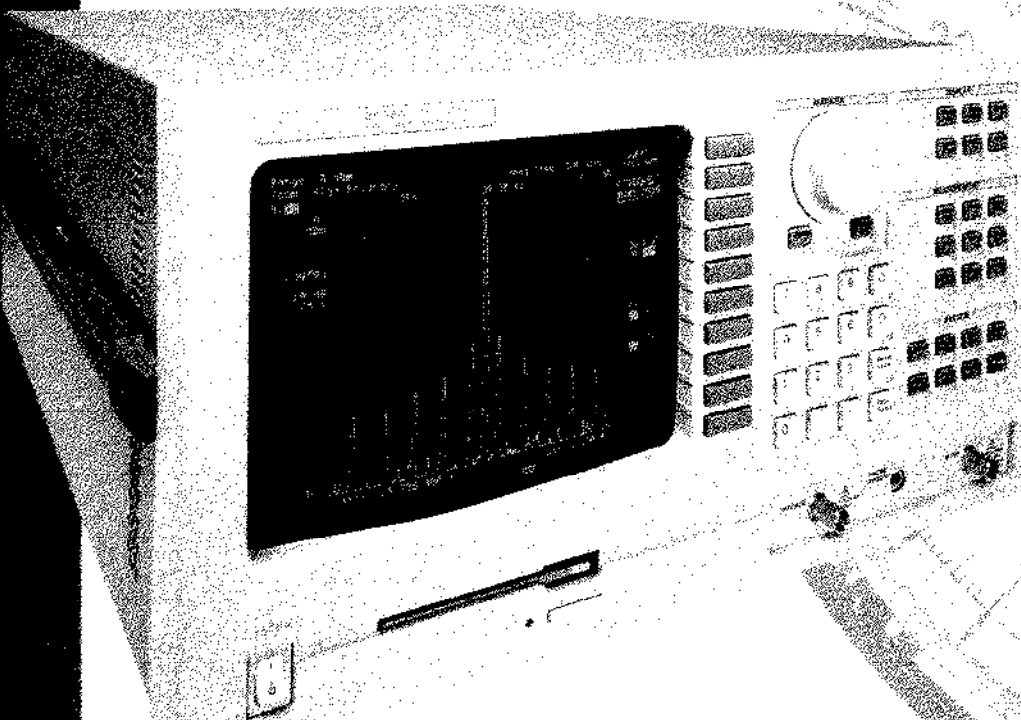


HP 3588A Spectrum Analyzer



The HP 3588A gets you closer and gets you there faster

Measurement speed

The HP 3588A spectrum analyzer combines the best of analog swept techniques with advanced digital signal processing. The result is measurements up to several hundred times faster than traditional analyzers. Imagine how this will reduce your test times and your test costs.

Frequency resolution

Get closer to your signals. With resolution tighter than 1 Hz, you get a much clearer picture. And you might uncover signals you never knew were there.

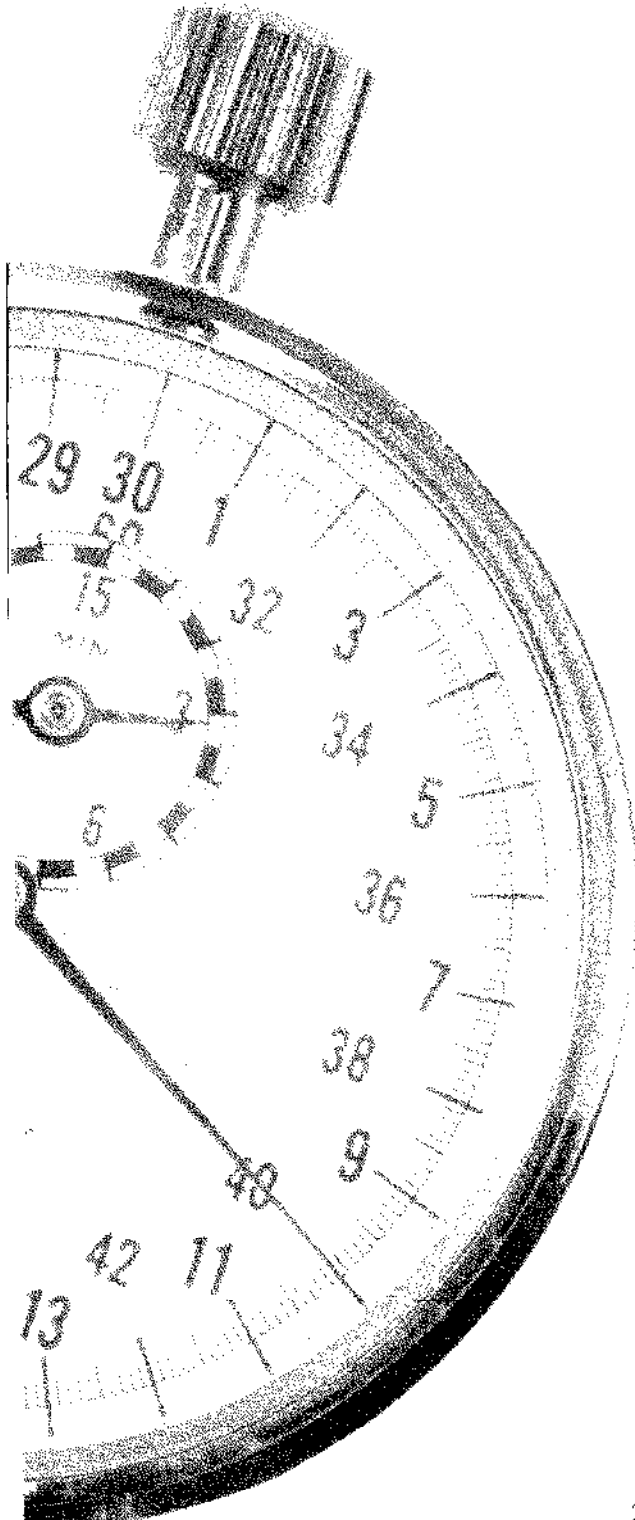
Amplitude accuracy

Your quest for improved quality is only as good as the measurements you make. With ± 0.25 dB amplitude accuracy (typical), you'll improve the quality of your measurements and the quality of your products.

Computer power without computer problems

Measurement performance isn't enough. You need complete solutions. The HP 3588A provides them, from pass/fail checks to complex automated test routines, without an external computer.

