Spectrum Analyzers

3280 Series 3 Hz to 26.5 GHz Spectrum Analyzers

AEROFLEX
A passion for performance.

The NEW 3280 Series spectrum analyzers...
...performance far beyond the price tag.

3281	3 Hz to 3 GHz
3282	3 Hz to 13.2 GHz
3283	3 Hz to 26.5 GHz

- 3 Hz to 26.5 GHz Frequency Range

- High Level Accuracy ±0.15 dB up to 3 GHz

- Digital IF offers resolution bandwidths from 5 MHz to 1 Hz

- Low DANL of <-150 dBm/Hz

- +18 dBm Third Order Intermodulation performance

- Excellent LO phase noise <-115 dBc/Hz, 1 GHz/10 kHz offset

- Digital demodulation option with 36 MHz analysis bandwidth

- Large TFT, 10.4" color display

- Marker readout via up to 9 selectable markers

- Windows XP™ operating system

- Comprehensive data interfaces - CD ROM, USB, LAN

- Optional 3 GHz Tracking Generator - all models

The NEW 3280 Series has been designed to achieve the best performance whilst keeping the cost to an affordable level. Ideally suited to design and production applications the 3280 Series uses a Windows XP™ operating system and a large color TFT LCD, making the 3280 very easy to operate with exceptional connectivity. RF and microwave performance that employs the very latest digital signal processing technology enables superb level accuracy and a wide choice of resolution bandwidths.

Very Wide Signal Measurement Range

The combination of a DANL of <-150 dBm/Hz and a 1 dB compression point of -5 dBm at 26.5 GHz provides for a large signal measurement range over a wide range of frequencies.

Low LO Phase Noise

The Local Oscillator (LO) is fully synthesized and provides 1 Hz resolution. The LO phase noise is specified as <-115 dBc/Hz at 10 kHz offset for an input frequency of 1 GHz. This low level allows evaluation of the phase noise of oscillators and systems and sub-systems.

Large Color Display

The 10.4 in. TFT LCD display provides a comfortably large viewing area even with more than one window open. The display may be viewed as either full screen or dual window and up to 3 traces can be displayed in each display window. Up to 9 markers can be selected and a marker table can be displayed in the alternative window.

Information Storage

The internal hard drive provides internal data storage and retrieval while external data storage is accomplished by use of either the built-in CD ROM drive or via the USB interface.

Interfaces

The use of a Windows XP™ operating system allows for a wide range

of interfaces. Included in the unit are: USB, LAN, Centronics parallel printer port, RS-232, IEEE 488 (GPIB) and VGA output. A wide range of printers can be installed and updated by the installation of drivers from the CD ROM supplied with the printer.
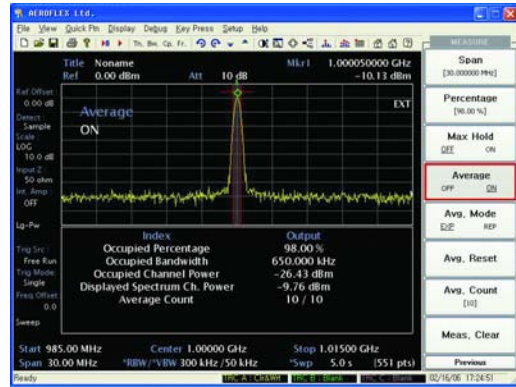
Signal Demodulation

In addition to the standard demodulation feature of AM and FM the 3280 Series also supports digital modulation standards through the use of an internal option module with appropriate software suites. A streaming LVDS (digital IQ) output is available for the digital demodulator as an additional option.
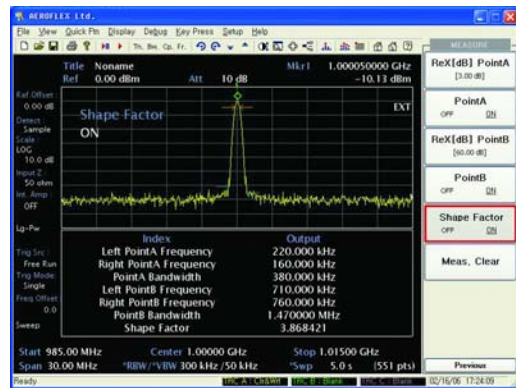
Semi-Automated Measurements

