



Alcatel-Lucent 5620

SERVICE AWARE MANAGER | RELEASE 8.0 R6
LTE RAN USER GUIDE

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- 8.10 This Agreement shall be governed by and construed in accordance with the laws of the Province of Ontario. The application of the United Nations Convention on Contracts for the International Sale of Goods is hereby expressly excluded.

Preface

The Preface provides general information about the 5620 Service Aware Manager documentation suite.



Note — You can use the Search function of Acrobat Reader (File→Search) to find a term in a PDF of this document. To refine your search, use appropriate search options (for example, search for whole words only or enable case-sensitive searching). You can also search for a term in multiple PDFs at once. For more information, see the Help for Acrobat Reader.

5620 SAM documentation suite

The 5620 SAM documentation suite describes the 5620 SAM and the associated network management of its supported devices. Contact your Alcatel-Lucent support representative for information about specific network or facility considerations.

Table 1 lists the documents in the 5620 SAM documentation suite.

Table 1 5620 SAM customer documentation suite

Guide	Description
5620 SAM core documentation	
<i>5620 SAM 5650 CPAM Installation and Upgrade Guide</i>	<p>The <i>5620 SAM 5650 CPAM Installation and Upgrade Guide</i> provides OS considerations, configuration information, and procedures for the following:</p> <ul style="list-style-type: none">• installing, upgrading, and uninstalling 5620 SAM and 5650 CPAM software in standalone and redundant deployments• 5620 SAM system migration to a different system• conversion from a standalone to a redundant 5620 SAM system

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Guide	Description
<i>5620 SAM User Guide</i>	<p>The <i>5620 SAM User Guide</i> provides information about using the 5620 SAM to manage the service-aware IP/MPLS network, including GUI basics, commissioning, service configuration, and policy management.</p> <p>The <i>5620 SAM User Guide</i> uses a task-based format. Each chapter contains:</p> <ul style="list-style-type: none"> a workflow that describes the steps for configuring and using the functionality detailed procedures that list the configurable parameters on the associated forms <p>5620 SAM management information specific to LTE network elements is covered in the <i>5620 SAM LTE ePC User Guide</i> and <i>5620 SAM LTE RAN User Guide</i>.</p>
<i>5620 SAM Parameter Guide</i>	<p>The <i>5620 SAM Parameter Guide</i> provides:</p> <ul style="list-style-type: none"> parameter descriptions that include value ranges and default values parameter options and option descriptions parameter and option dependencies parameter mappings to the 5620 SAM-O XML equivalent property names <p>There are dynamic links between the procedures in the <i>5620 SAM User Guide</i> and the parameter descriptions in the <i>5620 SAM Parameter Guide</i>. See Procedure 2 for more information.</p> <p>Parameters specific to LTE network elements are covered in the <i>5620 SAM LTE Parameter Reference</i>.</p>
<i>5620 SAM Statistics Management Guide</i>	<p>The <i>5620 SAM Statistics Management Guide</i> provides information about how to configure performance and accounting statistics collection and how to view counters using the 5620 SAM. Network examples are included.</p>
<i>5620 SAM Scripts and Templates Developer Guide</i>	<p>The <i>5620 SAM Scripts and Templates Developer Guide</i> provides information that allows you to develop, manage, and execute CLI-based or XML-based scripts or templates. The guide is intended for developers, skilled administrators, and operators who are expected to be familiar with the following:</p> <ul style="list-style-type: none"> CLI scripting, XML, and the Velocity engine basic scripting or programming 5620 SAM functions
<i>5620 SAM Troubleshooting Guide</i>	<p>The <i>5620 SAM Troubleshooting Guide</i> provides task-based procedures and user documentation to:</p> <ul style="list-style-type: none"> help resolve issues in the managed and management networks identify the root cause and plan corrective action for: <ul style="list-style-type: none"> alarm conditions on a network object or customer service problems on customer services with no associated alarms list problem scenarios, possible solutions, and tools to help check: <ul style="list-style-type: none"> network management LANs PC and Sun platforms, and operating systems 5620 SAM client GUIs and client OSS applications 5620 SAM servers 5620 SAM databases
<i>5620 SAM Maintenance Guide</i>	<p>The <i>5620 SAM Maintenance Guide</i> provides procedures for:</p> <ul style="list-style-type: none"> generating baseline information for 5620 SAM applications performing daily, weekly, monthly, and as-required maintenance activities for 5620 SAM-managed networks
<i>5620 SAM Integration Guide</i>	<p>The <i>5620 SAM Integration Guide</i> provides procedures to allow the 5620 SAM to integrate with additional components.</p>
<i>5620 SAM System Architecture Guide</i>	<p>The <i>5620 SAM System Architecture Guide</i> is intended for technology officers and network planners to increase their knowledge of the 5620 SAM software structure and components. It describes the system structure, software components, and interfaces of the 5620 SAM. In addition, 5620 SAM fault tolerance, security, and network management capabilities are discussed from an architectural perspective.</p>

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Guide	Description
<i>5620 SAM Planning Guide</i>	The <i>5620 SAM Planning Guide</i> provides information about 5620 SAM scalability and recommended hardware configurations.
<i>5620 SAM NE Compatibility Guide</i>	The <i>5620 SAM NE Compatibility Guide</i> provides release-specific information about the compatibility of managed device features in 5620 SAM releases.
<i>5620 SAM Release Description</i>	The <i>5620 SAM Release Description</i> provides information about the new features associated with a 5620 SAM software release.
<i>5620 SAM Glossary</i>	The <i>5620 SAM Glossary</i> defines terms and acronyms used in all of the 5620 SAM documentation, including 5620 SAM LTE documentation.
<i>5620 SAM-O OSS Interface Developer Guide</i>	<p>The <i>5620 SAM-O OSS Interface Developer Guide</i> provides information that allows you to:</p> <ul style="list-style-type: none"> • use the 5620 SAM-O OSS interface to access network management information • learn about the information model associated with the managed network • develop OSS applications using the packaged methods, classes, data types, and objects necessary to manage 5620 SAM functions
5620 SAM LTE documentation	
<i>5620 SAM LTE ePC User Guide</i>	<p>The <i>5620 SAM LTE ePC User Guide</i> describes how to discover, configure, and manage LTE ePC devices using the 5620 SAM. The guide is intended for LTE ePC network planners, administrators, and operators.</p> <p>Alcatel-Lucent recommends that you review the entire <i>5620 SAM LTE User ePC Guide</i> before you attempt to use the 5620 SAM in your LTE network.</p>
<i>5620 SAM LTE RAN User Guide</i>	<p>The <i>5620 SAM LTE RAN User Guide</i> describes how to discover, configure, and manage the eNodeB using the 5620 SAM. The guide is intended for LTE RAN network planners, administrators, and operators.</p> <p>Alcatel-Lucent recommends that you review the entire <i>5620 SAM LTE RAN User Guide</i> before you attempt to use the 5620 SAM in your LTE network.</p>
<i>5620 SAM LTE Parameter Reference</i>	The <i>5620 SAM LTE Parameter Reference</i> provides a list of all LTE ePC and LTE RAN parameters supported in the 5620 SAM.
<i>5620 SAM-O 3GPP OSS Interface Developer Guide</i>	The <i>5620 SAM-O 3GPP OSS Interface Developer Guide</i> describes the components and architecture of the 3GPP OSS interface to the 5620 SAM. It includes procedures and samples to assist OSS application developers to use the 3GPP interface to manage LTE devices.
<i>5620 SAM LTE Alarm Reference</i>	The <i>5620 SAM LTE Alarm Reference</i> provides a list of LTE ePC and LTE RAN alarms that can be reported in the 5620 SAM GUI.

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Procedure 1 To find the 5620 SAM user documentation

The user documentation is available from the following sources:

- the User_Documentation directory on the product DVD-ROM
- Help→5620 SAM User Documentation in the 5620 SAM client GUI main menu



Note — Users of Mozilla browsers may receive an error message when using the User Documentation Index page (index.html) to open the PDF files in the 5620 SAM documentation suite. The offline storage and default cache values used by the browsers are the cause of the error message.

Alcatel-Lucent recommends changing the offline storage (Mozilla Firefox) or cache (Mozilla 1.7) values to 100 Mbytes to eliminate the error message.

Procedure 2 To view parameter descriptions from the 5620 SAM User Guide

You can click on a parameter name in a *5620 SAM User Guide* procedure to open the matching parameter description in the *5620 SAM Parameter Guide*. Ensure the following conditions are true beforehand:

- the *5620 SAM Parameter Guide* and *5620 SAM User Guide* are located in the same directory
 - Adobe Reader Release 5.0 or later is installed
- 1 To view a parameter description when both the *5620 SAM User Guide* and the *5620 SAM Parameter Guide* are open in Adobe Acrobat, click on the parameter name in the *5620 SAM User Guide*.

The parameter description is displayed in the *5620 SAM Parameter Guide*.
 - 2 To view a parameter description when only the *5620 SAM User Guide* is open in Adobe Acrobat:
 - i Click on a parameter name in a procedure in the *5620 SAM User Guide*. The *5620 SAM User Guide* closes and the *5620 SAM Parameter Guide* opens to display the parameter description.
 - ii Double-click on the Previous View button in Adobe Acrobat (or press Alt + ←) to re-open the *5620 SAM User Guide*. The *5620 SAM User Guide* opens and displays the parameter from step i.
-

Prerequisites

Readers of the 5620 SAM documentation suite are assumed to be familiar with the following:

- 5620 SAM software structure and components
- 5620 SAM GUI operations and tools
- typical 5620 SAM management tasks and procedures
- device and network management concepts

Conventions

Table 2 lists the conventions that are used throughout the documentation.

Table 2 Documentation conventions

Convention	Description	Example
Key name	Press a keyboard key	Delete
Italics	Identifies a variable	<i>hostname</i>
Key+Key	Type the appropriate consecutive keystroke sequence	CTRL+G
Key-Key	Type the appropriate simultaneous keystroke sequence	CTRL-G
*	An asterick is a wildcard character, which means “any character” in a search argument.	log_file*.txt
↵	Press the Return key	↵
—	An em dash indicates there is no information.	—
→	Indicates that a cascading submenu results from selecting a menu item	Policies→Alarm Policies

Procedures with options or substeps

When there are options in a procedure, they are identified by letters. When there are substeps in a procedure, they are identified by Roman numerals.

Example of options in a procedure

At step 1, you can choose option a or b. At step 2, you must do what the step indicates.

- 1 This step offers two options. You must choose one of the following.
 - a This is one option.
 - b This is another option.
- 2 You must perform this step.

Example of substeps in a procedure

At step 1, you must perform a series of substeps within a step. At step 2, you must do what the step indicates.

- 1 This step has a series of substeps that you must perform to complete the step. You must perform the following substeps.
 - i This is the first substep.
 - ii This is the second substep.
 - iii This is the third substep.
- 2 You must perform this step.

Measurement conventions

Measurements in this document are expressed in metric units and follow the *Système international d'unités* (SI) standard for abbreviation of metric units. If imperial measurements are included, they appear in brackets following the metric unit.

Table 3 lists the measurement symbols used in this document.

Table 3 Bits and bytes conventions

Measurement	Symbol
bit	b
byte	byte
kilobits per second	kb/s

Important information

The following conventions are used to indicate important information:



Warning — Warning indicates that the described activity or situation may, or will, cause equipment damage or serious performance problems.



Caution — Caution indicates that the described activity or situation may, or will, cause service interruption.



Note — Notes provide information that is, or may be, of special interest.

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Getting started

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- 2 – LTE RAN management using the 5620 SAM
- 3 – 5620 SAM release LTE RAN features and functionality

1 — *LTE RAN workflows*

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1.1 5620 SAM LTE RAN workflow overview

The 5620 SAM LTE RAN workflow describes RAN-specific tasks for device configuration, discovery, and management.



Note — The 5620 SAM features described in this chapter are fully supported for eNodeB versions LA2.0.2 (same as LA2.1) and LA3.0.0. The 5620 SAM features described in this chapter in support of eNodeB LA3.0.0 have been fully verified against the currently available LA3.0.0 software, which is pre-DR4. Any evolution of the LA3.0.0 software will be accounted for in ongoing 5620 SAM testing. There is a small risk that issues may be encountered which may impose additional functional restrictions.

1.2 5620 SAM LTE RAN management workflow

The following workflow is a high level process overview that describes the LTE RAN management capabilities of the 5620 SAM.

- 1 Commission LTE RAN devices; see chapter 5.
- 2 Discover and configure eNodeBs by using self-configuration; see chapter 5.
- 3 Configure eNodeBs by using offline configuration; see chapter 6.
 - a Create workorders using the 9452 WPS.
 - b Deploy WOs to eNodeBs.
- 4 Fine-tune eNodeB configuration using online configuration; see chapter 7.
- 5 Manage network topology; see chapter 8.
- 6 Perform LTE RAN security administration tasks; see chapter 9.
 - a Configure user accounts for RAN operators and assign roles as required.
 - b Create and modify eNodeB IPsec profiles and apply them to eNodeBs.
- 7 Perform maintenance tasks; see chapter 10.
 - a Backup and restore RAN devices as required.
 - b Upgrade RAN device software.
 - c Enable RAN PM policies, collect performance management statistics from RAN devices, and manage PM policies; see chapter 11.
- 8 Troubleshoot RAN devices; see chapter 12.
 - a Perform call traces on RAN devices to troubleshoot connection and path problems.
 - b Respond to alarms and perform corrective actions.

2 — *LTE RAN management using the 5620 SAM*

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2.1 5620 SAM LTE NE management solution overview

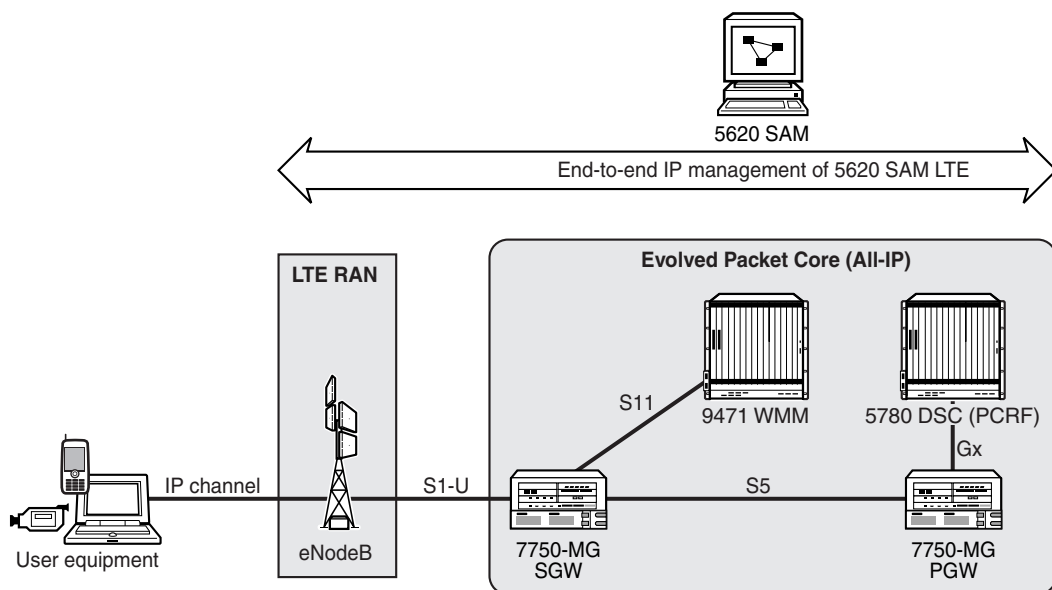
The 5620 SAM LTE NE management solution focuses on the equipment, configuration, fault, and state management of the ePC NEs, LTE interfaces, and mobile services that are used for mobile backhaul.

The 5620 SAM LTE NE management solution also supports the correlation of the LTE interfaces and mobile services with the underlying network transport layer to provide enhanced multi-layer monitoring and troubleshooting capabilities.

The 5620 SAM LTE NE management solution is comprised of the following components:

- 5620 SAM
- 5620 SAM LTE ePC
 - 7750 MG SGW
 - 7750 MG PGW
 - 9471 MME
 - 5780 DSC
- 5620 SAM LTE RAN (also known as the eUTRAN)
 - eNodeB

Figure 2-1 shows the 5620 SAM LTE NEs components and EPS interfaces that are managed in a typical LTE network.



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5620 SAM

The Alcatel-Lucent 5620 SAM enables integrated element, network and service-aware management of the products not only within the evolved packet core, but it also extends out to the radio access network devices (eNodeB), providing operators with an end-to-end IP management within the eUTRAN, backhaul and core networks. The 5620 SAM manages both the mobile layer (bearers, QoS of traffic flows, GTP/PMIP tunnels) and the underlying transport layer attributes (bandwidth, pseudowires, LSPs) to provide cross-layer coordination and correlation.

The 5620 SAM also features enhanced advanced monitoring and service assurance capabilities to simplify the management of IP/MPLS-based networks. In particular, its automated troubleshooting functionality integrates physical, network routing and service topologies to simplify the process of fault isolation, minimizing service interruptions and reducing the possibility of human error.

Through a powerful, standards-based OSS interface, the 5620 SAM provides open, standards-based interfaces that easily adapt to their existing OSS environments for faster and more cost-effective integration.

To further enhance their service assurance capabilities, mobile operators can deploy the 5620 SAM along with the Alcatel-Lucent 5650 Control Plane Assurance Manager, which enables operators to proactively assure network and service availability against control plane misconfigurations, malfunctions and undetected routing updates. The 5650 CPAM offers real-time control plane visualization, proactive control plane surveillance, configuration validation and control plane diagnosis. In addition, by seamlessly integrating with the 5620 SAM, the Alcatel-Lucent 5650 CPAM gives carriers unprecedented manageability by unifying service, routing, MPLS and physical infrastructure management.

5620 SAM LTE ePC

The 5620 SAM LTE ePC is an all-IP mobile core network for the LTE, and is a converged framework for packet-based real-time and non-real-time services. LTE is end-to-end all-IP: from mobile handsets and other terminal devices with embedded IP capabilities, over IP-based eNodeB, across the ePC and throughout the application domain.

The 5620 SAM LTE ePC is comprised of the following four components, each of which is defined by 3GPP standards.

7750 MG SGW

The 7750 MG SGW is a data plane element in the LTE network whose primary function is to manage user-plane mobility, and act as a demarcation point between the 5620 SAM RAN and the core network.

7750 MG PGW

The 7750 MG PGW is the termination point of the packet data interface towards the PDN. The 7750 MG PGW, which is the anchor point for sessions towards the external PDN, supports:

- policy enforcement, such as operator-defined rules for resource allocation and usage
- packet filtering, such as deep packet inspection for application type detection
- charging support, such as per-URL charging

9471 MME

The 9471 MME performs the signaling and control functions to manage the UE access to network connections, the assignment of network resources, and the management of the mobility states to support tracking, paging, roaming, and handovers. The 9471 MME controls all control-plane functions that are related to subscriber and session management. The 9471 MME supports the following functions:

- security procedures—end-user authentication as well as initiation and negotiation of ciphering and integrity protection algorithms
- terminal-to-network session handling—signaling procedures that are used to set up packet data context and negotiate associated parameters such as QoS
- idle terminal location management—tracking the area update process that is used to allow the network to join terminals for incoming sessions

5780 DSC

The Alcatel-Lucent 5780 DSC is a carrier-grade platform that provides the Policy and Charging Rules Function for 3G packet core and 4G evolved packet core networks according to the 3GPP Release 7 and 8 specifications.

The 5780 DSC allows service providers to manage and control network behavior based on their business rules, application requirements, network status, and subscriber entitlement and preferences. After these decisions are implemented, they are instantiated and enforced in the network as a set of network policies.

The 5780 DSC supports the following functions:

- provides the dynamic link between the data and user layer, and the application and subscriber layer
- authorizes the network connections and flow, and determines charging information
- determines and binds the required QoS policy
- determines the flow and charging rules during UE connections, including detection and policy control
- accepts AF requests for media components and charging
- notifies the AF about network events
- provides roaming support of the ePC solution
- allows operator control of subscription support, service assurance, and charging

5620 SAM LTE RAN

The 5620 SAM LTE RAN focuses on the discovery, configuration, and management of RAN devices such as the eNodeB. The 5620 SAM provides an end-to-end management solution of the all-IP LTE domain by managing RAN UE access points in addition to the ePC mobile backhaul.

The 5620 SAM LTE RAN eNodeB, which reside outside of the ePC in the RAN, provides the user plane and control plane protocol terminations for user equipment. The eNodeB use the S1-MME interface to connect to the 9471 MME and the S1-U interface to connect to the 7750 MG SGW.

5620 SAM LTE 3GPP reference points

LTE reference points, as shown in Figure 2-1, are based on the 3GPP standards and are created automatically when LTE peer devices are signaled. The following peers and reference points are supported in the 5620 SAM Release 8.0:

- eNodeB to 7750 MG SGW (S1-U)
- 7750 MG SGW to 7750 MG PGW (S5)
- 7750 MG SGW to 9471 MME (S11)
- 7750 MG PGW to 5780 DSC (Gx)
- 7750 MG PGW or 7750 MG SGW to CCF (Rf)

2.2 Supported 5620 SAM LTE NE management functions

The Alcatel-Lucent 5620 SAM, along with the 5650 CPAM, provides comprehensive element and end-to-end IP management for the Alcatel-Lucent ePC NEs, LTE interfaces, and mobile services that are used for mobile backhaul.

Table 2-1 lists the 5620 SAM LTE NE management functions that are supported by the 5620 SAM.

Table 2-1 LTE management functions supported by the 5620 SAM

LTE NE management support	Discovery and mediation	Equipment	Configuration	Performance	State	Fault and alarm
5620 SAM LTE ePC (see the 5620 SAM LTE ePC User Guide)						
7750 MG SGW	✓	✓	✓	✓	✓	✓
7750 MG PGW	✓	✓	✓	✓	✓	✓
9471 MME	✓	✓		✓	✓	✓
5780 DSC	✓	✓			✓	✓
5620 SAM LTE RAN						
eNodeB	✓	✓	✓	✓	✓	✓

Supported 5620 SAM LTE ePC management functions

See the *5620 SAM LTE ePC User Guide* for all functionality supported by the 5620 SAM.

Supported 5620 SAM LTE RAN management functionality

The 5620 SAM LTE RAN management functionality focuses on the discovery, configuration, and management of RAN devices such as the eNodeB. The 5620 SAM provides an end-to-end management solution of the all-IP LTE domain by managing RAN UE access points in addition to the ePC mobile backhaul.

The eNodeB management by the 5620 SAM is significantly different in terms of functionality and the management paradigm. Traditionally, the 5620 SAM takes what can be considered a passive role in device management. That is, the device takes a dominant role and the 5620 SAM serves to monitor and assist the functionality of the network.

In relation to the eNodeB, the 5620 SAM management paradigm is reversed. The device takes a passive role to the 5620 SAM, which is fully capable of configuring and overriding device settings and configuration.

LTE RAN reference documentation

See the following documents for more information on the LTE RAN and related documentation:

- *Alcatel-Lucent LTE Radio Access Network (RAN) | Release LA3.0 Overview 418-000-012*
- *Alcatel-Lucent LTE Radio Access Network (RAN) | Release LA3.0 Customer Documentation Overview 418-000-010*

2.3 5620 SAM LTE RAN scalability

In the context of the eNodeB, a single installation of the 5620 SAM is designed to manage a maximum of:

- 3000 eNodeBs
- 9000 cells for LA 2.0 eNodeBs and 18000 cells for LA 3.0 eNodeBs
- 150 simultaneous 5620 SAM GUI clients
- 10 simultaneous OSS clients

2.4 5620 SAM LTE path and mobile service management overview

The 5620 SAM LTE solution introduces the following concepts and tools for the management of LTE ePC NEs, interfaces, and services.

EPS paths

The nodes in the ePC and the eNodeB are connected by interfaces that correspond topologically to the LTE reference points. The 5620 SAM-managed point-to-point connections between EPS peers are known as EPS paths.

The 5620 SAM allows you to view the peers, perform the drill-down operation, and view the faults that are associated with each instance of an EPS path. You can use the Manage→Mobile Core command from the 5620 SAM main menu or the EPS path topology map to view the properties of EPS paths.

EPS paths topology map

The EPS path topology map is a management tool that displays an aggregated representation of the mobile network objects and EPS paths that the 5620 SAM supports. The topology map provides the following:

- real-time alarm status for all of the EPS paths that the 5620 SAM monitors
- quick access to the properties forms for EPS paths and the 9471 MME, 7750 MG, and the 5780 DSC. The properties forms, in turn, provide access to the configuration, state, performance data, and fault information associated with each managed logical or physical component.

Mobile service

A mobile service represents the connectivity between LTE network components and is comprised of the eNodeB, 7750 MG SGW, 7750 MG PGW, and other supporting NEs. The NEs are joined by S1-U and S5 EPS paths.

The 5620 SAM uses a mobile service to provide a view of the individual service paths that are available from an eNodeB to the 7750 MG SGW and 7750 MG PGW. You can view information about each service path from the eNodeB to the 7750 MG PGW and get information about the configuration, state, performance, and faults associated with each path.

The EPS paths and peer sites associated with a mobile service have been integrated into the 5620 SAM Service Test Manager to provide ping and trace tools to monitor the paths from an eNodeB to a 7750 MG PGW. These tools can also be used for on-demand testing of an EPS path when you need to debug an eNodeB connectivity problem.

Transport layer correlation

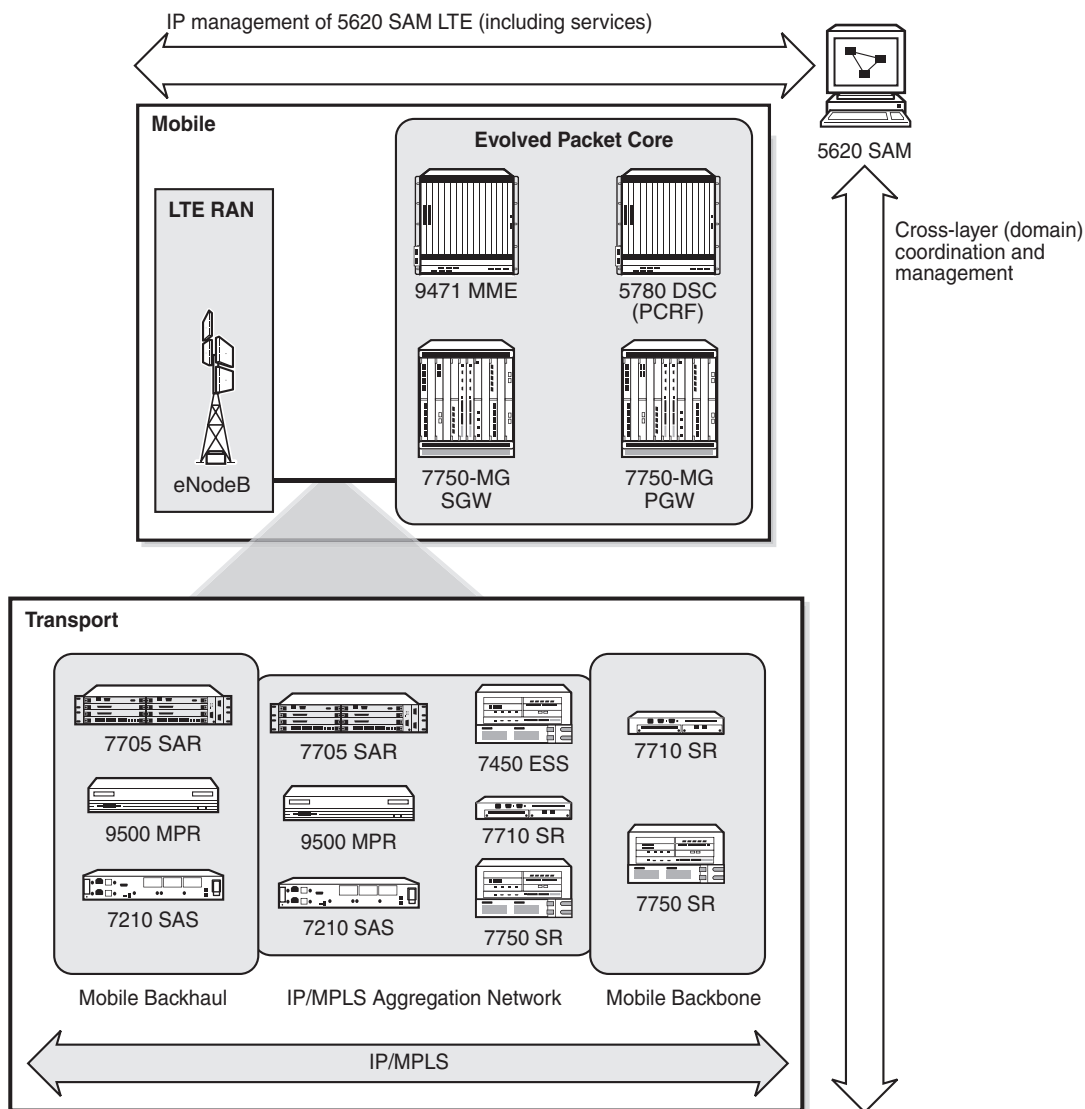
The 5620 SAM can automatically correlate the underlying transport path between NEs with the overlying EPS path. The correlation mechanism is based on information that you configure about the network transport topology. The correlation mechanism is referred to as the drill-down operation; the transport layer information that you configure for an EPS path is referred to as a drill-down hint.

This drill-down operation provides you with the alarm and state information about the transport path and simplifies the root cause analysis for problems that may occur on an EPS path.

5620 SAM LTE end-to-end IP management

The 5620 SAM LTE, Release 8.0 management solution provides end-to-end IP management of the mobile and transport layers of the LTE network. Figure 2-2 shows the LTE and transport components that can be managed by the 5620 SAM.

Figure 2-2 LTE mobile core and transport components managed by the 5620 SAM



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3 — 5620 SAM release LTE RAN features and functionality

3.1 LTE RAN features for 5620 SAM Release 8.0 R6 3-2

3.1 LTE RAN features for 5620 SAM Release 8.0 R6

Table 3-1 lists the 5620 SAM LTE RAN features and functionality present in the 5620 SAM Release 8.0 R6.



Note — The 5620 SAM features described in this chapter are fully supported for eNodeB versions LA2.0.2 (same as LA2.1) and LA3.0.0. The 5620 SAM features described in this chapter in support of eNodeB LA3.0.0 have been fully verified against the currently available LA3.0.0 software, which is pre-DR4. Any evolution of the LA3.0.0 software will be accounted for in ongoing 5620 SAM testing. There is a small risk that issues may be encountered which may impose additional functional restrictions.

Table 3-1 5620 SAM Release 8.0 R6 LTE RAN functionality

Device	Feature and functionality	Reference for more information
Release 8.0 R6 LTE RAN features		
eNodeB support for LA2.0.2 and conditional support for LA3.0	Configuration management The 5620 SAM supports manual and automated configuration of the eNodeB in conjunction with the 9452 Wireless Provisioning System (WPS).	See chapter 4 for information about eNodeB configuration management.
	Network element management and configuration The 5620 SAM supports discovery and management of the eNodeB, and configuration via offline and online configuration.	See chapters 5, 6, and 7 for information about eNodeB discovery and configuration.
	eNodeB Security The 5620 SAM supports IPsec configuration for the eNodeB and provides network administration security, including user role definitions for specific functions of the 5620 SAM.	See chapter 9 for information about eNodeB security management. See the <i>5620 SAM User Guide</i> for information about device security using the 5620 SAM.
	Performance management The 5620 SAM supports the ability to retrieve and plot eNodeB statistics as a graph using the 5620 SAM statistics plotter. The plotter provides a numerical value for each point on the graph.	See chapter 11 for information about retrieving eNodeB statistics. See the <i>5620 SAM Statistics Management Guide</i> for information about using the statistics plotter.
	Troubleshooting support The 5620 SAM supports the use of call trace for the eNodeB.	See chapter 12 for information about eNodeB troubleshooting.

LTE RAN device configuration and discovery

- 4 – eNodeB configuration management
- 5 – eNodeB device configuration and discovery
- 6 – RAN device offline configuration
- 7 – eNodeB online configuration

4 — eNodeB configuration management

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4.1 Alcatel-Lucent LTE RAN management

The Alcatel-Lucent LTE solution features several products that are designed to configure and optimize the RAN in conjunction with the 5620 SAM.



Note — The 5620 SAM features described in this chapter are fully supported for eNodeB versions LA2.0.2 (same as LA2.1) and LA3.0.0. The 5620 SAM features described in this chapter in support of eNodeB LA3.0.0 have been fully verified against the currently available LA3.0.0 software, which is pre-DR4. Any evolution of the LA3.0.0 software will be accounted for in ongoing 5620 SAM testing. There is a small risk that issues may be encountered which may impose additional functional restrictions.

LTE RAN products

The following products interface with the 5620 SAM to facilitate RAN configuration and management:

- 9452 WPS
- 9400 NEM
- NPO

9452 WPS

The 9452 WPS creates CM XML files called WOs. You can use a WO to configure the eNodeB by using the 5620 SAM to activate the WO and deploy XML configuration changes over NetConf.

9400 NEM

The 9400 NEM configures eNodeB parameters without the requirement for OAM software. You can use the 9400 NEM to commission and configure the eNodeB.

NPO

The NPO provides operators with QoS information and cartographic tools. You can use the NPO to optimize the LTE RAN. You can use the 5620 SAM to provide the NPO with network data by scheduling a daily configuration snapshot.

eNodeB documentation

Table 4-1 lists where to find more information about how to configure eNodeBs for discovery and management by the 5620 SAM.

Table 4-1 LTE RAN related documentation

For more information about	See
eNodeB commissioning procedures	<i>Alcatel-Lucent LTE Radio Access Network (RAN) Alcatel-Lucent 9xxx eNodeB Release LAX.x Commissioning Procedure</i>

(1 of 2)

For more information about	See
9400 NEM	<i>Alcatel-Lucent LTE Radio Access Network (RAN) Alcatel-Lucent 9xxx eNodeB Release LAx.x Network Element Manager (NEM) User Guide</i>
9452 WPS	<i>Alcatel-Lucent LTE Radio Access Network (RAN) Alcatel-Lucent 9452 Wireless Provisioning System (WPS) Release LAx.x User Guide</i>

(2 of 2)

4.2 Configuration management overview

Configuration management is defined as operator-driven configuration of LTE RAN NEs, such as the eNodeB. The 5620 SAM provides operators with the following methods to configure the eNodeB:

- manual self-configuration
- automatic self-configuration via WO import
- offline configuration using a WO deployment
- online configuration using an eNodeB NE instance or ENBEquipment form, or the logical objects manager
- online configuration via OSS interface

eNodeB parameters

Before you configure eNodeB parameters by using the 5620 SAM, it is important to understand the information in this section.

eNodeB parameter visibility

eNodeB parameters are categorized by access into the following visibility levels:

- Customer—Read and write access is available to customers.
- Manufacturer—These parameters are set in the factory or at commissioning. Read and write access is not available to customers.

eNodeB parameter classes

The parameters of the eNodeB are categorized by device impact into the following three classes:

- Class A (high service impact)—A full reset occurs on the eNodeB when you modify class A parameters, which is service-affecting. The eNodeB OAM interface is unavailable during the device reset.
- Class B (moderate service impact)—A reset or temporary lock of an eNodeB component, cell, or application occurs when you modify class B parameters, which can be service-affecting. The eNodeB OAM interface remains available.
- Class C (no service impact)—A reset does not occur on the eNodeB when you modify class C parameters. No services are affected.

Icons representing the A and B impact classes appear beside the eNodeB parameters in the 5620 SAM GUI. An icon does not appear beside impact class C parameters.

eNodeB parameter categories

eNodeB parameters are classified as alpha, beta, and gamma.

Alpha parameters are transport-related parameters that are required for communications between the eNodeB and the 5620 SAM. Default values for some alpha parameters are set in the factory and must be modified during commissioning by using the 9400 NEM. Alpha parameters include the following:

- DHCP parameters
- OAM IP address
- VLAN parameters

Beta parameters are eNodeB hardware and site parameters, and are set on site at commissioning. Beta parameters include the following:

- antenna, RF, and sector definition
- BTS location
- alarm configuration and data
- NTP server IP address

Gamma parameters are the telecommunications parameters, and are provided by the 5620 SAM through offline and/or online configuration of the eNodeB. Gamma parameters include the following:

- eNodeB name
- cell definitions
- S1/X2 link definitions
- VLAN and IPsec information
- neighbor lists

Clear parameters

eNodeB parameters can be left unset or cleared. A cleared parameter in the eNodeB MIM contains absolutely no value. Integer parameters are set to their default value or a special value (such as -1) when cleared.

4.3 WOs

A WO is an XML-based configuration file that is designed to configure the eNodeB. You can create WOs using the 9452 WPS. The WOs are transferred using either FTP or a shared directory, depending on installation.

You can use WOs to comprehensively configure eNodeBs, or to modify specific parameters. You can also use the activation manager to create a pre-provisioned NE instance by activating a WO for which there is no corresponding discovered eNodeB. See section 6.2 for more information about using the activation manager.

XML structure

The XML structure of a WO is designed so that a WO can contain one or more NE WOs. An NE WO is represented by the *workorder* element, contains configuration data for a single eNodeB, and is a child element of the *workorders* root element.

See the example below for the XML structure of a WO.

Code 4-1: Sample WO and contained NE WO

```
<?xml version="1.0" encoding="UTF-8"?>
<workorders>
  <workorder name="sample NE WO" creationDate="2010-10-26 14:48:07.533
+0200" originator="admin" description="none">
    <ENBEquipment id="eNB101" model="ENB" version="LA_02_00"
method="modify">
      <attributes>
        <userSpecificInfo>workorder content</userSpecificInfo>
      </attributes>
    </workorder>
  </workorders>
```

WOs in the 5620 SAM

The WOs in the 5620 SAM server are located in the *path/activation/wo_import* folder or directory, where *path* is the 5620 SAM base directory.

The 5620 SAM polls the *wo_import* directory for new WOs once every five minutes, or each time that an operator clicks on the appropriate Search button in the activation manager. The 5620 SAM automatically adds new WOs as database objects for operator use.

4.4 Self-configuration

Self-configuration is the process of creating pre-provisioned NE instances that serve as placeholders for configuration data before eNodeB discovery. Self-configuration of eNodeBs streamlines the process of bringing large numbers of NEs online. Self-configuration consists of two stages:

- 1 Prior to discovery, the automatic or manual creation of pre-provisioned NE instances that contain configuration data.
- 2 During discovery, the activation of the self-configuration process flow for the new eNodeBs identified as matching existing pre-provisioned NE instances.

The self-configuration process flow features the steps listed below.

- The deployment of the configuration data contained by the pre-provisioned NE instance with an automatically created activation session.
- The application of software upgrades as specified in the NE self-configuration policy and associated RAN software upgrade policy.
- Setting the administrative state of successfully configured eNodeBs to Up.

Self-configuration policies

Self-configuration policies determine the process flow followed by the 5620 SAM when an eNodeB that is identified as a match for a pre-provisioned NE instance is discovered. Self-configuration policies can also be configured to run software upgrades on newly discovered eNodeBs. Perform Procedure 5-1 to create or modify a self-configuration policy.

The self-configuration process flow contains the following points and corresponding selectable checkpoints:

- auto start (no checkpoint possible)
- software upgrade
- configuration deployment
- administrative enable

When you select a checkpoint for a stage, the process flow pauses at that stage until you manually advance the process by using the pre-provisioned NE instance form. Perform Procedure 5-6 to manually run the self-configuration process flow.

Pre-provisioned NE instances

Pre-provisioned NE instances are placeholder NE templates that contain the configuration data that is deployed to an eNodeB upon discovery. Pre-provisioned NE instances can be created manually using the 5620 SAM GUI, or by using the activation manager to activate an NE WO for which there is no corresponding discovered eNodeB. Perform Procedure 5-2 to create or modify a pre-provisioned NE instance.

When an eNodeB with an ENBEquipment value that corresponds to the Network Element ID value of a pre-provisioned NE instance is discovered, then the parameter and software configurations of the pre-provisioned NE instance are deployed to the device in accordance to the process flow of the associated NE self-configuration policy.



Note — Configuration deployment overwrites the existing NetConf tree on the eNodeB. Prior device configuration will be lost.

Self-configuration using the process flow

When the 5620 SAM discovery control matches a newly discovered eNodeB with a pre-provisioned NE instance, the state of the pre-provisioned NE instance changes from Awaiting Node to Detected Node.

When the pre-provisioned NE instance is configured for Auto Start, the process flow starts automatically. When no checkpoints are selected, the process flow runs to completion without operator intervention. When one or more checkpoints are selected, the process flow requires operator intervention. Perform Procedure 5-6 to run the self-configuration process flow manually.



Note 1 – eNodeBs that are set to a locked state by the activation manager can only be configured or modified by the corresponding activation session.

Note 2 – eNodeBs that are manually set to a locked state can only be configured or modified after the state of the eNodeB is set to unlocked by a 5620 SAM operator.

During the SW Upgrade stage of the process flow, the 5620 SAM verifies whether the software version specified in the pre-provisioned NE instance and self-configuration policy match the software version of the newly discovered eNodeB. If the software version of the eNodeB is lower than the specified version, then the 5620 SAM automatically reconfigures the SFTP target of the eNodeB and initiates a software update. If the software version in the eNodeB is higher than the software version specified by the pre-provisioned NE instance and self-configuration policy, the 5620 SAM raises a software version mismatch alarm.

During the Configuration Deployment stage of the process flow, the 5620 SAM deploys the parameter configuration specified in the pre-provisioned NE instance that corresponds to the newly discovered eNodeB.

The Administrative Enable stage of the process flow is when the 5620 SAM sets the administrative state of the newly discovered eNodeB to Up and performs a full resynchronization of the device. The 5620 SAM changes the eNodeB state to Managed and raises an informational alarm to notify operators of a successful self-configuration event.

Self-configuration using NE WOs

When you use the activation manager to activate an NE WO that creates an ENBEquipment object with a value that does not match any existing pre-provisioned or discovered eNodeBs, the 5620 SAM automatically creates a pre-provisioned NE instance with a Network Element ID that matches the string value of the ENBEquipment parameter in the NE WO. You can use this function to facilitate the process of pre-provisioning.

Offline configuration of automatically created pre-provisioned NE instances uses the same process flow as manually created pre-provisioned NE instances.

4.5 Offline configuration

Offline configuration is the process of using of the 9452 WPS to create CM XML configuration files (WOs) that are imported into the 5620 SAM and deployed to eNodeBs for the configuration and fine-tuning of eNodeB parameters.

Discovery of eNodeBs by using offline configuration only

Initial commissioning of an eNodeB requires the setting of alpha parameters, including OAM IP information and a string identification. Providing that the 5620 SAM is able to identify an eNodeB by its ENBEquipment parameter, newly discovered eNodeBs can be fully configured using offline configuration without pre-provisioning.

Activation sessions and the activation manager

The activation manager is used by the 5620 SAM to apply WOs to eNodeBs. Before you can use the activation manager, you must create an activation session, which serves as the object anchor in the 5620 SAM database. The activation session can then be used by the activation manager to deploy WOs to eNodeBs. Perform Procedure 6-1 to create an activation session.

Configuration locks

An activation session acquires a configuration lock for the target eNodeBs when an operator, or the 5620 SAM, starts the session. Configuration locks prevent any changes external to the activation session from being applied to the eNodeBs in order to prevent conflicts. Locks can be released when an operator terminates the activation session, in the Release stage, and by the auto-release function.

If two or more activation sessions try to acquire a lock on the same eNodeB, only the first lock attempt succeeds. Subsequent lock attempts by activation sessions display the lock status as Waiting.

Running an activation session

Once started, an activation session can be scheduled for automatic execution up to 24 hours in the future. Activation sessions waiting to be executed by the scheduler remain in the started state, and all associated eNodeBs remain locked until the session is finished.



Note — In the 5620 SAM Release 8.0 R6, only one WO can be associated with an activation session at a time. Conversely, a WO can only be associated with one activation session.

After an existing activation session is loaded into the activation manager, the operator starts the session to acquire configuration locks and performs the following stages in sequence:

- 1 Setup: loads the WO and performs an XML sanity check.
- 2 Validation: runs validation checks on NE WOs.
- 3 Activation: deploys the NE WOs to the applicable eNodeBs.
- 4 Fallback: reverts configuration changes, if required, undoing the Activation stage.
- 5 Release: releases configuration locks.

At any stage in the activation process, an operator can view activation logs, validation errors, and the XML structure of the WO that is being deployed. Perform Procedure 6-2 to deploy a WO to an eNodeB by using the activation manager.

Configuration snapshots

You can use the 5620 SAM to capture snapshots of existing eNodeB configurations. The 9452 WPS can convert configuration snapshots into WOs. The operators can then reuse proven configurations and apply them to large numbers of eNodeBs, which facilitates RAN provisioning and limits troubleshooting requirements. Configuration snapshots are also used to supply the NPO with network information. You must schedule a daily, recurring configuration snapshot of all managed eNodeBs in order to provide a complete image of the network to the NPO. See section 6.3 for more information about configuration snapshots.

4.6 Online configuration

Online configuration is the process of using the 5620 SAM GUI to configure eNodeB parameters individually or in groups by using the logical objects manager. Online configuration includes the use of OSS interfaces to configure the eNodeB. You can use online configuration to do the following:

- incrementally configure eNodeBs
- fine-tune eNodeB configurations
- troubleshoot eNodeBs

See chapter 7 for more information about online configuration.

5 — *eNodeB device configuration and discovery*

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5.1 eNodeB management and configuration overview

This section is an overview of the configuration tasks that are required to discover, manage, and configure an eNodeB using the 5620 SAM.



Note — The 5620 SAM features described in this chapter are fully supported for eNodeB versions LA2.0.2 (same as LA2.1) and LA3.0.0. The 5620 SAM features described in this chapter in support of eNodeB LA3.0.0 have been fully verified against the currently available LA3.0.0 software, which is pre-DR4. Any evolution of the LA3.0.0 software will be accounted for in ongoing 5620 SAM testing. There is a small risk that issues may be encountered which may impose additional functional restrictions.

eNodeB configuration management in the 5620 SAM

LTE RAN and eNodeB management by the 5620 SAM builds on existing functionality for NE configuration, discovery, and management. You can configure the eNodeB by using the following methods:

- self-configuration
- offline configuration
- online configuration

Self-configuration of the eNodeB is the process of creating pre-provisioned NE instances and self-configuration policies in order to pre-provision eNodeB configurations.

Offline configuration of the eNodeB is the deployment of a WO to the device with the activation manager. The 9452 WPS creates WOs offline and external to the 5620 SAM.

Online configuration is the process of configuring eNodeB parameters using the 5620 SAM GUI or via an OSSI client.

Once the initial configuration of the eNodeB is complete, you can use the 5620 SAM to do the following:

- deploy additional WOs to eNodeBs by using the activation manager (offline configuration)
- configure parameters manually by using the eNodeB instance form (online configuration)
- configure parameters of multiple eNodeBs at the same time by using the logical objects manager (online configuration)
- configure eNodeB parameters by using an OSSI client (online configuration)

See section 5.4 for information about self-configuration. See section 6.2 for information about offline configuration. See section 7.1 for more information about online configuration.

eNodeB site ID in the 5620 SAM

The 5620 SAM uses a string value, instead of a management or system IP address, to represent an eNodeB in the network. This string ID is the value of the id parameter of the ENBEquipment object. The ENBEquipment object is the root of the NetConf tree that contains the parameters and properties of the eNodeB MIM.

The 5620 SAM classifies eNodeBs without a value entered for the ENBEquipment id object as unidentified nodes and stops the discovery process. Perform Procedure 5-8 to enter an identifying value for unidentified nodes and allow the discovery to proceed.



Note 1 — The value of the id property of the ENBEquipment object must be unique because the 5620 SAM uses this value to identify the eNodeB in the network.

Note 2 — You must unmanage and remanage an eNodeB if you change the ENBEquipment id value after device discovery by the 5620 SAM.

Note 3 — The id property is the 5620 SAM equivalent of the uniqueName parameter in the eNodeB MIM. It is used to identify objects for operator use and for PM reporting. It must be set by the 9400 NEM.

5.2 eNodeB management configuration workflow

The following workflow lists the high-level steps that are required to prepare an eNodeB for discovery, configure the 5620 SAM to discover the eNodeB, and perform basic management tasks.

- 1 Commission eNodeBs by using the 9400 NEM to configure the parameters required for the 5620 SAM to discover and manage the device. Configure optional parameters, as required.
- 2 Establish static routes from the 5620 SAM and LTE RAN servers to eNodeBs and eNodeB subnets, as required.
- 3 Create an SNMPv3 user that corresponds to the hard-coded user parameters in the eNodeB.
- 4 Create one or more mediation security policies and associate the SNMPv3 eNodeB user with each policy.
- 5 Create WOs using the 9452 WPS.
- 6 Discover eNodeBs and configure the devices using self-configuration, as required.
 - i Manually create pre-provisioned NE instances to serve as placeholders for undiscovered eNodeBs, as required.
 - ii Associate WOs with pre-provisioned NE instances.
 - iii Create WOs, transfer them to the 5620 SAM and use the activation manager to create pre-provisioned NE instances, as required.

- iv Modify the parameters of pre-provisioned NE instances manually, or by deploying WOs with the activation manager, as required.
 - v Create self-configuration policies to specify the level of operator involvement in the configuration process at the moment an eNodeB is discovered.
 - vi Create a discovery rule for self-configuration that contains:
 - a self-configuration policy
 - a pre-provisioned NE instance
 - an eNodeB-specific mediation security policy
 - rule elements that contain eNodeB IP addresses
 - vii Scan the network according to the discovery rules.
 - viii Check the discovery, self-configuration, software upgrade, management, and synchronization status of the NEs.
- 7 Discover the eNodeBs and configure them using offline or online configuration (without self-configuration), as required.
- i Create discovery rules for offline or online configuration that contain:
 - the eNodeB mediation security policy
 - rule elements that contain eNodeB IP addresses
 - ii Scan the network according to the discovery rules.
 - iii Check the discovery, self-configuration, software upgrade, management, and synchronization status of the NEs.
 - iv Deploy WOs to discovered eNodeBs using the activation manager, as required.
 - v Use the logical objects manager to configure eNodeB parameters, as required.
- 8 Manage RAN discovery and configuration, as required:
- Modify the discovery rules.
 - Add or modify the rule elements.
 - Enable, disable, or remove the discovery rules.
 - Scan the network as needed according to a discovery rule.
 - Synchronize NEs with the 5620 SAM database.
 - Manage or unmanage eNodeBs, as required.
 - Fine-tune the eNodeB configurations by deploying WOs to eNodeBs using the activation manager, as required.
 - Use configuration snapshots to capture existing eNodeB configuration data to use with the 9452 WPS to create new WOs.
 - Schedule a recurring daily configuration snapshot to provide CM data to the NPO, if required.

5.3 eNodeB commissioning

The eNodeB must be configured by the 9400 NEM to accept SNMP requests from the 5620 SAM. The following parameters must be configured:

- OAM IP address
- OAM IP netmask
- Default gateway for OAM IP network
- ENBEquipment ID (the uniqueName property of the ENBEquipment object in the eNodeB MIM)

The following parameters are optional:

- OAM VLAN ID
- NTP server IP address
- NMS subnet route
- NMS subnet route netmask



Note — A static route must be configured if the eNodeB is in a different subnet than the 5620 SAM.

5.4 eNodeB self-configuration

Alcatel-Lucent recommends self-configuration as the method for configuring eNodeBs for management by the 5620 SAM. Procedures 5-1 and 5-2 describe the steps required for self-configuration. See the *5620 SAM Parameter Guide* for descriptions of the parameters in the following procedures.

Procedure 5-1 To create or modify an NE self-configuration policy

Self-configuration of the eNodeB by the 5620 SAM requires the creation of both an NE self-configuration policy and a pre-provisioned NE instance.

- 1 Choose Administration→NE Self Config Policy Manager from the 5620 SAM main menu. The NE Self Config Policy Manager form opens.
- 2 Perform one of the following:
 - a To create an NE self-configuration policy, click on the Create button. The NE Self Config Policy (Create) form opens. Go to step 3.
 - b To modify an existing NE self-configuration policy:
 - i Configure the filter criteria, if required, and click on the Search button to generate a list of self-configuration policies.
 - ii Choose an NE self-configuration policy from the list and click on the Properties button. The NE Self Config Policy (Edit) form opens. Go to step 3.

- 3 Enter a name for the NE self-configuration policy in the Name field.
- 4 Verify and modify the settings in the following check boxes of Process Flow panel, as required:
 - Auto Start
 - SW Upgrade—causes the Software Upgrade panel to appear.
 - Configuration Deployment
 - Administrative Enable
- 5 Verify and modify the settings in the following check boxes for the Checkpoints Before panel, as required:
 - SW Upgrade
 - Configuration Deployment
 - Administrative Enable
- 6 Perform one of the following:
 - a If the SW Upgrade check box is selected and the Software Upgrade panel is displayed, go to step 7.
 - b If the SW Upgrade check box is not selected and the Software Upgrade panel does not display, go to step 9.
- 7 Perform one of the following:
 - a Choose a RAN node software upgrade policy:
 - i Click on the Select button for the Policy ID in the Software Upgrade panel. The Select RAN Node Software Upgrade Policy form opens.
 - ii Configure the filter criteria, if required, and click on the Search button to generate a list of RAN node software upgrade policies.
 - iii Choose a RAN node software upgrade policy from the list and click on the OK button to return to the NE Self Config Policy form. Go to step 8.
 - b Create a RAN node software upgrade policy:
 - i Click on the Select button for the Policy ID in the Software Upgrade panel. The Select RAN Node Software Upgrade Policy form opens.
 - ii Perform Procedure 10-6.
 - iii Configure the filter criteria, if required, and click on the Search button to generate a list of RAN node software upgrade policies.
 - iv Choose a RAN node software upgrade policy from the list and click on the OK button to return to the NE Self Config Policy form. Go to step 8.
- 8 Choose a software image:
 - i Click on the Select button for the Software Release in the Software Upgrade panel. The Select Software Image form opens.
 - ii Choose a software image from the list and click on the OK button to return to the NE Self Config Policy form.

- 9 Click on the OK button to close the form and save the NE self-configuration policy. When you modify an existing NE self-configuration policy, a dialog box appears. Click on the Yes button to close the dialog box.
 - 10 Close the NE Self Config Policy Manager form.
-

Procedure 5-2 To create or modify a pre-provisioned NE instance

Perform this procedure to create or modify a pre-provisioned NE instance on the 5620 SAM to use as a configuration placeholder before the discovery of an eNodeB.

- 1 Choose Administration→Pre-Provisioned NE Manager from the 5620 SAM main menu. The Pre-Provisioned NE Manager form opens.
- 2 Perform one of the following:
 - a To create a pre-provisioned NE instance, click on the Create button. The Pre-Provisioned NE form opens with the General tab displayed. Go to step 3.
 - b To modify an existing pre-provisioned NE instance:
 - i Configure the filter criteria, if required, and click on the Search button to generate a list of pre-provisioned NE instances.
 - ii Choose a pre-provisioned NE instance from the list and click on the Properties button. The Pre-Provisioned NE form opens with the General tab displayed. Go to step 7.
- 3 Configure the Network Element ID parameter.



Note — The Network Element ID parameter is used as the identifier for an eNodeB in the network. The Network Element ID of a pre-provisioned NE instance must match the ENBEquipment value of the corresponding eNodeB for the two to be matched in the network upon discovery by the 5620 SAM.

- 4 Click on the Select button for the Network Element Type and choose an eNodeB type from the drop-down menu.
- 5 Click on the Select button for the Network Element Version and choose a version from the drop-down menu.
- 6 Choose a chassis type from the Chassis Type drop-down menu.
- 7 Click on the Options tab button.
- 8 Enter the active management IP address for the eNodeB in the Active Management IP field.

- 9 Enter the unique hardware identifier for the eNodeB in the Hardware Identifier field.



Note — The 5620 SAM uses the Hardware Identifier and Active Management IP parameters to help identify an eNodeB and resolve potential conflicts in the network.

- 10 Perform one of the following:
 - a If you have a eNodeB software upgrade policy that you need to use as a software upgrade override or you need to create one, go to step 11.
 - b If you do not need to use a software upgrade override for this pre-provisioned NE instance, go to step 15.
- 11 Perform one of the following:
 - a Choose an eNodeB software upgrade policy:
 - i Click on the Select button in the Software Upgrade Override panel. The Select Software Upgrade Policy form opens.
 - ii Configure the filter criteria, if required, and click on the Search button to generate a list of eNodeB software upgrade policies.
 - iii Choose an eNodeB software upgrade policy from the list and click on the OK button to return to the Pre-Provisioned NE form. Go to step 12.
 - b Create an eNodeB software upgrade policy:
 - i Click on the Select button in the Software Upgrade Override panel. The Select Software Upgrade Policy form opens.
 - ii Click on the Create button.
 - iii Perform Procedure 10-6.
 - iv When the new eNodeB software upgrade policy is created successfully, go to step 12.
- 12 Click on the Select button for the Image. The Select Software Image form opens.
- 13 Configure the filter criteria, if required, and click on the Search button to generate a list of eNodeB software images.
- 14 Choose a software image from the list and click on the OK button to close the form and return to the Pre-Provisioned NE form.
- 15 Click on the Apply button.

The pre-provisioned NE instance is saved and created in the network. The 5620 SAM creates the Pre-Provisioned NEs group if the group does not already exist. The form refreshes to display additional tabs.



Note — The 5620 SAM raises a warning alarm when you save a pre-provisioned NE instance without associating an NE WO.

16 Perform one of the following:

- a** Associate an NE WO with the pre-provisioned NE instance.
 - i** Click on the Activation tab button.
 - ii** Click on the Select button. The Select NE Work Order form opens.



Note — In order for an NE WO to appear in the Select NE Work Order form, the value for the Network Element ID parameter that you entered in this procedure and the string value of the ENBEquipment parameter in the NE WO must match.

- iii** Configure the filter criteria, if required, and click on the Search button to generate a list of applicable NE WOs.
- iv** Choose an NE WO from the list and click on the OK button to close the Select NE Work Order form. The 5620 SAM automatically creates and starts an activation session to apply the NE WO.



Note 1 — If an existing activation session is already using the WO, the pre-provisioned NE instance does not create an activation session or apply the WO.

Note 2 — If an activation session remains in the started state for more than 24 h without being completed by an operator, an alarm is raised in the 5620 SAM.

- v** Click on the Apply button to save the pre-provisioned NE instance. A dialog box appears.
 - vi** Click on the Yes button to close the dialog box.
 - vii** Close the Pre-Provisioned NE Manager form.
 - b** Close the Pre-Provisioned NE form without associating an NE WO.
-

5.5 eNodeB discovery

Procedure 5-3 describes how to create a mediation security policy and an SNMPv3 user, which are required for eNodeB discovery by the 5620 SAM and for SNMP communication. Procedure 5-4 describes how to create a discovery rules for eNodeBs that are intended for self-configuration, and offline and online configuration. See the *5620 SAM Parameter Guide* for descriptions of the parameters in the following procedures.

Procedure 5-3 To configure the 5620 SAM to communicate with the eNodeB using SNMPv3

The following procedure describes the configuration of an SNMPv3 user and mediation policy intended specifically for 5620 SAM communication with the eNodeB. For information about configuring additional parameters in a mediation policy, see the Discovery Management chapter in the *5620 SAM User Guide*.



Note — The eNodeB requires specific settings to be configured in the 5620 SAM in order for SNMP communication to occur. A mediation security policy and an NE user intended specifically for eNodeB management must be created. The following conditions must be met:

- The username of the NE user specified in the mediation security policy is *initial_snm*.
- The password used in the password fields for the *initial_snm* user must match the password hard-coded on the eNodeB.
- The SNMP port is 161.
- The NetConf port is 830.
- The SNMP version is SNMPv3.

- 1 Create an SNMPv3 user on the 5620 SAM.
 - i Choose Administration→Security→NE User Configuration from the 5620 SAM main menu. The NE User Configuration form opens.
 - ii Click on the Create button. The NE User, Global Policy (Create) form opens with the General tab displayed.
 - iii Enter *initial_snm* in the User Name field.



Note — You can create two or more NE users with identical values for the User Name parameter by setting the Additional ID parameter. You can then accommodate eNodeBs with specific NE user requirements, such as the type of privacy policy.

- iv Enter a value in the Additional ID parameter if you are creating more than one *initial_snm* user.
- v Enter a description in the Description field, if required.
- vi Select the *snmp* check box to enable SNMP for the user.
- vii Click on the SNMPv3 tab button.

viii Configure the parameters:

- Authentication Protocol
- Privacy Protocol



Note — The settings for the Authentication Protocol, Privacy Protocol, and associated password parameters must match the corresponding parameters on the eNodeB.

ix Configure the parameters, if required:

- New Authentication Password
- Confirm New Auth Password

x Configure the parameters, if required.

- New Privacy Password
- Confirm New Privacy Password

xi Click on the OK button to create the user and close the NE User form. The initial_snm user you just created is displayed in the user list.

xii Close the NE User Configuration form.

2 Configure an SNMPv3 mediation security policy on the 5620 SAM.

i Choose Administration→Mediation from the 5620 SAM main menu. The Mediation (Edit) form opens with the General tab displayed.

ii Click on the Mediation Security tab button.

iii Click on the Add button to create a mediation security policy. The Mediation Policy (Create) form opens.

iv Enter a name in the Displayed Name field.

v Choose SNMPv3(USM) from the Security Model drop-down menu. The SNMPv3 panel is displayed.

vi In the SNMP panel, set the Port parameter to 161, if required.

vii In the SNMPv3 panel, click on the Select button for the SNMPv3 user. The Select User form opens.

viii Choose the initial_snm user you created in step 1 and click on the OK button to close the Select User form.

ix In the File Transfer panel, configure the File Transfer Type by using the drop-down menu.

- x In the FTP panel, configure the following parameters:

- User Name
- User Password
- Confirm Password
- Connect Timeout (sec)
- Read Timeout (sec)



Note — In order to perform eNodeB software upgrades using the 5620 SAM, FTP or SFTP must be configured.

- xi In the NETCONF panel:

- Enter *initial_snm* in the User Name field.
- Configure the User Password and Confirm Password fields.
- Enter 830 in the Port field, if required.

- xii Click on the OK button to close the Mediation (Create) form. A dialog box appears.

- xiii Click on the OK button to close the dialog box.

- xiv Click on the OK button to close the Mediation (Edit) form and save the mediation security policy.
-

Procedure 5-4 To create a discovery rule for eNodeB management by the 5620 SAM

Follow the prompts provided to create a discovery rule intended for self-configuration, or offline/online configuration. For information about configuring additional parameters in a discovery rule, see the Discovery Management chapter in the *5620 SAM User Guide*.

The 5620 SAM discovers devices by scanning the network as specified by the discovery rules. After a device is discovered, the 5620 SAM servers sets the device to a managed state and adds the device elements to the 5620 SAM database.



Note — You need to create separate discovery rules for self-configuration. Offline configuration without self-configuration and online configuration can use the same discovery rule.

- 1 Choose Administration→Discovery Manager from the 5620 SAM main menu. The Discovery Manager (Edit) form opens with the Discovery Rules tab displayed.
- 2 Click on the Add button. The Create Discovery Rule form opens.
- 3 In step 1 of the form (Specify General Attributes), enter a description in the description field, if required.

- 4 Click on the Select button for the Group Name. The Select Discovery Group form opens.
- 5 Choose a group from the list and click on the OK button to close the form.



Note — The Pre-Provisioned NEs group does not display if no pre-provisioned NE instances exist. Perform Procedure 5-2 to create a pre-provisioned NE instance.

- 6 Click on the Next button.
- 7 In step 2 of the form (Add Rule Elements), click on the Add button. The Topology Discovery Rule Element form opens.
- 8 Enter an eNodeB management IP address or range in the IP Address field and click on the Apply button to add the IP address to the list.
- 9 Replace the contents of the IP Address Field with different IP address and click on the Apply button to add another eNodeB IP address or range to the list, if required.
- 10 Repeat step 9 to add more eNodeB IP addresses to the list, as required.
- 11 Click on the OK button to close the dialog box.
- 12 Click on the Next button.
- 13 In step 3 of the form (Configure Mediation Security), click on the Select button in the Read Access Mediation Policy panel. The Configure Mediation Security form opens.
- 14 Choose the mediation security policy that you created in Procedure 5-3 and click on the OK button to close the form.
- 15 Click on the Select button in the Write Access Mediation Policy panel. The Configure Mediation Security form opens.
- 16 Choose the mediation security policy that you created in Procedure 5-3 and click on the OK button to close the form.
- 17 Click on the Select button in the Trap Access Mediation Policy panel. The Configure Mediation Security form opens.
- 18 Choose the mediation security policy that you created in Procedure 5-3 and click on the OK button to close the form.
- 19 Click on the Next button four times to advance the steps of the form.
- 20 In step 7 of the form (Configure Backup Policy), click on the Select button for the Policy ID. The Select Backup Policy form opens.

- 21 Perform one of the following:
 - a Use the default RAN backup policy.
 - i Choose RAN Based Default Policy from the list.
 - ii Click on the OK button to close the Select Backup Policy form. Go to step 22.
 - b Use a customized RAN backup policy.
 - i Perform Procedure 10-2 to create a RAN backup policy, if required.
 - ii Choose a RAN backup policy from the list.
 - iii Click on the OK button to close the Select Backup Policy form. Go to step 22.
- 22 Click on the Next button.
- 23 In step 8 of the form (Add NE Self Config Policies), perform one of the following:
 - a If you are creating a discovery rule for self-configuration:
 - i Click on the Add button. The Select form opens.
 - ii Configure the filter criteria, if required, and click on the Search button to generate a list of NE self-configuration policies.
 - iii Choose the NE self-configuration policy that you created in Procedure 5-1 and click on the OK button to close the form.
 - iv Click on the Next button.
- 24 Click on the Finish button to close the Create Discovery rule form.
- 25 Click on the Apply button in the Discovery Manager form. A dialog box appears.



Note — You can only choose one NE self-configuration policy for a device type.

- 26 Click on the Yes button to close the dialog box. The discovery rule that you created in this procedure is saved and activated.



Note 1 — The discovery rule that you created in this procedure is not saved or activated until you click on the OK button or the Apply button in the containing Discovery Manager form and confirm the system changes.

Note 2 — Discovery rules that are shut down are not applied.

- 27 Perform the following, as required:
- a Perform Procedure 5-6 to run the self-configuration process flow when the 5620 SAM discovers eNodeBs intended for self-configuration.
 - b Perform Procedure 5-7 to manage eNodeB discovery for online configuration.
-

Procedure 5-5 To view and sort the deployment status of pre-provisioned NE instances

Perform this procedure to sort pre-provisioned NE instances by their deployment status and access the Properties form of an instance. Perform Procedure 5-6 to run the self-configuration process flow of a pre-provisioned NE instance.

- 1 Choose Administration→Pre-Provisioned NE Manager from the 5620 SAM main menu. The Pre-Provisioned NE Manager form opens.
 - 2 Click on the drop-down menu at the top left corner of the form and choose Pre-Provisioned NE Status (Self Config). The form refreshes and displays additional filter options.
 - 3 Click on the Search button to display a list of pre-provisioned NE instances.
 - 4 Configure the filter criteria in one or more columns of the main panel and click on the Search button to display a list of pre-provisioned NE instances based on the defined filter criteria.
 - 5 Choose a pre-provisioned NE instance from the list and click on the Properties button. The Pre-Provisioned NE Status form opens.
 - 6 Perform configuration tasks as required.
-

Procedure 5-6 To run the self-configuration process flow for a pre-provisioned NE instance that has a status of Detected Node and enabled checkpoints

Perform this procedure to verify the discovery status of a pre-provisioned NE instance and run the configuration process flow when checkpoints are enabled on the instance. This procedure is required only when checkpoints are enabled.



Caution — The configuration deployment phase of self-configuration overwrites the entire eNodeB NetConf tree. You erase all prior configuration on the eNodeB when you run the self-configuration process flow.

- 1 Choose Administration→Pre-Provisioned NE Manager from the 5620 SAM main menu. The Pre-Provisioned NE Manager form opens.
 - 2 Click on the drop-down menu at the top left corner of the form and choose Pre-Provisioned NE Status (Self Config). The form refreshes and displays additional filter options.
 - 3 Click on the Search button to display a list of pre-provisioned NE instances.
 - 4 Click on the drop-down menu for the State column of the main panel and choose Detected Node from the list.
 - 5 Click on the Search button to display a list of pre-provisioned NE instances with a State of Detected Node.
 - 6 Choose a pre-provisioned NE instance from the list and click on the Properties button. The Pre-Provisioned NE Status form opens.
 - 7 Click on the Continue button to initiate a step of the process flow. A dialog box appears.
 - 8 Select the check box to verify that you understand the implications of the action and click on the OK button. A check mark appears beside the step of the process flow that is now complete.
 - 9 Repeat steps 7 and 8 until the process flow is complete.
 - 10 Click on the OK button or Cancel button to close the Pre-Provisioned NE form.
-

Procedure 5-7 To manage the discovery of an eNodeB

Perform this procedure to discover devices by scanning the network, as specified in the discovery rules.

See the *5620 SAM User Guide* for more information about tasks you can perform with newly discovered devices.

- 1 Choose Administration→Discovery Manager from the 5620 SAM main menu. The Discovery Manager (Edit) form opens with the Discovery Rules tab displayed.
- 2 Click on the Managed State tab button. A list of discovered devices displays.

- 3 Configure the filter criteria, if required, and click on the Search button to generate a list of discovered devices.
 - 4 Verify that eNodeBs are discovered and managed.
 - 5 Perform the following steps, as required.
 - a Click on the Manage button to set unmanaged eNodeBs to managed.
 - b Performing Procedure 5-8 to set an identifier for unidentified eNodeBs, as required.
 - c Ping management IP addresses. See the *5620 SAM User Guide* for information about pinging managed devices.
 - 6 Perform the following steps to move a discovered eNodeB from the Discovered NEs group to the Network group, as required.
 - i In the Physical Topology window, click on the Discovered NEs group. The Discovered NEs form opens.
 - ii Choose eNodeBs and drag and drop them to the network icon in the equipment view of the navigation tree or to the topology map.
-

Unidentified eNodeBs

The 5620 SAM uses the value of the ENBEquipment id parameter as the identifier for the device in the network. eNodeBs without a value entered for this parameter are not fully discovered by the 5620 SAM until a value is entered.

Perform Procedure 5-8 to enter a value for the id parameter of the ENBEquipment object.

Procedure 5-8 To enter a value for an unset id parameter for an eNodeB

The UnidentifiedNode alarm should be visible before performing this procedure.

- 1 Perform one of the following:
 - a Use the UnidentifiedNode alarm to access the device.
 - i Choose Window→Alarm Window from the 5620 SAM main menu.
 - ii Right-click on the Unidentified Node alarm and choose Show Affected Object from the contextual menu. The Discovered Node form opens with the General tab displayed.
 - b Use the discovery manager to access the device.
 - i Choose Administration→Discovery Manager from the 5620 SAM main menu. The Discovery Manager form opens with the Discovery Rules tab displayed.
 - ii Choose the discovery rule that caused the discovery of the unidentified device from the list and click on the Properties button. The Topology Discovery Rule form opens with the General tab displayed.
 - iii Click on the Discovered Nodes tab button.
 - iv Choose the unidentified device from the list and click on the Properties button. The Discovered Node form opens with the General tab displayed.
- 2 Enter a string value in the Network Element ID field.
- 3 Click on the OK button to close the Discovered Node form.

The eNodeB moves to the intended group in the equipment window. The 5620 SAM uses the value entered in step 2 as the identifier for the device.

6 — *RAN device offline configuration*

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6.1 Offline configuration overview

Offline configuration is the process of using external tools, such as the 9452 WPS, to create configuration files for and deploy to devices them by using the 5620 SAM.



Note — The 5620 SAM features described in this chapter are fully supported for eNodeB versions LA2.0.2 (same as LA2.1) and LA3.0.0. The 5620 SAM features described in this chapter in support of eNodeB LA3.0.0 have been fully verified against the currently available LA3.0.0 software, which is pre-DR4. Any evolution of the LA3.0.0 software will be accounted for in ongoing 5620 SAM testing. There is a small risk that issues may be encountered which may impose additional functional restrictions.

6.2 eNodeB offline configuration

Perform the procedures in this section to deploy WOs to discovered and managed eNodeBs by using the activation manager, and to create pre-provisioned NE instances by activating WOs for which there is no corresponding discovered eNodeB. See the *5620 SAM Parameter Guide* for descriptions of the parameters in the following procedures.

Procedure 6-1 To create an activation session

Perform this procedure to create an activation session for use in deploying a WO with the activation manager.

- 1 Choose Manage→Mobile Access→Activation from the 5620 SAM main menu. The Activation form opens.
 - 2 Click on the Create Activation Session button. The Activation Session (Create) form opens.
 - 3 Configure the parameters:
 - Name
 - Description
 - 4 Click on the OK button to save the activation session and close the Activation Session (Create) form.
-

Procedure 6-2 To deploy a WO to an eNodeB

Perform this procedure to deploy a WO and its contained NE WOs to one or more eNodeBs. You must first create an activation session, as described in Procedure 6-1.

- 1 Choose Manage→Mobile Access→Activation from the 5620 SAM main menu. The Activation form opens.
- 2 Configure the filter criteria, if required, and click on the Search button to generate a list of activation sessions.
- 3 Choose an activation session from the list and click on the Properties button. The Activation Session form opens with the General tab displayed.
- 4 In the Associated Work Orders panel, click on the Add button. The Add form opens.



Note — A WO that is associated with an activation session cannot be deleted from the session after the association is made. Deleting an activation session has no effect on the WO it contains.

- 5 Configure the filter criteria, if required, and click on the Search button to generate a list of applicable WOs.
- 6 Choose a WO from the list, and click on the OK button to close the Add form and associate the WO with the current activation session.
- 7 Click on the Activation tab button. The Setup stage is selected by default in the Stages panel.
- 8 Complete the Setup stage of the activation session.
 - i Choose one or more eNodeBs from the device list and click on the Exclude button to exclude and re-include eNodeBs from the WO deployment, as required.
 - ii Click on the Start Session button to start the activation session.



Note 1 — When an activation session starts, the 5620 SAM acquires a configuration lock on the applicable eNodeBs. The 5620 SAM prevents any attempt to configure or modify a locked eNodeB outside of the applicable activation session. When an activation session is terminated, the activation session releases the locks.

Note 2 — If an activation session remains in the started state for more than 24 h, an alarm is raised by the 5620 SAM.

- iii Verify that the Completed Initialization message appears in the Stage column of the device list.

- iv Click on the Auto Release button to enable or disable automatic release of configuration locks at the end of the Activation stage, as required.



Caution — When you enable auto-release, the Fallback stage cannot be performed.

- v Choose an eNodeB in the device list to populate the bottom half of the Activation Session window, if required.
- vi In the bottom half of the Activation Session form, click on the Impact Results tab button.
- vii In the Impact Result panel, verify the results displayed in the Impact column.



Caution — When you deploy WOs to active eNodeBs, a full or partial reset of the applicable eNodeBs can occur, which is service-affecting.

- viii In the bottom half of the Activation Session form, click on the Logs tab button to view the log messages associated with the NE WO deployment process, if required.
- ix In the Stages panel, click on the Validation button.

9 Complete the Validation stage of the activation session.

- i Click on the Validate button to validate NE WOs.
- ii In the bottom half of the Activation Session form, click on the Validation Results tab button.
- iii Click on the Search button to display any faults contained in the NE WOs that are being deployed in the activation session. If no faults appear in the Validation Result panel, the NE WOs are valid.



Note — NE WOs with CM Model errors are not passed into the Activation stage, and cannot be deployed.

10 If required, click on the Schedule button to set WO deployment to be carried out automatically up to 24 h later.

11 Perform one of the following:

- a If no faults are identified in NE WOs during the Validation stage, click on the Activation button in the Stages panel and go to step [12](#).
- b If faults are identified in NE WOs during the Validation stage:
 - i Click on the Terminate Session button to release the configuration locks.
 - ii Delete the current activation session.

- iii Perform Procedure 6-1 to create an activation session.
- iv Perform this procedure again with a different WO.

12 Complete the Activation stage of the activation session.



Caution — The deployment of WOs to active nodes may be service-affecting.

- i Verify the possible consequences of WO deployment, including:
 - full or partial device resets
 - validity of NE WOs
 - available system resources of the 5620 SAM when there are numerous NE WOs
 - impact of parameter changes
 - service interruption
 - auto-release and the inability to fallback after a configuration lock release occurs
 - ii Click on the Activate button.
 - iii Verify the messages as they appear in the Stage and Progress columns.
 - iv Click on the Logs tab button in the top half of the Activation Session form to view log messages as they appear.
- 13 Perform one of the following.
- a If the Activation stage failed or serious errors occurred, go to step 14.
 - b If the Activation stage is successful and you need to finalize configuration deployment, go to step 15.
- 14 Complete the Fallback stage of the activation session.




Caution — Fallback of WO deployment can be service-affecting.



Note 1 — Perform this step only if you need to undo the changes caused by the WO deployment and return the eNodeBs to their pre-existing configurations.

Note 2 — You cannot perform a fallback on an eNodeB once the configuration lock has been released.

- i Click on the Fallback button to perform the configuration fallback.
- ii In the bottom half of the Activation Session form, click on the General tab button.
- iii Verify that the fallback has been performed successfully.

- iv Click on the Terminate Session button to release the configuration locks.
 - v Delete the current activation session to deploy another WO, if required.
 - vi Perform Procedure 6-1 to create another activation session, if required.
 - vii Repeat this procedure with a different WO, or exclude eNodeBs from the activation session as required.
- 15 Perform one of the following.
- a If auto-release is enabled, go to step 17.
 - b If auto-release is disabled, go to step 16.
- 16 Complete the Release stage of the activation session.
- i Verify that a fallback is not required.
-  **Note** — You cannot perform a fallback for an eNodeB after the configuration lock is released.
- ii Click on the Release button and go to step 17.
- 17 Click on the Terminate Session button to end the activation session and release the configuration locks.
-

6.3 Configuration snapshots

Configuration snapshots are used to capture the parameter and properties settings of one or more eNodeBs. The NPO uses configuration snapshots to create a network topology that NPO operators can use to optimize the LTE RAN. The NPO requires a configuration snapshot to be taken once a day in order to keep the network topology up-to-date. Perform Procedure 6-5 to schedule a daily configuration snapshot.

You can use the 9452 WPS to convert snapshots into WOs. This facilitates eNodeB provisioning by allowing you to reuse proven device parameter settings and apply them to eNodeBs by using offline configuration.

Configuration snapshots are stored in the *path/activation/snapshot_export* folder or directory, where *path* is the 5620 SAM base directory.

Procedure 6-3 To create a snapshot instance

- 1 Choose Manage→Mobile Access→Snapshot Instances from the 5620 SAM main menu. The Snapshot Manager form opens.
- 2 Click on the Create button. The Snapshot (Create) form opens with the General tab selected.

- 3 Configure the parameters:
 - Snapshot Name
 - Description
 - Include all Snapshot Entities in the Network
 - Include Components and Attributes with Manufacturer Visibility
 - Include States and Statuses
 - Include Attributes with Read-Only access
 - Include Additional Information Attributes
 - 4 Perform one of the following:
 - a If Include all Snapshot Entities in the Network is not selected, go to step 5 to add individual eNodeBs to the snapshot instance.
 - b If Include all Snapshot Entities in the Network is selected, go to step 9.
 - 5 Click on the NE Entities tab button.
 - 6 Click on the Add button. The Add form opens.
 - 7 Configure the filter, if required, and click on the Search button to display a list of available eNodeBs.
 - 8 Choose one or more eNodeBs from the list. To choose multiple eNodeBs, hold down the CTRL key and click on the eNodeBs. Click on the OK button to close the Add form.
 - 9 Click on the OK button to create the snapshot instance and close the Snapshot form.
-

Procedure 6-4 To take a configuration snapshot

Perform this procedure to take a configuration snapshot of a discovered eNodeB or pre-provisioned NE instance.

- 1 Choose Manage→Mobile Access→Snapshot Instances from the 5620 SAM main menu. The Snapshot Manager form opens.
- 2 Configure the filter, if required, and click on the Search button to display a list of snapshot instances.
- 3 Choose a snapshot instance from the list and click on the Properties button. The Snapshot form opens with the General tab displayed.

- 4 Verify the settings of the snapshot instance, as required.
 - 5 Click on the Extract File button. The state of the snapshot displays in the Snapshot State panel, including the following:
 - the state of the last attempted snapshot (success or failure)
 - the execution time of the last attempted snapshot
 - the file name of the last successful snapshot
-

Procedure 6-5 To schedule a daily configuration snapshot

The NPO requires a recurring, daily configuration snapshot of all eNodeBs in the network in order for the NPO to optimize eNodeB configurations.



Note — The NPO requires a configuration snapshot of all RAN devices in the network. Ensure that the Include All Snapshot Entities parameter is selected in the snapshot instance that you choose in step 3 of this procedure.

See Procedure 6-3 for information about how to create a configuration snapshot.

- 1 Choose Manage→Mobile Access→Snapshot Instances from the 5620 SAM main menu. The Snapshot Manager form opens.
- 2 Configure the filter, if required, and click on the Search button to display a list of snapshot instances.
- 3 Choose a snapshot instance from the list and click on the Properties button. The Snapshot form opens with the General tab displayed.
- 4 Select the Include All Snapshot Entities parameter, if required.
- 5 Click on the Schedule button. The STM Scheduled Task (Create) form opens.
- 6 Configure the following parameters:
 - ID
 - Scheduled Task Name
 - Scheduled Task Description
 - Administrative State
- 7 In the Schedule panel, click on the Select button. The Select Schedule form opens.

- 8 Perform one of the following:
 - a Create a schedule.
 - i Click on the Create button. The SAM Schedule form opens with the General tab displayed.
 - ii In the Information panel, configure the following parameters:
 - Name
 - Description
 - User Start Time
 - iii Select the Ongoing check box.
 - iv Choose Per Day from the Frequency drop-down menu.
 - v In the Frequency Settings panel, select the Run Every Day radio button.
 - vi Click on the OK button to save the schedule, close the form, and return to the Select Schedule form.
 - vii Choose the schedule you just created from the list and click on the OK button to close the form and return to the STM Scheduled Task form.
 - viii Click on the OK button to apply the schedule to the configuration snapshot instance, close the form, and return to the Snapshot form.
 - b Use an existing schedule.
 - i Choose a schedule from the list and click on the OK button.
 - ii Click on the OK button to apply the schedule to the configuration snapshot instance, close the form, and return to the Snapshot form.
- 9 Click on the OK button to save the changes and close the Snapshot form.



Note — You can modify the scheduling parameters of a configuration snapshot instance by clicking on the Scheduling tab button.

6.4 9400 NEM support

The 9400 NEM is a parameter configuration tool for the eNodeB. You can launch the 9400 NEM from the 5620 SAM GUI.

Procedure 6-6 To launch the 9400 NEM from the 5620 SAM GUI

- 1 Choose Equipment from the navigation tree view selector. The navigation tree displays the Equipment view.
- 2 Click on the plus sign to expand the view to locate the appropriate eNodeB, if required.
- 3 Right-click on an eNodeB and choose Launch NEM from the contextual menu. The 9400 NEM launches and attempts to connect to the eNodeB.



Note — You can also launch the 9400 NEM from the Network Element form of an eNodeB. This form is commonly accessed by clicking on the Properties button for the device.

7 – *eNodeB online configuration*

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- 7.3 Bulk operations 7-4**
- 7.4 Logical objects manager 7-4**

7.1 Online configuration overview

This section describes eNodeB online configuration, which is the process of configuring eNodeB parameters using the 5620 SAM GUI or OSS interface. The information in this chapter is limited to functions that only apply to the eNodeB. See the *5620 SAM User Guide* for a more comprehensive description of object management using the 5620 SAM.



Note — The 5620 SAM features described in this chapter are fully supported for eNodeB versions LA2.0.2 (same as LA2.1) and LA3.0.0. The 5620 SAM features described in this chapter in support of eNodeB LA3.0.0 have been fully verified against the currently available LA3.0.0 software, which is pre-DR4. Any evolution of the LA3.0.0 software will be accounted for in ongoing 5620 SAM testing. There is a small risk that issues may be encountered which may impose additional functional restrictions.

7.2 eNodeB parameter forms

The parameters and properties of the eNodeB MIM can be configured in the ENBEquipment and eNodeB NE instance forms. From these two parent classes, parameters are organized into approximately 150 classes, depending on eNodeB version. Each class is further subdivided into a range of configurable properties. See the *5620 SAM LTE Parameter Reference* for descriptions of the parameters in the following procedures.

ENBEquipment and eNodeB instances

The ENBEquipment object is the root of the parameter tree in the eNodeB MIM, and is the parent object to the eNodeB instance. The eNodeB instance object is the parent to radio parameters. The ENBEquipment and eNodeB NE instance forms are used for configuring these parameters.

Some of the tasks that you can perform using the eNodeB parameter forms are:

- setting ANR parameters
- enabling or disabling ANR and PCI
- setting the SNMP maximum block size for the transfer of eNodeB performance management data to the 5620 SAM

Deleting the ENBEquipment object

It is possible to delete the ENBEquipment object by clicking on the appropriate Delete button in the Network Element form.



Caution — Deleting the ENBEquipment object for an active eNodeB is severely service-affecting and is not a recommended action.

Deleting the ENBEquipment object for an active eNodeB erases the contents of the MIB and is highly service-affecting, as the eNodeB will require a complete reconfiguration. Some SNMP-based attributes may also be affected by the delete operation.

Alcatel-Lucent recommends that you only delete the ENBEquipment object in order to reset parameter settings for pre-provisioned NE instances, prior to device discovery. This action is generally performed in a circumstance where the wrong WO was associated with the instance.

Procedure 7-1 To open the ENBEquipment form of an eNodeB

Perform this procedure to access the ENBEquipment form and configure the contained parameters.

See the *5620 SAM LTE Parameter Reference* for detailed descriptions of the parameters in this form and child forms.



Caution — Manual configuration of the parameters contained in the ENBEquipment form is potentially service-affecting and should only be performed by qualified operators.

- 1 Choose Equipment from the navigation tree view selector. The navigation tree displays the Equipment view.
- 2 Click on the plus sign for Network to expand the view to locate the appropriate eNodeB, if required.
- 3 Right-click on an eNodeB and choose Properties from the contextual menu. The Network Element form opens with the General tab displayed.
- 4 In the ENB Base Configuration panel, click on the Properties button. The ENB Equipment form opens with the General tab displayed.

The majority of parameters can be accessed by clicking on the Components tab button.

Procedure 7-2 To open the eNodeB instance form of an eNodeB

Perform this procedure to access the eNodeB instance form and configure the contained parameters.

See the *5620 SAM LTE Parameter Reference* for detailed descriptions of the parameters in this form and child forms.



Caution — Manual configuration of the parameters in the eNodeB instance is possibly service-affecting and should only be performed by qualified operators.



Note — The eNodeB instance form can also be accessed by using the eNodeB logical objects manager. See Procedure 7-3 for instructions on using the logical objects manager.

- 1 Choose Equipment from the navigation tree view selector. The navigation tree displays the Equipment view.
- 2 Click on the plus sign to expand the view to locate the appropriate eNodeB, if required.
- 3 Right-click on an eNodeB and choose Properties from the contextual menu. The Network Element form opens with the General tab displayed.
- 4 Choose the eNodeB instance in the ENB Instances panel and click on Properties. The eNodeB NE Instance form opens with the General tab displayed.

The majority of parameters can be accessed by clicking on the Components tab button.

7.3 Bulk operations

The 5620 SAM does not support the use of the bulk operations function to modify eNodeB parameters and objects. The RAN objects do not appear in the bulk change forms. To modify multiple objects simultaneously, use the logical objects manager. See section 7.4 for more information about using the logical objects manager.

7.4 Logical objects manager

The eNodeB logical objects manager allows operators to access the Properties forms of multiple objects simultaneously. The logical object manager can be used to modify service-affecting settings, such as the ANR state, to synchronize eNodeB resets and minimize network impact.

Procedure 7-3 To access and modify objects with the logical objects manager

Perform this procedure to access the Properties form of multiple objects simultaneously.

See the *5620 SAM LTE Parameter Reference* for detailed descriptions of the parameters that can be configured with the logical objects manager.



Caution — When you modify class A and B parameters, a full or partial reset of their parent eNodeB will occur, which is service-affecting.

- 1 Choose Manage→Mobile Access→eNodeB Logical Objects from the 5620 SAM main menu. The Manage eNodeB Logical Objects form opens.
 - 2 Select an object type from the Select Object Type drop-down menu.
 - 3 Configure the filter criteria, if required, and click on the Search button to generate a list of objects.
 - 4 Choose multiple objects by pressing and holding the CTRL key and clicking on an object.
 - 5 Click on the Properties button to display the properties form for the selected objects.
 - 6 Configure the parameters, as required.
-

LTE RAN management

8 – LTE RAN topology and EPS path management

9 – Managing LTE RAN Security

8 — *LTE RAN topology and EPS path management*

8.1 5620 SAM network topology maps 8-2

8.2 LTE RAN EPS path management 8-2

8.1 5620 SAM network topology maps

This section describes network topology and grouping in the 5620 SAM.



Note — The 5620 SAM features described in this chapter are fully supported for eNodeB versions LA2.0.2 (same as LA2.1) and LA3.0.0. The 5620 SAM features described in this chapter in support of eNodeB LA3.0.0 have been fully verified against the currently available LA3.0.0 software, which is pre-DR4. Any evolution of the LA3.0.0 software will be accounted for in ongoing 5620 SAM testing. There is a small risk that issues may be encountered which may impose additional functional restrictions.

The 5620 SAM uses map windows to visually represent network objects and pathways. The following network topology maps are applicable to eNodeB management by the 5620 SAM:

- physical
- service tunnel
- service

Each map displays network objects and information, and provides contextual menus to open forms that display additional information.

See the *5620 SAM User Guide* for more information on network topology.

LTE RAN and the 5620 SAM network topology

eNodeB management by the 5620 SAM adds the Pre-Provisioned NE group to the network topology schema. The Pre-Provisioned NE group is added to the map navigation tree and network map when the first pre-provisioned NE instance is created in the 5620 SAM. The Pre-Provisioned NE group continues to exist even if all pre-provisioned NE instances are removed.

See chapter 5 for more information on creating pre-provisioned NE instances.

8.2 LTE RAN EPS path management

This section describes EPS peer and path management as it relates to the LTE RAN.

EPS assurance extensions

To facilitate monitoring of communication layer status between the eNodeB and its connected devices, such as other eNodeBs, the 9471 MME, and SGW/PGWs, peering information gathered by the 5620 SAM is made available to operators.

For more information on managing LTE EPS peers and paths, see the *5620 SAM LTE ePC User Guide*.

9 — *Managing LTE RAN Security*

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- 9.2 5620 SAM user and group security 9-2**
- 9.3 eNodeB IPsec 9-2**

9.1 Overview

The 5620 SAM provides security functions for user groups, devices, and paths.



Note – The 5620 SAM features described in this chapter are fully supported for eNodeB versions LA2.0.2 (same as LA2.1) and LA3.0.0. The 5620 SAM features described in this chapter in support of eNodeB LA3.0.0 have been fully verified against the currently available LA3.0.0 software, which is pre-DR4. Any evolution of the LA3.0.0 software will be accounted for in ongoing 5620 SAM testing. There is a small risk that issues may be encountered which may impose additional functional restrictions.

9.2 5620 SAM user and group security

You can use the 5620 SAM to configure user accounts, user groups, and scopes of command that determine the level of access available using the GUI or OSS. For more information about user security in the 5620 SAM, see the *5620 SAM User Guide*.

Scope of command

The scope of command for a user defines the functions that the user is allowed to perform, and is a collection of one or more configurable roles or permission sets. Table 9-1 describes the user roles added to the 5620 SAM specifically for LTE RAN support. See the *5620 SAM User Guide* for a complete list of user roles in the 5620 SAM.

Table 9-1 User roles added to the 5620 SAM for LTE RAN

Role	Access Provided	Role ID
Work Order Activation	Management of activation sessions and associated work orders.	31
Configuration Snapshot Export	Management of snapshot instances and collection of snapshots.	32
Create and Delete Access	Creation and deletion of eNodeB objects. Does not impact non-eNodeB objects.	33

9.3 eNodeB IPsec

The eNodeB IP security function protects all or part of the traffic of an eNodeB by routing OAM and inter-device traffic through a SEG and protected subnets. You must configure the SEG before you can use IPsec with the eNodeB. You can use the 5620 SAM to create IPsec profiles that facilitate the configuration of IPsec parameters on the eNodeB. An eNodeB IPsec profile is a set of parameter configurations that you create and deploy to one or more eNodeBs. There is no default eNodeB IPsec profile. You can also configure IPsec parameters by using online or offline configuration.

Procedures

Perform the following procedures to create and apply IPsec profiles to eNodeBs. See the *5620 SAM Parameter Guide* for descriptions of the parameters in the following procedures.

Procedure 9-1 To create or modify an eNodeB IPsec profile

Perform this procedure to configure an IPsec profile and deploy the profile to eNodeBs. Deploying an IPsec profile to an eNodeB will cause a device reset.



Caution — Modifying an active eNodeB IPsec profile is service-affecting.

- 1 Choose Policies→Mobile→eNodeB IPsec Profile from the 5620 SAM main menu. The Manage eNodeB IPsec Profiles form opens.
- 2 Perform one of the following:
 - a Create an eNodeB IPsec profile.
 - i Click on the Create button. The eNodeB IPsec Profile (Create) form opens with the eNodeB IPsec Profile tab displayed.
 - ii Configure the parameters:
 - Profile ID
 - Auto-Assign ID
 - iii Go to step 3.
 - b Modify an eNodeB IPsec profile.
 - i Configure the filter criteria, if required, and click on the Search button to generate a list of eNodeB IPsec profiles.
 - ii Choose an eNodeB IPsec profile from the list and click on the Properties button. The eNodeB IPsec Profile (Edit) form opens with the eNodeB IPsec Profile tab displayed. Go to step 3.
- 3 Configure the parameters:

<ul style="list-style-type: none"> • Displayed Name • Description • IPsec Anti-Replay Window • IPsec Keep Alive Period (s) • IPsec Perfect Forward Secrecy • IKE Authentication Method • IKE SA Life Duration (s) 	<ul style="list-style-type: none"> • IPsec SA Life Duration (s) • IPsec SA Life Duration Bytes (Kbytes/s) • IPsec Policy • Pre-Shared Secret • IPsec Tunnel Address (IPv4) • IPsec Tunnel Subnet Mask (IPv4) • SEG Address (IPv4)
--	--

- 4 Perform one of the following.
 - a If you are creating an eNodeB IPsec profile and need to assign the profile to eNodeBs, click on the Apply button. The eNodeB IPsec Profile (Create) form refreshes with additional tabs and the name of the form changes to eNodeB IPsec Profile (Edit). Go to step 5.
 - b If you are creating an eNodeB IPsec profile and do not need to assign the profile immediately:
 - i Click on the OK button to save the eNodeB IPsec profile and close the form.
 - ii When you need to assign the profile, perform this procedure to modify the IPsec profile, if required, and assign the profile to eNodeBs.
 - c If you are modifying an eNodeB IPsec profile, go to step 5.
- 5 Click on the Distribution List tab button.
- 6 Configure the filter criteria, if required, and click on the Search button to generate a list of eNodeB elements that are already assigned to the eNodeB IPsec profile.
- 7 Click on the Delete button to remove eNodeB elements from the eNodeB IPsec profile, if required.



Note — Deleting an eNodeB from an eNodeB IPsec profile does not delete the current IPsec configuration on the eNodeB.

- 8 Click on the Assign eNodeBs button. The Assign and Assign Filter forms open.
 - 9 Configure the filter criteria, if required, and click on the OK button to close the Assign Filter form and return to the Assign form.
 - 10 Using the right and left arrows in the center of the form, move eNodeBs between the Unassigned eNodeB panel and the Assigned eNodeB panel as required.
 - 11 Click on the OK button to close the Assign form.
 - 12 Click on the OK button to deploy the IPsec configuration specified in the IPsec profile to the assigned eNodeBs and to close the eNodeB IPsec Profile (Edit) form.
 - 13 Close the Manage eNodeB IPsec Profiles form.
-

LTE RAN maintenance

10 – Maintaining LTE RAN devices

11 – Managing LTE RAN statistics

12 – Troubleshooting

10 – Maintaining LTE RAN devices

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10.1 Overview

This chapter describes LTE RAN device maintenance procedures including device backup and restore, and device software upgrade.



Note — The 5620 SAM features described in this chapter are fully supported for eNodeB versions LA2.0.2 (same as LA2.1) and LA3.0.0. The 5620 SAM features described in this chapter in support of eNodeB LA3.0.0 have been fully verified against the currently available LA3.0.0 software, which is pre-DR4. Any evolution of the LA3.0.0 software will be accounted for in ongoing 5620 SAM testing. There is a small risk that issues may be encountered which may impose additional functional restrictions.

The 5620 SAM includes NE maintenance functionality for supported RAN devices that allows a system administrator to:

- define the 5620 SAM deployment and local device configuration save conditions
- perform an on-demand or scheduled NE configuration backup
- perform an on-demand or scheduled eNodeB software upgrade
- view the status of a deployment, backup, device configuration restore, or device software upgrade
- troubleshoot a failed deployment, backup, or upgrade

A 5620 SAM operator with an administrator or network element software management scope of command role can perform device configuration save, backup, or restore operations and can create policies for scheduling backups and configuration saves. See the *5620 SAM User Guide* for more information about the NE maintenance functionality of the 5620 SAM.

10.2 Workflow for LTE RAN maintenance

- 1 Schedule or perform eNodeB software upgrades.
 - i Create a 5620 SAM schedule. See the *5620 SAM User Guide* for more information on creating schedules.
 - ii Create and modify eNodeB software upgrade policies, as required.
 - iii Obtain software images and distribute them to eNodeBs.
 - iv Monitor the status of software upgrades.
 - v Accept or reject software upgrades, as required.
- 2 Perform backup and restore operations, as required.
- 3 Troubleshoot eNodeB operations, events, and alarms as required using the 5620 SAM alarm window.

10.3 NE maintenance preparation

You must ensure that preparation tasks are completed prior to using the 5620 SAM to perform maintenance operations such as device configuration backup and device software upgrade.

Network preparation

Preconfiguration of user accounts and system settings is a requirement for the success of LTE RAN device maintenance tasks.

Procedure 10-1 To assign a password to the samadmin user

The 5620 SAM installer creates a user account called samadmin that is required for 5620 SAM system administration. FTP and SFTP transfers between the 5620 SAM and the eNodeB require a password to be set for the samadmin user.



Note — Perform this procedure only if a password has not been set for the samadmin user during the 5620 SAM installation process.

- 1 Log in to the 5620 SAM server as the root user and open a console window.
 - 2 Perform the following steps to assign a new samadmin password.
 - i Enter the following at the CLI prompt:


```
# passwd samadmin
```


The following prompt is displayed:

New Password:

ii Enter the new password and press ↵.

The following prompt is displayed:

Confirm new password:

iii Enter the new password again and press ↵. The password is changed.
 - iv Record the new password and store it in a secure location.
-

Software upgrades

LTE RAN device software upgrades are best performed as a multi-step process over a period of days or weeks. The following conditions and considerations for device software upgrades are presented as an example to aid network administrators in upgrade planning. Contact Alcatel-Lucent Customer Support before performing a software upgrade on LTE RAN devices.

Software upgrade conditions

Verify that the following conditions are true to help ensure the success of a device software upgrade.

- Login accounts are prepared for the 5620 SAM.
- Devices selected for software upgrade are managed by the 5620 SAM.
- Device downtime of several minutes is accommodated by the network plan.
- Deltas between existing parameter configurations and new parameter defaults are known and planned for.
- 9452 WPS considerations such as current 9452 WPS version and WO creation are taken into account.

Performing the software upgrade

Verify that the following conditions are true before proceeding with the software upgrade.

- Call trace sessions are not running on devices.
- Release notices and bulletins are understood by network administration.
- Software image downloads to target devices are complete.
- No critical alarms are affecting LTE RAN or ePC devices.
- No hardware configurations or feature activations are being carried out on LTE RAN or ePC devices.
- RAN licensing capacity is sufficient to accommodate the upgrade.
- WOs for newly upgrades devices are ready for deployment.
- Alcatel-Lucent Customer Support contact information is known to operators.

10.4 eNodeB backup and restore

When the 5620 SAM performs a device configuration backup, it transfers files to itself from the device. You can use configuration backups to restore previous device configurations. The 5620 SAM holds and automatically purges files according to the applicable backup policy. You can schedule configuration restores or perform them immediately.



Note — You cannot restore a RAN device configuration that uses an outdated software version after performing a software upgrade on the device.

A default RAN backup/restore policy is created when the 5620 SAM is installed. The backup policy assigned to a RAN device, such as an eNodeB, is determined by the discovery rule. See chapter 5 for more information about creating discovery rules. See the *5620 SAM Parameter Guide* for descriptions of the parameters in the following procedures.

Procedure 10-2 To create or modify an eNodeB backup/restore policy

- 1 Choose Administration→NE Maintenance→Backup/Restore from the 5620 SAM main menu. The Backup/Restore form opens with the Backup/Restore Policy tab displayed.
- 2 Perform one of the following.
 - a Create an eNodeB backup policy.
 - i Click on the Create button. The Backup Policy (Create) form opens.
 - ii Configure the parameters:
 - Auto-Assign ID
 - Policy ID
 - iii Enter a name for the backup policy in the Name field.
 - iv Choose eNodeB from the Policy Type drop-down menu. The form refreshes to display eNodeB-specific parameters. Go to step 3.
 - b Modify an eNodeB backup policy.
 - i Configure the filter criteria, if required, and click on the Search button to generate a list of backup policies.
 - ii Choose a backup policy that displays eNodeB Node as its Policy Type from the list and click on the OK button. The Backup Policy (Edit) form opens with the General tab displayed. Go to step 3.
- 3 Specify whether backup functionality is enabled.
 - a Select the Enable Backup check box.
 - b Deselect the Enable Backup check box. Go to step 7.
- 4 In the Backup Triggering panel, configure the parameters:
 - Scheduled Backup Scheme
 - Scheduled Backup Interval
 - Scheduled Backup Sync Time
 - Scheduled Backup Threshold (operations)
 - Auto Backup Scheme
 - Auto Backup Threshold (operations)
- 5 In the Backup Purging panel, configure the parameters:
 - Auto Purge Scheme
 - Number Of Backups
 - Maximum Backup Age (days)

6 In the eNodeB Backup Settings panel, configure the 5620 SAM parameters:

- SFTP/FTP User ID
- SFTP/FTP Password
- SFTP/FTP Server Port
- Root Directory
- Transfer Protocol



Note 1 — You must enter the samadmin user as the SFTP/FTP User ID if you are using SFTP.

Note 2 — The Root Directory parameter specifies a temporary location for the device backup files. Perform Procedure 10-3 to specify an additional location for device backup files on the 5620 SAM server.

7 Perform one of the following:

- a If you are creating a new backup policy and need to assign the policy to eNodeBs, click on the Apply button. The Backup Policy (Create) form refreshes with additional tabs and the name of the form changes to Backup Policy (Edit). Go to step 8.
- b If you are creating a new backup policy and do not need to assign it immediately:
 - i Click on the OK button to save the backup policy and close the form.
 - ii When you need to assign the backup policy, perform this procedure to modify the backup policy, if required, and assign the policy to eNodeBs.
- c If you are modifying an existing backup policy, go to step 8.

8 Click on the Backup/Restore Policy Assignment tab button. The Backup Policy Filter opens.

9 Configure the filter criteria, if required, and click on the OK button to close the Backup Policy Filter form.

10 Using the right and left arrows in the center of the form, move eNodeBs between the Unassigned Sites panel and the Assigned Sites panel as required.

11 Click on the Apply button. A confirmation dialog appears.

12 Click on the Yes button to confirm the action, assign the backup policy to the selected eNodeBs, and close the dialog.

13 Perform one of the following.

- a Close the Backup/Restore form.
 - b Monitor backup and restore status as required. See the *5620 SAM User Guide* for more information on the backup and restore functionality of the 5620 SAM.
-

Procedure 10-3 To configure the 5620 SAM to save RAN device configuration backups on a file system

Perform this procedure to configure the 5620 SAM to save RAN device configuration backups as files in addition to saving them to the specified FTP/SFTP server.



Note 1 — The samadmin user requires read and write permissions to each directory specified in this procedure.

Note 2 — The Solaris command lines in this procedure use the # symbol to represent the command prompt. The actual prompt may differ, depending on the type of command shell that is in use. Do not type the # symbol when entering a command.

- 1 Log in to the 5620 SAM server station as the samadmin user.
- 2 Navigate to the 5620 SAM server configuration directory, typically /opt/5620sam/server/nms/config.
- 3 Create a backup copy of the nms-server.xml file.
- 4 Open the nms-server.xml file using a plain-text editor.
- 5 Search for the following XML tag:

```
<RanBackup
```

- 6 Enable file-system storage for backups of RAN devices by modifying the following line:

```
RanBackupDirectory="path"
```

where *path* is an absolute or relative file path



Note — A relative file path that you specify in this step is relative to the *installation_directory/nms/bin* directory on the 5620 SAM server.

- 7 Save and close the nms-server.xml file.
- 8 Open a console window on the main server station.
- 9 Navigate to the 5620 SAM server binary directory, typically /opt/5620sam/server/nms/bin.
- 10 Enter the following command at the prompt:

```
# ./nmsserver.bash read_config .
```

The 5620 SAM main server reads the nms-server.xml file and puts the configuration change into effect. Subsequent RAN device configuration backups are saved to the path specified in the nms-server.xml file.

Procedure 10-4 To perform an immediate eNodeB backup, restore, or configuration save

When you start an immediate backup, you back up the device configuration based on the backup policy associated with the eNodeB. An eNodeB configuration restore operation uses the most recently backed-up eNodeB configuration file unless otherwise specified. See Procedure 10-5 for more information about restoring a device configuration that is not the most recent.

The following conditions must be present before you can perform a device configuration backup, restore, or configuration save:

- You have a 5620 SAM user account with an administrator or network element software management scope of command role or a scope of command role with write access to the mediation package. See the *5620 SAM User Guide* for more information.
- FTP or SFTP is configured in the mediation policy for the eNodeB. See chapter 5 for more information.

Depending on the operation type, the Backup State or Restore State column displays the current state of the operation. The possible values are:

- Not Attempted - the operation is unattempted
- Saving Config - the device configuration is being saved on the device
- Transferring files - a file transfer is in progress
- Success - the operation is complete and successful
- Failure - the operation is complete but unsuccessful



Note — During a backup, if a device is unresponsive to the 5620 SAM because SNMP on the device is disabled, the Backup State column entry for the device does not immediately display the correct value of Failed. This latency is caused by the inability of the 5620 SAM to communicate with the unresponsive device. In such a situation, the Backup State column displays the initial value of Saving Config until three 10-minute SNMP polling periods, or 30 minutes, have elapsed, after which the Backup State changes to Failed if SNMP remains disabled.

- 1 Choose Administration→NE Maintenance→Backup/Restore from the 5620 SAM main menu. The Backup/Restore form opens with the Backup/Restore Policy tab displayed.
- 2 Click on the Backup/Restore Status tab button. The managed devices are listed.
- 3 Select an eNodeB from the list and perform one of the following steps, depending on the operation that you want to perform.
 - a Click on the Backup button.
 - b Click on the Restore button.
 - c Click on the Save Config button.A dialog box appears.

- 4 Click on the Yes button. The backup or restore operation starts, and the current backup or restore state for the device is indicated in the Backup State or Restore State column.
 - 5 You can resynchronize an NE with the 5620 SAM database, if required, by clicking on the Resync button. See the *5620 SAM User Guide* for more information about resynchronizing NEs.
 - 6 Close the Backup/Restore form.
-

Procedure 10-5 To restore a device configuration backup other than the most recent

You can choose to restore an older version of the eNodeB configuration to meet special network requirements.



Caution 1 — Older backups do not have the most recent network information. Restoring an older device configuration may be service-affecting.

Caution 2 — Ensure that you back up the current device configuration using Procedure 10-2 before you proceed.

- 1 Choose Administration→NE Maintenance→Backup/Restore from the 5620 SAM menu. The Backup/Restore form opens.
 - 2 Click on the Backup/Restore Status tab. The managed devices are listed.
 - 3 Double-click on a device from the list. The NE Backup/Restore Status form for the selected device opens.
 - 4 Click on the Backups tab button. A list of configuration backups for the selected device opens, ordered from the oldest to the most recent.
 - 5 Select a backup in the list and click on the Restore button. A dialog box appears.
 - 6 Click on the Yes button.
 - 7 Click on the Resync button to ensure the latest network information is available, if required.
 - 8 Close the Backup/Restore form.
-

10.5 eNodeB software upgrades

This section describes software maintenance operations and procedures designed specifically for the eNodeB. Software upgrade support for RAN devices uses the existing function of the 5620 SAM for software management. When a new eNodeB software version is available, you can use the 5620 SAM to perform an on-demand eNodeB software upgrade, or schedule one using a software upgrade policy.

Software management of the eNodeB with 5620 SAM requires you to do the following:

- 1 Download software images from the ALED website.
- 2 Download software images to a client PC.
- 3 Transfer software images to the 5620 SAM server.
- 4 Schedule device software upgrades with a software upgrade policy, or perform device software upgrades manually.
- 5 Monitor software upgrade status.
- 6 Accept or reject software upgrades, as required.

eNodeB software upgrade policies

A default eNodeB software upgrade policy is created when the 5620 SAM is installed. Unless specified in the discovery rules that add eNodeBs to the network, the default eNodeB software upgrade policy is assigned to all eNodeBs upon discovery by the 5620 SAM. You cannot delete a software upgrade policy that is assigned to an eNodeB. You cannot perform an in-service software upgrade for an eNodeB. An eNodeB software upgrade policy includes the following information:

- FTP and SFTP configurations and credentials
- software version fallback timers
- automatic activation settings

SFTP is used by the software upgrade policy as the primary source for the software image file. FTP is used as the fallback source.

eNodeB software upgrade procedures

RAN device software images are available at the ALED website. You can access the ALED website at the following address:

`https://download.support.alcatel-lucent.com`

You can use the 5620 SAM to perform an immediate NE software upgrade or schedule one using a software upgrade policy. You can create and configure multiple eNodeB software upgrade policies and assign them to multiple eNodeBs.

See the *5620 SAM User Guide* for more information about the software upgrade function of the 5620 SAM. See the *5620 SAM Parameter Guide* for descriptions of the parameters in the following procedures.

Procedure 10-6 To create an eNodeB software upgrade policy


- 1 Choose Administration→NE Maintenance→Software Upgrade from the 5620 SAM main menu. The Software Upgrade form opens.
- 2 Perform one of the following.
 - a Create a software upgrade policy.
 - i Click on the Create button. The Software Upgrade Policy (Create) form opens.
 - ii Configure the parameters:
 - Profile ID
 - Auto-Assign ID
 - iii Choose eNodeB Node from the Policy Type drop-down menu. The eNodeB Based Setting panel appears at the bottom of the form. Go to step 3.
 - b Modify an existing software upgrade policy.
 - i Configure the filter criteria, if required, and click on the Search button to generate a list of software upgrade policies.
 - ii Choose a software upgrade policy from the list and click on the Properties button. The Software Upgrade Policy (Edit) form opens with the General tab displayed.
 - iii Go to step 3.
- 3 Configure the parameters:

• Name	• SFTP Server Port
• FTP User ID	• Timer to Wait for Fallback to Previous Software Version (min)
• FTP Password	• Timer to Wait for Fallback to Previous IP version (min)
• FTP Server Port	• Transfer Protocol
• SFTP User ID	
• SFTP Password	



Note — The samadmin user and password must be used for SFTP User ID and SFTP Password if you are using SFTP.

- 4 Select the Auto-Activate After Successful File Transfer check box, if required.

- 5 Perform one of the following:
 - a If you are creating a new software upgrade policy and need to assign the policy to eNodeBs, click on the Apply button. The Software Upgrade Policy (Create) form refreshes with additional tabs and the name of the form changes to Software Upgrade Policy (Edit). Go to step 6.
 - b If you are creating a new software upgrade policy and do not need to assign it immediately:
 - i Click on the OK button to save the software upgrade policy and close the form.
 - ii When you need to assign the software upgrade policy, perform this procedure to modify the policy, if required, and assign the policy to eNodeBs.
 - c If you are modifying an existing software upgrade policy and need to assign the policy to eNodeBs, go to step 6.
 - 6 Assign the software upgrade policy as required.
 - i Click on the Software Upgrade Policy Assignment tab button. The Software Upgrade Policy Filter form opens.
 - ii Configure the filter settings and click on the OK button to apply the filter. Applying a blank filter brings up a list of all discovered devices.
-  **Note** — Alcatel-Lucent does not recommend assigning an eNodeB software upgrade policy to non-RAN devices.
- iii Using the right and left arrows in the center of the form, move eNodeBs between the Unassigned eNodeB panel and the Assigned eNodeB panel as required.
 - iv Click on the Apply button and acknowledge the message in the dialog box to assign the software upgrade policy to the devices listed in the Assigned Sites panel.
 - 7 Close the Software Upgrade Policy (Edit) form. The new policy is displayed in the Software Upgrade form.
-

Procedure 10-7 To import an eNodeB software image into the 5620 SAM

Perform this procedure to import a software image into the 5620 SAM database for use during device software upgrades.

- 1 Choose Administration→NE Maintenance→Software Upgrade from the 5620 SAM main menu. The Software Upgrade form opens with the Software Upgrade Policy tab displayed.
 - 2 Click on the Software Images tab button.
More tab buttons are available.
 - 3 Click on the eNodeB Software Images tab button.
 - 4 Click on the Import button. The Select eNodeB Import Description File window opens.
 - 5 Navigate to the folder that contains the software image, choose the software image, and click on the Open button.
The software image appears in the list.
-

Procedure 10-8 To perform an immediate software upgrade on an eNodeB

The following conditions must be true before you attempt an eNodeB software upgrade:

- You must have a 5620 SAM user account with an administrator or network element software management scope of command role, or a scope of command role with write access to the mediation package.
 - FTP or SFTP is configured in the mediation policy for the device. See [chapter 5](#) for more information.
- 1 Choose Administration→NE Maintenance→Software Upgrade from the 5620 SAM main menu. The Software Upgrade form opens.
 - 2 Click on the Software Images tab button. The form refreshes with additional tabs.
 - 3 Click on the RAN eNodeB Software Images tab button.

- 4 Transfer software images from the 5620 SAM to the selected eNodeBs.
 - i Click on the Download Image button. The Select Sites form opens.
 - ii Choose one or more eNodeBs from the list and click on the OK button to begin the transfer and close the form.



Note — The 5620 SAM monitors download progress automatically. If SNMP traps from the eNodeB are not being sent and download status does not update, click on the Check Download Progress button to force a check.

- 5 Schedule image downloads, if required.
 - i Click on the Schedule Download Image button. The SAM Schedule (Create) form opens with the General tab displayed.
 - ii Configure the scheduling information. See the *5620 SAM User Guide* for more information on using the 5620 SAM scheduler.
- 6 Abort image downloads by clicking on the Abort Image Download button, as required.
- 7 Delete images by clicking on the Delete button, as required.
- 8 Activate software images and monitor activation progress.
 - i Click on the Activate Image button. The Select Sites form opens.
 - ii Choose one or more eNodeBs from the list and click on the OK button to activate the image and close the form.



Note — The 5620 SAM monitors activation progress automatically. If SNMP traps from the eNodeB are not being sent and activation status does not update, click on the Check Activate Progress button to force a check.

- 9 Accept the software image and finalize the software upgrade, as required.
 - i Click on the Accept Image button. The Select Sites form opens.
 - ii Choose one or more eNodeBs from the list and click on the OK button to accept the image and close the form.
- 10 Reject the software image and reverse the software upgrade, if required.



Note — Rejecting a software image effectively performs a software downgrade on the eNodeB, forcing it to revert to the previous software version.

- i Click on the Reject Image button. The Select Sites form opens.
 - ii Choose one or more eNodeBs from the list and click on the OK button to reject the image and close the form.
-

Procedure 10-9 To monitor software upgrade status

- 1 Choose Administration→NE Maintenance→Software Upgrade from the 5620 SAM main menu. The Software Upgrade form opens.
 - 2 Click on the Software Upgrade Status tab button.
 - 3 Click on the eNodeB Upgrade Status tab button.
 - 4 Configure the filter criteria, if required, and click on the Search button to generate a list of eNodeBs.
 - 5 Perform the following steps, as required.
 - a Active software images by clicking on the Activate button.
 - b Accept software upgrades by clicking on the Accept button.
 - c Reject software upgrades and revert to the previously installed software version by clicking on the Reject button.
 - d Reload software images by clicking on the Reload button.
 - e Abort software upgrades that are in progress by clicking on the Abort button.
-

Procedure 10-10 To delete an eNodeB software image from the 5620 SAM server

- 1 Choose Administration→NE Maintenance→Software Upgrade from the 5620 SAM main menu. The Software Upgrade form opens.
- 2 Click on the Software Images tab button.

- 3 Click on the eNodeB Software Images tab button.
 - 4 Choose an eNodeB software image from the list and click on the Delete button.
 - 5 Close the Software Upgrade form.
-

11 — Managing LTE RAN statistics

11.1 Overview 11-2

11.2 Workflow 11-2

11.3 eNodeB performance management statistics 11-2

11.1 Overview

The 5620 SAM provides the capability to view and plot eNodeB performance management statistics.



Note — The 5620 SAM features described in this chapter are fully supported for eNodeB versions LA2.0.2 (same as LA2.1) and LA3.0.0. The 5620 SAM features described in this chapter in support of eNodeB LA3.0.0 have been fully verified against the currently available LA3.0.0 software, which is pre-DR4. Any evolution of the LA3.0.0 software will be accounted for in ongoing 5620 SAM testing. There is a small risk that issues may be encountered which may impose additional functional restrictions.

11.2 Workflow

- 1 Create RAN performance management policies.
- 2 Assign eNodeBs to performance management policies.
- 3 Set the Administrative Status of performance management policies to Up, which enables performance management collection.
- 4 View eNodeB performance management statistics using the plotting function of the 5620 SAM.

11.3 eNodeB performance management statistics

This section describes the collection of eNodeB performance management statistics by the 5620 SAM.

See the *Alcatel-Lucent Radio Access Network (RAN) Alcatel-Lucent 9412 eNodeB Release LA3.0 Counters Reference Guide 418-000-035* for a listing of eNodeB performance management counters. See Appendix A for a listing of eNodeB performance management counters as they are represented in the 5620 SAM.

See the *5620 SAM Parameter Guide* for descriptions of the parameters in the following procedures. See the *5620 SAM LTE Parameter Reference* for descriptions of eNodeB device objects and parameters.

eNodeB statistics collection overview

The eNodeB automatically starts recording performance management statistics when commissioned and continues record the statistics indefinitely. The eNodeB collects statistics by storing counters in its memory and writing the counters to a file approximately 30 s after the end of the defined collection interval, depending on network traffic levels.

The recorded statistics file is compressed and mediated to the SNMP interface of the eNodeB. The 5620 SAM pulls the statistics file from the eNodeB using SNMP at the end of the collection interval defined in the RAN performance management policy.

The default collection interval is 15 min and the default SNMP maximum block size is 1200 bytes. Statistics are collected and sent even when no counter changes are occurring on an eNodeB. Any failure to receive statistics files from an eNodeB with an active performance management policy raises an alarm in the 5620 SAM.

eNodeB statistics storage on the 5620 SAM server

The eNodeB performance management files are stored in the following directory on the 5620 SAM server:

base directory/lte/stats/*date*/eNodeB/*eNodeB name* directory

where

base directory is the 5620 SAM base directory, typically opt/5620sam

date is the date of performance management collection

eNodeB name is the name of the eNodeB

An eNodeB performance management file name has the the following format:

A[YYYYMMDD].[start time][offset]-[end time][offset]_eNodeB-[eNodeB name]

where

YYYYMMDD is the collection date of the first record in the file

start time is the collection start time in the format HHMM and *offset* is the offset from UTC in the format *signHHMM* for example, +0300

end time is the collection end time in the format HHMM and *offset* is the offset from UTC in the format *signHHMM* for example, +0300

eNodeB name is the name of the eNodeB

Procedure 11-1 To create or modify an eNodeB performance management policy



Note — The default value for the Administrative State parameter for a RAN performance management policy, including the default policy, is Down. Set the Administrative State to Up to activate statistics collection.

- 1 Choose Tools→Statistics→RAN Performance Management Policies from the 5620 SAM main menu. The RAN Performance Management Policies form opens.
- 2 Perform one of the following.
 - a Create an eNodeB performance management policy.
 - i Click on the Create button. The eNodeB Performance Management Policy (Create) form opens.
 - ii Configure the parameters:
 - Policy ID
 - Auto-Assign ID
 - iii Go to step 3.
 - b Modify an eNodeB performance management policy.
 - i Configure the filter criteria, if required, and click on the Search button to generate a list of eNodeB performance management policies.
 - ii Choose an eNodeB performance management policy from the list and click on the Properties button. The eNodeB Performance Management Policy (Edit) form opens. Go to step 3.
- 3 Configure the parameters:
 - Displayed Name
 - Description
 - Administrative State
 - Collection Interval (min)
 - SAM File Retention Time (days)

- 4 Perform one of the following.
 - a If you are creating an eNodeB performance management policy and need to assign the policy to eNodeBs, click on the Apply button. The eNodeB Performance Management Policy (Create) form refreshes with additional tabs and the name of the form changes to eNodeB Performance Management Policy (Edit). Go to step 5.
 - b If you are creating an eNodeB performance management policy and do not need to assign the policy immediately:
 - i Click on the OK button to save the eNodeB performance management policy and close the form.
 - ii When you need to assign the policy, perform this procedure to modify and assign the eNodeB performance management policy to eNodeBs.
 - c If you are modifying an eNodeB performance management policy, go to step 5.
 - 5 Click on the eNodeB Elements tab button.
 - 6 Configure the filter criteria, if required, and click on the Search button to generate a list of eNodeB elements that are already assigned to the RAN performance management policy.
 - 7 Click on the Assign eNodeBs button. The Assign and Assign Filter forms open.
 - 8 Configure the filter criteria, if required, and click on the OK button to close the Assign Filter form and return to the Assign form.
 - 9 Using the right and left arrows in the center of the form, move eNodeBs between the Unassigned eNodeB panel and the Assigned eNodeB panel as required.
 - 10 Click on the Apply button to deploy the eNodeB performance management policy to the assigned eNodeBs.
 - 11 Click on the Cancel button to close the Assign form.
 - 12 Click on the OK button to close the eNodeB Performance Management Policy (Edit) form.
 - 13 Close the RAN Performance Management Policies form.
-

Procedure 11-2 To set the performance management maximum SNMP block size for an eNodeB

- 1 Perform Procedure 7-1 to open the ENBEquipment form for an eNodeB.
- 2 In the Performance Management panel, enter a value in the PM Max Result String Block Size (bytes) field.



Note — Although the configurable minimum value of the PM Max Result String Block Size (bytes) parameter is 1, Alcatel-Lucent recommends that you do not enter a value lower than 484.

- 3 Click on the OK button to close the ENBEquipment form.
 - 4 Click on the OK button. A dialog box appears.
 - 5 Click on the Yes button close the dialog box and save the changes.
-

Viewing eNodeB performance management statistics

Operators can view RAN performance management statistics using the statistics plotting framework of the 5620 SAM.



Note — The 5620 SAM can only plot historical performance management data for the eNodeB. Real-time plotting is not available.

For more information about viewing performance management statistics using the 5620 SAM, see the *5620 SAM Statistics Management Guide*.

12 – Troubleshooting

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12.1 Overview

The 5620 SAM provides troubleshooting support specific to the eNodeB.



Note — The 5620 SAM features described in this chapter are fully supported for eNodeB versions LA2.0.2 (same as LA2.1) and LA3.0.0. The 5620 SAM features described in this chapter in support of eNodeB LA3.0.0 have been fully verified against the currently available LA3.0.0 software, which is pre-DR4. Any evolution of the LA3.0.0 software will be accounted for in ongoing 5620 SAM testing. There is a small risk that issues may be encountered which may impose additional functional restrictions.

12.2 eNodeB database troubleshooting

This section describes database troubleshooting for the eNodeB.

Minimal configuration errors

It is possible for the MIM in an eNodeB to experience errors when recovering from a reset. When an eNodeB resets and cannot recover the NetConf tree contained in the database, a minimal configuration alarm is raised on the 5620 SAM.

Perform procedure [12-1](#) to restore an eNodeB that is in a state of minimal configuration.

Procedure 12-1 To reconfigure the ENBEquipment base configuration

Perform this procedure to reset the ENBEquipment parameter tree on an eNodeB in a alarm state of minimum configuration, restoring the eNodeB MIM to its previously configured state.



Note 1 — This procedure is possible to perform on an eNodeB in an alarm state of minimum configuration only. The Reconfigure NE button is unavailable in all other circumstances.

Note 2 — Reconfiguring the ENBEquipment base configuration replaces the entire NetConf tree of the eNodeB MIB regardless of previous configuration.

- 1 Choose Equipment from the view selector in the navigation tree. The navigation tree displays the Equipment view.
- 2 If required, click on the plus sign for Pre-Provisioned NEs to display all of the active pre-provisioned NE profiles.
- 3 Right click on a pre-provisioned NE profile and choose Properties from the contextual menu.
- 4 In the ENB Base Configuration panel, click on the Properties button. The ENB Equipment form opens.

- 5 Click on the Reconfigure NE button, which is located at the bottom right of the form.
- 6 Acknowledge the warning.

The eNodeB MIM resets to its previously configured state.

12.3 Call trace

The 5620 SAM supports call trace on eNodeB NEs. Call trace is a function that collects call-level data on an interface. This data can be transferred to an external system for processing and analysis, and the resulting information can help a network operator do things such as the following:

- identify performance issues that may affect end-user QoS or SLAs
- troubleshoot device malfunctions
- monitor resource usage for capacity management
- validate end-to-end network transmission



Note — Call trace requires the following 5620 SAM modules:

- SAM-A
- SAM-E
- SAM-P

The 5620 SAM supports the following call-trace session types:

- cell-based—a trace that the 5620 SAM initiates at operator request or as a scheduled task
- event-based—a trace that begins when a specified threshold value is reached
- signaling-based—a trace that the 9471 MME initiates
- debug—a troubleshooting trace performed by Alcatel-Lucent technical support



Note 1 — An eNodeB rejects a signaling-based call-trace activation request if another type of call-trace session is active.

Note 2 — An eNodeB deactivates a signaling-based call-trace session if it receives a request to activate another type of call-trace session.

Note 3 — You cannot manually activate an event-based session.

The 5620 SAM requires at least one pair of dedicated auxiliary servers to collect and store call-trace data. The auxiliary servers are specified during a 5620 SAM main server installation or upgrade. You can use a 5620 SAM client to statically assign an eNodeB to an auxiliary server pair for call-trace operations; otherwise, the 5620 SAM makes the assignment automatically when it tries to initiate a call-trace session.

An auxiliary server stores call-trace data files for a time specified in the general call-trace configuration. However, the 5620 SAM monitors the call-trace disk usage; it raises an alarm when the disk usage reaches 80%, and automatically removes the oldest call-trace files when the usage reaches 95%.

You can configure and manage general call-trace functions using a 5620 SAM GUI or OSS client. The Manage Call Trace Sessions GUI form allows you to do the following:

- Create, modify, and delete sessions.
- Activate or deactivate sessions.
- List and view the active sessions.
- Create call-trace scheduled tasks.
- Specify the storage criteria for the collected data.

You can use the Subscriber and Equipment Traces object in the components tree of an eNodeB NE Instance properties form to configure and manage call-trace functions for a specific eNodeB.

You can associate eNodeBs with call-trace auxiliary-server pairs from the 5620 SAM System Information form.

Call-trace scheduled tasks

You can schedule call-trace session execution by creating a call-trace scheduled task. A call-trace scheduled task associates an existing call-trace session with two 5620 SAM schedules: one that specifies when the session starts, and one that specifies when the session stops.

The following restrictions apply to a call-trace session that is associated with a scheduled task:

- You cannot manually activate or deactivate the session when the task is running.
- If the session is already running at the scheduled start time, the 5620 SAM cannot execute the task, and raises an alarm against the session.
- The task deactivates the session at the scheduled stop time only if the task initiates the session.

See Scheduling chapter of the *5620 SAM User Guide* for information about 5620 SAM schedules and scheduled tasks.

Alarms

The 5620 SAM raises an alarm when it detects a call-trace condition such as the following:

- excessive auxiliary-server disk-space consumption
- session or scheduled task deployment failure
- session or scheduled task execution failure
- session interruption
- invalid session or auxiliary-server configuration
- data collection, storage, or synchronization failure

Statistics

The 5620 SAM LTE logs call trace collection performance statistics such as the following:

- packets processed
- malformed packets
- dropped packets
- files created
- files closed
- files deleted after retention time elapses

Security

Call trace involves sensitive data. Access to the associated GUI forms and to the actions that you can perform are controlled using 5620 SAM scope of command permissions.

Call-trace session and scheduled task actions, for example, creation, activation, deactivation, and deletion, are recorded in the 5620 SAM User Request Log. Access to the User Request Log entries associated with call-trace functions are also controlled using 5620 SAM scope of command permissions.

The `lte.SubscAndEquipmentTraces` permission controls access to call-trace sessions and scheduled tasks. Table 12-1 lists the `lte.SubscAndEquipmentTraces` access types that are required for call-trace actions.

Table 12-1 Call-trace actions and `lte.SubscAndEquipmentTraces` access

Action	Access required
Create call-trace sessions and scheduled tasks	Create
Activate call-trace sessions and scheduled tasks Deactivate call-trace sessions and scheduled tasks	Update/Execute
Delete call-trace sessions and scheduled tasks	Delete

Data collection and storage

During a call-trace session, an eNodeB sends messages in UPOS format over UDP to the Preferred auxiliary server, which converts the message content to 3GPP XML format and adds it to a call-trace file. After a specified rollover time, or when the session ends, the auxiliary server compresses the file using gzip and saves it on the local file system. The Preferred auxiliary server synchronizes the call-trace data files with the Reserved auxiliary server.



Note — The call-trace storage directories that you configure on the Preferred and Reserved auxiliary servers in a pair must match, or data synchronization between the servers fails.

The call-trace data files are stored in the following directory on an auxiliary server:

base_directory/A_sender/trace_reference

where

base_directory is the call-trace receiving directory specified during 5620 SAM auxiliary-server installation or upgrade, typically /opt/5620sam/calltrace

sender is the eNodeB identifier

trace_reference is the UPOS trace reference

A call-trace file name has the following format:

YYYYMMDD.HHMMoffseteNodeB.sender.reference.session.gz

where

YYYYMMDD is the collection date of the first record in the file

HHMM is the collection time of the first record in the file

offset is the offset from UTC in the format *signHHMM* for example, +0300

sender is the unique UPOS name of the eNodeB

reference is the UPOS trace reference, a hexadecimal value in which the high-order three bytes are the MCC and MNC, and the low-order three bytes are the trace ID

session is the UPOS trace recording session reference value, in decimal



Note — The name of a call-trace file is prepended with TMP_ when the file is in use for data collection. You cannot open or process a call-trace file that is in use for data collection.

Call-trace management procedures

The following procedures describe how to configure global 5620 SAM and local eNodeB call-trace functions.

Procedure 12-2 To configure global 5620 SAM call-trace operation

Perform this procedure to configure the 5620 SAM call-trace operational parameters.

- 1 Choose Manage→Mobile Access→Call Trace Sessions from the 5620 SAM main menu. The Manage Call Trace Sessions form opens with the General tab displayed.
- 2 Configure the parameters:
 - Call Trace UDP Port
 - File Retention Time (hrs)
 - File Rollover Time (min)
 - Disk Usage Alarm Threshold
 - Disk Usage Alarm Severity

- 3 Click on the OK button. A dialog box appears.
 - 4 Click on the Yes button. The Manage Call Trace Sessions form closes.
-

Procedure 12-3 To configure local eNodeB call-trace operation

Perform this procedure to configure the call-trace operational parameters on an eNodeB.

- 1 Choose Manage→Mobile Access→eNodeB Logical Objects from the 5620 SAM main menu. The Manage eNodeB Logical Objects form opens with the General tab displayed.
 - 2 Choose eNodeB NE Instance (LTE) from the Select Object Type drop-down list and click on the Search button. A list of eNodeB NE instances is displayed.
 - 3 Select an eNodeB NE instance in the list and click on the Properties button. The eNodeB NE Instance (Edit) form opens with the General tab displayed.
 - 4 Click on the Components tab button.
 - 5 Navigate to a subscriber and equipment traces object. The path is eNodeB NE Instance→Subscriber and Equipment Traces→Subscriber and Equipment Traces ID *n*.
 - 6 Right-click on the object and choose Properties from the contextual menu. The Subsc and Equipment Traces (Edit) form opens with the General tab displayed.
 - 7 Configure the parameters:
 - PCMD Collection Enabled
 - Signaling Based Call Trace Enabled
 - 8 Click on the OK button. The Subsc and Equipment Traces (Edit) form closes.
 - 9 Click on the Yes button. The Manage Call Trace Sessions form closes.
-

Procedure 12-4 To create a call-trace session using the global call-trace management form

Perform this procedure to create a call-trace session for manual or scheduled activation using the Manage Call Trace Sessions form.

- 1 Choose Manage→Mobile Access→Call Trace Sessions from the 5620 SAM main menu. The Manage Call Trace Sessions form opens with the General tab displayed.
- 2 Click on the Call Trace Sessions tab button.
- 3 Click on the Create button. The Call Trace Session (Create) form opens with the General tab displayed.

- 4 Click on the Select button to choose an eNodeB instance for the call-trace session. The Select eNodeB Instance form opens.
 - 5 Select an eNodeB instance in the list and click on the OK button. The Select eNodeB Instance form closes, and the eNodeB instance is displayed on the Call Trace Session (Create) form.
 - 6 Configure the parameters:
 - Auto-Assign ID
 - Trace ID
 - Call Trace Session Name
 - Description
 - Trace Interface RRC (Uu)
 - Trace Interface S1-MME
 - Trace Interface X2
 - Traffic Threshold (Connected UE) (%)
 - RRC Re-establishment Threshold
 - IRAT Handover Threshold
 - 7 Click on the List of Traced Cells tab button.
 - 8 Click on the Add button. The Select Cells for Call Trace Session form opens with a list of available cells.
 - 9 Select one or more cells in the list and click on the OK button. The Select Cells for Call Trace Session form closes, and the cells are listed on the Call Trace Session (Create) form.
 - 10 Click on the OK button. A dialog box appears.
 - 11 Click on the Yes button. The Call Trace Session (Create) form closes.
 - 12 Close the Manage Call Trace Sessions form.
-

Procedure 12-5 To create a call-trace session using an eNodeB instance properties form

Perform this procedure to create a call-trace session for manual or scheduled activation using an eNodeB instance properties form.

- 1 Choose Manage→Mobile Access→eNodeB Logical Objects from the 5620 SAM main menu. The Manage eNodeB Logical Objects form opens with the General tab displayed.
- 2 Choose eNodeB NE Instance (LTE) from the Select Object Type drop-down list and click on the Search button. A list of eNodeB NE instances is displayed.
- 3 Select an eNodeB NE instance in the list and click on the Properties button. The eNodeB NE Instance (Edit) form opens with the General tab displayed.
- 4 Click on the Components tab button.

- 5 Navigate to a call-trace object. The path is eNodeB NE Instance→Subscriber and Equipment Traces→Subscriber and Equipment Traces ID *n*→Ctg.
 - 6 Right-click on the object and choose Create Call Trace Session... from the contextual menu. The Call Trace Session (Create) form opens with the General tab displayed.
 - 7 Configure the parameters:
 - Auto-Assign ID
 - Trace ID
 - Call Trace Session Name
 - Description
 - Trace Interface RRC (Uu)
 - Trace Interface S1-MME
 - Trace Interface X2
 - Traffic Threshold (Connected UE) (%)
 - RRC Re-establishment Threshold
 - IRAT Handover Threshold
 - 8 Click on the List of Traced Cells tab button.
 - 9 Click on the Add button. The Select Cells for Call Trace Session form opens with a list of available cells.
 - 10 Select one or more cells in the list and click on the OK button. The Select Cells for Call Trace Session form closes, and the cells are listed on the Call Trace Session (Create) form.
 - 11 Click on the OK button. A dialog box appears.
 - 12 Click on the Yes button. The Call Trace Session (Create) form closes, and a new CTg ID: *n* object is displayed in the eNodeB instance components tree.
 - 13 Click on the OK button. A dialog box appears.
 - 14 Click on the Yes button. The eNodeB NE Instance (Edit) form closes.
 - 15 Close the Manage eNodeB Logical Objects form.
-

Procedure 12-6 To activate a call-trace session

Perform this procedure to manually activate an existing call-trace session.



Note — You cannot activate a call-trace session when the session is currently running as part of a scheduled task.

- 1 Choose Manage→Mobile Access→Call Trace Sessions from the 5620 SAM main menu. The Manage Call Trace Sessions form opens with the General tab displayed.
 - 2 Click on the Call Trace Sessions tab button. The tab lists the available call-trace sessions.
 - 3 Select a call-trace session in the list and click on the Activate button. The call trace session is activated.
 - 4 Close the Manage Call Trace Sessions form.
-

Procedure 12-7 To deactivate a call-trace session

Perform this procedure to manually deactivate an active call-trace session.



Note — You cannot deactivate a call-trace session when the session is currently running as part of a scheduled task.

- 1 Choose Manage→Mobile Access→Call Trace Sessions from the 5620 SAM main menu. The Manage Call Trace Sessions form opens with the General tab displayed.
 - 2 Click on the Call Trace Sessions tab button. The tab lists the available call-trace sessions.
 - 3 Select a call-trace session in the list and click on the Deactivate button. The call trace session is deactivated.
 - 4 Close the Manage Call Trace Sessions form.
-

Procedure 12-8 To delete a call-trace session

Perform this procedure to delete a call-trace session from the 5620 SAM.

- 1 Choose Manage→Mobile Access→Call Trace Sessions from the 5620 SAM main menu. The Manage Call Trace Sessions form opens with the General tab displayed.
 - 2 If the call-trace session is associated with a scheduled task, you must delete the scheduled task before you can delete the call-trace session. Perform the following steps.
 - i Click on the Scheduled Call Trace Sessions tab button.
 - ii Select the scheduled task associated with the call-trace session.
 - iii If the scheduled task is running, click on the Task Action button and choose Stop. The scheduled task execution stops.
 - iv Click on the Task Action button and choose Shut Down. The Delete button is enabled.
 - v Click on the Delete button. A dialog box appears.
 - vi Click on the Yes button. The 5620 SAM deletes the scheduled task.
 - 3 Click on the Call Trace Sessions tab button.
 - 4 Select the call-trace session in the list.
 - 5 If the call-trace session is running, click on the Deactivate button. The call-trace session is deactivated.
 - 6 Click on the Properties button. The Call Trace Session (Edit) form opens.
 - 7 Set the Administrative State parameter to Disabled.
 - 8 Click on the OK button. The Call Trace Session (Edit) form closes.
 - 9 Click on the Delete button. A dialog box appears.
 - 10 Click on the Yes button. The 5620 SAM deletes the call-trace session.
 - 11 Select a call-trace session in the list and click on the Delete button. The call trace session is deleted.
 - 12 Close the Manage Call Trace Sessions form.
-

Procedure 12-9 To create a call-trace scheduled task

Perform this procedure to enable the execution of a call-trace session according to a schedule.

- 1 Create the following 5620 SAM schedules:
 - a start schedule that defines when the call trace is to be activated
 - a stop schedule that defines when the call trace is to be deactivated

See Scheduling chapter of the *5620 SAM User Guide* for information about creating schedules.
- 2 Choose Manage→Mobile Access→Call Trace Sessions from the 5620 SAM main menu. The Manage Call Trace Sessions form opens with the General tab displayed.
- 3 Click on the Scheduled Call Trace Sessions tab button.
- 4 Click on the Create button. The Call Trace Scheduled Task form opens with the General tab displayed.
- 5 Configure the parameters:
 - Scheduled Task Name
 - Scheduled Task Description
 - Administrative State
- 6 Perform the following steps to choose a start schedule.
 - i Click on the Select button in the Start Schedule panel. The Select Start Schedule - Call Trace Scheduled Task form opens.
 - ii Select a schedule in the list and click on the OK button. the Select Start Schedule - Call Trace Scheduled Task form closes, and the schedule identifiers are displayed on the Call Trace Scheduled Task form.
- 7 Perform the following steps to choose a stop schedule.
 - i Click on the Select button in the Stop Schedule panel. The Select Stop Schedule - Call Trace Scheduled Task form opens.
 - ii Select a schedule in the list and click on the OK button. the Select Stop Schedule - Call Trace Scheduled Task form closes, and the schedule identifiers are displayed on the Call Trace Scheduled Task form.
- 8 Click on the Call Trace Sessions tab button.
- 9 Click on the Add button. The Select Call Trace Sessions for Call Trace Scheduled Task form opens with a list of available call-trace sessions listed.
- 10 Select a call-trace session and click on the OK button. The Select Call Trace Sessions for Call Trace Scheduled Task form closes, and the call-trace session is listed on the Call Trace Scheduled Task form.
- 11 Click on the OK button. A dialog box appears.

- 12 Click on the Yes button. The Call Trace Scheduled Task (Create) form closes, and the call-trace scheduled task is listed on the Manage Call Trace Sessions form.
 - 13 Close the Manage Call Trace Sessions form.
-

Procedure 12-10 To control call-trace scheduled task execution

Perform this procedure to start, stop, enable or disable a call-trace scheduled task.

- 1 Choose Manage→Mobile Access→Call Trace Sessions from the 5620 SAM main menu. The Manage Call Trace Sessions form opens with the General tab displayed.
 - 2 Click on the Scheduled Call Trace Sessions tab button.
 - 3 Select a scheduled task in the list.
 - 4 Click on the Task Action button and perform one of the following using a contextual menu option.
 - a To immediately execute the scheduled task, choose Start Session.
 - b To immediately stop scheduled task execution, choose Stop.
 - c To administratively enable the scheduled task, choose Turn Up.
 - d To administratively disable the scheduled task, choose Shut Down.
 - 5 Close the Manage Call Trace Sessions form.
-

Procedure 12-11 To manage the assignment of eNodeBs to call-trace auxiliary-server pairs

Perform this procedure to specify which eNodeBs are assigned to which call-trace auxiliary-server pairs.

- 1 Choose Administration->System Information from the 5620 SAM main menu. The System Information form opens with the General tab displayed.
- 2 Click on the Auxiliary Service Server Pair Group tab button.
- 3 Select an auxiliary-server pair group in the list and click on the Properties button. The Auxiliary Service Server Pair Group form opens with the General tab displayed.
- 4 Click on the Auxiliary Server Pair tab button.
- 5 Select an auxiliary-server pair in the list and click on the Properties button. The Auxiliary Server Pair form opens with the General tab displayed.
- 6 Click on the Assigned Objects tab button. The Assigned Objects tab lists the eNodeBs that are assigned to the auxiliary-server pair.

- 7 To assign an eNodeB to the auxiliary-server pair, perform the following steps.
 - i Click on the Add button. The Select Network Elements form opens.
 - ii Select an eNodeB in the list and click on the OK button. The Select Network Elements form closes, and the eNodeB is listed on the Auxiliary Server Pair form.
- 8 To remove an assigned eNodeB from the auxiliary-server pair, click on the Delete button. The eNodeB is removed from the list.
- 9 Click on the OK button. The Auxiliary Server Pair form closes.
- 10 Click on the OK button. A dialog box appears.
- 11 Click on the Yes button. The Auxiliary Server Pair form closes.
- 12 Close the System Information form.

After you assign an eNodeB to a different auxiliary-server pair, the 5620 SAM updates the auxiliary-server IP address on the Subsc And Equipment Traces form of the eNodeB.

After you remove an assigned eNodeB from an auxiliary-server pair, the 5620 SAM replaces the auxiliary-server IP address on the Subsc And Equipment Traces form of the eNodeB with a series of zeroes.

- 13 Close the Manage Call Trace Sessions form.
-

Appendices

A. eNodeB PM statistics counters A-1

A. *eNodeB PM statistics counters*

A.1 eNodeB PM statistics counters A-2

A.1 eNodeB PM statistics counters

This appendix lists in tabular form the PM statistics counters that the 5620 SAM supports for the eNodeB. Each counter table corresponds to a 5620 SAM Statistics Record form, and contains the counters that are displayed on the form. Each counter entry in a table contains the following:

- the 5620 SAM GUI counter name
- the 5620 SAM OSS counter name
- the eNodeB 3GPP counter name in the *Alcatel-Lucent 9400 eNodeB Counters Reference Guide*

Some counters have subcounters, which are indicated using a period and 3GPP suffix that are appended to the parent counter eNodeB 3GPP name. For example, VS.IfInLinkUtilisation.Max is a subcounter of the VS.IfInLinkUtilisation counter.

See the *Alcatel-Lucent 9400 eNodeB Counters Reference Guide* for descriptive information about a specific counter.



Note — A statistics counter in the 5620 SAM GUI whose displayed name ends with “Periodic” is a counter that records the difference between the current and previous values of an associated 5620 SAM counter. The OSS equivalent name for a Periodic counter is the name of the 5620 SAM counter with a “Periodic” suffix. The tables in this appendix do not list Periodic counters.

Table [A-1](#) lists each statistics class and the associated statistics-counter table.

Table A-1 Statistics classes and counter tables

Class name	See
Active users Stats	A-2
Additional E-RAB Setup Stats	A-3
Cell Change Order To GERAN	A-4
Cell Throughput On L1 Channels Stats	A-5
Common Mobility Management Framework Stats	A-6
Control format indicator usage	A-7
CS Fallback Cell Change Order To GERAN	A-8
CS Fallback PS Handover To UTRAN FDD	A-9
DL PRB Usage Stats	A-10
Downlink Cell PDCP SDU Volume Stats	A-11
Downlink Grants per TTI Stats	A-12
Downlink L2 Traffic and Throughput Stats	A-13
Downlink MIMO eligibility decisions Stats	A-14
Dynamic Scheduling Stats	A-15
E-RAB Abnormal Release Stats	A-16

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Class name	See
E-RAB Modify Failure Stats	A-17
E-RAB Modify Request Stats	A-18
E-RAB Modify Success Stats	A-19
E-RAB Normal Release Stats	A-20
E-RAB Release Command E-RAB Requested To Be Released Stats	A-21
E-RAB Release Indication E-RAB Released Stats	A-22
E-RAB Release Response E-RAB Release Stats	A-23
E-RAB Setup Procedure Stats	A-24
ENB Sync And Announce Message Stats	A-25
Enhanced Non-Optimized Redirections To HRPD Via Event B2 Stats	A-26
Gap-Assisted Handover Stats	A-27
GBR E-RAB Stats	A-28
GEthernet interface Stats	A-29
HO Cell Selection Stats	A-30
HO Inter-Cell Intra-eNodeB Stats	A-31
HO Intra-Cell Stats	A-32
Incoming E-RAB Setup Stats	A-33
Incoming E-RAB Setup Stats	A-34
Incoming E-RAB To Be Setup On IRATHO Stats	A-35
Incoming HO Inter-Cell Inter-eNodeB via S1 Stats	A-36
Incoming HO Inter-Cell Inter-eNodeB via X2 Stats	A-37
Incoming HO Inter-Cell Intra-eNodeB Stats	A-38
Incoming PS Handover From UTRA Stats	A-39
Initial E-RAB Setup Stats	A-40
L1 Connection Stats	A-41
L1 Traffic and throughput MAC-BLER	A-42
Layer 0 wideband CQI reported in MIMO Stats	A-43
Layer 1 wideband CQI reported in MIMO Stats	A-44
Local UE Context Release Stats	A-45
Non-GBR E-RAB RLC Downlink Throughput Stats	A-46
Non-GBR E-RAB RLC Uplink Throughput Stats	A-47
Number Of Bearers Per Cell	A-48
Number Of Bearers Per eNodeB	A-49
OAM VLAN Stats	A-50
Outgoing HO Inter-Cell Inter-eNodeB via S1 Stats	A-51
Outgoing HO Inter-Cell Inter-eNodeB via X2 Stats	A-52
Outgoing HO Inter-Cell Intra-eNodeB Stats	A-53

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Class name	See
Outgoing PS Handover To UTRAN FDD Failure And Abort Stats	A-54
Outgoing PS Handover To UTRAN FDD	A-55
Outgoing PS Handover To UTRAN TDD	A-56
Outgoing PS Handover To UTRAN TDD	A-57
Paging Attempt Stats	A-58
Power Headroom Stats	A-59
PRBs Pool Overload Stats	A-60
PS Handover to UTRAN FDD Stats	A-61
PS Handover to UTRAN TDD Stats	A-62
RACH	A-63
Radio Link Stats	A-64
Redirection to GERAN Stats	A-65
Redirection To HRPD Stats	A-66
Redirection To Inter-Frequency Intra-FDD or TDD Stats	A-67
Redirection To Inter-Frequency Same Frame Structure Stats	A-68
Redirection to UTRAN FDD Stats	A-69
Redirection to UTRAN TDD Stats	A-70
RRC Connection Release Due To MME Overload	A-71
RRC Connection Setup Stats	A-72
RRC Connection Stats	A-73
RRC Reestablishment Setup Stats	A-74
S1 Error Indication By eNodeB Stats	A-75
S1 Error Indication By MME Stats	A-76
S1 SCTP Traffic Stats	A-77
S1 Setup Stats	A-78
SCTP Association Stats	A-79
Throughput On S1 interfaces Stats	A-80
Throughput On X2 interfaces Stats	A-81
Traffic On S1 interfaces Stats	A-82
Traffic On X2 interfaces Stats	A-83
Transport Block Stats	A-84
UE Context Modification Stats	A-85
UE Context Release Command Stats	A-86
UE Context Release Request Stats	A-87
UE Context Setup Stats	A-88
UE scheduled per TTI Stats	A-89
UL PRB Usage Stats	A-90

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Class name	See
Uplink Cell PDCP SDU Volume Stats	A-91
Uplink Grants per TTI Stats	A-92
Uplink L2 Traffic and Throughput Stats	A-93
Uplink Noise For PRB100	A-94
Uplink Noise For PRB10	A-95
Uplink Noise For PRB10	A-96
Uplink Noise For PRB11	A-97
Uplink Noise For PRB11	A-98
Uplink Noise For PRB12	A-99
Uplink Noise For PRB12	A-100
Uplink Noise For PRB13	A-101
Uplink Noise For PRB13	A-102
Uplink Noise For PRB14	A-103
Uplink Noise For PRB14	A-104
Uplink Noise For PRB15	A-105
Uplink Noise For PRB15	A-106
Uplink Noise For PRB16	A-107
Uplink Noise For PRB16	A-108
Uplink Noise For PRB17	A-109
Uplink Noise For PRB17	A-110
Uplink Noise For PRB18	A-111
Uplink Noise For PRB19	A-112
Uplink Noise For PRB19	A-113
Uplink Noise For PRB1	A-114
Uplink Noise For PRB1	A-115
Uplink Noise For PRB20	A-116
Uplink Noise For PRB20	A-117
Uplink Noise For PRB21	A-118
Uplink Noise For PRB21	A-119
Uplink Noise For PRB22	A-120
Uplink Noise For PRB22	A-121
Uplink Noise For PRB23	A-122
Uplink Noise For PRB23	A-123
Uplink Noise For PRB24	A-124
Uplink Noise For PRB24	A-125
Uplink Noise For PRB25	A-126
Uplink Noise For PRB25	A-127

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Class name	See
Uplink Noise For PRB26	A-128
Uplink Noise For PRB27	A-129
Uplink Noise For PRB28	A-130
Uplink Noise For PRB29	A-131
Uplink Noise For PRB2	A-132
Uplink Noise For PRB2	A-133
Uplink Noise For PRB30	A-134
Uplink Noise For PRB31	A-135
Uplink Noise For PRB32	A-136
Uplink Noise For PRB33	A-137
Uplink Noise For PRB34	A-138
Uplink Noise For PRB35	A-139
Uplink Noise For PRB36	A-140
Uplink Noise For PRB37	A-141
Uplink Noise For PRB38	A-142
Uplink Noise For PRB39	A-143
Uplink Noise For PRB3	A-144
Uplink Noise For PRB3	A-145
Uplink Noise For PRB40	A-146
Uplink Noise For PRB41	A-147
Uplink Noise For PRB42	A-148
Uplink Noise For PRB43	A-149
Uplink Noise For PRB44	A-150
Uplink Noise For PRB45	A-151
Uplink Noise For PRB46	A-152
Uplink Noise For PRB47	A-153
Uplink Noise For PRB48	A-154
Uplink Noise For PRB49	A-155
Uplink Noise For PRB4	A-156
Uplink Noise For PRB4	A-157
Uplink Noise For PRB50	A-158
Uplink Noise For PRB51	A-159
Uplink Noise For PRB52	A-160
Uplink Noise For PRB53	A-161
Uplink Noise For PRB54	A-162
Uplink Noise For PRB55	A-163
Uplink Noise For PRB56	A-164

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Class name	See
Uplink Noise For PRB57	A-165
Uplink Noise For PRB58	A-166
Uplink Noise For PRB59	A-167
Uplink Noise For PRB5	A-168
Uplink Noise For PRB5	A-169
Uplink Noise For PRB60	A-170
Uplink Noise For PRB61	A-171
Uplink Noise For PRB62	A-172
Uplink Noise For PRB63	A-173
Uplink Noise For PRB64	A-174
Uplink Noise For PRB65	A-175
Uplink Noise For PRB66	A-176
Uplink Noise For PRB67	A-177
Uplink Noise For PRB68	A-178
Uplink Noise For PRB69	A-179
Uplink Noise For PRB6	A-180
Uplink Noise For PRB6	A-181
Uplink Noise For PRB70	A-182
Uplink Noise For PRB71	A-183
Uplink Noise For PRB72	A-184
Uplink Noise For PRB73	A-185
Uplink Noise For PRB74	A-186
Uplink Noise For PRB75	A-187
Uplink Noise For PRB76	A-188
Uplink Noise For PRB77	A-189
Uplink Noise For PRB78	A-190
Uplink Noise For PRB79	A-191
Uplink Noise For PRB7	A-192
Uplink Noise For PRB7	A-193
Uplink Noise For PRB80	A-194
Uplink Noise For PRB81	A-195
Uplink Noise For PRB82	A-196
Uplink Noise For PRB83	A-197
Uplink Noise For PRB84	A-198
Uplink Noise For PRB85	A-199
Uplink Noise For PRB86	A-200
Uplink Noise For PRB87	A-201

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Class name	See
Uplink Noise For PRB88	A-202
Uplink Noise For PRB89	A-203
Uplink Noise For PRB8	A-204
Uplink Noise For PRB8	A-205
Uplink Noise For PRB90	A-206
Uplink Noise For PRB91	A-207
Uplink Noise For PRB92	A-208
Uplink Noise For PRB93	A-209
Uplink Noise For PRB94	A-210
Uplink Noise For PRB95	A-211
Uplink Noise For PRB96	A-212
Uplink Noise For PRB97	A-213
Uplink Noise For PRB98	A-214
Uplink Noise For PRB99	A-215
Uplink Noise For PRB9	A-216
Uplink Noise For PRB9	A-217
Uplink Paired Grants per TTI Stats	A-218
VoIP downlink FER Stats	A-219
VoIP downlink FER Stats	A-220
Wideband CQI Reported in Tx Diversity Stats	A-221
X2 SCTP Traffic Stats	A-222

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Table A-2 Active users Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
NbActiveUEInDLPerQCI	ueInDLPerQCI	VS.NbActiveUEInDLPerQCI
NbActiveUEInDLPerQCI.GBR	ueInDLPerQCIGBR	VS.NbActiveUEInDLPerQCI.GBR
NbActiveUEInDLPerQCI.NonGBR	ueInDLPerQCINonGBR	VS.NbActiveUEInDLPerQCI.NonGBR
NbActiveUEInDLPerQCI.VoIP	ueInDLPerQCIVoIP	VS.NbActiveUEInDLPerQCI.VoIP
NbActiveUEInULPerQCI	ueInULPerQCI	VS.NbActiveUEInULPerQCI
NbActiveUEInULPerQCI.GBR	ueInULPerQCIGBR	VS.NbActiveUEInULPerQCI.GBR
NbActiveUEInULPerQCI.NonGBR	ueInULPerQCINonGBR	VS.NbActiveUEInULPerQCI.NonGBR
NbActiveUEInULPerQCI.VoIP	ueInULPerQCIVoIP	VS.NbActiveUEInULPerQCI.VoIP

Table A-3 Additional E-RAB Setup Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Additional ERAB Setup Request Customer QC Is	additionalReqCustomerQCIs	VS.AdditionalERABSetupRequest.CustomerQCIs
Additional ERAB Setup Request QC I 1	additionalReqQC11	VS.AdditionalERABSetupRequest.QC11
Additional ERAB Setup Request QC I 2	additionalReqQC12	VS.AdditionalERABSetupRequest.QC12
Additional ERAB Setup Request QC I 3	additionalReqQC13	VS.AdditionalERABSetupRequest.QC13
Additional ERAB Setup Request QC I 4	additionalReqQC14	VS.AdditionalERABSetupRequest.QC14
Additional ERAB Setup Request QC I 5	additionalReqQC15	VS.AdditionalERABSetupRequest.QC15
Additional ERAB Setup Request QC I 6	additionalReqQC16	VS.AdditionalERABSetupRequest.QC16
Additional ERAB Setup Request QC I 7	additionalReqQC17	VS.AdditionalERABSetupRequest.QC17
Additional ERAB Setup Request QC I 8	additionalReqQC18	VS.AdditionalERABSetupRequest.QC18
Additional ERAB Setup Request QC I 9	additionalReqQC19	VS.AdditionalERABSetupRequest.QC19
Additional ERAB Setup Success Customer QC Is	additionalSuccCustomerQCIs	VS.AdditionalERABSetupSuccess.CustomerQCIs
Additional ERAB Setup Success QC I 1	additionalSuccQC11	VS.AdditionalERABSetupSuccess.QC11
Additional ERAB Setup Success QC I 2	additionalSuccQC12	VS.AdditionalERABSetupSuccess.QC12
Additional ERAB Setup Success QC I 3	additionalSuccQC13	VS.AdditionalERABSetupSuccess.QC13
Additional ERAB Setup Success QC I 4	additionalSuccQC14	VS.AdditionalERABSetupSuccess.QC14
Additional ERAB Setup Success QC I 5	additionalSuccQC15	VS.AdditionalERABSetupSuccess.QC15
Additional ERAB Setup Success QC I 6	additionalSuccQC16	VS.AdditionalERABSetupSuccess.QC16
Additional ERAB Setup Success QC I 7	additionalSuccQC17	VS.AdditionalERABSetupSuccess.QC17
Additional ERAB Setup Success QC I 8	additionalSuccQC18	VS.AdditionalERABSetupSuccess.QC18
Additional ERAB Setup Success QC I 9	additionalSuccQC19	VS.AdditionalERABSetupSuccess.QC19

Table A-4 Cell Change Order To GERAN counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
CCO To GERAN Attempts	ccoToGeranAttempt	VS.CCOToGeranAttempt
Event B2 And Threshold1 RSRP Threshold2 GERAN With NACC Attempts	eventB2AndThreshold1RSRPThreshold2GERANWithNACCAttempt	VS.CCOToGeranAttempt.EventB2AndThreshold1RSRPThreshold2GERANWithNACC
Event B2 And Threshold1 RSRP Threshold2 GERAN Without NACC Attempts	eventB2AndThreshold1RSRPThreshold2GERANWithoutNACCAttempt	VS.CCOToGeranAttempt.EventB2AndThreshold1RSRPThreshold2GERANWithoutNACC
Event B2 And Threshold1 RSRQ Threshold2 GERAN With NACC Attempts	eventB2AndThreshold1RSRQThreshold2GERANWithNACCAttempt	VS.CCOToGeranAttempt.EventB2AndThreshold1RSRQThreshold2GERANWithNACC
Event B2 And Threshold1 RSRQ Threshold2 GERAN Without NACC Attempts	eventB2AndThreshold1RSRQThreshold2GERANWithoutNACCAttempt	VS.CCOToGeranAttempt.EventB2AndThreshold1RSRQThreshold2GERANWithoutNACC

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
CCO To GERAN Failure	ccoToGeranFailure	VS.CCOToGeranFailure
CCO To GERAN Failure Sum	ccoToGeranFailureSum	VS.CCOToGeranFailureSum
CCO To GERAN Failure Sum With NACC	ccoToGeranFailureSumWithNACC	VS.CCOToGeranFailureSum.withNACC
CCO To GERAN Failure Sum Without NACC	ccoToGeranFailureSumWithoutNACC	VS.CCOToGeranFailureSum.withoutNACC
RRC Connection Reestablishment In CCO With NACC	rrcConnectionReestablishmentInCCOwithNACC	VS.CCOToGeranFailure.RRCConnectionReestablishmentInCCOwithNACC
RRC Connection Reestablishment In CCO Without NACC	rrcConnectionReestablishmentInCCOwithoutNACC	VS.CCOToGeranFailure.RRCConnectionReestablishmentInCCOwithoutNACC
CCO To GERAN Success	ccoToGeranSuccess	VS.CCOToGeranSuccess
Event B2 And Threshold1RSRP Threshold2 GERAN With NACC Success	eventB2AndThreshold1RSRPThreshold2GERANWithNACCSuccess	VS.CCOToGeranSuccess.EventB2AndThreshold1RSRPThreshold2GERANWithNACC
Event B2 And Threshold1 RSRP Threshold2 GERAN Without NACC Success	eventB2AndThreshold1RSRPThreshold2GERANWithoutNACCSuccess	VS.CCOToGeranSuccess.EventB2AndThreshold1RSRPThreshold2GERANWithoutNACC
Event B2 And Threshold1 RSRQ Threshold2 GERAN With NACC Success	eventB2AndThreshold1RSRQThreshold2GERANWithNACCSuccess	VS.CCOToGeranSuccess.EventB2AndThreshold1RSRQThreshold2GERANWithNACC
Event B2 And Threshold1 RSRQ Threshold2 GERAN Without NACC Success	eventB2AndThreshold1RSRQThreshold2GERANWithoutNACCSuccess	VS.CCOToGeranSuccess.EventB2AndThreshold1RSRQThreshold2GERANWithoutNACC

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Table A-5 Cell Throughput On L1 Channels Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Cell DL L 1 Throughput GT Range 1 Le Range 2	dLL1ThroughputGTRange1LeRange2	VS.CellDLL1Throughput.GTRange1LeRange2
Cell DL L 1 Throughput GT Range 2 Le Range 3	dLL1ThroughputGTRange2LeRange3	VS.CellDLL1Throughput.GTRange2LeRange3
Cell DL L 1 Throughput GT Range 3 Le Range 4	dLL1ThroughputGTRange3LeRange4	VS.CellDLL1Throughput.GTRange3LeRange4
Cell DL L 1 Throughput GT Range 4	dLL1ThroughputGTRange4	VS.CellDLL1Throughput.GTRange4
Cell DL L 1 Throughput Le Range 1	dLL1ThroughputLeRange1	VS.CellDLL1Throughput.LeRange1
Cell UL L 1 Throughput GT Range 1 Le Range 2	uLL1ThroughputGTRange1LeRange2	VS.CellULL1Throughput.GTRange1LeRange2
Cell UL L 1 Throughput GT Range 2 Le Range 3	uLL1ThroughputGTRange2LeRange3	VS.CellULL1Throughput.GTRange2LeRange3
Cell UL L 1 Throughput GT Range 3 Le Range 4	uLL1ThroughputGTRange3LeRange4	VS.CellULL1Throughput.GTRange3LeRange4
Cell UL L 1 Throughput GT Range 4	uLL1ThroughputGTRange4	VS.CellULL1Throughput.GTRange4

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Cell UL L 1 Throughput Le Range 1	ulL1ThroughputLeRange1	VS.CellULL1Throughput.LeRange1

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Table A-6 Common Mobility Management Framework Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Evolved Multi Carrier Traffic Allocation Trigger	evolvedMultiCarrierTrafficAllocationTrigger	VS.EvolvedMultiCarrierTrafficAllocationTrigger
Evolved Multi Carrier Traffic Allocation Trigger Event A 2CA For Good To Alarm Transition For Radio Coverage	eventA2CAForGoodToAlarmTransitionForRadioCoverage	VS.EvolvedMultiCarrierTrafficAllocationTrigger.EventA2CAForGoodToAlarmTransitionForRadioCoverage

Table A-7 Control format indicator usage counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
CFI Usage	cfiUsage	VS.CFIUsage
CFI1 Usage	cfi1	VS.CFIUsage.CFI1
CFI2 Usage	cfi2	VS.CFIUsage.CFI2
CFI3 Usage	cfi3	VS.CFIUsage.CFI3

Table A-8 CS Fallback Cell Change Order To GERAN counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
CS Fallback CCO To GERAN Attempt	csFallbackCCOToGeranAttempt	VS.CsFallbackCCOToGeranAttempt
With NACC	attemptWithNacc	VS.CsFallbackCCOToGeranAttempt.WithNACC
Without NACC	attemptWithoutNACC	VS.CsFallbackCCOToGeranAttempt.WithoutNACC
CS Fallback CCO To GERAN Failure Sum	csFallbackCCOToGeranFailureSum	VS.CsFallbackCCOToGeranFailureSum
CS Fallback CCO To GERAN Failure Sum With NAAC	failureSumWithNACC	VS.CsFallbackCCOToGeranFailureSum.WithNACC
CS Fallback CCO To GERAN Failure Sum Without NAAC	failureSumWithoutNACC	VS.CsFallbackCCOToGeranFailureSum.WithoutNACC
CS Fallback CCO To GERAN Success	csFallbackCCOToGeranSuccess	VS.CsFallbackCCOToGeranSuccess
CS Fallback CCO To GERAN Success With NACC	successWithNACC	VS.CsFallbackCCOToGeranSuccess.WithNACC
CS Fallback CCO To GERAN Success Without NACC	successWithoutNACC	VS.CsFallbackCCOToGeranSuccess.WithoutNACC

Table A-9 CS Fallback PS Handover To UTRAN FDD counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing CS Fallback PS HO To UTRAN FDD Abort Sum	outgoingCsFallbackPSHOToUtraFddAbortSum	VS.OutgoingCsFallbackPSHOToUtraFddAbortSum
Outgoing CS Fallback PS HO To UTRAN FDD Attempt	outgoingCsFallbackPSHOToUtraFddAttempt	VS.OutgoingCsFallbackPSHOToUtraFddAttempt
Outgoing CS Fallback PS HO To UTRAN FDD Sum	outgoingCsFallbackPSHOToUtraFddFailureSum	VS.OutgoingCsFallbackPSHOToUtraFddFailureSum
Outgoing CS Fallback PS HO To UTRAN FDD Success	outgoingCsFallbackPSHOToUtraFddSuccess	VS.OutgoingCsFallbackPSHOToUtraFddSuccess

Table A-10 DL PRB Usage Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Usage Per Traffic Class	usagePerTrafficClass	VS.DLPRBUsagePerTrafficClass
Usage Per Traffic Class - GBR	usagePerTrafficClassGBR	VS.DLPRBUsagePerTrafficClass.GBR
Usage Per Traffic Class - NonGBR	usagePerTrafficClassNonGBR	VS.DLPRBUsagePerTrafficClass.NonGBR
Usage Per Traffic Class - VoIP	usagePerTrafficClassVoIP	VS.DLPRBUsagePerTrafficClass.VoIP
DL Total PRB Usage	dlTotalPRBUsage	VS.DLTotalPRBUsage

Table A-11 Downlink Cell PDCP SDU Volume Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
DRB PdcP Sdu Bit Rate DL	drbPdcPsdubitRate	VS.DRBPdcPsdubitRateDL
DRB PdcP Sdu Kbytes DL	drbPdcPsdukbytes	VS.DRBPdcPsdukbytesDL
DRB PdcP Sdu Kbytes DL Non GBR	nonGBR	VS.DRBPdcPsdukbytesDL.NonGBR
DRB PdcP Sdu Kbytes DL Other GBR	otherGBR	VS.DRBPdcPsdukbytesDL.OtherGBR
DRB PdcP Sdu Kbytes DL Vo IP	voip	VS.DRBPdcPsdukbytesDL.VoIP

Table A-12 Downlink Grants per TTI Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
DL Grant 0 Grant	dl0Grant	VS.DLGrant.0Grant
DL Grant 1 Grant	dl1Grant	VS.DLGrant.1Grant
DL Grant 2 Grants	dl2Grant	VS.DLGrant.2Grants
DL Grant 3 Grants	dl3Grant	VS.DLGrant.3Grants
DL Grant 4 Grants	dl4Grant	VS.DLGrant.4Grants

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
DL Grant 5 Grants	dl5Grant	VS.DLGrant.5Grants
DL Grant 6or More Grants	dl6orMoreGrants	VS.DLGrant.6orMoreGrants

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Table A-13 Downlink L2 Traffic and Throughput Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
DL Rlc Pdu Kbytes GBR	dlrlcPduKbytesGBR	VS.DLRlcPduKbytes.GBR
DL Rlc Pdu Kbytes Non GBR	dlrlcPduKbytesNonGBR	VS.DLRlcPduKbytes.NonGBR
DL Rlc Pdu Kbytes Vo IP	dlrlcPduKbytesVoIP	VS.DLRlcPduKbytes.VoIP
DL Rlc Pdu Retransmitted GBR	dlrlcPduRetransmittedGBR	VS.DLRlcPduRetransmitted.GBR
DL Rlc Pdu Retransmitted Non GBR	dlrlcPduRetransmittedNonGBR	VS.DLRlcPduRetransmitted.NonGBR
DL Rlc Pdu Sent GBR	dlrlcPduSentGBR	VS.DLRlcPduSent.GBR
DL Rlc Pdu Sent Non GBR	dlrlcPduSentNonGBR	VS.DLRlcPduSent.NonGBR
DL Rlc Pdu Sent Vo IP	dlrlcPduSentVoIP	VS.DLRlcPduSent.VoIP

Table A-14 Downlink MIMO eligibility decisions Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
DL MiMO Eligibility Decision	dlMimoEligibilityDecision	VS.DLMimoEligibilityDecision
DL MIMO Eligibility Decision Eligible	dlEligibleDecisions	VS.DLMimoEligibilityDecision.Eligible
DL MIMO Eligibility Decision Not Eligible	dlNotEligibleDecisions	VS.DLMimoEligibilityDecision.NotEligible

Table A-15 Dynamic Scheduling Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
DL Data Volume With Dynamic Scheduling Per FD Users	dlFDUsers	VS.DLDataVolumeWithDynamicSchedulingPerUserCategory.FDUsers
DL Data Volume With Dynamic Scheduling Per FS Users	dlFSUsers	VS.DLDataVolumeWithDynamicSchedulingPerUserCategory.FSUsers
DL PRB Used With Dynamic Scheduling Per FD Users	dlPrbUfdUsers	VS.DLPRBUsedWithDynamicSchedulingPerUserCategory.FDUsers
DL PRB Used With Dynamic Scheduling Per FS Users	dlPrbUfsUsers	VS.DLPRBUsedWithDynamicSchedulingPerUserCategory.FSUsers
PUCCH Message Per PCQI PMI Ri Config	pcqiPmiRiConf	VS.PUCCHMessagesPerType.PcqiPmiRiConf
PUCCH Message Per SRConf	srConf	VS.PUCCHMessagesPerType.SRConf

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
PUCCH Message Per SRRc	srRec	VS.PUCCHMessagesPerType.SRRc
UL Data Volume With Dynamic Scheduling Per FD Users	ulFDUsers	VS.ULDataVolumeWithDynamicSchedulingPerUserCategory.FDUsers
UL Data Volume With Dynamic Scheduling Per FS Users	ulFSUsers	VS.ULDataVolumeWithDynamicSchedulingPerUserCategory.FSUsers
UL PRB Used With Dynamic Scheduling Per FD Users	ulPrbUfdUsers	VS.ULPRBUsedWithDynamicSchedulingPerUserCategory.FDUsers
UL PRB Used With Dynamic Scheduling Per FS Users	ulPrbUfsUsers	VS.ULPRBUsedWithDynamicSchedulingPerUserCategory.FSUsers

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Table A-16 E-RAB Abnormal Release Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Customer QCI Abnormal E-RAB Release	customerQCIs	VS.AbnormalERABReleasePerQCI.CustomerQCIs
QCI1 Abnormal E-RAB Release	qci1	VS.AbnormalERABReleasePerQCI.QCI1
QCI2 Abnormal E-RAB Release	qci2	VS.AbnormalERABReleasePerQCI.QCI2
QCI3 Abnormal E-RAB Release	qci3	VS.AbnormalERABReleasePerQCI.QCI3
QCI4 Abnormal E-RAB Release	qci4	VS.AbnormalERABReleasePerQCI.QCI4
QCI5 Abnormal E-RAB Release	qci5	VS.AbnormalERABReleasePerQCI.QCI5
QCI6 Abnormal E-RAB Release	qci6	VS.AbnormalERABReleasePerQCI.QCI6
QCI7 Abnormal E-RAB Release	qci7	VS.AbnormalERABReleasePerQCI.QCI7
QCI8 Abnormal E-RAB Release	qci8	VS.AbnormalERABReleasePerQCI.QCI8
QCI9 Abnormal E-RAB Release	qci9	VS.AbnormalERABReleasePerQCI.QCI9

Table A-17 E-RAB Modify Failure Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
ERAB Modify Failed	erabModifyFailed	VS.ERABModifyFailed
ERAB Modify Failed CAC Failure	cacFailure	VS.ERABModifyFailed.CACFailure
ERAB Modify Failed Interaction With Other Procedure	interactionWithOtherProcedure	VS.ERABModifyFailed.InteractionWithOtherProcedure
ERAB Modify Failed Internal Ffailure	internalFfailure	VS.ERABModifyFailed.InternalFfailure
ERAB Modify Failed Invalid IE Combination	invalidIECombination	VS.ERABModifyFailed.InvalidIECombination
ERAB Modify Failed OAM Intervention	oamIntervention	VS.ERABModifyFailed.OAMIntervention
ERAB Modify Failed RRC Connection Reestablishment	rrcConnectionReestablishment	VS.ERABModifyFailed.RRCConnectionReestablishment
ERAB Modify Failed Timeout	timeout	VS.ERABModifyFailed.Timeout

Table A-18 E-RAB Modify Request Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
ERAB Modify Request	erabModifyRequest	VS.ERABModifyRequest
ERAB Modify Request Customer QCI	customerQCIs	VS.ERABModifyRequest.CustomerQCIs
ERAB Modify Request QCI 1	qci1	VS.ERABModifyRequest.QCI1
ERAB Modify Request QCI 2	qci2	VS.ERABModifyRequest.QCI2
ERAB Modify Request QCI 3	qci3	VS.ERABModifyRequest.QCI3
ERAB Modify Request QCI 4	qci4	VS.ERABModifyRequest.QCI4
ERAB Modify Request QCI 5	qci5	VS.ERABModifyRequest.QCI5
ERAB Modify Request QCI 6	qci6	VS.ERABModifyRequest.QCI6
ERAB Modify Request QCI 7	qci7	VS.ERABModifyRequest.QCI7
ERAB Modify Request QCI 8	qci8	VS.ERABModifyRequest.QCI8
ERAB Modify Request QCI 9	qci9	VS.ERABModifyRequest.QCI9

Table A-19 E-RAB Modify Success Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
ERAB Modify Success	erabModifySuccess	VS.ERABModifySuccess
ERAB Modify Success Customer QCI	customerQCIs	VS.ERABModifySuccess.CustomerQCIs
ERAB Modify Success QCI 1	qci1	VS.ERABModifySuccess.QCI1
ERAB Modify Success QCI 2	qci2	VS.ERABModifySuccess.QCI2
ERAB Modify Success QCI 3	qci3	VS.ERABModifySuccess.QCI3
ERAB Modify Success QCI 4	qci4	VS.ERABModifySuccess.QCI4
ERAB Modify Success QCI 5	qci5	VS.ERABModifySuccess.QCI5
ERAB Modify Success QCI 6	qci6	VS.ERABModifySuccess.QCI6
ERAB Modify Success QCI 7	qci7	VS.ERABModifySuccess.QCI7
ERAB Modify Success QCI 8	qci8	VS.ERABModifySuccess.QCI8
ERAB Modify Success QCI 9	qci9	VS.ERABModifySuccess.QCI9

Table A-20 E-RAB Normal Release Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Customer QCI Normal E-RAB Release	customerQCIs	VS.NormalERABRelease.CustomerQCIs
QCI1 Normal E-RAB Release	qci1	VS.NormalERABRelease.QCI1
QCI2 Normal E-RAB Release	qci2	VS.NormalERABRelease.QCI2
QCI3 Normal E-RAB Release	qci3	VS.NormalERABRelease.QCI3

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
QCI4 Normal E-RAB Release	qci4	VS.NormalERABRelease.QCI4
QCI5 Normal E-RAB Release	qci5	VS.NormalERABRelease.QCI5
QCI6 Normal E-RAB Release	qci6	VS.NormalERABRelease.QCI6
QCI7 Normal E-RAB Release	qci7	VS.NormalERABRelease.QCI7
QCI8 Normal E-RAB Release	qci8	VS.NormalERABRelease.QCI8
QCI9 Normal E-RAB Release	qci9	VS.NormalERABRelease.QCI9

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Table A-21 E-RAB Release Command E-RAB Requested To Be Released Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Normal Release	normalRelease	VS.ERABReleaseCommandERABRequestedToBeReleasedPerCause.NormalRelease
Other Cause	otherCause	VS.ERABReleaseCommandERABRequestedToBeReleasedPerCause.OtherCause
Unspecified	unspecified	VS.ERABReleaseCommandERABRequestedToBeReleasedPerCause.Unspecified
Customer QCIs	customerQCIs	VS.ERABReleaseCommandERABRequestedToBeReleasedPerQCI.CustomerQCIs
QCI1	qci1	VS.ERABReleaseCommandERABRequestedToBeReleasedPerQCI.QCI1
QCI2	qci2	VS.ERABReleaseCommandERABRequestedToBeReleasedPerQCI.QCI2
QCI3	qci3	VS.ERABReleaseCommandERABRequestedToBeReleasedPerQCI.QCI3
QCI4	qci4	VS.ERABReleaseCommandERABRequestedToBeReleasedPerQCI.QCI4
QCI5	qci5	VS.ERABReleaseCommandERABRequestedToBeReleasedPerQCI.QCI5
QCI6	qci6	VS.ERABReleaseCommandERABRequestedToBeReleasedPerQCI.QCI6
QCI7	qci7	VS.ERABReleaseCommandERABRequestedToBeReleasedPerQCI.QCI7
QCI8	qci8	VS.ERABReleaseCommandERABRequestedToBeReleasedPerQCI.QCI8
QCI9	qci9	VS.ERABReleaseCommandERABRequestedToBeReleasedPerQCI.QCI9

Table A-22 E-RAB Release Indication E-RAB Released Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
No Radio Resource Available In Target Cell	noRadioResourceAvailableInTargetCell	VS.ERABReleaseIndicationERABReleasedPerCause.NoRadioResourceAvailableInTargetCell
Customer QCIs	customerQCIs	VS.ERABReleaseIndicationERABReleasedPerQCI.CustomerQCIs
ERABReleaseIndicationERABReleasedPerQCI.QCI1	qci1	VS.ERABReleaseIndicationERABReleasedPerQCI.QCI1
ERABReleaseIndicationERABReleasedPerQCI.QCI2	qci2	VS.ERABReleaseIndicationERABReleasedPerQCI.QCI2
ERABReleaseIndicationERABReleasedPerQCI.QCI3	qci3	VS.ERABReleaseIndicationERABReleasedPerQCI.QCI3
ERABReleaseIndicationERABReleasedPerQCI.QCI4	qci4	VS.ERABReleaseIndicationERABReleasedPerQCI.QCI4
ERABReleaseIndicationERABReleasedPerQCI.QCI5	qci5	VS.ERABReleaseIndicationERABReleasedPerQCI.QCI5
ERABReleaseIndicationERABReleasedPerQCI.QCI6	qci6	VS.ERABReleaseIndicationERABReleasedPerQCI.QCI6
ERABReleaseIndicationERABReleasedPerQCI.QCI7	qci7	VS.ERABReleaseIndicationERABReleasedPerQCI.QCI7
ERABReleaseIndicationERABReleasedPerQCI.QCI8	qci8	VS.ERABReleaseIndicationERABReleasedPerQCI.QCI8
ERABReleaseIndicationERABReleasedPerQCI.QCI9	qci9	VS.ERABReleaseIndicationERABReleasedPerQCI.QCI9

Table A-23 E-RAB Release Response E-RAB Release Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Failure In The Radio Interface Procedure	failureInTheRadioInterfaceProcedure	VS.ERABReleaseResponseERABReleaseFailure.FailureInTheRadioInterfaceProcedure
Radio Connection With UE Lost	radioConnectionWithUELost	VS.ERABReleaseResponseERABReleaseFailure.RadioConnectionWithUELost
S1 Inter-system Handover Triggered	s1IntersystemHandoverTriggered	VS.ERABReleaseResponseERABReleaseFailure.S1IntersystemHandoverTriggered
S1 Intra-system Handover Triggered	s1IntrasystemHandoverTriggered	VS.ERABReleaseResponseERABReleaseFailure.S1IntrasystemHandoverTriggered
Unknown E-RAB Id	unknownERABId	VS.ERABReleaseResponseERABReleaseFailure.UnknownERABId
Unspecified Failure	unspecified	VS.ERABReleaseResponseERABReleaseFailure.Unspecified
X2 Handover Triggered	x2HandoverTriggered	VS.ERABReleaseResponseERABReleaseFailure.X2HandoverTriggered
ERAB Release Response ERAB Release Success	erabReleaseResponseERABReleaseSuccess	VS.ERABReleaseResponseERABReleaseSuccess

Table A-24 E-RAB Setup Procedure Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
ERAB Setup Failed CAC Failure	cacFailure	VS.ERABSetupFailed.CACFailure
ERAB Setup Failed ERAB Context Allocation Failure	erabContextAllocationFailure	VS.ERABSetupFailed.ERABContextAllocationFailure
ERAB Setup Failed Interaction With Other Procedure	interactionWithOtherProcedure	VS.ERABSetupFailed.InteractionWithOtherProcedure
ERAB Setup Failed Internal Failure	internalFailure	VS.ERABSetupFailed.InternalFailure
ERAB Setup Failed RRC Connection Reestablishment	rrcConnectionReestab	VS.ERABSetupFailed.RRCConnectionReestablishment
ERAB Setup Failed Timeout	timeout	VS.ERABSetupFailed.Timeout

Table A-25 ENB Sync And Announce Message Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Announce Messages Received	announceMessagesReceived	VS.AnnounceMessagesReceived
Errored Sync Messages Received	erroredSyncMessagesReceived	VS.ErroredSyncMessagesReceived
Sync Messages Received	syncMessagesReceived	VS.SyncMessagesReceived
Sync Messages Rejected	syncMessagesRejected	VS.SyncMessagesRejected

Table A-26 Enhanced Non-Optimized Redirections To HRPD Via Event B2 Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Non Optimized Redirection To HRPD Via Event B 2 Async Mode Ue DR	asyncModeUeDR	VS.NonOptimizedRedirectionToHRPDViaEventB2.AsyncModeUeDR
Non Optimized Redirection To HRPD Via Event B 2 Async Mode Ue SR	asyncModeUeSR	VS.NonOptimizedRedirectionToHRPDViaEventB2.AsyncModeUeSR
Non Optimized Redirection To HRPD Via Event B 2 No Sys Time	noSysTime	VS.NonOptimizedRedirectionToHRPDViaEventB2.NoSysTime
Non Optimized Redirection To HRPD Via Event B 2 Sync Mode Ue DR	syncModeUeDR	VS.NonOptimizedRedirectionToHRPDViaEventB2.SyncModeUeDR
Non Optimized Redirection To HRPD Via Event B 2 Sync Mode Ue SR	syncModeUeSR	VS.NonOptimizedRedirectionToHRPDViaEventB2.SyncModeUeSR

Table A-27 Gap-Assisted Handover Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing Gap Assisted HO Abort Sum	outgoingGapAssistedHOAbortSum	VS.OutgoingGapAssistedHOAbortSum

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing Gap Assisted HO Abort Sum Inter RAT	interRATAbortSum	VS.OutgoingGapAssistedHOAbortSum.InterRAT
Outgoing Gap Assisted HO Abort Sum Intra LTE	intraLTEAbortSum	VS.OutgoingGapAssistedHOAbortSum.IntraLTE
Outgoing Gap Assisted HO Attempt	outgoingGapAssistedHOAttempt	VS.OutgoingGapAssistedHOAttempt
Outgoing Gap Assisted HO Attempt Inter RAT	interRATAttempt	VS.OutgoingGapAssistedHOAttempt.InterRAT
Outgoing Gap Assisted HO Attempt Intra LTE	intraLTEAttempt	VS.OutgoingGapAssistedHOAttempt.IntraLTE
Outgoing Gap Assisted HO Failure Sum	outgoingGapAssistedHOFailureSum	VS.OutgoingGapAssistedHOFailureSum
Outgoing Gap Assisted HO Failure Sum Inter RAT	interRATFailureSum	VS.OutgoingGapAssistedHOFailureSum.InterRAT
Outgoing Gap Assisted HO Failure Sum Intra LTE	intraLTFailureSum	VS.OutgoingGapAssistedHOFailureSum.IntraLTE
Outgoing Gap Assisted HO Success	outgoingGapAssistedHOSuccess	VS.OutgoingGapAssistedHOSuccess
Outgoing Gap Assisted HO Success Inter RAT	interRATSuccess	VS.OutgoingGapAssistedHOSuccess.InterRAT
Outgoing Gap Assisted HO Success Intra LTE	intraLTESuccess	VS.OutgoingGapAssistedHOSuccess.IntraLTE

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Table A-28 GBR E-RAB Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
GBRERAB Satisfied Satisfied	gbrERABSatisfied	VS.GBRERABSatisfied.Satisfied
GBRERAB Satisfied Unsatisfied	gbrERABUnsatisfied	VS.GBRERABSatisfied.Unsatisfied

Table A-29 GEthernet interface Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
If In Discards	ifInDiscards	VS.IfInDiscards
If In Errors	ifInErrors	VS.IfInErrors
If In Link Utilisation	ifInLinkUtilisation	VS.IfInLinkUtilisation
If In Link Utilisation Cum	ifInLinkUtilisationCum	VS.IfInLinkUtilisation.Cum
If In Link Utilisation Max	ifInLinkUtilisationMax	VS.IfInLinkUtilisation.Max
If In Link Utilisation Min	ifInLinkUtilisationMin	VS.IfInLinkUtilisation.Min
If In Link Utilisation Nb Evt	ifInLinkUtilisationNbEvt	VS.IfInLinkUtilisation.NbEvt
If In NuCast Pkts	ifInNuCastPkts	VS.IfInNuCastPkts
If In Octets	ifInOctets	VS.IfInOctets

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
If In Ucast Pkts	ifInUcastPkts	VS.IfInUcastPkts
If In Unknown Protos	ifInUnknownProtos	VS.IfInUnknownProtos
If Out Discards	ifOutDiscards	VS.IfOutDiscards
If Out Errors	ifOutErrors	VS.IfOutErrors
If Out Link Utilisation	ifOutLinkUtilisation	VS.IfOutLinkUtilisation
If Out Link Utilisation Cum	ifOutLinkUtilisationCum	VS.IfOutLinkUtilisation.Cum
If Out Link Utilisation Max	ifOutLinkUtilisationMax	VS.IfOutLinkUtilisation.Max
If Out Link Utilisation Min	ifOutLinkUtilisationMin	VS.IfOutLinkUtilisation.Min
If Out Link Utilisation Nb Evt	ifOutLinkUtilisationNbEvt	VS.IfOutLinkUtilisation.NbEvt
If Out Ncast Pkts	ifOutNcastPkts	VS.IfOutNcastPkts
If Out Octets	ifOutOctets	VS.IfOutOctets
If Out Ucast Pkts	ifOutUcastPkts	VS.IfOutUcastPkts

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Table A-30 HO Cell Selection Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Reported Cell Not Selected	reportedCellNotSelected	VS.ReportedCellNotSelected
Reported Cell Not Selected Cell Disabled	cellDisabled	VS.ReportedCellNotSelected.CellDisabled
Reported Cell Not Selected Mobility Not Enabled	mobilityNotEnabled	VS.ReportedCellNotSelected.MobilityNotEnabled
S1 HO Disabled	s1HODisabled	VS.ReportedCellNotSelected.S1HODisabled
Reported Cell Not Selected Unknown PCI	unknownPCI	VS.ReportedCellNotSelected.UnknownPCI

Table A-31 HO Inter-Cell Intra-eNodeB Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Intra eNodeB HO Abort	intraENodeBHOAbort	VS.IntraENodeBHOAbort
Intra eNodeB HO Abort Screened Sum	intraENodeBHOAbortScreenedSum	VS.IntraENodeBHOAbortScreenedSum
Intra eNodeB HO Abort Screened Sum Inter Freq Same Frame Structure	interFreqSameFrameStructureAbortSum	VS.IntraENodeBHOAbortScreenedSum.InterFreqSameFrameStructure
Intra eNodeB HO Abort Sum	intraENodeBHOAbortSum	VS.IntraENodeBHOAbortSum
Intra eNodeB HO Abort Cs Fallback	abortCsFallback	VS.IntraENodeBHOAbort.CsFallback
Intra eNodeB HO Abort Event A 1	abortEventA1	VS.IntraENodeBHOAbort.EventA1
S1 AP Reset Or UE Context Release Command	hoAbortS1APResetOrUECtxtReleaseCmd	VS.IntraENodeBHOAbort.S1APResetOrUEContextReleaseCommand

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Intra eNodeB HO Failure	intraENodeBHOFailure	VS.IntraENodeBHOFailure
Intra eNodeB HO Failure Sum	hoFailureSum	VS.IntraENodeBHOFailureSum
Intra eNodeB HO Failure CAC Failure	cacFailure	VS.IntraENodeBHOFailure.CACFailure
Intra eNodeB HO Failure Integrity Failure	integrityFailure	VS.IntraENodeBHOFailure.IntegrityFailure
Intra eNodeB HO Failure Inter Freq CAC Failure	interFreqCACFailure	VS.IntraENodeBHOFailure.InterFreqCACFailure
Intra eNodeB HO Failure Inter Freq Integrity Failure	interFreqIntegrityFailure	VS.IntraENodeBHOFailure.InterFreqIntegrityFailure
Intra eNodeB HO Failure Inter Freq Internal Failure	interFreqInternalFailure	VS.IntraENodeBHOFailure.InterFreqInternalFailure
Intra eNodeB HO Failure Inter Freq RRC Connection Reestab On Other Cell	interFreqRRCConnectionReestabOnOtherCell	VS.IntraENodeBHOFailure.InterFreqRRCConnectionReestabOnOtherCell
Intra eNodeB HO Failure Inter Freq RRC Connection Reestab On Source Cell	interFreqRRCConnectionReestabOnSourceCell	VS.IntraENodeBHOFailure.InterFreqRRCConnectionReestabOnSourceCell
Intra eNodeB HO Failure Inter Freq RRC Connection Reestab On Target Cell	interFreqRRCConnectionReestabOnTargetCell	VS.IntraENodeBHOFailure.InterFreqRRCConnectionReestabOnTargetCell
Intra eNodeB HO Failure Inter Freq Timeout	interFreqTimeout	VS.IntraENodeBHOFailure.InterFreqTimeout
Intra eNodeB HO Failure Internal Failure	internalFailure	VS.IntraENodeBHOFailure.InternalFailure
Intra eNodeB HO Failure RRC Connection Reestab On Other Cell	rrcConnReestabOnOtherCell	VS.IntraENodeBHOFailure.RRCConnectionReestabOnOtherCell
Intra eNodeB HO Failure RRC Connection Reestab On Source Cell	rrcConnReestabOnSourceCell	VS.IntraENodeBHOFailure.RRCConnectionReestabOnSourceCell
Intra eNodeB HO Failure RRC Connection Reestab On Target Cell	rrcConnReestabOnTargetCell	VS.IntraENodeBHOFailure.RRCConnectionReestabOnTargetCell
Intra eNodeB HO Failure Timeout	timeout	VS.IntraENodeBHOFailure.Timeout
Intra eNodeB HO Preparation Success	intraENodeBHOPreparationSuccess	VS.IntraENodeBHOPreparationSuccess
Intra eNodeB HO Preparation Success Screened	intraENodeBHOPreparationSuccessScreened	VS.IntraENodeBHOPreparationSuccessScreened
Intra eNodeB HO Preparation Success Screened Inter Freq Same Frame Structure	interFreqSameFrameStructureSuccessScreened	VS.IntraENodeBHOPreparationSuccessScreened.InterFreqSameFrameStructure

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Table A-32 HO Intra-Cell Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Intra Cell HO Attempt	intraCellHOAttempt	VS.IntraCellHOAttempt
Intra Cell HO Attempt ERAB Modify	erabModifyAttempt	VS.IntraCellHOAttempt.ERABModify
Intra Cell HO Attempt ERAB Setup	erabSetupAttempt	VS.IntraCellHOAttempt.ERABSetup

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Intra Cell HO Attempt Ke NB Refresh	hoAttemptKeNBRefresh	VS.IntraCellHOAttempt.KeNBRefresh
Intra Cell HO Attempt Rekeying	hoAttemptRekeying	VS.IntraCellHOAttempt.Rekeying
Intra Cell HO Failure During ERAB Modify	intraCellHOFailureDuringERABModify	VS.IntraCellHOFailureDuringERABModify
Intra Cell HO Failure During ERAB Setup	intraCellHOFailureDuringERABSetup	VS.IntraCellHOFailureDuringERABSetup
Intra Cell HO Kenode B Refresh Failure	intraCellHOKenodeBRefreshFailure	VS.IntraCellHOKenodeBRefreshFailure
Intra Cell HO Kenode B Refresh Failure Integrity Failure	kenodeBRefreshIntegrityFailure	VS.IntraCellHOKenodeBRefreshFailure.IntegrityFailure
Intra Cell HO Kenode B Refresh Failure Internal Failure	kenodeBRefreshInternalFailure	VS.IntraCellHOKenodeBRefreshFailure.InternalFailure
Intra Cell HO Kenode B Refresh Failure No Security Algorithm	kenodeBRefreshNoSecAlgo	VS.IntraCellHOKenodeBRefreshFailure.NoSecurityAlgorithm
Intra Cell HO Kenode B Refresh Failure RRC Connection Reestablishment	kenodeBRefreshRrcConnReestab	VS.IntraCellHOKenodeBRefreshFailure.RRCConnectionReestablishment
Intra Cell HO Kenode B Refresh Failure Timeout	kenodeBRefreshTimeout	VS.IntraCellHOKenodeBRefreshFailure.Timeout
Intra Cell HO Rekeying Failure	intraCellHOREkeyingFailure	VS.IntraCellHOREkeyingFailure
Intra Cell HO Rekeying Failure Integrity Failure	hoRekeyingIntegrityFailure	VS.IntraCellHOREkeyingFailure.IntegrityFailure
Intra Cell HO Rekeying Failure Internal Failure	hoRekeyingInternalFailure	VS.IntraCellHOREkeyingFailure.InternalFailure
Intra Cell HO Rekeying Failure No Security Algorithm	hoRekeyingNoSecurityAlgorithm	VS.IntraCellHOREkeyingFailure.NoSecurityAlgorithm
Intra Cell HO Rekeying Failure RRC Connection Reestablishment	hoRekeyingRrcConnReestab	VS.IntraCellHOREkeyingFailure.RRCConnectionReestablishment
Intra Cell HO Rekeying Failure Timeout	hoRekeyingTimeout	VS.IntraCellHOREkeyingFailure.Timeout
Intra Cell HO Success	intraCellHOSuccess	VS.IntraCellHOSuccess
Intra Cell HO Success ERAB Modify	erabModifySuccess	VS.IntraCellHOSuccess.ERABModify
Intra Cell HO Success ERAB Setup	erabSetupSuccess	VS.IntraCellHOSuccess.ERABSetup
Intra Cell HO Success Ke NB Refresh	hoSuccessKeNBRefresh	VS.IntraCellHOSuccess.KeNBRefresh
Intra Cell HO Success Rekeying	hoSuccessRekeying	VS.IntraCellHOSuccess.Rekeying

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Table A-33 Incoming E-RAB Setup Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Customer QCI Incoming E-RAB Setup On Intra Lte HO	inSetupCustomerQCIs	VS.IncomingERABSetupOnIntraLteHO.CustomerQCIs
QCI1 Incoming E-RAB Setup On Intra Lte HO	inSetupQCI1	VS.IncomingERABSetupOnIntraLteHO.QCI1

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
QCI2 Incoming E-RAB Setup On Intra Lte HO	inSetupQCI2	VS.IncomingERABSetupOnIntraLteHO.QCI2
QCI3 Incoming E-RAB Setup On Intra Lte HO	inSetupQCI3	VS.IncomingERABSetupOnIntraLteHO.QCI3
QCI4 Incoming E-RAB Setup On Intra Lte HO	inSetupQCI4	VS.IncomingERABSetupOnIntraLteHO.QCI4
QCI5 Incoming E-RAB Setup On Intra Lte HO	inSetupQCI5	VS.IncomingERABSetupOnIntraLteHO.QCI5
QCI6 Incoming E-RAB Setup On Intra Lte HO	inSetupQCI6	VS.IncomingERABSetupOnIntraLteHO.QCI6
QCI7 Incoming E-RAB Setup On Intra Lte HO	inSetupQCI7	VS.IncomingERABSetupOnIntraLteHO.QCI7
QCI8 Incoming E-RAB Setup On Intra Lte HO	inSetupQCI8	VS.IncomingERABSetupOnIntraLteHO.QCI8
QCI9 Incoming E-RAB Setup On Intra Lte HO	inSetupQCI9	VS.IncomingERABSetupOnIntraLteHO.QCI9
Incoming ERAB To Be Setup On Intra Lte HO Customer QC Is	inToBeSetupCustomerQCIs	VS.IncomingERABToBeSetupOnIntraLteHO.CustomerQCIs
QCI1 Incoming E-RAB To Be Setup On Intra Lte HO	inToBeSetupQCI1	VS.IncomingERABToBeSetupOnIntraLteHO.QCI1
QCI2 Incoming E-RAB To Be Setup On Intra Lte HO	inToBeSetupQCI2	VS.IncomingERABToBeSetupOnIntraLteHO.QCI2
QCI3 Incoming E-RAB To Be Setup On Intra Lte HO	inToBeSetupQCI3	VS.IncomingERABToBeSetupOnIntraLteHO.QCI3
QCI4 Incoming E-RAB To Be Setup On Intra Lte HO	inToBeSetupQCI4	VS.IncomingERABToBeSetupOnIntraLteHO.QCI4
QCI5 Incoming E-RAB To Be Setup On Intra Lte HO	inToBeSetupQCI5	VS.IncomingERABToBeSetupOnIntraLteHO.QCI5
QCI6 Incoming E-RAB To Be Setup On Intra Lte HO	inToBeSetupQCI6	VS.IncomingERABToBeSetupOnIntraLteHO.QCI6
QCI7 Incoming E-RAB To Be Setup On Intra Lte HO	inToBeSetupQCI7	VS.IncomingERABToBeSetupOnIntraLteHO.QCI7
QCI8 Incoming E-RAB To Be Setup On Intra Lte HO	inToBeSetupQCI8	VS.IncomingERABToBeSetupOnIntraLteHO.QCI8
QCI9 Incoming E-RAB To Be Setup On Intra Lte HO	inToBeSetupQCI9	VS.IncomingERABToBeSetupOnIntraLteHO.QCI9

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Table A-34 Incoming E-RAB Setup Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Incoming ERAB Setup On IRATHO	inERABSetupOnIRATHO	VS.IncomingERABSetupOnIRATHO
Customer QCIs	customeQCI	VS.IncomingERABSetupOnIRATHO.CustomerQCIs
QCI1	qci1	VS.IncomingERABSetupOnIRATHO.QCI1

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
QCI2	qci2	VS.IncomingERABSetupOnIRATHO.QCI2
QCI3	qci3	VS.IncomingERABSetupOnIRATHO.QCI3
QCI4	qci4	VS.IncomingERABSetupOnIRATHO.QCI4
QCI5	qci5	VS.IncomingERABSetupOnIRATHO.QCI5
QCI6	qci6	VS.IncomingERABSetupOnIRATHO.QCI6
QCI7	qci7	VS.IncomingERABSetupOnIRATHO.QCI7
QCI8	qci8	VS.IncomingERABSetupOnIRATHO.QCI8
QCI9	qci9	VS.IncomingERABSetupOnIRATHO.QCI9

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Table A-35 Incoming E-RAB To Be Setup On IRATHO Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Incoming E-RAB To Be Setup On IRATHO	inERABToBeSetupOnIRATHO	VS.IncomingERABToBeSetupOnIRATHO
Customer QCIs	customerQCI	VS.IncomingERABToBeSetupOnIRATHO.CustomerQCIs
QCI1	qci1	VS.IncomingERABToBeSetupOnIRATHO.QCI1
QCI2	qci2	VS.IncomingERABToBeSetupOnIRATHO.QCI2
QCI3	qci3	VS.IncomingERABToBeSetupOnIRATHO.QCI3
QCI4	qci4	VS.IncomingERABToBeSetupOnIRATHO.QCI4
QCI5	qci5	VS.IncomingERABToBeSetupOnIRATHO.QCI5
QCI6	qci6	VS.IncomingERABToBeSetupOnIRATHO.QCI6
QCI7	qci7	VS.IncomingERABToBeSetupOnIRATHO.QCI7
QCI8	qci8	VS.IncomingERABToBeSetupOnIRATHO.QCI8
QCI9	qci9	VS.IncomingERABToBeSetupOnIRATHO.QCI9

Table A-36 Incoming HO Inter-Cell Inter-eNodeB via S1 Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Incoming Inter eNodeB S1HO Abort	bs1HOAbort	VS.IncomingInterENodeBS1HOAbort
Incoming Inter eNodeB S1HO Abort Screened Sum	bs1HOAbortScreenedSum	VS.IncomingInterENodeBS1HOAbortScreenedSum

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Incoming Inter eNodeB S 1HO Abort Screened Sum Inter Freq Same Frame Structure	abortScreenedSumInterFreqSameFrameStructure	VS.IncomingInterENodeBS1HOAbortScreenedSum.InterFreqSameFrameStructure
IncomingInterENodeBS1HOAbortSum	incomingInterENodeBS1HOAbortSum	VS.IncomingInterENodeBS1HOAbortSum
Incoming Inter eNodeB S 1HO Abort S1APUE Context Release Command	s1APUEContextReleaseCommand	VS.IncomingInterENodeBS1HOAbort.S1APUEContextReleaseCommand
IncomingInterENodeBS1HOAttempt	incomingInterENodeBS1HOAttempt	VS.IncomingInterENodeBS1HOAttempt
Incoming Inter eNodeB S 1HO Attempt Screened	bs1HOAttemptScreened	VS.IncomingInterENodeBS1HOAttemptScreened
Incoming Inter eNodeB S 1HO Attempt Screened Inter Freq Same Frame Structure	attemptScreenedInterFreqSameFrameStructure	VS.IncomingInterENodeBS1HOAttemptScreened.InterFreqSameFrameStructure
Incoming Inter eNodeB S 1HO Failure	bs1HOFailure	VS.IncomingInterENodeBS1HOFailure
IncomingInterENodeBS1HOFailureSum	incomingInterENodeBS1HOFailureSum	VS.IncomingInterENodeBS1HOFailureSum
Incoming Inter eNodeB S 1HO Failure CAC Failure	inEnbS1CACFailure	VS.IncomingInterENodeBS1HOFailure.CACFailure
CellNotAvailable	inEnbS1CellNotAvailable	VS.IncomingInterENodeBS1HOFailure.CellNotAvailable
Incoming Inter eNodeB S 1HO Failure ERAB Context Allocation Failure	eRABContextAllocationFailure	VS.IncomingInterENodeBS1HOFailure.ERABContextAllocationFailure
IntegrityFailure	inEnbS1IntegrityFailure	VS.IncomingInterENodeBS1HOFailure.IntegrityFailure
InterEnbS1HTimeout	inEnbS1InterEnbS1HTimeout	VS.IncomingInterENodeBS1HOFailure.InterEnbS1HTimeout
Incoming Inter eNodeB S 1HO Failure Inter Freq CAC Failure	interFreqCACFailure	VS.IncomingInterENodeBS1HOFailure.InterFreqCACFailure
Incoming Inter eNodeB S 1HO Failure Inter Freq Cell Not Available	interFreqCellNotAvailable	VS.IncomingInterENodeBS1HOFailure.InterFreqCellNotAvailable
Incoming Inter eNodeB S 1HO Failure Inter Freq Integrity Failure	interFreqIntegrityFailure	VS.IncomingInterENodeBS1HOFailure.InterFreqIntegrityFailure
Incoming Inter eNodeB S 1HO Failure Inter Freq Inter Enb S 1HO Timeout	interFreqInterEnbS1HTimeout	VS.IncomingInterENodeBS1HOFailure.InterFreqInterEnbS1HTimeout
Incoming Inter eNodeB S 1HO Failure Inter Freq Internal Failure	interFreqInternalFailure	VS.IncomingInterENodeBS1HOFailure.InterFreqInternalFailure
Incoming Inter eNodeB S 1HO Failure Inter Freq Intervention OAM	interFreqInterventionOAM	VS.IncomingInterENodeBS1HOFailure.InterFreqInterventionOAM
Incoming Inter eNodeB S 1HO Failure Inter Freq RRC Connection Reestablishment On Other Cell	interFreqRRCConnectionReestablishmentOnOtherCell	VS.IncomingInterENodeBS1HOFailure.InterFreqRRCConnectionReestablishmentOnOtherCell
Incoming Inter eNodeB S 1HO Failure Inter Freq RRC Connection Reestablishment On Target Cell	interFreqRRCConnectionReestablishmentOnTargetCell	VS.IncomingInterENodeBS1HOFailure.InterFreqRRCConnectionReestablishmentOnTargetCell
Incoming Inter eNodeB S 1HO Failure Inter Freq Security Algo Not Compatible	interFreqSecurityAlgoNotCompatible	VS.IncomingInterENodeBS1HOFailure.InterFreqSecurityAlgoNotCompatible
Incoming Inter eNodeB S 1HO Failure Internal Failure	inEnbS1InternalFailure	VS.IncomingInterENodeBS1HOFailure.InternalFailure

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Incoming Inter eNodeB S 1HO Failure Intervention OAM	inEnbS1InterventionOAMFailure	VS.IncomingInterENodeBS1HOFailure.InterventionOAM
RRCConnectionReestablishmentOnOtherCell	inEnbS1RRCConnReestabOnOtherCell	VS.IncomingInterENodeBS1HOFailure.RRCConnectionReestablishmentOnOtherCell
RRCConnectionReestablishmentOnTargetCell	inEnbS1RRCConnReestabOnTargetCell	VS.IncomingInterENodeBS1HOFailure.RRCConnectionReestablishmentOnTargetCell
SecurityAlgoNotCompatible	inEnbS1SecurityAlgoNotCompatible	VS.IncomingInterENodeBS1HOFailure.SecurityAlgoNotCompatible
Incoming Inter eNodeB S 1HO Preparation Success	bs1HOPreparationSuccess	VS.IncomingInterENodeBS1HOPreparationSuccess
Incoming Inter eNodeB S 1HO Preparation Success Screened	bs1HOPreparationSuccessScreened	VS.IncomingInterENodeBS1HOPreparationSuccessScreened
Incoming Inter eNodeB S 1HO Preparation Success Screened Inter Freq Same Frame Structure	prepSuccessScreenedInterFreqSameFrameStructure	VS.IncomingInterENodeBS1HOPreparationSuccessScreened.InterFreqSameFrameStructure
IncomingInterENodeBS1HOSuccess	incomingInterENodeBS1HOSuccess	VS.IncomingInterENodeBS1HOSuccess
Incoming Inter eNodeB S 1HO Success Screened	bs1HOSuccessScreened	VS.IncomingInterENodeBS1HOSuccessScreened
Incoming Inter eNodeB S 1HO Success Screened Inter Freq Same Frame Structure	succScreenedInterFreqSameFrameStructure	VS.IncomingInterENodeBS1HOSuccessScreened.InterFreqSameFrameStructure

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Table A-37 Incoming HO Inter-Cell Inter-eNodeB via X2 Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Incoming Inter eNodeB X 2HO Abort Screened Sum	abortScreenedSum	VS.IncomingInterENodeBX2HOAbortScreenedSum
Incoming Inter eNodeB X 2HO Abort Screened Sum Inter Freq Same Frame Structure	interFreqSameFrameStructureAbortScreenedSum	VS.IncomingInterENodeBX2HOAbortScreenedSum.InterFreqSameFrameStructure
Incoming Inter eNodeB X 2HO Abort Sum	incomingInterENodeBX2HOAbortSum	VS.IncomingInterENodeBX2HOAbortSum
Incoming Inter eNodeB X 2HO Abort X 2APHO Cancel	x2APHOCancel	VS.IncomingInterENodeBX2HOAbort.X2APHOCancel
Incoming Inter eNodeB X 2HO Abort X 2AP Reset	x2APReset	VS.IncomingInterENodeBX2HOAbort.X2APReset
Incoming Inter eNodeB X 2HO Attempt	incomingInterENodeBX2HOAttempt	VS.IncomingInterENodeBX2HOAttempt
Incoming Inter eNodeB X 2HO Attempt Screened	bx2HOAttemptScreened	VS.IncomingInterENodeBX2HOAttemptScreened
Incoming Inter eNodeB X 2HO Attempt Screened Inter Freq Same Frame Structure	interFreqSameFrameStructureAttemptScreened	VS.IncomingInterENodeBX2HOAttemptScreened.InterFreqSameFrameStructure
Incoming Inter eNodeB X 2HO Failure Sum	incomingInterENodeBX2HOFailureSum	VS.IncomingInterENodeBX2HOFailureSum

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Incoming Inter eNodeB X 2HO Failure CAC Failure	inEnbX2HoCACFailure	VS.IncomingInterENodeBX2HOFailure.CAC Failure
Incoming Inter eNodeB X 2HO Failure Cell Not Available	inEnbX2HoCellNotAvailable	VS.IncomingInterENodeBX2HOFailure.Cell NotAvailable
Incoming Inter eNodeB X 2HO Failure ERAB Context Allocation Failure	erabContextAllocationFailure	VS.IncomingInterENodeBX2HOFailure.ERABContextAllocationFailure
Incoming Inter eNodeB X 2HO Failure Integrity Failure	inEnbX2HoIntegrityFailure	VS.IncomingInterENodeBX2HOFailure.IntegrityFailure
Incoming Inter eNodeB X 2HO Failure Inter Enb HO Timeout	inEnbX2HoInterEnbHOTimeout	VS.IncomingInterENodeBX2HOFailure.InterEnbHOTimeout
Incoming Inter eNodeB X 2HO Failure Inter Freq CAC Failure	interFreqCACFailure	VS.IncomingInterENodeBX2HOFailure.InterFreqCACFailure
Incoming Inter eNodeB X 2HO Failure Inter Freq Cell Not Available	interFreqCellNotAvailable	VS.IncomingInterENodeBX2HOFailure.InterFreqCellNotAvailable
Incoming Inter eNodeB X 2HO Failure Inter Freq Integrity Failure	interFreqIntegrityFailure	VS.IncomingInterENodeBX2HOFailure.InterFreqIntegrityFailure
Incoming Inter eNodeB X 2HO Failure Inter Freq Inter Enb HO Timeout	interFreqInterEnbHOTimeout	VS.IncomingInterENodeBX2HOFailure.InterFreqInterEnbHOTimeout
Incoming Inter eNodeB X 2HO Failure Inter Freq Internal Failure	interFreqInternalFailure	VS.IncomingInterENodeBX2HOFailure.InterFreqInternalFailure
Incoming Inter eNodeB X 2HO Failure Inter Freq Intervention OAM	interFreqInterventionOAM	VS.IncomingInterENodeBX2HOFailure.InterFreqInterventionOAM
Incoming Inter eNodeB X 2HO Failure Inter Freq Path Switch Failure	interFreqPathSwitchFailure	VS.IncomingInterENodeBX2HOFailure.InterFreqPathSwitchFailure
Incoming Inter eNodeB X 2HO Failure Inter Freq RRC Connection Reestablishment On Other Cell	interFreqRRCConnectionReestablishmentOnOtherCell	VS.IncomingInterENodeBX2HOFailure.InterFreqRRCConnectionReestablishmentOnOtherCell
Incoming Inter eNodeB X 2HO Failure Inter Freq RRC Connection Reestablishment On Target Cell	interFreqRRCConnectionReestablishmentOnTargetCell	VS.IncomingInterENodeBX2HOFailure.InterFreqRRCConnectionReestablishmentOnTargetCell
Inter-Freq S1 Fault External Failure	interFreqS1FaultExternalFailure	VS.IncomingInterENodeBX2HOFailure.InterFreqS1FaultExternalFailure
Inter-Freq S1 Path Switch Timeout	interFreqS1PathSwitchTimeout	VS.IncomingInterENodeBX2HOFailure.InterFreqS1PathSwitchTimeout
Incoming Inter eNodeB X 2HO Failure Inter Freq Security Algo Not Compatible	interFreqSecurityAlgoNotCompatible	VS.IncomingInterENodeBX2HOFailure.InterFreqSecurityAlgoNotCompatible
Incoming Inter eNodeB X 2HO Failure Internal Failure	inEnbX2HoInternalFailure	VS.IncomingInterENodeBX2HOFailure.InternalFailure
Incoming Inter eNodeB X 2HO Failure Intervention OAM	inEnbX2HoInterventionOAM	VS.IncomingInterENodeBX2HOFailure.InterventionOAM
Incoming Inter eNodeB X 2HO Failure Path Switch Failure	inEnbX2HoPathSwitchFailure	VS.IncomingInterENodeBX2HOFailure.PathSwitchFailure
Incoming Inter eNodeB X 2HO Failure RRC Connection Reestablishment On Other Cell	inEnbX2HoRRCConnReestabOnOtherCell	VS.IncomingInterENodeBX2HOFailure.RRCConnectionReestablishmentOnOtherCell
Incoming Inter eNodeB X 2HO Failure RRC Connection Reestablishment On Target Cell	inEnbX2HoRRCConnReestabOnTargetCell	VS.IncomingInterENodeBX2HOFailure.RRCConnectionReestablishmentOnTargetCell

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
S1 Fault External Failure	inEnbX2HoS1FaultExternalFailure	VS.IncomingInterENodeBX2HOFailure.S1FaultExternalFailure
S1 Path Switch Timeout	inEnbX2HoS1PathSwitchTimeout	VS.IncomingInterENodeBX2HOFailure.S1PathSwitchTimeout
Incoming Inter eNodeB X 2HO Failure Security Algo Not Compatible	inEnbX2HoSecurityAlgoNotCompatible	VS.IncomingInterENodeBX2HOFailure.SecurityAlgoNotCompatible
Incoming Inter eNodeB X 2HO Preparation Success	preparationSuccess	VS.IncomingInterENodeBX2HOPreparationSuccess
Incoming Inter eNodeB X 2HO Preparation Success Screened	bx2HOPreparationSuccessScreened	VS.IncomingInterENodeBX2HOPreparationSuccessScreened
Incoming Inter eNodeB X 2HO Preparation Success Screened Inter Freq Same Frame Structure	interFreqSameFrameStructurePreparationSuccessScreened	VS.IncomingInterENodeBX2HOPreparationSuccessScreened.InterFreqSameFrameStructure
Incoming Inter eNodeB X 2HO Success	incomingInterENodeBX2HOSuccess	VS.IncomingInterENodeBX2HOSuccess
Incoming Inter eNodeB X 2HO Success Screened	bx2HOSuccessScreened	VS.IncomingInterENodeBX2HOSuccessScreened
Incoming Inter eNodeB X 2HO Success Screened Inter Freq Same Frame Structure	interFreqSameFrameStructureSuccessScreened	VS.IncomingInterENodeBX2HOSuccessScreened.InterFreqSameFrameStructure

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Table A-38 Incoming HO Inter-Cell Intra-eNodeB Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Incoming Intra eNodeB HO Attempt	incomingHOAttempt	VS.IncomingIntraENodeBHOAttempt
Incoming Intra eNodeB HO Attempt Screened	attemptScreened	VS.IncomingIntraENodeBHOAttemptScreened
Incoming Intra eNodeB HO Attempt Screened Inter Freq Same Frame Structure	interFreqSameFrameStructureAttemptScreened	VS.IncomingIntraENodeBHOAttemptScreened.InterFreqSameFrameStructure
Incoming Intra eNodeB HO Success	incomingHOSuccess	VS.IncomingIntraENodeBHOSuccess
Incoming Intra eNodeB HO Success Screened	successScreened	VS.IncomingIntraENodeBHOSuccessScreened
Incoming Intra eNodeB HO Success Screened Inter Freq Same Frame Structure	interFreqSameFrameStructureSuccessScreened	VS.IncomingIntraENodeBHOSuccessScreened.InterFreqSameFrameStructure

Table A-39 Incoming PS Handover From UTRA Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Incoming PS HO From Utran Abort	inPSHOFromUtranAbort	VS.IncomingPSHOFromUtranAbort
Incoming PS HO From Utran Abort Sum	inPSHOFromUtranAbortSum	VS.IncomingPSHOFromUtranAbortSum

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
S1 AP UE Context Release Command	s1APUEContextReleaseCommand	VS.IncomingPSHOFromUtranAbort.S1APUEContextReleaseCommand
Incoming PSHO From Utran Attempt	inPSHOFromUtranAttempt	VS.IncomingPSHOFromUtranAttempt
Incoming PS HO From Utran Failure	inPSHOFromUtranFailure	VS.IncomingPSHOFromUtranFailure
Incoming PSHO From Utran Failure Sum	inPSHOFromUtranFailureSum	VS.IncomingPSHOFromUtranFailureSum
Incoming PSHO From Utran Failure CAC Failure	cacFailure	VS.IncomingPSHOFromUtranFailure.CACFailure
Cell Not Available	cellNotAvailable	VS.IncomingPSHOFromUtranFailure.CellNotAvailable
IncomingPSHOFromUtranFailure.IntegrityFailure	integrityFailure	VS.IncomingPSHOFromUtranFailure.IntegrityFailure
Internal Failure	internalFailure	VS.IncomingPSHOFromUtranFailure.InternalFailure
Inter-RAT Incoming Ho Timeout	interRATIncomingHoTimeout	VS.IncomingPSHOFromUtranFailure.interRATIncomingHoTimeout
Incoming PSHO From Utran Failure Intervention OAM	interventionOAM	VS.IncomingPSHOFromUtranFailure.InterventionOAM
RRC Connection Reestablishment On Other Cell	rrcConnReestablishmentOnOtherCell	VS.IncomingPSHOFromUtranFailure.RRCConnectionReestablishmentOnOtherCell
RRC Connection Reestablishment On Target Cell	rrcConnectionReestablishmentOnTargetCell	VS.IncomingPSHOFromUtranFailure.RRCConnectionReestablishmentOnTargetCell
Security Algo Not Compatible	securityAlgoNotCompatible	VS.IncomingPSHOFromUtranFailure.SecurityAlgoNotCompatible
Incoming PSHO From Utran Preparation Success	inPSHOFromUtranPreparationSuccess	VS.IncomingPSHOFromUtranPreparationSuccess
Incoming PSHO From Utran Success	inPSHOFromUtranSuccess	VS.IncomingPSHOFromUtranSuccess

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Table A-40 Initial E-RAB Setup Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Initial ERAB Setup Request Customer QCI s	initialReqCustomerQCIs	VS.InitialERABSetupRequest.CustomerQCIs
Initial ERAB Setup Request QC I 1	initialReqQC1	VS.InitialERABSetupRequest.QC1
Initial ERAB Setup Request QC I 2	initialReqQC2	VS.InitialERABSetupRequest.QC2
Initial ERAB Setup Request QC I 3	initialReqQC3	VS.InitialERABSetupRequest.QC3
Initial ERAB Setup Request QC I 4	initialReqQC4	VS.InitialERABSetupRequest.QC4
Initial ERAB Setup Request QC I 5	initialReqQC5	VS.InitialERABSetupRequest.QC5
Initial ERAB Setup Request QC I 6	initialReqQC6	VS.InitialERABSetupRequest.QC6
Initial ERAB Setup Request QC I 7	initialReqQC7	VS.InitialERABSetupRequest.QC7
Initial ERAB Setup Request QC I 8	initialReqQC8	VS.InitialERABSetupRequest.QC8
Initial ERAB Setup Request QC I 9	initialReqQC9	VS.InitialERABSetupRequest.QC9

