Speech subject： Applied Reliability for Mobile and Auto Products

Speech leader: Ma Huicai, Director of Design for Reliability Department, Beijing Xiaomi Mobile Software Co., Ltd

Speech Description/Objective:

With the annual increase in thermal power consumption of System-on-Chip (SOC), the risks of thermal fatigue reliability are becoming increasingly prominent. At the same time, the miniaturization and thinning trend of PCBA (Printed Circuit Board Assembly) have undoubtedly exacerbated the challenges in drop reliability performance of board-level components. Driven by the wave of new energy and intelligence, automotive electronic products are facing severe tests in terms of component reliability and lifespan under high-load working environments. These key factors together constitute major technical obstacles in the reliability design process for mobile and auto products. In this presentation, I will comprehensively introduce our active exploration and efforts in addressing these challenges from multiple dimensions, including PCBA reliability design, reliability model construction, material optimization, and reliability design of advanced packaging. Furthermore, I will also conduct an in-depth analysis and outlook on the new opportunities and development trends in reliability design for both the consumer electronics and automotive electronics sectors.

Speech Outline:

- Reliability challenges in mobile and auto products
- Establishment of reliability design systems and solutions
- New opportunities and developments in reliability design

Who Should Attend:

This presentation is applicable to researchers and professionals in the field of automotive electronics and consumer electronics product reliability, mainly covering technologies such as PCBA reliability design, failure rate risk assessment, failure analysis, and component packaging reliability design.

Introduction of Speaker:

Dr. Ma possesses many years of extensive research experience in the fields of PCBA and chip reliability design. He obtained his doctoral degree from the Institute of Metal Research, Chinese Academy of Sciences in 2017. Currently, Dr. Ma serves as the Director of the Design for Reliability Department at Beijing Xiaomi Mobile Software Co. Ltd, where he leads the team in conducting deep research and practice across multiple key areas, including reliability design of PCBA for mobile phones and automotive electronic products, failure analysis, and component packaging design. His work encompasses a comprehensive range from theoretical exploration to practical application, making significant contributions to enhancing the reliability of electronic products.