

Release Notes

Note: Before using this information and the product it supports, read the information in “Notices” on page 38.

This edition applies to version 1, release 5, of the IBM Tivoli Netcool Service Quality Manager GSM service solution and to all subsequent releases and modifications until otherwise indicated in new editions.

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1 About this documentation

The *IBM Tivoli Netcool Service Quality Manager GSM Service Solution Release Notes* guide is organized into the following chapters:

Table 1 Guide structure

Chapter	Description
About this documentation	An overview of the Tivoli Netcool Service Quality Manager GSM service solution documentation, which gives details of the intended audience and the structure of the guide.
Release details	Information on functionality provided in the release.
Hardware specification	Details of hardware required for the release.
Software requirements	Details of software required for the release.
Installation	Details on guides to be followed during the installation of the product for the release.
Known issues	Details on known issues included in the release and workarounds, if available.

1.1 Audience

The target audience of this guide is IBM® Tivoli® Netcool® Service Quality Manager GSM (Global System for Mobile Communications) service solution customers. They must be familiar with telecommunication and IT (information technology) principles and must also have a good understanding of Solaris and IBM AIX®.

IMPORTANT: Before installing the Tivoli Netcool Service Quality Manager GSM service solution, you are strongly advised to read the release notes distributed with your Tivoli Netcool Service Quality Manager GSM software. Release notes may contain information specific to your installation. Failure to consult release notes may result in a corrupt, incomplete or failed installation.

Note: Tivoli Netcool Service Quality Manager administrators must not, without prior consultation and agreement from IBM, make any changes to the index organized tables or database schema. Changes to the index organized tables or database schema can result in corruption of data and failure of the Service Quality Manager system. This applies to all releases of Tivoli Netcool Service Quality Manager using all versions of interfaces.

1.2 Required skills and knowledge

This guide assumes you are familiar with the following:

- General IT principles
- UNIX® operating systems
- IP (Internet Protocol) networking
- GSM
- Service Quality Manager modeling concepts such as service resources, KPIs (Key Performance Indicators), KQIs (key quality indicators) and SLAs (service level agreements).

This guide also assumes that you are familiar with your company's network and with procedures for configuring, monitoring, and solving problems on your network.

1.3 Guide conventions

The following command prompts can be seen throughout this guide where the user has to enter commands at the command line:

- # (hash): This prompt is displayed if the user is logged in as user `root`.
- \$ (dollar): This prompt is displayed if the user is logged in as either the `saserver` or `oracle` user.

Please note the above prompts are not part of commands. All commands must be entered after these prompts.

This guide uses the typographical conventions shown in the following table:

Table 2: General guide conventions

<i>Format</i>	<i>Examples</i>	<i>Description</i>
ALL UPPERCASE	GPS NULL MYWEBSERVER	Acronyms, device names, logical operators, registry keys, and some data structures.
<u>Link</u>	See www.ibm.com	For links within a document or to the Internet.
Bold	Note: The busy hour determiner is...	Heading text for Notes, Tips, and Warnings.

SMALL CAPS	The STORED SQL dialog box... ...click VIEW... In the main GUI window, select the FILE menu, point to NEW, and then select TRAF- FIC TEMPLATE.	Any text that appears on the GUI.
<i>Italic</i>	<i>A busy hour</i> is... A web Server <i>must</i> be installed... See the <i>User Guide</i>	New terms, emphasis, and book titles.
Monospace	<code>./wminstall</code> <code>\$ cd /cdrom/cdrom0</code> <code>/xml/dict</code> <code>addmsc.sh</code> <code>core.spec</code> Type OK to continue.	Code text, command line text, paths, scripts, and file names. Text written in the body of a paragraph that the user is expected to enter.
Monospace Bold	<code>[root] # pkginfo grep -i perl</code> system Perl5 On-Line Manual Pages system Perl 5.005_03 (POD Documentation) system Perl 5.005_03	For contrast in a code example to show lines the user is expected to enter.
<Monospace italics>	<code># cd <oracle_setup></code>	Used in code examples: command-line variables that you replace with a real name or value. These are always marked with arrow brackets.
[square bracket]	<code>log-archiver.sh [-i][-w][-t]</code>	Used in code examples: indicates options.

1.4 User Publications

The following user publications are provided with the GSM Service Quality Manager service solution:

Table 3: GSM service solution user documentation

<i>Document</i>	<i>Description</i>
<i>Tivoli Netcool Service Quality Manager Service Solutions Installation Guide</i>	Details the generic steps required to install any Service Quality Manager service solution.
<i>Tivoli Netcool Service Quality Manager GSM MSC PM Service Solution Interface Control Guide</i>	Details the GSM MSC PM service solution input interface.

<i>Tivoli Netcool Service Quality Manager GSM Service Solution Release Notes</i>	Provides information on the GSM Service Solution release contents, platform requirements, installation and upgrade procedures, and known issues.
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The following user publications are provided with the Service Quality Manager core software as Adobe® PDFs (Portable Document Format). Online help is available in HTML format.

Table 4: Service Quality Manager user documentation

Guide title	Description
<i>Release Notes</i>	Provides information on the Service Quality Manager release contents, platform requirements, installation and upgrade procedures, and known issues.
<i>Configuration Guide</i>	Describes SLA provisioning (Parties, SLAs, and SLA templates applications) and Service Quality Manager provisioning (services resources, KQI models and service models applications) in Service Quality Manager.
<i>Monitoring Guide</i>	Describes monitoring (SLA Monitor, KQI analyzer, alarm monitor, audit manager and SLA web monitor applications) in Service Quality Manager.
<i>Customer Experience Manager Monitoring Guide</i>	Describes how to use and monitor the Customer Experience Manager feature in Service Quality Manager.
<i>Customer Experience Manager Provisioning Guide</i>	Reference guide containing information for provisioning the Customer Experience Manager system.
<i>Solaris Server Installation Guide</i>	Describes how to install the Service Quality Manager server system on Solaris 10g.
<i>Client Installation Guide</i>	Describes how to install the Service Quality Manager client.
<i>AIX Server Installation Guide</i>	Describes how to install the Tivoli Netcool Service Quality Manager server system on IBM AIX® 5.3L.
<i>Solaris System Administration Guide</i>	Provides an overview of the Service Quality Manager administrative tasks, including instructions on how to complete these tasks: <ul style="list-style-type: none"> - Starting and stopping Service Quality Manager. - Running batch processes such as archiving trace files and log files. - Backing up and restoring the system.

