

Reliable Mid Performance Spectrum Analyzer NS Series

Specification

FREQUENCY

Frequency range	AC coupled	1kHz ~ 3GHz/13.2GHz/26.5GHz
	Resolution	1 Hz
Frequency reference	Temperature Drift 0°C ~ 50°C	[ppm] ±1
	Aging per year*	±1
Frequency readout	Maker resolution	depending on span (1Hz minimum)
	Accuracy	± (maker frequency*reference error + 3% span + 50% RBW)
Frequency counter	Resolution	1 Hz/10 Hz/100 Hz/1 kHz
	Accuracy	± (reference frequency accuracy*marker frequency accuracy + counter resolution ± 1LSB) + 0.5*last digit
	Sensitivity	-70 dBm @ f > 50 kHz
Frequency span	Range	0Hz, 100 Hz~3GHz/13.2GHz/26.5GHz
	Resolution	1Hz
	Accuracy	±3%
Sweep	Zero span	25 us to 100 sec, ±10% @ < 100 ms
	Span ≥ 10Hz	20 ms to 1000 sec, ±5% @ ≥ 100 ms
	Sweep points	501
Trigger	Span ≥ 10Hz	Source Free run, video, line, external
Spectral purity	10kHz offset	[dB c/Hz] -90 dBc + 20logN
Residual FM		< 100 Hzp-p in 200 ms @ RBW=VBW= 1 kHz
	3dB bandwidths	300 Hz to 3 MHz, 1-3-10 sequence 10, 30, 100 Hz (DRBW Option) 9kHz, 120kHz : Quasi-peak detection (option, 0-QP-01)
RBW	Bandwidth accuracy	± 10% (DRBW Option) ± 20%
	Shape factor -60dB:-3dB	< 15 < 5 (DRBW Option)
VBW	3dB bandwidths	1 Hz to 1 MHz, 1-3-10 sequence

AMPLITUDE

Display range	DANL to +30 dBm	
Maximum input level	DC (AC coupled)	±50VDC
	CW RF power	+30 dBm
RF input attenuator	Range	0 to 55 dB (0 to 50dB : NS-30A)
	Steps	5 dB (10dB step : NS-30A)
	Switching accuracy	±0.5 dB/steps @ all frequency range ±1.5 dB, all steps @ all frequency range
1 dB CP	0 dB RF attenuation	[dBm] -10 @ ~ 3 GHz 0 @ 3 GHz to 26.5 GHz
Third-order intermodulation distortion (TOI)	[dBm]	two -30 dBm tones at input mixer with tone separation > 100 kHz +2.5 @ 1MHz to 100 MHz +5 @ 100MHz to 26.5 GHz
Second harmonic intercept (SHI)		+35 @ ~ 1.5 GHz, -30dBm input +80 @ 1.5 GHz to 26.5 GHz, -30dBm input

