

Spectrum Analyzers

3250 Series 1 kHz to 26.5 GHz Spectrum Analyzers



The NEW 3250 Series compact, digital spectrum analyzers...

- High accuracy and reliability
- Powerful RF performance, phase noise - 115 dBc/Hz, DANL -145 dBm/Hz
- Standard 30 MHz I/Q demodulation bandwidth
- Remote control via LAN, GPIB, RS-232C
- S/W extension based on Windows® XP OS
- 7" wide touch panel display
- Portability based on light and compact design
- Removable hard disk
- Optional battery
- Choice of 3 GHz or 8 GHz tracking generator

The NEW 3250 Series has been developed to provide market leading performance at a low cost. The innovative compact design 3250 spectrum analyzer employs the latest digital processing and RF technology, providing accomplished accuracy, stability and measurement speed.

To support the constantly evolving wireless communication market, the 3250 incorporates a standard 30 MHz bandwidth digitizer and basic digital modulation analysis S/W. The instrument has been optimized for various mobile and

wireless communication measurements such as GSM/EDGE, UMTS, WiMAX and WiBro.

With its powerful RF performance and advanced applications the 3250 Series is ideally suited for RF development, design analysis and testing. All models have a Windows® XP operating system, remote control capabilities via LAN, GPIB and RS-232C as well as a 7" touch panel screen, ensuring ease of operation and exceptional connectivity.

Innovational Spectrum Analyzer with Fully Digital Processing

Optimize your measurement through the accuracy, stability, measurement speed, and portability based on the high RF performance and digital technology of the 3250 Series.

Various Applications

Various applications optimized for the wireless and mobile communication development and RF measurement.

Customized Standard Functions

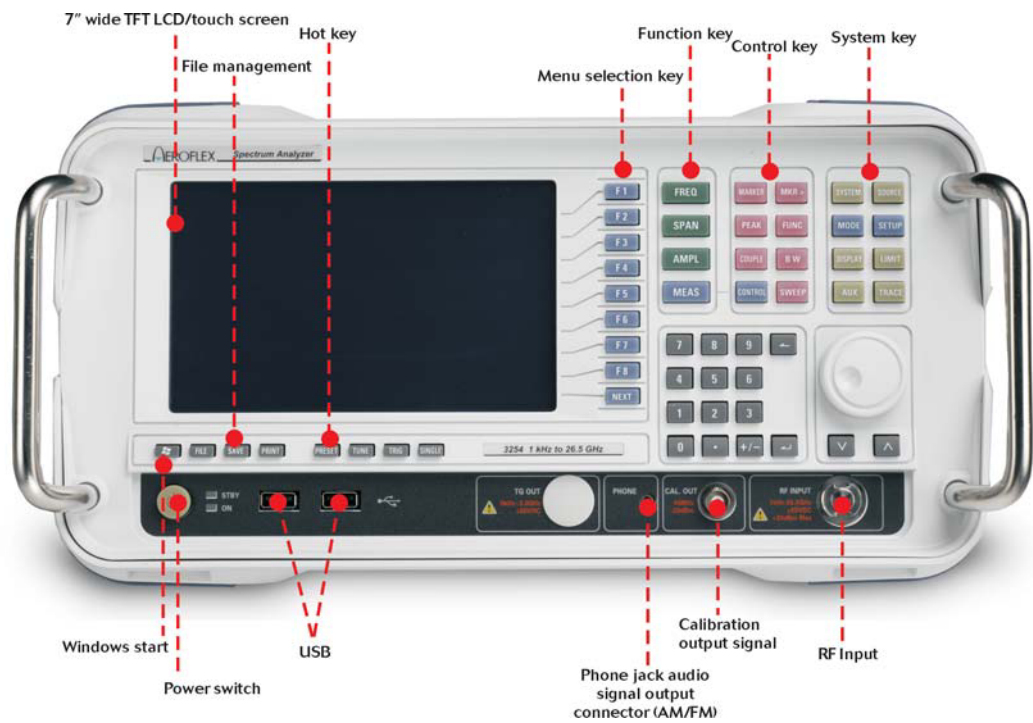
Useful customized measurement functions and tools for various customer needs.

Interface and Control

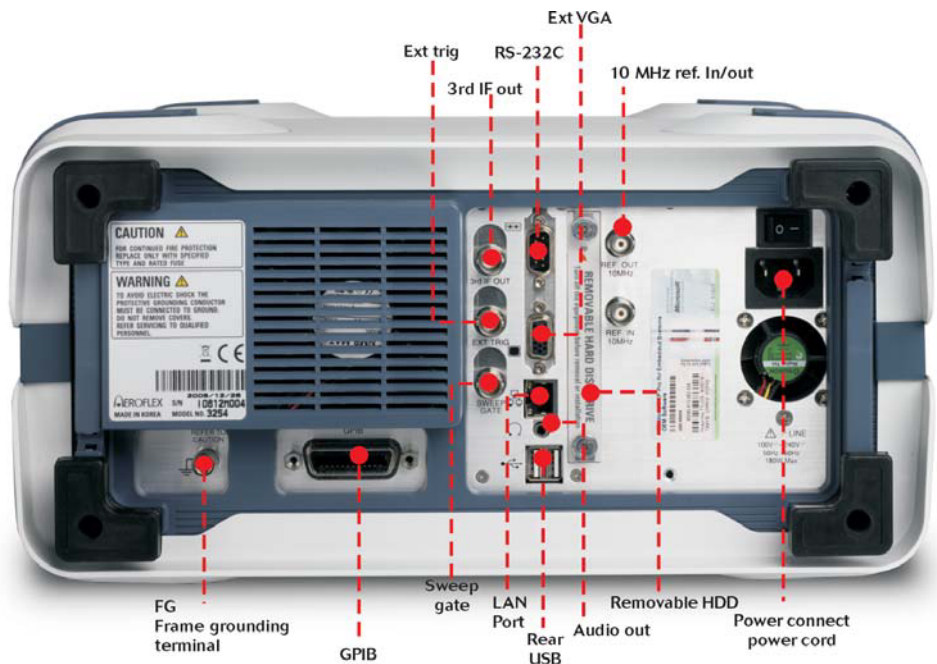
Various interfaces such as LAN, GPIB, RS-232C based on Windows® XP. Its powerful Web-server functions enable the users to remotely access and control the equipment anytime anywhere.