<i>AIX System Administration Guide</i>	<p>Provides an overview of the AIX Service Quality Manager administrative tasks including instructions on how to complete these tasks:</p> <ul style="list-style-type: none"> - Starting and stopping Service Quality Manager. - Running batch processes such as archiving trace files and log files. - Backing up and restoring the system.
<i>Upgrade Guide</i>	<p>Details how to upgrade from one Service Quality Manager version to another.</p>
<i>BusinessObjects Installation and Configuration Guide</i>	<p>Provides information on the steps required to install and configure the BusinessObjects (v 6.5 or XI) server and client for use with Service Quality Manager.</p>
<i>Service Quality Manager Core Online Help</i>	<p>Provides information and procedures for using Service Quality Manager client applications.</p>
<i>Customer Experience Manager Online Help</i>	<p>Describes how to use and monitor the Customer Experience Manager feature in the Service Quality Manager.</p>
<i>SLA Webview Online Help</i>	<p>Describes how to use and monitor the SLA Webview feature in the Service Quality Manager.</p>

2 Release details

Service Quality Manager GSM v1.5 service solution provides the following data sources:

- Mobile Switching Centers – Performance Management (MSC PM)

3 Hardware specification

The Service Quality Manager GSM service solution can be installed on a Solaris system with the following configuration:

- Computer with T2/SPARC64 VI or UltraSPARC IV+ processor
- 146 GB of disk space
- 32 GB of memory
- Gigabit Ethernet

The Service Quality Manager GSM service solution can be installed on an AIX system with the following configuration:

- JS22 blade or equivalent
- 146 GB of disk space
- 32 GB of memory
- Gigabit Ethernet

4 Software requirements

The minimum prerequisite software requirements are:

- Tivoli Netcool Service Quality Manager v4.1.4 (4.1.4-TIV-TNSQM-) installed.
- Tivoli Netcool Service Quality Manager GOM v1.8 or later.

Note: See *Tivoli Netcool Service Quality Manager Version 4.1.4 Release Notes* for the minimum software required to operate this product.

5 Installation

5.1 Installation

To install the Tivoli Netcool Service Quality Manager GSM Service Solution, see the *Tivoli Netcool Service Quality Manager Service Solutions Installation Guide*.

Note: Tivoli Netcool Service Quality Manager GSM service solution depends on Tivoli Netcool Service Quality Manager GOM version v1.8 or later. Deploy this software using the instructions in chapter 3 of the *Tivoli Netcool Service Quality Manager Service Solutions Installation Guide* before installing the Tivoli Netcool Service Quality Manager GSM service solution.

5.2 Service solution model version

Note: Chapter 4 of the *Tivoli Netcool Service Quality Manager Service Solutions Installation Guide* requires the person installing the software to input the service solution name, data source name, and model version of the GSM service solution.

The service solution name, data source name, and model version of the GSM service solution are as follows:

- Solution name = GSM
- Data source name = MSC PM
- Model version = 1.5

5.3 Default resource mapping

This service solution supports Tivoli Netcool Service Quality Manager "Default Resource" instances. These instances are provided so that data with the following characteristics can be processed and stored by the service solution adapter:

- Any data row that contains ResourceType references that cannot be recognized against the provisioned resource set.
- Any data row that has missing references to one or more resource types.

In each of these cases, the reference is attributed to the "Default Resource" instance of that ResourceType. For example, if the ResourceType is "CellArea" the default resource for that ResourceType is named "unknown_CellArea". For all other purposes, the default resource can be treated the same as any other instance of the ResourceType. The service solution produces KQI values for the default resource that can be monitored for diagnostic purposes if required. The default resource metrics are also visible in the BusinessObjects reports.

If a customer does not want to create default resource metrics, the default resource instances can be safely deleted using the Tivoli Netcool Service Quality Manager user interface or the provisioning broker. Any data rows that match the characteristics detailed above are then not included for any KQI metrics and are also not included in metrics in the BusinessObjects reports.

5.4 Test data

The adapter test input files that are supplied with the GSM MSC release v1.4.3 are not compatible with 1.5. A new set of data has been provided to test this adapter.

6 Known issues

There are no known issues to report with the v1.5 release of Tivoli Netcool Service Quality Manager GSM service solution.

7 Fixed issues

The following issues were addressed with the v1.5 release of Tivoli Netcool Service Quality Manager GSM MSC service solution.

MR 1123104521: Enhancement Request

To include KPI and KQI for GSM service monitoring, where paging and Location Update is to be tracked up to LAC level.

8 Changes in this release

This release includes the following important changes, which should be noted carefully:

8.1 GSM MSC PM Data Source - New KQI metrics on LocationArea resource type

The GSM MSC PM data source was updated to provide new KQI metrics on the LocationArea resource type. These measurements are produced from existing CSV KPI fields and are available for all existing instances of the relevant resource types.

8.1.1 KPI Schema update – LAC_NAME added

The GSM MSC PM KPI database schema was updated to include the following new field

Table 5: Additional KPI table fields in GSM MSC PM

Name	Type	Description
LAC_NAME	STRING	LAC_NAME constitutes new resource type LocationArea

8.1.2 Additional KQI metrics in GSM MSC PM 1.5

Definitions for the following KQI metrics on the LocationArea resource type were added in GSM 1.5

Table 6: Additional KQI metrics in GSM MSC PM 1.5

Category	KQI Name	Description
Accessibility	GSMCORE_LocationArea_LU_SUCCESS_RATE	The percentage of periodic location updates which were successful over Location Area dimension.
Accessibility	GSMCORE_LocationArea_PAGING_SUCCESS_RATE	The percentage of paging attempts which were successful over Location Area dimension.
Accessibility	GSMCORE_LocationArea_ATT_LU_SUCCESS_RATE	The percentage of IMSI attach location update attempts which are successful over Location Area dimension.
Accessibility	GSMCORE_LocationArea_INTRA_LU_SUCCESS_RATE	The percentage of intra-VLR location update attempts which are successful over Location Area dimension.
Accessibility	GSMCORE_LocationArea_INTER_LU_SUCCESS_RATE	The percentage of inter-VLR location update attempts which are successful over Location Area dimension.

8.2 GSM MSC PM Data Source - New SLAT

The GSM MSC PM data source was updated to provide new SLAT on the LocationArea resource type.

8.2.1 Additional SLAT on LocationArea type

The following SLAT was added in GSM MSC PM 1.5 for the LocationArea resource type.

Table 7: Additional MSC SLAT in GSM MSC PM 1.5

SLAT Name	Description
GSM_CS_Core_PM_LocationArea_SLAT	Template SLA for the all KQIs calculated on the LocationArea Resource Type

8.3 GSM MSC PM Data source - New Service Element

The GSM MSC PM data source was updated to provide a new service element for the LocationArea resource type.

8.3.1 Additional Service Element on LocationArea type

The following service element was added in GSM MSC PM 1.5 for the LocationArea resource type.

