

Rx antennas at IV3PRK: the Test Oscillator

An improvement on the 1.843 KHz oscillator to test receiving antennas

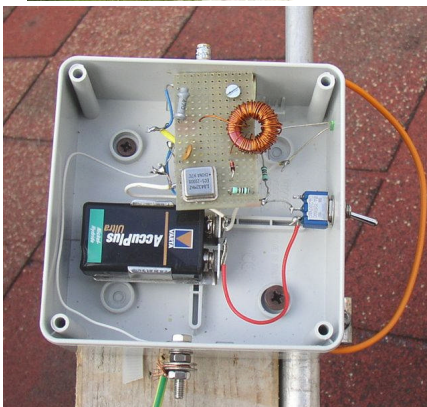
by Pierluigi "Luis" Mansutti IV3PRK

After reading, many years ago, a good advice by Bob, W7LR, on the use of a 1.8432 KHz clock oscillator as a signal source for testing RX antennas on 160 meters, I built the simple circuit downloaded from the website of Dennis, K0CKD.

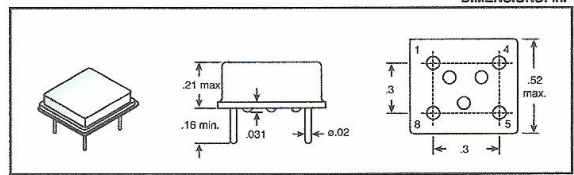
It is a very easy and cheap investment as the most expensive part of the circuit is the 9 volt battery! The price for one piece of these clock oscillators is 1.96 US\$ (Mouser catalogue part # 520-TCH184-X).

But after some tests with a small whip antenna I realized that something better was needed in order to get a useful test signal from at least one wavelength of distance, and so I added:

- 2 meter long antenna
- a ground connection
- tuned output circuit.



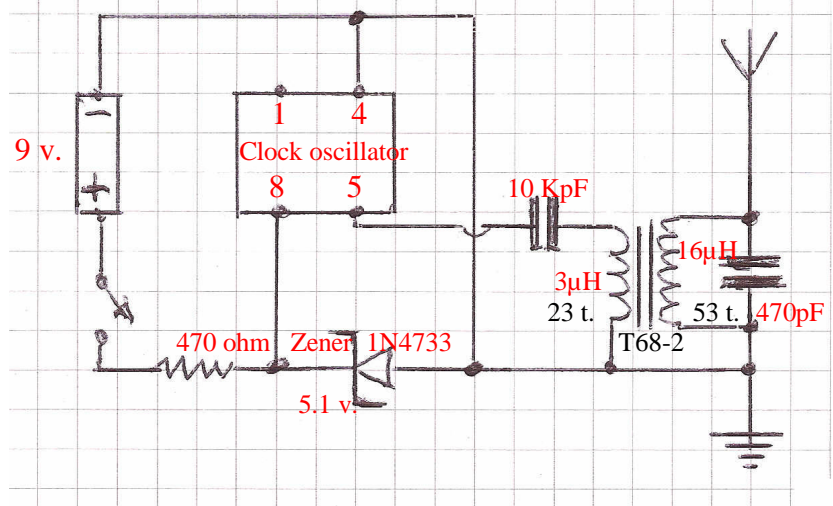
RoHS compliant.
ECS INC. HALF SIZE (TTL/CMOS) CLOCK OSCILLATORS
 Specifications:
 • Frequency stability: ± 100 ppm max.
 • Storage Temp: -55°C to $+125^{\circ}\text{C}$
 • Supply voltage: $+5.0 \pm 0.25$
 • Output Load: TTL: 10 TTL max.
 • Operating Temp: 0°C to $+70^{\circ}\text{C}$
 • HCMOS: 50pF
 RoHS Compliant
 DIMENSIONS: in.



For quantities of 1000 and up, call for quote.

MOUSER STOCK NO.	ECS Part No.	Frequency (MHz)	Price Each			
			1	10	100	500
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520-TCH122-X	ECS-2100AX-1.2288MHZ	1.228800	1.96	1.76	1.56	1.37
520-TCH184-X	ECS-2100AX-1.8432MHZ	1.843200	1.96	1.76	1.56	1.37
520-TCH200-X	ECS-2100AX-2.0MHZ	2.000000	1.96	1.76	1.56	1.37

The required inductance values are $16 \mu\text{H}$ (in parallel with 470 pF) as a load and $3 \mu\text{H}$ on the primary side. I got a T68-2 toroid (AL = 57), so 53 and 23 turns respectively are needed.



Now with a good reference signal on 1.843 KHz and the small SDR-IQ receiver, fed only through the USB cable of a laptop computer, I can test and tune my RX antennas directly in the field.

March 2010

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