3251	1 kHz to 3 GHz
3252	1 kHz to 8 GHz
3253	1 kHz to 13.2 GHz
3254	1 kHz to 26.5 GHz

For the very latest specifications visit www.aeroflex.com



Front of 3250 Series

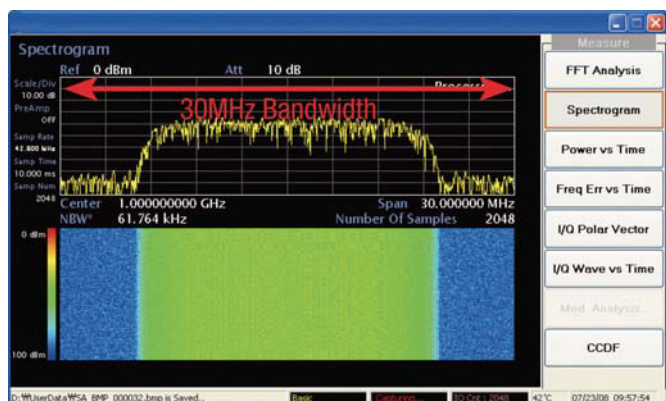


Back of 3250 Series

The 3250 Series includes the widest 30 MHz bandwidth digitizer in its product range as well as basic digital modulation analysis S/W. Its 30 MHz standard digitizer provides the optimized H/W conditions for various mobile and wireless communication measurements such as WiMAX/WiBro, etc.

- 14 bit ADC with 85.6 MHz sampling frequency
- Dynamic range over 80 dB
- 32 M samples data with 128 MB memory
- Standard FFT, spectrogram, digital modulation analysis
- Save I/Q data file
- Digital modulation analysis like PSK (8, 16, 64), QAM (4, 8, 16, 32, 64, 128, 256), BPSK, QPSK.

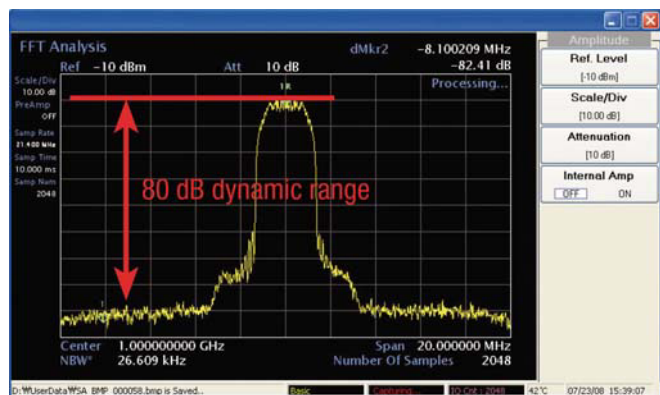
Spectrogram Measurement



Display the change of the frequency in time domain, analyze the wide bandwidth digital modulation signal in 30 MHz bandwidth.

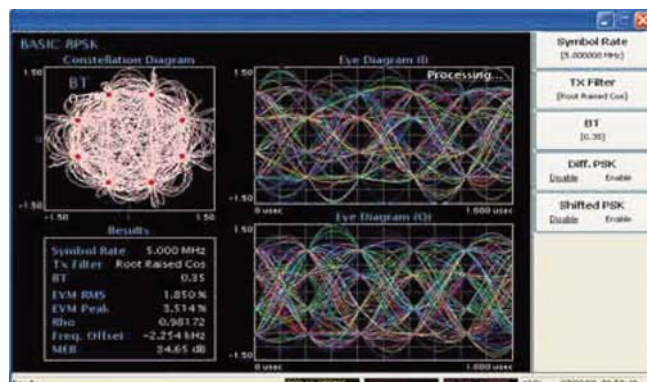
- FFT
- Spectrogram
- Power vs time
- I/Q wave vs time
- Digital modulation analysis
- CCDF

FFT Measurement



Measure and display the FFT signal analysis and dynamic range of the digital modulation signal input.

