

	Space Ultra-Stable-OCXO (Space Grade USO)	Stp "tbd" 2010-April-17 th .
--	---	---

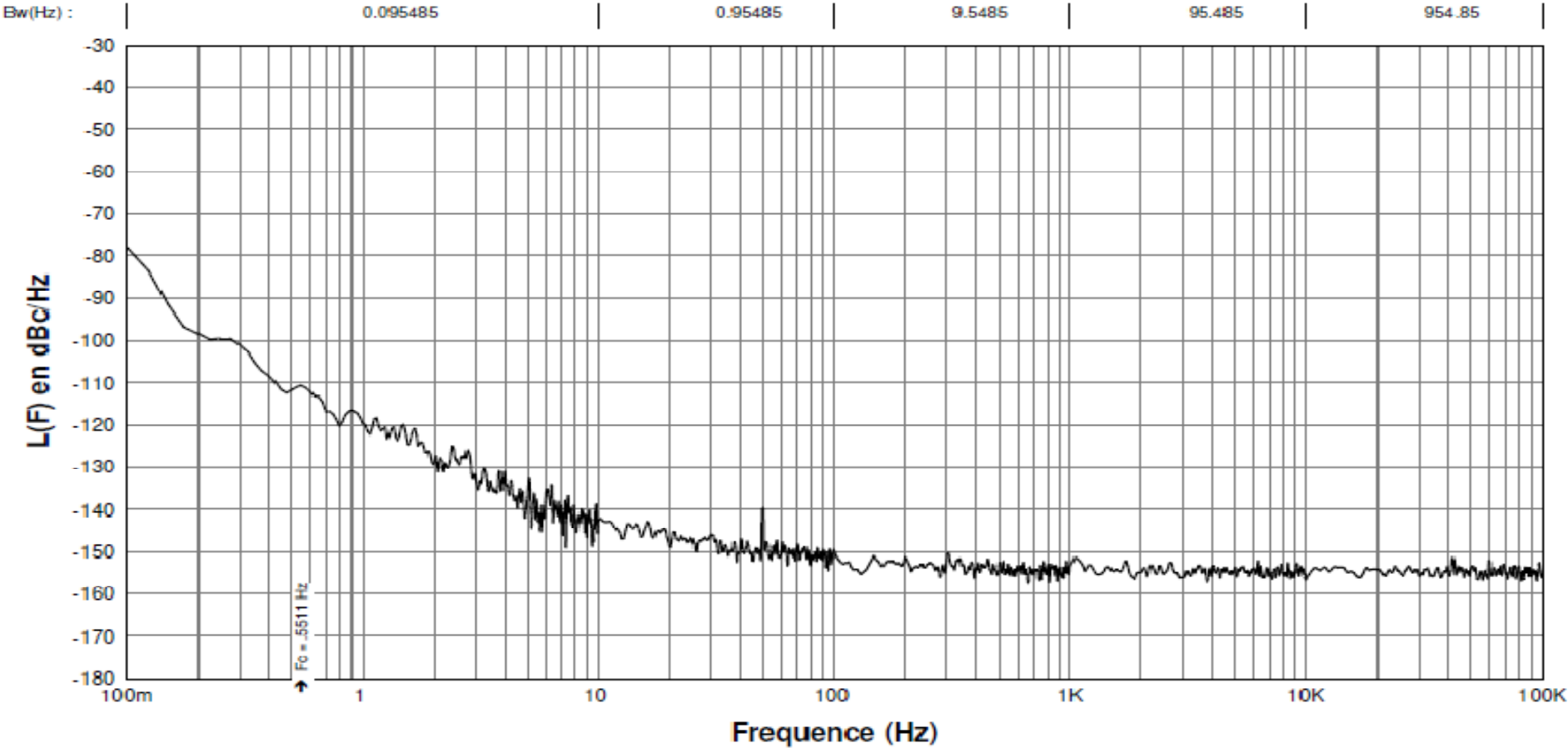
1.	Frequency	Standard	
1.1	Nominal output frequency (Fo)	10.0 MHz	Option : from 5.0 MHz to 12 MHz
1.2	Initial frequency setting accuracy	Fo ± 5 E-8	@ +25°C at shipment
2.	Temperature Range		
2.1	Operating range	-20°C to +60°C	Frequency stability specified
2.1	Storage	-40°C to +70°C	Not operating
2.2	Warm-Up Functional Range	-30°C to +65°C	No frequency stability specified
3.	Input Power Supply		
3.1	Input voltage	+20V ± 1V	Option : +24.0V ± 5%
3.2	Continuous Input voltage protection	0V to 32V	Rating - No damage
4.	Power Consumption (in W)		
4.1	Steady state power	≤ 1.5	@ +45°C under vacuum
		≤ 3.0	@ +20°C under vacuum
		≤ 3.5	@ -20°C under vacuum
4.2	Steady state power	≤ 1.5	@ +45°C at atmospheric pressure
		≤ 3.0	@ +20°C at atmospheric pressure
		≤ 5.0	@ -20°C at atmospheric pressure
4.3	Warm-Up Power	≤ 6.0	
5.	Electrical Frequency Control	Not applicable	
