High-end
LSA Series
Signal Analyzer

LSA-30/LSA-132/LSA-265

Any signal, Any time, Any place

- Frequency range: 3Hz to 3GHz, 13.2GHz, and 26.5GHz
- Open architecture based on Window XP and PXI
- Dual independent system
  - Spectrum analyzer
  - Multi purpose measurements
- Access to the web on the spot
- High dynamic range
- Zoom FFT processing
- 10.4 Inch Color TFT LCD
- Various applications for wireless communication

NEX1 FUTURE

Powerful Analyzer

for Complete Communications

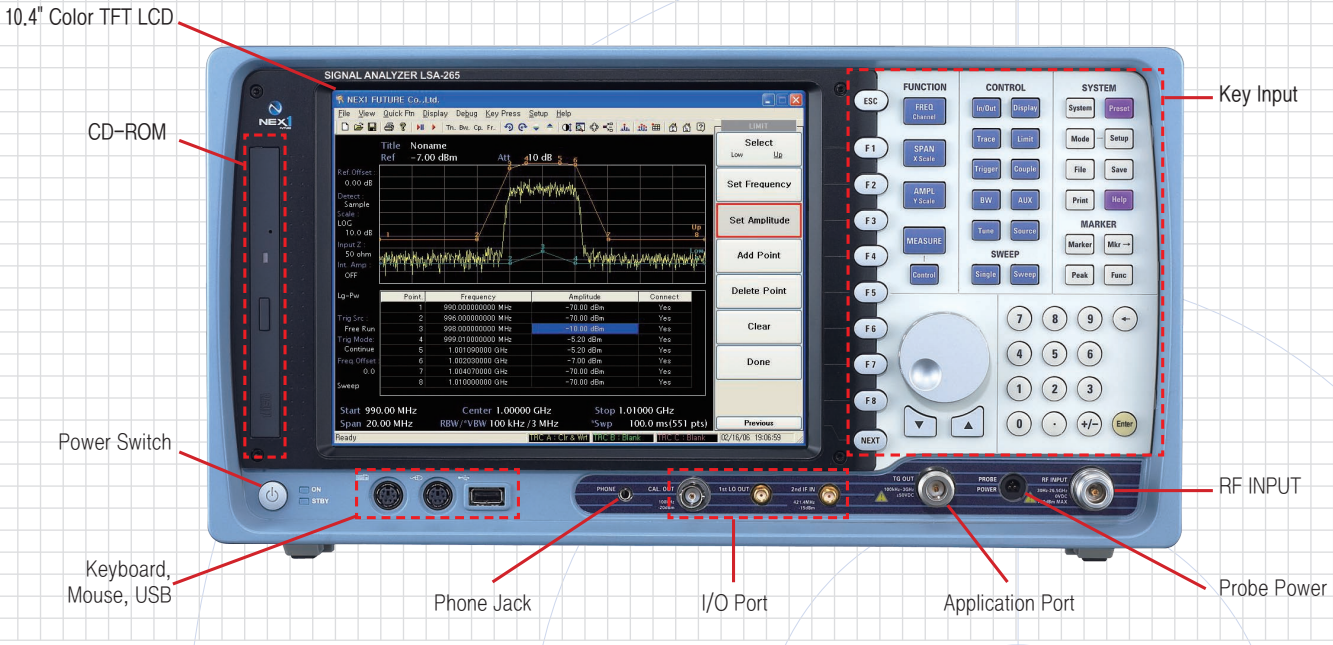
High Performances

- Frequency range: 3Hz to 3GHz, 13.2GHz, and 26.5GHz
  - **LSA-30** *3Hz to 3GHz*
  - **LSA-132** *3Hz to 13.2GHz*
  - **LSA-265** *3Hz to 26.5GHz*
- High dynamic range (Typical)
  - *-150dBm/Hz displayed average noise level (DANL)*
  - *+18dBm third order intermodulation (TOI)*
  - *-115dBc/Hz phase noise*
- High level accuracy: ± 0.15dB
- Fully digital IF: 10Hz to 5MHz (RBW/VBW)
  - *Shape factor: < 5:1*
- Zoom FFT processing

High Performance Signal Analyzer, ***NEX1 FUTURE LSA Series***

NEX1 FUTURE's LSA Signal Analyzers based on the newest digital signal processing technology enable precise measurements of wide band modulation signals and delicate signals of low frequency band.