Modulation analysis



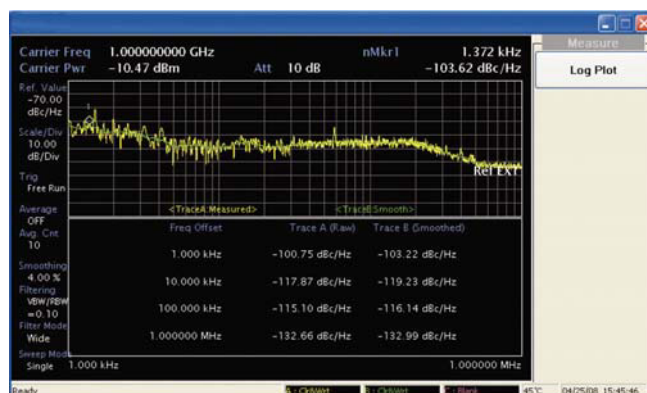
Measure and display the value of I/Q polar vector, I/Q eye diagram graph and EVM, Rho, MER, frequency offset.

- PSK (8, 16, 64)
- QAM (4, 8, 16, 32, 64, 128, 256)
- BPSK, QPSK.

Various Customized Measurement Functions

The 3250 Series has various customized measurement functions for RF and Wireless communication analysis. Its powerful measurement functions help the user analyze the measured data, and find the optimized solutions for the detected problems.

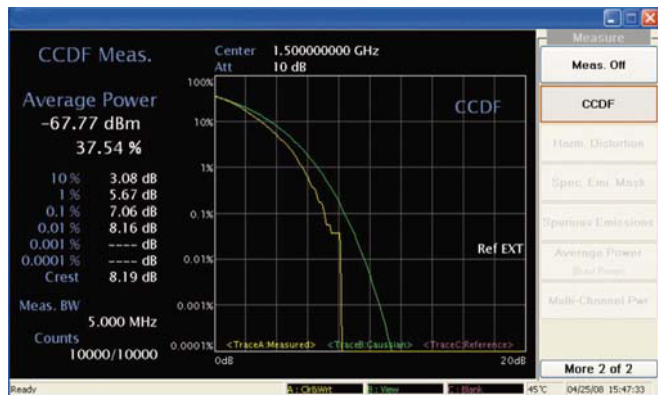
Phase Noise Measurement



Phase noise is one of the important factors to evaluate short-term stability of signals. The Frequency offset values are automatically set by the start frequency, and an accurate phase noise value can be obtained through the smoothed value. This function can be used as a basic tool to enable development and optimization in a production environment (in-line testing) that is required for design verification and trouble shooting.

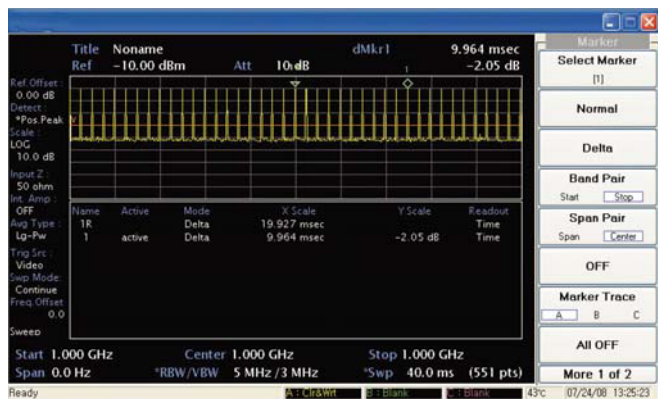
- One-button measurement
- Continuous phase noise plot- offset range: 10 Hz – 1 GHz
- Display method: Log plot/numerical results table
- Narrow/Wide sweep mode
- Average and smoothing curve
- Automatic carrier search

CCDF



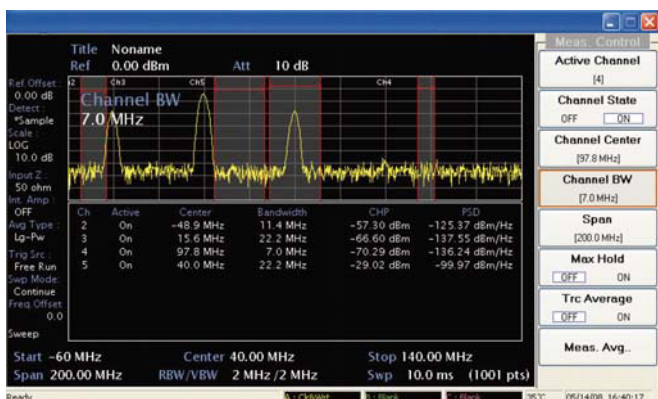
CCDF provides an easy to understand graph of the statistical properties of a signal from which the crest factor is derived - an important measurement when testing amplifiers.

Pulse Measurement



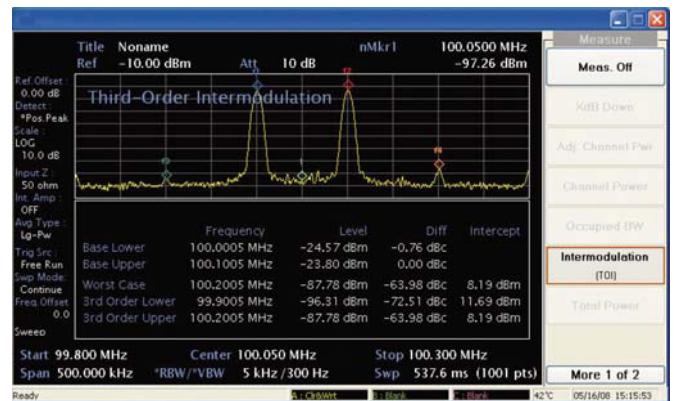
Pulse measurement including the functions for the Video Trigger or RF burst trigger based on high performance digital IF signal processing, enabling the user to precisely measure the pulse signals for Radar.

