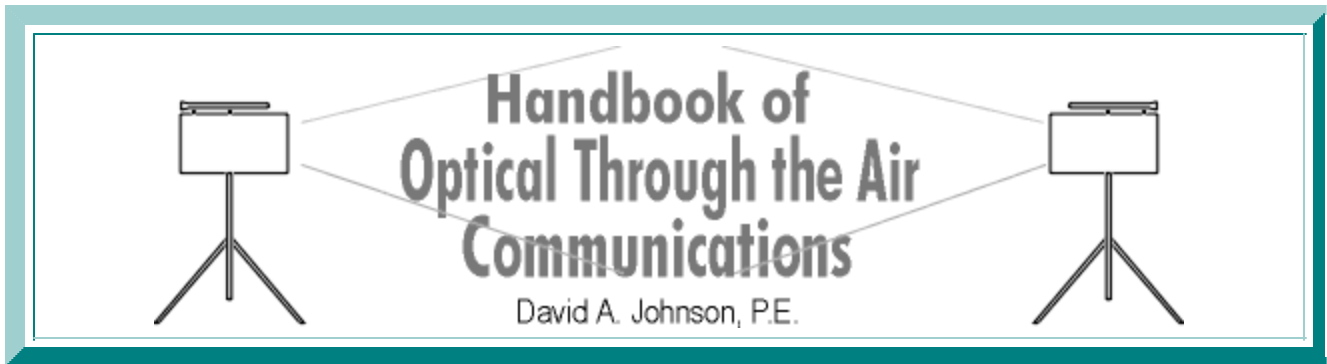




PREFACE

I became interested in optical through-the-air communications around 1980. At that time I was doing research in high-speed fiber optic computer data networks for a large aerospace company. My research assignment was to produce a report which made recommendations for the best ways of using the latest optical fiber technologies to satisfy the increased demands for fast data transmission in the aerospace industry.

My research involved pouring through mountains of technical papers, scientific journals, patents and manufacturer's application notes. As my research progressed I began to notice that nearly all the optical communications systems described used optical fibers. Little was being written on the subject of through-the-atmosphere communications.

It seemed logical to me that many of the techniques being used in fiber optic communications could also be applied in through-the-air communications. I was puzzled by the technical hole that seemed to exist. This lack of information started my personal crusade to learn more about communicating through-the-air using light.

During my studies I reviewed many of the light communications construction projects that were published in some electronics magazines. I was often disappointed with the lack of sophistication they offered and usually found their performance lacking in many ways. Many of the circuits were only able to transmit a signal a few feet. I thought that with a few changes they could go miles. I was determined to see how far the technology could be pushed without becoming impractical. So, I took many of the

published circuits and made them work better. I discovered better ways to process the weak light signals and methods to get more light from some common light emitters. I found ways to reduce the influence ambient light had on the sensitive light detector circuits and I developed techniques to increase the practical distance between a light transmitter and receiver. I also experimented with many common light sources such as fluorescent lamps and xenon camera flash tubes to see if they too could be used to send information. To my delight they were indeed found to be very useful.

Today, my crusade continues. I am still discovering ways to apply what I have learned and I'm still making improvements. However, after having devoted some 20 years of work toward advancing the technology I felt it was time to collect what I have learned and pass some of the information on to others. Thus, this book was conceived.

HOME

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