Field Intensity in Volts/ meter

P = Transmitted Power in watts = 16 W

R = Distance in meters = 10 m

**RESULTS:**

For this particular test, the field strength of any spurious radiation is required to be less than 73.9 dB microV/meter. Reportable measurements are equal to or greater than 53.9 dB microV/meter. Over the spectrum investigated, 15 MHz to tenth harmonic of the carrier, no reportable spurious emissions were detected. This demonstrates that the Transmit Power Amplifier (TPA), the subject of this application, complies with Sections 2.993, 22.907 and 2.997 of the Rules.

**Exhibit 17****SECTION 2.995****MEASUREMENT OF FREQUENCY STABILITY****RESPONSE:**

The frequency stabilization and accuracy of the CDMA signal amplified by the TPA is a function of the input signal which is provided by the BCR (FCC ID: AS5CMP-12). The Reference Frequency Timing Generator (RFTG-m) is the GPS locked signal source used for frequency lock by the BCR and was previously reported for FCC ID: AS5CMP-12. The Reference Frequency Timing Generator (RFTG-m) is being replaced in all Lucent CDMA equipment by either the RFTG-mII or the RFTG-U. The RFTG-mII is an RFTG-m unit whose output amplifier is adjusted to provide an additional +6dB increase in amplitude of the output timing signal. The signal level is then reduced via a signal coupler to provide the same signal level for distribution throughout the equipment. This was done to provide this signal to a greater number of co-located equipment. The RFTG-U is a new design which uses the same Rubidium reference oscillator as the RFTG-m. Both devices meet the frequency stability requirements necessary for AUTOPLEX® system compliance with FCC Rules for frequency stability. These devices are compliant with FCC Part 15 rules when powered and installed in Lucent Technologies cabinets.

The following data shows frequency stability tests for the RFTG-U.

### 10 MHz Frequency and Power Variations Over Temperature (Locked to GPS)

REF 0 (Primary)

| Temperature<br>(deg. C) | Max. Freq Deviation<br>(Parts per Billion) |
|-------------------------|--|
| 0                       | 0.54                                       |
| 10                      | 0.11                                       |
| 20                      | 0.10                                       |
| 30                      | 0.07                                       |
| 40                      | 0.09                                       |
| 50                      | 0.13                                       |
| 60                      | 0.56                                       |
| 65                      | 2.14                                       |
| Spec                    | 50.00                                      |
| Result                  | Pass                                       |

REF 0 (Primary)

| Temperature<br>(deg. C) | Power (dBm) |         |
|-------------------------|-------------|---------|
|                         | Maximum     | Minimum |
| 0                       | 23.40       | 23.39   |
| 10                      | 23.44       | 23.44   |
| 20                      | 23.45       | 23.45   |
| 30                      | 23.42       | 23.41   |
| 40                      | 23.35       | 23.35   |
| 50                      | 23.29       | 23.28   |
| 60                      | 23.20       | 23.20   |
| 65                      | 23.17       | 23.17   |
| Spec                    | 25.00       | 21.00   |
| Result                  | Pass        | Pass    |

REF 2 (Secondary)

| Temperature<br>(deg. C) | Max. Freq Deviation<br>(Parts per Billion) |
|-------------------------|--|
| 0                       | 0.40                                       |
| 10                      | 0.05                                       |
| 20                      | 0.04                                       |
| 30                      | 0.13                                       |
| 40                      | 0.05                                       |
| 50                      | 0.05                                       |
| 60                      | 0.02                                       |
| 65                      | 0.03                                       |
| Spec                    | 50.00                                      |
| Result                  | Pass                                       |

REF 1 (Secondary)

| Temperature<br>(deg. C) | Power (dBm) |         |
|-------------------------|-------------|---------|
|                         | Maximum     | Minimum |
| 0                       | 23.40       | 23.39   |
| 10                      | 23.45       | 23.44   |
| 20                      | 23.48       | 23.47   |
| 30                      | 23.46       | 23.46   |
| 40                      | 23.41       | 23.40   |
| 50                      | 23.35       | 23.34   |
| 60                      | 23.27       | 23.26   |
| 65                      | 23.24       | 23.24   |
| Spec                    | 25.00       | 21.00   |
| Result                  | Pass        | Pass    |

Note: All tabulated results are computed from 10 measurements taken at the corresponding voltage.



### 10 MHz Frequency and Power Variations Over Temperature (Not Locked to GPS)

**REF 0 (Primary)**

| Temperature<br>(deg. C) | Max. Freq Deviation<br>(Parts per Billion) |
|-------------------------|--|
| 0                       | 0.23                                       |
| 10                      | 0.33                                       |
| 20                      | 0.34                                       |
| 30                      | 0.35                                       |
| 40                      | 0.48                                       |
| 50                      | 0.55                                       |
| 60                      | 0.66                                       |
| 65                      | 2.44                                       |
| Spec                    | 50.00                                      |
| Result                  | Pass                                       |

**REF 0 (Primary)**

| Temperature<br>(deg. C) | Power (dBm) |         |
|-------------------------|-------------|---------|
|                         | Maximum     | Minimum |
| 0                       | 23.16       | 23.15   |
| 10                      | 23.16       | 23.16   |
| 20                      | 23.16       | 23.15   |
| 30                      | 23.13       | 23.12   |
| 40                      | 23.07       | 23.06   |
| 50                      | 22.99       | 22.98   |
| 60                      | 22.92       | 22.90   |
| 65                      | 23.18       | 23.18   |
| Spec                    | 25.00       | 21.00   |
| Result                  | Pass        | Pass    |

