

## APPENDIX C

### TIME DOMAIN MEASUREMENTS

This Appendix contains detailed time waveform measurements and associated amplitude-probability distribution (APDs) curves. The APD data is derived from the raw time scan (time waveforms) measurements. Time domain measurements at single frequencies provide information necessary for assessing the feasibility of operating receivers in close proximity to microwave ovens. Due to the time required to perform them, the detailed time waveform measurements were conducted on five of the thirteen ovens. These ovens included #1, #5 and #10 representing the ovens with the highest adjacent band emission spectrum characteristics, and ovens #7 and #11 representing ovens with the lowest adjacent band emission spectrum characteristics (see Volume 1, Figures 5-5a, 5-6a, 5-7a, 5-12a and 5-17a).

For these measurements, a pre-selector and pre-amplifier were used ahead of the spectrum analyzer to increase the spectrum analyzer sensitivity thus permitting detailed time waveform measurements at lower noise levels. One hundred scans were performed at six different bandwidths (10, 30, 100, and 300 kHz, as well as 1 and 3 MHz) and seven different frequencies (2300, 2350, 2400, 2450, 2500, 2550, and 2600 MHz). Each time scan measurement was composed of 1001 points acquired in 20 ms using the sample detector. Thus, at each frequency and bandwidth combination, a total of 100,000 points, at 20  $\mu$ s per point, was accumulated. A total of 2 seconds of time waveform data was acquired with 20  $\mu$ s resolution at each combination of bandwidth and frequency for each of the five ovens. Though this approach limited the number of pulses recorded in each scan, it increased the resolution of the recorded signals and the associated APDs.

Vast amounts of data were taken by NTIA/ITS throughout this project and therefore, a limited set of data is displayed in this Appendix. Ovens #1, #5, and #11 show a 3 MHz bandwidth with four time waveforms per frequency per page at frequencies of 2300, 2350, 2400, 2450, 2500, 2550, and 2600 MHz. An associated APD for each oven is shown at the above frequencies with a 3 MHz bandwidth. Ovens #7 and #11 show three different bandwidths (30 kHz, 300 kHz, and 3 MHz) with four time waveforms per frequency per page at the above frequencies. An associated APD for each oven is shown at each frequency with the above bandwidths.

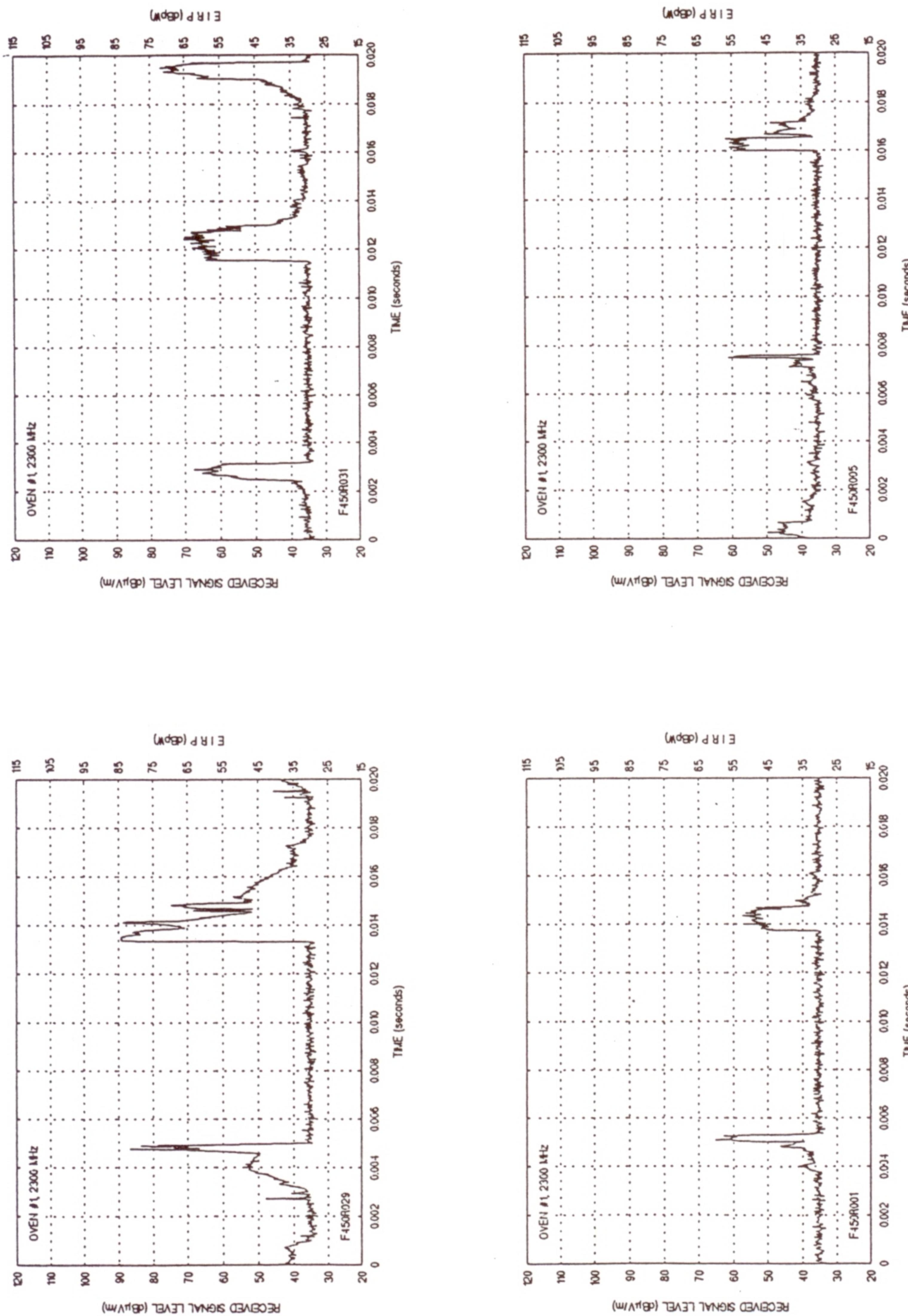


Figure C-1. Oven #1, Time vs. Amplitude displays at 2300 MHz with 3 MHz bandwidth.