The evaluation of many of the common measurements can be simplified by the use of built-in measurement functions. These include: channel power, adjacent channel power, occupied bandwidth, spectrum emission mask, TOI measurement, harmonic distortion, X dB down and phase noise measurement.
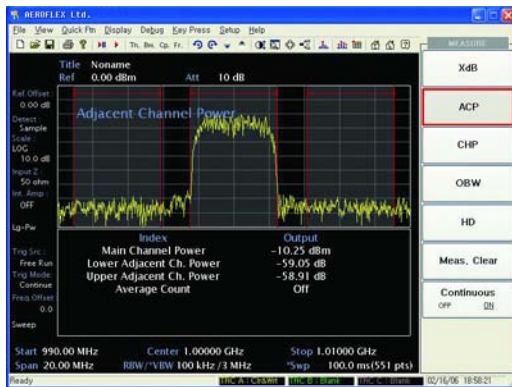
Optional Tracking Generator

A tracking generator option is available for all three frequency models. The tracking generator has a specified frequency range of 9 kHz to 3 GHz and a level range from 0 dBm down to -70 dBm with 0.1 dB resolution. The tracking generator can be used to make high dynamic range measurements on components and devices, particularly filters. A normalize function is available to allow the markers to display relative flatness/frequency response.
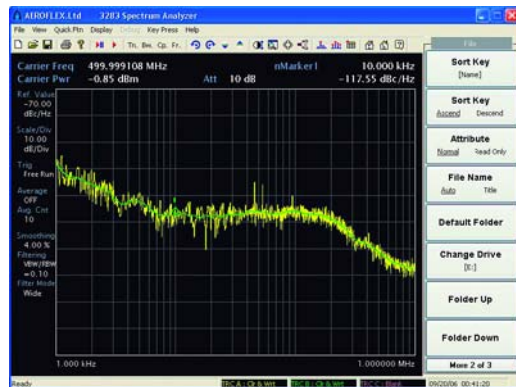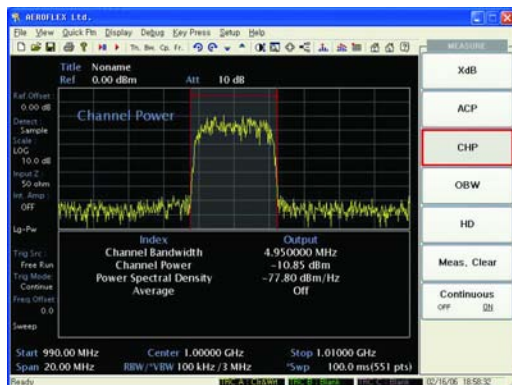

Adjacent Channel Power

Channel Power

Occupied Bandwidth

X dB Down

Phase Noise

SPECIFICATION

FREQUENCY

Frequency Range

DC coupled 3 Hz ~ 3 GHz / 13.2 GHz / 26.5 GHz
AC coupled 10 MHz ~ 3 GHz / 13.2 GHz / 26.5 GHz

Resolution

1 Hz

Frequency Reference

Temperature Drift 0°C ~ 50°C ±0.1 ppm
Aging per year ± 0.3 ppm

Frequency Readout

Marker resolution depending on span and measurement points (1 Hz minimum)

Accuracy

± (marker frequency * reference error + 0.5% span + 5% RBW + 0.5 * horizontal resolution)

Horizontal resolution is span / (sweep points - 1)

Frequency Counter

Resolution 1 Hz / 10 Hz / 100 Hz / 1 kHz

Accuracy

± (reference frequency accuracy * marker frequency + counter resolution ± 1 LSB) + 0.5 * last digit

Sensitivity (for spans < 3 MHz)

<-60 dBm for frequencies >2 MHz and <3 GHz
<-55 dBm for frequencies >3 GHz and <13.2 GHz
<-50 dBm for frequencies >13.2 GHz and <26.5 GHz

FREQUENCY SPAN

Range

0 Hz (Zero Span), 10 Hz ~ 3 GHz, 13.2 GHz, 26.5 GHz

Resolution

1 Hz

Accuracy

±1%

Sweep

Zero span 1 ms to 2000 sec, ±0.5%
Span = 10 Hz, 5 ms to 2000 sec, ±0.5% nominal

Sweep Points

Number of points

3 to 8192 (Span = 0 Hz)
101 to 8192 (Span ≥10 Hz)

