TL 9000 Measurements Handbook, Release 5.0

Changes from Release 4.5

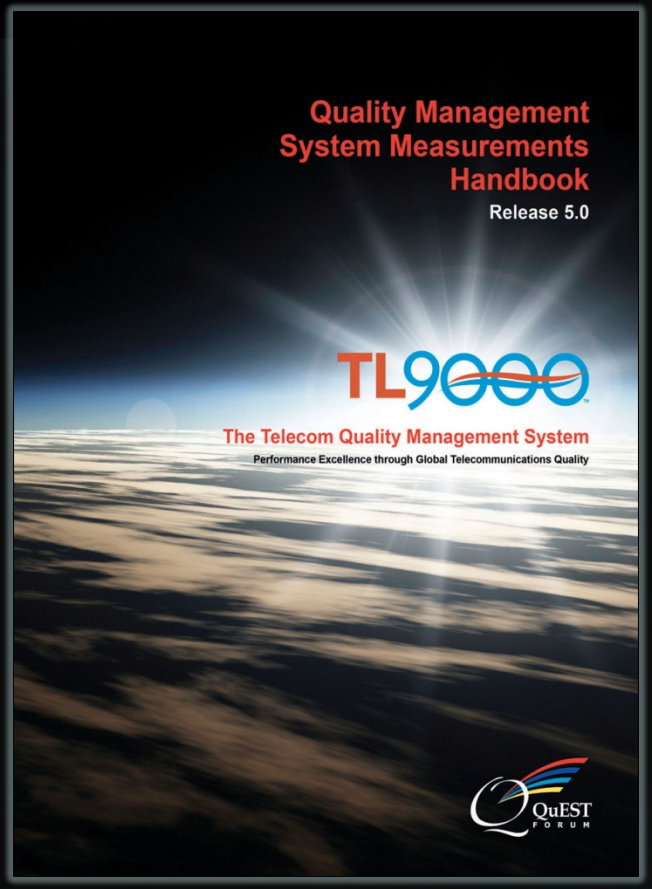
Measurements Handbook Changes R4.5 to R 5.0

Overview

- Input from Sub-teams and Initiatives tasked with developing material for the Measurements Handbook
  - ITIL Language
  - KPI Enhancement
  - Network and Service Reliability
  - Measurements for Next Generation Networks
  - Service Provider Requirements and Measurements
- Incorporates clarifications to measurements
- Five new measurements

Current Status

- Available for Purchase Now
- Effective – 12/31/2012
- Can use – Jan. 2013 data
- Must use – Jul. 2013 data



New Measurements

- On Time Delivery to Promise Date (OTIP)
- Basic Return Rate (BRR)
- Mean Time to Restore Service (MTRS)
- Global Service Impact (GSI)
- End-Customer Complaint Report Rate (CCRR)

On Time Delivery to Promise Date (OTIP)

$$= \frac{\text{\# of line items delivered on time to promise date}}{\text{\# of lines items with promise date in month}} \times 100\%$$

- Same basic rules as OTI
- Added because of failure of organizations to consistently meet their promise dates especially for wireless network products
- Applies to products in families 1-6 and 8

Mean Time to Restore Service (MTRS)

$$= \frac{\text{total outage minutes}}{\text{total number of events}}$$

- Two measures – critical and non-critical service disruptions
- Applies to category 7.3.2 Network Operations Center
- Primary measure of performance for NOC's

Global Service Impact (GSI)

$$= \frac{\text{Service minutes outage}}{\text{Total service minutes possible}} \times 10^6$$

- Is a true unavailability number
- Same basic data elements as SO
- Applies to certain End-customer product categories – family 9
- Key network level customer performance measure

Basic Return Rate (BRR)

$$= 100\% \times \text{Afactor} \times \frac{\text{number of returns}}{\text{number of units shipped}}$$

- Single measure instead of the four in FR
- Basis period of 18 months from original shipment
- Used for products where tracking of return rate past installation and early use is not practical or necessary
- Transmission sub-systems, Antenna Systems, Physical structure, CPE, Contract manufacturing, Subassemblies and certain optical devices