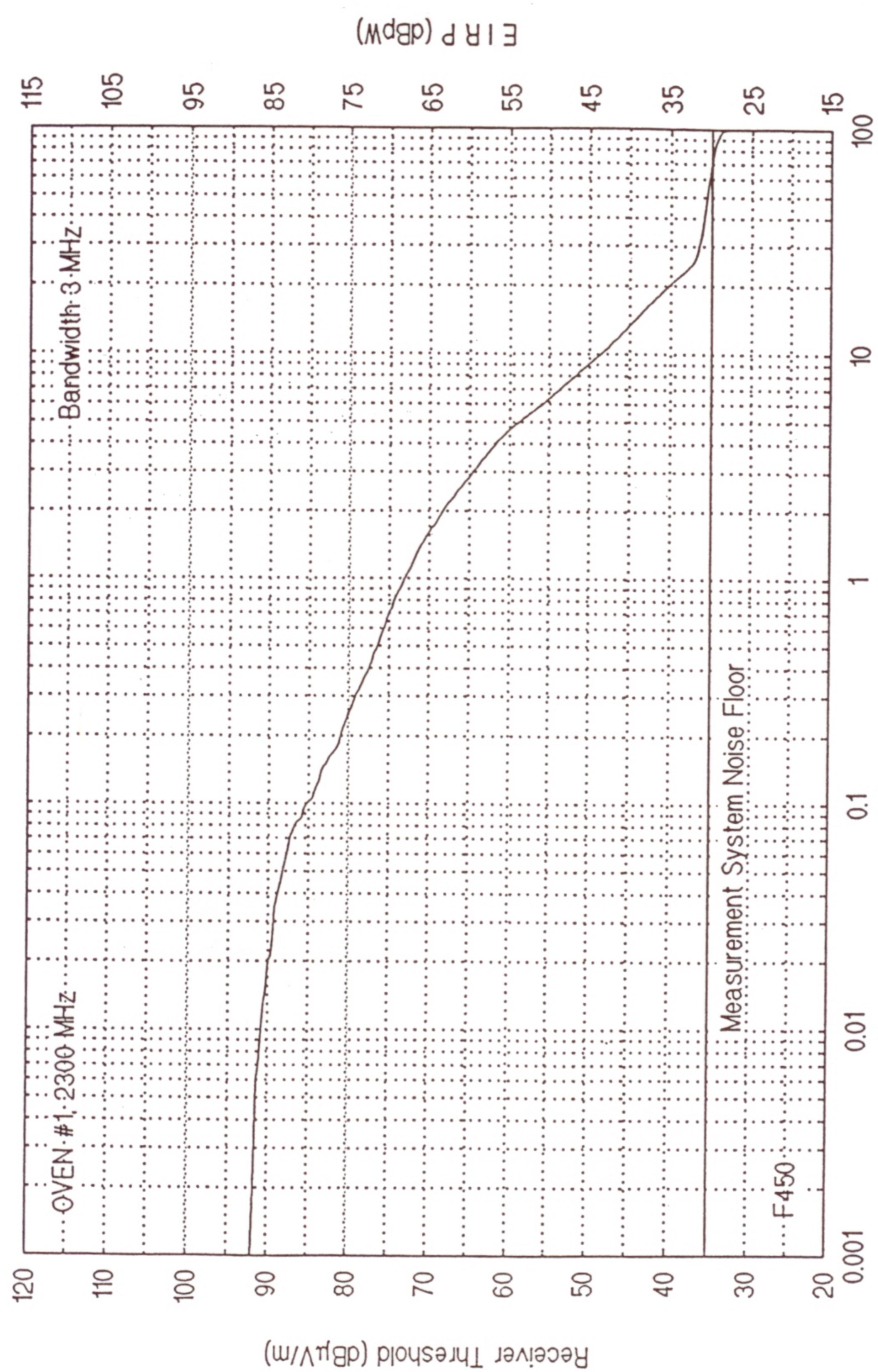
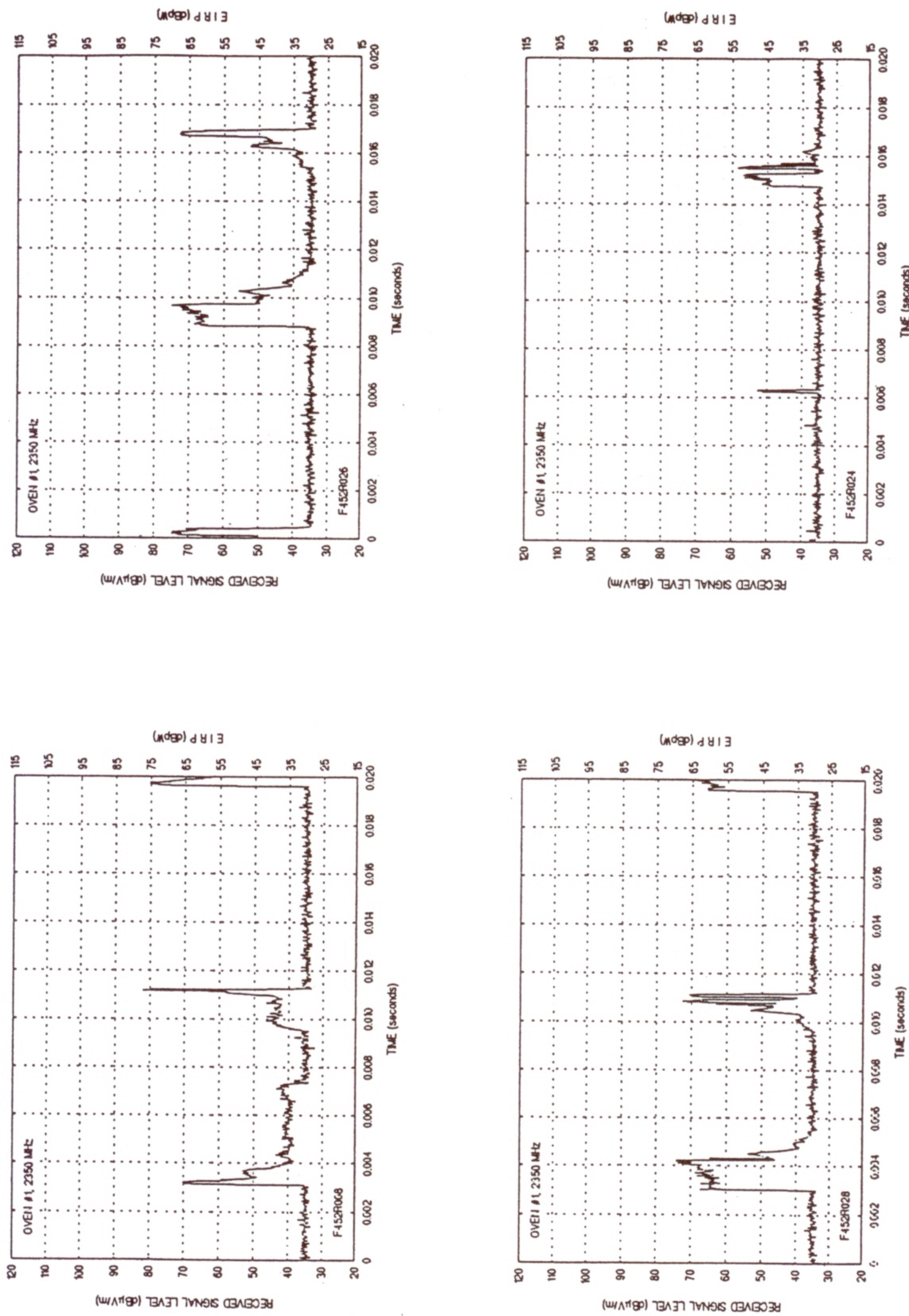