Span Trigger

≥10 Hz
Source external, line, video, free run, RF burst
Offset 1 µs to 500 ms
Span = 0 Hz
Source external, line, video, free run, RF burst
Offset -150 ms to +500 ms

Spectral Purity

SSB phase noise, dBc/Hz at offset (typical)

CW Freq	Frequency Offset				
	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz
10 MHz	<-78	<-102	<-113	<-113	<-135
100 MHz	<-76	<-110	<-113	<-113	<-135
1 GHz	<-76	<-100	<-115	<-115	<-136
3 GHz	<-68	<-98	<-110	<-111	<-135
6 GHz	<-60	<-83	<-107	<-110	<-135
13 GHz					
20 GHz					
26.5 GHz					

At 1 GHz: 100 Hz offset   <-76 dBc/Hz
              1 kHz offset   <-97 dBc/Hz
              10 kHz offset   <-113 dBc/Hz
              100 kHz offset   <-113 dBc/Hz
              1 MHz offset   <-136 dBc/Hz
              10 MHz offset   <-144 dBc/Hz

Residual FM

Accuracy, <10 * N Hz p-p in 1 sec

Resolution Bandwidth (RBW)

3 dB bandwidths 30 Hz to 5 MHz in a 1-2-3-5 sequence
Bandwidth accuracy:

500 Hz to 500 kHz filters   ±1.5 %
1 MHz to 5 MHz filters   ±6 %

Shape factor -60 dB/-3 dB <5 (500 Hz to 5 MHz filters)

Bandwidth switching uncertainty at 100 MHz CF reference to 5 kHz RBW ±0.05 dB nominal

FFT Filters

3 dB bandwidths 1 Hz to 300 Hz, in 1-2-3-5 sequence
Bandwidth accuracy <1 %, nominal
Shape factor: -60 dB /- 3 dB < 4.5, nominal

Video Bandwidth (VBW)

1 Hz to 3 MHz and none in a 1-2-3-5 sequence

Amplitude

Display range, DC coupled
DANL to +30 dBm

Maximum Input Level

DC (AC coupled) ±50 V DC (Option)
DC (DC coupled) 0 V

CW RF power +30 dBm
Preamp on +20 dBm

1 dB Compression Point

0 dB RF attenuation
0 dBm 100 MHz to 3 GHz
-5 dBm up to 26.5 GHz
Preamp on - 22 dBm at 1 GHz

Third-Order Intermodulation Distortion (TOI)

For two tones of -30 dBm tones at the input mixer with a tone separation of >100 kHz

+15 dBm from 100 MHz to 26.5 GHz, +18 dBm (Typical)

Second Harmonic Intercept (SHI)

with - 30 dBm at the input

+30 dBm for frequencies <100 MHz
+40 dBm for frequencies 100 MHz to 1.5 GHz
+80 dBm for frequencies 1.5 GHz to 26.5 GHz

Displayed Average Noise Level (DANL)

0 dB RF attenuation, RBW 1 Hz, average detector, 50 Ω termination.

-90 dBm/Hz nominal	from 3 Hz to 1 kHz
-100 dBm/Hz nominal	from 1 kHz to 10 kHz
-120 dBm / Hz	from 10 kHz to 100 kHz
-125 dBm/Hz	from 100 kHz to 300 kHz
-132 dBm/Hz	from 300 kHz to 500 kHz
-137 dBm/Hz	from 500 kHz to 700 kHz
-142 dBm / Hz	from 700 kHz to 10 MHz
-151 dBm / Hz	from 10 MHz to 1 GHz
-147 dBm / Hz	from 1 GHz to 2 GHz
-146 dBm / Hz	from 2 GHz to 6.4 GHz
-143 dBm / Hz	from 6.4 GHz to 18 GHz
-138 dBm / Hz	from 18 GHz to 22 GHz
-136 dBm / Hz	from 22 GHz to 24 GHz
-133 dBm / Hz	from 24 GHz to 26.5 GHz

Response to Unwanted Signals

Image frequency <-70 dBm with -10 dBm at the input
Intermediate frequency <-70 dBm with -10 dBm at the input