The HP 3588A gets you closer to your signals, and it gets you there faster. No other analyzer can give you this combination of resolution, speed, and accuracy.



HP 3588A Spectrum Analyzer

10 Hz - 150 MHz

Automatic limit testing lets you define upper and lower limits to compare against current or stored measurements.

Performance Summary

Frequency range—
10 Hz to 150 MHz

Amplitude accuracy—
± 0.25 dB (typical)

Dynamic range—
80 dB (signal to distortion)
112 dB (signal to noise)

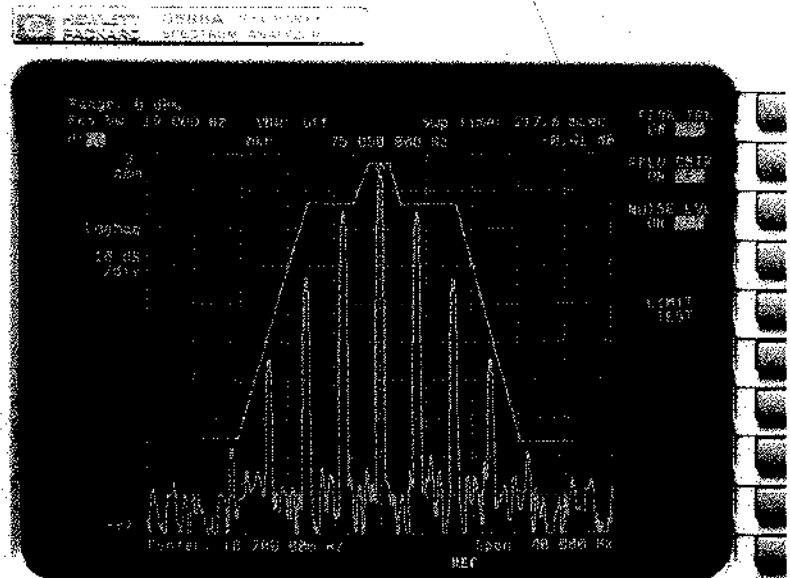
Frequency resolution—
11 Hz (swept spectrum)
0.0045 Hz (narrowband zoom)

Frequency accuracy—
± 0.01 ppm (option 001)
± 0.25 ppm (standard)

Internal memory—
1 MB RAM (standard)
Nonvolatile internal clock

On-screen Help displays provide instant operating assistance. Items are electronically cross-referenced to give you a complete picture of important measurement topics.

Display can show current measurement results, stored spectra, or math function results. Formats such as upper/lower and front/back makes comparison between traces easy.



720 Kbyte disk holds measurement results, math functions, limit tables, instrument setup states, and HP Instrument BASIC programs.

Standard built-in source for scalar (magnitude only) network analysis.

Marker functions make it fast and easy to extract information from your measurements.

Waveform math lets you generate custom results, including normalization and calibration functions.

The HP 3588A offers two measurement modes.

Swept spectrum mode provides spans up to 150 MHz with measurement speeds four times faster than traditional analyzers.

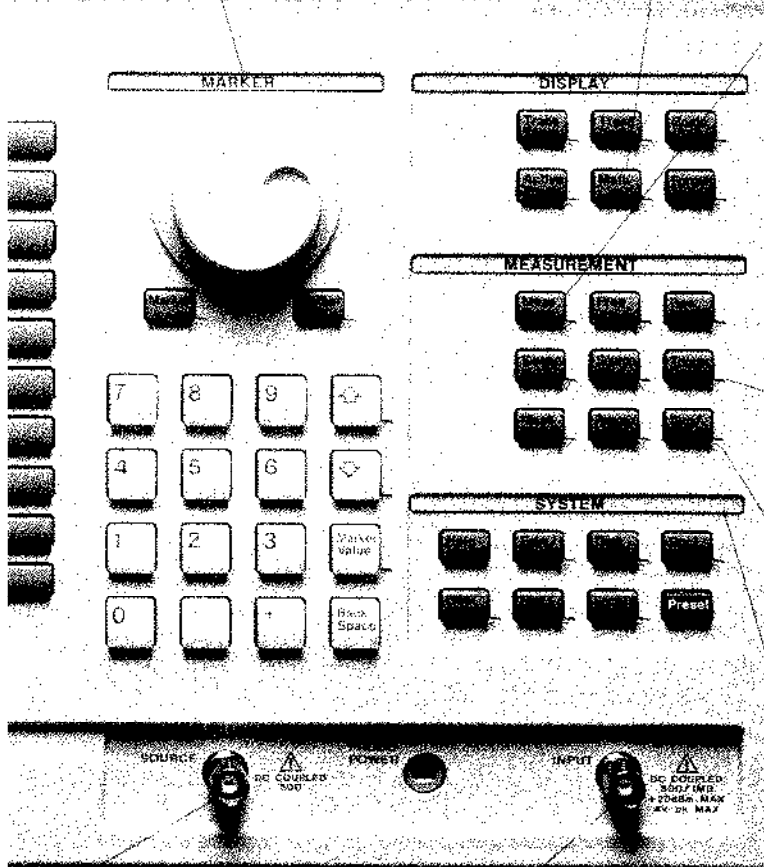
Narrowband zoom mode offers resolution down to 0.0045 Hz anywhere in the analyzer's frequency range.

Signal track automatically keeps a specified frequency at the center of the sweep.

Flexible triggering lets you synchronize measurements to internal, external, manual, or HP-IB trigger events.

Video averaging (exponential RMS) reduces measurement noise. Peak hold monitors and displays maximum spectral components.

In addition to offering complete HP-IB programmability, the HP 3588A can serve as the system controller. With the HP Instrument BASIC option, you can control a complete test system with this analyzer.

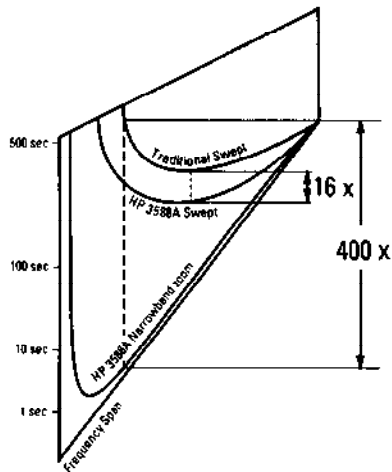


Standard 50 Ω input; use adapter and automatic correction for 75 Ω input. 1 M Ω input provides full performance up to 40 MHz.

