

**NAVAL POSTGRADUATE SCHOOL**  
**Monterey, California**



**THESIS**

**EVALUATION AND METHODS TO REDUCE CO-  
CHANNEL INTERFERENCE ON THE REVERSE  
CHANNEL OF A CDMA CELLULAR SYSTEM**

by

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<b>13. ABSTRACT (maximum 200 words)</b> <p>With increasing exploitation of information, the demand for mobile access to high data rate multimedia services including high speed internet connection, high quality video/images, teleconferencing, and file transfer continues to grow rapidly for a wide variety of military as well as commercial applications.</p> <p>The current mobile communication systems are narrowband and optimized for voice. They can not support high data rate applications. Simply increasing the bandwidth of existing systems will result in severe degradation due to frequency selective fading, resulting in loss of quality and reliability. It appears that CDMA is the strongest candidate for the third generation mobile communication systems to support these demands. CDMA minimizes the effects of frequency selective fading while reducing the probability of detection and interception by non-authorized users.</p> <p>The primary restriction of the performance of CDMA is the co-channel interference. Since CDMA capacity is only interference limited, the interference reduction equates to better quality of service and greater user capacity. This thesis focuses on analyzing the co-channel interference on the reverse channel of the proposed CDMA cellular systems operating with perfect power control and investigating methods such as sectoring and microzoning in an effort to reduce the interference.</p>			
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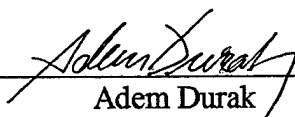
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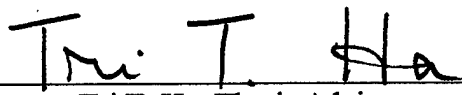
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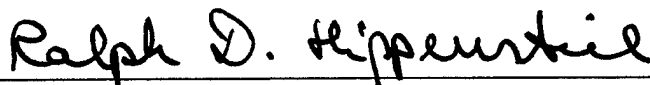
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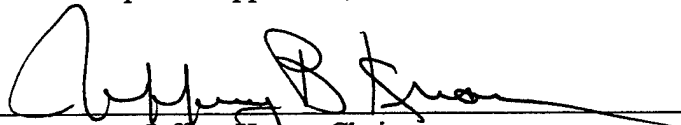
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