Figure C-2. Oven #1, Amplitude-Probability Distribution at 2300 MHz with 3 MHz bandwidth.  
Percentage of 20-μsec Intervals with Peak Signal Exceeding Threshold

**Appendix-C**

**Time Domain Measurements**



**Figure C-3.** Oven #1, Time #1, Time vs. Amplitude displays at 2350 MHz with 3 MHz bandwidth.

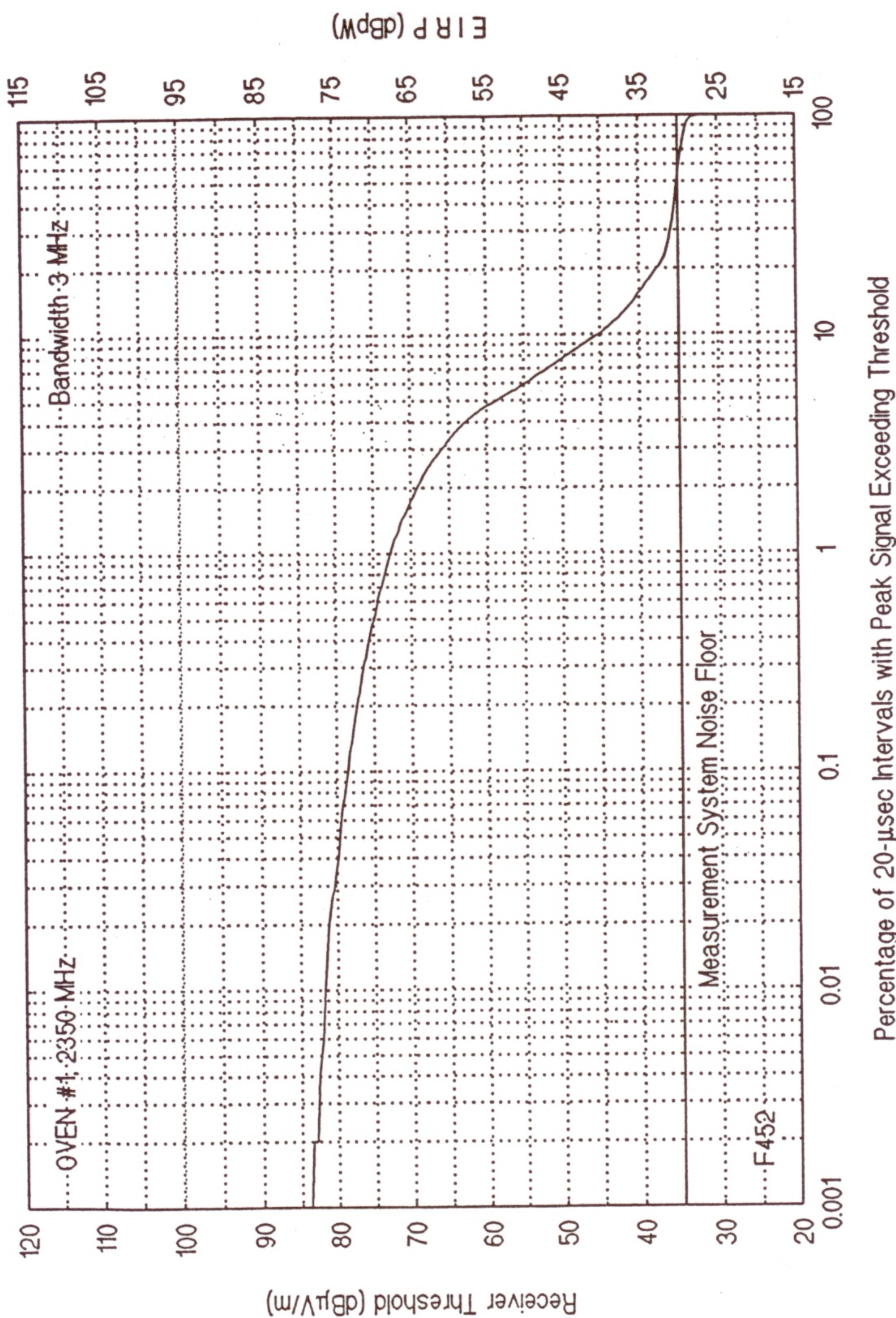
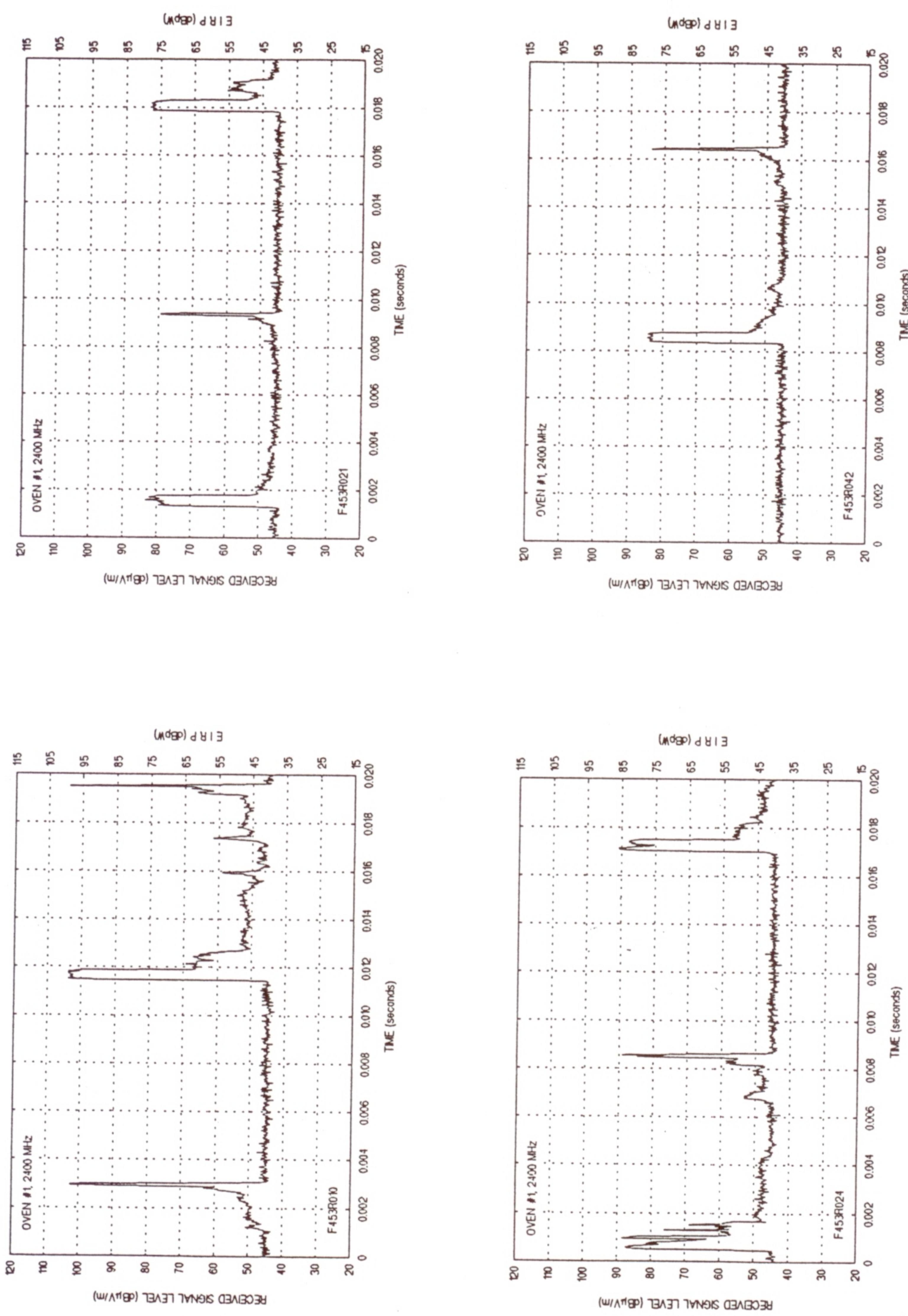


Figure C-4. Oven #1, Amplitude-Probability Distribution at 2350 MHz with 3 MHz bandwidth.



