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1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
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4. TITLE AND SUBTITLE
Effects of Sinusoidal Phase Modulation on the Signal-to-Noise Ratio in a Digital Holography System

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5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
Mao, Davin, Capt, USAF

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14. ABSTRACT
Digital holography (DH) has been demonstrated to be an effective tool for tactical applications which involve in low signal-to-noise ratios (SNR). In practice, DH uses a strong reference beam from a local oscillator (LO) to scale SNR, however since DH relies on the interference of a signal beam with a mutually coherent LO, the coherence properties of the master oscillator (MO) can degrade system SNR for long range engagements. In this thesis, a digital holography system in the off-axis image plane recording geometry was assembled and used to measure the effects of the coherence properties of the MO on SNR.

15. SUBJECT TERMS
Digital Holography, Coherence, Wavefront Sensing, Spatial Heterodyne, Remote Sensing

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a. REPORT	b. ABSTRACT	c. THIS PAGE			Dr. Glen P. Perram, AFIT/ENP
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