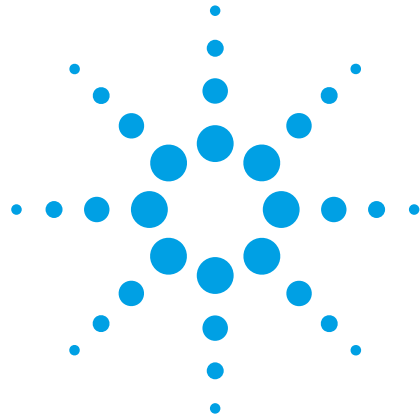


PRELIMINARY

Agilent PNA-X Microwave Network Analyzer

Data Sheet

**N5242A, 10 MHz to 26.5 GHz
2- and 4-ports**



Corrected system performance

- 10 Hz IF bandwidth
- No averaging applied to data
- Isolation calibration with an averaging factor of 8

System dynamic range

Description	Specification (dB) at test port	Typical (dB) at test port
Standard configuration and standard power range (Option 200 or 400)¹		
10 to 50 MHz	88	106
50 to 500 MHz	100	116
500 MHz to 3.2 GHz	124	130
3.2 to 10 GHz	127	137
10 to 16 GHz	127	134
16 to 20 GHz	127	133
20 to 24 GHz	122	130
24 to 26.5 GHz	112	124
Dual sources, extended power range and bias tees, internal combiner and mechanical switches (Option 224 or 423)¹		
10 to 50 MHz	87	96
50 to 500 MHz	98	106
500 MHz to 3.2 GHz	122	128
3.2 to 10 GHz	127	136
10 to 16 GHz	126	132
16 to 20 GHz	124	130
20 to 24 GHz	117	127
24 to 26.5 GHz	107	121

1. Specifications apply to port 1 for 2-port instruments, and ports 1 and 3 for 4-port instruments.

Uncorrected system performance

Description	Specification (dB)	Typicals (dB)
Directivity		
10 to 50 MHz	16	23
50 to 500 MHz	24	28
500 MHz to 3.2 GHz	24	32
3.2 to 10 GHz	23	25
10 to 16 GHz	19	22
16 to 20 GHz	16	22
20 to 24 GHz	16	22
24 to 26.5 GHz	16	22
Source match		
10 to 50 MHz	11	14
50 to 500 MHz	18	28
500 MHz to 3.2 GHz	18	22
3.2 to 10 GHz	14	18
10 to 16 GHz	12	16
16 to 20 GHz	10	15
20 to 24 GHz	10	14
24 to 26.5 GHz	8	12
Load match		
10 to 50 MHz	11	18
50 to 500 MHz	17	25
500 MHz to 3.2 GHz	17	22
3.2 to 10 GHz	13	17
10 to 16 GHz	10	15
16 to 20 GHz	9	14
20 to 24 GHz	9	14
24 to 26.5 GHz	8	13
Transmission tracking		
10 to 50 MHz		±1.5
50 to 500 MHz		±1.5
500 MHz to 3.2 GHz		±1.5
3.2 to 10 GHz		±1.5
10 to 16 GHz		±1.5
16 to 20 GHz		±1.5
20 to 24 GHz		±1.5
24 to 26.5 GHz		±1.5
Reflection tracking		
10 to 50 MHz		±1.5
50 to 500 MHz		±1.5
500 MHz to 3.2 GHz		±1.5
3.2 to 10 GHz		±1.5
10 to 16 GHz		±1.5
16 to 20 GHz		±1.5
20 to 24 GHz		±1.5
24 to 26.5 GHz		±1.5

Test port output (1 of 3)

Description	Specifications			Typicals
	Options 200, 400	Options 219, 224 419, 423	Options 224 at Src2 Out1, Src2 Out2	
Nominal power	-5 dBm	-10 dBm	5 dBm	Src1, P1, combined mode, -10 dBm Src2, P1, combined mode, -15 dBm
Frequency resolution	1 Hz	1 Hz	1 Hz	
Frequency accuracy	±1 ppm	±1 ppm	±1 ppm	

	Specifications (dBm)					
	Hi power mode ¹			Filtered mode ¹ (preset state)		
	Options 200, 400	Options 219, 419	Options 224, 423	Options 200, 400	Options 219, 419	Options 224, 423
Max leveled power²						
10 to 50 MHz	10	10	10	8	8	7
50 to 500 MHz	10	10	10	10	10	8
500 MHz to 3.2 GHz	10	10	10	10	10	8
3.2 to 10 GHz	13	13	13	13	13	13
10 to 16 GHz	13	12	12	13	12	12
16 to 20 GHz	13	10	10	13	10	10
20 to 24 GHz	12	8	7	12	8	7
24 to 26.5 GHz	5	3	0	5	3	0

	Typicals (dBm)					
	Hi power mode ¹			Filtered mode ¹ (preset state)		
	Options 200, 400	Options 219, 419	Options 224, 423	Options 200, 400	Options 219, 419	Options 224, 423
Max leveled power²						
10 to 50 MHz	19	19	19	10	10	9
50 to 500 MHz	21	20	20	11	11	11
500 MHz to 3.2 GHz	13	13	13	12	11	11
3.2 to 10 GHz	20	18	19	20	18	19
10 to 16 GHz	17	15	15	17	15	15
16 to 20 GHz	16	13	13	16	13	13
20 to 24 GHz	15	12	12	15	12	12
24 to 26.5 GHz	11	8	8	11	8	8

1. In filtered mode, signal path goes through filters to minimize harmonics below 3.2 GHz. In hi power mode, signal path bypasses filters to maximize output power.
2. Specifications apply to port 1 for 2-port instruments, and ports 1 and 3 for 4-port instruments.