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Initial ERAB Setup Success Customer QCI s	initialSuccCustomerQCIs	VS.InitialERABSetupSuccess.CustomerQCIs
Initial ERAB Setup Success QCI 1	initialSuccQCI1	VS.InitialERABSetupSuccess.QCI1
Initial ERAB Setup Success QCI 2	initialSuccQCI2	VS.InitialERABSetupSuccess.QCI2
Initial ERAB Setup Success QCI 3	initialSuccQCI3	VS.InitialERABSetupSuccess.QCI3
Initial ERAB Setup Success QCI 4	initialSuccQCI4	VS.InitialERABSetupSuccess.QCI4
Initial ERAB Setup Success QCI 5	initialSuccQCI5	VS.InitialERABSetupSuccess.QCI5
Initial ERAB Setup Success QCI 6	initialSuccQCI6	VS.InitialERABSetupSuccess.QCI6
Initial ERAB Setup Success QCI 7	initialSuccQCI7	VS.InitialERABSetupSuccess.QCI7
Initial ERAB Setup Success QCI 8	initialSuccQCI8	VS.InitialERABSetupSuccess.QCI8
Initial ERAB Setup Success QCI 9	initialSuccQCI9	VS.InitialERABSetupSuccess.QCI9

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Table A-41 L1 Connection Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
L 1 Connection Request	l1ConnectionRequest	VS.L1ConnectionRequest
PUCCHCQI Period Histogram 40ms	channelQualityPeriodHistogram40ms	VS.PUCCHCQIPeriodHistogram.40ms
PUCCHCQI Period Histogram 80ms	channelQualityPeriodHistogram80ms	VS.PUCCHCQIPeriodHistogram.80ms
PUCCHCQI Period Histogram G T 80ms	channelQualityPeriodHistogramGt80m	VS.PUCCHCQIPeriodHistogram.GT80ms
PUCCHCQI Period Histogram L E 20ms	channelQualityPeriodHistogramLE20ms	VS.PUCCHCQIPeriodHistogram.LE20ms
PUCCHSR Period Histogram 40ms	schedReqPeriodHistogram40ms	VS.PUCCHSRPeriodHistogram.40ms
PUCCHSR Period Histogram 80ms	schedReqPeriodHistogram80ms	VS.PUCCHSRPeriodHistogram.80ms
PUCCHSR Period Histogram G T 80ms	schedReqPeriodHistogramGt80ms	VS.PUCCHSRPeriodHistogram.GT80ms
PUCCHSR Period Histogram L E 20ms	schedReqPeriodHistogramLe80ms	VS.PUCCHSRPeriodHistogram.LE20ms
PUCCHSRS Period Histogram 40ms	soundingRefSymPeriodHistogram40ms	VS.PUCCHSRSPeriodHistogram.40ms
PUCCHSRS Period Histogram 80ms	soundingRefSymPeriodHistogram80ms	VS.PUCCHSRSPeriodHistogram.80ms
PUCCHSRS Period Histogram G T 80ms	soundingRefSymPeriodHistogramGt80ms	VS.PUCCHSRSPeriodHistogram.GT80ms
PUCCHSRS Period Histogram L E 20ms	soundingRefSymPeriodHistogramLe80ms	VS.PUCCHSRSPeriodHistogram.LE20ms

Table A-42 L1 Traffic and throughput MAC-BLER counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
DL Initial Mac BLERGT Threshold 1LE Threshold 2	dlInitialGTThreshold1LEThreshold2	VS.DLInitialMacBLER.GTThreshold1LEThreshold2
DL Initial Mac BLERGT Threshold 2LE Threshold 3	dlInitialGTThreshold2LEThreshold3	VS.DLInitialMacBLER.GTThreshold2LEThreshold3
DL Initial Mac BLERGT Threshold 3LE Threshold 4	dlInitGTThreshold3LEThreshold4	VS.DLInitialMacBLER.GTThreshold3LEThreshold4
DL Initial Mac BLERGT Threshold 4	dlInitialGTThreshold4	VS.DLInitialMacBLER.GTThreshold4
DL Initial Mac BLERLE Threshold 1	dlInitialLEThreshold1	VS.DLInitialMacBLER.LEThreshold1
DL Residual Mac BLERGT Threshold 1LE Threshold 2	dlResidualGTThreshold1LEThreshold2	VS.DLResidualMacBLER.GTThreshold1LEThreshold2
DL Residual Mac BLERGT Threshold 2LE Threshold 3	dlResidualGTThreshold2LEThreshold3	VS.DLResidualMacBLER.GTThreshold2LEThreshold3
DL Residual Mac BLERGT Threshold 3LE Threshold 4	dlResidualGTThreshold3LEThreshold4	VS.DLResidualMacBLER.GTThreshold3LEThreshold4
DL Residual Mac BLERGT Threshold 4	dlResidualGTThreshold4	VS.DLResidualMacBLER.GTThreshold4
DL Residual Mac BLERLE Threshold 1	dlResidualLEThreshold1	VS.DLResidualMacBLER.LEThreshold1
UL Initial Mac BLERGT Threshold 1LE Threshold 2	ulInitialGTThreshold1LEThreshold2	VS.ULInitialMacBLER.GTThreshold1LEThreshold2
UL Initial Mac BLERGT Threshold 2LE Threshold 3	ulInitialGTThreshold2LEThreshold3	VS.ULInitialMacBLER.GTThreshold2LEThreshold3
UL Initial Mac BLERGT Threshold 3LE Threshold 4	ulInitGTThreshold3LEThreshold4	VS.ULInitialMacBLER.GTThreshold3LEThreshold4
UL Initial Mac BLERGT Threshold 4	ulInitialGTThreshold4	VS.ULInitialMacBLER.GTThreshold4
UL Initial Mac BLERLE Threshold 1	ulInitialLEThreshold1	VS.ULInitialMacBLER.LEThreshold1
UL Residual Mac BLERGT Threshold 1LE Threshold 2	ulResidMacBLERGTThreshold1LEThreshold2	VS.ULResidualMacBLER.GTThreshold1LEThreshold2
UL Residual Mac BLERGT Threshold 2LE Threshold 3	ulResidualGTThreshold2LEThreshold3	VS.ULResidualMacBLER.GTThreshold2LEThreshold3
UL Residual Mac BLERGT Threshold 3LE Threshold 4	ulResidualGTThreshold3LEThreshold4	VS.ULResidualMacBLER.GTThreshold3LEThreshold4
UL Residual Mac BLERGT Threshold 4	ulResidualGTThreshold4	VS.ULResidualMacBLER.GTThreshold4
UL Residual Mac BLERLE Threshold 1	ulResidualLEThreshold1	VS.ULResidualMacBLER.LEThreshold1

Table A-43 Layer 0 wideband CQI reported in MIMO Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Layer 0 MIMO WB Cqi Reported Cqi 0	cqi0	VS.Layer0MimoWBCqiReported.Cqi0
Layer 0 MIMO WB Cqi Reported Cqi 1	cqi1	VS.Layer0MimoWBCqiReported.Cqi1
Layer 0 MIMO WB Cqi Reported Cqi 10	cqi10	VS.Layer0MimoWBCqiReported.Cqi10
Layer 0 MIMO WB Cqi Reported Cqi 11	cqi11	VS.Layer0MimoWBCqiReported.Cqi11

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Layer 0 Mimo WB Cqi Reported Cqi 12	cqi12	VS.Layer0MimoWBCqiReported.Cqi12
Layer 0 Mimo WB Cqi Reported Cqi 13	cqi13	VS.Layer0MimoWBCqiReported.Cqi13
Layer 0 Mimo WB Cqi Reported Cqi 14	cqi14	VS.Layer0MimoWBCqiReported.Cqi14
Layer 0 Mimo WB Cqi Reported Cqi 15	cqi15	VS.Layer0MimoWBCqiReported.Cqi15
Layer 0 Mimo WB Cqi Reported Cqi 2	cqi2	VS.Layer0MimoWBCqiReported.Cqi2
Layer 0 Mimo WB Cqi Reported Cqi 3	cqi3	VS.Layer0MimoWBCqiReported.Cqi3
Layer 0 Mimo WB Cqi Reported Cqi 4	cqi4	VS.Layer0MimoWBCqiReported.Cqi4
Layer 0 Mimo WB Cqi Reported Cqi 5	cqi5	VS.Layer0MimoWBCqiReported.Cqi5
Layer 0 Mimo WB Cqi Reported Cqi 6	cqi6	VS.Layer0MimoWBCqiReported.Cqi6
Layer 0 Mimo WB Cqi Reported Cqi 7	cqi7	VS.Layer0MimoWBCqiReported.Cqi7
Layer 0 Mimo WB Cqi Reported Cqi 8	cqi8	VS.Layer0MimoWBCqiReported.Cqi8
Layer 0 Mimo WB Cqi Reported Cqi 9	cqi9	VS.Layer0MimoWBCqiReported.Cqi9

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Table A-44 Layer 1 wideband CQI reported in MIMO Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Layer 1WB Cqi Reported Cqi 0	cqi0	VS.Layer1WBCqiReported.Cqi0
Layer 1WB Cqi Reported Cqi 1	cqi1	VS.Layer1WBCqiReported.Cqi1
Layer 1WB Cqi Reported Cqi 10	cqi10	VS.Layer1WBCqiReported.Cqi10
Layer 1WB Cqi Reported Cqi 11	cqi11	VS.Layer1WBCqiReported.Cqi11
Layer 1WB Cqi Reported Cqi 12	cqi12	VS.Layer1WBCqiReported.Cqi12
Layer 1WB Cqi Reported Cqi 13	cqi13	VS.Layer1WBCqiReported.Cqi13
Layer 1WB Cqi Reported Cqi 14	cqi14	VS.Layer1WBCqiReported.Cqi14
Layer 1WB Cqi Reported Cqi 15	cqi15	VS.Layer1WBCqiReported.Cqi15
Layer 1WB Cqi Reported Cqi 2	cqi2	VS.Layer1WBCqiReported.Cqi2
Layer 1WB Cqi Reported Cqi 3	cqi3	VS.Layer1WBCqiReported.Cqi3
Layer 1WB Cqi Reported Cqi 4	cqi4	VS.Layer1WBCqiReported.Cqi4
Layer 1WB Cqi Reported Cqi 5	cqi5	VS.Layer1WBCqiReported.Cqi5
Layer 1WB Cqi Reported Cqi 6	cqi6	VS.Layer1WBCqiReported.Cqi6
Layer 1WB Cqi Reported Cqi 7	cqi7	VS.Layer1WBCqiReported.Cqi7
Layer 1WB Cqi Reported Cqi 8	cqi8	VS.Layer1WBCqiReported.Cqi8
Layer 1WB Cqi Reported Cqi 9	cqi9	VS.Layer1WBCqiReported.Cqi9

Table A-45 Local UE Context Release Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Local UE Context Release Sum	localUEContextReleaseSum	VS.LocalUEContextReleaseSum
Local UE Context Release No Context Release Command	noContextReleaseCommand	VS.LocalUEContextRelease.NoContextReleaseCommand
S1 AP Reset ENodeB	s1APResetENodeB	VS.LocalUEContextRelease.S1APResetENodeB
S1 AP Reset MME	s1APResetMME	VS.LocalUEContextRelease.S1APResetMME
S1 Fault External Failure	s1FaultExternalFailure	VS.LocalUEContextRelease.S1FaultExternalFailure

Table A-46 Non-GBR E-RAB RLC Downlink Throughput Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Non GBRERAB Rlc Throughput DL GT Range 1 Le Range 2	dlGTRange1LeRange2	VS.NonGBRERABRlcThroughputDL.GTRange1LeRange2
Non GBRERAB Rlc Throughput DL GT Range 2 Le Range 3	dlGTRange2LeRange3	VS.NonGBRERABRlcThroughputDL.GTRange2LeRange3
Non GBRERAB Rlc Throughput DL GT Range 3 Le Range 4	dlGTRange3LeRange4	VS.NonGBRERABRlcThroughputDL.GTRange3LeRange4
Non GBRERAB Rlc Throughput DL GT Range 4	dlGTRange4	VS.NonGBRERABRlcThroughputDL.GTRange4
Non GBRERAB Rlc Throughput DL Le Range 1	dlLeRange1	VS.NonGBRERABRlcThroughputDL.LeRange1

Table A-47 Non-GBR E-RAB RLC Uplink Throughput Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Non GBRERAB Rlc Throughput UL GT Range 1 Le Range 2	ulGTRange1LeRange2	VS.NonGBRERABRlcThroughputUL.GTRange1LeRange2
Non GBRERAB Rlc Throughput UL GT Range 2 Le Range 3	ulGTRange2LeRange3	VS.NonGBRERABRlcThroughputUL.GTRange2LeRange3
Non GBRERAB Rlc Throughput UL GT Range 3 Le Range 4	ulGTRange3LeRange4	VS.NonGBRERABRlcThroughputUL.GTRange3LeRange4
Non GBRERAB Rlc Throughput UL GT Range 4	ulGTRange4	VS.NonGBRERABRlcThroughputUL.GTRange4
Non GBRERAB Rlc Throughput UL Le Range 1	ulLeRange1	VS.NonGBRERABRlcThroughputUL.LeRange1

Table A-48 Number Of Bearers Per Cell counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Nb Bearers Per Cell	totalNumberOfBearers	VS.NbBearersPerCell
Nb GBR Bearers Per Cell	gbrBearers	VS.NbGBRBearersPerCell
Nb Non GBR Bearers Per Cell	nonGbrBearers	VS.NbNonGBRBearersPerCell
Nb Vo IP Bearers Per Cell	voipBearers	VS.NbVoIPBearersPerCell

Table A-49 Number Of Bearers Per eNodeB counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Nb Bearers Per eNodeB	totalNumberOfBearers	VS.NbBearersPerENodeB
Nb GBR Bearers Per eNodeB	gbrBearers	VS.NbGBRBearersPerENodeB
Nb Non GBR Bearers Per eNodeB	nonGbrBearers	VS.NbNonGBRBearersPerENodeB
Nb Vo IP Bearers Per eNodeB	voipBearers	VS.NbVoIPBearersPerENodeB

Table A-50 OAM VLAN Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
OAM In Octets	oamInOctets	VS.OAMInOctets
OAM In Packets	oamInPackets	VS.OAMInPackets
OAM Out Octets	oamOutOctets	VS.OAMOutOctets
OAM Out Packets	oamOutPackets	VS.OAMOutPackets
Telecom In Octets	telecomInOctets	VS.TelecomInOctets
Telecom In Packets	telecomInPackets	VS.TelecomInPackets
Telecom Out Octets	telecomOutOctets	VS.TelecomOutOctets
Telecom Out Packets	telecomOutPackets	VS.TelecomOutPackets

Table A-51 Outgoing HO Inter-Cell Inter-eNodeB via S1 Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing Inter eNodeB S1HO Abort	outgoingInterENodeBS1HOAbort	VS.OutgoingInterENodeBS1HOAbort
OutgoingInterENodeBS1HOAbortScreenedSum	outgoingInterENodeBS1HOAbortScreenedSum	VS.OutgoingInterENodeBS1HOAbortScreenedSum
Outgoing Inter eNodeB S1HO Abort Screened Sum Inter Freq Same Frame Structure	interFreqSameFrameStructure	VS.OutgoingInterENodeBS1HOAbortScreenedSum.InterFreqSameFrameStructure
OutgoingInterENodeBS1HOAbortSum	outgoingInterENodeBS1HOAbortSum	VS.OutgoingInterENodeBS1HOAbortSum

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing Inter eNodeB S1 HO Abort Cascaded Handover	outEnbS1AbortCascadedHandover	VS.OutgoingInterENodeBS1HOAbort.Casca dedHandover
Outgoing Inter eNodeB S1 HO Abort Cs Fallback	abortCsFallback	VS.OutgoingInterENodeBS1HOAbort.CsFal lback
Outgoing Inter eNodeB S1 HO Abort Event A1	abortEventA1	VS.OutgoingInterENodeBS1HOAbort.Event A1
Other S1 Abort	otherOutEnbS1Abort	VS.OutgoingInterENodeBS1HOAbort.Other
Outgoing Inter-ENodeB S1 HO Attempt	outgoingInterENodeBS1HOAttempt	VS.OutgoingInterENodeBS1HOAttempt
OutgoingInterENodeBS1HOAttemptSc reened	outgoingInterENodeBS1HOAttemptSc reened	VS.OutgoingInterENodeBS1HOAttemptScr eened
Outgoing Inter eNodeB S1 HO Attempt Screened Inter Freq Same Frame Structure	attempScreenInterFreqSameFrameSt ructure	VS.OutgoingInterENodeBS1HOAttemptScr eened.InterFreqSameFrameStructure
Outgoing Inter eNodeB S1 HO Failure	outgoingInterENodeBS1HOFailure	VS.OutgoingInterENodeBS1HOFailure
Outgoing Inter-ENodeB S1 HO Failure Sum	outgoingInterENodeBS1HOFailureSu m	VS.OutgoingInterENodeBS1HOFailureSum
Outgoing Inter eNodeB S1 HO Failure HO Preparation Failure	outEnbS1HOPreparationFailure	VS.OutgoingInterENodeBS1HOFailure.HOP reparationFailure
Outgoing Inter eNodeB S1 HO Failure Inter Freq HO Preparation Failure	interFreqHOPreparationFailure	VS.OutgoingInterENodeBS1HOFailure.Inte rFreqHOPreparationFailure
Outgoing Inter eNodeB S1 HO Failure Inter Freq Radio Link Failure	interFreqRadioLinkFailure	VS.OutgoingInterENodeBS1HOFailure.Inte rFreqRadioLinkFailure
Outgoing Inter eNodeB S1 HO Failure Inter Freq RRC Connection Reestablishment On Other Cell	interFreqRRCConnectionReestablish mentOnOtherCell	VS.OutgoingInterENodeBS1HOFailure.Inte rFreqRRCConnectionReestablishmentOnO therCell
Outgoing Inter eNodeB S1 HO Failure Inter Freq RRC Connection Reestablishment On Source Cell	interFreqRRCConnectionReestablish mentOnSourceCell	VS.OutgoingInterENodeBS1HOFailure.Inte rFreqRRCConnectionReestablishmentOnS ourceCell
InterFreqTS1RelocOverallForS1HOTi meout	interFreqTS1RelocOverallForS1HOTi meout	VS.OutgoingInterENodeBS1HOFailure.Inte rFreqTS1RelocOverallForS1HOTimeout
InterFreqTS1RelocPrepForS1HOTime out	interFreqTS1RelocPrepForS1HOTime out	VS.OutgoingInterENodeBS1HOFailure.Inte rFreqTS1RelocPrepForS1HOTimeout
Outgoing Inter eNodeB S1 HO Failure Radio Link Failure	outEnbS1RadioLinkFailure	VS.OutgoingInterENodeBS1HOFailure.Radi oLinkFailure
Outgoing Inter eNodeB S1 HO Failure RRC Connection Reestablishment On Other Cell	outEnbS1RRCConnReestabOnOtherC ell	VS.OutgoingInterENodeBS1HOFailure.RRC ConnectionReestablishmentOnOtherCell
Outgoing Inter eNodeB S1 HO Failure RRC Connection Reestablishment On Source Cell	outEnbS1RRCConnReestabOnSourceC ell	VS.OutgoingInterENodeBS1HOFailure.RRC ConnectionReestablishmentOnSourceCell
TS1RelocOverallForS1HOTimeout	outEnbS1TS1RelocOverallForS1HOTi meout	VS.OutgoingInterENodeBS1HOFailure.TS1 RelocOverallForS1HOTimeout
TS1 Reloc Prep For S1 HO Timeout	outEnbS1TS1RelocPrepForS1HOTime out	VS.OutgoingInterENodeBS1HOFailure.TS1 RelocPrepForS1HOTimeout
OutgoingInterENodeBS1HOPreparati onSuccess	outgoingInterENodeBS1HOPreparati onSuccess	VS.OutgoingInterENodeBS1HOPreparation Success

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
OutgoingInterENodeBS1HOPreparationSuccessScreened	outgoingInterENodeBS1HOPreparationSuccessScreened	VS.OutgoingInterENodeBS1HOPreparationSuccessScreened
Outgoing Inter eNodeB S 1HO Preparation Success Screened Inter Freq Same Frame Structure	prepSuccScreenedInterFreqSameFrameStructure	VS.OutgoingInterENodeBS1HOPreparationSuccessScreened.InterFreqSameFrameStructure
Outgoing Inter-eNodeB S1 HO Success	outgoingInterENodeBS1HOSuccess	VS.OutgoingInterENodeBS1HOSuccess
OutgoingInterENodeBS1HOSuccessScreened	outgoingInterENodeBS1HOSuccessScreened	VS.OutgoingInterENodeBS1HOSuccessScreened
Outgoing Inter eNodeB S 1HO Success Screened Inter Freq Same Frame Structure	succScreenedInterFreqSameFrameStructure	VS.OutgoingInterENodeBS1HOSuccessScreened.InterFreqSameFrameStructure

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Table A-52 Outgoing HO Inter-Cell Inter-eNodeB via X2 Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing Inter eNodeB X 2HO Abort Screened Sum	abortScreenedSum	VS.OutgoingInterENodeBX2HOAbortScreenedSum
Outgoing Inter eNodeB X 2HO Abort Screened Sum Inter Freq Same Frame Structure	interFreqSameFrameStructure	VS.OutgoingInterENodeBX2HOAbortScreenedSum.InterFreqSameFrameStructure
Outgoing Inter eNodeB X 2HO Abort Sum	bx2HOAbortSum	VS.OutgoingInterENodeBX2HOAbortSum
Outgoing Inter eNodeB X 2HO Abort Cascaded Handover	abortCascadedHandover	VS.OutgoingInterENodeBX2HOAbort.CascadedHandover
Outgoing Inter eNodeB X 2HO Abort Cs Fallback	csFallback	VS.OutgoingInterENodeBX2HOAbort.CsFallback
Outgoing Inter eNodeB X 2HO Abort Event A 1	abortEventA1	VS.OutgoingInterENodeBX2HOAbort.EventA1
Outgoing Inter eNodeB X 2HO Abort Other	abortOther	VS.OutgoingInterENodeBX2HOAbort.Other
Outgoing Inter eNodeB X 2HO Abort X 2AP Reset	x2APReset	VS.OutgoingInterENodeBX2HOAbort.X2APReset
Outgoing Inter eNodeB X 2HO Attempt	bx2HOAttempt	VS.OutgoingInterENodeBX2HOAttempt
Outgoing Inter eNodeB X 2HO Attempt Screened Inter Freq Same Frame Structure	interFreqSameFrameStructureAttemptScreened	VS.OutgoingInterENodeBX2HOAttemptScreened.InterFreqSameFrameStructure
Outgoing Inter eNodeB X 2HO Failure	bx2HOFailure	VS.OutgoingInterENodeBX2HOFailure
Outgoing Inter eNodeB X 2HO Failure Sum	bx2HOFailureSum	VS.OutgoingInterENodeBX2HOFailureSum
Outgoing Inter eNodeB X 2HO Failure HO Preparation Failure Other	preparationFailureOther	VS.OutgoingInterENodeBX2HOFailure.HOPreparationFailureOther
Outgoing Inter eNodeB X 2HO Failure Inter Freq HO Preparation Failure Other	interFreqHOPreparationFailureOther	VS.OutgoingInterENodeBX2HOFailure.InterFreqHOPreparationFailureOther

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing Inter eNodeB X 2HO Failure Inter Freq RRC Connection Reestablishment On Other Cell	interFreqRRCConnectionReestablishmentOnOtherCell	VS.OutgoingInterENodeBX2HOFailure.InterFreqRRCConnectionReestablishmentOnOtherCell
Outgoing Inter eNodeB X 2HO Failure Inter Freq RRC Connection Reestablishment On Source Cell	interFreqRRCConnectionReestablishmentOnSourceCell	VS.OutgoingInterENodeBX2HOFailure.InterFreqRRCConnectionReestablishmentOnSourceCell
Outgoing Inter eNodeB X 2HO Failure Inter Freq X 2 Preparation Timeout	interFreqX2PreparationTimeout	VS.OutgoingInterENodeBX2HOFailure.InterFreqX2PreparationTimeout
Outgoing Inter eNodeB X 2HO Failure Inter Freq X 2 Release Timeout	interFreqX2ReleaseTimeout	VS.OutgoingInterENodeBX2HOFailure.InterFreqX2ReleaseTimeout
Outgoing Inter eNodeB X 2HO Failure Radio Link Failure	radioLinkFailure	VS.OutgoingInterENodeBX2HOFailure.RadioLinkFailure
Outgoing Inter eNodeB X 2HO Failure RRC Connection Reestablishment On Other Cell	rrcConnReestabOnOtherCell	VS.OutgoingInterENodeBX2HOFailure.RRCConnectionReestablishmentOnOtherCell
Outgoing Inter eNodeB X 2HO Failure RRC Connection Reestablishment On Source Cell	rrcConnReestabOnSourceCell	VS.OutgoingInterENodeBX2HOFailure.RRCConnectionReestablishmentOnSourceCell
Outgoing Inter eNodeB X 2HO Failure X 2 Preparation Timeout	preparationTimeout	VS.OutgoingInterENodeBX2HOFailure.X2PreparationTimeout
Outgoing Inter eNodeB X 2HO Failure X 2 Release Timeout	releaseTimeout	VS.OutgoingInterENodeBX2HOFailure.X2ReleaseTimeout
Outgoing Inter eNodeB X 2HO Preparation Success	bx2HOPreparationSuccess	VS.OutgoingInterENodeBX2HOPreparationSuccess
Outgoing Inter eNodeB X 2HO Preparation Success Screened Inter Freq Same Frame Structure	interFreqSameFrameStructurePrepSuccessScreened	VS.OutgoingInterENodeBX2HOPreparationSuccessScreened.InterFreqSameFrameStructure
Outgoing Inter eNodeB X 2HO Success	bx2HOSuccess	VS.OutgoingInterENodeBX2HOSuccess
Outgoing Inter eNodeB X 2HO Success Screened Inter Freq Same Frame Structure	interFreqSameFrameStructureSuccessScreened	VS.OutgoingInterENodeBX2HOSuccessScreened.InterFreqSameFrameStructure

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Table A-53 Outgoing HO Inter-Cell Intra-eNodeB Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing Intra eNodeB HO Attempt	outgoingHOAttempt	VS.OutgoingIntraENodeBHOAttempt
Outgoing Intra eNodeB HO Attempt Screened	attemptScreened	VS.OutgoingIntraENodeBHOAttemptScreened
Outgoing Intra eNodeB HO Attempt Screened Inter Freq Same Frame Structure	interFreqSameFrameStructureAttemptScreened	VS.OutgoingIntraENodeBHOAttemptScreened.InterFreqSameFrameStructure
Outgoing Intra eNodeB HO Success	outgoingHOSuccess	VS.OutgoingIntraENodeBHOSuccess
Outgoing Intra eNodeB HO Success Screened Inter Freq Same Frame Structure	interFreqSameFrameStructureSuccessScreened	VS.OutgoingIntraENodeBHOSuccessScreened.InterFreqSameFrameStructure

Table A-54 Outgoing PS Handover To UTRAN FDD Failure And Abort Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing PSHO To Utra Fdd Abort	outgoingPSHOToUtraFddAbort	VS.OutgoingPSHOToUtraFddAbort
Outgoing PSHO To Utra Fdd Abort Sum	outgoingPSHOToUtraFddAbortSum	VS.OutgoingPSHOToUtraFddAbortSum
Outgoing PSHO To Utra Fdd Abort Cascaded Handover	cascadedHandover	VS.OutgoingPSHOToUtraFddAbort.CascadedHandover
Outgoing PSHO To Utra Fdd Abort Cs Fallback	csFallback	VS.OutgoingPSHOToUtraFddAbort.CsFallback
Outgoing PSHO To Utra Fdd Abort Event A 1	abortEventA1	VS.OutgoingPSHOToUtraFddAbort.EventA1
Outgoing PSHO To Utra Fdd Abort Other	otherAborts	VS.OutgoingPSHOToUtraFddAbort.Other
Outgoing PSHO To Utra Fdd Abort S1APUE Context Release Command	s1APUEContextReleaseCommand	VS.OutgoingPSHOToUtraFddAbort.S1APUEContextReleaseCommand
Outgoing PSHO To Utra Fdd Failure	outgoingPSHOToUtraFddFailure	VS.OutgoingPSHOToUtraFddFailure
Outgoing PSHO To Utra Fdd Failure Sum	outgoingPSHOToUtraFddFailureSum	VS.OutgoingPSHOToUtraFddFailureSum
Outgoing PSHO To Utra Fdd Failure HO Preparation Failure	hoPreparationFailure	VS.OutgoingPSHOToUtraFddFailure.HOPreparationFailure
Outgoing PSHO To Utra Fdd Failure Radio Link Failure	radioLinkFailure	VS.OutgoingPSHOToUtraFddFailure.RadioLinkFailure
Outgoing PSHO To Utra Fdd Failure RRC Connection Reestablishment On Other Cell	rrcConnectionReestablishmentOnOtherCell	VS.OutgoingPSHOToUtraFddFailure.RRCConnectionReestablishmentOnOtherCell
Outgoing PSHO To Utra Fdd Failure RRC Connection Reestablishment On Source Cell	rrcConnectionReestablishmentOnSourceCell	VS.OutgoingPSHOToUtraFddFailure.RRCConnectionReestablishmentOnSourceCell
Outgoing PSHO To Utra Fdd Failure TS1 Reloc Overall For PSHO To Utra Timeout	tS1RelocOverallForPSHOToUtraTimeout	VS.OutgoingPSHOToUtraFddFailure.TS1RelocOverallForPSHOToUtraTimeout
Outgoing PSHO To Utra Fdd Failure TS1 Reloc Prep For PSHO To Utra Timeout	tS1RelocPrepForPSHOToUtraTimeout	VS.OutgoingPSHOToUtraFddFailure.TS1RelocPrepForPSHOToUtraTimeout

Table A-55 Outgoing PS Handover To UTRAN FDD counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing PSHO To Utra Fdd Attempt	outgoingPSHOToUtraFddAttempt	VS.OutgoingPSHOToUtraFddAttempt
Outgoing PSHO To Utra Fdd Attempt Measurement Via Event B 2 And Threshold 1RSRP Threshold 2 Ec NO	measurementViaEventB2AndThreshold1RSRPThreshold2EcNOAttempt	VS.OutgoingPSHOToUtraFddAttempt.MeasurementViaEventB2AndThreshold1RSRPThreshold2EcNO
Outgoing PSHO To Utra Fdd Attempt Measurement Via Event B 2 And Threshold 1RSRP Threshold 2RSCP	measurementViaEventB2AndThreshold1RSRPThreshold2RSCPAttempt	VS.OutgoingPSHOToUtraFddAttempt.MeasurementViaEventB2AndThreshold1RSRPThreshold2RSCP

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing PSHO To Utra Fdd Attempt Measurement Via Event B 2 And Threshold 1RSRQ Threshold 2 Ec NO	measurementViaEventB2AndThreshold1RSRQThreshold2EcNOAttempt	VS.OutgoingPSHOToUtraFddAttempt.MeasurementViaEventB2AndThreshold1RSRQThreshold2EcNO
Outgoing PSHO To Utra Fdd Attempt Measurement Via Event B 2 And Threshold 1RSRQ Threshold 2RSCP	measurementViaEventB2AndThreshold1RSRQThreshold2RSCPAttempt	VS.OutgoingPSHOToUtraFddAttempt.MeasurementViaEventB2AndThreshold1RSRQThreshold2RSCP
Outgoing PSHO To Utra Fdd Preparation Success	outgoingPSHOToUtraFddPreparationSuccess	VS.OutgoingPSHOToUtraFddPreparationSuccess
Outgoing PSHO To Utra Fdd Preparation Success Measurement Via Event B 2 And Threshold 1RSRP Threshold 2 Ec NO	measurementViaEventB2AndThreshold1RSRPThreshold2EcNOPrepSucc	VS.OutgoingPSHOToUtraFddPreparationSuccess.MeasurementViaEventB2AndThreshold1RSRPThreshold2EcNO
Outgoing PSHO To Utra Fdd Preparation Success Measurement Via Event B 2 And Threshold 1RSRP Threshold 2RSCP	measurementViaEventB2AndThreshold1RSRPThreshold2RSCPPrepASucc	VS.OutgoingPSHOToUtraFddPreparationSuccess.MeasurementViaEventB2AndThreshold1RSRPThreshold2RSCP
Outgoing PSHO To Utra Fdd Preparation Success Measurement Via Event B 2 And Threshold 1RSRQ Threshold 2 Ec NO	measurementViaEventB2AndThreshold1RSRQThreshold2EcNOPrepSucc	VS.OutgoingPSHOToUtraFddPreparationSuccess.MeasurementViaEventB2AndThreshold1RSRQThreshold2EcNO
Outgoing PSHO To Utra Fdd Preparation Success Measurement Via Event B 2 And Threshold 1RSRQ Threshold 2RSCP	measurementViaEventB2AndThreshold1RSRQThreshold2RSCPPrepSucc	VS.OutgoingPSHOToUtraFddPreparationSuccess.MeasurementViaEventB2AndThreshold1RSRQThreshold2RSCP
Outgoing PSHO To Utra Fdd Success	outgoingPSHOToUtraFddSuccess	VS.OutgoingPSHOToUtraFddSuccess
Outgoing PSHO To Utra Fdd Success Measurement Via Event B 2 And Threshold 1RSRP Threshold 2 Ec NO	measurementViaEventB2AndThreshold1RSRPThreshold2EcNOSucc	VS.OutgoingPSHOToUtraFddSuccess.MeasurementViaEventB2AndThreshold1RSRPThreshold2EcNO
Outgoing PSHO To Utra Fdd Success Measurement Via Event B 2 And Threshold 1RSRP Threshold 2RSCP	measurementViaEventB2AndThreshold1RSRPThreshold2RSCPSucc	VS.OutgoingPSHOToUtraFddSuccess.MeasurementViaEventB2AndThreshold1RSRPThreshold2RSCP
Outgoing PSHO To Utra Fdd Success Measurement Via Event B 2 And Threshold 1RSRQ Threshold 2 Ec NO	measurementViaEventB2AndThreshold1RSRQThreshold2EcNOSucc	VS.OutgoingPSHOToUtraFddSuccess.MeasurementViaEventB2AndThreshold1RSRQThreshold2EcNO
Outgoing PSHO To Utra Fdd Success Measurement Via Event B 2 And Threshold 1RSRQ Threshold 2RSCP	measurementViaEventB2AndThreshold1RSRQThreshold2RSCPSucc	VS.OutgoingPSHOToUtraFddSuccess.MeasurementViaEventB2AndThreshold1RSRQThreshold2RSCP

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Table A-56 Outgoing PS Handover To UTRAN TDD counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing PSHO To Utra Tdd Attempt	outgoingPSHOToUtraTddAttempt	VS.OutgoingPSHOToUtraTddAttempt
Outgoing PSHO To Utra Tdd Attempt PSHO Via Event B 2 And Threshold 1RSRP	viaEventB2AndThreshold1RSRPAttempt	VS.OutgoingPSHOToUtraTddAttempt.PSHOViaEventB2AndThreshold1RSRP
Outgoing PSHO To Utra Tdd Attempt PSHO Via Event B 2 And Threshold 1RSRQ	viaEventB2AndThreshold1RSRQAttempt	VS.OutgoingPSHOToUtraTddAttempt.PSHOViaEventB2AndThreshold1RSRQ
Outgoing PSHO To Utra Tdd Success	outgoingPSHOToUtraTddSuccess	VS.OutgoingPSHOToUtraTddSuccess

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing PSHO To Utra Tdd Success PSHO Via Event B 2 And Threshold 1RSRP	viaEventB2AndThreshold1RSRPSuccess	VS.OutgoingPSHOToUtraTddSuccess.PSHO ViaEventB2AndThreshold1RSRP
Outgoing PSHO To Utra Tdd Success PSHO Via Event B 2 And Threshold 1RSRQ	viaEventB2AndThreshold1RSRQSucces	VS.OutgoingPSHOToUtraTddSuccess.PSHO ViaEventB2AndThreshold1RSRQ

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Table A-57 Outgoing PS Handover To UTRAN TDD counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing PSHO To Utra Tdd Abort	outgoingPSHOToUtraTddAbort	VS.OutgoingPSHOToUtraTddAbort
Outgoing PSHO To Utra Tdd Abort Sum	outgoingPSHOToUtraTddAbortSum	VS.OutgoingPSHOToUtraTddAbortSum
Outgoing PSHO To Utra Tdd Abort Cascaded Handover	cascadedHandover	VS.OutgoingPSHOToUtraTddAbort.CascadedHandover
Outgoing PSHO To Utra Tdd Abort Other	otherAbort	VS.OutgoingPSHOToUtraTddAbort.Other
Outgoing PSHO To Utra Tdd Abort S1APUE Context Release Command	s1APUEContextReleaseCommand	VS.OutgoingPSHOToUtraTddAbort.S1APUEContextReleaseCommand
Outgoing PSHO To Utra Tdd Failure	outgoingPSHOToUtraTddFailure	VS.OutgoingPSHOToUtraTddFailure
Outgoing PSHO To Utra Tdd Failure Sum	outgoingPSHOToUtraTddFailureSum	VS.OutgoingPSHOToUtraTddFailureSum
Outgoing PSHO To Utra Tdd Failure HO Preparation Failure	hoPreparationFailure	VS.OutgoingPSHOToUtraTddFailure.HOPreparationFailure
Outgoing PSHO To Utra Tdd Failure Radio Link Failure	radioLinkFailure	VS.OutgoingPSHOToUtraTddFailure.RadioLinkFailure
Outgoing PSHO To Utra Tdd Failure RRC Connection Reestablishment On Other Cell	rrcConnectionReestablishmentOnOtherCell	VS.OutgoingPSHOToUtraTddFailure.RRCConnectionReestablishmentOnOtherCell
Outgoing PSHO To Utra Tdd Failure RRC Connection Reestablishment On Source Cell	rrcConnectionReestablishmentOnSourceCell	VS.OutgoingPSHOToUtraTddFailure.RRCConnectionReestablishmentOnSourceCell
Outgoing PSHO To Utra Tdd Failure TS1 Reloc Overal For PSHO To Utra Timeout	ts1RelocOveralForPSHOToUtraTimeout	VS.OutgoingPSHOToUtraTddFailure.TS1RelocOveralForPSHOToUtraTimeout
Outgoing PSHO To Utra Tdd Failure TS1 Reloc Prep For PSHO To Utra Timeout	ts1RelocPrepForPSHOToUtraTimeout	VS.OutgoingPSHOToUtraTddFailure.TS1RelocPrepForPSHOToUtraTimeout

