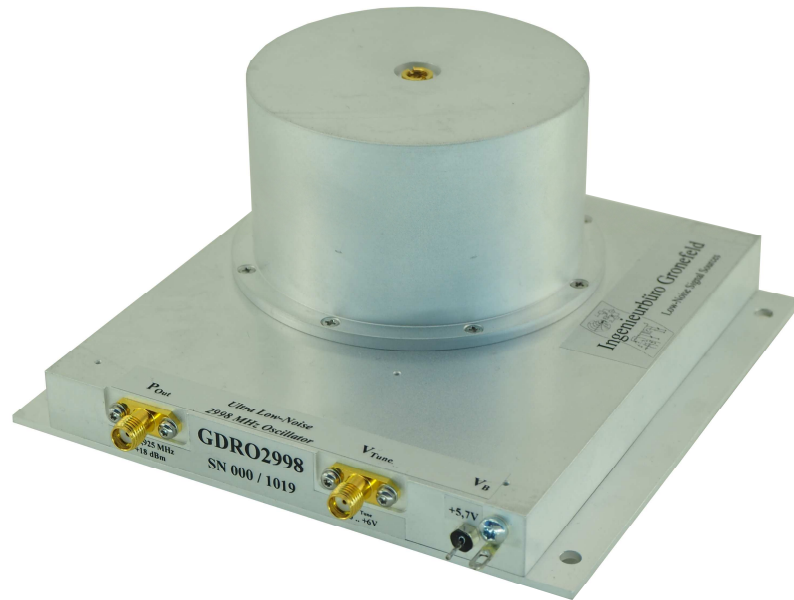




Oven-Stabilized Ultra Low Noise S-Band DRO for 2.998GHz (± 20 MHz)

Developed for extremely jitter sensitive applications like electron beam accelerators, this voltage-controlled Dielectric-Resonator Oscillator delivers ultimate phase noise performance at 2.998GHz, comparable to quartz crystal oscillators.

While developed for 2.998GHz, the design can be factory tuned to any frequency within a ± 20 MHz range with the same guaranteed and comparable typical performance.

With a high performance dielectric resonator at its heart, phase noise typically reaches below -130dBc/Hz at 1kHz, -160dBc/Hz at 10kHz offset and -180dBc/Hz in the noise floor, yielding attosecond jitter performance when integrated from 1kHz to 30MHz.

Double buffering on the output keeps pulling below 1ppm (typically) and a two tier voltage stabilization scheme virtually eliminates pushing.

The tuning port accepts 0..6V for a ± 45 kHz tuning range and easy integration into phase-locked loops.

The DRO runs off a single +5.7V supply voltage. In addition a +15V supply, drawing a maximum current of 1100mA, is required to keep the unit at a stable temperature of +35°C, ensuring frequency accuracy.

Available option:

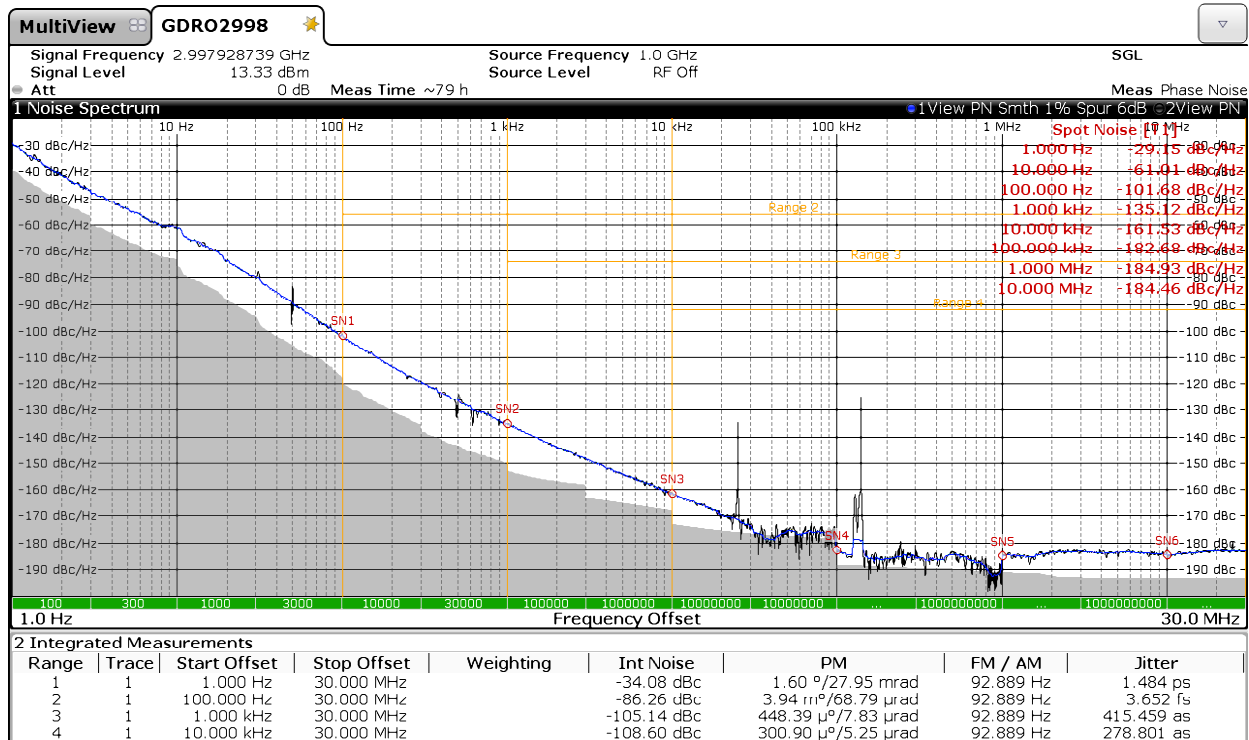
ALC: Amplitude stabilization to ± 0.1 dB.