6.	Output Signal		Into 50 ohms pure resistive load
6.1	Signal wave-form	Sine	
6.2	Output level	+0dBm to +3dBm.	Possible option for 2 outputs
6.3	Harmonics/Sub-Harmonics	≤ -40dBc	
6.4	Non-harmonics	≤ -90dBc	
6.5	Load / VSWR	50 ohms nom.	± 5% / 1.25 : 1 max.
6.6	Warm-Up Times	≤ 2 seconds	100% of output level
		≤ 2 hours	Full performances except frequency stability versus time (short & long term ageing)
7.	Frequency Stability		versus operating conditions
7.1	Stability versus -20°C to +60°C operating temperature range	≤ 1 E-10 (<i>peak to peak</i>)	with temperature gradient of ± 0.1°C maximum per minute
7.2	Stability versus Supply Voltage	≤ ± 5 E-11	with +/-1V variation
7.3	Stability versus Load change	≤ ± 1 E-11	50ohms & VSWR 1.2
7.4	Acceleration sensitivity	≤ ± 1 E-9 / G	3 axis quadratic sum
7.5	Frequency vs. pressure variation	≤ ± 2 E-8	per 1E+5 Pa
7.6	Frequency vs. magnetic field	≤ ± 1 E-11	per Gauss
7.7	Frequency retrace @ +25°C	≤ ± 2 E-9	after more than 40 hours ON, 24 hours OFF and 24 hours of continuous operation

