

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.

Automatic Gain Control (AGC) is a network which is capable to arrange the reinforcement at one particular system and automatically control it. Mean of output signal level represent the feedback to arrange the gain according to range input signal's level matching with ability of receiver system.

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). To increase the receiver's sensitivity and selectivity, it uses two reinforcement phase and also some phase filtering by using IF transformer and network tuning LC.

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 IF Amplifier, 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 with the voltage stability equal to 95,285%. The Input Dynamic Range of designed AGC is 27,47 dB, which is the input dynamic range from the scheme is 60 dB.

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