Technical Data:

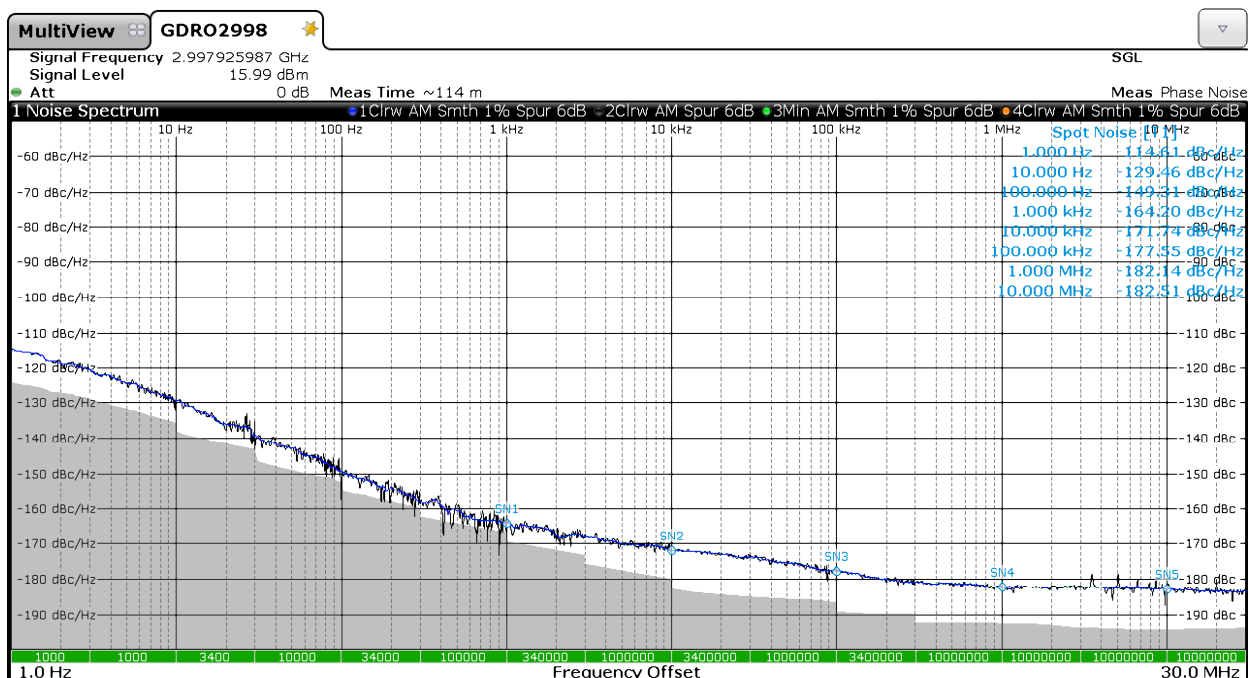
Operating Frequency:	2.998GHz ($\pm$ 20MHz factory set, $\pm$ 0.5 MHz mechanical tuning)		
Output Power:	+19 dBm		
Output Power Variation:	< $\pm$ 1.5 dB (typ. < $\pm$ 0.75 dB)		
Return Loss:	> 20 dB, VSWR < 1.22 (typ. < 25 dB, VSWR < 1.12)		
Harmonic Distortion:	< -40 dBc (typ. < -50 dBc)		
Discrete Spurious Tones:	< -20 dBc - 20log(Offset[Hz]) dBc for Offsets < 100kHz < -120 dBc for Offsets > 100kHz		
Phase Noise:		Guaranteed	Typical
	@ 100Hz:	< -95 dBc/Hz	-100 dBc/Hz
	@ 1kHz:	< -125 dBc/Hz	-130 dBc/Hz
	@ 10kHz:	< -155 dBc/Hz	-160 dBc/Hz
	@ 100kHz:	< -170 dBc/Hz	-175 dBc/Hz
	@ 1MHz:	< -175 dBc/Hz	-180 dBc/Hz
AM Noise:	@ 10MHz:	< -175 dBc/Hz	-180 dBc/Hz
	@ 100Hz:	< -140 dBc/Hz	-145 dBc/Hz
	@ 1kHz:	< -160 dBc/Hz	-165 dBc/Hz
	@ 10kHz:	< -170 dBc/Hz	-173 dBc/Hz
Electronic Tuning:	0 .. +6V (-45kHz .. +45kHz)		
Tuning Slope:	15 kHz/V		
Modulation Bandwidth:	160 kHz		
Power Supply:	+5.7 V/450 mA +15 V/1100 mA max. (Heater)		
Dimensions:	Milled Aluminum Case 125mm x 130mm x 61mm		
Connectors:	2 x SMA (RF-Output, VCO-Tuning Port), Feed-Through for +5.7 V and +15 V, 2 x Ground Solder Pins		
Temperature Range:	+10°C/40°C operating (-40°C/+71°C storage), non Condensing)		
Oven warm-up Time:	< 5 min for <30 kHz frequency error		
Oven Status Indicator:	3.3V: Oven regulated / 0V: Oven unregulated		

Option ALC:	Output Power:	+19 dBm
	Output Power Variation:	< $\pm$ 0.1 dB

Typical Phase Noise Plot:



Typical AM Noise Plot:



Mechanical Drawings:

