

1.1 Early Software Problem Report Measurement (eSPR)

1.1.1 General Description and Title

The early Software Problem Report (eSPR) measurement tracks the software problems that are found and reported by customer's early deployment, just after General Availability. The problem reports included in eSPR are a subset of those in NPR (see Section 5.1), but the problem reports shall be also counted, tracked, and reported separately in order to focus effort on addressing the software component of these problem reports early in the deployment cycle.

1.1.2 Purpose

The measurements in this section are provided to aid the customer and the organization in understanding the quality of software that is deployed in the field and the risk of introducing a software fault into their network.

This measurement is used to evaluate the number of customer originated software problem reports that are indicative of the software quality of the product delivered during the early part of the operating life cycle of that product. Software problem reports may have a negative impact on the organization (such as rework), on the customer (such as scheduling repeat site visits), and may reduce end-user loyalty. This measurement is intended to stimulate ongoing improvements resulting in a reduction of the number of software problem reports, associated costs, and potential revenue losses.

1.1.3 Applicable Product Categories

This measurement applies to product categories as shown in the Measurement Applicability Table (Normalization Units), Appendix A, Table A 2.

1.1.4 Detailed Description

a) Terminology

- eSPR-Period: The eSPR period includes the month in which a software release is declared GA plus the eleven following months.
- eSPR-Customer: A customer that has reported at least 1 software problem report within the eSPR-Period for that software release.

The Glossary includes definitions for

- Afactor (Annualization Factor)
- General Availability Phase
- Normalization Factor
- Problem Report
- Problem Report – Critical
- Problem Report – Major
- Problem Report – Minor
- Software Problem Report
- Software Release
- Software Update

b) Counting Rules

The counting rules in section 5.1.4 b) of the current TL 9000 Measurements Handbook apply in counting software problem reports for the eSPR measurement for all product categories, with the following clarifications:

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- 1) Only software problem reports that are reported during the eSPR-Period shall be counted.
- 2) For the purposes of eSPR reporting, a software problem reported in a software release or a subsequent software update for that release shall be attributable to the software release.
- 3) In cases where the software release or software update cannot be determined, the software problem report shall be attributed to the most recent software release.
- 4) Problem reports where the reported problem is suspected to be software related but cannot be reproduced during subsequent investigations shall be counted.
- 5) Duplicate software problem reports from the same customer for the same release or a subsequent software update shall be counted as a single problem report in the first month in which the problem is reported.
- 6) For the eSPR denominator, customers are only counted if they have reported at least 1 software problem report for the release (within the eSPR-Period)

c) Counting Rule Exclusions

The counting rule exclusions in section 5.1.4 c) of the current TL 9000 Measurements Handbook apply in counting software problem reports for the eSPR measurement for all product categories, with the following clarifications:

- 1) A problem report that is determined to be a hardware problem shall not be counted even if the design solution or workaround is implemented in software.
- 2) Problem reports due to faults in input data are excluded.
- 3) Software problem reports against a software release or associated software update that fall outside of the eSPR-Period for that software release are excluded.
- 4) If the organization cannot confirm the exact software release or software update to which the problem report is reported, but the organization knows that the defect in question has already been fixed in all software releases or software updates that were released in the previous 12 months, then the problem report in question is excluded.
- 5) A problem report reported after a software release is withdrawn or no longer supported is excluded.

d) Calculations and Formulas

The applicable eSPR measurements are calculated monthly as shown in Table 1.1-3.

Table 1.1-1 eSPR Notation

Identifier	Definition
afactor	Number of calculation periods in a year
eSPs	Total number of customers that have reported software problems for each distinct software release(s) or associated software updates since the start of the software release's eSPR-Period.
eSp1	Total number of Critical software problems reported for the month for software releases within their eSPR-Periods
eSp2	Total number of Major software problems reported for the month for software releases within their eSPR-Periods
eSp3	Total number of Minor software problems reported for the month for software releases within their eSPR-Periods

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Table 1.1-2 eSPR Measurement Identifiers and Formulas

Identifier	Title	Formula
eSPR1	Critical early software problem reports per customer-release	$eSp1 \times Afactor / eSPs$
eSPR2	Major software problem reports per customer-release	$eSp2 \times Afactor / eSPs$
eSPR3	Minor software problem reports per customer-release	$eSp3 \times Afactor / eSPs$

e) Reported Data and Format

- 1) The eSPR measurement shall be reported by summing software problem reports for each active software release (which includes its associated updates) each month within the 12-month calculation period.
- 2) The eSPR denominator is the total number of customers that have reported software problems for each distinct software release(s) or associated software updates since the start of the software release's eSPR-Period up to and including the reporting month.

Table 1.1-3 eSPR Data Table

Identifier	Value
MeasurementID	eSPR
eSPa	Afactor
eSPs	Normalization Factor
eSp1	Number of critical early software problem reports
eSp2	Number of major early software problem reports
eSp3	Number of minor early software problem reports

1.1.5 Sources of Data

Data for the eSPR measurement are derived from information provided by customers and from analysis by the organization.

- a) Customers
 - 1) report software problems to the organization,
 - 2) confer with the organization to establish severity of each problem report on products in Product Categories 1, 2, 3, 4, 5, 6, and 9.
 - 3) confer with the organization to establish the software release or software update of each problem report
- b) Organizations
 - 1) count number of reported software problems by product category according to the applicable counting rules,
 - 2) calculate the normalization factor based on the rule noted in Section 1.1.4 e) 2) above.
 - 3) confer with the customer to establish severity for each problem report on products in Product Categories 1, 2, 3, 4, 5, 6, and 9.
 - 4) confer with the customer to establish the software release or software update of each problem report

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1.1.6 Examples

Examples for applying the eSPR measurement are contained in the associated file located on the TL 9000 website (tl9000.org/links.html).

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