Multi Channel Power



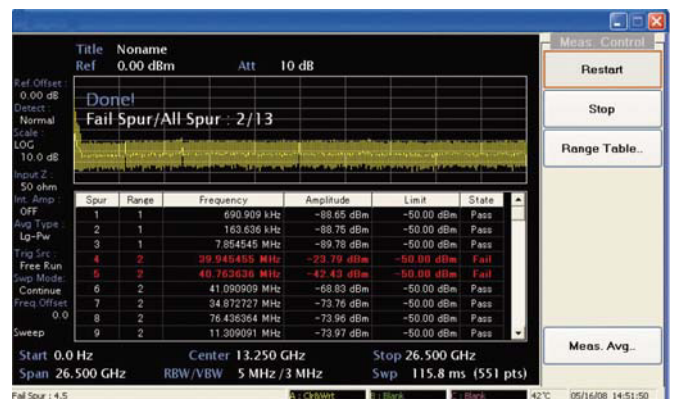
This function enables the users to measure the channel powers in various signals at one time and be displayed on the screen. The users can select several different frequency ranges.

TOI



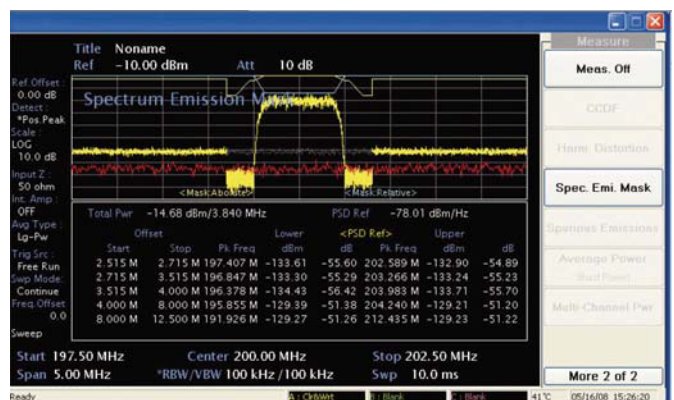
TOI Measurement is a function to measure the linearity of the measured elements. TOI automatically calculates IP3 values and displays them on the screen. When the two signals are entered and suitable spans are set, a base point and a third order harmonic level are automatically displayed and IP3 value is accurately calculated.

Spurious Emissions



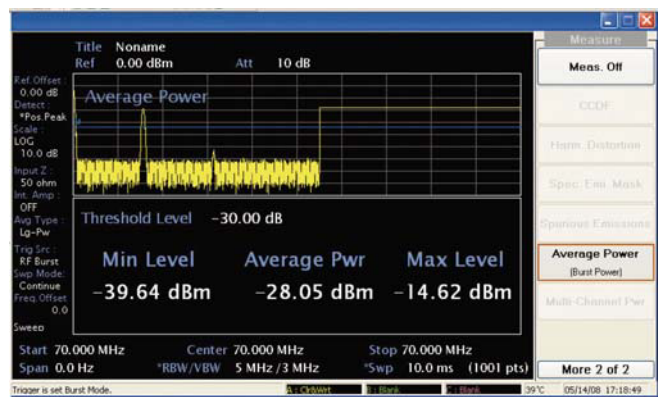
Spurious Emissions function are used to specify the spurious of the DUT (Device Under Test). The User first sets the frequency bands using a range table, and sets a maximum of 200 different conditions corresponding to each frequency by adjusting RBW/VBW/Sweep time and limit. The spurious for each range is automatically displayed as 20 Peak values.

Spectrum Emission Mask



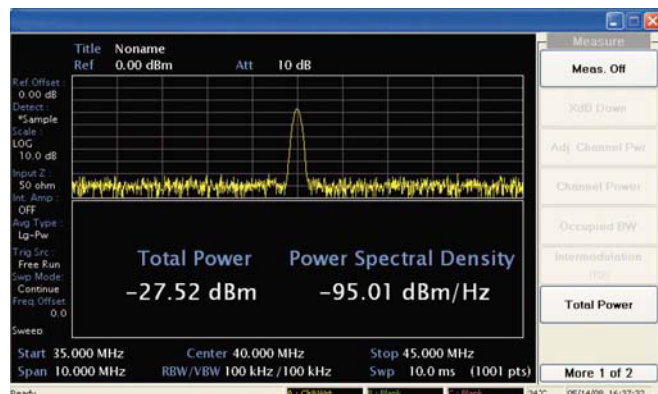
This function can automatically analyze Pass/Fail using the limit line, set in the 3250 in advance to the communication standards such as the frequency bands, and level values. The 3250 Series provides standard mask functions for WLAN (802.11a/b/g), W-CDMA (3GPP, base and mobile) as a basic function. The user can manually set the limit lines required by each communication standard at their own discretion and easily modify limit lines.