**Figure C-5.** OVEN #1, Time vs. Amplitude displays at 2400 MHz with 3 MHz bandwidth.

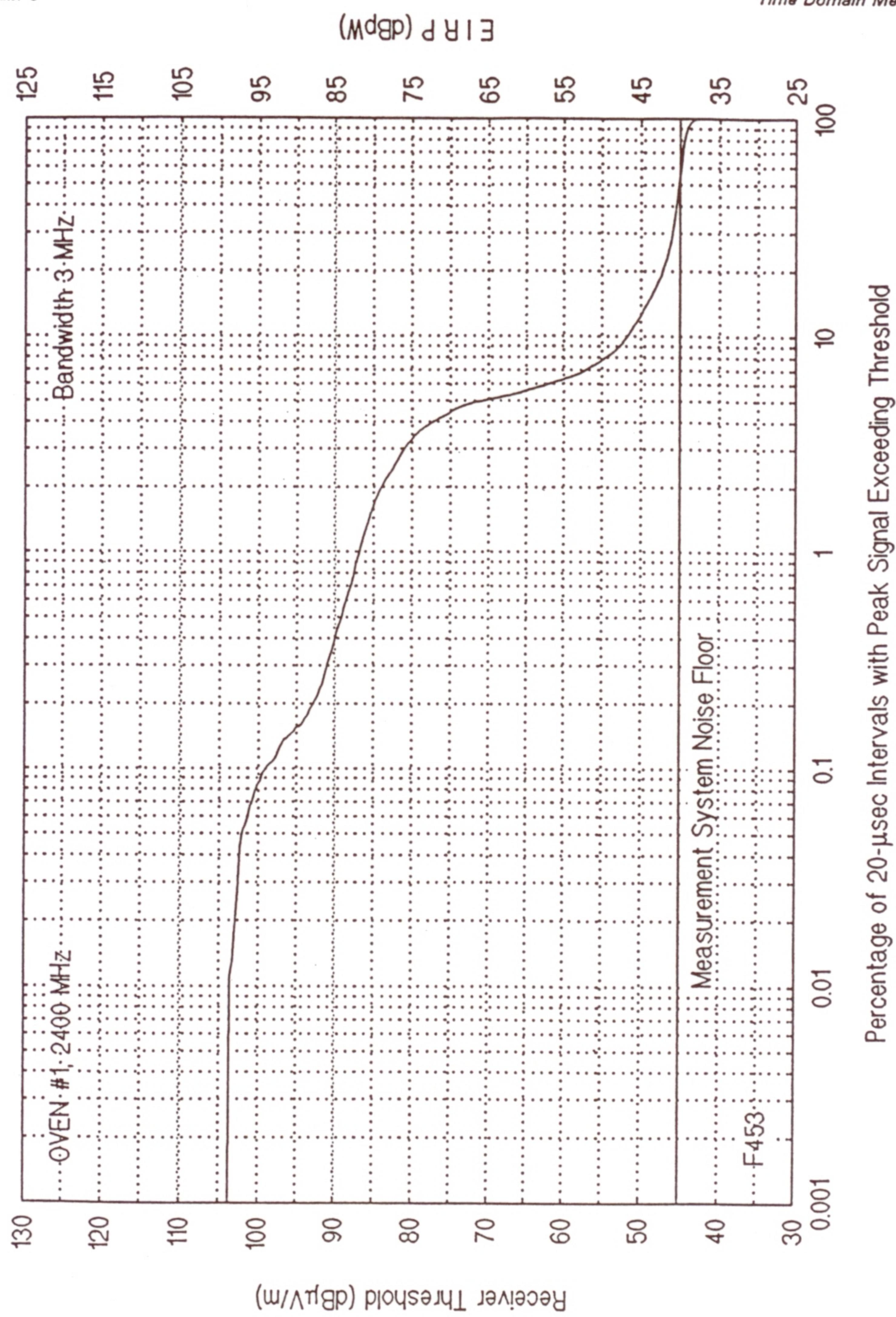
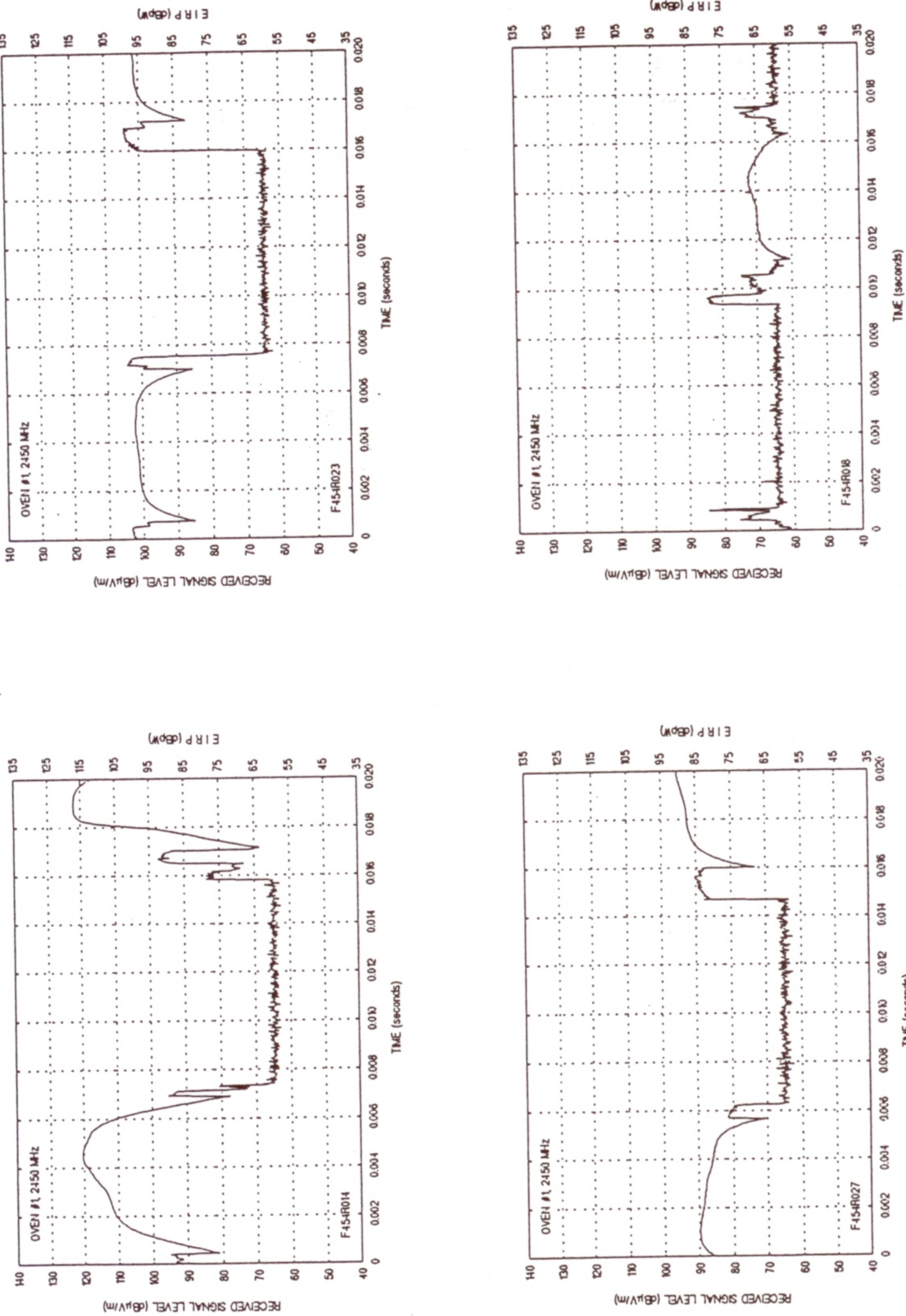


Figure C-6. Oven #1, Amplitude-Probability Distribution at 2400 MHz with 3 MHz bandwidth.



