



Software Modem 기반 MISO STBC-OFDM 시스템에서 Frequency offset 추정 오류에 의한 수신 성능 영향 분석

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서론

연구를 시작하게 된 배경
(문제 인식 배경)

본론

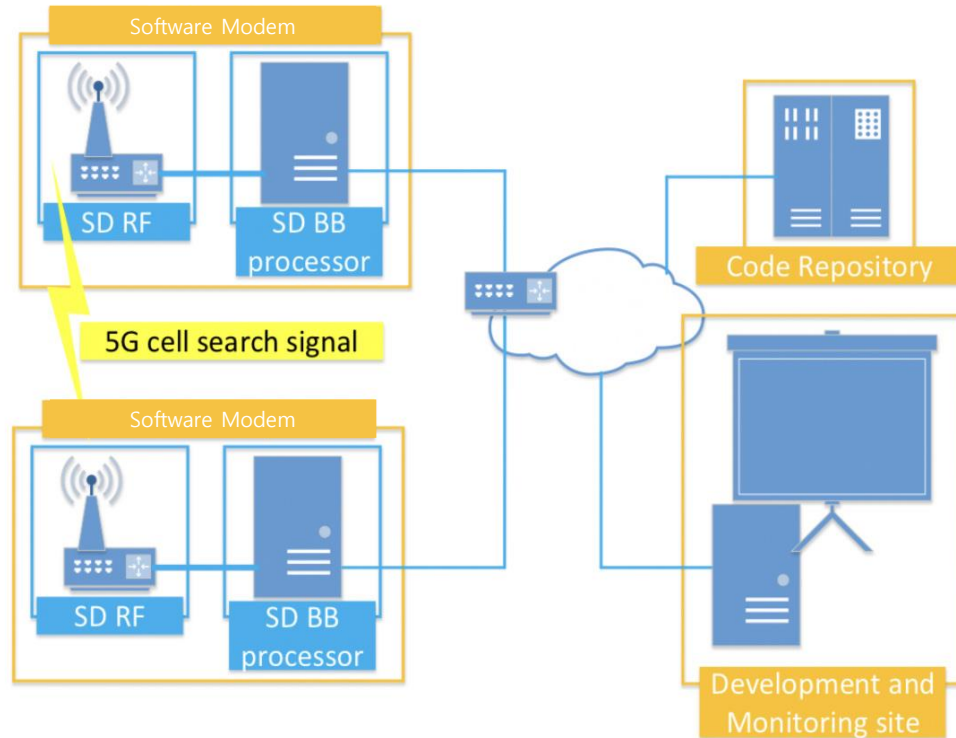
문제의 원인 규명
&
Maximum Likelihood Estimation(MLE)
of Frequency offset algorithm

결론

성능 분석 및 결론

Software Modem?

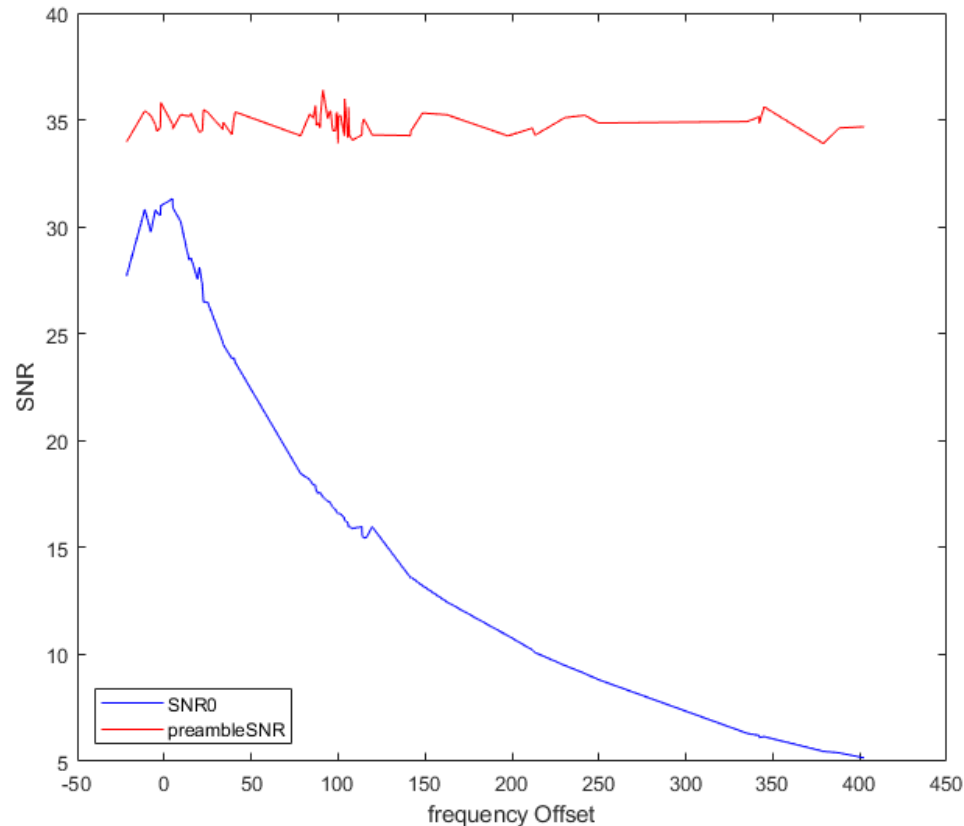
- : 범용 플랫폼에서 유연한 기저대역 신호처리의 반복조가 가능한 기기
- : 범용 CPU, 범용 언어(C 언어) 활용