Optimized solution for RF and Microwave measurement



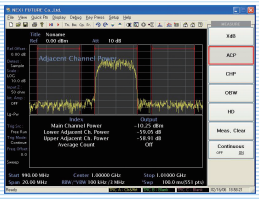
Main Features

- **System OS: Windows XP**
- **Wide Screen: 10.4" Color TFT LCD**
- **cPCI Backplane Support (Mother Board)**
- **Peripheral Interfaces**
  - *USB 2.0 / LAN / CD-ROM / Audio*
  - *VGA output / Parallel (Centronics)*
  - *Keyboard / Mouse / RS232C*
- **Others**
  - *SCPI command support*
  - *Full Screen / Dual Window*
  - *3 Traces*
  - *Installable Printer Driver (XP)*

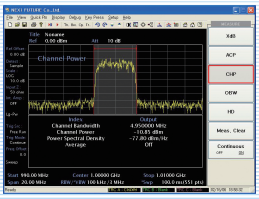
Standard Functions

LSA Series offers enhanced standard performances and functions in support of versatile applications that meet various user's needs.

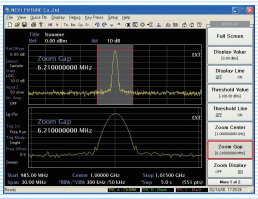
- Spectrum Emission Mask
- Phase Noise Measurement
- Total Power & Average Power Measurement
- TOI Measurement
- Channel Power
- Adjacent Channel Power
- Occupied Bandwidth
- Dual Window
- 3 Traces (Trace A, B, C)
- Multi Markers
- Zoom In/Out
- Xdb Down
- Limit



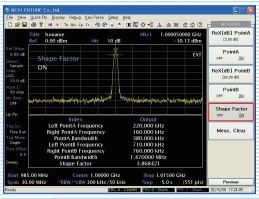
Adjacent Channel Power



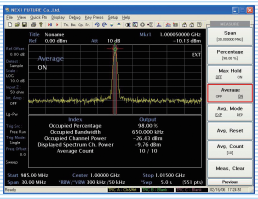
Channel Power



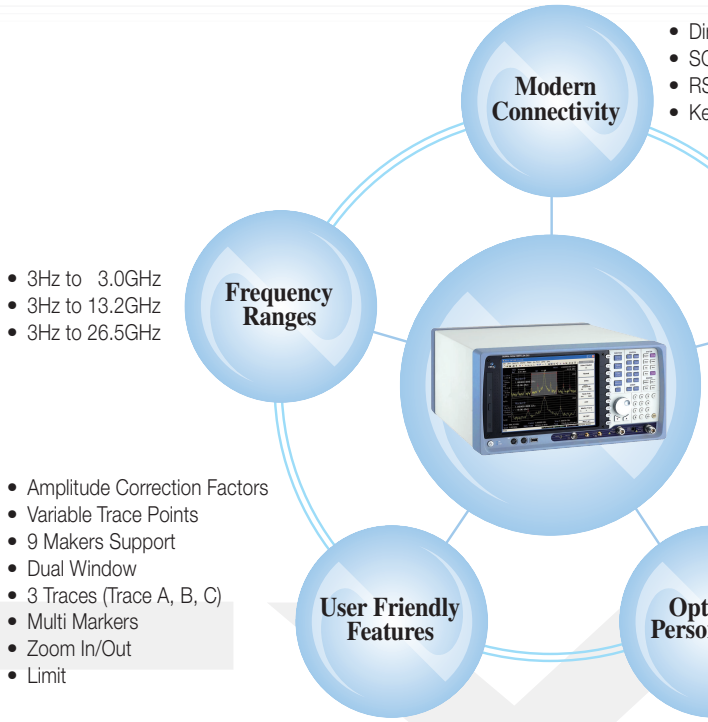
Gap Zoom



X db Down



Occupied B/W



- Direct Link to Web Site
- SCPI provided
- RS232C/GPIB/USB
- Keyboard/Mouse

- 3Hz to 3.0GHz
- 3Hz to 13.2GHz
- 3Hz to 26.5GHz

- Spectrum Emission Mask
- Phase Noise Measurement
- Total Power & Average Power Measurement
- TOI Measurement
- Channel Power
- Adjacent Channel Power
- Occupied Bandwidth
- Xdb Down
- Frequency Counter
- Harmonic Distortion

- Amplitude Correction Factors
- Variable Trace Points
- 9 Makers Support
- Dual Window
- 3 Traces (Trace A, B, C)
- Multi Markers
- Zoom In/Out
- Limit

- W-CDMA / UMTS
- CDMA2000
- GSM / EDGE
- Tracking Generator
- EMC Measurement
- CATV Measurement

"NEX1 FUTURE innovates and ventures into unchartered territory of the high-tech industry."

