



GEORGE R. FROST

Bell Telephone Laboratories

*from sun
to sound*

BELL SYSTEM SCIENCE EXPERIMENT NO. 1



AN EXPERIMENT IN ELECTRONICS
DEMONSTRATING THE CONVERSION
OF SOLAR ENERGY TO SOUND

MADE AVAILABLE BY
YOUR TELEPHONE COMPANY

from sun to sound



George R. Frost

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Contents

<i>Chapter 1</i> MEET THE OSCILLATOR	1
1. The Bell System Science Kit	1
2. Theory	1
2.1 Experiments	2
2.2 Problems	2
2.3 Symbols	2
3. The Oscillator Circuit	2
3.1 Frequency	3
4. Starting Circuit Design	3
<i>Chapter 2</i> THEORY OF THE OSCILLATOR	5
5. Analogies	5
6. Periodic Oscillation	6
6.1 Conditions for Oscillation	6
7. Energy Relations in Oscillators	7
7.1 Force and Displacement	8
7.2 Work	9
7.3 The Capacitor	10
7.4 Mass	14
7.5 The Inductor	15
7.6 Total Energy in the System	16
7.7 Electrical Oscillation	18
7.8 Damped and Continuous Oscillation	19
8. Time	20
8.1 Period and Frequency of Oscillation	21
8.2 Frequency of Electrical Oscillators	22
8.3 Sine Wave	25
9. Summary	25

<i>Chapter 3</i>	THE ELECTRICAL STRUCTURE OF MATTER.....	27
	10. The Planetary Atom.....	27
	10.1 Nucleons.....	28
	10.2 Electrons.....	29
	11. Fields of Force.....	29
	11.1 Nuclear Electric Fields.....	30
	11.2 The Electron's Electric Field.....	31
	11.3 Electric Field Effects.....	31
	12. Charge and the Atom.....	32
	12.1 Ions.....	33
	12.2 Quantity of Charge.....	33
<i>Chapter 4</i>	THEORY OF THE CAPACITOR.....	35
	13. Your Capacitor.....	35
	13.1 Charge and Force.....	37
	13.2 Quantity of Charge.....	38
	13.3 Intensity of the Electric Field.....	39
	13.4 Potential in the Electric Field.....	40
	13.5 Capacitance of a Sphere.....	43
	13.6 Capacitance of a Spherical Capacitor.....	44
	14. The Parallel-Plate Capacitor.....	46
	14.1 Dielectric.....	47
	14.2 Capacitor Design.....	47
<i>Chapter 5</i>	ELECTRONIC THEORY OF CURRENT FLOW.....	49
	15. Inductance and Current Flow.....	49
	16. Model Atom.....	49
	16.1 Orbital Paths.....	50
	16.2 Work and the Electron.....	51
	16.3 Orbits and Energy Levels.....	54
	16.4 Electron Spin.....	54
	17. Multiproton Atoms.....	55
	17.1 Shells.....	55
	17.2 Permissible Occupation of Orbits.....	56
	17.3 Filled Shells.....	56
	17.4 Stability.....	57
	18. Free Electrons.....	58
	18.1 Conduction.....	60
<i>Chapter 6</i>	THEORY OF THE INDUCTOR.....	61
	19. Magnetism.....	61
	20. Induction.....	63
	20.1 Mutual Inductance.....	66
	20.2 Self-Inductance.....	68

21. Permeability.....	71
22. Calculating Inductance.....	73
22.1 The Ferrite Cup Core.....	74
22.2 The Plastic Bobbin.....	75
<i>Chapter 7</i> SEMICONDUCTOR DEVICES.....	76
23. Semiconductors.....	76
23.1 Covalent Bonds.....	77
23.2 Thermal Activation.....	78
23.3 Holes.....	79
23.4 Intrinsic Conduction.....	80
24. Conduction Control.....	82
24.1 p-n Junctions.....	84
24.2 Rectification.....	85
25. The Bell Solar Battery.....	86
26. The Junction Transistor.....	89
26.1 Use of the Transistor as an Amplifier....	92
26.2 The Transistor in Oscillating Circuits....	95
26.3 n-p-n Transistors.....	96
<i>Chapter 8</i> DESIGN AND CONSTRUCTION.....	97
27. Getting Started on Design.....	97
27.1 Designing the Inductor.....	98
27.2 Designing the Capacitor.....	99
27.3 Winding Device.....	100
27.4 The Art of Winding.....	101
27.5 Constructing the Inductor-Transformer..	102
27.6 Construction of the Capacitor.....	102
28. Construction Notes.....	106
28.1 Transistor Socket.....	106
28.2 Fahnestock Clips.....	106
28.3 Leads.....	106
28.4 Completing the Circuit.....	106
<i>Chapter 9</i> YOUR SUN TO SOUND OSCILLATOR.....	108
29. Conclusion.....	108
29.1 Investigation.....	108
29.2 Experiments.....	109
Appendix I Glossary.....	111
Appendix II Answers to Problems and List of Symbols..	114
Appendix III Bibliography.....	116