Residual responses (input terminated, 0 dB attenuation)
   <-95 dBm from 1 MHz to 6.4 GHz
   <-95 dBm typical from 6.4 GHz to 26.5 GHz

Other input related spurii < -60 dBc with -30 dBm at the input

Amplitude Scale

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

Level Units

dBm, dBµV, dBmV, dBpW (log level display)
µV, mV, pW, nW (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 ±0.15 dB

RF Input Attenuator

Range 0 dB to 55 dB in 5 dB steps

Switching Accuracy ±0.5 dB at 100 MHz (3281)
                  ±0.5 dB at <13.2 GHz (3282, 3283)
                  ±0.8 dB from 13.2 GHz to 26.5 GHz (3282, 3283)

Traces

Number of traces: 3

Trace detectors : Normal, peak, sample, negative peak, log power aver-
                age, RMS, average and voltage average

Trace Functions : Clear / Write, Max Hold, Min Hold, View, Blank,
                Average

Frequency Response

With 10 dB input attenuation, preselector centering applied, preamp off

              ±0.5 dB from 1 MHz to 3.0 GHz
              ±1.0 dB from 3.0 GHz to 6.4 GHz
              ±1.5 dB from 6.4 GHz to 13.2 GHz
              ±2.0 dB from 13.2 GHz to 22 GHz
              ±2.5 dB from 22 GHz to 26.5 GHz

Preamp on ±1.0 dB from 1 MHz to 3.0 GHz

Display Non-Linearity

Logarithmic level display

±0.1 dB total for an input mixer level of ≤-20 dBm
±0.13 dB total for mixer levels between -20 dBm and -10 dBm

Linear Level Display

5 % of reference level

Demodulation Audio Output

AM & FM, loudspeaker, phone jack

AM demodulation range 0 to 100%

FM demodulation range 0 to 100 kHz

INPUTS AND OUTPUTS - FRONT PANEL

RF INPUT

Type N female, 50 Ω (3.0 GHz, 13.2 GHz)

APC 2.92 mm, 50Ω (26.5 GHz)

VSWR with >10 dB input attenuation

10 MHz to 3 GHz	<1.5:1
3 GHz to 13.2 GHz	<1.8:1
13.2 GHz to 26.5 GHz	<2.0:1

TRACKING GENERATOR OUTPUT (OPTIONAL VERSION, 328X/1)

Connector

Type N female, 50 Ω

Frequency Range

9 kHz to 3.0 GHz

Output Level Range

0 dBm to -70 dBm

Output Level Resolution

0.1 dB

Level Accuracy

≤±1.0 dB

Level Flatness at -10 dBm - Before Normalization

9 kHz to 100 kHz	≤±4.0 dB
100 kHz to 3 GHz	≤±2.0 dB

Level Flatness at -10 dBm - After Normalization

9 kHz to 3 GHz	≤±1.0 dB

Spurious Output Levels

Harmonics	≤-15 dBc
Non-Harmonics	≤-30 dBc
Leakage Signal	≤-100 dBm

Output VSWR

≤1.5:1 at -10 dBm output level

1st LO Output (for external mixer option)

SMA female, 50 Ω nominal
Frequency 3321.4~6821.4 MHz
Level +10 dBm, nominal

2nd IF Input (for external mixer option)

SMA female, 50 Ω nominal
Frequency 421.4 MHz
Level -20 dBm

Probe Power Supply

+15 V, -12 V, GND

Cal Output

BNC female, 50 Ω nominal
Frequency 100 MHz
Level -20 dBm ±1.0 dB

Audio Output

Front panel phone jack

USB Interface

Front panel connector
Type 1.1 or higher (2.0)

Mouse Connector

6-pin mini DIN connector
PS2 compatible

External Keyboard Connector

6-pin mini DIN connector
PS2 compatible

REAR PANEL

3rd IF Output

BNC female, 50 Ω nominal
Frequency 21.4 MHz
Bandwidth 16 MHz ±Selected RBW
Level +3 dBm nominal, Top of screen

2nd IF Output

SMA female, 50 Ω nominal
Frequency 421.4 MHz
Bandwidth 40 MHz
Level 0 dBm nominal, Top of screen