Table 8: Additional MSC Service Element in GSM MSC PM 1.5

Service Element Name	Description
GSM_LocationArea	This represents the KQI models associated with the GSM CS Core Service. It contains Location Area focused KQIs.

9 Documentation Addendums

The following addendums apply to the *IBM Tivoli Netcool Service Quality Manager Module for UMTS Voice PM Service Overview Guide*.

Applies to Chapter 1 Service Module Description

Service resource types

The Tivoli Netcool Service Quality Manager Module for UMTS Voice PM Service resource types are as follows:

- CellArea
- UMTS Terrestrial Radio Access Network (UTRAN)
- Location_UTRAN composite
- Mobile Switching Center (MSC)
- Location Area
- CircuitGroup
- CGDest
- CGDest_MSC_CircuitGroup composite

SLA templates

The Tivoli Netcool Service Quality Manager Module for UMTS Voice PM Service SLA templates are provided below.

Tivoli Netcool Service Quality Manager Module for UMTS Voice PM Service SLA templates include the following:

- UMTS_Voice_PM_CellArea_SLAT - This is the SLA template for all KQIs calculated on the CellArea resource type.
- UMTS_Voice_PM_UTRAN_SLAT - This is the SLA template for all KQIs calculated on the UTRAN resource type.
- UMTS_Voice_PM_Location_UTRAN_SLAT - This is the SLA template for all KQIs calculated on the Location_UTRAN composite resource type.
- UMTS_Voice_Core_PM_MSC_SLAT - This is the SLA template for all KQIs calculated on the MSC resource type.

- UMTS_Voice_Core_PM_LocationArea_SLAT - This is the SLA template for all KQIs calculated on the LocationArea resource type.
- UMTS_Voice_Core_PM_CIRCUITGROUP_SLAT - This is the SLA template for all KQIs calculated on the CIRCUITGROUP resource type.

Service module reports

The Tivoli Netcool Service Quality Manager Module for UMTS Voice PM Service supports several service performance reports.

Reports are produced per resource types as filters. The Tivoli Netcool Service Quality Manager Module for UMTS Voice PM Service reports include the following:

- UMTS Voice Summary report
- UMTS Voice CellArea report
- UMTS Voice Location report
- UMTS Voice UTRAN report
- Circuit group outgoing call performance report
- MSC availability and CPU usage report
- MSC MO and MT call performance report
- MSC handover performance report
- MSC location update and paging performance report
- Location Area location update and paging performance report
- M3UA link performance report
- MTP3 link performance report
- Mc interface throughput report
- Circuit group performance report

Note: SLA reports can be run at any time and can be configured with a user-defined temporal dimension.

Applies to Appendix A: Tivoli Netcool Service Quality Manager Module for UMTS Voice PM Service KPI tables

Table 2. Dimensions for the KPI_SQM_UMTS_VOICE_UTRAN KPI table

Database column name	Database field description
LOCATION_ID	The resource ID for resource instances of the market level of the Location resource type
CELLAREA_ID	The resource ID for resource instances of the CellArea resource type
NODEB_ID	The resource ID for resource instances of the NodeB level of the UTRAN resource type

Applies to Appendix B: Tivoli Netcool Service Quality Manager Module for UMTS Voice PM Service KQIs

Tables 14 and 15 include a list of the key quality indicators (KQIs) that the Tivoli Netcool Service Quality Manager Module for UMTS Voice PM Service supports.

Table 14. Tivoli Netcool Service Quality Manager Module UTRAN PM Service KQIs

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
UMTS_Accessibility	RAB-CSEstSR_CellArea_UMTS_Voice_PM	RAB Establishment Success Rate for overall circuit switched traffic	%	<	95	98
UMTS_Accessibility	RAB-CSEstEmgSR_CellArea_UMTS_Voice_PM	RAB Establishment Success Rate for circuit switched traffic with cause set to Emergency Call	%	<	95	98
UMTS_Accessibility	RRCCSEstSR_CellArea_UMTS_Voice_PM	RRC Establishment Success Rate for overall circuit switched traffic	%	<	95	98
UMTS_Accessibility	RRCCSEstEmgSR_CellArea_UMTS_Voice_PM	RRC Establishment Success Rate for circuit switched traffic with cause set to Emergency Call	%	<	95	98
UMTS_Accessibility	CSSRCS_CellArea_UMTS_Voice_PM	Call Setup Success Rate for circuit switched traffic	%	<	95	98
UMTS_Retainability	CalIDR_CellArea_UMTS_Voice_PM	Call drop rate for circuit switched calls	%	>	5	2
UMTS_Retainability	IRATHOC-SOutSR_CellArea_UMTS_Voice_PM	The Outgoing Inter-RAT Handover Success Rate (3g->2G) for circuit switched traffic	%	<	95	98
UMTS_Retainability	IRATHOC-SInSR_CellArea_UMTS_Voice_PM	The Incoming Inter-RAT Handover Success Rate (2G->3G) for circuit switched traffic	%	<	95	98
UMTS_Retainability	HHOC-SOutIntrNBSR_CellArea_UMTS_Voice_PM	The Outgoing Intra-NodeB hard handover Success Rate for circuit switched traffic	%	<	95	98
UMTS_Retainability	HHOC-SOutNBIntraRNCsr_CellArea_UMTS_Voice_PM	The Outgoing Inter-NodeB, Intra-RNC hard handover Success Rate for circuit switched traffic	%	<	95	98
UMTS_Retainability	HHOC-SOutInterRNCInterfaceSR_CellArea_UMTS_Voice_PM	The Outgoing Inter-RNC hard handover Success Rate via Iur interface for circuit switched traffic	%	<	95	98

