

HP 85990A Multicarrier Signal Generator

Technical Data

The HP 85990A multicarrier signal generator provides up to 180 clean, stable, noise-free carriers to conveniently test the distortion performance of broadband components and communication systems ranging from 5 to 1100 MHz. It can simulate a cable TV/broadband headend for evaluation of the installation of communication systems. The HP 85990A can also be used by component manufacturers to evaluate electrical performance under realistic signal conditions.

System Size	1 to 180 channels	Frequency Offset Range	fout < 70 MHz, ±50 ppm fout > 70 MHz, ±5 kHz	
Output Frequency	5 to 1100 MHz (any channel according to PAL, SECAM, CENELEC and NTSC)	Attenuators (typical)		
Maximum System Output	90 to 112 dBµ V (typical depending on number of channels and frequency plan)	Range: Step size: Step-to-step accuracy: Overall accuracy:	0 to 15 dB, 5 to 1100 MHz 0.1 dB ±0.2 dB at integer values of dB +0.5 dB	
Level Stability	30 minute warm-up, ±1.0 dB 4 hour warm-up, ±0.2 dB	Main Attenuator Range:	0 to 63 dB	
Spurious Responses: Carrier-under-test on	 es: on –80 dBc (measured minimum 16 kHz offset from carrier-under-test) 	Attenuator accuracy: 5 - 100 MHz 101 - 500 MHz 501 - 1100 MHz	±0.3 dB ±0.5 dB ±0.75 dB	
Carrier-under-test off	–100 dBc (measured minimum 16 kHz offset from carrier-under-test)	Output Impedance (nominal)	Standard 75 Ω	Option 004 50 Ω
SSB Noise Level	-103 dBc/Hz or better @ fc ±fmod			
Residual FM	±200 Hz (typical)	Output Return Loss (typical)	>10 dB	
Frequency Accuracy Internal PLL Reference Common PLL Reference	N/A (calibration through software) ±5 ppm (manual calibration in main unit)	RF Output Connector	N female (others upon request)	



Modulation Modes Non Synchronous	internal (all carriers are modulated individually from a source built into each generator)
Synchronous	common internal (all carriers are modulated from a common source located in the main unit) common external (all carriers are modulated from an external source)
Modulation Depth (typical)	>99.4%
Modulating Signal (typical)	15.625 kHz ±2 Hz (PAL) (square wave with 50% or 19%* duty cycle) 15.750 kHz ±2 Hz (NTSC) (square wave with 50% or 19%* duty cycle)
Modulation I/O Port	
(typical) Input Level Frequency Range	TTL 10 to 25 kHz (the actual modulating signal will maintain the same frequency, i.e., 15.625 or 15.750 kHz, while the duty cycle will vary with the modulating input)
Input Impedance (typical)	100k Ω
Output Level (typical)	3 volts
Output Impedance (typical)	100k Ω
Connector (typical)	BNC female
Communication Interfa	ces
Comm Format Connector	9600 baud, 8 bit, no parity, 1 stop bit 9 pin D subminiature
GPIB (IEE 488) Capabilities	SH1, AH1, T6, L4, SR1, RL0, PP0,DC1,

Output Power vs. Number of Channels

The output level of an individual carrier in a multicarrier generator varies with the number of carrier modules installed. This graph illustrates typical output level as a function of the number of installed carriers.

Power Requirements Line Voltage/Frequency Power Consumption	90 to 140 VAC/180 to 264 VAC, 50/60 Hz 865 watts maximum
Environments	
Operating Temperature	18° to 30° C
Shipping	
Temperature	–30° to +65° C
Humidity	0% to 90% relative @ 65° C
	(noncondensing)
Altitude	0 to 12500 meters
Dimensions and Weight	
Width	560 mm
Depth	510 mm
Height	504 mm (for 19 channels; add ~135 mm for each additional 10 channels)
Weight	~17 kg per each 10 channels
Ontions	
Option 002	15 625 kHz (PAL) modulation frequency
Option 004	50 Q output impedance
Option 005	customer specified duty cycle
option ood	succession operation and by bio

* Other secondary duty cycles available upon request

Connector

DT0, E1

24 pin GPIB

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