End-Customer Complaint Report Rate (CCRR)

$$= \text{Afactor} \times \frac{\text{number of customer complaints}}{\text{number of normalization units}}$$

- NU basically the number of users
- Broken down by technical and non-technical complaints
- Applies to certain end-customer product categories – family 9
- Most end-customers are looking for an immediate answer to their complaint and not a long term process change


Section by Section Changes

Section 1

Introduction

- Noted that the Bibliography also contains the end note references

Section 2

Structure

No changes

Section 3

Measurements, Processing, Usage and Responsibilities

- **3.2 a) pointed out that the organization's registration options (H, S, and/or V) also determine the measurements that are to be reported, along with product category**
- **3.4.2 clarified that all good data received from customers should be used regardless of format**
- **3.4.2 clarified that the information on which customer's data was included in a data submittal must be kept for the two year data period**
- **3.4.2 pointed to 4.2.8 on exemptions if there is no usable customer data**

Section 3 (cont.)

- **3.5.2 k) modified to require data resubmittal if there is a material difference in the correct data. Material difference is defined as plus or minus 1%**
- **New 3.5.2 l) – "resubmit corrected data no later than the 2nd data submission after identifying the problem when it is determined that a data resubmission is required"**
- **New 3.5.2 m) – "investigate any advisories received on their submitted data, correct any data errors found, and resubmit data as appropriate"**

Section 3 (cont.)

- New 3.5.2 note – "NOTE: For those organizations using automated data collection systems, validation of the data collection system is not required on a monthly basis. However, if there is any manual input of data to or from the automated system, the Organization is still required to verify the data values."

Section 3 (cont.)

- New Section 3.6.1 Information and Resources – points out key documents and resources on the tl9000.org/links.html page and in the supplemental measurements library - Tl9000.org/resources/sup_measurements.html

Section 4

General Measurements Requirements

- 4.1.1 Conformance to Measurements Profile - Added specification that at least one month of data must be submitted using the new Handbook when upgrading to a new revision
- Table 4.1-1 R 5.0 recommended for use in January 2013 and mandatory from July 2013

Section 4 (cont.)

- 4.2.3 Changed Title from “Use of Fiscal Periods and Calendar Days” to “Reporting Periods” and added:

  “The term ‘month’ throughout this handbook refers to the reporting period for the data, whether calendar or fiscal.”

Section 4 (cont.)

- 4.2.8 clarified that since the organization should have all of the data needed to report them, NPR, FRT, OFR, OTD, SFQ, SPR, and SQ may not be exempted
- 4.2.8 added the requirement to identify any claimed measurement exemptions in the TL 9000 profile field provided for this purpose
- 4.2.8 introduced a new term to be used in the data submittal, “Combined”, for use when an organization makes multiple submittals in the same product category. “Combined” is used when the required data is contained in one of the other submittals

Section 4 (cont.)

- 4.2.9 introduced a new term to be used in the data submittal, “Proxy-xxxx”, for use when an organization makes multiple submittals in the same product category across two or more registrations. “Proxy-xxxx” is used when the required data is contained in submittal under another registration ID. “xxxx” is the number of the other TL 9000 registration ID.

Synchronization with ITIL Terminology

- Through out the R5.0 Handbook changes have been made to synchronize the terms and phrasing to be consistent with ITIL terminology.
- Key concepts –
  - Difference between a TL 9000 problem report and an ITIL incident
  - Restoration used to indicate immediate action taken to restore service
  - Resolution used to indicate successful delivery of a long term fix

Incident

- An unplanned interruption to a communication service or reduction in the quality of a service, or an event or condition that has not yet impacted service or functionality of the network element. Every customer request for service is counted as an incident. Incident reports related to a product or process defect may also qualify as a TL 9000 problem report. An incident may lead to a loss of service that qualifies as a TL 9000 reported outage.

Section 5.1

Number of Problem Reports (NPR)

- **5.1.2 Purpose - Although it is covered in the definition of a problem report, clarified reports to be counted include those on the processes associated with the product**
- **Added –** "The measurement does not include all customer calls or reported incidents. Only problem reports meeting the definition in the Glossary are evaluated for inclusion in the measurement, subject to the defined counting rules and exclusion rules."