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
UMTS_Retainability	HHOC-SOutInterRNCCNSR_CellArea_UMTS_Voice_PM	The Outgoing Inter-RNC hard handover Success Rate switching in the Core Network for circuit switched traffic	%	<	95	98
UMTS_Retainability	SHOCSRLAddUE-SideSR_CellArea_UMTS_Voice_PM	The Radio Link addition Success Rate during active link set update procedure (Soft Handover) for circuit switched traffic	%	<	95	98
UMTS_CallQuality	AvgULBLERCS_CellArea_UMTS_Voice_PM	The Average Uplink BLER for circuit switched traffic	Count	>	1	0.5
UMTS_CallQuality	AvgDLBLERCS_CellArea_UMTS_Voice_PM	The Average Downlink BLER for circuit switched traffic	Count	>	1	0.5
UMTS_CallQuality	ULGood-QualAMR_CellArea_UMTS_Voice_PM	The percentage of Good Quality CS calls in uplink using the AMR codec. These are calls with BLER in range between 0% and 0.5%	%	<	95	98
UMTS_CallQuality	ULPoor-QualAMR_CellArea_UMTS_Voice_PM	The percentage of Poor Quality CS calls in uplink using the AMR codec. These are calls with BLER in range between 0.6% and 1%	%	>	70	60
UMTS_CallQuality	ULBad-QualAMR_CellArea_UMTS_Voice_PM	The percentage of Bad Quality CS calls in uplink using the AMR codec. These are calls with BLER greater than 1%	%	>	3	2
UMTS_CallQuality	ULGoodQual-Stream_CellArea_UMTS_Voice_PM	The percentage of Good Quality CS calls in uplink using the 64kbit/s stream. These are calls with BLER in range between 0% and 0.5%	%	<	95	98
UMTS_CallQuality	ULPoorQual-Stream_CellArea_UMTS_Voice_PM	The percentage of Poor Quality CS calls in uplink using the 64kbit/s stream. These are calls with BLER in range between 0.6% and 1%	%	>	70	60
UMTS_CallQuality	ULBadQual-Stream_CellArea_UMTS_Voice_PM	The percentage of Bad Quality CS calls in uplink using the 64kbit/s stream. These are calls with BLER greater than 1%	%	>	3	2

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
UMTS_CallQuality	DLGood-QualAMR_CellArea_UMTS_Voice_PM	The percentage of Good Quality CS calls in downlink using the AMR co-dec. These are calls with BLER in range between 0% and 0.5%	%	<	95	98
UMTS_CallQuality	DLPoor-QualAMR_CellArea_UMTS_Voice_PM	The percentage of Poor Quality CS calls in downlink using the AMR codec. These are calls with BLER in range between 0.6% and 1%	%	>	70	60
UMTS_CallQuality	DLBad-QualAMR_CellArea_UMTS_Voice_PM	The percentage of Bad Quality CS calls in downlink using the AMR codec. These are calls with BLER greater than 1%	%	>	3	2
UMTS_CallQuality	DLGoodQual-Stream_CellArea_UMTS_Voice_PM	The percentage of Good Quality CS calls in downlink using the 64kbit/s stream. These are calls with BLER in range between 0% and 0.5%	%	<	95	98
UMTS_CallQuality	DLPoorQual-Stream_CellArea_UMTS_Voice_PM	The percentage of Poor Quality CS calls in downlink using the 64kbit/s stream. These are calls with BLER in range between 0.6% and 1%	%	>	70	60
UMTS_CallQuality	DLBadQual-Stream_CellArea_UMTS_Voice_PM	The percentage of Bad Quality CS calls in downlink using the 64kbit/s stream. These are calls with BLER greater than 1%	%	>	3	2
UMTS_Utilisation	Erl-TrafCS_CellArea_UMTS_Voice_PM	Channel occupancy in given time for the circuit switched traffic expressed in Erlangs	Count	>	10	5
UMTS_Accessibility	PosS-RAGPS_CellArea_UMTS_Voice_PM	Positioning success rate using the A-GPS positioning method	%	<	95	98
UMTS_Accessibility	PosSRCEL-LId_CellArea_UMTS_Voice_PM	Positioning success rate using the Cell ID positioning method	%	<	95	98
UMTS_Accessibility	PosSROT-DOA_CellArea_UMTS_Voice_PM	Positioning success rate using the OT-DOA positioning method	%	<	95	98
UMTS_Accessibility	RAB-CSEstSR_UTRAN_UMTS_Voice_PM	RAB Establishment Success Rate for circuit switched traffic	%	<	95	98

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
UMTS_Accessibility	RAB-CSEstEmgSR_UTRAN_UMTS_Voice_PM	RAB Establishment Success Rate for circuit switched traffic with cause set to Emergency Call	%	<	95	98
UMTS_Accessibility	RRCCSEstSR_UTRAN_UMTS_Voice_PM	RRC Establishment Success Rate for circuit switched traffic	%	<	95	98
UMTS_Accessibility	RRCCSEstEmgSR_UTRAN_UMTS_Voice_PM	RRC Establishment Success Rate for circuit switched traffic with cause set to Emergency Call	%	<	95	98
UMTS_Accessibility	CSSRCS_UTRAN_UMTS_Voice_PM	Call Setup Success Rate for circuit switched traffic	%	<	95	98
UMTS_Retainability	CallDR_UTRAN_UMTS_Voice_PM	Call drop rate for circuit switched calls	%	>	5	2
UMTS_Retainability	IRATHOC-SOutSR_UTRAN_UMTS_Voice_PM	The Outgoing Inter-RAT Handover Success Rate (3g->2G) for circuit switched traffic	%	<	95	98
UMTS_Retainability	IRATHOC-SInSR_UTRAN_UMTS_Voice_PM	The Incoming Inter-RAT Handover Success Rate (2G->3G) for circuit switched traffic	%	<	95	98
UMTS_Retainability	HHOC-SOutIntrNBSR_UTRAN_UMTS_Voice_PM	The Outgoing Intra-NodeB hard handover Success Rate for circuit switched traffic	%	<	95	98
UMTS_Retainability	HHOC-SOutNBIntraRNCsr_UTRAN_UMTS_Voice_PM	The Outgoing Inter-NodeB, Intra-RNC hard handover Success Rate for circuit switched traffic	%	<	95	98
UMTS_Retainability	HHOC-SOutInterRNCIntraSR_UTRAN_UMTS_Voice_PM	The Outgoing Inter-RNC hard handover Success Rate via Iur interface for circuit switched traffic	%	<	95	98
UMTS_Retainability	HHOC-SOutInterRNCCNSR_UTRAN_UMTS_Voice_PM	The Outgoing Inter-RNC hard handover Success Rate switching in the Core Network for circuit switched traffic	%	<	95	98
UMTS_Retainability	SHOCSRLAddUE-SideSR_UTRAN_UMTS_Voice_PM	The Radio Link addition Success Rate during active link set update procedure (Soft Handover) for circuit switched traffic	%	<	95	98
UMTS_CallQuality	AvgULBLERCS_UTRAN_UMTS_Voice_PM	The Average Uplink BLER for circuit switched traffic	Count	>	1	0.5

