STUDY OF THE DECODER BASED ON AUTOMATIC DEPENDENT SURVEILANCE (ADS-B)

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ABSTRACT

EFFECT OF FRAMES RATES ON THE NUMBER PLANE DETECTED

Decoder is a digital circuit that converts input binary codes to the single numerical codes. The signal from the airplane detected by ADS-B then it contain just enough information of the plane. Before the signal pass through the decoder, it is on binary codes. Then it decode to the hexagonal. Example of the hexagonal number is 8D750291998CD728307400735727 and 8D750291998CD8283078002A6F3D. The frame rates are the frequency (rates) at which imagines device produce unique consequtive images called frame. This study was aimed to compare and investigate the relationship between the frames rates on the number of plane detected. Using the different number of frames rates, we can compare the number of plane detected with constant weather and antenna. Using the software called ADS-B scope, we can capture the plane and its position with the help of ADS-B. The type of signal can detected using the probe and the software called MultiVibAnalyse. The study found that the more frames rates used, the more plane detected. As a conclusion, the number frames rates are directly proportional the number of plane detected.

CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

The ADS-B (Automatic Dependant Surveillance-Broadcast) system is Federal Aviation administration (FAA) sponsored program which use ground based transmitters that allows user to wirelessly receive trafic information,weather information including weather graphics,and other data for to aviation safety. Currently,ADS-B massages are communicated mainly through two designated frequencies 978MHz and 1090MHz and defined receiving system. With access to a multi-function screen,a typical user can get up to date weather and graphic information and traffic information, and other aviation data over a range of 100 nautical miles or greather from a ground based station, as well as air traffic information directly from air-borne ADS-B eqquiped aircraft in the vicinity.

Traditionally the 1090 MHz frequency has been used to transmit secondary surveillance RADAR (SSR) data, including data in the mode A,C and S formats. Although 1090MHz SSR communications are slowly being phased out in favor of ADS-B. Until the transition is complete,existing technology-based system must include both a receiver capable of receiving ADS-B information and a transmitter for transmitting SSR data,which consequently makes the high system expensive,large and heavy[5].