Average Power



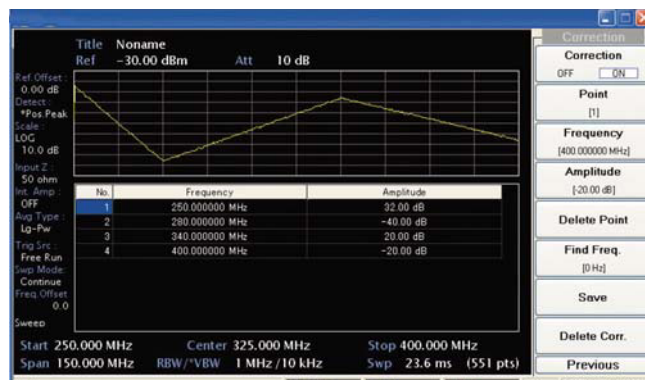
As a measurement function to analyze the burst signals that occur spontaneously, average power is used to analyze the power characteristics of signals on the time axis. This function automatically calculates burst lengths, average power, and min/max power in a zero span condition and displays them on the screen.

Total Power



All the power values and power spectral densities within the frequency span selected by users are displayed. Total power indicates the channel power in the span region displayed on the screen, and power spectral density is used for the same purposes as the auto spectral density indicating the rate of spectrum changes in relation to the frequency.

Amplitude Correction Factors



Using the amplitude-correction factor, it is possible to set compensation values for levels appropriate to the measurement environment. It is possible to individually set and control antennas, cables, other factors of users, and to load and save using file dialog.

SPECIFICATION

FREQUENCY

FREQUENCY RANGE

1 kHz ~ 3 GHz/ 8 GHz/13.2 GHz/ 26.5 GHz

Resolution

1 Hz

FREQUENCY REFERENCE PPM

Temperature Drift $\pm 1/ \pm 0.01$ (option)

Aging per year* $\pm 1/ \pm 0.01$ (option)

* Horizontal resolution is span/(sweep points-1)

FREQUENCY READOUT

Marker resolution

depending on span (1 Hz minimum)

Accuracy

\pm (marker frequency x reference error+ 3% span + 5% RBW)

FREQUENCY COUNTER

Resolution

1 Hz/10 Hz/100 Hz /1 kHz

Accuracy

\pm (reference frequency accuracy x marker frequency) \pm (counter resolution +1 LSB)

Sensitivity

-45 dBm @ 13.2 GHz > f > 2 MHz, span < 3 MHz

-40 dBm @ 26.5 GHz > f > 13.2 GHz, span < 3 MHz

FREQUENCY SPAN

Range

0 Hz, 10 Hz~3 GHz /6.2 GHz/13.2 GHz/26.5 GHz

Resolution

1 Hz

Accuracy

$\pm 1\%$

SWEEP

Zero span

1 us to 2000 sec, $\pm 0.5\%$

Span ≥ 10 Hz

10 ms to 2000 sec, $\pm 0.5\%$ nominal

Sweep points

3 to 8192 (span=0 Hz)

101 to 8192 (span ≥ 10 Hz)

TRIGGER

Span ≥ 10 Hz

Source External, video, free run, burst

Offset 1 us to 500 ms

Span = 0 Hz

Source External, video, free run, burst

Offset -150 ms to +500 ms

Spectral purity [dBc/Hz]

1kHz offset

-92 (-95 typical) @ f=1 GHz

10 kHz offset -112 (-115 typical)

100 kHz offset -112 (-115 typical)

1 MHz offset -136

10 MHz offset -144

RESIDUAL FM

<100 x N** Hzp-p in 1 sec

** N : LO Harmonic order

Frequency	Band	N
0 Hz ~ 3 GHz	0	1
2.9 GHz ~ 6.4 GHz	1	1
6.3 GHz ~ 13.2 GHz	2	2
13.1 GHz ~ 26.5 GHz	3	4

RBW

3 dB bandwidths

30 Hz to 5 MHz (1-2-3-5 Sequence)

Bandwidth accuracy

	20-30°C	0-55°C
500 Hz~500 kHz Filter	$\pm 3\%$	$\pm 5\%$
1 MHz~5 MHz Filter	$\pm 10\%$	$\pm 12\%$

Shape factor -60 dB: -3 dB

<5 (@ 500 Hz~5 MHz)

Bandwidth switching uncertainty

± 0.05 dB nominal @ 5 kHz RBW reference, CF=100 MHz

VBW

3 dB bandwidths

1 Hz to 3 MHz, none (1-2-3-5 sequence)

FFT FILTERS

3 dB bandwidths

1 Hz to 300 Hz (1-2-3-5 sequence)

Bandwidth accuracy

<1%, Nominal

Shape factor (-60 dB: -3 dB)

<4.5, Nominal

AMPLITUDE

DISPLAY RANGE

DANL to + 30 dBm

MAXIMUM INPUT LEVEL

DC (AC coupled)

± 50 VDC

CW RF power

+30 dBm

Peak Power

+50 dBm, 5 μ s pulse width; 0.5% duty cycle

Preamp on

+20 dBm

RF input attenuator**Range**

0 to 55 dB

Steps

5 dB

Switching accuracy ± 0.5 dB @ 100 MHz ± 0.5 dB @ < 13.2 GHz ± 0.8 dB @ 13.2 GHz ~ 26.5 GHz**1 dB CP [dBm]****0 dB RF attenuation**

-10 @ 10 MHz to 3 GHz

0 @ 3 GHz to 26.5 GHz

Preamp on

-32 @ 1 GHz

THIRD-ORDER INTERMODULATION DISTORTION (TOI)**[dBm]**two -30 dBm tones at input mixer with tone separation > 100 kHz
+8 @ 10 MHz to 200 MHz

+12 (15 typical) @ 200 MHz to 26.5 GHz

SECOND HARMONIC INTERCEPT (SHI)**[dBm]**

+40 typical @ ~ 1.5 GHz, -30 dBm input

+80 @ 1.5 GHz to 26.5 GHz, -30 dBm input

DISPLAYED AVERAGE NOISE LEVEL (DANL)[dBm/Hz], 0 dB RF attenuation, 50 Ω termination.