Application

LSA Series based on Window XP offers outstanding stability, reliability and maximized measurement efficiency.
Also, LSA Series combined with PXI System for the first time in the world secures innovational extension to various applications.

Application	Hardware								Software					Remarks
	TG	HS	QP	RB	CT	PB	ST	DG	EMC	DTF	GSM/EDGE	CDMA2000	WCDMA/ UMTS	
Tracking Generator	○													Available
EMC Analyzer			○						○					Available
Distance to Fault				○						○				Available
CATV Analyzer					○									Available
Probe						○								Available
GSM/EDGE							○	○			○			
CDMA2000							○	○				○		
WCDMA / UMTS							○	○					○	

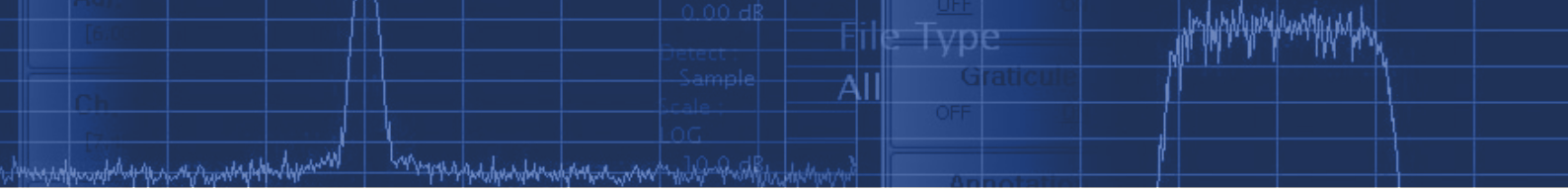
ST: RF Synthesizer, DG: RF Digitizer

Specifications are subject to change without prior notice.

Specifications

Frequency			
Frequency range	DC coupled		3Hz ~ 3GHz / 13.2GHz / 26.5GHz
	AC coupled		10MHz ~ 3GHz / 13.2GHz / 26.5GHz
	resolution		1Hz
Frequency reference	Temperature Drift 0℃~ 50℃		±0.1
	Aging per year		±0.3
Frequency readout	Maker resolution		depending on span and measurement points (1Hz minimum)
	Accuracy		± (maker frequency* reference error +0.5% span + 5% RBW +0.5* horizontal resolution Horizontal resolution is span/(sweep points-1)
Frequency counter	Resolution		1Hz / 10Hz / 100Hz / 1KHz
	Accuracy		± (reference frequency accuracy*marker frequency accuracy +counter resolution ±1LSB) +0.5*last digit
	Sensitivity		-70dBm @ f > 50KHz
Frequency span	Range		0Hz, 10Hz ~ 3GHz, 6.7GHz, 13.2GHz, 26.5GHz
	resolution		1Hz
	Accuracy		±1%
Sweep	Zero span		1us (TBD) to 2000sec, ±0.01%
	Span ≥10Hz		5ms to 2000sec, ±0.01% nominal
	Sweep points		3 to 8192 (Span=0Hz) 101 to 8192 (Span≥10Hz)
Trigger	Span ≥10Hz	source	external, line, video, free run, RF burst
		offset	1us to 500ms
	Span = 0Hz	source	external, line, video, free run, RF burst
		offset	-50ms to +500ms
	Gated sweep	source	External
		delay	1㎲ to 100s
		length	100ns to 100ms, resolution 100ns
		length	± (100ns + (0.05% x gate length)
		accuracy	
Spectral purity	10Hz offset	[dBc/Hz]	@1GHz
	10kHz offset		-113dBc/-115dBc (Typical)
Residual FM	Accuracy		TBD, 〈 10* N Hzp-p in 1sec
RBW	3dB bandwidths		10Hz to 5MHz, 1-2-3-5 sequence
	Bandwidth accuracy		±5%
	Shape factor -60dB: -3dB		<5
VBW	Shape factor -60dB: -3dB		1Hz to 3MHz, none 1-2-3-5 sequence
FFT filters	3dB bandwidths		1Hz to 300Hz, in 1/2/3/5 sequence
	Bandwidth accuracy		<5%, nominal
	Shape factor, -60dB: -3dB		<4, nominal
Amplitude			
Display range	DC coupled		DANL to +30dBm
Maxium input level	DC (AC coupled)		±50VDC (Option)
	DC (DC coupled)		0V