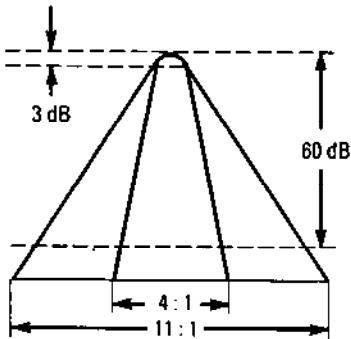
Probe power for compatible active probes.

Breakthrough technology for breakthrough performance

For HP 3588A spectrum performance plus network measurement and more, consider the HP 3589A Spectrum/Network Analyzer



Traditional swept analyzers trade off measurement speed for accuracy.



Three technological breakthroughs result in faster measurements: improved shape factor, oversweep compensation and narrowband zoom mode.

Narrowband measurements used to take time—a lot of time. You could sweep only as fast as the analyzer's filters could settle. If you wanted to test faster, you had to choose decreased resolution or decreased accuracy or both.

The HP 3588A is the first analyzer to break through the speed/resolution/accuracy barrier. It combines the best of analog swept technology with advanced digital signal processing. With its digitizing detector and digital resolution bandwidth filters, it doesn't force you to make a choice between speed or resolution - you get both. And you get them without compromising amplitude accuracy.

The best mode for your measurement

For wideband characterization, use the HP 3588A's swept spectrum mode, with resolution bandwidths down to 1.1 Hz. Then take a closer look with the narrowband zoom mode, with resolution down to 0.0045 Hz. This high resolution is available *anywhere* in the analyzer's 10 Hz to 150 MHz frequency range.

Improved filters for increased speed

The resolution bandwidth (RBW) filters in the HP 3588A offer improved shape factor and selectivity. This lets you use wider RBW settings to achieve comparable resolution. The result is faster measurements, and faster measurements give you more time for all your other engineering problems.

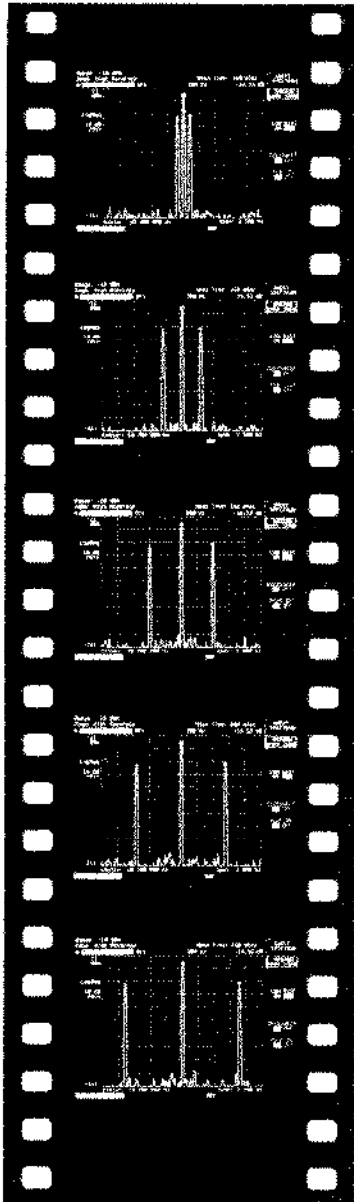
These new filters are extremely stable and predictable. The oversweep mode takes advantage of this to make accurate measurements at speeds that would cause unpredictable results in a traditional analyzer. The HP 3588A automatically compensates for amplitude shifts to give you fast, accurate results at sweep speeds never before possible.

Narrowband zoom for fast, high-resolution measurements

Narrowband zoom mode uses digital signal processing to go even further. If you need to increase resolution, the HP 3588A provides resolution bandwidths as narrow as 0.0045 Hz. If you need to increase speed, the HP 3588A can match the resolution of your current swept measurements—at speeds over 300 times faster in some cases.

Measurement applications from surveillance to semiconductors

The HP 3588A provides the flexibility and performance for measurements in a wide variety of industries.



High-speed narrowband zoom can measure rapidly moving signals like this sweeping sideband.

Surveillance and signal monitoring

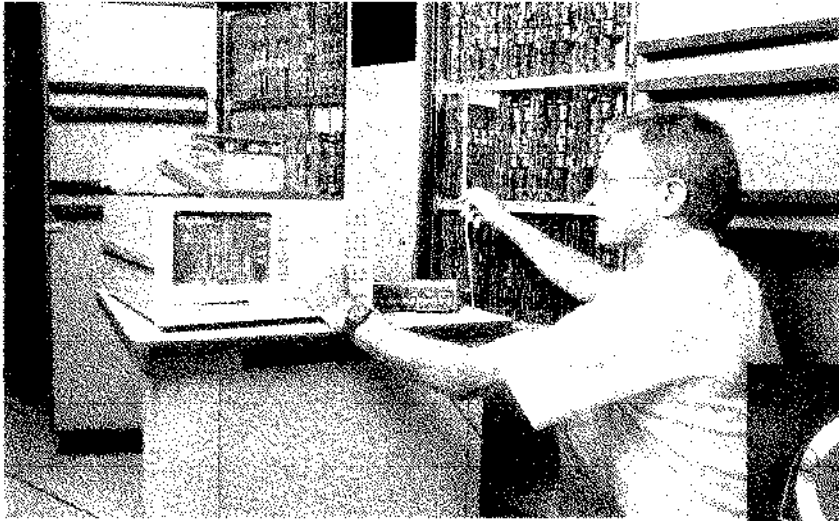
- Exceptional dynamic range to reliably pick out low-level signals
- Peak search and signal tracking make it easy to lock to drifting signals
- Built-in frequency counter for quick signal identification
- Superb frequency resolution lets you isolate intelligence normally buried close to carriers
- HP Instrument BASIC provides automated signal monitoring and measurement
- Fully-synthesized local oscillator gives accurate results at all measurement points

Commercial communications

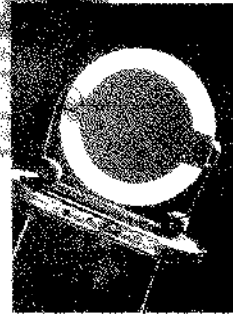
- Full baseband and IF frequency coverage from 10 Hz to 150 MHz
- Accurate measurement of noise, S/N, power, and frequency
- Superb frequency resolution to separate signals in high-density channels
- Amplitude accuracy of ± 0.25 dB (typical)
- Enough frequency resolution to isolate low-level signals more than 500 times closer to carriers (compared to analyzers with 3 Hz RBW filters)
- Narrowband zoom is fast enough to show you spurious signals from hopping carriers

Aerospace electronics and communications

- Frequency coverage from baseband through IF on radar, EWS, and satellite systems
- Quick pass/fail tests using limit lines
- Internal noise typically below -137 dBm/Hz for precise low-level measurements
- Narrowband zoom mode lets you follow satellite tracking signals and other carriers that change due to Doppler shift



Accurately test amplitude level, frequency and signal/noise without changing test set-ups.