Section 5.1 (cont.)

- **5.1.4 a) - Added to terminology list here and in 5.2 and 5.3:**

Incident

Resolution

Restoration

Section 5.1 (cont.)

- **5.1.4 b) 9)**

  "Problem reports shall be counted in the severity classification as outlined in 5.1.4 b) 8) ~~in effect~~ at the time the data are calculated for reporting to the TL 9000 Administrator. When reporting to the customer, the severity classification in effect at the time the data are calculated for the customer report shall be used."

Section 5.1 (cont.)

- **5.1.4 b) 10)**

Temporary fixes such as temporary patches or workarounds are frequently used to restore service or operation following an incident due to a critical problem. The official fix to resolve the problem is often developed under a subsequent or "follow up" major or minor problem report that references the original critical problem report. A critical problem report of this type shall not be reclassified and shall be reported as a critical problem report. The subsequent major or minor problem report shall not be counted in NPR, but it is included in Problem Report Fix Response Time (FRT) and Overdue Problem Report Fix Responsiveness (OFR) measurements. In other words, the restoration of service or operation does not reduce the criticality of the problem report for the purpose of the NPR measurement

Section 5.1 (cont.)

- 5.1.4 c)
  - Split the existing list of exclusions into those items that are excluded because they are not TL 9000 problem reports (former items 1 through 6) and those that are problem reports but are excluded for a specific reason (former items 7 & 8)
  - Added a new exclusion condition for - “a report for which there is a fix available at no cost and the customer has decided not to deploy the fix.”

Section 5.1 (cont.)

- 5.1.4 d)
  - NPRs definition changed to note that the normalization unit count to be reported is the count at the end of the calculation period.
    - Not clear for many categories when the count was to be made
    - Note this shifts the time period for those categories where the normalization factor contains the word “shipped.” Was 12 months prior to the report month, now 12 months including the report month.

Section 5.1 (cont.)

- 5.1.4 e)
  - Changed reference to the MRS to the TL 9000 Administrator here and throughout the Handbook

Section 5.2

Problem Report Fix Response Time (FRT)

- 5.2.1 General Description and Title – simplified and clarified the wording.
- 5.2.2 Purpose – added:

  "This measurement does not reflect responsiveness to service or operation restoration requests for reported incidents."

Section 5.2 (cont.)

- 5.2.4 b) 3) noted that if a problem report is reopened, the excessive delay rule 5.2.4 b) 7) still applies.
- Several minor wording changes to consistently refer to resolving problems and restoring service

Section 5.3

Overdue Fix Responsiveness (OFR)

- 5.3.1 General Description and Title – clarified wording and standardized wording:
- "Overdue Problem Report Fix Responsiveness (OFR) measures the responsiveness to customer-originated problem reports that are not fixed on time according to the counting rules for ~~fail to meet~~ the Fix Response Time measurement."

Section 5.4

On Time Delivery (OTD)

- 5.4.2 Purpose - Replaced – “This includes new installations, additions and changes to existing services, and cessation of service, that is, responding to an order of any kind from the customer. “

  With – “The OTD measurement covers on-time delivery performance for any customer-initiated product order.”

Section 5.4 (cont.)

- 5.4.4 a) Terminology – because they apply only to section 5.4 and are fully defined here removed the following from the terminology and the glossary:

  On Time Item Delivery

  On Time Service Delivery

Section 5.4 (cont.)

- Added On Time Item Delivery to Promise (OTIP)
  - Applies to product category families 1-6 and 8
  - Basic rules same as OTI except measure to promise date instead of customer requested delivery date
- 5.4.4 b) 3) removed restriction that changes to the delivery window must be made in advance.
- 5.4.4 b) 4) Early order completions - changed "authorized by the customer" to "agreed to by the customer." Again removes implication that the agreement had to be made in advance.

