Study of Low Phase Noise and Frequency Tunable Oscillator with High–Q Cavity Resonator

W. I. Yang*,[a], J. H. Lee[a], M. J. Kim[a], J. Hur[b], Sang_Young Lee[a]

[a] *Department of Physic and Center for Advanced Materials and Devices*

[b] *Department of Electronic Engineering*

Konkuk University, Seoul, Korea

For developing of more elaborate microwave system than existing one, it is necessary to improve of low phase noise oscillator. Because the low phase noise oscillator can be possible that a efficiently using in given frequency range and rapid data transmission. In general, phase noise of oscillator is in inverse proportion to Q^2 of resonator in oscillator circuit, and several groups have reported an improvement of phase noise with high–Q resonator.

In this study, we fabricate a oscillator using high-Q HTS cavity resonator, based on tow port resonator design incorporated into a basic feedback loop oscillator configuration, and measure the phase noise with different Q. Further more, it will be reported that frequency tunable oscillator with variation of resonance frequency.

keywords : oscillator, low phase noise, high-Q resonator