Narrowband zoom mode lets you get closer to device resonances than was ever before possible.

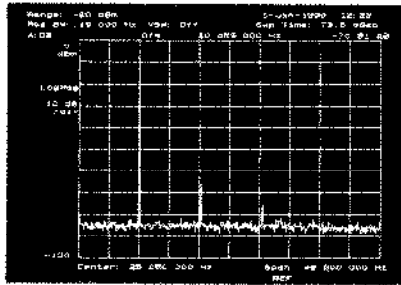
Audio and video components and systems

- Built-in signal source for gain/loss measurements on networks
- Exceptional amplitude accuracy lets you measure your products with greater precision
- Full frequency coverage from audio through high-resolution video
- Selectable impedances for compatibility with most systems
- High resolution to resolve tightly-interleaved broadcast signals
- Superior dynamic range to match the improving performance of your systems

Components and semiconductors

- Built-in source provides a one-box solution for spectrum and scalar network analysis
- Local oscillator synthesized at every sweep point allows precise measurements on narrowband devices
- Internal noise typically below -137 dBm/Hz for precision level measurements
- Resolution better than 1 Hz is ideal for measuring surface imperfections in SAW devices
- Built-in limit tests make comparison to specifications simple
- HP Instrument BASIC gives you a quick path to automated measurements

Complete spectrum analysis capabilities

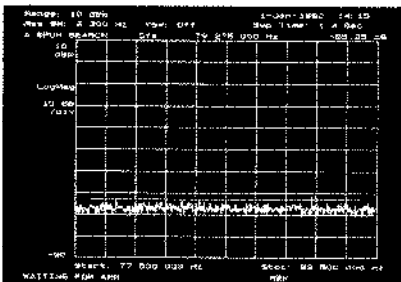
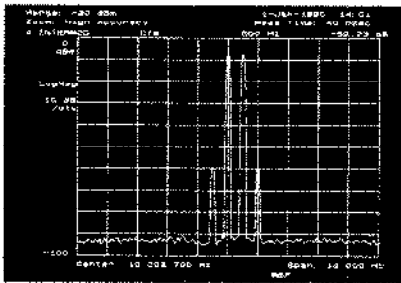


Frequency and amplitude measurements

Whether you're doing main-stream signal analysis or researching advanced technologies, the HP 3588A gives you a new level of measurement power. For the first time, you don't have to sacrifice resolution, speed, or accuracy — you get all three. And for the first time, you have the ability to do close-in analysis of non-stationary and short-duration signals.

Distortion

Amplitude accuracy, frequency resolution, and dynamic range add up to superior performance in distortion tests. If you're measuring harmonics or intermodulation products, the HP 3588A lets you quickly characterize signals. Perform two-tone intermod tests with tones separated by 1 Hz or less. Rely on the fully-synthesized local oscillator and frequency counter to define fundamentals accurately and locate harmonics quickly.

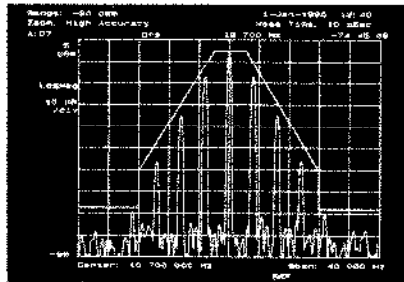
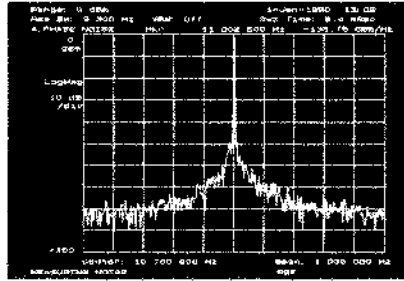


Spur surveys and spur searches

The automation power of HP Instrument BASIC excels in multi-step tests such as spur searches. Combine programming power with marker peak searches and you can survey spurs faster and easier than ever before. Built-in limit tests provide fast, easy level checks at any combination of frequencies.

Noise level measurements

Make fully-calibrated noise measurements with one keypress. You get averaged noise density with results normalized to a standard 1 Hz bandwidth. The HP 3588A makes repeatable, reliable noise measurements typically below -137 dBm/Hz. Markers make it easy to show either absolute or relative (signal-to-noise) levels. Limit testing allows quick, easy comparisons with industry standards and signal specifications.

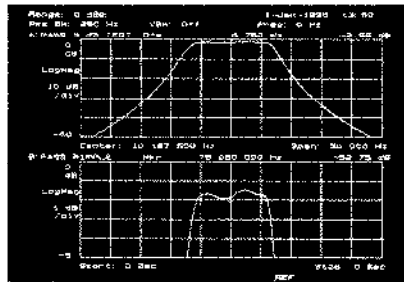


Modulation

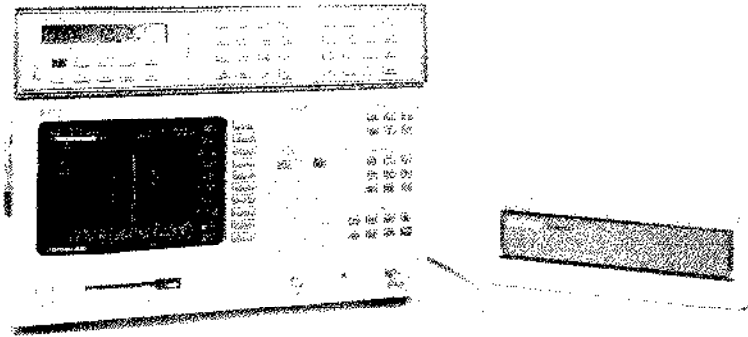
The unmatched frequency resolution of the HP 3588A lets you look at close-in sidebands with speed and detail that was unheard of until now. With its wide dynamic range and frequency resolution down to 0.0045 Hz, you can separate sidebands only a few millihertz away from the carrier. And at whatever resolution you choose, you'll get results much faster – over 300 times faster in some cases.