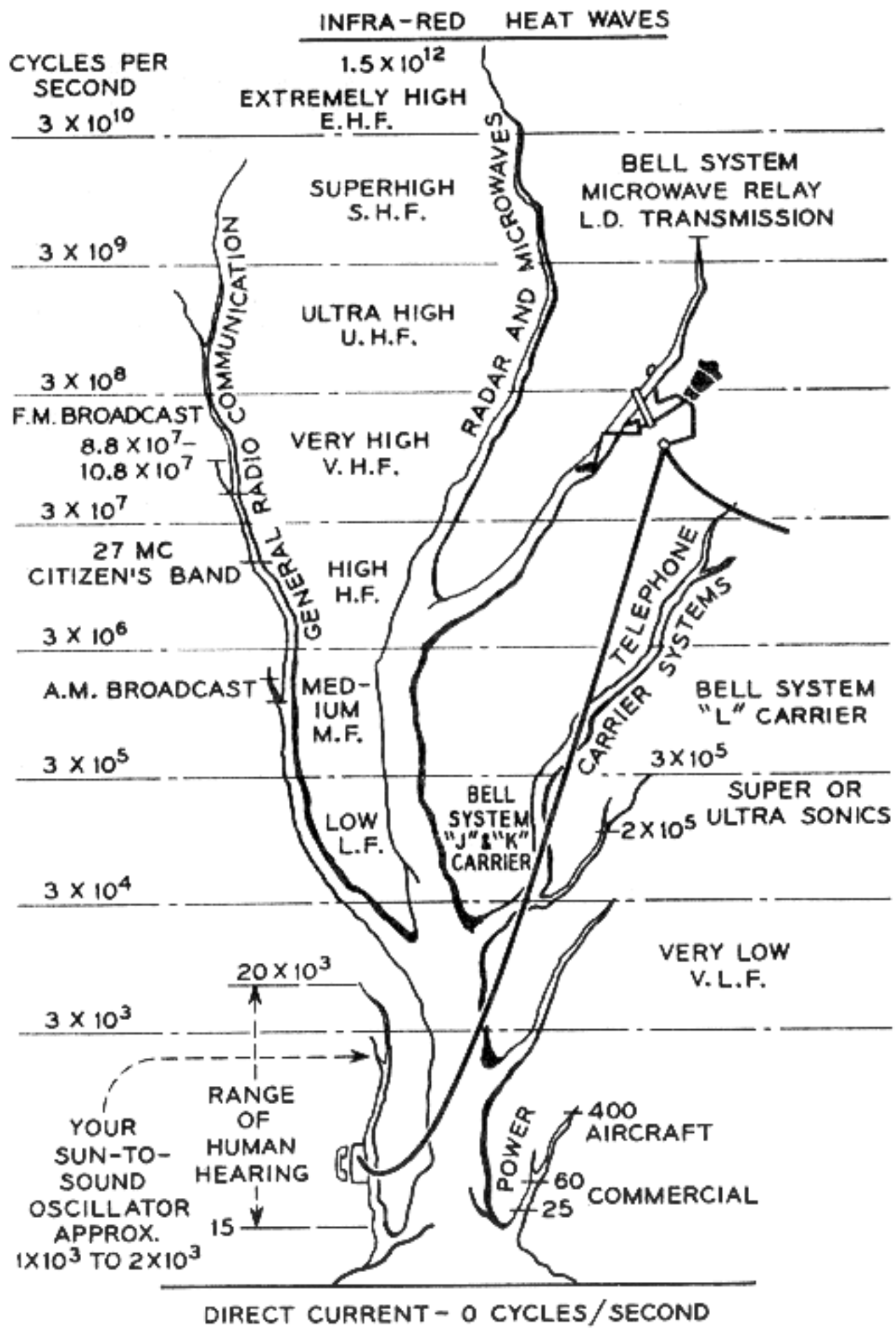
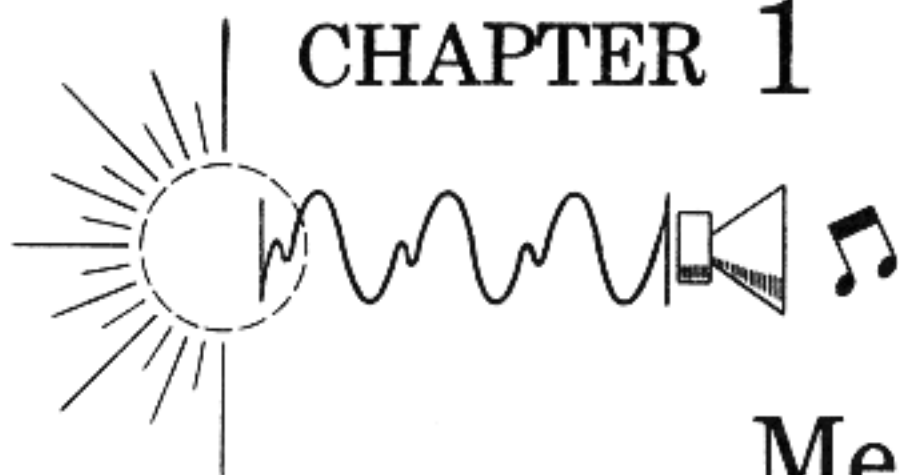


FIGURE 1-1. Frequency spectrum.

CHAPTER 1



Meet the Oscillator

1. THE BELL SYSTEM SCIENCE KIT

Your Bell Telephone Company is pleased to give you this Science Kit, which includes this booklet and most of the materials for



constructing an electronic oscillator circuit. Powered by a Bell solar cell, this circuit includes a Western Electric Company transistor which feeds a signal to an earphone to produce an audible tone. With this Science Kit you can carry out a real laboratory project in which you will learn many fundamental facts about energy

conversion, oscillators, transistors and electronic theory.

This is not a "do-it-yourself" kit of the type that merely requires connecting parts together according to instructions. You will study basic theory, solve problems, and perform simple experiments. Then you will design and build the oscillator. The oscillator will be entirely of your making. You will find this type of project much more rewarding than if you followed an already laid out step-by-step procedure. We are sure you will enjoy your personal achievement in this field of theoretical and practical electronics.

2. THEORY

So that you will be completely prepared for each step you take in