Technical Overview of Four RF Signal Generators

Manufacturer	SRS	Agilent	SRS	Agilent
Model	**SG384**	**N5171B-503**	**SG394**	**N5172B-503**
Frequency range	DC to 4.05 GHz	9 kHz to 3 GHz	DC to 4.05 GHz	9 kHz to 3 GHz
Frequency extension to 6 GHz	Yes (SG386)	Yes (N5171B-506)	Yes (SG396)	Yes (N5172B-506)
Frequency resolution	0.000001 Hz	0.01 Hz	0.000001 Hz	0.01 Hz
Frequency switching speed	8 ms	5 ms	8 ms	5 ms
Output power range	+13 to -110 dBm	+18 to -144 dBm	+13 to -110 dBm	+18 to -144 dBm
Output power resolution	0.01 dB	0.01 dB	0.01 dB	0.01 dB
Phase adjustment resolution at 1 GHz	0.1 degree	0.1 degree	0.1 degree	0.1 degree
Phase noise (1 GHz, 10 Hz offset)	-80 dBc/Hz	-62 dBc/Hz	-80 dBc/Hz	-62 dBc/Hz
Phase noise (1 GHZ, 20 kHz offset)	-116 dBc/Hz	-122 dBc/Hz	-116 dBc/Hz	-122 dBc/Hz
Spurs (> 10 kHz offset, referenced to 1 GHz)	-75 dBc	-72 dBc	-75 dBc	-72 dBc
Standard timebase (temperature stability)	OCXO (±0.002 ppm)	TCXO (±1 ppm)	OCXO (±0.002 ppm)	TCXO (±1 ppm)
Optional timebase (temperature stability)	Rubidium (±0.0001 ppm)	No	Rubidium (±0.0001 ppm)	No
Modulation types	Analog	Analog (Option)	Analog + Vector	Analog (Option) + Vector (Option)
Analog modulation	AM, FM, ØM, sweeps, pulse	Opt UNT	AM, FM, ØM, sweeps, pulse	Opt UNT
External analog modulation input	Yes, ±1.0V	With Opt UNT, ±0.5V	Yes, ±1.0V	With Opt UNT, ±0.5V
Internal analog modulation source	Sine, ramp, saw, pulse, noise	Opt 303	Sine, ramp, saw, pulse, noise	Opt 303
Fast pulse modulation	Yes (20 ns)	Opt UNW, (10 ns)	Yes (20 ns)	Opt UNW: (10 ns)
Dual baseband generator for I/Q modulation	No	No	Yes	Opt 653
Vector modulation I/Q inputs and outputs	Option 3	No	Yes. 50 Ω, ± 0.5 V	Yes. 50 Ω, ± 0.5 V. (Outputs with Opt 653)
Digital filters (with real time computation)	No	No	Nyquist, root Nyquist, Gaussian, rectangular, linear, sinc, user FIR	With Opt 653: Nyquist, root Nyquist, Gaussian, rectangular, user FIR
Vector modulation support	No	No	PSK, QAM, FSK, CPM, MSK, ASK, VSB	Opt 431: PSK, QAM, FSK, MSK, ASK
Data types	No	No	PRBS, pattern, user	With Opt 431: PRBS, pattern, user, Ext serial
Vector modulation carrier frequency range			400 MHz to 6 GHz	10 MHz to 6 GHz
Internal support for multiple carriers	No	No	No	With Opt 431
Standard programming interfaces	LAN, GPIB, RS-232	LAN, GPIB, USB	LAN, GPIB, RS-232	LAN, GPIB, USB