Rev. B

Ultra-Low Phase Noise Multioutput Frequency Reference in 19” Rack Mountable Appliance 1U Form Factor

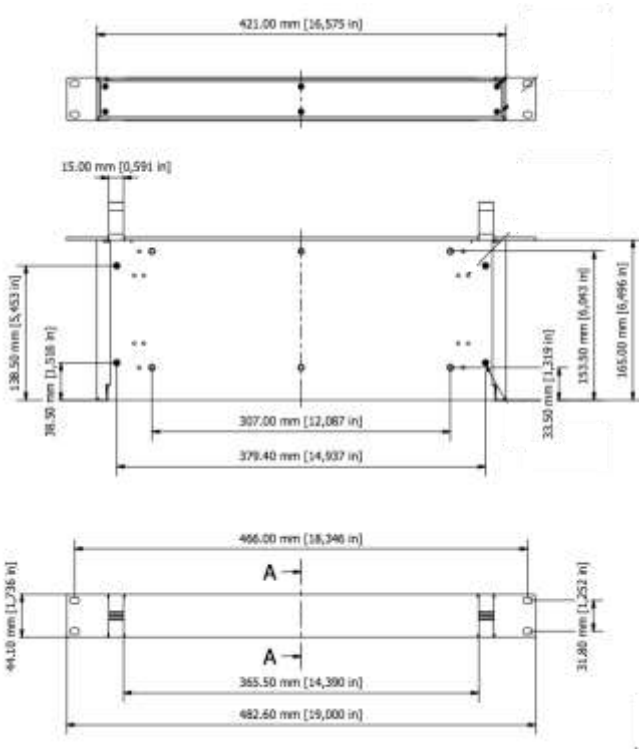
Product Data Sheet

Features

- **Ultra-Low Phase Noise (ULPN)**
- **10 MHz, 100 MHz, 300 MHz, and 1.2 GHz Outputs**
- **10 MHz and 100 MHz internal SC-cut OCXOs**

Applications

- **5G device testing**
- **Radar**
- **COTS/Dual use**



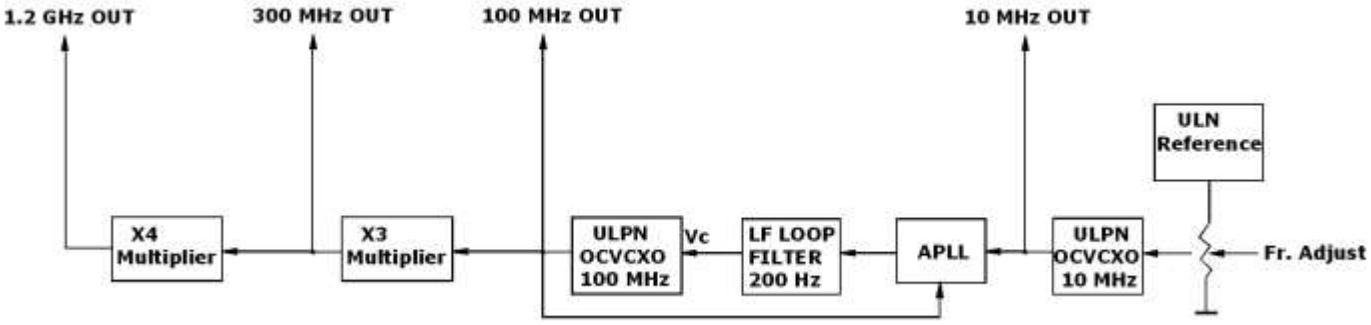
Mechanical Dimensions

Frequency Adjustment

Mechanical

Outputs on Back Panel

10 MHz OUT SMA Female
100 MHz OUT SMA Female
300 MHz OUT SMA Female
1.2 GHz OUT SMA Female



NEL FREQUENCY CONTROLS, INC.

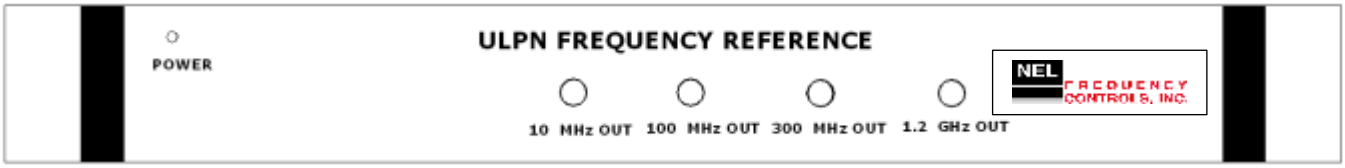
357 Beloit Street, Burlington, WI 53105 U.S.A. Phone 262/763-3591 FAX 262/763-2881 Email: nelsales@nelfc.com www.nelfc.com

Ultra Low Phase Noise Frequency Reference

Data Sheet 1950A

Rev. B

Front Panel



Back Panel

Specifications:

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
Absolute Maximum Ratings							
Power supply	Vp		90		260	V AC	
Operating Temp.	To		10		45	°C	
Storage temper.	Ts		0		70	°C	
Electrical							
Frequency stability	ΔF/F	vs. Temp.		From ±2.0		ppb	See chart below
		vs. Supply		0.1	0.2	ppb/5%Vcc	
		vs. Load			0.5	ppb/5% load var.	
Aging		per day per year, first year second year 10 years		2E-10 2E-8 1E-8 1E-7			after 30 days
Initial calibration				±50		ppb	
Trim range				±0.2		ppm	
Allan Deviation		0.1 s 1 s 10 s 100 s		2E-13 4E-13 2E-12 5E-12	3E-13 5E-13 4E-12 7E-12		Static and benign conditions
Output Frequencies	F10			10.000		MHz	SMA
	F100			100.00			SMA
	F300			300.00			SMA
	F1200			1200.0			SMA
SSB Phase Noise (achieved after 10 minutes warm-up)	£(Δf)	0.01 Hz 0.1 Hz 1Hz 10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		-46 -89 -120 -150 -162 -165 -168 -170		dBc/Hz	10 MHz output
		0.01 Hz 0.1 Hz 1 Hz		-4 -47 -78		dBc/Hz	1,200 MHz output

NEL FREQUENCY CONTROLS, INC.

357 Beloit Street, Burlington, WI 53105 U.S.A. Phone 262/763-3591 FAX 262/763-2881 Email: nelsales@nelfc.com www.nelfc.com

		10 Hz 100 Hz 1 KHz 10 KHz >100 KHz		-106 -108 -140 -154 -155			
		10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		-120 -130 -160 -175 -180			100 MHz output
		10 Hz 100 Hz 1 KHz 10 KHz 100 KHz		-108 -118 -148 -163 -168			300 MHz output
Power Requirements	P	IEC320 on the back	100 to 250 V AC 50/60 Hz			V AC	
Spectral Purity		Subharmonics Spurious Harmonics		-50 -35	-40 -80 -30	dBc	@ 0.1, 0.3, 1.2 outputs GHz Either output
Load	Internally AC-coupled 50 Ohm						All Outputs
Output Waveform		Sinewave					
Output Power			+10	+13		dBm	All outputs
Load	Internally AC coupled 50 Ohm (Sinewave) 10K Ohm//15pf (CMOS/TTL)						
Warm-up time	τ	To 0.1 ppm accuracy		5	8	minutes	

Environmental and Mechanical

Operating temp. range	+10°C to +45°C

NEL FREQUENCY CONTROLS, INC.

357 Beloit Street, Burlington, WI 53105 U.S.A. Phone 262/763-3591 FAX 262/763-2881 Email: nelsales@nelfc.com www.nelfc.com