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
UMTS_CallQuality	AvgDLBLERCS_UTRAN_UMTS_Voice_PM	The Average Downlink BLER for circuit switched traffic	Count	>	1	0.5
UMTS_CallQuality	ULGood-QualAMR_UTRAN_UMTS_Voice_PM	The percentage of Good Quality CS calls in uplink using the AMR codec. These are calls with BLER in range between 0% and 0.5%	%	<	95	98
UMTS_CallQuality	ULPoor-QualAMR_UTRAN_UMTS_Voice_PM	The percentage of Poor Quality CS calls in uplink using the AMR codec. These are calls with BLER in range between 0.6% and 1%	%	>	70	60
UMTS_CallQuality	ULBad-QualAMR_UTRAN_UMTS_Voice_PM	The percentage of Bad Quality CS calls in uplink using the AMR codec. These are calls with BLER greater than 1%	%	>	3	2
UMTS_CallQuality	ULGoodQual-Stream_UTRAN_UMTS_Voice_PM	The percentage of Good Quality CS calls in uplink using the 64kbit/s stream. These are calls with BLER in range between 0% and 0.5%	%	<	95	98
UMTS_CallQuality	ULPoorQual-Stream_UTRAN_UMTS_Voice_PM	The percentage of Poor Quality CS calls in uplink using the 64kbit/s stream. These are calls with BLER in range between 0.6% and 1%	%	>	70	60
UMTS_CallQuality	ULBadQual-Stream_UTRAN_UMTS_Voice_PM	The percentage of Bad Quality CS calls in uplink using the 64kbit/s stream. These are calls with BLER greater than 1%	%	>	3	2
UMTS_CallQuality	DLGood-QualAMR_UTRAN_UMTS_Voice_PM	The percentage of Good Quality CS calls in downlink using the AMR codec. These are calls with BLER in range between 0% and 0.5%	%	<	95	98
UMTS_CallQuality	DLPoor-QualAMR_UTRAN_UMTS_Voice_PM	The percentage of Poor Quality CS calls in downlink using the AMR codec. These are calls with BLER in range between 0.6% and 1%	%	>	70	60

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
UMTS_CallQuality	DLBad-QualAMR_UTRAN_UMTS_Voice_PM	The percentage of Bad Quality CS calls in downlink using the AMR codec. These are calls with BLER greater than 1%	%	>	3	2
UMTS_CallQuality	DLGoodQual-Stream_UTRAN_UMTS_Voice_PM	The percentage of Good Quality CS calls in downlink using the 64kbit/s stream. These are calls with BLER in range between 0% and 0.5%	%	<	95	98
UMTS_CallQuality	DLPoorQual-Stream_UTRAN_UMTS_Voice_PM	The percentage of Poor Quality CS calls in downlink using the 64kbit/s stream. These are calls with BLER in range between 0.6% and 1%	%	>	70	60
UMTS_CallQuality	DLBadQual-Stream_UTRAN_UMTS_Voice_PM	The percentage of Bad Quality CS calls in downlink using the 64kbit/s stream. These are calls with BLER greater than 1%	%	>	3	2
UMTS_Utilisation	ErITrafCS_UTRAN_UMTS_Voice_PM	Channel occupancy in given time for the circuit switched traffic expressed in Erlangs	Count	>	10	5
UMTS_Accessibility	PosS-RAGPS_UTRAN_UMTS_Voice_PM	Positioning success rate using the A-GPS positioning method	%	<	95	98
UMTS_Accessibility	PosSRCEL-LId_UTRAN_UMTS_Voice_PM	Positioning success rate using the Cell ID positioning method	%	<	95	98
UMTS_Accessibility	PosSROT-DOA_UTRAN_UMTS_Voice_PM	Positioning success rate using the OT-DOA positioning method	%	<	95	98
UMTS_Accessibility	RAB-CSEstSR_Location_UTRAN_UMTS_Voice_PM	RAB Establishment Success Rate for circuit switched traffic	%	<	95	98
UMTS_Accessibility	RAB-CSEstEmgSR_Location_UTRAN_UMTS_Voice_PM	RAB Establishment Success Rate for circuit switched traffic with cause set to Emergency Call	%	<	95	98
UMTS_Accessibility	RRCCSEstSR_Location_UTRAN_UMTS_Voice_PM	RRC Establishment Success Rate for circuit switched traffic	%	<	95	98
UMTS_Accessibility	RRCCSEstEmgSR_Location_UTRAN_UMTS_Voice_PM	RRC Establishment Success Rate for circuit switched traffic with cause set to Emergency Call	%	<	95	98

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
UMTS_Accessibility	CSSRCS_Location_UTRAN_UMTS_Voice_PM	Call Setup Success Rate for circuit switched traffic	%	<	95	98
UMTS_Retainability	CallDR_Location_UTRAN_UMTS_Voice_PM	Call drop rate for circuit switched calls	%	>	5	2
UMTS_Retainability	IRATHOC-SOutSR_Location_UTRAN_UMTS_Voice_PM	The Outgoing Inter-RAT Handover Success Rate (3g->2G) for circuit switched traffic	%	<	95	98
UMTS_Retainability	IRATHOC-SInSR_Location_UTRAN_UMTS_Voice_PM	The Incoming Inter-RAT Handover Success Rate (2G->3G) for circuit switched traffic	%	<	95	98
UMTS_Retainability	HHOC-SOutIntrNBSR_Location_UTRAN_UMTS_Voice_PM	The Outgoing Intra-NodeB hard handover Success Rate for circuit switched traffic	%	<	95	98
UMTS_Retainability	HHOC-SOutNBIntraRNCsr_Location_UTRAN_UMTS_Voice_PM	The Outgoing Inter-NodeB, Intra-RNC hard handover Success Rate for circuit switched traffic	%	<	95	98
UMTS_Retainability	HHOC-SOutInterRNCIntraSR_Location_UTRAN_UMTS_Voice_PM	The Outgoing Inter-RNC hard handover Success Rate via Iur interface for circuit switched traffic	%	<	95	98
UMTS_Retainability	HHOC-SOutInterRNCCNSR_Location_UTRAN_UMTS_Voice_PM	The Outgoing Inter-RNC hard handover Success Rate switching in the Core Network for circuit switched traffic	%	<	95	98
UMTS_Retainability	SHOCSRLAddUE-SideSR_Location_UTRAN_UMTS_Voice_PM	The Radio Link addition Success Rate during active link set update procedure (Soft Handover) for circuit switched traffic	%	<	95	98
UMTS_CallQuality	AvgULBLERCS_Location_UTRAN_UMTS_Voice_PM	The Average Uplink BLER for circuit switched traffic	Count	>	1	0.5
UMTS_CallQuality	AvgDLBLERCS_Location_UTRAN_UMTS_Voice_PM	The Average Downlink BLER for circuit switched traffic	Count	>	1	0.5
UMTS_CallQuality	ULGood-QualAMR_Location_UTRAN_UMTS_Voice_PM	The percentage of Good Quality CS calls in uplink using the AMR codec. These are calls with BLER in range between 0% and 0.5%	%	<	95	98