Ext Trigger Input

BNC female, 10 kΩ nominal
Trigger level TTL nominal

Sweep Gate Output

BNC female
Trigger level TTL nominal

Reference Frequency Output

BNC female
Frequency 10 MHz
Level +5 dBm, nominal

Reference Frequency Input

BNC female
Frequency 10 MHz
Required level -5 to +15 dBm nominal

GPIB Interface

24 pin female connector
GPIB is IEEE 488 and 488.2 compatible
Command set SCPI 1997.0
Interface functions
SH1, AH1, T6, L4, SR1, RL1, PP0,
DC1, C0, LE0, TE0

RS-232 Serial Interface

9 way D-type connector, male

LAN Interface

10/100 Base T, Connector RJ45

USB 2.0 Interface

2 rear panel connectors

Printer Interface

Parallel interface, 25 way female D-type connector

External Monitor Output

Standard VGA, 800 x 600 color output
15 way high density D-type female connector

HARDWARE OPTIONS

DIGITAL DEMODULATION (Option 02)

Operation Modes

Two modes of operation:

Direct input via front pannel connector or rear panel SMA connector (option)

Input via spectrum analyzer input with 421.4 MHz IF output linked directly to digitizer rear panel input.

FREQUENCY

Range

Direct input (via rear panel): 330 MHz to 3.0 GHz

Through spectrum analyzer input: 10 MHz to 3280 max frequency

3 GHz, 13.2 GHz or 26.5 GHz

Resolution

1 Hz

Accuracy

As per spectrum analyzer frequency reference

Settling Time

Depends upon sweep time

LEVEL

Input Coupling

AC Coupled

Input Power (direct input via rear panel)

Max RF input +16 dBm continuous, (+22 dBm with 8 dB of RF input attenuation)

Max IF input +10 dBm with 0 dB of IF attenuation

RF Input Attenuator

0 to 28 dB in 4 dB steps

IF Input Attenuator

0 to 35 dB in 1 dB steps

Input Return Loss (at SMA rear panel input connector)

16 dB with 8 dB or more RF attenuation

Level Accuracy (RF input, 23°C ±5°C, Auto Flatness Mode enabled)

Better than ±0.45 dB, typically 0.3 dB

Valid for signals with <5 MHz occupied bandwidth at the tuned frequency and S/N ratio >40 dB

Level Settling Time

Typically 250 μs settled within 0.3 dB of final value

Level Temperature Stability

±/-0.01 dB/°C

Level Repeatability

Better than ±0.05 dB after warm up following a return from a change in frequency or level. Valid for at least 2 hours and excluding temperature influence.

SPECTRAL PURITY

SSB Phase Noise (direct input via rear panel)

Typical at 2 GHz and at ambient room temperature

Loop Bandwidth	Narrow	Wide (normal)
Offset	dBc/Hz	dBc/Hz
100 Hz	-55	-85
1 kHz	-85	-103
10 kHz	-114	-103
20 kHz	-116	-110
100 kHz	-133	-130
1 MHz	-136	-136
10 MHz	-138	-138

Phase noise at offsets of < 100 Hz is dependent upon the phase noise of the frequency reference.

LINEARITY AND NOISE

(direct input via rear panel input socket)

Intermodulation

Typically 75 dB intermodulation free dynamic range (2 tone input with maximum 0 dBm input power for each tone) Manual mode

Adjacent Channel Leakage Ratio (ACLR - signal applied to rear panel input)

63 dB ACLR on 3GPP (downlink test model 1) Typically 68 dB ACLR on 3GPP uplink

Spurious

Typically < -75 dBc excluding IF image frequencies and harmonic responses

Residual Responses (with no signal applied at rear panel input)

< -100 dBm with rear panel RF input terminated into 50 Ohm and minimum RF and IF attenuation

Noise Spectral Density (with no signal applied at rear panel input)

Rear panel RF input terminated in 50 Ohm and minimum RF and IF attenuation

Below 1 GHz, <-145 dBm/Hz

1 GHz and above, <-140 dBm/Hz

A/D CONVERSION

Resolution

14 bits

ADC Clock

Fixed 103.68 MHz

Sample Rate Control

IF: 103.68 MHz IQ: -Variable 6328.125 S/s to 85 MS/s or 51.84 MS/s with LVDS output enabled

Sample Rate Resolution

0.1 Hz when the sample rate is entered as a real number.

Sample rate can be entered as a fraction made up of integers.