**Figure C-7.** Oven #1, Time vs. Amplitude displays at 2450 MHz with 3 MHz bandwidth.

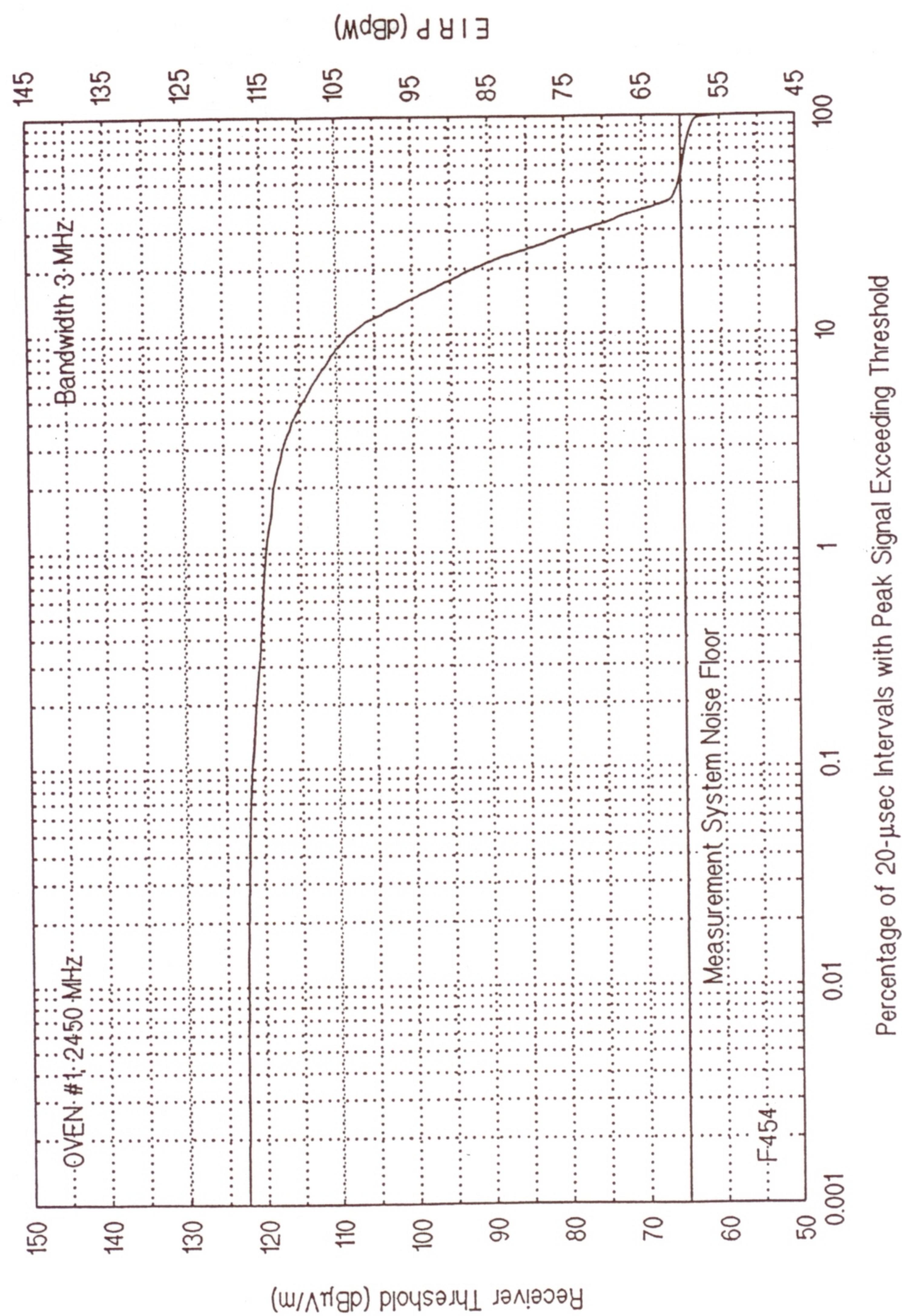


Figure C-8. Oven #1, Amplitude-Probability Distribution at 2450 MHz with 3 MHz bandwidth.

