American National Standard
for Telecommunications –

Integrated Services Digital Network (ISDN) – Performance Parameters and Objectives

1 Purpose and scope

The purpose of this standard is to define a comprehensive basis for assessing the performance of Integrated Services Digital Networks (ISDNs) providing telecommunication service in accordance with the American National Standards and ITU-T Recommendations identified herein. This standard:
(a) defines parameters that may be used to describe the performance of ISDN bearer services and (b) specifies worst-case objectives for the ISDN performance parameters. The parameters and objectives are applicable to circuit mode and packet mode ISDN bearer services. Unless noted otherwise in this standard, the defined parameters and specified objectives apply to ISDN services using a single B channel and/or D channel; planned revisions to this standard will address other ISDN bearer services (e.g., $n \times 64$ kbit/s). Practical methods for measuring ISDN parameter values will be specified in a planned supplement to this standard.

For each ISDN bearer service, performance is considered in the context of the 3×3 performance matrix defined in *American National Standard for Information systems – Data communication systems and services – User-oriented performance parameters,* ANSI X3.102-1992 (see figure 1). Three protocol-independent data communication functions are identified in the matrix: access, user information transfer, and disengagement. Each function is considered with respect to three general performance concerns (or "performance criteria"): speed, accuracy, and dependability. This standard defines a comprehensive set of primary parameters that describe performance relative to each function and criterion. The objectives specified for the primary parameters apply only to connections in the available state. A two-state model provides a basis for describing overall service availability. A specified availability function compares the values for a set of "supported" primary parameters with corresponding outage thresholds to classify the service as "available" (no service outage) or "unavailable" (service outage). This standard specifies the availability function and defines the availability parameters that characterize the resulting binary random process.

The parameters defined in this standard may be used to specify or measure the performance of end-to-end ISDN connections or connection portions. This standard defines two general ISDN connection portion types: access portions and transit portions. These portions are delimited on the basis of jurisdictional boundaries between carriers and corresponding jurisdictional boundaries between carrier facilities and customer premises equipment. This standard defines worst-case objectives for each portion type. The measurement methods that will be defined in a supplement to this standard will be applicable in direct measurements at the defined jurisdictional boundaries or may be used to estimate performance at jurisdictional boundaries on the basis of observations made at adjunct functional boundaries (e.g., switch locations), taking account of known characteristics of the access or transit links that connect equipment in separate jurisdictions.