CLAIMS

1.- Radiofrequency oscillator (10) comprising:

- an optical resonator (18) being a ring waveguide allowing propagation of a first wave in a first direction and of a second wave in a second direction, the second direction being opposite to the first direction, and the resonator (18) comprising an active optical medium (28) generating a first optical line from the first wave and a second optical line from the second wave,
- the resonator (18) being in contact with a part made of a material featuring a magneto-optic effect,
- an external magnetic field applier (20) of adjustable intensity on the resonator (18) generating a frequency offset between the first wave and the second wave, and
- a processing circuit (22) converting the beat between the two optical lines into a radiofrequency signal.

2.- An oscillator according to claim 1, in which the material featuring a magneto-optic effect is yttrium and iron garnet or yttrium and iron garnet doped with a ferromagnetic, paramagnetic, ferrimagnetic or metallic element.

3.- Oscillator according to claim 1 or 2, wherein the processing circuit (22) is made using silicon technology.

4.- Oscillator according to any one of claims 1 to 3, wherein the applier (20) is adapted to apply a magnetic field perpendicular to the ring waveguide when the two waves propagate in electrical transverse polarization.

5.- Oscillator according to any one of claims 1 to 4, in which a center is defined for the resonator (18), the applier (20) being adapted to apply a radial magnetic field relative to the center of the resonator (18) when the two waves propagate in transverse magnetic polarization.

6.- Oscillator according to any one of claims 1 to 5, wherein the part made of a material featuring a magneto-optic effect is part of the resonator (18) and is in contact with the active optical medium (28).

7.- Oscillator according to any one of claims 1 to 6, wherein the oscillator (10) further comprises stabilization in amplitude, in frequency and in phase.

8.- Oscillator according to any one of claims 1 to 7, in which the active optical medium (28) is positioned so that the resonator (18) is an extended cavity.

9.- Radiofrequency source comprising a radiofrequency oscillator (10) according to any one of claims 1 to 8.

10.- Device comprising a radiofrequency source according to claim 9.