**REF 2 (Secondary)**

| Temperature<br>(deg. C) | Max. Freq Deviation<br>(Parts per Billion) |
|-------------------------|--|
| 0                       | 0.26                                       |
| 10                      | 0.39                                       |
| 20                      | 0.39                                       |
| 30                      | 0.63                                       |
| 40                      | 0.55                                       |
| 50                      | 0.63                                       |
| 60                      | 0.72                                       |
| 65                      | 2.60                                       |
| Spec                    | 50.00                                      |
| Result                  | Pass                                       |

**REF 1 (Secondary)**

| Temperature<br>(deg. C) | Power (dBm) |         |
|-------------------------|-------------|---------|
|                         | Maximum     | Minimum |
| 0                       | 23.15       | 23.12   |
| 10                      | 23.17       | 23.17   |
| 20                      | 23.19       | 23.18   |
| 30                      | 23.16       | 23.16   |
| 40                      | 23.11       | 23.10   |
| 50                      | 23.03       | 23.02   |
| 60                      | 22.96       | 22.95   |
| 65                      | 23.26       | 23.25   |
| Spec                    | 25.00       | 21.00   |
| Result                  | Pass        | Pass    |

Note: All tabulated results are computed from 10 measurements taken at the corresponding voltage.

**10 MHz Frequency and Power Variations Over Voltage  
(@ 25 deg. C & Not Locked to GPS)**

**REF 0 (Primary)**

| Voltage (VDC) | Max. Freq Deviation (Parts per Billion) |
|---------------|---|
| 19            | 1.01                                    |
| 20            | 0.97                                    |
| 21            | 0.88                                    |
| 22            | 0.86                                    |
| 23            | 0.83                                    |
| 24            | 0.84                                    |
| 25            | 0.84                                    |
| 26            | 0.81                                    |
| 27            | 0.81                                    |
| 28            | 0.81                                    |
| 29            | 0.80                                    |
| 30            | 0.80                                    |
| 31            | 0.83                                    |
| 32            | 0.85                                    |
| Spec          | 50.00                                   |
| Result        | Pass                                    |

**REF 0 (Primary)**

| Voltage (VDC) | Power (dBm) |         |
|---------------|-------------|---------|
|               | Maximum     | Minimum |
| 19            | 23.42       | 23.41   |
| 20            | 23.42       | 23.41   |
| 21            | 23.42       | 23.42   |
| 22            | 23.42       | 23.42   |
| 23            | 23.42       | 23.42   |
| 24            | 23.42       | 23.42   |
| 25            | 23.42       | 23.42   |
| 26            | 23.42       | 23.42   |
| 27            | 23.42       | 23.42   |
| 28            | 23.42       | 23.42   |
| 29            | 23.42       | 23.42   |
| 30            | 23.42       | 23.42   |
| 31            | 23.42       | 23.42   |
| 32            | 23.42       | 23.42   |
| Spec          | 25.00       | 21.00   |
| Result        | Pass        | Pass    |

**REF 1 (Secondary)**

| Voltage (VDC) | Max. Freq Deviation (Parts per Billion) |
|---------------|---|
| 19            | 0.80                                    |
| 20            | 0.75                                    |
| 21            | 0.95                                    |
| 22            | 0.87                                    |
| 23            | 0.90                                    |
| 24            | 0.92                                    |
| 25            | 0.89                                    |
| 26            | 0.88                                    |
| 27            | 0.88                                    |
| 28            | 0.84                                    |
| 29            | 0.86                                    |
| 30            | 0.87                                    |
| 31            | 0.87                                    |
| 32            | 0.93                                    |
| Spec          | 50.00                                   |
| Result        | Pass                                    |

**REF 1 (Secondary)**

| Voltage (VDC) | Power (dBm) |         |
|---------------|-------------|---------|
|               | Maximum     | Minimum |
| 19            | 23.44       | 23.43   |
| 20            | 23.42       | 23.43   |
| 21            | 23.42       | 23.43   |
| 22            | 23.42       | 23.43   |
| 23            | 23.42       | 23.43   |
| 24            | 23.42       | 23.44   |
| 25            | 23.42       | 23.44   |
| 26            | 23.42       | 23.44   |
| 27            | 23.42       | 23.44   |
| 28            | 23.42       | 23.44   |
| 29            | 23.42       | 23.44   |
| 30            | 23.42       | 23.44   |
| 31            | 23.42       | 23.44   |
| 32            | 23.44       | 23.44   |
| Spec          | 25.00       | 21.00   |
| Result        | Pass        | Pass    |

Note: All tabulated results are computed from 10 measurements taken at the corresponding voltage.

**Exhibit 19****SECTION 2.983 (g)**

Photographs (8"x10") of the equipment of sufficient clarity to reveal equipment construction and layout, including meters, if any, and labels for controls and meters and sufficient views of the internal construction to define component placement and chassis assembly. Insofar as these requirements are met by photographs or drawings contained in the instruction manuals supplied with the type acceptance request, additional photographs are necessary only to complete the required showing.

**RESPONSE:**

The following photographs show the construction and layout of the TPA.