

**Quality Excellence for Suppliers of  
Telecommunications Forum  
(QuEST Forum)**

**TL 9000  
Quality Management System  
Measurements Handbook  
NPR Examples**

## 5.1 NPR Examples

In all product categories data are collected and reported over defined time periods. Normally data is collected and reported by the month but TL 9000 also allows data to be collected and reported in certain other pre-defined time periods. The time period of collection is reported with the data in the annualization factor, NPRa, the number of reporting periods in a year. For data collected and reported monthly the annualization factor is 12, the number of months in a year. The permitted time periods for collecting and reporting data are listed in the definition of Annualization Factor in the Glossary.

### 5.1.1 – NPR for Product Categories 1, 2, 3, 4, 5, 6, and 9

Problem reports in this category are classified according to severity of impact on the customer (see counting rule 5.1.4 b) 8)). NPRs is the number of normalization units that could be the source of a problem report. The normalization unit (NU) for each product category is defined in Appendix A, Table A-2.

- 1) Consider one month's data for an organization of a particular operational support system (OSS). There are 30 systems in service during the entire month and NU is "systems." The organization received no critical, 3 major and 45 minor problem reports during the month on this product.
- 2) The data reported is shown in Table 5.1.1-1.

**Table 5.1.1-1 NPR Data Table Report for Product Categories 1, 2, 3, 4, 5, 6, and 9**

Identifier	Value
MeasurementID	NPR
NPRa	12
NPRs	30
Np1	0
Np2	3
Np3	45

- 3) The measurement calculation result is shown in Table 5.1.1-2.

**Table 5.1.1-2 NPR Source Data and Measurement Calculations for Product Categories 1, 2, 3, 4, 5, 6, and 9**

Problem Reports	Severity	Afactor	Normal-ization Units	NPR Measurement Result – Problem Reports per system per year
Np1 = 0	Critical	12	30	NPR1 = 0
Np2 = 3	Major	12	30	NPR2 = 1.2
Np3 = 45	Minor	12	30	NPR3 = 18

The calculation for NPR2 is

$$NPR2 = 3 \times 12 / 30 = 1.2 \text{ problem reports per system per year.}$$

### 5.1.2 – NPR for Service Products (Product Category 7)

- 1) Consider one month's data for an organization of a particular maintenance service. There are 200 units maintained during the entire month and NU is "units maintained." The organization received 30 problem reports pertaining to this service during the month.
- 2) The data reported is shown in Table 5.1.2-1.

**Table 5.1.2-1 NPR Data Table Report for Product Category 7**

Identifier	Value
Product Category	7.3
MeasurementID	NPR
NPRs	200
Np4	30

- 3) The measurement calculation results is shown in Table 5.1.2-2. Note that problem reports in product category 7 are not annualized.

**Table 5.1.2-2 NPR Source Data and Measurements for Product Category 7**

Problem Reports	Normalization Factor	NPR Measurement Result – Problem Reports per system per month
Np4 = 30	200	NPR4 = 0.15

The calculation of NPR4 is  $30 / 200 = 0.15$  problem reports per maintained unit per month.

### 5.1.3 – NPR for Product Categories 8

- 1) Consider one month's data for an organization of high-complexity printed circuit board assemblies, product category 8.2.3. The NU is "units shipped" meaning the number of units shipped in the 12 months prior to the reporting month are counted and reported. There were 500,000 units shipped during the twelve months prior to the report month. The organization received 40 problem reports during the month. This includes problem reports on product shipped prior to the 12-month period used to determine the normalization unit quantity.
- 2) The data reported is shown in Table 5.1.3-1.

**Table 5.1.3-1 NPR Data Table Report for Product Category 8**

Identifier	Value
Product Category	8.2.3b
MeasurementID	NPR
NPRa	12
NPRs	500,000
Np4	40

- 3) The measurement calculation result is shown in Table 5.1-12.

**Table 5.1.3-2 NPR Source Data and Measurements for Product Category 8**

<b>Problem Reports</b>	<b>Afactor</b>	<b>Normalization Factor</b>	<b>NPR Measurement Result – Problem Reports per system per year</b>
Np4 = 40	12	500,000	NPR4 = 0.00096

The calculation of NPR4 is  $40 \times 12 / 500,000 = 0.00096$  problem reports per system per year.

**5.1.4 – Use of Fiscal Months**

If the data in example 5.1.3 were collected over a four-week fiscal month instead of a calendar month then the Afactor, annualization factor, is 13 and

$$\text{NPR4} = 40 \times 13 / 500,000 = 0.00104$$

Since the data is collected over a shorter period of time than the example in 5.1.3, the number of problem reports per system per year is higher.