

Technical Requirements for RF Instrumentation

1. Microwave Analog Signal Generator

A. Specifications

1. [Frequency Range : 250 kHz to 40 GHz](#)
2. Modulation Function : AM, FM, Phase modulation, [Narrow pulse modulation](#)
3. Frequency Resolution : 0.001 Hz (0.01 Hz for all sweep modes)
4. Frequency aging rate : $\pm 3 \times 10^{-8}$ /year
5. [Temperature effects : \$\pm 4.5 \times 10^{-9}\$ from 0 to 55°C](#)
6. Frequency sweep mode : Step, List and analog list sweep
7. [Minimum Output Power with step attenuator : -135 dBm](#)
8. Output Resolution : 0.01 dB
9. [Output VSWR : 1.4:1 \(250 kHz to 2 GHz\)](#)
10. [Absolute SSB Phase noise \(offset 20 kHz\) : -130 dBc/Hz \(250 kHz to 250 MHz\)](#)
11. [Analog Ramp Sweep modes : Synthesized frequency sweep, power \(amplitude\) sweep, manual sweep, alternate sweep](#)
12. Analog Ramp Sweep Span Range : from minimum to full range
13. [Sweep time : 10 ms to 200 s](#)
14. RF Output : Type-N female, 50 ohms
15. Interface : GPIB, RS-232 and 10BaseT LAN or GPIB
16. [Warranty : 5 years](#)

B. Components

1. 250kHz to 40 GHz Analog Signal Generator set : 1ea
2. Step attenuator option : 1 ea

3. Narrow Pulse Modulation option : 1 ea
4. Analog Ramp Sweep option : 1 ea
5. AM, FM, phase modulation and LF output option : 1 ea

2. Signal(Spectrum) Analyzer

A. Specifications

1. [Frequency Range : 3 Hz to 50 GHz](#)
2. Frequency Reference Aging Rate: $\pm 1 \times 10^{-7}$ /year
3. Temperature Stability : $\pm 5 \times 10^{-8}$ /year
4. [Analysis Bandwidth : 25 MHz](#)
5. Frequency Span : 0Hz(zero span), 10Hz to 50 GHz
6. Absolute Amplitude accuracy : ± 0.24 dB + frequency response
7. Resolution Bandwidth (RBW) : 1 Hz to 3 MHz (10% steps), 4, 5, 6, 8 MHz(digital RBW, FFT)
8. Resolution Bandwidth(-3.01 dB) Accuracy : $\pm 2\%$ (1 Hz to 1.5 MHz)
9. Video bandwidth(VBW) : 1Hz to 3MHz(10% steps), 4, 5, 6, 8, (labeled 50 MHz)
10. [Phase noise \(1GHz\) : -145 dBc/Hz at 1 MHz offset](#)
11. [Displayed Average Noise Level \(@ 49 to 50 GHz\) : -133 dBm/Hz](#)
12. [Input Attenuator Range : 0 to 70 dB in 2dB steps](#)
13. Second harmonic distortion (3 GHz to 6.5 GHz) : +62 dBm
14. Minimum Sweep time : 1 us
15. [Display : 1280x768 resolution, capacitive multi-touch screen](#)
16. [Warranty : more than 5 years warranty](#)

B. Components

1. 3 Hz to 50 GHz signal analyzer set : 1ea