

CONTENTS

	Page
Preface	v
Chapter I. Introductory Remarks	1
A. Atomic Emission Standards Presented in Chapter II	1
Atomic Emission Standards of Argon	2
Atomic Emission Standards of Neon	4
Atomic Emission Standards of Krpton	4
Atomic Emission Standards of Xenon	6
B. Molecular Absorption Standards between 1.5 and 16 μ Presented in Chapter III	7
C. Molecular Absorption Standards in the Far Infrared at Wavelengths Longer Than 16 μ Presented in Chapter IV	9
D. Summary of Available Absorption Standards in the Infrared	10
Chapter II. Infrared Emission Standards	11
Argon λ 9650Å-3.95 μ	12
Neon λ 2.0-2.6 μ	50
Krypton λ 4.0-1 μ	52
Xenon λ 1-4 μ	68
Chapter III. Molecular Absorption Standards in the Near Infrared	85
Chapter IV. Absorption Standards in the Far Infrared	143
Pure Rotational Lines of Water Vapor in the Region 16-200 μ (600-50 cm^{-1})	144
Vacuum Wave Numbers (cm^{-1}) for the Pure Rotational Lines of C ¹² O ¹⁶ , N ₂ ¹⁴ O ¹⁶ , and HC ¹² N ¹⁴ Molecules	148
Chapter V. Techniques Employed for Wavelength Calibrations in the Infrared	149
A. Introductory Comments	149
B. Grating Constant Method of Determining Spectral Positions	150
C. Modern Gratings and High-Resolution Infrared Spectra	150
D. Use of a "Wedge Scanner" with an Infrared Spectrograph	152
Determination of Dispersion $d\nu/dr$ versus ν	156
E. Coarse Echelles	157

	Page
F. Recorders Employed with High-Resolution Infrared Spectrographs .	158
Use of a Single-Pen Recorder	158
Use of Double-Pen Recorders	160
Use of Atomic Lines As Wave Number Markers	162
Coarse Echelles and Double-Pen Recorders (Use of Absorption Lines As Wave Number Markers).	163
Grating Drive	165
Measurement of Records of Infrared and Calibration Spectra . .	168
G. The Use of Computer Programs	173
Experimental Setup	173
Basic Observational Data	174
Computational Procedure	174
Additional Observational Data on Chart A	176
Concluding Comments	176
Appendix I. Conversion of Wavelengths in Air to Wave Numbers in Vacuum and Vice Versa	177
Appendix II. Molecular Constants Used in Obtaining "Calculated" Values of the Rotational Lines of the Bands Listed in Chapter III.	181
Appendix III. First Order Wave Numbers of Molecular Absorption Standards for Coarse Echelles	183