CHAPTER IV

CONCLUSION

The theory of the compandor is a simple one. Its characteristic is as shown in Fig 1. From the basic diagrams shown in Fig 2 and Fig 3, it shows that several networks can be synthesized to meet the requirement. Steps of design which were made were simple, but to do the experiment it required techniques in solving problems that can not be found in any text or handbook, e.g. the problems of choosing transistors, and transformers to be used in the variable-loss networks. It required hundreds of datas. The amplifiers used in these circuits are of common used type, but they require much attempt in design to fulfil the requirements, for a given voltage supply and gain.

Since it was not very necessary, the author omitted the procedures of amplifier design, because, the reader can easily find them in any handbook. However, the most important thing in designing amplifier that must be kept in mind is the collector dissipation that will damage the transistors if excess.

The high gain amplifier used with the compressor had a fixed gain about 50 db, with about 20 db of negative

feedback applied over three stages by means of R15. This type of feedback increases the input impedance of the amplifier.

The pre-amplifier has a gain of 37 db, the resistance R_3 dropped the signals down to the proper input level for the pre-amplifier, after amplification, control the rectifier.

The amplifier used with the expander had a gain of about 30 db with about 20 db of negative feedback applied by means of R21.

From Fig 39, 40, 41, 42, 43, 44, 45 and 46, it can be seen that the load resistance of rectifier has little effect on linearity and control current, the resistance R (see Fig 38) increases the output and input resistances of rectifier, so when increasing R, it increases linearity and decreases control current for a given input level.

The reason of using transistor as control rectifier is that the input and output resistancee of the rectifier can be varied to achieved the requirements, This rectifier VT3 can be used in series with the same transistor configuration as VT2, the temperature compensation, in Fig 28.

The variable-loss networks are the most important of all, and they had much difficulties in construction.

Even though, most of the time was used in testing them, the results obtained not so satisfied. They require a lot of time to be improved.

From Fig 50 shows that the compressor characteristic is quite well, however the improvement in control range is required, but it is good enough in practical work.

Fig 51 shows that the expander characteristic is good in linearity but it gives a wrong expansion ratio. The expansion ratio is not exactly 1:2 as expected, it is 1:1.9 expansion ratio. This error can be improved by replacing transformers, transistors, and resistances R1, R6, (see Fig 28). Another feature that requires to be improved is its control ranges.

The experimental results in chapter III indicate that the compandor characteristic (compressor and expander characteristics) as shown in Fig 1 may be realized in practical networks if they are properly designed and constructed with proper and high-quality components.