Section 6

Outage Measurements

- 6.0.1 Purpose – added:

  "The Outage Measurements must not be confused with Incident Restore Time, as incidents do not necessarily cause service or network element outages. The outage measurements do focus strictly on cases that result in unavailability of the provided service or functionality."

Section 6 (cont.)

- 6.0.1 Purpose – added:

  "The SO and SONE measures include outages attributable to both the customer and the product. The intent of the inclusion of customer-attributable outages is to help identify areas where the causes of repetitive customer-attributable outages might be alleviated by enhancements to the product design."

Section 6 (cont.)

- 6.0.1 Purpose – added:

  "Note: All of the Outage measurements are independent. The evaluation of an outage event for inclusion in the reporting of a given measurement is done separately for each measurement. The inclusion of an event in one measurement does not preclude it from being reported in another outage measurement."

Section 6.1

Service Impact Outage Measurement (SO)

- 6.1.4 b) 4) – replaced reference to rule 8 (was 7) concerning excessive delays and set a six month period for the customer to deploy a fix or other time period as mutually agreed to.
- New 6.1.4 b) 5) – "An outage shall be classified as product attributable if no cause can be determined."

Section 6.1 (cont.)

- 6.1.4 b) 8) – formerly 7 –
  - replaced wording on “outage resolution” with “restoration of service”
  - Added – “NOTE: See “NSPRC Guidelines on the Distribution of Duration Time” for guidance in determining excessive time. The document is available on the TL 9000 web site (http://tl9000.org/links.html).”

Section 6.1 (cont.)

- 6.1.4 b) 9) – formerly 8 – delays caused by inability to access the product due to reasons beyond the customer's control are counted as external-attributable outages for product category families 1-8. The rule no longer applies to family 9
- 6.1.4 c) 6) – external-attributable outages are included in the all causes outage data for product category family 9

Section 6.1 (cont.)

- 6.1.4 d) Table 6.1-1 – SOs total count of the normalization units is now as of the end of the month

- 6.1.5 c) – Added: “The use of the Standard Outage Template System (SOTS) for collecting outage data is encouraged. Information on SOTS is available on the TL 9000 website (http://tl9000.org/links.html).”

Section 6.2

Network Impact Outage Measurements (SONE)

- 6.2.4 b) 1) – included new rule 6.1.4 b) 5) in the list of rules from 6.1 also applicable in 6.2
- 6.2.4 d) Table 6.2-1 – NEOs is now the total count of the network elements in service as of the end of the month
- 6.2.5 c) – added same note on SOTS as in 6.1.5 c)

Section 6.3

Support Service Outage Measurement (SSO)

- Removed unnecessary wording in 6.3.1 and 6.3.3
- Synchronized wording with ITIL language in 6.3.3
- 6.3.4 c) 1) – updated list of rules from 6.1.4 c) to reflect changes in the rule numbering. No changes to the actual rules that apply.

Section 6.4 - new

Mean Time to Restore Service (MTRS)

$$= \frac{\text{total outage minutes}}{\text{total number of events}}$$

- Two measures – critical and non-critical service disruptions
- Applies to category 7.3.2 Network Operations Center
- Primary measure of performance for NOCs

Section 6.5 - new

Global Service Impact (GSI)

$$= \frac{\text{Service minutes outage}}{\text{Total service minutes possible}} \times 10^6$$

- Is a true unavailability number
- Same basic data elements as SO
- Applies to certain End-customer product categories – family 9
- Key network level customer performance measure

Section 7

Hardware Measurements - Field Replaceable Units (FR)

- Added Basic Return Rate (BRR) section 7.2
- Added: 7.0.1 Purpose – "This section contains return rate measurements for two types of products: (1) products whose reliability is tracked throughout their life cycle, and (2) products where returns or requests for replacements can only be tracked during the initial usage of the product."

Section 7.1

Field Replaceable Unit Returns (FR)

- 7.1.1 and 7.1.3 – added words explaining FR applies to product where tracking of return rate throughout the product's life cycle is possible and needed
- 7.1.4 b) 4) – removed no longer applicable note about contract manufacturers
- 7.1.4 b) 8) – removed no longer applicable wording about contract manufacturers

Section 7.1 (cont)

- 7.1.4 b) 9) – rephrased existing text and added:

  "If accurate apportioning is not possible, the organization may apply all the data for that unit to the most appropriate product category."

