ABSTRACT

In system of radio communications, fading and distortion represent some problems which can degrade the system performance of radio transmission. Fading can cause the change of accepted signal amplitude. The Amplitude's change of signal output that happened significantly can cause the information damage and even can result the damage system. To stabilize the level signal accepted in the range of receiver system , Automatic Gain Control (AGC) network is needed.

AGC was implemented in first radios for the reason of fading propagation (defined as slowvariations in the amplitude of the received signals) which required continuing adjustments in the receiver'sgain in order to maintain a relative constant output signal. (AGC) circuits are employed in many systems where the amplitude of an incoming signal can vary over a wide dynamic range. The role of the AGC circuit is to provide a relatively constant output amplitude so that circuits following the AGC circuit require less dynamic range.

At this final project has been designed and realized peripheral of Automatic Gain Control (AGC) for the heterodyne receiver system by 60 dB dynamic input range and operate on the AM Frequency Intermediate (455 kHz). AGC stabilize the voltage output by changing the work point of the transistor at Variable Gain Amplifier (VGA)

There is an examination to know the performance of AGC which has been realized with measuring output of each block such as: variable gain amplifier (VGA), 2nd order IFAmplifier2, envelope detector, feedback amplifier and also the overall system performance. Examinee parameter is stability AGC's output signal measured to change the voltage of signal input. . From measurement result, AGC which has been designed can run in the frequency 455 kHz. The Input Dynamic Range of designed AGC is 40.21, which is the input dynamic range from the scheme is 60 dB, and The Output Dynamic Range is 7.59 dB.

Keywords : *Dynamic Range, Gain, Intermediate Frequency (IF), Variable Gain Amplifier(VGA),*