Maxium input level	CW RF power		+30dBm
	Preamp on		+20dBm
1 dB CP	0 dB RF attenuation	[dBm]	+5@ ~ 26.5GHz
	Preamp on	[dBm]	-22@1GHz
Third-order intermodulation distortion (TOI)		[dBm]	two -30dBm tones at input mixer with tone separation 〉 100KHz +15/+18 (Typical)@100MHz ~ 3GGHz +15 (Typical)@3GHz~
Second harmonic intercept (SHI)		[dBm]	+40@1.5GHz, -30dBm input +80@1.5GHz to 26.5GHz, -30dBm input
Displayed average noise level (DANL)		[dBm/Hz]	0dB RF attenuation, RBW 10Hz trace average, span 0Hz, 50Ω termination -120 (Tartet)@9KHz to 50KHz -130@50KHz to 100KHz -140@100KHz to 1MHz -145@1MHz to 10MHz -150@10MHz to 13.2GHz -145@13.2GHz to 22GHz -140@22GHz to 26.5GHz
Immunity to interference	Image frequency	[dBm]	-70@-10dBm input
	Intermediate frequency	[dBm]	-70@-10dBm input
	Residual responses (input termed, 0dB attenuation)	[dBm]	-100 (Target)
	Other spurious	[dBc]	-70 (Target)@-30dBm input
Display range	Screen		10.4" color TFT LCD 800×600 pixels
	Log scale		0.1 to 1dB/div in 0.1dB steps 1 to 20dB/div in 1dB steps
	Linear scale		10 divisions
	Units of level axis		dBm, dB㎶, dBmV, dBpW (log level display) ㎶, mV, pW, nW (linear level display)
Reference level	Logarithmic range		-170dBm to +30dBm, 0.1dBsteps
	Linear range		7.07 nV to 7.07 V in 1% steps
	Accuracy		±0.15dB
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			10dB input attenuation, 20 to 30℃, preselector centering applied ±0.5dB at 1MHz to 3.0GHz ±1.5dB at 3.0GHz to 6.8GHz ±1.0dB at 6.8GHz to 13.2GHz ±2.2dB at 13.2GHz to 22GHz ±3.0dB at 22GHz to 26.5GHz
	Preamp on		±1.5dB at 1MHz to 3.0GHz



