

# A 4.7 THz QCL phase locking experiment

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We present the last status of a 4.7 THz QCL phase locking experiment, similar to [1]. We use a QCL with a four quantum well bound-to-continuum structure and a patch antenna array as beam forming element [2]. The experiment consists of a multiplier chain followed by a super lattice harmonic mixer [3] at the 24th harmonic to produce the mixing signal with the QCL which is coupled into the super lattice via an ellipsoidal mirror and a diagonal horn. The mixing product from the room temperature super lattice, amplified and filtered in the IF, is fed to the phase locking circuit. The mixing product is 12dB over noise floor at 3MHz RBW. We compare the noise properties of two different AMC multiplier chains and its impact of the SNR in the IF.

## REFERENCES

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