RBW 1 Hz, VBW 1 Hz, preamp OFF

	20-30°C	0-55°C
100 kHz to 10 MHz	-135	-132
10 MHz to 2 GHz	-143, -145 typical	-140, -142 typical
2 GHz to 13.2 GHz	-141, -145 typical	-138, -142 typical
13.2 GHz to 18 GHz	-138, -142 typical	-135, -139 typical
18 GHz to 26.5 GHz	-133, -138 typical	-130, -135 typical

IMMUNITY TO INTERFERENCE**Residual responses (input terminated, 0 dB attenuation) [dBm]**

-90

Other Input related spurious [dBc]

-55 @ -30 dBm input

DISPLAY RANGE**Log scale**

0.1 to 1 dB / div in 0.1 dB steps

1 to 20 dB / div in 1 dB steps

Linear scale

10 Divisions

Units of level axisdBm, dBmV, dB μ V, V, W (log level display) mV, μ V, dBmV (linear level display)**REFERENCE LEVEL****Logarithmic range**

-170 dBm to +30 dBm, 0.1 dB steps

Linear range

7.07 nV to 7.07 V in 1% steps

Accuracy

0 dB

TRACES**Number**

3 traces

Trace detectors

Normal, peak, sample, negative peak, log power average, RMS average, and voltage average

Trace functions

Clear/write, max hold, min hold, view, blank, average

FREQUENCY RESPONSE

10 dB input attenuation, preselector centering applied

	20-30°C	0-55°C
1 MHz to 3.0 GHz	± 0.5 dB	± 1.0 dB
3.0 GHz to 8 GHz	± 1.0 dB	± 3.0 dB
3 GHz to 13.2 GHz	± 1.5 dB	± 4.0 dB
13.2 GHz to 22 GHz	± 2.0 dB	± 5.0 dB
22 GHz to 26.5 GHz	± 2.5 dB	± 5.0 dB
1 MHz to 3.0 GHz	Preamp ON	± 1.0 dB

DISPLAY LINEARITY [dB]**Linear and Log switching error**

0

Log scale switching error

0

Linearity ± 0.1 total @ input mixer level \leq -20 dBm ± 0.13 total @ -20 dBm < mixer level \leq -10 dBm**DIGITIZER****Maximum analysis Bandwidth**

30 MHz

ADC Resolution

14 bits

Dynamic Range

85 dB

Residual FM

<1% (nominal)

Capture Memory

128 Mbytes (32Msamples)

AM/FM DEMODULATION**Input Power Range**

-60 dBm to +30 dBm, preamp OFF

-80 dBm to +30 dBm, preamp ON

Modulation Rate Range

1 Hz to 10 kHz @ RBW 10 kHz to 100 kHz

1 Hz to 30 kHz @ RBW 200 kHz to 500 kHz

Peak FM Deviation

200 Hz - 500 kHz

FM Deviation Accuracy

± 5%

AM Depth Range

5% - 99%

AM Depth Accuracy

± 5%

Audio Output Port

Loudspeaker, phone jack

INPUTS AND OUTPUTS

RF INPUT

Type

Front N female, 50 Ω
APC 2.92 mm, 50 Ω (26.5 GHz)

VSWR

≥ 10 dB input attenuation
< 1.5 nominal @ 10 MHz to 3 GHz
< 1.8 nominal @ 3 GHz to 13.2 GHz
< 2.0 nominal @ 13.2 GHz to 26.5 GHz

3RD IF OUTPUT

Type

Rear BNC female, 50 Ω

Frequency

21.4 MHz

Bandwidth

16 MHz Max, different as prefilter

Level

+2 dBm nominal, at top of screen

Audio output

Type Front Phone jack

Ext trigger input

Type Rear BNC female, 10 k Ω nominal
Trigger level TTL nominal

Sweep gate output

Type Rear BNC female
Trigger level TTL nominal

Reference frequency output

Type Rear BNC female, the same as reference input port
Frequency 10 MHz
Level +5 dBm, nominal

Reference frequency input

Type Rear BNC female, the same as reference output port
Frequency 10 MHz
Required level - 5 to +15 dBm nominal

GPIO

Type Rear IEEE 488.2, 24 - pin female
Command set SCPI 1997.0
Interface functions SH1, AH1, T6, L4, SR1, RL1, PPO, DC1, E2, LEO, TEO

Serial interface

Rear RS - 232 - C (COM), 9 - pin D - SUB female

LAN interface

Rear 10 / 100 / 1000 Base T, Connector RJ 45

USB

Front/Rear USB 2.0, Front: 2 EA, Rear: 2 EA

Printer interface

Rear -

Monitor output (VGA)

Rear 15-pin mini D-SUB

Mouse connector

Front -

Keyboard connector

Front -

Cal. Out

Frequency Front 40 MHz
Level -20 dBm + 1.0

GENERAL SPECIFICATIONS

DISPLAY

Size

7" Wide color TFT LCD (Touch Screen)

Resolution

800 x 480 pixels

MASS MEMORY

Hard Disk, Removable, 80 GB

ENVIRONMENTAL CONDITIONS

MIL - PRF - 28800 F, Class 3

Temperature

Operating 0°C to + 50°C
Permissible 0°C to + 55°C
Storage -40°C to + 71°C

Permissible temperature has slightly wider range as compared to the normal operating temperature. We guarantee the specification of the equipment when operating within the Operating Temperature range. We guarantee that the equipment is functional when operating within the Permissible Temperature.