	Space Ultra-Stable-OCXO <i>(Space Grade USO)</i>	Stp "tbd" 2010-April-17 th .
--	--	---

8.	Long Term Stability (<i>Ageing</i>)	after 30 days minimum of continuous operation	
8.1	per day (<i>measured before shipment</i>)	$\leq \pm 5.0 \text{ E-11}$	Continuous operation
8.2	per year (<i>extrapolated from real data</i>)	$\leq \pm 2.0 \text{ E-08}$	
8.3	for lifetime (<i>extrapolated as above</i>)	$\leq \pm 2.5 \text{ E-07}$	5 years (storage & test) + 10 years operation
9.	Phase Noise	SSB Phase Noise	
9.1	@ 1Hz offset	≤ -108	<i>in dBc/Hz</i> <i>(stable operating conditions)</i>
9.2	@ 10Hz	≤ -138	
9.3	@ 100Hz& over	≤ -150	
10.	Short term stability	<i>Allan Standard Deviation @ 10MHz in steady-state conditions</i>	
	Integration time from 1s to 100s	$\leq 3.5 \text{ E-13}$ (mean value) $\leq 5.0 \text{ E-13}$ (99%)	After complete re-stabilization of the device after interruption <i>(ageing slope $\leq 1\text{E-10}$ per day)</i>
	Integration time of 1,000s	$\leq 1.0 \text{ E-12}$ (mean value) $\leq 2.0 \text{ E-12}$ (99%)	
11.	Mechanical Requirements	Qualification level	Acceptance level
11.1	Mechanical Shocks (each orthogonal axis / 5 directions)	Qualification Model (QM) half sine / 800 G / 0.25 ms	Flight Model (FM) Not applicable
11.2	Sine Vibration	each orthogonal axis	each orthogonal axis
	Frequency	sweep rate 2oct./minute up and down	sweep rate 4oct./minute up and down
	5Hz to 21Hz	11.0 mm peak	9 mm peak
	21Hz to 100Hz	20g	16g
11.3	Random Vibration - Frequency	Power Spectrum Density on each orthogonal axis	Power Spectrum Density on each orthogonal axis
	20 Hz to 100 Hz	+3 dB/oct	+3 dB/oct
	100 Hz to 400 Hz	0.7 g ² /Hz	0.3 g ² /Hz
	400 Hz to 2000 Hz	-3 dB/oct	-3 dB/oct
	Duration	120 s per axis	60 s per axis
	Overall	26.38grms	17.27grms
12.	Radiation		
12.1	Equipment exposed to external total cumulated dose over lifetime.	equivalent to 40 k Rad	Shielding made of 4 mm thick aluminum sheet (or equivalent) & Ultra-Stable OCXO structure
12.2	Radiation Level for components	30 k Rad min.	Applicable to Flight Models
13.	Reliability		
13.1	Reliability MIL-HDBK-217E	SF +50°C = 500 fits max	SF +50°C = 210 fits typical
13.2	General specification	MIL-PRF-55310	
13.3	Components Quality level	Standard component list	(DCL)
14.	Package/ Pin Out	<i>Outline Drawing (ICD)</i>	Refer to Rakon's ICD-409386
14.1	Connectors /	SMA-Female for RF-Out & Male Subminiature-D 15pins for Power Supply	
14.3	Mass / Weight	< 1200g	

Standard Space Ultra-Stable OCXO

STP 2828
2010-April-17th.