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
UMTS_CallQuality	ULPoor-QualAMR_Location_UTRAN_UMTS_Voice_PM	The percentage of Poor Quality CS calls in uplink using the AMR codec. These are calls with BLER in range between 0.6% and 1%	%	>	70	60
UMTS_CallQuality	ULBad-QualAMR_Location_UTRAN_UMTS_Voice_PM	The percentage of Bad Quality CS calls in uplink using the AMR codec. These are calls with BLER greater than 1%	%	>	3	2
UMTS_CallQuality	ULGoodQual-Stream_Location_UTRAN_UMTS_Voice_PM	The percentage of Good Quality CS calls in uplink using the 64kbit/s stream. These are calls with BLER in range between 0% and 0.5%	%	<	95	98
UMTS_CallQuality	ULPoorQual-Stream_Location_UTRAN_UMTS_Voice_PM	The percentage of Poor Quality CS calls in uplink using the 64kbit/s stream. These are calls with BLER in range between 0.6% and 1%	%	>	70	60
UMTS_CallQuality	ULBadQual-Stream_Location_UTRAN_UMTS_Voice_PM	The percentage of Bad Quality CS calls in uplink using the 64kbit/s stream. These are calls with BLER greater then 1%	%	>	3	2
UMTS_CallQuality	DLGood-QualAMR_Location_UTRAN_UMTS_Voice_PM	The percentage of Good Quality CS calls in downlink using the AMR codec. These are calls with BLER in range between 0% and 0.5%	%	<	95	98
UMTS_CallQuality	DLPoor-QualAMR_Location_UTRAN_UMTS_Voice_PM	The percentage of Poor Quality CS calls in downlink using the AMR codec. These are calls with BLER in range between 0.6% and 1%	%	>	70	60
UMTS_CallQuality	DLBad-QualAMR_Location_UTRAN_UMTS_Voice_PM	The percentage of Bad Quality CS calls in downlink using the AMR codec. These are calls with BLER greater than 1%	%	>	3	2

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
UMTS_CallQuality	DLGoodQual-Stream_Location_UTRAN_UMTS_Voice_PM	The percentage of Good Quality CS calls in downlink using the 64kbit/s stream. These are calls with BLER in range between 0% and 0.5%	%	<	95	98
UMTS_CallQuality	DLPoorQual-Stream_Location_UTRAN_UMTS_Voice_PM	The percentage of Poor Quality CS calls in downlink using the 64kbit/s stream. These are calls with BLER in range between 0.6% and 1%	%	>	70	60
UMTS_CallQuality	DLBadQual-Stream_Location_UTRAN_UMTS_Voice_PM	The percentage of Bad Quality CS calls in downlink using the 64kbit/s stream. These are calls with BLER greater than 1%	%	>	3	2
UMTS_Utilisation	Erl-TrafCS_Location_UTRAN_UMTS_Voice_PM	Channel occupancy in given time for the circuit switched traffic expressed in Erlangs	Count	>	10	5
UMTS_Accessibility	PosS-RAGPS_Location_UTRAN_UMTS_Voice_PM	Positioning success rate using the A-GPS positioning method	%	<	95	98
UMTS_Accessibility	PosSRCEL-LId_Location_UTRAN_UMTS_Voice_PM	Positioning success rate using the Cell ID positioning method	%	<	95	98
UMTS_Accessibility	PosSROT-DOA_Location_UTRAN_UMTS_Voice_PM	Positioning success rate using the OT-DOA positioning method	%	<	95	98

Table 15. Tivoli Netcool Service Quality Manager Module Core PM Service KQIs

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
Accessibility	MOCallSR_MSC_UMTS_Voice_PM	Mobile originating call success rate.	%	<	95	98
Retainability	MOCallAR_MSC_UMTS_Voice_PM	Mobile originating call answer rate.	%	<	40	50
Retainability	MO-CallCNPC_MSC_UMTS_Voice_PM	The percentage of answered mobile originating calls which clear normally.	%	<	95	98
Accessibility	MTCallSR_MSC_UMTS_Voice_PM	Mobile terminating call success rate.	%	<	95	98
Retainability	MTCallAR_MSC_UMTS_Voice_PM	Mobile terminating call answer rate.	%	<	40	50
Retainability	MTCallCNPC_MSC_UMTS_Voice_PM	The percentage of answered mobile terminating calls which clear normally.	%	<	95	98
Throughput	MOSucc-Traff_MSC_UMTS_Voice_PM	The successful mobile originating traffic in Erlangs (from alerting to release)	count			
Throughput	MOAnswTraff_MSC_UMTS_Voice_PM	The answered mobile originating traffic in Erlangs (from connect to release)	count			
Throughput	MTSucc-Traff_MSC_UMTS_Voice_PM	The successful mobile terminating traffic in Erlangs (from alerting to release)	count			
Throughput	MTAnswTraff_MSC_UMTS_Voice_PM	The answered mobile terminating traffic in Erlangs (from connect to release)	count			
Throughput	IncSucc-Traff_MSC_UMTS_Voice_PM	The successful incoming (non-mobile originating) traffic in Erlangs (from alerting to release)	count			
Throughput	In-AnswTraff_MSC_UMTS_Voice_PM	The answered incoming (non-mobile originating) traffic in Erlangs (from alerting to release)	count			
Throughput	OutSucc-Traff_MSC_UMTS_Voice_PM	The successful outgoing (non-mobile terminating) traffic in Erlangs (from alerting to release)	count			

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
Throughput	OutAnswTraff_MSC_UMTS_Voice_PM	The answered outgoing (non-mobile terminating traffic in Erlangs (from alerting to release)	count			
Mobility Management	In-cUMTS_HoSR_MSC_UMTS_Voice_PM	The success rate for inter-MSC incoming handovers from UMTS cells	%	<	95	98
Mobility Management	In-cUMTS_HoDR_MSC_UMTS_Voice_PM	The percentage of inter-MSC incoming handovers from UMTS cells which fail and which result in the call being dropped.	%	>	10	5
Mobility Management	In-cGSM_HoSR_MSC_UMTS_Voice_PM	The success rate for inter-MSC incoming handovers from GSM cells	%	<	95	98
Mobility Management	In-cGSM_HoDR_MSC_UMTS_Voice_PM	The percentage of inter-MSC incoming handovers from GSM cells which fail and which result in the call being dropped.	%	>	10	5
Mobility Management	Out-cUMTS_HoSR_MSC_UMTS_Voice_PM	The success rate for inter-MSC outgoing handovers from UMTS cells	%	<	95	98
Mobility Management	Out-cUMTS_HoDR_MSC_UMTS_Voice_PM	The percentage of inter-MSC outgoing handovers from UMTS cells which fail and which result in the call being dropped.	%	>	10	5
Mobility Management	Out-cGSM_HoSR_MSC_UMTS_Voice_PM	The success rate for inter-MSC outgoing handovers from GSM cells	%	<	95	98
Mobility Management	Out-cGSM_HoDR_MSC_UMTS_Voice_PM	The percentage of inter-MSC outgoing handovers from GSM cells which fail and which result in the call being dropped.	%	>	10	5
Mobility Management	Intra-M-SCHoSR_MSC_UMTS_Voice_PM	The success rate for intra-MSC handovers	%	<	95	98
Mobility Management	Intra-M-SCHoDR_MSC_UMTS_Voice_PM	The percentage of intra-MSC handovers which fail and which result in the call being dropped.	%	>	10	5
Accessibility	VLRAuthSR_MSC_UMTS_Voice_PM	Success rate for VLR authentications	%	<	95	98
Accessibility	HLRAuthSR_MSC_UMTS_Voice_PM	Success rate for HLR authentications	%	<	95	98