Section 7.2

Basic Return Rate (BRR)

$$= 100\% \times \text{Afactor} \times \frac{\text{number of returns}}{\text{number of units shipped}}$$

- Single measure instead of the four in FR
- Basis period of 18 months from original shipment
- Used for products where tracking of return rate past installation and early use is not practical or needed
- Transmission sub-systems, Antenna Systems, Physical structure, CPE, Contract manufacturing, Subassemblies and certain optical devices

Section 8

Software Measurements

- 8.0.1 Purpose – removed no longer needed paragraph on administrative units
- Clarified wording in paragraph discussing firmware

Section 8.1

Software Fix Quality Measurement (SFQ)

- 8.1.2 Purpose – deleted redundant sentence "~~Software Fix Quality quantifies the percentage of those fixes that are defective.~~"
- 8.1.4 b) 9) – Changed to:

  "A defective fix shall be counted in the month during which the fix was found defective by the organization."

Section 8.1

- New 8.1.4 e) 5) – “The SFQ measurement is unique because when fixes are declared generally available, it is up to the customer to choose whether or not to install the fix. Therefore, there is no customer specific reporting required due to this complexity of the SFQ measurement.”

Section 8.2

Software Problem Report Measurement (SPR)

- 8.2.4 d) - SPRs definition changed to note that the normalization unit count to be reported is the count at the end of the calculation period.
- 8.2.4 e) 4) – rule about reporting data for all releases deleted as it was not needed.

Section 9

- 9.0.1 (Moved from 9.1.2 and updated) – “This section does not contain all the Service Measurements. Sections 5 and 6 also contain measurements associated with service, such as Problem Reports, Fix Response Time, Overdue Problem Reports, On-Time Service Delivery, Support Service Caused Outages, and Global Service Impact.”

Section 9.1

Service Quality Measurements (SQ)

- 9.1.4 a) Terminology – in glossary

  Defective service transactions

  Service transactions

- 9.1.4 b) reworded – "Organizations are to count the number of defective service transactions (numerators) and total number of service transactions (denominators) per the definitions in Measurement Applicability Table (Normalization Units), Appendix A, Table A-2."

  Wording came from 9.1.5 in R4.5 version.

Section 9.1 (cont.)

- 9.1.4 d) Table 9.1-1

  SQd Number of defective service transactions reported in the month

  SQt Total number of service transactions opened in the month

- 9.1.5 – removed text now in 9.1.4 b) 1)

Section 9.2

End-Customer Complaint Report Rate (CCRR) – new

$$= \text{Afactor x } \frac{\text{number of customer complaints}}{\text{number of normalization units}}$$

- NU basically the number of users
- Broken down by technical and non-technical complaints
- Applies to certain end-customer product categories – family 9
- Most end-customers are looking for an immediate answer to their complaint and not a long term process change

Product Category Table A-1

- Added note to 3.2.2.1.2.3 ROADM that products that start out as SONET/SDH and add WDM capabilities or WDM products that add SONET/SDH capabilities are to be classified in the ROADM category
- Added OTN element as example to 3.2.2.1.2.3 ROADM
- New category 3.2.4.4 for IP DSLAMS

Product Category Table A-1 (cont.)

- Added to the definition of 3.2.5 Fiber to the User – "This includes systems which may provide connections over copper in addition to the fiber connections."
- Modified the definitions of 3.3.2.2 Advanced BTS and 3.3.2.3 4G BTS to include systems with a distributed architecture
- Added Broadcast Service Systems to 6.1 Enhanced Services

Product Category Table A-1 (cont.)