Scalar network analysis

With its built-in source, the HP 3588A also provides scalar network analysis. You get high-quality measurements based on exceptional amplitude accuracy, resolution and flatness. Built-in limit tests provide quick device characterization.



More than a high-performance analyzer



The HP 3588A provides more than unbeatable speed, resolution, and accuracy. It gives you the tools you need to make successful measurements quickly and reliably.

- You get the power and performance of breakthrough technology, with the simplicity of traditional spectrum analyzers.
- The clean front panel with consistent, logical soft-key menus gets you through the learning stage quickly.
- The *Getting Started Guide*, with example measurements, helps you make your first measurement soon after receiving the analyzer.
- On-screen Help topics are cross-referenced and indexed, so you get the complete picture of all measurement issues—and you get it in a hurry.

The rest of the solution

When you need all the other pieces of a test system solution, call on HP. With our complete selection of instrumentation, accessories, and computers, we can assemble the right system for your lab or production facility.

We'll help you select the right solution before you buy. And we'll be there after the sale to help you with system integration and application consulting.

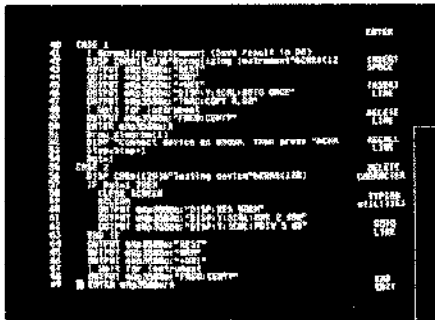
Computer power without the computer

If you've grown to appreciate computer-aided testing, but you could live without the expense and complexity of computers, here's your answer. HP Instrument BASIC (Option 1C2) puts computer automation power inside the HP 3588A spectrum analyzer.

Automated test sequences

Create valuable time by giving repetitive testing tasks to the HP 3588A. Speed up spur surveys, linearity tests, pilot tone searches, and other routines that require multiple steps.

With HP Instrument BASIC, the HP 3588A becomes a powerful system controller. It can manage any device compatible with HP-IB, including switch boxes, signal generators, and peripherals.

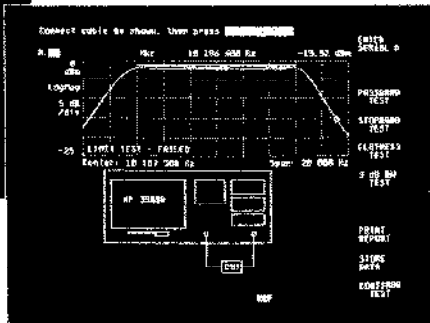


Custom user interfaces

HP Instrument BASIC makes the analyzer adapt to your needs, not vice versa. Use the terminology and procedures familiar to your technicians and operators. Create special displays or printouts that match the needs of your specific application.

One-button measurement solutions

Reduce the number of buttons operators have to press and you'll reduce errors. Now you can hide complex test sequences behind a single soft-key. This also lowers your training costs, since your production staff doesn't have to learn complicated, step-by-step procedures.



Programming simplicity

You can now automate many test sequences without writing programs. Keystroke recording generates a BASIC program while you're pushing keys on the front panel. If you want to add even more power to your programs, extensive editing features make it easy to modify and expand programs.

Programming power

If you demand advanced programming features, HP Instrument BASIC has the answer for you:

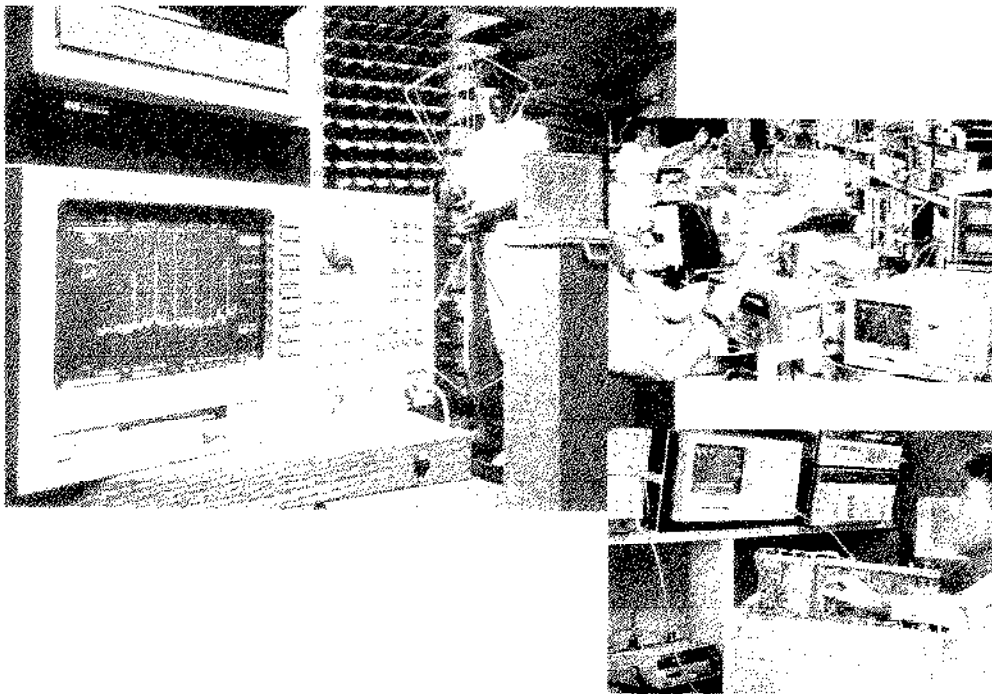
- 150 keyword command dictionary to solve most instrument programming problems
- Full syntax compatibility with HP BASIC for HP 9000 Series 200/300 computers
- Structured programming for efficiency and power
- Defined math and string functions for more compact code
- Independent subprograms for modular code
- Labeled global variables make it easy to move among subprograms
- Advanced I/O power of HP BASIC handles files and external devices more efficiently than any other BASIC language
- Simple program development on HP 9000 Series 200/300 workstations—just move the program into the analyzer via HP-IB or the internal disk drive

Measurement performance for both R&D and production

The HP 3588A spectrum analyzer delivers laboratory accuracy at production line speed.