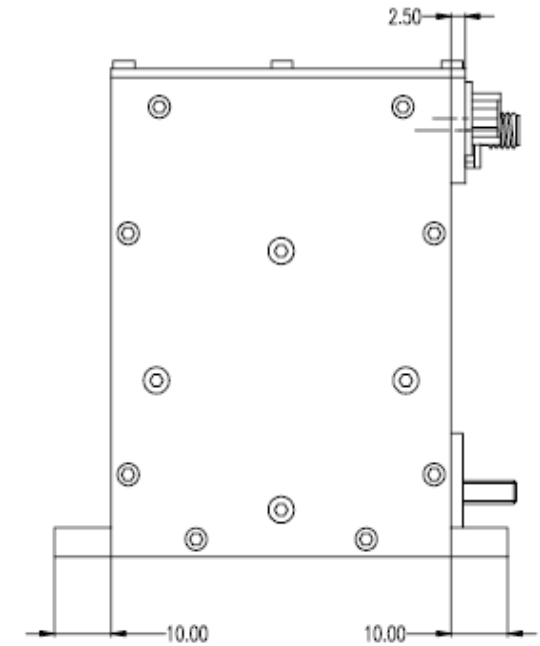
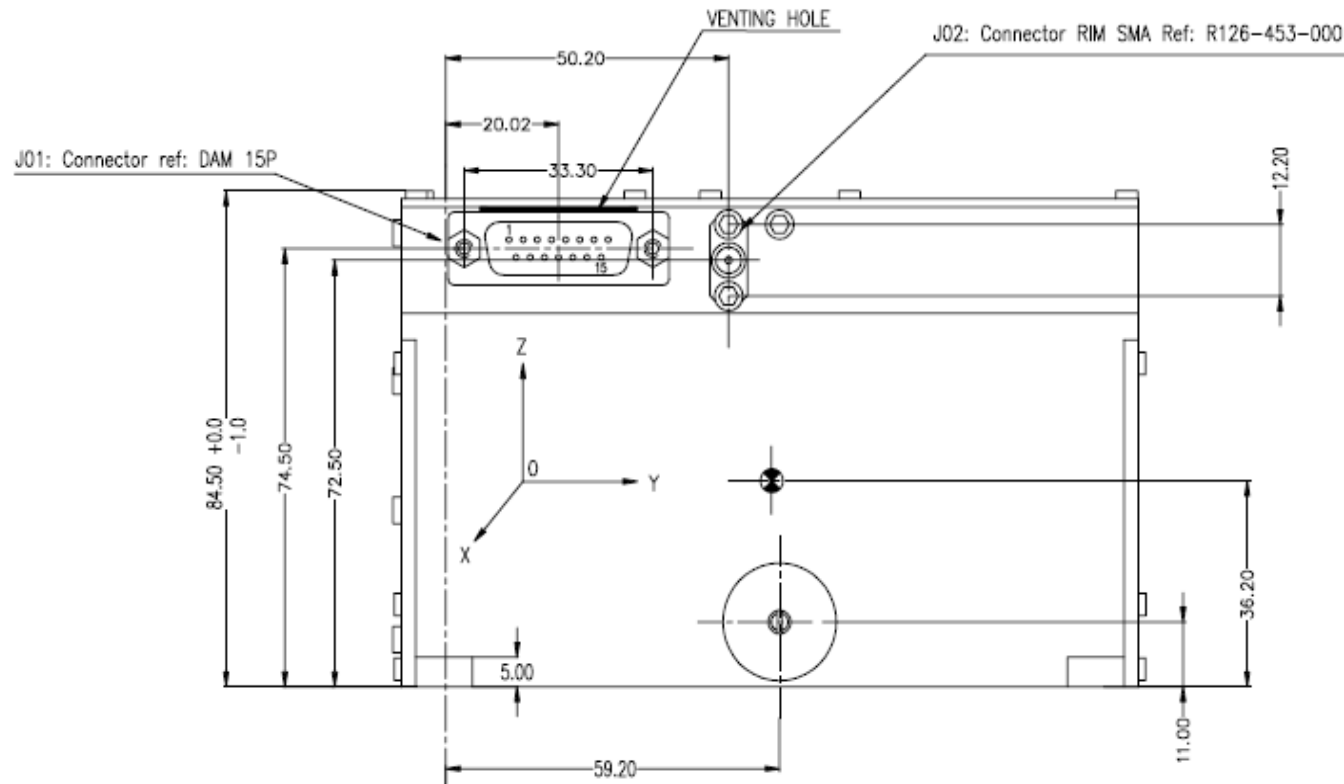
Typical Phase Noise @ 10.0MHz



24G,China Phoenix Building No.2,No.2008 Shannan Road,Shenzhen,China 518026
Tel:+86(755)23990245 Fax:+86(755)23990241
Email:sales@newwoo.com Web:http://www.newwoo.com

Standard Space Ultra-Stable OCXO

STP 2828
2010-April-17th.