Humidity

5% to 95% (5 ~ 75% above 30°C, 5 ~ 45% above 40°C)

Altitude

up to 4600 metres

MECHANICAL RESISTANCE

MIL-PRF-28800F, Class 3

Vibration, Random

5 Hz to 500 Hz

Vibration, Sinusoidal

5 Hz to 55 Hz

Shock

30 G, Half-sine shock

EMC

EN 61326-1 : 2006

EN 55022 : 2006

EN 55024 : 1998 + A1 + A2

EN 61000 - 3 - 2 : 2000 + A2

EN 61000 - 3 - 3 : 2000 + A1 + A2

SAFETY

EN 61010 - 1 : 2001 (2nd Edition)

POWER SUPPLY

Steady state voltage

100 VAC to 240 VAC

Frequency

50/60 Hz

Power consumption

120 Watt max

DIMENSIONS

(WxHxD) [mm]

373 (W) x 194 (H) x 401 (D) without handles and feet down

384 (W) x 203 (H) x 437 (D) with handles and feet down

(WxHxD) [inches]

14.7 (W) x 7.6 (H) x 15.8 (D) without handles and feet down

15.1 (W) x 8 (H) x 17.2 (D) with handles and feet down

WEIGHT

Model

	3251	3252	3253	3254
[kg]	11.0	12.8	13.0	13.4

RECOMMENDED CALIBRATION INTERVAL

1 - year

STANDARD WARRANTY

2 - year

3 GHz TRACKING GENERATOR- 325X/1

Frequency Range

9 kHz to 3 GHz

Output Level

-30 dBm to 0 dBm

Output Level Resolution

0.1 dB

Absolute Level Accuracy

±2.0 dB

Flatness [dB] at -10 dBm

9 kHz ~ 100 kHz,

±4.0, Before Normalization

100 kHz ~ 3 GHz

±2.5 Before Normalization

9 kHz ~ 3 GHz

±1.0 After Normalization

Spurious

Harmonics, <-15 dBc

Non harmonics, <-30 dBc

Leakage [dBm]

-90

VSWR

<1.5 @ 0 dBm Output Level

Connector

N female, 50 Ω

8 GHz TRACKING GENERATOR- 325X/2

Frequency Range

100 kHz to 8 GHz

Output Level

0 dBm to -20 dBm (in 0.5 dB steps)

Attenuator Steps

0.5 dB

Absolute Level Accuracy

100 kHz to 3 GHz

±3 dB

3 GHz to 8 GHz

±4.5 dB

Flatness [dB] @ -10 dBm

100 kHz to 3 GHz

±3 dB, Before Normalization

3 GHz to 8 GHz

±4.5 dB, Before Normalization

100 kHz to 8 GHz

±1.0 dB, After Normalization

Spurious

Harmonics, <-15 dBc

Non-harmonics, <-20 dBc

Leakage at TG output level 0 dBm

100 kHz to 3 GHz

-90 dBm

3 GHz to 8 GHz

-80 dBm

VSWR

100 kHz to 3 GHz

<1.5:1 @-10 dBm output level

3 GHz to 8 GHz

<2:1 all output levels

Connector

N Female, 50 Ω

PRE-SELECTOR- OPTION 5

When selected, all specifications remain the same except for the following:

Frequency Range- AC Coupled

9 kHz to 30 MHz

Preselection

7 preselection filters

9 kHz to 150 kHz, fixed LPF

150 kHz to 600 kHz, fixed BPF

600 kHz to 1.2 MHz, fixed BPF

1.2 MHz to 2.5 MHz, fixed BPF

2.5 MHz to 5 MHz, fixed BPF

5 MHz to 10 MHz, fixed BPF

10 MHz to 30 MHz, fixed BPF

Third order intercept point (IP3) (dBm)

Two - 30 dBm tones at input mixer with tone separation >100 kHz

Preselector OFF, preamp OFF

+8 @ 10 MHz to 200 MHz

+12, +15 typical @ 200 MHz, to 8 GHz

Preselector ON, preamp OFF

+8 @ 10 MHz to 30 MHz

Preselector ON, preamp ON

-10 typical @ <100 MHz

-10, -8 typical @ 100 MHz to 1 GHz

-8, -5 typical @ 1 GHz to 3 GHz

Second order intercept point (IP2) (dBm) -30 dBm input

Preselector OFF, preamp OFF

+40 typical @ 10 MHz to 4 GHz

Preselector ON, preamp OFF

+40 typical @ 10 MHz to 4 GHz

Preselector ON, preamp ON

+25 typical @ 10 MHz to 1.5 GHz

Displayed Average Noise Level (DANL)

0 dB RF attenuation, 50 termination, zero span, sweep time 100 msec,
RBW 1 kHz, VBW 10 Hz, Average detector, trace average 10, normalize
to RBW 1 Hz

