

# Foreword

The applications for quartz crystals have grown from the early days in frequency standards and in amateur radio communications to the present wide spectrum of applications.

This Handbook will enable you to understand the importance of quartz crystals for frequency control, selectivity and other applications using quartz.

These devices, the heart of communication systems, are a real necessity in our fast moving time. This book on quartz crystal devices will give you an understanding of the electrical-mechanical function of quartz with its limitations, along with fabrication techniques that will cover precision X-ray, grinding, polishing, vapor deposition, mounting techniques, encapsulation, and measurement systems.

Dr Salt provides information in the Handbook for guidance in specifying quartz devices to meet the application best suited for the design engineer. Since quartz crystals at present cover a wide range of frequency control from a few parts in  $10^9$  ageing and as much as  $10^{14}$  short-term stabilities, it is important that design engineers understand the complexities of manufacture and the limitations of quartz. This will allow the engineer to specify more intelligently for his application, performance, and economic advantage.

Dr Salt's book will be most welcome to design engineers.

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