CONNECTOR	TYPE	FUNCTION
J01	CANNON DAM 15P	DC POWER
J02	SMA FEMALE	RF OUTPUT

Connector J01

Pin 1, 2 & 8 = Mechanical & Electrical Ground

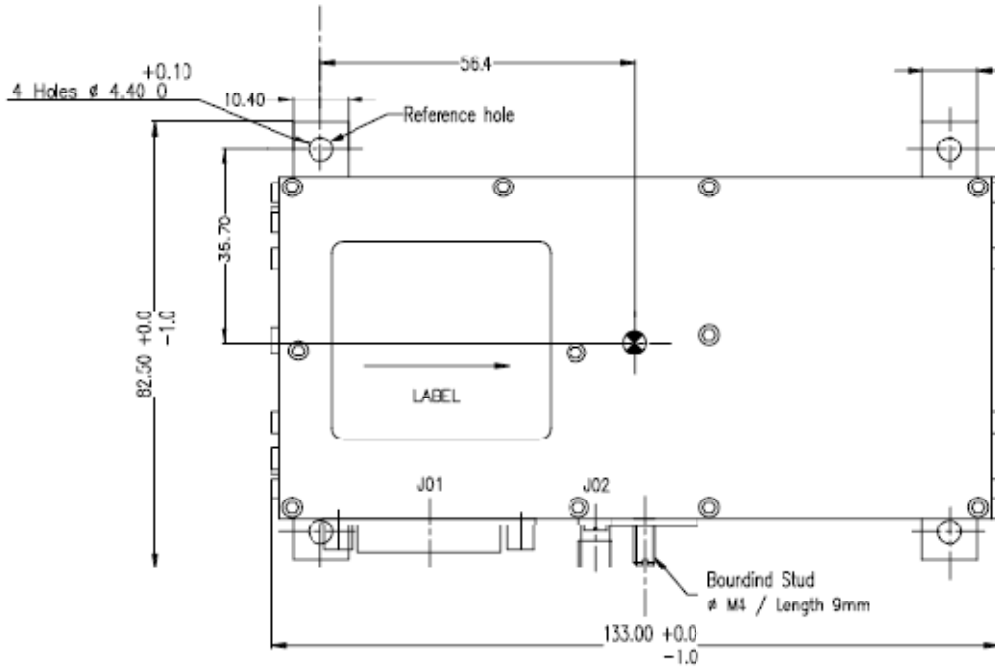
Pin 9 & 10 = Power Supply Input (+)

Other Pins not connected

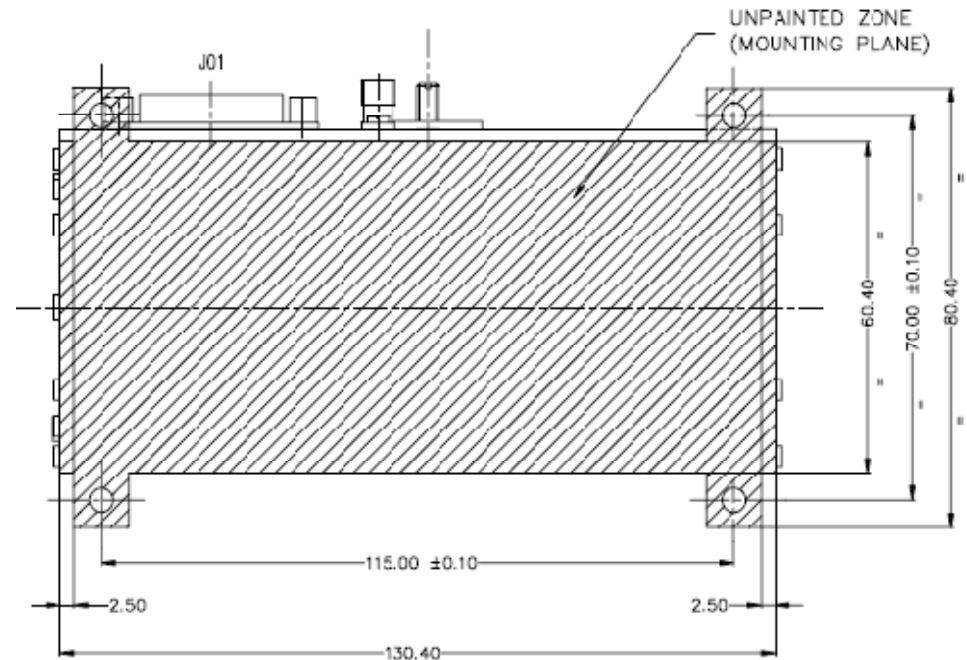
Standard Space Ultra-Stable OCXO

STP 2828
2010-April-17th.

Serial Number SN FM-xxx
Date Code (Year / Week) DC Yy Ww



Top View



Bottom View



WARNING: Helium exposure
Detail in doc 93076: Notice d'utilisation

Marking

Specification : Stp "tbd"
Nominal Frequency F : 10.0 MHz



WARNING: Magnetic field sensitive
Detail in doc 93076: Notice d'utilisation