Sample Rate Accuracy

As per 10 MHz ref[1]

[1] add ±2 µHz when using generic resampling mode

Amplitude Flatness (correction on - applies at rear panel input)

Flatness correction on: 0.25 dB to 33 MHz, 0.1 dB across center 5 MHz

Phase Flatness (typical with correction on - applies at rear panel input)

0.03 radians pk-pk to 33 MHz

LVDS DATA OUTPUT (Option 03)

Data Output

A Sample data block (equal to the data capture length) can be stored to internal memory and then transferred via the internal PCI bus. Sample data can be continuously streamed out of the rear panel LVDS connector.

IF data samples have 16 bit resolution. IQ data samples can be 16 or 32 bit resolution.

Data Transfer Rate

Typically 10 Mwords/s (a word is 32 bits long)

IQ and IF block data transfer when using 2.2 GHz embedded CPU running windows XP

Sample Memory

128 M x 16 bit samples

GENERAL SPECIFICATIONS

Display

Size 10.4" (26.4 cm) color TFT LCD
Resolution 800x600 pixels

Mass Memory

Hard disk drive 40 Gbyte

Power Supply

AC supply

88 V to 135V AC, 45 to 66 Hz
100 V to 135V AC, 360 to 440 Hz
193 V to 269V AC, 45 to 66 Hz
or 273 V to 381 V DC, automatically selected

240 W max. (without options)

Warm up time 15 min.

ENVIRONMENTAL CONDITIONS

Rated Range of Use (MIL-PRF-28800F, Class 3)

Temperature	0 °C to +50 °C
Altitude	Up to 4,600 meters (15,000 feet)****

Conditions of Storage and Transportation

Temperature	-40 °C to +71 °C
Altitude	Up to 4,600 meters (15,000 feet)

Humidity

Meets MIL-PRF-28800F, Class 3

Vibration and Shock

Meets MIL-PRF-28800F, Class 3

Electromagnetic Compatibility

EN 61326, 1997 + Appendix 1, 1998

RFI suppression (EMC) EN 55011: 2001 Group 1 Class A,

Immunity table 1 and Performance Criterion B

Safety

IEC / EN61010-1, 2001

DIMENSIONS AND WEIGHT

Dimensions (W x H x D)

430 mm x 222 mm x 451 mm (17 in x 8.7 in x 17.8 in)

Weight

3281	<18 kg (39.5 lbs.)
3282, 3283	<19.5 kg (43 lbs.)

Recommended calibration interval

1 year

Standard Warranty

2 years

Specifications are subject to change without prior notice.

* After 30 days of continuous operation.

** Valid for temperature range 20°C to 30°C, <0.6 dB for temperature range 5°C to 45°C.

*** Valid for temperature range 20°C to 30°C and span <1 GHz; add <0.5 dB for temperature range 5°C to 45°C or span >1 GHz.

**** Altitude, operating not to MIL-PRF-28800F, Class 3

System Type	Modulation	Data Rate Mb/s	IEEE spec
OFDM	BPSK	6, 9	802.11a/g
	QPSK	12, 18	
	16QAM	24, 36	
	64QAM	48, 54	
DSSS	DBPSK	1	802.11b
	DQPSK	2	
	CCK/PBCC(QPSK)	5.5, 11	
	PBCC (8PSK)	22	802.11g

SOFTWARE OPTIONS

WLAN MEASUREMENT SUITE (OPTION 011)

Transmit burst length

Transmit power on/off timing

Spectral mask

Adjacent channel power

Frequency tolerance

Chip clock tolerance

Carrier suppression/leakage

Modulation accuracy (EVM)

The WLAN measurement suite expands the capability of the 3280 Series to perform OFDM and DSSS power, spectrum and modulation measurements in accordance with WLAN standards IEEE 802.11a, b and g.

SPECIFICATION

All specifications for accuracy and range relate to performance when used in any ISM band up to 6 GHz.

BURST POWER MEASUREMENTS

TRANSMIT POWER

The Peak and RMS power is measured for a single PPDU

Indication

dBm

Accuracy

S/N >40 dB in the temperature range 23°C ±5°C

<0.45 dB, Typ. 0.3 dB when connected to the direct digitizer input

BURST LENGTH

The burst length is the number of samples between the rising and falling edge of a single PPDU burst as determined by a user defined capture threshold magnitude applied to the IQ data.