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
Call Control	PagingAvgSR_MSC_UMTS_Voice_PM	The average paging success rate	%	<	95	98
Mobility Management	Im-siAttLUAvgSR_MSC_UMTS_Voice_PM	The average success rate for IMSI attach location update	%	<	95	98
Mobility Management	PeriodicLUAvgSR_MSC_UMTS_Voice_PM	The average success rate for periodic location update	%	<	95	98
Mobility Management	InterVLRUAvgSR_MSC_UMTS_Voice_PM	The average success rate for Inter-VLR location update	%	<	95	98
Mobility Management	IntraVLRUAvgSR_MSC_UMTS_Voice_PM	The average success rate for Intra-VLR location update	%	<	95	98
Accessibility	AvgInc-CallSR_MSC_UMTS_Voice_PM	The average success rate for incoming calls from a peer-MSC over the Nc interface	%	<	95	98
Accessibility	AvgOut-CallSR_MSC_UMTS_Voice_PM	The average success rate for outgoing calls to a peer-MSC over the Nc interface	%	<	95	98
Signalling	McH248OctsPerSec_MSC_UMTS_Voice_PM	The signalling throughput averaged over all Mc interfaces during the measurement period (H.248 octets sent or received per second per Mc interface)	count	>	250000	200000
Signalling	M3UACongPC_MSC_UMTS_Voice_PM	The percentage of reporting M3UA signalling links which suffered congestion during the measurement period	%	>	20	10
Signalling	M3UACongDurPC_MSC_UMTS_Voice_PM	The percentage of time for which reporting M3UA signalling links were in a congested state during the measurement period	%	>	10	5
Signalling	M3UAUnavPC_MSC_UMTS_Voice_PM	The percentage of reporting M3UA signalling links which were unavailable for any part of the measurement period	%	>	20	10
Signalling	M3UAUnavDurPC_MSC_UMTS_Voice_PM	The percentage of time for which reporting M3UA signalling links were in an unavailable state during the measurement period	%	>	10	5

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
Signalling	M3UAOctsPerSec_MSC_UMTS_Voice_PM	The signalling throughput averaged over all M3UA links during the measurement period (M3UA octets sent or received per second per M3UA link).	%	>	8000	7000
Signalling	MTP3UnavPC_MSC_UMTS_Voice_PM	The percentage of reporting MTP3 signalling links which were unavailable for any part of the measurement period	%	>	20	10
Signalling	MTP3UnavDurPC_MSC_UMTS_Voice_PM	The percentage of time for which reporting MTP3 signalling links were in an unavailable state during the measurement period	%	>	10	5
Signalling	MTP3OctsPerSec_MSC_UMTS_Voice_PM	The signalling throughput averaged over all MTP3 links during the measurement period (MTP3 octets sent or received per second per mtp3 link).	%	>	8000	7000
Availability	CuUnavPC_MSC_UMTS_Voice_PM	The percentage of MSC control units which were out-of-service for any part of the measurement period.	%	>	20	10
Availability	CuUnavDurPC_MSC_UMTS_Voice_PM	The percentage of time for which any MSC control unit was out-of-service for any part of the measurement period.	%	>	10	5
Availability	CuAvgCPU_MSC_UMTS_Voice_PM	The average percent CP utilisation over all MSC control Units during the measurement period	%	>	60	50
Availability	CuMaxCPU_MSC_UMTS_Voice_PM	The maximum percent CP utilisation over all MSC control Units during the measurement period	%	>	70	60
Availability	CuAvgMem_MSC_UMTS_Voice_PM	The average percent memory utilisation over all MSC control Units during the measurement period	%	>	60	50
Availability	CuMaxMem_MSC_UMTS_Voice_PM	The maximum percent memory utilisation over all MSC control Units during the measurement period	%	>	70	60
Availability	CgCircAvailPC_CIRCUITGROUP_UMTS_Voice_PM	The percentage of circuits in the circuit group which are available	%	<	80	90
Accessibility	CgIncCallsR_CIRCUITGROUP_UMTS_Voice_PM	The success rate for incoming calls in the circuit group	%	<	95	98

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
Accessibility	CgIncCal-IAR_CIRCUITGROUP_UMTS_Voice_PM	The answer rate for incoming calls in the circuit group	%	<	40	50
Accessibility	CgInc-CallCNPC_CIRCUITGROUP_UMTS_Voice_PM	The percentage of answered incoming calls which clear normally for this circuit group	%	<	95	98
Accessibility	CgOut-CallSR_CIRCUITGROUP_UMTS_Voice_PM	The success rate for outgoing calls in the circuit group	%	<	95	98
Accessibility	CgOutCal-IAR_CIRCUITGROUP_UMTS_Voice_PM	The answer rate for outgoing calls in the circuit group	%	<	40	50
Accessibility	CgOut-CallCNPC_CIRCUITGROUP_UMTS_Voice_PM	The percentage of answered outgoing calls which clear normally for this circuit group	%	<	95	98
Availability	CgUn-avDurPC_CIRCUITGROUP_UMTS_Voice_PM	The percentage of time for which all circuits in the circuit group were unavailable for seizure.	%	>	10	5
Throughput	CgIncSeizeTraff_CIRCUITGROUP_UMTS_Voice_PM	The incoming seized traffic in Erlangs for this circuit group (from circuit seizure to release)	Count			
Throughput	CgOut-SeizeTraff_CIRCUITGROUP_UMTS_Voice_PM	The outgoing seized traffic in Erlangs for this circuit group (from circuit seizure to release)	Count			
Call Control	PagingAvgSR_LocationArea_UMTS_Voice_PM	The average paging success rate	%	<	95	98
Mobility Management	Im-siAttLUAvgSR_LocationArea_UMTS_Voice_PM	The average success rate for IMSI attach location update	%	<	95	98
Mobility Management	PeriodicLUAvgSR_LocationArea_UMTS_Voice_PM	The average success rate for periodic location update	%	<	95	98
Mobility Management	InterVLR LU AvgSR_LocationArea_UMTS_Voice_PM	The average success rate for Inter-VLR location update	%	<	95	98
Mobility Management	IntraVLR LU AvgSR_LocationArea_UMTS_Voice_PM	The average success rate for Intra-VLR location update	%	<	95	98
Mobility Management	LU Attempts_LocationArea_UMTS_Voice_PM	The total number of location update attempts (IMSI attach + Periodic)	count	<	10	50