Production line speed

All too frequently, production line tests are a compromise. There never seems to be enough time to test all the parameters you'd like, so you pick a few and hope you're getting adequate coverage.



Laboratory accuracy

The HP 3588A is a fully-synthesized spectrum analyzer. This means you get accurate frequency measurements at all points—not just at the center frequency. Whether you're troubleshooting circuits and systems or monitoring communication signals, you'll get the most precise measurements available.

The HP 3588A's measurement speed will change the way you look at production test. You can now design test sequences to collect all the data you need for performance verification and quality analysis.

Another important advantage for production test: the HP 3588A doesn't have to recalibrate every time you change the center frequency. This also applies to manual sweeps, allowing you to jump quickly to specific frequencies.

Quick, easy automation

The HP 3588A gives you more than fast measurements. It also performs fast pass/fail checks with built-in limit test capability. And with optional HP Instrument BASIC, you can automate multi-step procedures, customize the user interface, and control other instruments and HP-IB devices.

The unbeatable combination of speed, accuracy, data collection and automation add up to lower test times with higher-quality results.

HP 3588A Specifications

Amplitude specifications

All receiver specifications apply from 10 Hz to 150 MHz and include 30 minute warmup from ambient conditions unless otherwise noted. Typical performance is applicable over $\pm 5^\circ\text{C}$ from the most recent autocalibration and is not warranted. Supplemental characteristics are non-warranted functional and feature information.

Amplitude measurement range

Maximum Safe Input Level:	50/75 Ω	1 M Ω
Average Continuous Power (10 Hz to 150 MHz)	26 dBm	—
Combined AC/DC	± 4 Vpk	± 25 Vpk
Maximum Measured Input:	20 dBm	

Input range settings (characteristic only)

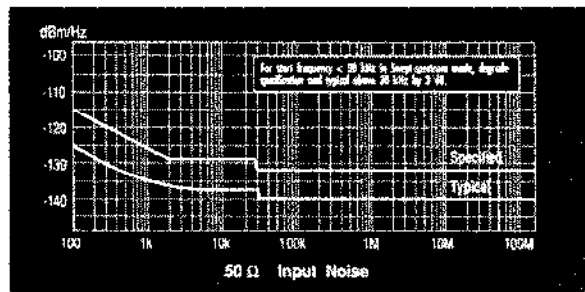
50 Ω input (in 10 dB steps)	+20 dBm to -20 dBm
75 Ω input (in 10 dB steps)	+22 dBm to -18 dBm w/included adapter
1M Ω input	0 dBm (for reference impedance of 50 Ω)

A/D overload level >2 dB (relative to selected range)

Dynamic range

Note: Dynamic range specifications apply with the source turned off.

Noise Level, 50 Ω input (dBm/Hz using the marker noise function, -20 dBm range)



Specified for swept spectrum mode, with 50 Ω input and low-distortion mode off. Degrade 10 dB if in low-distortion mode and 2 dB if using 75 Ω input.

For 1M Ω input, noise is <-110 dBm/Hz below 40 MHz, with 1/f corner at 100 kHz.

Input noise is degraded 4 dB in narrowband zoom mode for spans >10 kHz, and 3 dB for start frequency <30 kHz.

Note: Equivalent noise bandwidth is narrower than 1 Hz for spans below 150 Hz in the narrowband zoom mode, providing additional reduction in phase noise from that shown above. This maintains good dynamic range, even for extremely small offset frequencies in narrow spans. Noise is reduced by $10 \times \log [1/\text{noise bandwidth}]$ dBc relative to the above graph.

Spurious responses

General spurious

Unless specifically mentioned in other spurious specifications, spurious responses are <-70 dBc for signal levels = range. (<-80 dBc typical)

Harmonic distortion

Low-distortion mode, 50 and 75 Ω inputs: Harmonic distortion products are <-80 dBc (<-90 dBc typical) for spectrally pure input signals with total input power level = range. Degrade specification by 10 dB when low-distortion mode is off.

1M Ω input: <-65 dBc (<-75 dBc typical)

Degrade harmonic distortion specifications by 10 dB (5 dB for 1M Ω input) when input frequency is less than 30 kHz.

Intermodulation distortion

Low-distortion mode, 50 and 75 Ω inputs: Intermodulation distortion products are <-80 dBc (<-90 dBc typical) with respect to 2 tones 6 dB below range. Degrade specification by 10 dB when low-distortion mode is off.

1M Ω input: <-65 dBc (<-75 dBc typical)

Degrade intermodulation distortion specifications by 10 dB (5 dB for 1M Ω input) when input frequency is less than 30 kHz.

Residual responses

Residual responses are less than -110 dBm on the -20 dBm range. Degrade specification by 10 dB when low-distortion mode is on. Degrade 10 dB for 40 kHz spans in narrowband zoom mode.

Image, multiple and out-of-band responses

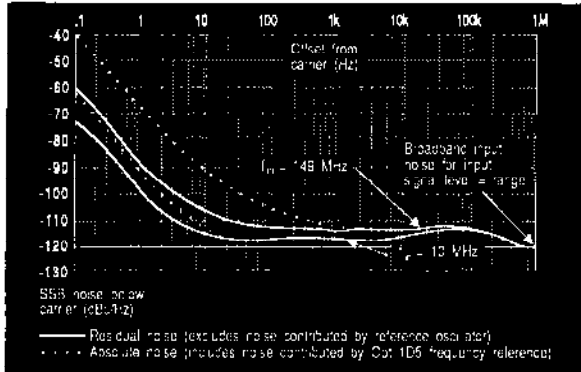
<-70 dBc (<-80 dBc typical) where applied signal level = range.

Local oscillator feedthrough

Local oscillator feedthrough (appears as signal at dc) is >20 dB below range. Degrade specification by 10 dB when low-distortion mode is on.

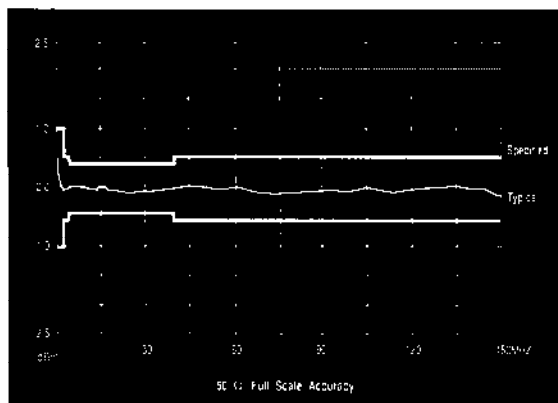
Spectral purity

Phase noise is less than -105 dBc when measured at a 1 kHz offset and normalized to a 1 Hz noise power bandwidth.