- Added tablet computers to examples for 6.2.1.2.2 Complex (Wireless Subscriber User Terminals)
- Added category 7.6.3 Communications Services Acquisition
- Added cloud computing to examples for 9.6 e-Business and Content Hosting
- Added category 9.9 Emergency Service Network

Product Category Table A-2

- Added new measurements and categories
- Changed normalization units for SO for 3.2.6.2 Analog Video Transmission and 3.2.6.3 Digital Video Transmission from “Video Channels” to “Network Elements”
- Added clarification to notes for SQ for 7.1.1 Installation Services that audits may be conducted on a sample basis
- For 7.3.1 Network Maintenance change from maintenance visits to maintenance actions in several places

Product Category Table A-3

- Modified partial outage definition for 2.2 Common Channel Signaling from “Loss of more than 24 channels or 4 links, whichever is less on the single network element (node)” to "Loss of 10% or more of the links on the single network element (node).” Also added “Total loss of one or more OA&M functions (default weight is 5%)”
- Added new category 3.2.4.4

Glossary

- Added ITIL terms and terms needed for new measures
- Removed:

  Downtime Performance Measurement

  On Time Item Delivery

  On Time Service delivery

Glossary (cont.)

- Changed “Support Service Transaction” to simply “Service Transaction” – same definition
- Annualization Factor (Afactor) is now

  Afactor (Annualization Factor)

Glossary (cont.)

Term - new	Definition
End-Customer	The final customer of a Service Provider.
Incident	An unplanned interruption to a communication service or reduction in the quality of a service, or an event or condition that has not yet impacted service or functionality of the network element. Every customer request for service is counted as an incident. Incident reports related to a product or process defect may also qualify as a TL 9000 problem report. An incident may lead to a loss of service that qualifies as a TL 9000 reported outage.
Incident Restoration	Action to return service or functionality to standard quality operation after being impacted by an incident. Restoration does not necessarily include resolution if the underlying problem.
Outage	Incident that causes the unavailability of service or functionality.

Glossary (cont.)

Term - new	Definition
Resolution	See Official Fix
Restoration	Action to return service or functionality to standard quality operation after being impacted by an incident. Restoration does not necessarily include resolution of the underlying problem.
Service Disruption – Critical	An event that requires immediate, non-stop corrective action, potentially disregarding all other events, until resolution is achieved. Critical Service Disruptions are events that severely affect the primary functionality and/or delivery of a service as defined by the organization's ticketing criteria. Examples include but are not limited to: a) product inoperability (resulting in a total or partial service outage), b) reduction in available traffic/data handling capacity below the minimum level required to handle expected loads, c) any loss of emergency service or function, for example emergency 911 calls, d) events impacting enterprise customers that are deemed a critical priority for service restoration due to the functions that they perform, for example hospitals, airports, police departments, e) identified safety hazards, risks or security breaches impacting the organization's infrastructure and/or its customers, f) events impacting top enterprise or business customers as identified by the organization, or g) events that are escalated internally for immediate action.
Service Restoration	See Restoration

Glossary (cont.)

Term - changed	Definition
Official Fix	A fix made available for general distribution by the organization as the resolution of a problem.
Problem Report	A report from a customer or on behalf of the customer concerning a product or process defect requesting an investigation of the issue and a resolution to remove the cause. The report may be issued via any medium. Problem reports are systemic deficiencies with hardware, software, documentation, delivery, billing, invoicing, servicing or any other process involved with the acquisition, operation, or performance of a product. An incident reported simply to request help to bring back the service or functionality to normal without the intent to investigate and provide a resolution to the cause of the incident is not a problem report.

Glossary (cont.)

Term - changed	Definition
Service – Impact Outage	A failure where end-user service is directly impacted. End user service includes one or more of the following, but is not limited to a) hi-speed fixed access (DSL, cable, fixed wireless), b) broadband access circuits (OC-3+), and c) fixed line voice service, d) narrow band access circuits (T1/E1, T3/E3) e) wireless data service, and f) wireless voice service.
Temporary Fix	A fix that is delivered to a limited number of systems in the field for the purposes of verification or to restore system services on an interim basis. A temporary fix is usually followed by an official fix that resolves the underlying problem.

Thank You!

- Questions?

  Use the Contact Us function on any page of questforum.org or tl9000.org

  (note that the Contact Us function is useful for any question or problem you may have and is continually monitored to ensure a response)