

Long Range Signal Amplifier Using Discrete Components

By

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Dedication

We would like to devote this thesis and project to our guardians and to our supervisor “Sir Meraj Hasan” who was dependably there to help and aide us when we required his offer assistance. His insightful reactions kept us attempting to make this project all the more full verification. We are grateful to him for his empowering and important backing. Working under him was a to a great degree proficient and advancing knowledge for us. We are extremely appreciative to him for all the quality expansion and upgrade done to us. No words can satisfactorily express our overriding obligation of appreciation to our guardians whose bolster helps us in the distance. Most importantly we should thank our companions who continually empowered and favored us to empower us to do this project effectively.

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Abstract

Range of RF system depends upon output power of transmitter, sensitivity of receiver and high gain antennas. Long Range Signal Amplifier transmits message signal at 2.4GHz ISM band and receives at distance of 1km. Yagi-Uda antenna having high gain and characteristic impedance of 50 ohms is designed at both ends. Frequency modulation is carried out by VCO which is then fed to power amplifier having 28dBm output power. Receiver sensitivity depends upon low noise amplifier and demodulation is carried out by PLL method. Message signal is received on oscilloscope by passing it through bandpass filter. This project major application is in communication system, audio/video transmission and defense area.

Table of Contents

Certificate		i
Dedication		ii
Acknowledgements		iii
Abstract		iv
Table of Contents		v
List of Figures		vi
List of Tables		vii
1. Introduction		1
1.1	Project background	3
1.2	Problem description	4
1.3	Project description	5
1.4	Project objectives	6
1.5	Project scope	6
2. Literature Review		8
2.1	Antenna	9
2.2	Transmitter	9
3. Project implementation strategy		12
3.1	Communication system	13
3.2	Factors on which range depends	14
3.3	Friis range equation	15
3.4	Wireless Transmitter	16
3.4.1	Message signal	17
3.4.2	Carrier signal	18
3.4.3	RF Oscillators	19
3.4.3.1	Factors affecting oscillator	20
3.4.3.2	Types of RF Oscillators	21
3.4.3.2.1	The Hartley Oscillator	21
3.4.3.2.2	Colpitts Oscillator	22
3.4.3.2.3	Crystal Sine Wave Oscillator	23
3.4.4	VCO	23
3.4.5	Power amplifier	24
3.4.5.1	Class A	25
3.4.5.2	Class B	25
3.4.5.3	Class AB	26
3.4.5.4	Class C	27
3.4.5.5	Class D	28
3.5	Modulation	29
3.5.1	what is mod, why is it necessary etc	29
3.5.2	types of analog mod techniques	29
3.5.2.1	AM	30
3.5.2.2	FM	32
3.5.3	AM or FM?	33
3.5.4	Techniques of generating FM	33
3.5.4.1	Direct Method	34
3.5.4.2	Indirect Method	34

3.6	Receiver	34
3.6.1	Receiver sensitivity	35
3.6.2	LNA	36
3.6.2	Demodulator	36
3.6.3	Filtering	38
3.6.3.1	Passive filter	40
3.7	Antenna	40
3.7.1	Types of high frequency antenna	41
3.7.2	Yagi antenna basics	42
4.	Hardware Design System	44
4.1	System architecture	45
4.1.1	Transmitter –unit	45
4.1.2	Receiver –unit	45
4.2	Design constraints	46
4.2.1	Frequency of 2.4 Ghz	46
4.2.2	Micro strip lines	46
4.2.3	PCB	47
4.3	Design methodology	47
4.4	Transmitter design	49
4.4.1	Pulse generator	49
4.4.1.1	Specifications	51
4.4.1.2	Major Components	51
4.4.2	VCO	52
4.4.2.1	Major Components	53
4.4.3	PA	53
4.4.4	Impedance matching	54
5.	Simulation	56
5.1	Transmitter simulation	57
5.1.1	Pulse Generator	57
5.1.2	Power Amplifier	58
5.2	Antenna	61
6.	Testing and Evaluation	66
6.1	limitations of project	67
6.1	Optimizing project for better result	67
6.1	Future work	67
7.	Conclusion	68
	References	70
	Appendices	72
A	Types of Oscillators	73
A.1	Sinusoidal Oscillators	73
A.2	Crystal Oscillators	73
A.3	Non-sinusoidal Oscillators	73
A.4	Radio Frequency Oscillator	71
A.5	Frequency Control in Radio Frequency Oscillator	71
A.5.1	LC Network	71
A.5.2	Quartz Crystal	75
A.5.3	Ceramic Resonator	75
B	Types of Power Amplifier	76
B.1	Class F Amplifier	76
B.2	Class G Amplifier	76

