

## ABSTRAK

KT-1B sebagai pesawat latih TNI AU memerlukan *Flight Data Recorder* (FDR) sebagai “*black box*” dalam penerbangan. Tidak hanya digunakan saat terjadi *accident/insident* saja, melainkan sebagai bahan evaluasi *debriefing* setelah proses bina terbang siswa calon penerbang TNI AU. Desain telah disetujui dan diaplikasikan pada pesawat *prototype*. Diketahui, dari hasil penerbangan uji bahwa FDR dapat bekerja dengan baik. Namun, dari keterangan pilot performa GPS tidak stabil saat dilaksanakan maneuver ekstrim. Beberapa kali GPS yang terpasang yaitu GTN 650 mengalami *lost signal*.

Perbaikan desain instalasi FDR diperlukan untuk mengurangi atau menghilangkan gejala *lost signal*. Dalam mencapai tujuan tersebut dilaksanakan Analisa awal tentang penyebab *lost signal* dilanjutkan dengan melaksanakan simulasi, perhitungan dan pengujian di laboratorium. Dengan mekanisme tersebut, hasil yang telah dicapai diaplikasikan di pesawat untuk diuji terbang kembali.

Dari simulasi diketahui bahwa polaradiasi antenna mengarah ke atas dengan nilai *gain* sebesar 4,8 dB saat dipasang di depan dan 6,8 dB saat dipasang di tengah. Namun, polaradiasi ke bawah lebih bagus saat disimulasikan di depan dengan selisih 6 dB. Dengan perhitungan teori *creeping wave* diketahui bahwa konstanta redaman sebesar 10-20 dB atau bisa dikatakan cukup kecil. Selanjutnya, melalui pengujian di Laboratorium didapatkan nilai -59 dB pada sudut 180° terhadap sudut datang atau berada dibalik model pesawat.

Kata Kunci : *GPS Lost Signal, Creeping Wave, Aircraft*

## ***ABSTRACT***

KT-1B as an Air Force training aircraft requires Flight Data Recorder (FDR) as a "black box" in flight. Not only used during an accident / incident, but also as a material for evaluating debriefing after the process of flying students prospective pilots of the Air Force. The design was approved and applied to the prototype aircraft. It is known, from the test flight results that FDR can work properly. However, from the test pilot information, GPS performance is not stable when carried out extreme maneuvers. Several times the installed GPS, the GTN 650 has lost signal.

Improvements to the design of the FDR installation are needed to reduce or eliminate the symptoms of lost signal. In achieving these objectives the initial analysis of the causes of lost signals is carried out followed by conducting simulations, calculations and testing in the laboratory. With this mechanism, the results achieved have been applied to the aircraft to be tested for flight again.

From the simulation it is known that the antenna polaradiation is pointing up with a gain value of 4.8 dB when mounted in front and 6.8 dB when mounted in the middle. However, downward polaradiation is better when simulated front d with a difference of 6 dB. With creeping wave theory calculations it is known that the damping constant is 10-20 dB or it can be said to be quite small. Furthermore, through testing in the Laboratory obtained a value of -59 dB at an angle of 180° to the angle of arrival or being behind the aircraft model.

*Key words : GPS Lost Signal, Creeping Wave, Aircraft*