Displayed average noise level (DANL)	[dBm/Hz]	RBW 300 Hz, VBW 10 Hz 50 Ω termination-105 @ 50 kHz to 100 kHz -110 @ 100 kHz to 2.8 GHz -105 @ 2.8 GHz to 3 GHz -115 @ 3 GHz to 13.2 GHz (NS-132A) -110 @ 3 GHz to 13.2 GHz (NS-265A) -100 @ 13.2 GHz to 26.5 GHz (NS-265A) Pre-amp On ≤ -115dBm, 50kHz to 100kHz ≤ -130dBm, 100kHz to 1.8GHz ≤ -129dBm, 1.8GHz to 3.0GHz
Immunity to interference	Residual responses	[dBm] -85 (input terminated, 0 dB attenuation)
	Other spurious	[dBc] -60 @ -30 dBm input
Display range	Screen	6.4" VGA color TFT LCD 640 x 480 pixels
	Log scale	1, 2, 5, 10 dB/div
	Linear scale	10 divisions
Display range	Units of level axis	dBm, dBmV, dBμV, V, W (log level display) mV, μV, dBmV (linear level display)
Reference level	Logarithmic range	-110 dBm to +30 dBm, 0.1 dB steps
	Accuracy	±1.0dB or 1.5dB
Traces	Number	2 traces
	Trace detectors	Normal, positive peak, sample, negative peak, average
Traces	Trace functions	Clear/Write, Max Hold, Min Hold, Average
Frequency response		10 dB input attenuation -3dB ~ +1dB 1kHz to 5MHz ± 1.0dB at 5MHz to 2.9GHz ± 1.5dB at 2.9GHz to 6.4GHz ± 2.2dB at 6.4GHz to 13.2GHz ± 3.0dB at 13.2GHz to 26.5GHz
Display nonlinearity	Logarithmic level display	±1.0 dB over 10 divisions (5 or 10dB/div) ±0.5 dB over 10 divisions (1 or 2dB/div)
	Linear level display	3% of reference level
Bandwidth switching uncertainty		3kHz RBW reference ±1.0dB
AM Demodulation	Demodulation Range	5% to 90% @ 1kHz, 50% modulation, -20dBm Input
	Input Level Range	-2.0dBm to -70dBm @ 1kHz, 50% modulation
	Frequency Response	20Hz to 30kHz @ -20dBm Input
	Distortion	≤ 5% @ 90% modulation @ 1kHz, -20dBm Input ≤ 2% @ 50% modulation @ 1kHz, -20dBm Input
FM Demodulation	Deviation Range	≤ 100kHz
	Input Level Range	-2.0dBm to -75dBm @ 50kHz deviation
	Frequency Response	20Hz to 100kHz @ -20dBm Input
	Distortion	≤ 5% @ 20kHz deviation @ 1kHz, -20dBm Input ≤ 2% @ 50kHz deviation @ 1kHz, -20dBm Input
INPUTS AND OUTPUTS		
RF input	Type	Front N female, 50 Ω APC 2.92 mm, 50 Ω (26.5GHz)
	VSWR	10 dB input attenuation < 1.5
3rd IF output	Type	Rear BNC female, R i = 50
	Level	+2dBm at top of screen

Probe power supply		Front	+15V, -12V, GND
Audio output	Type	Front	phone jack
Ext trigger input	Type	Rear	BNC female, 10 k Ω nominal
	Trigger level		5 V TTL nominal
Sweep gate output	Type	Rear	BNC female
	Trigger level		0 ~ 5VDC
Video output	Type	Rear	BNC female
	Voltage		0 ~ 5VDC
Reference frequency output	Type	Rear	BNC female
	Frequency		10 MHz
	Level		+5 dBm
Reference frequency input	Type	Rear	Same as reference output port
	Frequency		10 MHz
	Required level		-5 to +15 dBm nominal
GPIB	Type	Rear	IEEE 488.2 24-pin female
	Interface functions		SH1, AH1, T5, L3, SR1, RL1, PP1, DC1, DT1, C0, PP0, SR0, DC0, DT0, C1, C2, C3
Serial interface		Rear	RS-232-C (COM), 9-pin D-SUB female
USB	Front		1.1 or Higher(2.0)
Printer interface		Rear	parallel (Centronics-compatible)
Monitor output (VGA)		Rear	15-pin mini D-SUB, 640 X 480
Mouse connector		Rear	PS/2-compatible, for factory-use only
Keyboard connector		Front	PS/2 female for MF2 keyboard for factory-use only

GENERAL SPECIFICATIONS

Display	Size	6.4" color TFT LCD
	Resolution	640 x 480 pixels, VGA
Environmental Conditions		
Temperature ranges	Operating	'0°C to +40°C
	Permissible	'-20°C to +60°C
Damp heat		Non-condensing (85% operation, 90% storage) MIL-T-28800E , type 2 , CLASS 5
	Vibration, Random	MIL-T-28800E , type 2 , CLASS 5
Mechanical resistance	Vibration, Sinusoidal	
	Shock	MIL-T-28800E , type 2 , CLASS 5
Altitude		Operation up to 3000 meters Non-Operating up to 40000 feet
RFI suppression (EMC)		EN55011 : 1998+A1:1999 Group 1 Class A EN61326 : 1997+A1:1998
Power supply	AC supply	100VAC to 240VAC, 50/60Hz
	Power consumption	100 Watts Maximum (without option)
	Fuse	3.15A, 250V, Type2, 2EA
	Safety	EN 61010-1
Dimensions (WxHxD)	[mm]	320 x 120 x 330
Weight	[kg]	11.4 / 11.8
Recommended calibration interval		1 year
Warrenty		2-year