

# A Fully Specified, 1–20MHz Low Cost Distribution Amplifier

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- Comprehensive Specification
  - Excellent Short Term Stability & Phase Noise
  - 1MHz – 20MHz Bandwidth
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The E5000 Distribution Amplifier is a 1U Rack Mount unit. The E5000 allows a cost and space efficient way to distribute reference frequencies throughout a system or lab with virtually no signal degradation. The standard E5000 accepts input frequencies of 1MHz to 30MHz and provides twelve outputs of the same frequency.

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## Features

- Compact design
- -132dBc/Hz @ 1Hz phase noise
- 90dB @ 10MHz isolation

## Benefits

- Unity gain
- 0 dBm to +13dBm input
- High Stability
- High Isolation
- Low Distortion

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## Applications

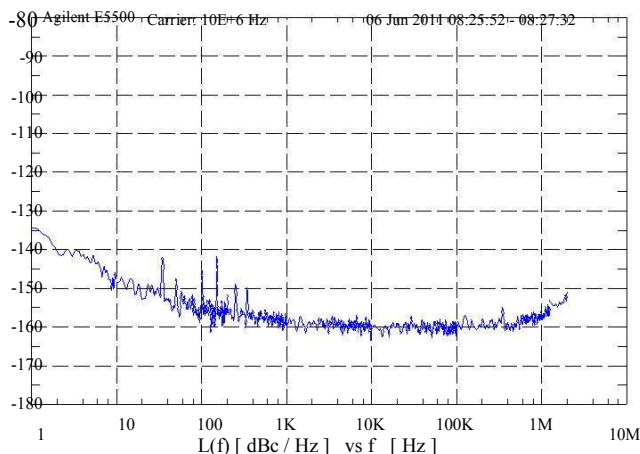
- Industrial calibration laboratories
  - Telecoms
  - Test solution
  - RF Test Bench
  - Production Test
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## Specification

No of Outputs	12	
No of Inputs	1	
Input characteristics	Impedance	50 ohm nominal
	Level	+10dBm nominal
	Input SWR	<1.2 :1 at 10 MHz
Output characteristics	Impedance	50 ohm nominal
	Rated output	at 10MHz 12dBm into 50 ohms (@ +13dBm max, distortion will occur)
	Output SWR	<1.2:1
	Maximum output	+13dBm into 50 ohms at 10MHz typical
Frequency response	1MHz to 20MHz +/-1.0dB	
Harmonics	(at rated output,10MHz)	
	(source harmonics less than -60dBc)	
	Second harmonic	< -50dBc
Isolation	Output to output (adjacent outputs) >60dB at 10 MHz	
	Output to output (non adjacent) >70dB at 10MHz	
	Output to input >90db at 10MHz	
Short term stability (at 10MHz)	$2 \times 10^{-13}$ tau=1sec	
	$2 \times 10^{-14}$ tau=10sec	
	$5 \times 10^{-15}$ tau=100sec	
Phase Noise (10 MHz)	Offset	Typical phase noise,dBc/Hz
	1Hz	-132
	10Hz	-145
	100Hz	-152
	1kHz	-158
	10kHz & Noise floor -160	
Spurious outputs	< -100dBc	
Broadband noise	< -155 dBc/Hz	

Delay match between outputs	< 1 ns
Delay input to output	< 6ns
Supply	85 ... 240V ac
Size	1U 19" 44 x 444 x 221mm

## Phase Noise



## Typical Output to Output Stability

Measured in 200Hz bandwidth

Tau	Allan Variance
1ms	$5 \times 10^{-11}$
10ms	$8 \times 10^{-12}$
100ms	$8 \times 10^{-13}$
1s	$2 \times 10^{-13}$
5s	$2 \times 10^{-14}$
10s	$1.5 \times 10^{-14}$
100s	$3 \times 10^{-15}$
1,000s	$1 \times 10^{-15}$
10,000s	$x 10^{-16}$

*Ask Quartzlock for plots*