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Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 39, *Sustainability, IT & Data Centres*.

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Introduction

The growth of the Internet of Things (IoT) has resulted in the storage of increasingly large amounts of data in data centres and the increased utilization of this data by technologies such as artificial intelligence (AI). As a result, energy consumption of data centres is also increasing. In this recent utilization of large amounts of data by technologies such as AI, various kinds of data are combined and analysed, and processing requests for such combinations and analysis are also increasing. Middleware, such as a database management system (DBMS), is also becoming more important for this data utilization. The energy effectiveness of application platforms can be greatly improved through the selection of middleware.

In addition to improving the energy effectiveness of target IT equipment itself, it is necessary to improve application platform energy effectiveness by choosing an optimally energy-effective combination of target IT equipment, operating systems and middleware.

Although there are several KPIs for the energy effectiveness of target IT equipment itself (for example, ISO/IEC 30134-4, ISO/IEC 21836), there have previously been no KPIs for energy effectiveness to calculate the energy effectiveness of a combination of target IT equipment, operating systems and middleware. This document, therefore, introduces a KPI for the energy effectiveness of an entire application platform. A typical use case of application platform energy effectiveness (APEE) is a criterion for procuring an energy efficient application platform for an IT service.

This KPI provides assistance in selecting an optimal application platform for energy effectiveness. This KPI does not apply to the energy effectiveness of an entire data centre. The colloquial term of "efficiency" is commonly used in regional programmes and "effectiveness" can be referenced as "efficiency" in those programmes.