Category	KQI Name	KQI Description	Unit	Operator	Violation threshold	Warning threshold
Mobility Management	LUAt-tempts_MSC_UMTS_Voice_PM	The total number of location update attempts (IMSI attach + Periodic)	count	<	10	50

10 Report samples

Figure 5. UMTS Node B Voice PM call setup report

Addendum to table and caption as follows:

Period: 26/08/2011 00:00:00 To: 27/8/2011 00:00:00 RNC: All NodeB: All							
Time	RNC	NodeB	CSSR	CS RAB Estab Attempts	CS RAB Estab Success Rate	CS RRC Estab Attempts	CS RRC Estab Success Rate
All	AllRNCs	AllNodeBs	98.00%	1,023,320	97.40%	1,056,133	96.40%

Figure 5. UMTS Voice PM UTRAN call setup report

Figure 6. UMTS Node B Voice PM call setup report (RAB establishment success rate per AMR type)

Addendum to chart and caption as follows:

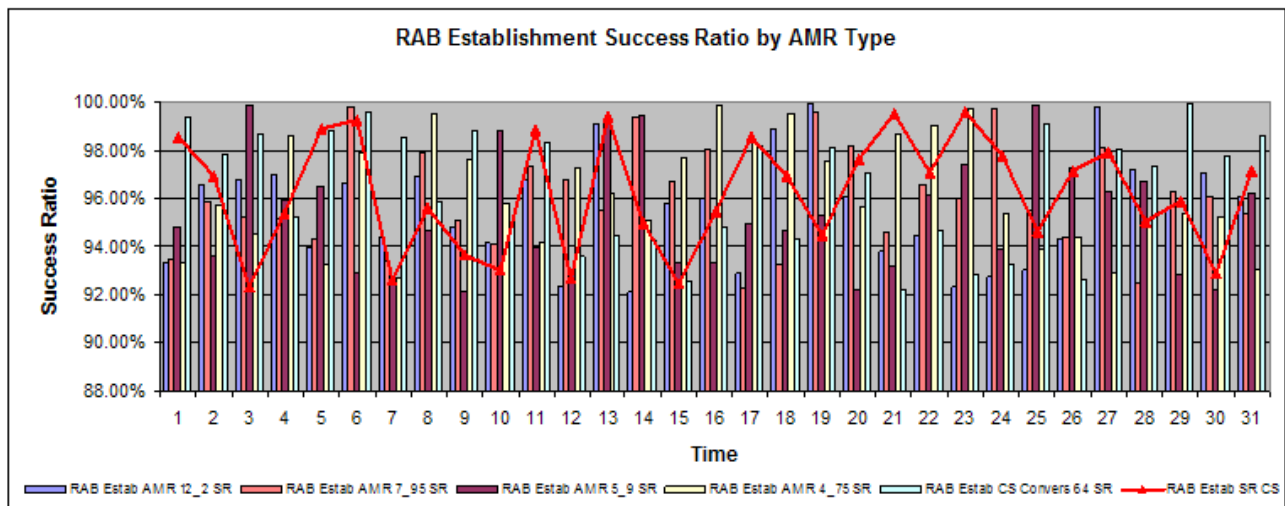


Figure 6. UMTS Voice PM UTRAN call setup report (RAB establishment success rate per AMR type)

Figure 7. UMTS Node B Voice PM call setup report (RRC establishment success rate per call type)

Addendum to chart and caption as follows:

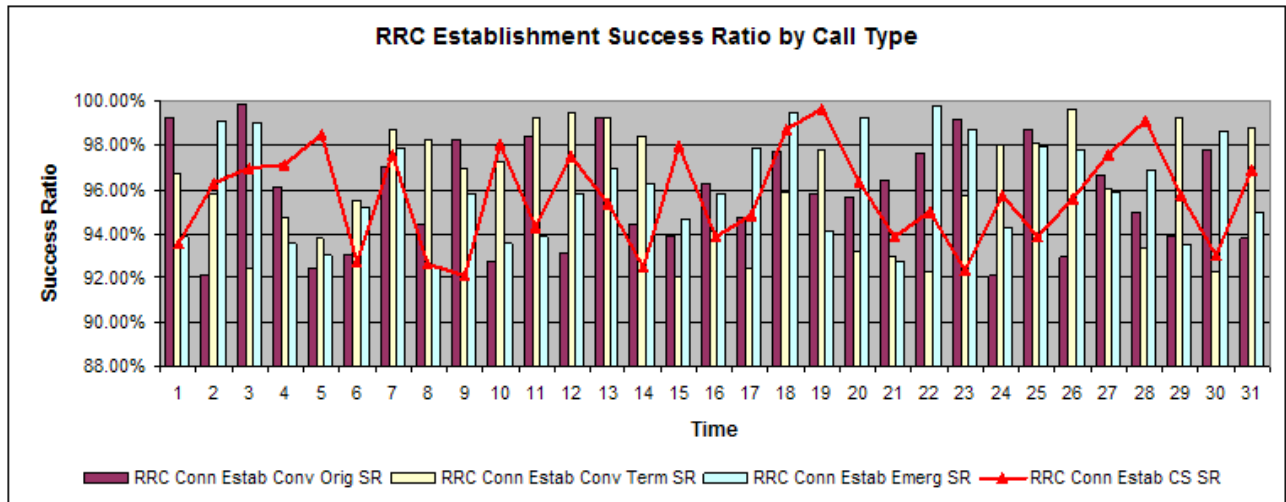


Figure 7. UMTS Voice PM UTRAN call setup report (RRC establishment success rate per call type)

Figure 8. UMTS Cell Area Voice PM call setup report

Addendum as follows:

Period: 26/08/2011 00:00:00
CellArea: All

Time	CellArea	CS RRC Estab Success Rate	CS RRC Estab Attempts	CS RRC Estab Attempts Conv Orig	CS RRC Estab Attempts Conv Term	CS RRC Estab Attempts Emergency
All	All	97.30%	154,094	73,987	7,000	131

Figure 8. UMTS Voice PM CellArea call setup report

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