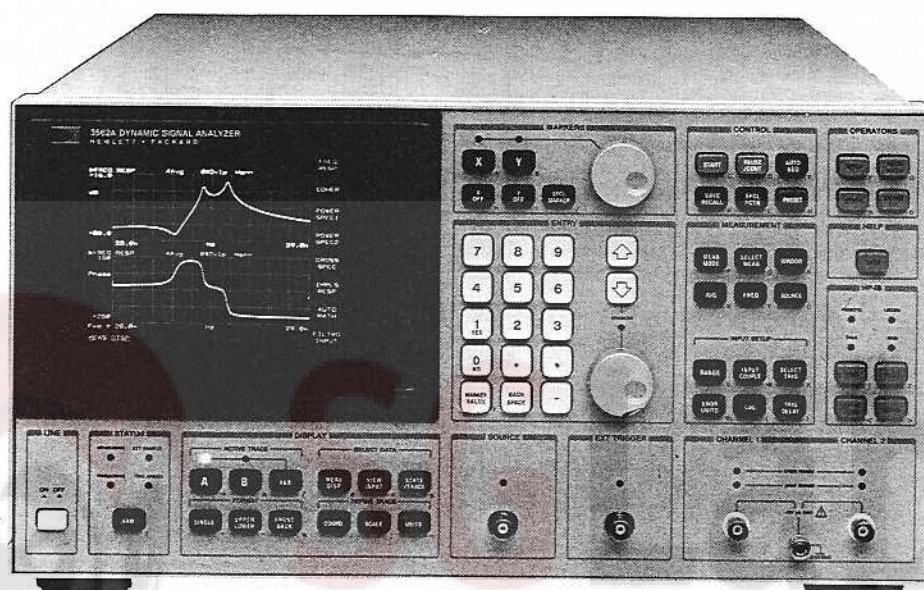# SIGNAL ANALYZERS
Dual-Channel, Dynamic Signal Analyzer 64 µHz to 100 kHz
Model 3562A

150

- Network, spectrum, waveform and transient analysis
- Linear, logarithmic and swept sine measurement modes
- 10 kHz real time rate
- 80 dB dynamic range with full alias protection

- High accuracy (±0.15 dB)
- High resolution (801 Lines)
- Band selectable zoom analysis
- Direct control of disc drives and HP-GL plotters
- Fully Programmable

HP 3562A

DESIGNED FOR
HP-IB
SYSTEMS

The HP 3562A Dynamic Signal Analyzer is well suited for the design test and analysis of electronics, mechanical systems, and electromechanical control systems. With two input channels, a dc-to-100 kHz frequency range, 150 dB measurement range and 80 dB dynamic range, this FFT-based analyzer offers the versatility and performance needed to make even the most difficult network, spectrum, and waveform measurements — in both the time and frequency domains.

The two high performance input channels and a built-in signal source (noise and sine signals) address network analysis needs on the bench or in a test system. Zoom analysis with frequency resolution up to 25.6 Hz plus a powerful AM, FM and PM demodulation function makes the Hp 3562A a versatile spectrum analyzer. For transient or waveform analysis, signals can be sampled, digitized then stored in internal memory, or sent via HP-IB to an external disc drive (without a computer). Then stored waveforms can be recalled and analyzed in the time, frequency and amplitude domains (baseband and zoom analysis).

In addition, features such as vector averaging, Waveform Math, a 40-pole/40-zero Curve Fitter, and Frequency Response Synthesis offer a full range of analysis and design capabilities. The HP 3562A is fully programmable both through its own built in Auto Sequence programming capability, or with computers over the HP-IB bus. If hardcopy results or storage of data is required, the HP 3562A can control digital plotters and external disc drives directly via HP-IB.

Network Analysis

Accurate, high resolution frequency response measurements of electronic and mechanical systems can be performed with Linear Resolution FFT, Logarithmic Resolution and Swept Sine analysis. A built-in signal source provides a variety of random noise and sinewave signals to meet the requirements of the system under test.