B.3	Class I Amplifier	76
B.4	Class S Amplifier	76

List of Figures

Figure 3.1	block diagram of communication system	13
Figure 3.4 (a)	Transmitter	16
Figure 3.4 (b)	Modified Transmitter	16
Figure 3.4.1 (a)	Analog Signal	17
Figure 3.4.1 (b)	Digital Signal	17
Figure 3.4.2	A Carrier Signal & B Signal	19
Figure 3.4.3	Block Diagram of an oscillator	20
Figure 3.4.3.2.1	The Hartley Oscillator	22
Figure 3.4.3.2.2	Colpitts Oscillator	22
Figure 3.4.3.2.3	Crystal Sine Wave Oscillator	23
Figure 3.4.5.1	Class A amplifier	25
Figure 3.4.5.2	Class B amplifier	26
Figure 3.4.5.3	Class AB Amplifier	27
Figure 3.4.5.5	Class D amplifier	28
Figure 3.4.5.4	Class C amplifier	28
Figure 3.5.3	FM signal	33
Figure 3.6.2	Synchronous Demodulation	37
Figure 3.6.2.1	Phase Locked Loop PLL FM demodulator	37
Figure 3.6.3.1	Passive Filters	39
Figure 3.7	Wifi Antenna Types	40
Figure 3.7.2(a)	Yagi Antenna	42
Figure 3.7.2(b)	Basic concept of Yagi Antenna	43
Figure 3.7.2(c)	Yagi Antenna radiation pattern	43
Figure 4.1.1	Transmitter & receiver unit	45
Figure 4.3(a)	FM modulation using VCO (Direct method)	47
Figure 4.3(b)	General figure of Yagi antenna	48
Figure 4.3(c)	PLL method	48
Figure 4.4.1 (a)	Circuit diagram of pulse generator	49
Figure 4.4.1 (b)	PCB Hardware of Pulse Generator	50
Figure 4.4.1.2(a)	LM324 low power quad operational amplifier	50
Figure 4.4.1.2(b)	Variable resistor	52
Figure 4.4.2	Circuit diagram of 2.4 Ghz VCO	52
Figure 4.4.2.1	Symbol and Electrical connection	53
Figure 4.4.3	Circuit diagram of PA	54
Figure 5.1.1 (a)	simulation of Pulse generator on Multisim	57
Figure 5.1.1 (b)	Pulses results on oscilloscope	57
Figure 5.1.1 (c)	PCB design of Pulse generator	58
Figure 5.1.2(a)	Circuit diagram of PA	58
Figure 5.1.2(b)	PA Simulation on AWR microwave office	59
Figure 5.1.2(c)	Gain Output	60
Figure 5.1.2(d)	Gain Output Matches	60
Figure 5.1.2 (d)	PCB design of PA	61
Figure 5.2(a)	Radiation pattern of Yagi antenna	61
Figure 5.2(b)	VSWR of the antenna	63
Figure 5.2(c)	Antenna in 3 coordinate axes	63
Figure 5.2(c)	Simulation result on antenna analyzer software	64
Figure 5.2(d)	The radiation pattern of antenna in 3-D	64

Figure 5.2(e)	Current distribution on various different elements	65
Figure 5.2(f)	4:1 impedance step down Balun	65
Figure 6.3	Video modulator	67
Figure A.5.1	LC Network	74
Figure A.5.3	Ceramic Resonator	75
Figure A.5.2	Quartz Crystal	75

List of Tables

Table 3.4.5.9 Amplifier Class by Conduction Angle	31
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