Test port output (2 of 3)

	Specifications		Typicals	
	All options		All options	
	All ports	Src2 Out1, Src2 Out2	All ports	Src2 Out1, Src2 Out2
Power level accuracy				
10 to 50 MHz	±1.0 dB	±2.0 dB	±0.40 dB	±0.55 dB
50 to 500 MHz	±1.0 dB	±2.0 dB	±0.20 dB	±0.25 dB
500 MHz to 3.2 GHz	±1.0 dB	±2.0 dB	±0.25 dB	±0.25 dB
3.2 to 10 GHz	±1.0 dB	±2.0 dB	±0.40 dB	±0.25 dB
10 to 13 GHz	±1.2 dB	±2.0 dB	±0.60 dB	±0.25 dB
13 to 18 GHz	±2.0 dB	±2.5 dB	±0.60 dB	±1.00 dB
18 to 26.5 GHz	±2.5 dB	±2.5 dB	±0.80 dB	±0.90 dB

	Specifications		
	All options		
	-25 dBm < -20 dBm	-20 dBm < -15 dBm	-15 dBm to Max
Power level linearity			
10 to 50 MHz	±2.0 dB	±1.5 dB	±1.0 dB
50 to 500 MHz	±1.5 dB	±1.0 dB	±1.0 dB
500 MHz to 3.2 GHz	±1.0 dB	±1.0 dB	±1.0 dB
3.2 to 10 GHz	±1.0 dB	±1.0 dB	±1.0 dB
10 to 16 GHz	±1.0 dB	±1.0 dB	±1.0 dB
16 to 20 GHz	±1.0 dB	±1.0 dB	±1.0 dB
20 to 24 GHz	±1.0 dB	±1.0 dB	±1.0 dB
24 to 26.5 GHz	±1.0 dB	±1.0 dB	±1.0 dB

	Specifications (dB)			Typicals (dB)
	Options 200, 400	Options 219, 419	Options 224, 423	
Power sweep range (ALC)				
10 to 50 MHz	35	35	35	
50 to 500 MHz	35	35	35	
500 MHz to 3.2 GHz	35	35	35	
3.2 to 10 GHz	38	38	38	
10 to 16 GHz	38	37	37	
16 to 20 GHz	38	35	35	
20 to 24 GHz	37	33	32	
24 to 26.5 GHz	30	28	25	

Test port output (3 of 3)

	Typicals (dBc)
	All options
	Ports 1, 3, Src2 Out1
Harmonics (2nd or 3rd) at maximum specified power	
10 to 50 MHz	-51
50 MHz to 2 GHz	-51
2 to 3.2 GHz	-60
3.2 to 10 GHz	-60
10 to 16 GHz	-60
16 to 20 GHz	-60
20 to 24 GHz	-60
24 to 26.5 GHz	-60

Test port input (1 of 1)

Description	Specifications	Typicals			
	Options 200, 400	Options 200, 400			
Test port noise floor, 10 Hz IF bandwidth¹					
10 to 50 MHz	-80 dBm	-87 dBm			
50 to 100 MHz	-90 dBm	-95 dBm			
100 to 500 MHz	-104 dBm	-110 dBm			
500 MHz to 2 GHz	-114 dBm	-117 dBm			
2 to 20 GHz	-114 dBm	-117 dBm			
20 to 24 GHz	-110 dBm	-115 dBm			
24 to 26.5 GHz	-107 dBm	-113 dBm			
Test port power at 0.1 dB compression (typicals)					
500 MHz to 3.2 GHz		13 dBm			
3.2 to 10 GHz		13 dBm			
10 to 16 GHz		13 dBm			
16 to 20 GHz		12 dBm			
20 to 24 GHz		10.5 dBm			
24 to 26.5 GHz		10 dBm			
Test port compression at 8 dBm test port power (specifications)					
500 MHz to 3.2 GHz	< 0.17 dB				
3.2 to 10 GHz	< 0.17 dB				
10 to 16 GHz	< 0.17 dB				
16 to 20 GHz	< 0.23 dB				
20 to 24 GHz	< 0.23 dB				
24 to 26.5 GHz	< 0.29 dB				
Trace noise magnitude²	1 kHz IF BW	1 kHz IF BW	100 kHz IF BW	600 kHz IF BW	
10 to 100 MHz	0.007 dB rms	0.0040 dB rms	0.040 dB rms	0.140 dB rms	
100 MHz to 16 GHz	0.002 dB rms	0.0005 dB rms	0.005 dB rms	0.011 dB rms	
16 to 22.5 GHz	0.002 dB rms	0.0006 dB rms	0.005 dB rms	0.012 dB rms	
22.5 to 26.5 GHz	0.003 dB rms	0.0015 dB rms	0.008 dB rms	0.020 dB rms	
Trace noise phase²	1 kHz IF BW	1 kHz IF BW	100 kHz IF BW	600 kHz IF BW	
10 to 100 MHz	0.051° rms	0.0261° rms	0.270° rms	1.060° rms	
100 MHz to 16 GHz	0.015° rms	0.0041° rms	0.030° rms	0.080° rms	
16 to 22.5 GHz	0.030° rms	0.0108° rms	0.035° rms	0.085° rms	
22.5 to 26.5 GHz	0.045° rms	0.0171° rms	0.060° rms	0.140° rms	

1. 10 Hz IF BW test port noise floor performance is mathematically derived from the measured 1 kHz IF BW noise floor performance.
2. All measurements made at nominal power.

Web Resources

For more information, visit:
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