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6. AUTHOR(S)

Dr. Nabeel A. Riza, CREOL

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Office of Sponsored Research and Graduate Studies
University of Central Florida -- ADM 243
4000 Central Florida Boulevard
Orlando, FL 32816-0150

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9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

Dr. William Micheli, Program Manager/Officer, ONR:313
Office of Naval Research
800 North Quincy Street
Arlington, VA 22217-5660

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13. ABSTRACT (Maximum 200 words)

Meetings between Dr. Riza and the ONR program monitor discussed and remedied slow invoicing by UCF. Dr. Riza has initiated revised and specific tasks for Lockheed-Martin Govt. Electronic Systems Div., Moorestown, New Jersey. The first, a meetings will be set up for Dr. Miceli (ONR) and Dr. Riza to look at the RF Photonics related to the Aegis radar. The second deals with generation of a technical and cost plan for showing modifications/work required for testing the CREOLphotonic system with an LM antenna array. On the technical side, we have recently completed the first basic system test for the CREOL photonic controller, with positive and encouraging test numbers. Future technical work includes reducing the FLC devices insertion losses, improving output freespace-to-GRIM lens optical coupling efficiency, and replacing the five non-AR coated optical components in our present laboratoryPDL with AR coated components. Future work also includes tabulating and listing the basic Aegis requirements related to the photonic beamformer.

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ONR Progress Report 5 Aug.14, 1996

To

Dr. William Miceli (ONR Program Monitor)

Office of Naval Research

Ballston Tower One

800 North Quincy Street

Arlington, Virginia 22217-5660

Grant No: N00014-95-1-0988

Grant Title: Photonic Time Delay Beamforming for Aegis Radar

Dated Aug.14, 1996.

Quarterly Progress Report 4: (for May.13,96 to Aug. 14, 1996)

From

Dr. Nabeel A. Riza (Principal Investigator)

CREOL-University of Central Florida-Orlando

Progress Report:

1. The CREOL PI (Riza) met with the ONR program monitor on Aug.7,96, to discuss CREOL program status. ONR indicated the slow invoicing rate by UCF, and the PI has remedied this situation as described in my email to ONR on Aug.13,96.

" Here are some action items for you to note:
1. A new invoice of $ 145.627 K has been mailed to ONR on Monday Aug.12, 1996. A fax was also sent to your office.
2. Two new invoices for the months of Aug. and Sept. 96 will be mailed later, i.e., in the first week of Sept. and the first week of Oct. The two invoices will total approx. $ 141 K.

Thus, we will have spent/invoiced our total $ 511 K sent by ONR for May 1,95 to Sept.30, 1996. Sorry for this UCF delay in invoicing as they wanted to invoice every 6 months..I've made them change to monthly invoicing from now on.
Since our money runs out Sept.30, when do we get our new money for work beginning Oct.1, 1996."

2. Based on the recent PI-ONR meeting, the PI has initiated revised and specific tasks for Lockheed-Martin Govt. Electronic Systems Div., Moorestown, New Jersey. The first task involves LM setting up meetings at LM for Dr. Miceli (ONR) and the PI. These meetings are designed to look at RF Photonics related to the Aegis radar. The first meeting is planned for mid/late Sept.96. The second task deals with LM generating a technical and cost plan for showing what modifications/work is required for testing the CREOL photonic system with an LM antenna array. These antenna lab. tests are listed as an optional 2-year program in the original UCF proposal submitted to ONR.

3. On the technical side, we have recently completed the first basic system test for the CREOL photonic controller, with positive and encouraging test numbers.

"We have demonstrated a 3-bit PDL using FLC devices, imaging optics, and system remoting via a directly modulated 1310 nm semiconductor laser. Very low -54.94 dB RF interchannel crosstalk was measured in the nearest adjacent PDL output channel. Our PDL system essentially does not degrade the C/N of the Lasertron fiber-optic link modulated at 1 Ghz. In essence, our PDL acts as an RF attenuator, providing additional insertion loss to the fiber link-PDL system. PDL measured insertion loss has been characterized indicating that near 1.5 dB optical loss is achievable per bit." (See viewgraphs)

4. Future technical work includes reducing the FLC device insertion losses, improving output freespace-to-GRIN lens optical coupling efficiency, and replacing the five non-AR coated optical components in our present laboratory PDL with AR coated components.

5. Future work also includes tabulating and listing the basic Aegis requirements related to the photonic beamformer.