Indication

The burst length is reported in number of samples

RAMP UP, RAMP DOWN (802.11b and g)

Measures the time taken for the burst power of a single PPDU to change between 10% and 90% of it's value (peak or rms).

Indication

Global Pass/Fail

Ramp up Pass/Fail

Ramp up time in µs (10% to 90% points)

Ramp down Pass/Fail

Ramp down time in µs (90% to 10% points)

An array of dBm power values for each sample within the length of the PPDU burst

OBW (802.11A AND G ONLY)

Bandwidth containing 99% of total of the transmitted PPDU spectrum in 34 MHz

Indication

Hz

Accuracy

Typically <100 kHz

SPECTRAL MASK

The spectral density of the transmitted PPDU signal should lie within the spectral mask.

The mask is frequency aligned to the maximum spectrum density.

Mask types   802.11a

               802.11b/g

               User defined

Measurement BW

100 kHz

Measurement Range

80 MHz

Indication

Global Pass / Fail

The worst case dBc level value and its corresponding frequency relative to the mask.

Arrays containing the FFT power spectrum and mask values.

Accuracy

Typically ±0.05 dB/10 dB

Assumes common 3030 Series attenuator settings for reference and offset measurements.

ADJACENT CHANNEL POWER

The power measured in the upper and lower adjacent and alternate channels relative to the power in the reference channel.

Reference Channel bandwidth

22 MHz

Adjacent & Alternate Channel bandwidth

±11 MHz, ±22 MHz

Indication

1st lower dBc

2nd lower dBc

1st upper dBc

2nd upper dBc

Main channel dBm

Measurement Range

Typically 62 dB for IEEE802.11a/g 54 Mbps QAM

Typically 65 dB for IEEE802.11b 11 Mbps CCK

Accuracy

Typically ±0.05 dB/10 dB

Assumes common digitizer attenuator settings for reference and offset measurements.

MODULATION ACCURACY

The error vector magnitude (EVM) is the magnitude of the IQ vector at the decision point measured relative to the ideal constellation point.

EVM

EVM (rms) all carriers

EVM (rms) for a single carrier (issue 1.1.0)

EVM (rms) all data carriers

EVM (rms) all pilot carriers

EVM (Peak) - 802.11b/g only

EVM (Peak IEEE) - 802.11 b only

Indication

%

An array of symbol/chip EVM values

A two dimensional array of EVM values for each symbol on every sub carrier

System type, Modulation type, PSDU data length.

Accuracy (averaged over 20 bursts)

Residual EVM typically -40 dB

FREQUENCY TOLERANCE

Lock Range

±50 ppm

Indication

Hz

Accuracy

As per reference frequency

TX CENTER FREQUENCY LEAKAGE / RF CARRIER SUPPRESSION

Indication

dB

SYMBOL / CHIP CLOCK TOLERANCE

Range

±50 ppm

Indication

ppm

Accuracy

As per reference frequency

SPECTRAL FLATNESS (802.11A AND G ONLY)

Indication

Pass/Fail

Upper Pass/Fail

Lower Pass/Fail

52 element array representing dBr values for each sub carrier

VERSIONS, OPTIONS AND ACCESSORIES

When ordering please quote the full ordering number information.

Ordering
Numbers **Versions**

3281/0   3 Hz to 3 GHz Spectrum Analyzer

3281/1   3 Hz to 3 GHz Spectrum Analyzer with Tracking Generator

3282/0   3 Hz to 13.2 GHz Spectrum Analyzer

3282/1   3 Hz to 13.2 GHz Spectrum Analyzer with Tracking Generator

3283/0   3 Hz to 26.5 GHz Spectrum Analyzer

3283/1   3 Hz to 26.5 GHz Spectrum Analyzer with Tracking Generator

Options

02   Digital Demodulation

03   LVDS Output (rear panel)

011   WLAN Measurement Suite (option 02 must be fitted)

Supplied Accessories

CD ROM Operating & Programming Manual   46886/051

Front Handles/Rackmount brackets

USB Mouse

Keyboard

AC Supply Lead

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AEROFLEX
A passion for performance.

Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.

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