***실제 실험 환경(2X1 STBC실험)**



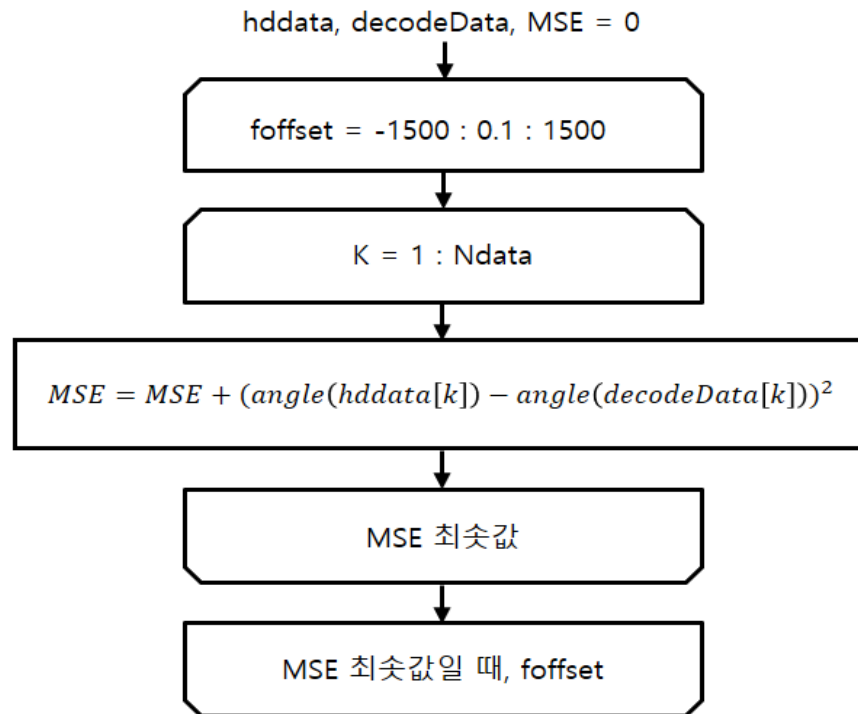
2. 1 Frequency offset에 따른 SNR분석



<Figure 1> Preamble -Data SNR Performance according to Frequency offset

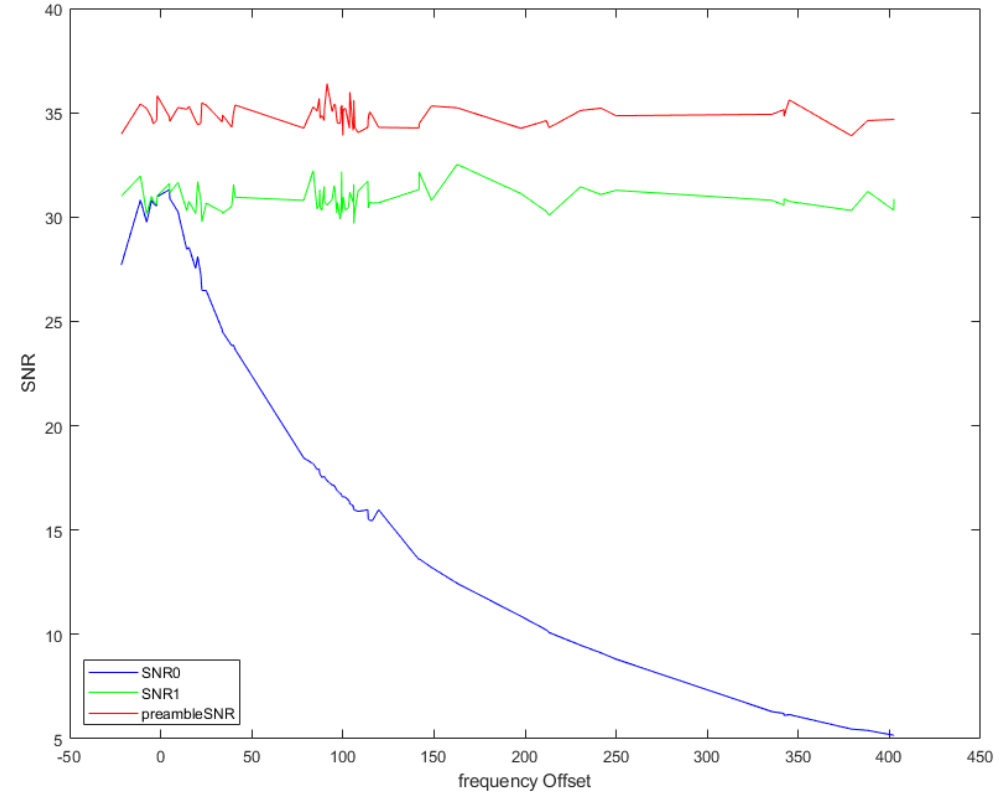
$$\text{snr} = 10\log\left(\frac{\text{sigPower}}{\text{mean}(\text{abs}(\text{nVec})^2)}\right)$$
$$\text{preamble SNR} = 10\log\left(\frac{\text{sigPower}_{\text{preamble}} - \text{noisePower}_{\text{preamble}}}{\text{noisePower}_{\text{preamble}}}\right)$$