Amplitude accuracy

Measurement accuracy is determined by the sum of full-scale absolute accuracy and scale fidelity (linearity). For measurements made at full scale (signal level = range), only full scale accuracy must be considered. Recalibration due to change in center or manual frequency is not required for the accuracy shown.



Full scale absolute accuracy

(applies over entire 0 to 55°C temp range)

	10 Hz	100 Hz	30 kHz	300 kHz	40 MHz	150 MHz
50Ω Input	±2.5 dB (1 dB typ)	±1.0 dB (0.5 dB typ)	±0.5 dB	±0.4 dB (0.2 dB typ)	±0.5 dB	
75Ω Input	±2.5 dB	±1.0 dB		±0.8 dB		
1MΩ Input	±2.5 dB	±1.0 dB		±0.6 dB		

The calibration procedures produce the greatest accuracy at 300 kHz. Full-scale absolute accuracy at 300 kHz is ±0.3 dB (0.1 dB typical) when input level = range

Accuracy is specified for manual frequency or for sweeps where sweep time is increased by a factor of 4. Add ±0.1 dB for autocoupled sweep times.

Narrowband zoom: Measurement data is “windowed” in the FFT operation of the narrowband zoom mode to optimize amplitude accuracy or frequency resolution. This adds the following frequency response errors to the full-scale absolute accuracy specifications.

High accuracy mode (Flat-Top window) ±0.005 dB
High resolution mode (Hanning window) +0, -1.5 dB

Scale fidelity (linearity)

Level	Specified	Typical
0 to -30 dB	<0.05 dB	0.02 dB
-30 to -40 dB	<0.1 dB	0.03 dB
-40 to -50 dB	<0.3 dB	0.05 dB
-50 to -60 dB	<0.5 dB	0.10 dB
-60 to -70 dB	<0.7 dB	0.10 dB
-70 to -80 dB	—	0.25 dB
-80 to -90 dB	—	0.25 dB
-90 to -100 dB	—	0.40 dB
-100 to -110 dB	—	0.70 dB
-110 to -120 dB	—	4.0 dB

Level is relative to the input range
Specifications are valid for frequencies >100 kHz.

Example: To compute the typical accuracy for a signal of -45 dBm at 100 MHz with 50 Ω full-scale range of -20 dBm and manual sweep, sum the typical full-scale absolute accuracy and scale fidelity.
i.e. (0.2 dB + 0.02 dB) = 0.22 dB

Input Port Return Loss >20 dB

Frequency specifications

Frequency range

Specifications apply over the range of 10 Hz to 150 MHz (10 Hz to 40 MHz for 1M Ω input).

Frequency accuracy

Frequency accuracy is the sum of initial accuracy, aging and frequency counter resolution. Accuracy is measured with frequency counter function.

Initial Accuracy	Without opt. 001	With opt. 001*
20 to 30°C	± 0.5 ppm	± 0.01 ppm
0 to 55°C	± 3.0 ppm	± 0.07 ppm
Aging	± 0.25 ppm/mo.	± 0.125 ppm/mo.

*Add ± 0.1 ppm if instrument is on < 48 hours

Frequency Counter Resolution: 0.1 Hz

Drift/residual FM

Frequency drift and residual FM are negligible, as the HP 3588A is fully synthesized (phase-locked to frequency reference) during sweeps. For frequency accuracy during sweeps, see the accuracy specifications above.

Frequency span range (characteristic only)

Swept spans:	
Range	10 Hz to 150 MHz, and zero span
Resolution	0.1 Hz
Accuracy	Greater of 0.1 Hz or .125% of span
Start/stop freq	0 Hz to 150 MHz

Narrowband zoom spans:

Range	1.23 Hz to 40 kHz in x2 steps
Accuracy	$\pm 0.001\%$ of span

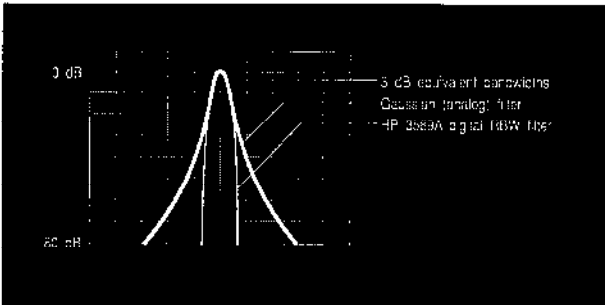
Resolution bandwidth

Swept spectrum: 1.1 Hz to 17 kHz $\pm 10\%$

Narrowband zoom:

High-accuracy mode 0.90% of span (11 mHz-360 Hz)

High-resolution mode 0.37% of span (4.5 mHz-148 Hz)



HP 3588A digital RBW filter shape (solid line) compared with a standard (Gaussian) analog RBW filter of equivalent 3 dB bandwidth. Shape factor of the analog filter is approximately 11:1.

Bandwidth selectivity (shape factor or ratio of -60 dB to -3 dB bandwidths)

Swept spectrum mode (see also filter comparison graph)

Manual sweep	<4.0:1
Auto-coupled sweep	4.3:1 (typical)
Auto-coupled oversweep	5.1:1 (typical)

Narrowband zoom mode

High-accuracy mode	2.6:1
High-resolution mode	9.1:1

Narrowband zoom (FFT) equivalent noise bandwidth

High-accuracy mode	0.955% of span
High-resolution mode	0.375% of span

Measurement speed (maximum, characteristic only)

Sweep rate, oversweep off	RBW + 2 Hz/s
Sweep rate, oversweep on	4 x (RBW + 2) Hz/s

Narrowband zoom mode >7 measurements/s (for spans ≥ 10 kHz)

Narrowband zoom (FFT) 400 + span (Hz) seconds time record length

Note: Traditional analog RBW filters are usually swept at RBW + 2 Hz/s (or slower), to limit amplitude errors due to sweeping to <0.1 dB. The oversweep mode of the HP 3588A provides up to 4 times faster sweep times without increased error.