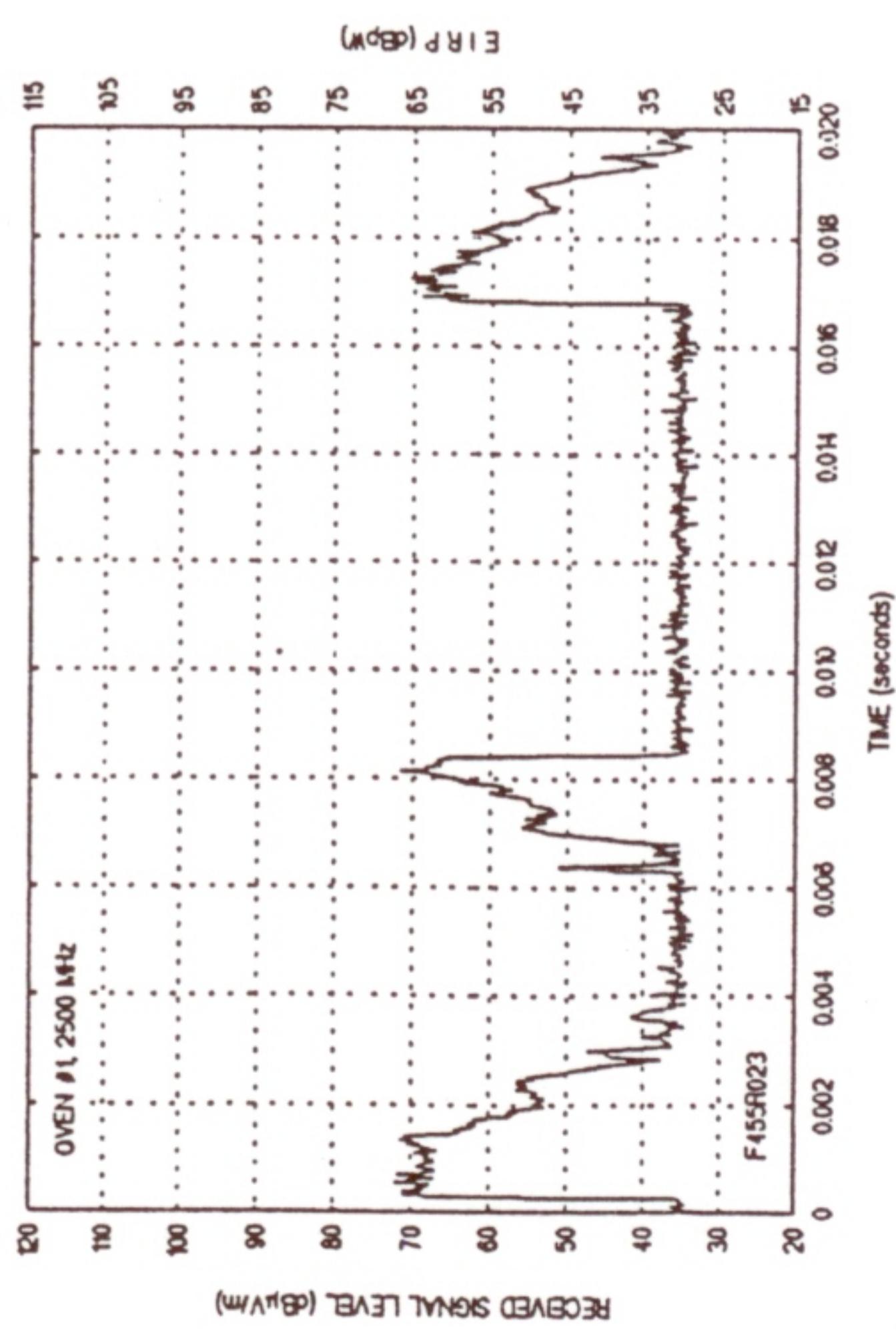
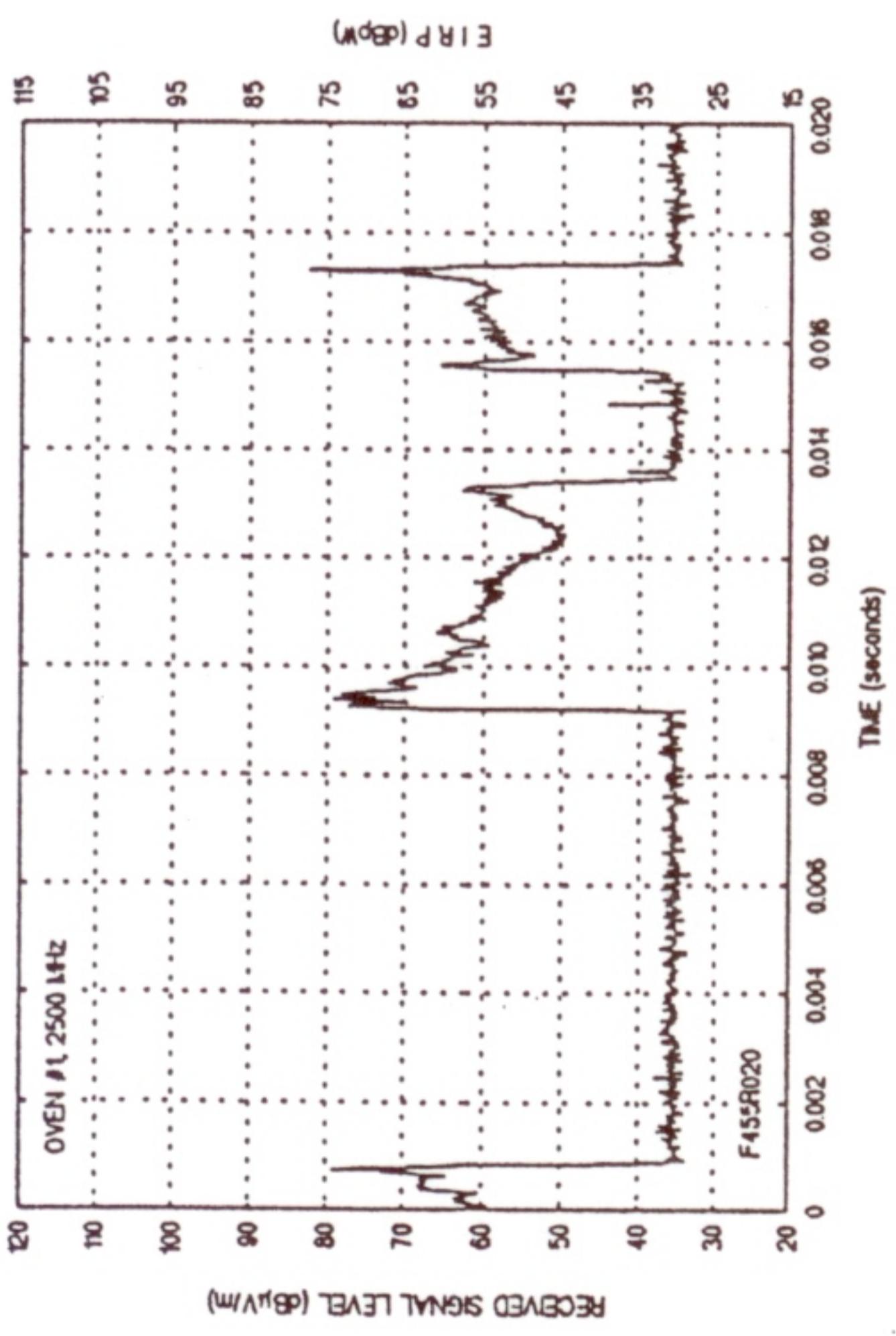
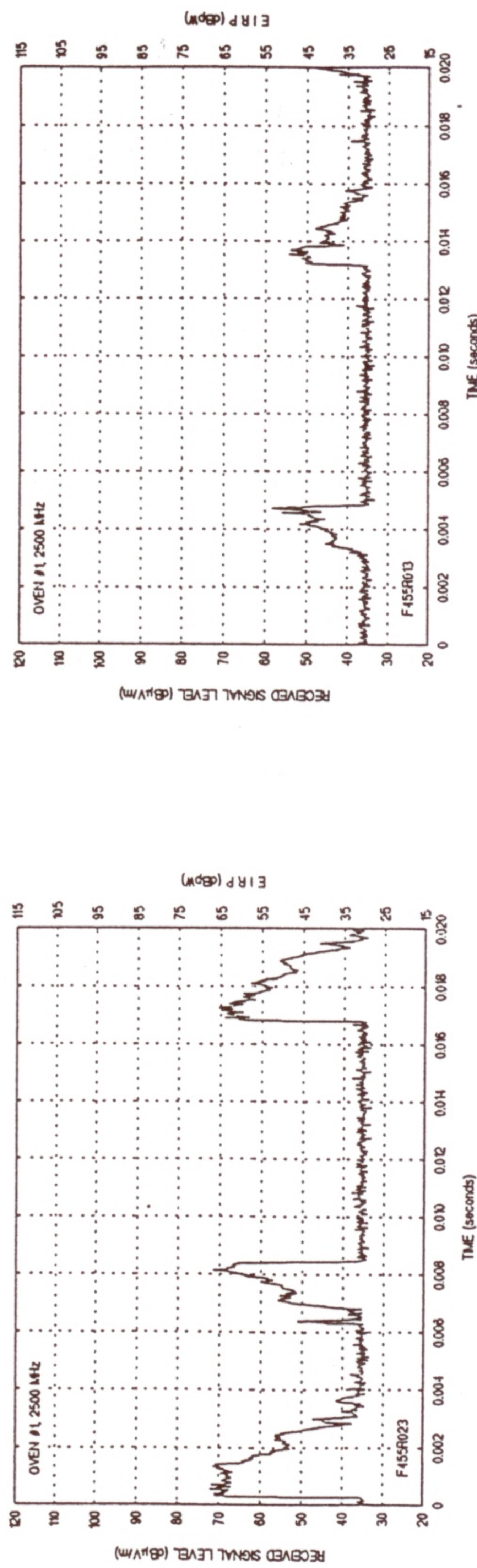