2. 2 Maximum Likelihood Estimation(MLE) of Frequency offset Algorithm

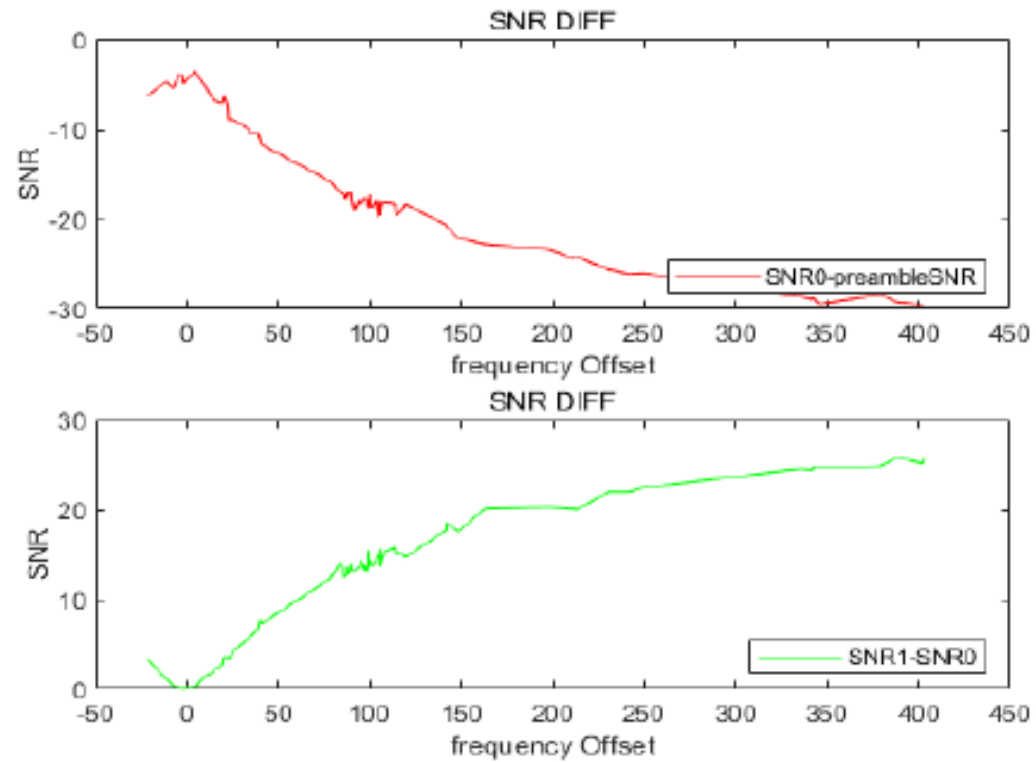


$$nVec = hddata \sqrt{sigPower} - decodedData$$

$$hddata = \text{MAX}[QPSKsym.* \text{conj}(decodedData)]$$



<Figure 1> Preamble -Data SNR Performance according to Frequency offset



<Figure 3> SNR performance comparison
after MLE of Frequency offset



▶ THANK YOU!