HP-IB binary trace output approx. 120 ms/trace

Video Bandwidth

Coupled to RBW from (1.54 X RBW) to (0.012 X RBW) in 7 steps, and OFF

Source specifications

Frequency range (characteristic only)	10 Hz to 150 MHz
Amplitude range	+10 to -59.9 dBm & off
Amplitude resolution	0.1 dBm
Absolute amplitude accuracy (300 kHz, +10 dBm output)	±1 dB
Dynamic accuracy (add to absolute accuracy)	Add 0.02 dB/dB below +10 dBm
Frequency response (Variation relative to level at 300 kHz)	±1 dB
Spurious products	
Harmonic products	<-30 dB
Non-harmonic products	<-40 dB
Noise (Relative to the carrier in a 1 Hz bandwidth for offsets greater than 500 Hz from the carrier)	<-80 dB
Output Port Return Loss	>20 dB

General specifications

Environmental

Temperature, standard instrument	
Operating	5 to 50°C
Storage (no disk in drive)	-20 to 60°C

Temperature, delete disk option

Operating	0 to 55°
Storage	-40 to 70°C

Humidity, non-condensing, standard instr.

Operating	8% to 90% at 30°C
Storage (no disk in drive)	5% to 95%

Humidity, non-condensing, delete disk opt.

Operating	5% to 95% at 40°C
Storage	5% to 95% at 40°C

Altitude, standard instrument

Operating	2150m (7000 ft)
Storage	4570m (15,000 ft)

Altitude, delete disk option

Operating	4570m (15,000 ft)
Storage	4570m (15,000 ft)

Calibration Interval	1 year
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Warmup time	30 minutes
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Power requirements

115 VAC operation	90-132 Vrms, 47-440 Hz
230 VAC operation	198-264 Vrms, 47-66 Hz
Max power dissipation	450 VA

Weight

Net	28 kg (61 lbs)
Shipping	38 kg (81 lbs)

Dimensions

Height	222 mm (8.75 in)
Width	425.5 mm (16.75 in)
Depth	630 mm (24.8 in)

HP-IB: Implementation of IEEE Std 488.1 and 488.2
SH1, AH1, T6, TE0, L4, LE0, SR1, RL1, PP0, DC1,
DT1, C1, C2, C3, C12, E2

Peripherals Supported

HP-IB graphics printers (raster output only)
HP-IB plotters using HP-GL

Standard Internal Memory	1 Mbyte RAM fully partitionable
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Memory Option 003	2 Mbyte RAM (Adds 2 Mbytes)
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Disk Drive: The HP 3588A's internal disk drive can format only double-sided, double-density disks. It can also read and write single-sided disks that were formatted in a double-sided drive. It does not read, write or format high density (1.44 Mbyte) disks.

Ordering Information

HP 3588A spectrum analyzer

- Option 001: precision frequency reference
- Option 003: additional 2 Mbyte RAM
- Option 004: delete disk drive
- Option 1C2: HP Instrument BASIC
- Option 908: rack mount kit
- Option 915: service kit
- Option 916: extra operating manual
- Option 920: extra HP-IB manual
- Option W30: three year warranty (return to HP)

Standard instrument includes:

- 3.5-inch flexible disk drive
- Standard 1-year warranty
- Spare fuse
- Power cord
- Installation Guide
- Getting Started Guide
- Operating Reference
- HP-IB Programming Reference
- (service manual is not included)

Recommended Accessories

- HP 92192A Ten 3.5-inch dble-sided, dble-density disks
- HP 10833A HP-IB cable (1m)
- HP 10833B HP-IB cable (2m)
- HP 10833C HP-IB cable (4m)
- HP 10833D HP-IB cable (0.5m)
- HP 2225A HP ThinkJet printer
- HP 2227B HP QuietJet Plus printer
- HP 92261A Print cartridges (black)
- HP 92261N HP Jet paper (2500 sheets, fanfold)
- HP 7440A HP ColorPro plotter, option 002
- HP 7475A 6-pen graphic plotter, option 002
- HP 7550A 8-pen graphic plotter, option 002
- HP 41800A Active probe (requires N-BNC adpt.)

For more information, call your local HP sales office listed in your telephone directory or an HP regional office listed below for the location of your nearest sales office.

United States:

Hewlett-Packard Company
4 Choke Cherry Road
Rockville MD 20850
(301) 670 4300

Hewlett-Packard Company
5201 Tollview Drive
Rolling Meadows IL 60008
(708) 255 9800

Hewlett-Packard Company
5161 Lankershim Blvd.
No. Hollywood CA 91601
(818) 505 5600

Hewlett-Packard Company
2015 South Park Place
Atlanta GA 30339
(404) 955 1500

Canada:

Hewlett-Packard Ltd.
6877 Goreway Drive
Mississauga Ontario L4V 1M8
(416) 678 9430

Japan:

Yokogawa-Hewlett-Packard Ltd.
15-7 Nishi Shinjuku 4 Chome
Shinjuku-ku
Tokyo 160, Japan
(03) 5371 1315

Latin America:

Hewlett-Packard
Latin American Region Headquarters
Monte Pelvoux No. 111
Lomas de Chapultepec
11000 Mexico, D.F. (A.C.N. 004 394 763)
(525) 202 0155

Australia/New Zealand:

Hewlett-Packard Australia Ltd.
31-41 Joseph Street
Blackburn, Victoria 3130
Melbourne, Australia
(03) 895 2895

Far East:

Hewlett-Packard Asia Ltd.
22/F Bond Centre West Tower
89 Queensway
Central, Hong Kong
(852) 848 7777

In Europe, please call your local HP sales office or representative:

Austria:

(0222) 2500-0

East Central Europe, USSR, and Yugoslavia:

Vienna - Austria

(0222) 2500-0

Belgium and Luxembourg:

(02) 761 31 11

Denmark:

(45) 99 10 00

Finland:

(90) 88 721

France:

(1) 69 82 65 00

Germany:

(06172) 16 0

Greece:

(01) 68 28 811

Iceland:

(91) 67 10 00

Ireland:

(01) 88 33 99

Israel:

Computation and Measurement
Systems (CMS) Ltd.
(03) 5380 333

Italy:

(02) 95 300 134

Netherlands:

(020) 547 6669

Norway:

(02) 87 97 00

Portugal:

(11) 301 73 30

South Africa

(011) 806 1000

Spain:

900 123 123

Sweden:

(08) 750 20 00

Switzerland:

(057) 31 21 11 (Headoffice)

(022) 780 41 11 (Suisse Romande)

(046) 05 15 05 (Customer Information
Center)

Turkey:

175 29 70

U.K.:

(0344) 369 369

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