Preselector OFF, preamp OFF

-130 @ 9 kHz to 1 MHz

-140, -150 typical @ 1 MHz to 10 MHz

-145, -149 typical @ 10 MHz to 1 GHz

-143, -147 typical @ 1 GHz to 1.5 GHz

-141, -145 typical @ 1.5 GHz to 2.5 GHz

-139, -142 typical @ 2.5 GHz to 3 GHz

-142, -147 typical @ 3 GHz to 6.4 GHz

-140, -145 typical @ 6.4 GHz to 8 GHz

Preselector ON, preamp OFF

-130 @ 9 kHz to 1 MHz

-142, -147 typical @ 1 MHz to 30 MHz

Preselector ON, preamp ON

-140 @ 9 kHz to 1 MHz

-158, -165 typical @ 1 MHz to 30 MHz

-162, -165 typical @ 30 MHz to 1 GHz

-160, -163 typical @ 1 GHz to 1.5 GHz

-157, -160 typical @ 1.5 GHz to 2.3 GHz

-155, -158 typical @ 2.3 GHz to 3 GHz

Frequency Response

10 dB input attenuation, preselector centering applied, reference to
100 MHz

Preselector OFF, preamp OFF

± 0.5 dB @ 9 kHz to 3.0 GHz

± 1.0 dB @ 3.0 GHz to 8 GHz

Preselector OFF, preamp ON

± 0.7 dB @ 9 kHz to 3.0 GHz

Preselector ON, preamp ON

± 1.0 dB @ 9 kHz to 1.0 GHz

± 1.5 dB @ 1 GHz to 3.0 GHz

SOFTWARE OPTIONS

	2G Cellular	3G Cellular		Wireless Data	
Measurement Function	GSM/EDGE	UMTS (ULS) HSUPA	cdma2000r 1xEV-DO	WLAN (802.11a,b,g)	WiMAX (802.16e OFDMA)
3250 option	8	9	10	11	12
Power	✓	✓	✓	✓	✓
Power Template				✓ (ramp time 802.11b)	✓
Occupied BW		✓		✓ (802.11a,g only)	✓
Code Domain Power		✓	✓		
Peak Code Domain Error		✓	✓ (RC3, 4)		
Magnitude Error		✓	✓		
Phase Error	✓ (GSM)	✓	✓		
IQ Skew		✓		✓	✓
Gain Imbalance		✓		✓	✓
EVM	✓ (EDGE)	✓ (QPSK & composite)	✓ (QPSK & composite)	✓ single/all carriers-data or pilot	✓ single/all carriers-data or pilot
Constellation Error				✓ (a only)	✓
Rho			✓ (composite)		
Symbol/Chip Timing				✓	✓
Carrier Suppression (Origin Offset)	✓ (EDGE)		✓ (QPSK)		
Frequency Error	✓	✓	✓	✓	✓
Spectral Emissions	✓ (ORFS)		✓ (Spectral Mask)	✓ (Spectral Mask)	✓ (Spectral mask)
Spectral Flatness				✓ (a, g only)	✓
Adjacent Channel Power		✓ (ACLR)	✓ (ACPR)	✓ (ACP)	
CCDF		✓	✓	✓	✓
BER	✓ (GSM)	✓			

VERSIONS, OPTIONS AND ACCESSORIES

When ordering please quote the full ordering number information.

Ordering

Numbers

Versions

Standard units

3251/0	Spectrum Analyzer (1 kHz ~ 3 GHz)
3251/1	Spectrum Analyzer (1 kHz ~ 3 GHz) incl. 3 GHz Tracking Gen
3252/0	Spectrum Analyzer (1 kHz ~ 8 GHz)
3252/1	Spectrum Analyzer (1 kHz ~ 8 GHz) incl. 3 GHz Tracking Gen
3252/2	Spectrum Analyzer (1 kHz ~ 8 GHz) incl. 8 GHz Tracking Gen
3253/0	Spectrum Analyzer (1 kHz ~ 13.2 GHz)
3253/1	Spectrum Analyzer (1 kHz ~ 13.2 GHz) incl. 3 GHz Tracking Gen
3253/2	Spectrum Analyzer (1 kHz ~ 13.2 GHz) incl. 8 GHz Tracking Gen
3254/0	Spectrum Analyzer (1 kHz ~ 26.5 GHz)
3254/1	Spectrum Analyzer (1 kHz ~ 26.5 GHz) incl. 3 GHz Tracking Gen
3254/2	Spectrum Analyzer (1 kHz ~ 26.5 GHz) incl. 8 GHz Tracking Gen

Hardware

Opt.03	High Stability Oscillator (80029)
Opt.05	Pre-Selector (A, B band) (80030) (Not available with opt. 06)
Opt.06	AC/DC Power Supply (80025) (Not available with opt. 05)
Opt.08	GSM/EDGE Measurement Suite (80031)
Opt.09	UMTS UL Measurement Suite (80032)
Opt.10	CDMA Measurement Suite (80033)
Opt.11	WLAN Measurement Suite (80034)
Opt.12	WiMAX Measurement Suite (80035)
Opt.13	EMI Measurement Suite (80036)

Accessories

80027	Soft Carrying Case
80026	DC Battery Pack
80039	Connector and Cable Assembly
80040	Hard Carrying Case
80041	Rack Mounting Kit