LSA-130/LSA-132/LSA-265

Display nonlinearity	Logarithmic level display	(20℃ to 30℃, mixer level ≤−10dBm) ±0.1 total@input mixer level ≤−20dBm ±0.13 total@−20dBm 〈 mixer level ≤−10dBm
	Linear level display	5% of reference level
Bandwidth switching uncertainty		10KHz RBW reference ±0.05dB
Demodulation	Audio output	AM & FM, loudspeaker, phone jack
Inputs and outputs		
RF input	Front type	N female, 50Ω(30GHz, 13.2GHz) APC 2.92mm, 50Ω(26.5GHz)
	VSWR	≥10dB input attenuation <1.5
3rd IF output	Rear type	BNC female, 50Ω normial
	Frequency	21.4MHz
	Bandwidth	10MHz ±Selected RBW
	Level	+30dBm (Top of screen)
2nd IF output	Rear type	SMA female, 50Ω nominal
	Frequency	421.4MHz
	Bandwidth	40MHz
	Level	−2dBm (nominal, Top of screen)
1st LO Output (for external mixer option)	Front type	SMA female, 50Ω nominal
	Frequency	3321.4 ~ 6821.4MHz
	Level	+10dBm, nominal
2nd IF Input (for external mixer option)	Front type	SMA female, 50Ω nominal
	Frequency	421.4MHz
	Bandwidth	20MHz
	Level	−20dBm (Max)
Probe power supply	Front	+15V, −12V, GND
Audio output	Front type	Phone jack
Ext trigger input	Front type	BNC female, 10kΩ nominal
	Trigger level	TTL nominal
Sweep gate output	Rear type	BNC female
	Trigger level	TTL nominal
Reference frequency output	Rear type	BNC female
	Frequency	10MHz
	Level	+5dBm, nominal
Reference frequency input	Rear type	BNC female
	Frequency	10MHz
	Required level	−5 to +15dBm nominal
GPIB	Rear type	IEEE 488.2 / 24-pin female
	Command set	SCPI 1997.0
	Interface functions	SH1, AH1, T6, L4, SR1, RL1, PP0, DC1, C0, LE0, TE0
Serial interface	Rear type	RS-232-C (COM), 9-pin D-SUB female
LAN interface	Rear type	10 / 100Base / T, RJ45
USB	Front, Rear type	2.0
Printer interface	Rear type	Standard 25 pin female D-Sub Parallel
Monitor output (VGA)	Rear type	15-pin mini D-Sub, 800×600
Mouse connector	Rear type	PS / 2-compatible
Keyboard connector	Front type	PS / 2 female
General specifications		
Display	Size	10.4" Color TFT LCD
	Resolution	800×600 pixels
Mass memory		Hard disk
Temperature ranges	Operating	0℃ to +50℃
	Storage	−40℃ to +71℃
Damp heat		Non-condensing (85% operation, 90% storage)
		MIL-PRF-28800F, Class 3
Mechanical resistance	Vibration, Sinusoidal	MIL-PRF-28800F, Class 3
	Vibration, Random	MIL-PRF-28800F, Class 3
	Shock	MIL-PRF-28800F, Class 3
Altitude		Operation up to 3,000 meters Non-operating up to 40,000 feet
RFI suppression (EMC)		EN55011: 2001 Group 1 Class A
Power supply	AC supply	100VAC to 240VAC, 50/60Hz
Dimensions (WxHxD)	[mm]	430×222×451
Weight	[kg]	18 (LSA-30) 19.5 (LSA-132, 265)
Recommended calibration interval		1 year
Warrenty		2 years

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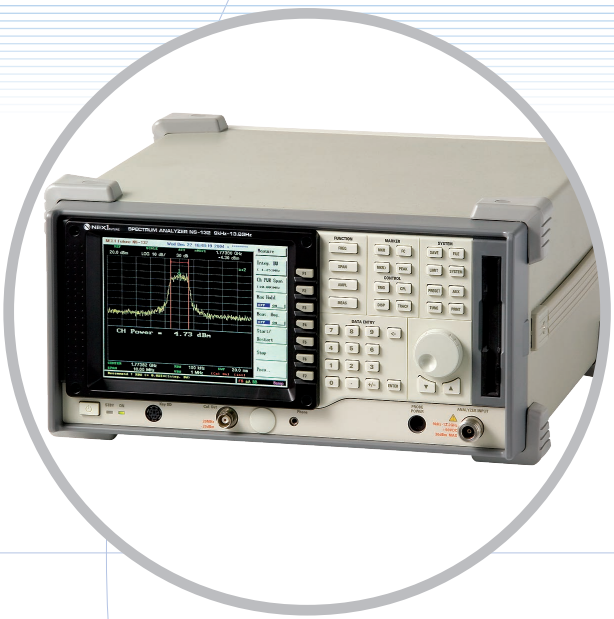
* After 30 days of continuous operation.
** Valid for temperature range 20℃ to 30℃, 〈0.6dB for temperature range 5℃ to 45℃.
*** Valid for temperature range 20℃ to 30℃ and span 〈1GHz; add 〈0.5dB for temperature range 5℃ to 45℃or span 〉1 GHz.

Most affordable

Spectrum Analyzer

NS-30 / 132 / 265



- Frequency Range : 9kHz to 3GHz, 13.2GHz, and 26.5GHz
- 6.4 Inch Color TFT LCD
- Narrow RBW from 300Hz (10Hz option)
- DANL from -115dBm (-130dBm, Pre-amp on)
- Attenuator up to 55dB by 5dB step
  - *NS-30 : 50dB by 10dB step*
- 1,000 Trace Storage
- RS-232C, GPIB Interface
- Internal Pre-Amplifier (NS-30: option)
- Frequency Range

NS-30	*9kHz to 3GHz*
NS-132	*9kHz to 13.2GHz*
NS-265	*9kHz to 26.5GHz*

NEX1 FUTURE

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