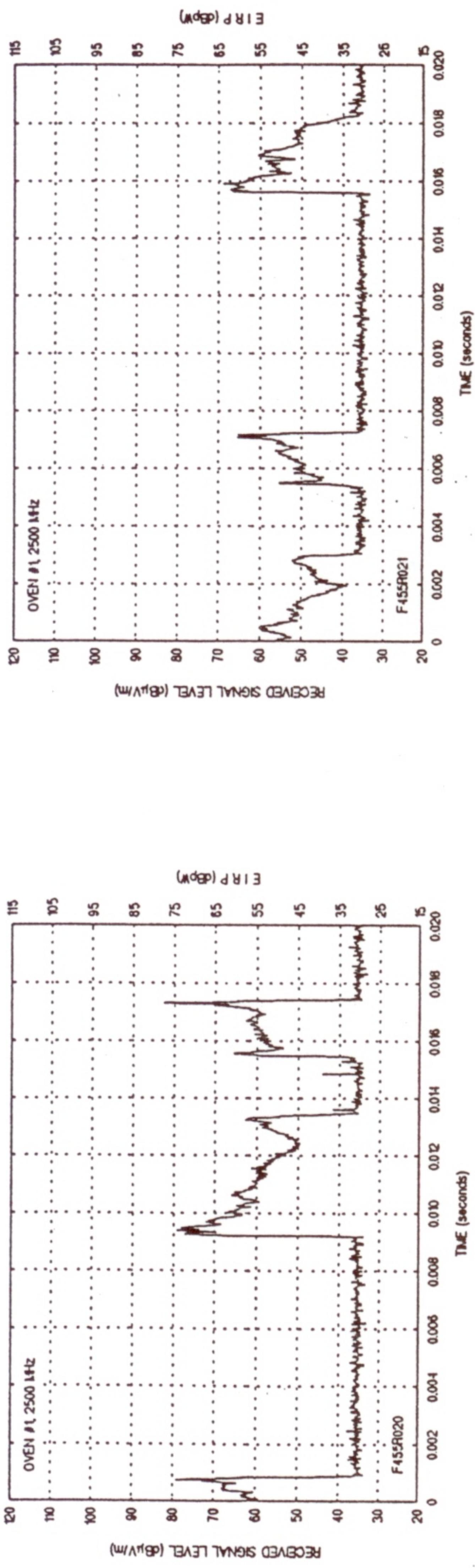


Figure C-9. Oven #1, Time vs. Amplitude displays at 2500 MHz with 3 MHz bandwidth.