3026

Real-time Spectrum Analyzer

Features

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Characteristics

Frequency Related

Frequency Range -
RF Mode: 10 MHz to 3 GHz.
Baseband Mode: 50 Hz to 10 MHz.

Frequency Span -
RF Mode: 100 Hz to 3 GHz.
Baseband Mode: 100 Hz to 10 MHz.

Stability of Frequency Standard - ± 5 x 10^{-9}/day.

Residual FM - 3 Hz max.

Spectrum Purity - -100 dBc/Hz (10 kHz offset).

Center Frequency Settability - 0.1 Hz.

Amplitude Related

Reference Level Range -
RF mode: -50 to +30 dBm.
Baseband Mode: -30 to +30 dBm.

Input Impedance - 50 Ohm.

Input VSWR - ≤1.5 (at reference level ≥-20 dBm).

Maximum Nondestructive Input Voltage - +30 dBm.

Internal Gain - ±1.0 dBm at 25 MHz.

Flatness -
±2.0 dB (>500 Hz).
+2.0, -5.0 dB (≤500 Hz).

Input Equivalent Noise - -140 dBm/Hz at 1 GHz.

2nd Harmonic Distortion - ≤-70 dBc (-10 dBfs input level).

3rd Order Distortion -
≤-60 dBc (<20 MHz, ≤-10 dBfs input).

≤-70 dBc (≤20 MHz, ≤-10 dBfs input).

Spurious Response -
≤-65 dBc (<400 kHz offset).
≤-70 dBc (≥400 kHz offset).

Residual Response -
≤-40 dBfs (50 Hz +10 bin).
≤-65 dBfs (≥center ±2 bin).
≤-70 dBfs (≥exclude above).

Image Suppress - -70 dB.

A/D Converter - 12-Bits, 25.6 MS/s.

Input Anti-aliasing Filter -
±0.3 dB (≤10 MHz).
-60 dB (≥15.5 MHz).

Frame Time Related

FFT Points - 1024, 256.

FFT Window - Blackman-Harris, Hamming, Rectangle.

Operation Accuracy - 16-Bit, Block-Floating.

Maximum Overlapping at 1024 FFT Point -
512 point at 5 MHz.
768 point at 2 MHz span.
896 point at 1 MHz.
960 point at 500 kHz span.
960 point at 200/20/2 kHz span.
992 point at 100/10/1 kHz span.
1008 point at 50/5 kHz span.
1008 point at 500/200/100 Hz span.

Maximum Overlapping at 256 FFT Point -
192 point at 2 MHz.
224 point at 1 MHz.
240 point at 500 kHz span.
192 point at 200/20/2 kHz span.
224 point at 100/10/1 kHz span.
240 point at 50/5 kHz span.
240 point at 500/200/100 Hz span.

Decimation Filter Related

Filter Type -
5 MHz span: 134-tap FIR Filter.

2 MHz span: 201-tap FIR Filter.
1 MHz span: 268-tap FIR Filter.
500 kHz span: 317-tap FIR Filter.
200 kHz span: 391-tap FIR Filter.
100 kHz span: 503-tap FIR Filter.
50 kHz span: 503-tap FIR Filter with 4-stage Comb Filter.
10 kHz span: 503-tap FIR Filter with 4-stage Comb Filter.
5 kHz span: 459-tap FIR Filter with 4-stage Comb Filter.
2 kHz span: 503-tap FIR Filter with 4-stage Comb Filter.
1 kHz span: 459-tap FIR Filter with 4-stage Comb Filter.
500 Hz span: 459-tap FIR Filter with 4-stage Comb Filter.
200 kHz span: 459-tap FIR Filter with 4-stage Comb Filter.
100 kHz span: 503-tap FIR Filter with 4-stage Comb Filter.

Word Length FIR Filter Coefficient - 20-Bit.

Stopband Attenuation - 90 dB.

Passband Ripple - 0.2 dB.

Minimum Frame Update Rate

Span	1024 point	512 point
500 kHz to 5 MHz	16 µs	
500 kHz to 2 MHz		40 µ
50 kHz to 200 kHz	400 µs	400 µs
5 kHz to 20 kHz	4 ms	4 ms
500 Hz to 2 kHz	40 ms	40 ms
200 Hz	100 ms	100 ms
100 Hz	200 ms	200 ms

Real Time Span - $\leq$ 2 MHz.