Linear Resolution is the measurement technique common to all Dynamic Signal Analyzers. In the HP 3562A, 2048-point time records are Fourier-transformed into 801-line frequency spectra. For

network analysis, frequency response magnitude and phase, as well as input and output power spectra, can be measured with 801 lines of resolution. Accuracy for the frequency response magnitude and phase is ± 0.1 dB and ± 0.5°.
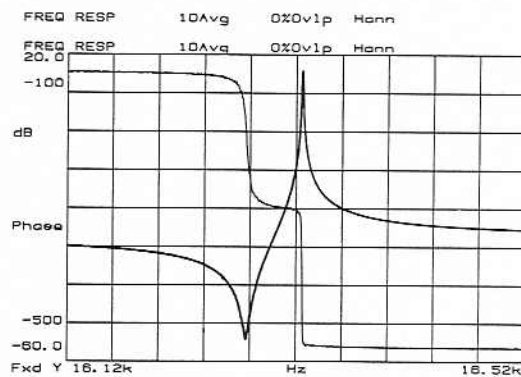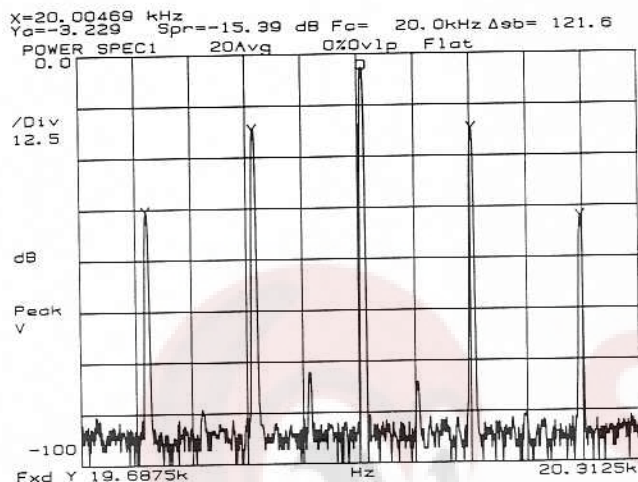
Logarithmic Resolution uses the speed of Linear Resolution FFT measurements to create frequency responses similar to a log-sweep swept sine test. Linear Resolution points are combined internally (rather than just reformatted), on the fly, to create 80-point-per-decade measurements over 1 to 5 decades. Start and stop frequencies can be selected in a 1-2-5 sequence from 0.1 Hz to 100 kHz (for a 0.1 Hz start frequency the maximum stop frequency is 10 kHz — 5 decades).

The Swept Sine mode reconfigures the HP 3562A as a powerful swept sine frequency response analyzer. The source can generate linear or logarithmic sweeps with increasing or decreasing frequency; user-selectable sweep rate and resolution are also standard source

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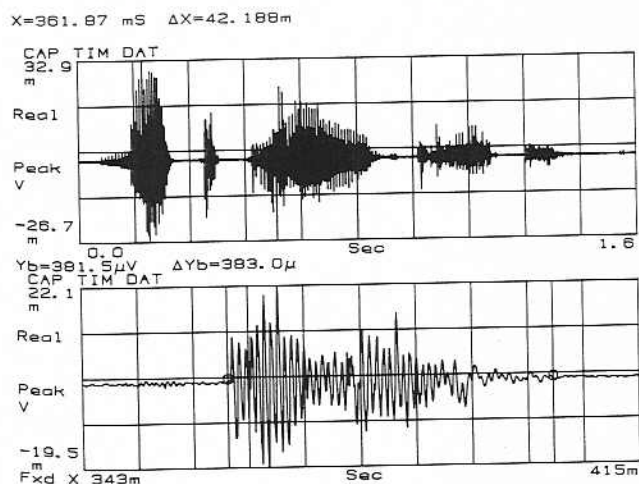email: m.sev@sglabs.it
tel. +39 0755149360

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functions. Input channel functions include user-selectable averaging and integration time; automatic input ranging can be activated to provide over 130 dB of dynamic range for measurements of high performance systems.