Trigger Related

Trigger Mode - Auto/Normal (Frequency and Time Events).

Trigger Source - Internal/External.

Internal Trigger Level -
Max: 0 dBfs.
Min: -55 dBfs.

Level Resolution of Internal Trigger - 19-Bit.

Frequency Resolution of Internal Trigger -
Span/800: 5 MHz span, 1024 point FFT.

Span/640: 2 MHz span, 1024 point FFT.
Span/160: 256 point FFT.

Time Resolution of Internal Trigger - Same as the interval of spectrum frame update.

External Trigger Level - 1.6 V ±0.2 V.

Voltage Range of External Trigger Input - 0 to 5 V.

Acquire Mode - Block/Roll.

Maximum Block Length -
1,000 frames (1024 point FFT).
4,000 frames (256 point FFT).

Roll Mode Update Rate - 10 frame/sec.

Acquisition Related

The 3026 offers a full 2 MHz of real-time bandwidth with measurement speed of 25,000 frames/second and a 1024 point update interval of 160 microseconds.

System Controller

486DX4-100 (100 MHz Clock), 32 MB 60 ns fast page SIMM (nonparity), 2.5 in. 3 MB solid state drive, 2.5 in. 2.1 GB hard disk, 3.5 in. 2 HD (1.44 MB) floppy disk, on board Ethernet LAN I/F, ISA half size GPIB.

Environmental

Temperature -
Operating: +10°C to 40°C.
Nonoperating: -20°C to +60°C.

Temperature Gradient -
Operating: ≤5 per hour (no condensation).
Nonoperating: ≤30 per hour (no condensation).

Relative Humidity -
Operating: 20% to 80% (no condensation). Maximum wet-bulb temperature 29.4.
Nonoperating: 5% to 90% (no condensation). Maximum wet-bulb temperature 40.0.

Altitude -
Operating: up to 4.5 km (15,000 ft). Maximum operating temperature decreases 1 each 300 m above 1.5 km.
Nonoperating: Up to 15 km (50,000 ft).

Vibration -
Operating: 0.27 G_{RMS}, 5 Hz to 500 Hz.
Nonoperating: 2.28 G_{RMS}, 5 Hz to 500 Hz.

Shock -
Nonoperating: 294 m/s (30 G), half-sine, 11 ms duration. Three shocks per axis in each direction (18 shocks total).

Bench Handling -
Operating: drop from 10 cm (4") tilt, or 45° which ever less (tilt not to balance to point).

EMC Compliance

Emissions -
Enclosure: EN 55011 class A limits for radiated emissions.
AC Main: EN 55011 class A limits for conducted emissions.
EN 61000-3-2 power line harmonics.

Immunity -
Enclosure: EN 61000-4-2 electrostatic discharge immunity.
EN 61000-4-3 RF electromagnetic field immunity.
AC Main: EN 61000-4-4 electrical fast transient immunity.
EN 61000-4-5 Surge. EN 61000-4-6 conducted disturbance induced by radio-frequency field. EN 61000-4-8 power frequency electromagnetic field. EN 61000-4-11 power line interruption immunity.

Power

Line Voltage Range - 90 to 250 VAC.

Line Frequency - 48 to 63 Hz.

Maximum Power - 300 W.

Maximum Current - 4 A.

Fuse Rating - 6 A, 250 V, Fast blow.

Grounding Impedance - Verify continuity of grounding connection by any suitable means between a representative part required to be grounded and the attachment-plug cap grounding pin (0.1 Ohm at 30 A).

Primary Circuit Dielectric Voltage Withstand Test -
1500 V_{RMS}, 50 Hz for 15 seconds, without breakdown.

Physical Characteristics

Dimensions	mm	in.
Height	165	6.5
Width	376	14.8
Depth	495	19.5
Weight	**kg**	**lb.**
Net	13	29

Warranty

One year parts and labor.

Safety

UL3111-1, CSA231, EN61010-1, IEC61010-1.

Self-declaration - EN61010-1 with second amendment.
For more comprehensive and environmental specifications, please see the Tektronix website.

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Product(s) complies with IEEE standard 488.2-1987, RS-232-C, and with Tektronix Standard Codes and Formats.

Product Area Assessed: The planning, design/development and manufacture of electronic Test and Measurement instruments.

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