Spectrum Analysis

On-line analysis of distortion, drift, modulation and phase noise can benefit from the speed and accuracy of the HP 3562A. High resolution measurements are typically 100 times faster than tuned spectrum analyzers — and, since the HP 3562A is an FFT-based analyzer, you can see transient events that a tuned analyzer would probably miss.


```
X=20.00469 kHz
Ya=-3.229   Spr=-15.39 dB  Fc=  20.0kHz Δsb= 121.6
POWER SPEC1     20Avg      0%Ovlp  Flat
0.0
0.0

/Div
12.5

dB

Peak
V

-100
Fxd Y 19.6875k          Hz          20.3125k
```

The HP 3562A is essentially a dual-channel spectrum analyzer which provides resolution to 25.6 μHz anywhere within the dc-to-100 kHz measurement range. Single channel accuracy is ± 0.15 dB with 80 dB of dynamic range. Modulation analysis can be performed on either or both channels with harmonic and sideband markers as well as with the built-in demodulation capability: zoom measurements can be AM, FM or PM demodulated with carrier frequencies up to 99.9 kHz.


```
X=361.87 mS   ΔX=42.188m

CAP TIM DAT
32.9
m

Real

Peak
V

-26.7
0.0          Sec          1.6
Yb=381.5µV   ΔYb=383.0µ
CAP TIM DAT
22.1
m

Real

Peak
V

-19.5
Fxd X 343m          Sec          415m
```

Waveform and Transient Analysis

Perform complete analysis of waveforms and transients in the time and frequency domains. Sampled and digitized waveforms can be stored in internal memory (single-channel Time Capture) or on disc in an external disc drive (single- or dual-channel Time Throughput). Data can be recalled for time domain analysis as single time records or as a compressed display of up to 10 time records (Time Capture mode). Data can also be recalled for baseband and zoom analysis in the frequency domain, with vector averaging if needed.

A complete array of triggering capabilities are included to enhance both waveform recording modes. Pre- and post-trigger delays can be specified to capture the rising edge of a transient or to compensate for delays in the system under test.

Data Throughput to a Disc Drive

When access to prototypes is limited, make your test time more efficient with the Time Throughput capability: through direct control of external disc drives, the HP 3562A can store time data directly to disc without a computer. Set up a measurement and specify the quantity of single- or dual-channel data to be collected. Time data will be sampled, digitized and stored on disc for later analysis as individual time records or as baseband and zoom frequency spectra.

Hardcopy and Mass Storage with Plotters and Disc Drives

To speed and simplify documentation of results, direct control of plotters and disc drives via HP-IB is a standard feature in the HP 3562A. Literally anything displayed on the analyzer screen can be plotted or saved on disc: measurement results, setup state tables, synthesis tables, curve fit tables and Auto Sequence or Auto Math program listings. Plotting is enhanced with user-selectable line types, pens and paging controls. For mass storage operations, files can be given 8-letter user-defined names; and disc catalog can be recalled and displayed to show file name, type (data, setup, etc.) and date and time of storage.

Automation for Improved Productivity

Versatile automation capabilities and a wide range of response-only or stimulus/response measurement functions in the HP 3562A help you create productive solutions for your automated testing needs. As a stand-alone solution, the analyzer can "learn" a series of keystrokes and then perform them on command (Auto Sequence programming). Up to five Auto Sequence programs can be stored internally, with additional programs stored in an external disc drive.

For networked HP-IB systems, the HP 3562A provides complete HP-IB programmability. Custom display graphics and messages can be created through direct programming of the high resolution vector display — user-defined softkey menus can also be created to simplify interactive testing. Rear-panel outputs for large screen displays are also standard.

HP 3562A Specifications
Frequency
Measurement Range: 64 μHz to 100 kHz, both channels, single- or dual-channel operation.
Accuracy: ± 0.004% of frequency reading.
Resolution: Span/800, both channels, single- or dual-channel operation.

Spans:	Baseband	Zoom
Number of spans	66	64
Min span	10.24 mHz	20.48 mHz
Max span	100 kHz	100 kHz
Time record (seconds)	800/span	800/span

Window Functions: Hann, Flat Top, Uniform, Force, Exponential, and User Defined.

Window Parameters:	Flat Top	Hann	Uniform
3 dB BW (% of span)	0.45%	0.18%	0.12%

Typical Real Time Bandwidth: 10 kHz single-channel, 5 kHz dual-channel, with fast averaging on.