Table A-58 Paging Attempt Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
S1 Page Attempts Discarded	s1PageAttemptsDiscarded	VS.S1PageAttemptsDiscarded

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
S1 Page Attempts - Cell Not Available Internal Failure	cellNotAvailableInternalFailure	VS.S1PageAttemptsDiscarded.CellNotAvailableInternalFailure
S1 Page Attempts Discarded - Intervention OAM	attemptsDiscardedInterventionOAM	VS.S1PageAttemptsDiscarded.InterventionOAM
S1 Page Attempts From MMEs	s1PageAttemptsFromMMEs	VS.S1PageAttemptsFromMMEs

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Table A-59 Power Headroom Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
ULP Hnormalized GT Range 1 Le Range 2	ulGTRange1LeRange2	VS.ULPHnormalized.GTRange1LeRange2
ULP Hnormalized GT Range 2 Le Range 3	ulGTRange2LeRange3	VS.ULPHnormalized.GTRange2LeRange3
ULP Hnormalized GT Range 3 Le Range 4	ulGTRange3LeRange4	VS.ULPHnormalized.GTRange3LeRange4
ULP Hnormalized GT Range 4	ulGTRange4	VS.ULPHnormalized.GTRange4
ULP Hnormalized Le Range 1	ulLeRange1	VS.ULPHnormalized.LeRange1

Table A-60 PRBs Pool Overload Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
DL PRBs Pool Overload Screened	dlPRBsPoolOverloadScreened	VS.DLPRBsPoolOverloadScreened
DLPR Bs Pool Overload Screened CAC	dlCAC	VS.DLPRBsPoolOverloadScreened.CAC
DLPR Bs Pool Overload Screened Cum	dlPRBsPoolOverloadScreenedCum	VS.DLPRBsPoolOverloadScreened.Cum
DLPR Bs Pool Overload Screened Max	dlPRBsPoolOverloadScreenedMax	VS.DLPRBsPoolOverloadScreened.Max
DLPR Bs Pool Overload Screened Min	dlPRBsPoolOverloadScreenedMin	VS.DLPRBsPoolOverloadScreened.Min
DLPR Bs Pool Overload Screened Modem Report	dlModemReport	VS.DLPRBsPoolOverloadScreened.ModemReport
DLPR Bs Pool Overload Screened Nb Evt	dlPRBsPoolOverloadScreenedNbEvt	VS.DLPRBsPoolOverloadScreened.NbEvt
UL PRBs Pool Overload Screened	ulPRBsPoolOverloadScreened	VS.ULPRBsPoolOverloadScreened
ULPR Bs Pool Overload Screened CAC	ulCAC	VS.ULPRBsPoolOverloadScreened.CAC
ULPR Bs Pool Overload Screened Cum	ulPRBsPoolOverloadScreenedCum	VS.ULPRBsPoolOverloadScreened.Cum
ULPR Bs Pool Overload Screened Max	ulPRBsPoolOverloadScreenedMax	VS.ULPRBsPoolOverloadScreened.Max
ULPR Bs Pool Overload Screened Min	ulPRBsPoolOverloadScreenedMin	VS.ULPRBsPoolOverloadScreened.Min
ULPR Bs Pool Overload Screened Modem Report	ulModemReport	VS.ULPRBsPoolOverloadScreened.ModemReport
ULPR Bs Pool Overload Screened Nb Evt	ulPRBsPoolOverloadScreenedNbEvt	VS.ULPRBsPoolOverloadScreened.NbEvt

Table A-61 PS Handover to UTRAN FDD Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing Blind PSHO To Utra Fdd Abort	outgoingBlindPSHOToUtraFddAbort	VS.OutgoingBlindPSHOToUtraFddAbort
Outgoing Blind PSHO To Utra Fdd Abort Sum	outgoingBlindPSHOToUtraFddAbortSum	VS.OutgoingBlindPSHOToUtraFddAbortSum
Outgoing Blind PSHO To Utra Fdd Abort Cascaded Handover	cascadedHandover	VS.OutgoingBlindPSHOToUtraFddAbort.CascadedHandover
Outgoing Blind PSHO To Utra Fdd Abort Other	otherOutgoingBlindPSHOToUtraFddAborts	VS.OutgoingBlindPSHOToUtraFddAbort.Other
Outgoing Blind PSHO To Utra Fdd Abort S1APUE Context Release Command	s1APUEContextReleaseCommand	VS.OutgoingBlindPSHOToUtraFddAbort.S1APUEContextReleaseCommand
Outgoing Blind PSHO To Utra Fdd Attempt	outgoingBlindPSHOToUtraFddAttempt	VS.OutgoingBlindPSHOToUtraFddAttempt
Outgoing Blind PSHO To Utra Fdd Attempt Blind Via Event A2 And Threshold 1RSRP	attempViaA2AndThresh1Rsrp	VS.OutgoingBlindPSHOToUtraFddAttempt.BlindViaEventA2AndThreshold1RSRP
Outgoing Blind PSHO To Utra Fdd Attempt Blind Via Event A2 And Threshold 1RSRQ	attempViaA2AndThresh1Rsrq	VS.OutgoingBlindPSHOToUtraFddAttempt.BlindViaEventA2AndThreshold1RSRQ
Outgoing Blind PSHO To Utra Fdd Failure	outgoingBlindPSHOToUtraFddFailure	VS.OutgoingBlindPSHOToUtraFddFailure
Outgoing Blind PSHO To Utra Fdd Failure Sum	outgoingBlindPSHOToUtraFddFailureSum	VS.OutgoingBlindPSHOToUtraFddFailureSum
Outgoing Blind PSHO To Utra Fdd Failure HO Preparation Failure	ohoPrepFailure	VS.OutgoingBlindPSHOToUtraFddFailure.HOPreparationFailure
Outgoing Blind PSHO To Utra Fdd Failure Radio Link Failure	radioLinkFailure	VS.OutgoingBlindPSHOToUtraFddFailure.RadioLinkFailure
Outgoing Blind PSHO To Utra Fdd Failure RRC Connection Reestablishment On Other Cell	rrcConnectionReestablishmentOnOtherCell	VS.OutgoingBlindPSHOToUtraFddFailure.RRCConnectionReestablishmentOnOtherCell
Outgoing Blind PSHO To Utra Fdd Failure RRC Connection Reestablishment On Source Cell	rrcConnectionReestablishmentOnSourceCell	VS.OutgoingBlindPSHOToUtraFddFailure.RRCConnectionReestablishmentOnSourceCell
Outgoing Blind PSHO To Utra Fdd Failure T S 1 Reloc Overall For PSHO To Utra Timeout	ts1RelocOverallForPSHOToUtraTimeout	VS.OutgoingBlindPSHOToUtraFddFailure.TS1RelocOverallForPSHOToUtraTimeout
Outgoing Blind PSHO To Utra Fdd Failure T S 1 Reloc Prep For PSHO To Utra Timeout	ts1RelocPrepForPSHOToUtraTimeout	VS.OutgoingBlindPSHOToUtraFddFailure.TS1RelocPrepForPSHOToUtraTimeout
Outgoing Blind PSHO To Utra Fdd Success	outgoingBlindPSHOToUtraFddSuccess	VS.OutgoingBlindPSHOToUtraFddSuccess
Outgoing Blind PSHO To Utra Fdd Success Blind Via Event A2 And Threshold 1RSRP	successViaA2AndThresh1Rsrp	VS.OutgoingBlindPSHOToUtraFddSuccess.BlindViaEventA2AndThreshold1RSRP
Outgoing Blind PSHO To Utra Fdd Success Blind Via Event A2 And Threshold 1RSRQ	successViaA2AndThresh1Rsrq	VS.OutgoingBlindPSHOToUtraFddSuccess.BlindViaEventA2AndThreshold1RSRQ

Table A-62 PS Handover to UTRAN TDD Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Outgoing Blind PSHO To Utra Tdd Abort	outgoingBlindPSHOToUtraTddAbort	VS.OutgoingBlindPSHOToUtraTddAbort
Outgoing Blind PSHO To Utra Tdd Abort Sum	outgoingBlindPSHOToUtraTddAbortSum	VS.OutgoingBlindPSHOToUtraTddAbortSum
Outgoing Blind PSHO To Utra Tdd Abort Cascaded Handover	cascadedHandover	VS.OutgoingBlindPSHOToUtraTddAbort.CascadedHandover
Outgoing Blind PSHO To Utra Tdd Abort Other	otherAbort	VS.OutgoingBlindPSHOToUtraTddAbort.Other
Outgoing Blind PSHO To Utra Tdd Abort S1APUE Context Release Command	s1APUEContextReleaseCommand	VS.OutgoingBlindPSHOToUtraTddAbort.S1APUEContextReleaseCommand
Outgoing Blind PSHO To Utra Tdd Attempt	outgoingBlindPSHOToUtraTddAttempt	VS.OutgoingBlindPSHOToUtraTddAttempt
Outgoing Blind PSHO To Utra Tdd Attempt Blind Via Event A2 And Threshold 1RSRP	blindViaEventA2AndThreshold1RSRPAttempt	VS.OutgoingBlindPSHOToUtraTddAttempt.BlindViaEventA2AndThreshold1RSRP
Outgoing Blind PSHO To Utra Tdd Attempt Blind Via Event A2 And Threshold 1RSRQ	blindViaEventA2AndThreshold1RSRQAttempt	VS.OutgoingBlindPSHOToUtraTddAttempt.BlindViaEventA2AndThreshold1RSRQ
Outgoing Blind PSHO To Utra Tdd Failure	outgoingBlindPSHOToUtraTddFailure	VS.OutgoingBlindPSHOToUtraTddFailure
Outgoing Blind PSHO To Utra Tdd Failure Sum	outgoingBlindPSHOToUtraTddFailureSum	VS.OutgoingBlindPSHOToUtraTddFailureSum
Outgoing Blind PSHO To Utra Tdd Failure HO Preparation Failure	hoPreparationFailure	VS.OutgoingBlindPSHOToUtraTddFailure.HOPreparationFailure
Outgoing Blind PSHO To Utra Tdd Failure Radio Link Failure	radioLinkFailure	VS.OutgoingBlindPSHOToUtraTddFailure.RadioLinkFailure
Outgoing Blind PSHO To Utra Tdd Failure RRC Connection Reestablishment On Other Cell	rrcConnectionReestablishmentOnOtherCell	VS.OutgoingBlindPSHOToUtraTddFailure.RRCConnectionReestablishmentOnOtherCell
Outgoing Blind PSHO To Utra Tdd Failure RRC Connection Reestablishment On Source Cell	rrcConnectionReestablishmentOnSourceCell	VS.OutgoingBlindPSHOToUtraTddFailure.RRCConnectionReestablishmentOnSourceCell
Outgoing Blind PSHO To Utra Tdd Failure T S1 Reloc Overall For PSHO To Utra Timeout	ts1RelocOverallForPSHOToUtraTimeout	VS.OutgoingBlindPSHOToUtraTddFailure.TS1RelocOverallForPSHOToUtraTimeout
Outgoing Blind PSHO To Utra Tdd Failure T S1 Reloc Prep For PSHO To Utra Timeout	ts1RelocPrepForPSHOToUtraTimeout	VS.OutgoingBlindPSHOToUtraTddFailure.TS1RelocPrepForPSHOToUtraTimeout
Outgoing Blind PSHO To Utra Tdd Success	outgoingBlindPSHOToUtraTddSuccess	VS.OutgoingBlindPSHOToUtraTddSuccess
Outgoing Blind PSHO To Utra Tdd Success Blind Via Event A2 And Threshold 1RSRP	blindViaEventA2AndThreshold1RSRPSuccess	VS.OutgoingBlindPSHOToUtraTddSuccess.BlindViaEventA2AndThreshold1RSRP
Outgoing Blind PSHO To Utra Tdd Success Blind Via Event A2 And Threshold 1RSRQ	blindViaEventA2AndThreshold1RSRQSuccess	VS.OutgoingBlindPSHOToUtraTddSuccess.BlindViaEventA2AndThreshold1RSRQ

Table A-63 RACH counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Contention Based Random Access Preamble	contentionBasedRandomAccessPreamble	VS.ContentionBasedRandomAccessPreamble
Contention Based Random Access Response	contentionBasedRandomAccessResponse	VS.ContentionBasedRandomAccessResponse
Contention Free Random Access Preamble	contentionFreeRandomAccessPreamble	VS.ContentionFreeRandomAccessPreamble
Contention Free Random Access Response	contentionFreeRandomAccessResponse	VS.ContentionFreeRandomAccessResponse
Contention Resolution	contentionResolution	VS.ContentionResolution

Table A-64 Radio Link Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Radio Link Failure	radioLinkFailure	VS.RadioLinkFailure
Sum Of Radio Link Failure	radioLinkFailureSum	VS.RadioLinkFailureSum
Number of UL L1 Synchronization Loss	lossOfUuL1Synchronization	VS.RadioLinkFailure.LossOfUuL1Synchronization
Maximum Number Of DL RLC Retransmissions Reached	maxNbRlcRetransReached	VS.RadioLinkFailure.MaxNbRlcRetransReached

Table A-65 Redirection to GERAN Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Redirection To Geran Blind Via Event A 2 And Threshold 1RSRP	blindA2AndThresh1RSRP	VS.RedirectionToGeran.BlindViaEventA2AndThreshold1RSRP
Redirection To Geran Blind Via Event A 2 And Threshold 1RSRQ	blindA2AndThresh1RSRQ	VS.RedirectionToGeran.BlindViaEventA2AndThreshold1RSRQ
Redirection To Geran Cs Fallback Triggered	csFallbackTriggered	VS.RedirectionToGeran.CsFallbackTriggered
Redirection To Geran Measurement Via Event B 2 And Threshold 1RSRP Threshold 2GERAN	measurementB2AndThresh1RSRPThreshold2GERAN	VS.RedirectionToGeran.MeasurementViaEventB2AndThreshold1RSRPThreshold2GERAN
Redirection To Geran Measurement Via Event B 2 And Threshold 1RSRQ Threshold 2GERAN	measurementB2AndThresh1RSRQThreshold2GERAN	VS.RedirectionToGeran.MeasurementViaEventB2AndThreshold1RSRQThreshold2GERAN

Table A-66 Redirection To HRPD Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Non Optimized Redirection To HRPD Via Event A 2	nonOptimizedRedirectionToHRPDViaEventA2	VS.NonOptimizedRedirectionToHRPDViaEventA2

Table A-67 Redirection To Inter-Frequency Intra-FDD or TDD Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Redirection To Inter Frequency Intra FD Dor TDD	toInterFrequencyIntraFDDorTDD	VS.RedirectionToInterFrequencyIntraFDDorTDD
Redirection To Inter Frequency Intra FD Dor TDD Blind Via Event A 2 And Threshold 1RSRP	blindViaEventA2AndThreshold1RSRP	VS.RedirectionToInterFrequencyIntraFDDorTDD.BlindViaEventA2AndThreshold1RSRP
Redirection To Inter Frequency Intra FD Dor TDD Blind Via Event A 2 And Threshold 1RSRQ	blindViaEventA2AndThreshold1RSRQ	VS.RedirectionToInterFrequencyIntraFDDorTDD.BlindViaEventA2AndThreshold1RSRQ

Table A-68 Redirection To Inter-Frequency Same Frame Structure Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Redirection To Inter Frequency Same Frame Structure Blind Via Event A 2 And Threshold 1RSRP	blindViaEventA2AndThreshold1RSRP	VS.RedirectionToInterFrequencySameFrameStructure.BlindViaEventA2AndThreshold1RSRP
Redirection To Inter Frequency Same Frame Structure Blind Via Event A 2 And Threshold 1RSRQ	blindViaEventA2AndThreshold1RSRQ	VS.RedirectionToInterFrequencySameFrameStructure.BlindViaEventA2AndThreshold1RSRQ
Redirection To Inter Frequency Same Frame Structure Event A 3 Or A 5	eventA3OrA5	VS.RedirectionToInterFrequencySameFrameStructure.EventA3OrA5

Table A-69 Redirection to UTRAN FDD Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Redirection To Utra Fdd Blind Via Event A 2 And Threshold 1RSRP	blindA2AndThresh1RSRP	VS.RedirectionToUtraFdd.BlindViaEventA2AndThreshold1RSRP
Redirection To Utra Fdd Blind Via Event A 2 And Threshold 1RSRQ	blindA2AndThresh1RSRQ	VS.RedirectionToUtraFdd.BlindViaEventA2AndThreshold1RSRQ
Redirection To Utra Fdd Cs Fallback Triggered	csFallbackTriggered	VS.RedirectionToUtraFdd.CsFallbackTriggered
Redirection To Utra Fdd Measurement Via Event B 2 And Threshold 1RSRP Threshold 2 Ec NO	measurementB2AndThresh1RSRPThreshold2EcNO	VS.RedirectionToUtraFdd.MeasurementViaEventB2AndThreshold1RSRPThreshold2EcNO

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Redirection To Utra Fdd Measurement Via Event B 2 And Threshold 1RSRP Threshold 2RSCP	measurementB2AndThresh1RSRPThresh2RSCP	VS.RedirectionToUtraFdd.MeasurementViaEventB2AndThreshold1RSRPThreshold2RSCP
Redirection To Utra Fdd Measurement Via Event B 2 And Threshold 1RSRQ Threshold 2 Ec NO	measurementB2AndThresh1RSRQThresh2EcNO	VS.RedirectionToUtraFdd.MeasurementViaEventB2AndThreshold1RSRQThreshold2EcNO
Redirection To Utra Fdd Measurement Via Event B 2 And Threshold 1RSRQ Threshold 2RSCP	measurementB2AndThresh1RSRQThresh2RSCP	VS.RedirectionToUtraFdd.MeasurementViaEventB2AndThreshold1RSRQThreshold2RSCP

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Table A-70 Redirection to UTRAN TDD Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Redirection To Utra Tdd Blind Via Event A 2 And Threshold 1RSRP	blindA2AndThreshold1RSRP	VS.RedirectionToUtraTdd.BlindViaEventA2AndThreshold1RSRP
Redirection To Utra Tdd Blind Via Event A 2 And Threshold 1RSRQ	blindA2AndThreshold1RSRQ	VS.RedirectionToUtraTdd.BlindViaEventA2AndThreshold1RSRQ
Redirection To Utra Tdd Measurement Via Event B 2 And Threshold 1RSRP Threshold 2RSCP	measurementB2AndThresh1RSRPThresh2RSCP	VS.RedirectionToUtraTdd.MeasurementViaEventB2AndThreshold1RSRPThreshold2RSCP
Redirection To Utra Tdd Measurement Via Event B 2 And Threshold 1RSRQ Threshold 2RSCP	measurementB2AndThresh1RSRQThresh2RSCP	VS.RedirectionToUtraTdd.MeasurementViaEventB2AndThreshold1RSRQThreshold2RSCP

Table A-71 RRC Connection Release Due To MME Overload counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
RRC Connection Release Due To MME Overload	rrcConnReleaseDueToMMEOverload	VS.RrcConnectionReleaseDueToMMEOverload
MME Overload MO Data	moData	VS.RrcConnectionReleaseDueToMMEOverload.MoData
MME Overload MO Data MO Signaling	moDataMoSignalling	VS.RrcConnectionReleaseDueToMMEOverload.MoDataMoSignalling
Non-Emergency Non-MT Access	nonEmergencyNonMtAccess	VS.RrcConnectionReleaseDueToMMEOverload.NonEmergencyNonMtAccess

Table A-72 RRC Connection Setup Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
RRC Connection Failures	rrcConnectionFailure	VS.RrcConnectionFailure
RRC Connection Failure Sum	rrcConnectionFailureSum	VS.RrcConnectionFailureSum
CAC Failure	cacFailure	VS.RrcConnectionFailure.CACFailure

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Intervention OAM	interventionOAM	VS.RrcConnectionFailure.InterventionOAM
MO Data	moData	VS.RrcConnectionFailure.MoData
MO Data MO Signaling	moDataMoSignalling	VS.RrcConnectionFailure.MoDataMoSignalling
Non-Emergency Non-MT Access	nonEmergencyNonMtAccess	VS.RrcConnectionFailure.NonEmergencyNonMtAccess
No Response From UE	noResponseFromUE	VS.RrcConnectionFailure.NoResponseFromUE
S1 Fault External Failure	s1FaultExternalFailure	VS.RrcConnectionFailure.S1FaultExternalFailure
RRC Connection Requests	rrcConnectionRequest	VS.RrcConnectionRequest
Emergency Call Attempts	emergencyCallAttempts	VS.RrcConnectionRequest.EmergencyCallAttempts
High Priority Access Attempts	highPriorityAccessAttempts	VS.RrcConnectionRequest.HighPriorityAccessAttempts
Mobile Originated Signaling	mobileOriginatedSignalling	VS.RrcConnectionRequest.MobileOriginatedSignalling
Mobile Originated User Bearer	mobileOriginatedUserBearer	VS.RrcConnectionRequest.MobileOriginatedUserBearer
Other RRC Connection Request	other	VS.RrcConnectionRequest.Other
Page Responses Received	pageResponsesReceived	VS.RrcConnectionRequest.PageResponsesReceived
RRC Connection Success Sum	rrcConnectionSuccessSum	VS.RrcConnectionSuccessSum

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Table A-73 RRC Connection Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Total Number Of RRC Connected	nbUeRrcConnected	VS.NbUeRrcConnected
Cumulative Number Of RRC Connected	nbUeRrcConnectedCum	VS.NbUeRrcConnected.Cum
Maximum Number Of RRC Connected	nbUeRrcConnectedMax	VS.NbUeRrcConnected.Max
Minimum Number Of RRC Connected	nbUeRrcConnectedMin	VS.NbUeRrcConnected.Min
Number Of Events Of RRC Connected	nbUeRrcConnectedNbEvt	VS.NbUeRrcConnected.NbEvt

Table A-74 RRC Reestablishment Setup Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
RRC Reestablishment Failure	rrcConnectionReestablishmentFailure	VS.RrcConnectionReestablishmentFailure

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Sum Of RRC Reestablishment Failure	rrcConnectionReestablishmentFailureSum	VS.RrcConnectionReestablishmentFailureSum
CAC Failure	cacFailure	VS.RrcConnectionReestablishmentFailure.CACFailure
Integrity Failure	integrityFailure	VS.RrcConnectionReestablishmentFailure.IntegrityFailure
Intervention OAM	interventionOAM	VS.RrcConnectionReestablishmentFailure.InterventionOAM
New RRC Connection Reestablishment Requests	newRrcConnReestabRequest	VS.RrcConnectionReestablishmentFailure.NewRrcConnectionReestabRequest
Radio Link Failure	radioLinkFailure	VS.RrcConnectionReestablishmentFailure.RadioLinkFailure
Reestablishment Not Allowed	reestablishmentNotAllowed	VS.RrcConnectionReestablishmentFailure.ReestablishmentNotAllowed
Reestablishment Of UE Id Unknown	reestabUEIdUnknown	VS.RrcConnectionReestablishmentFailure.ReestabUEIdUnknown
RRC Reconfig Timeouts	rcConnectionReconfigTimeout	VS.RrcConnectionReestablishmentFailure.RrcConnectionReconfigTimeout
RRC Reestablishment Timeouts	rrcConnectionReestabTimeout	VS.RrcConnectionReestablishmentFailure.RrcConnectionReestabTimeout
S1 Fault External Failure	s1FaultExternalFailure	VS.RrcConnectionReestablishmentFailure.S1FaultExternalFailure
Short MACI Mismatch	shortMACIMismatch	VS.RrcConnectionReestablishmentFailure.ShortMACIMismatch
RRC Connection Reestablishment Request	rrcConnectionReestablishmentRequest	VS.RrcConnectionReestablishmentRequest
RRC Connection Reestablishment Success	rrcConnectionReestablishmentSuccess	VS.RrcConnectionReestablishmentSuccess
RRC Reestablishment Success On Not Service Cell During HO	onNotServingCellNotDuringHO	VS.RrcConnectionReestablishmentSuccess.OnNotServingCellNotDuringHO
RRC Reestablishment Success On Other Cell During HO	onOtherCellDuringHO	VS.RrcConnectionReestablishmentSuccess.OnOtherCellDuringHO
Rrc Connection Reestablishment Success On Target Cell During Incoming PSHO	onTargetCellDuringIncomingPSHO	VS.RrcConnectionReestablishmentSuccess.OnTargetCellDuringIncomingPSHO
Success On Target Cell During Intra eNodeB Inter Freq Same Frame Structure S1 HO	onTargetCellDuringInterENodeBInterFreqSameFrameStructureS1HO	VS.RrcConnectionReestablishmentSuccess.OnTargetCellDuringInterENodeBInterFreqSameFrameStructureS1HO
Success On Target Cell During Intra eNodeB Inter Freq Same Frame Structure X2 HO	onTargetCellDuringInterENodeBInterFreqSameFrameStructureX2HO	VS.RrcConnectionReestablishmentSuccess.OnTargetCellDuringInterENodeBInterFreqSameFrameStructureX2HO
On Target Cell During Inter eNodeB S1 HO	onTargetCellDuringInterENodeBS1HO	VS.RrcConnectionReestablishmentSuccess.OnTargetCellDuringInterENodeBS1HO
On Target Cell During Inter eNodeB X2 HO	onTargetCellDuringInterENodeBX2HO	VS.RrcConnectionReestablishmentSuccess.OnTargetCellDuringInterENodeBX2HO
On Target Cell During Intra eNodeB HO	onTargetCellDuringIntraENodeBHO	VS.RrcConnectionReestablishmentSuccess.OnTargetCellDuringIntraENodeBHO

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Success On Target Cell During Intra eNodeB Inter Freq Same Frame Structure HO	onTargetCellDuringIntraENodeBInterFreqSameFrameStructureHO	VS.RrcConnectionReestablishmentSuccess.OnTargetCellDuringIntraENodeBInterFreqSameFrameStructureHO
Other RRC Reestablishment Success	otherRrcConnectionReestablishmentSuccess	VS.RrcConnectionReestablishmentSuccess.Other

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Table A-75 S1 Error Indication By eNodeB Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
S 1 Error Indication By eNodeB	s1ErrorIndicationByENodeB	VS.S1ErrorIndicationByENodeB
S 1 Error Indication By eNodeB Other	other	VS.S1ErrorIndicationByENodeB.Other
S 1 Error Indication By eNodeB Protocol Error	protocolError	VS.S1ErrorIndicationByENodeB.ProtocolError
S 1 Error Indication By eNodeB Unknown Or Already Allocated eNodeB UE S 1ap Id	unknownOrAlreadyAllocatedeNodeBUES1apId	VS.S1ErrorIndicationByENodeB.UnknownOrAlreadyAllocatedeNodeBUES1apId
S 1 Error Indication By eNodeB Unknown Or Already Allocated MMEUE S 1ap Id	unknownOrAlreadyAllocatedMMEUES1apId	VS.S1ErrorIndicationByENodeB.UnknownOrAlreadyAllocatedMMEUES1apId
S 1 Error Indication By eNodeB Unknown Or Already Allocated Pair Of UE S 1ap Id	unknownOrAlreadyAllocatedPairOfUES1apId	VS.S1ErrorIndicationByENodeB.UnknownOrAlreadyAllocatedPairOfUES1apId

Table A-76 S1 Error Indication By MME Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
S 1 Error Indication By MME	s1ErrorIndicationByMME	VS.S1ErrorIndicationByMME
S 1 Error Indication By MME Other	other	VS.S1ErrorIndicationByMME.Other
S 1 Error Indication By MME Protocol Error	protocolError	VS.S1ErrorIndicationByMME.ProtocolError
S 1 Error Indication By MME Unknown Or Already Allocated eNodeB UE S 1ap Id	unknownOrAlreadyAllocatedeNodeBUES1apId	VS.S1ErrorIndicationByMME.UnknownOrAlreadyAllocatedeNodeBUES1apId
S 1 Error Indication By MME Unknown Or Already Allocated MMEUE S 1ap Id	unknownOrAlreadyAllocatedMMEUES1apId	VS.S1ErrorIndicationByMME.UnknownOrAlreadyAllocatedMMEUES1apId
S 1 Error Indication By MME Unknown Or Already Allocated Pair Of UE S 1ap Id	unknownOrAlreadyAllocatedPairOfUES1apId	VS.S1ErrorIndicationByMME.UnknownOrAlreadyAllocatedPairOfUES1apId

Table A-77 S1 Sctp Traffic Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
S 1 Sctp In Octets	s1SctpInOctets	VS.S1SctpInOctets
S 1 Sctp In Packets	s1SctpInPackets	VS.S1SctpInPackets
S 1 Sctp Out Octets	s1SctpOutOctets	VS.S1SctpOutOctets
S 1 Sctp Out Packets	s1SctpOutPackets	VS.S1SctpOutPackets

Table A-78 S1 Setup Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
First DL Nas Transport	firstDLNasTransport	VS.FirstDLNasTransport
Initial UE Messages	initialUEMessage	VS.InitialUEMessage
S1 Connection Establishment Failure	s1ConnectionEstablishmentFailure	VS.S1ConnectionEstablishmentFailure
S1 Connection Establishment Timeout	s1ConnectionEstablishmentTimeout	VS.S1ConnectionEstablishmentFailure.Timeout
UE Context Setup Request	ueContextSetupRequest	VS.UContextSetupRequest
After DLNAS Transport	ueContextSetupAfterDLNASTransport	VS.UContextSetupRequest.AfterDLNASTransport
Request Without Previous DLNAS Transport	ueContextSetupWithoutPreviousDLNASTransport	VS.UContextSetupRequest.WithoutPreviousDLNASTransport

Table A-79 Sctp Association Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Sctp Association Establishment	sctpAssociationEstablishment	VS.SctpAssociationEstablishment
Sctp Association Failure	sctpAssociationFailure	VS.SctpAssociationFailure

Table A-80 Throughput On S1 interfaces Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
S 1DL Throughput	s1DLThroughput	VS.S1DLThroughput
S 1DL Throughput Cum	s1DLThroughputCum	VS.S1DLThroughput.Cum
S 1DL Throughput Max	s1DLThroughputMax	VS.S1DLThroughput.Max
S 1DL Throughput Min	s1DLThroughputMin	VS.S1DLThroughput.Min
S 1DL Throughput Nb Evt	s1DLThroughputNbEvt	VS.S1DLThroughput.NbEvt
S 1UL Throughput	s1ULThroughput	VS.S1ULThroughput
S 1UL Throughput Cum	s1ULThroughputCum	VS.S1ULThroughput.Cum

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
S 1UL Throughput Max	s1ULThroughputMax	VS.S1ULThroughput.Max
S 1UL Throughput Min	s1ULThroughputMin	VS.S1ULThroughput.Min
S 1UL Throughput Nb Evt	s1ULThroughputNbEvt	VS.S1ULThroughput.NbEvt

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Table A-81 Throughput On X2 interfaces Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
X2 Received Throughput CUM	x2ReceivedThroughputCum	VS.X2ReceivedThroughput.Cum
X2 Received Throughput Max	x2ReceivedThroughputMax	VS.X2ReceivedThroughput.Max
X2 Received Throughput Min	x2ReceivedThroughputMin	VS.X2ReceivedThroughput.Min
X2 Received Throughput NbEvt	x2ReceivedThroughputNbEvt	VS.X2ReceivedThroughput.NbEvt
X2 Sent Throughput CUM	x2SentThroughputCum	VS.X2SentThroughput.Cum
X2 Sent Throughput Max	x2SentThroughputMax	VS.X2SentThroughput.Max
X2 Sent Throughput Min	x2SentThroughputMin	VS.X2SentThroughput.Min
X2 Sent Throughput NbEvt	x2SentThroughputNbEvt	VS.X2SentThroughput.NbEvt

Table A-82 Traffic On S1 interfaces Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
S 1DL Packets	s1DLPackets	VS.S1DLPackets
S 1DL Packets Per Second	s1DLPacketsPerSecond	VS.S1DLPacketsPerSecond
S 1UL Packets	s1ULPackets	VS.S1ULPackets
S 1UL Packets Per Second	s1ULPacketsPerSecond	VS.S1ULPacketsPerSecond

Table A-83 Traffic On X2 interfaces Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
X 2 Received Packets	x2ReceivedPackets	VS.X2ReceivedPackets
X 2 Received Packets Per Second	x2ReceivedPacketsPerSecond	VS.X2ReceivedPacketsPerSecond
X 2 Sent Packets	x2SentPackets	VS.X2SentPackets
X 2 Sent Packets Per Second	x2SentPacketsPerSecond	VS.X2SentPacketsPerSecond

Table A-84 Transport Block Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Total Count Of DL Transport Blocks	totalCountOfDLTransportBlocks	VS.TotalCountOfDLTransportBlocks
Total Count Of Error DL Transport Blocks	totalCountOfErrorDLTransportBlocks	VS.TotalCountOfErrorDLTransportBlocks
Total Count Of Error UL Transport Blocks	totalCountOfErrorULTransportBlocks	VS.TotalCountOfErrorULTransportBlocks
Total Count Of UL Transport Blocks	totalCountOfULTransportBlocks	VS.TotalCountOfULTransportBlocks

Table A-85 UE Context Modification Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UE Context Modification Attempt	ueContextmodificationAttempt	VS.UContextmodificationAttempt
UE Context Modification Failure	ueContextModificationFailure	VS.UContextModificationFailure
Abstract Syntax Error	abstractSyntaxError	VS.UContextModificationFailure.Abstrac tSyntaxError
Encryption And/Or Integrity Protection Algorithms Not Supported	encryptionAndOrIntegrityProtection AlgorithmsNotSupported	VS.UContextModificationFailure.Encrypt ionAndOrIntegrityProtectionAlgorithmsN otSupported
Failure In The Radio Interface Procedure	failureInTheRadioInterfaceProcedur e	VS.UContextModificationFailure.Failurel nTheRadioInterfaceProcedure
S1 Inter System Handover Triggered	s1InterSystemHandoverTriggered	VS.UContextModificationFailure.S1Inter SystemHandoverTriggered
S1 Intra System Handover Triggered	s1IntraSystemHandoverTriggered	VS.UContextModificationFailure.S1Intra SystemHandoverTriggered
Unspecified Failure	unspecifiedFailure	VS.UContextModificationFailure.Unspeci fied
X2 Handover Triggered	x2HandoverTriggered	VS.UContextModificationFailure.X2Hand overTriggered
UE Context Modification Success	ueContextmodificationSuccess	VS.UContextmodificationSuccess

Table A-86 UE Context Release Command Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UE Context Release Command Sum	ueContextReleaseCommandSum	VS.UContextReleaseCommandSum
UE Context Release Command Authentication Failure	authenticationFailure	VS.UContextReleaseCommand.Authentic ationFailure
UE Context Release Command Detach	detach	VS.UContextReleaseCommand.Detach
UE Context Release Command Normal Release	normalRelease	VS.UContextReleaseCommand.NormalRe lease

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UE Context Release Command Response To Release Request	responseToReleaseReq	VS.UContextReleaseCommand.ResponseToReleaseRequest
UE Context Release Command Successful Handover	successfulHandover	VS.UContextReleaseCommand.SuccessfulHandover

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Table A-87 UE Context Release Request Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UE Context Release Command Sum	ueContextReleaseCommandSum	VS.UContextReleaseCommandSum
Authentication Failure	authenticationFailure	VS.UContextReleaseCommand.AuthenticationFailure
UE Context Release Command Detach	detach	VS.UContextReleaseCommand.Detach
Normal Release	normalRelease	VS.UContextReleaseCommand.NormalRelease
Response To Release Requests	responseToReleaseReq	VS.UContextReleaseCommand.ResponseToReleaseRequest
UE Context Release Command Successful Handover	successfulHandover	VS.UContextReleaseCommand.SuccessfulHandover
Total UE Context Release Requests	ueContextReleaseRequest	VS.UContextReleaseRequest
Sum Of UE Context Release Requests	ueContextReleaseRequestSum	VS.UContextReleaseRequestSum
UE Context Release Request Cs Fallback Not Possible	csFallbackNotPossible	VS.UContextReleaseRequest.CsFallbackNotPossible
Integrity Failures	integrityFailure	VS.UContextReleaseRequest.IntegrityFailure
Inter Freq Redirection	interFreqRedirection	VS.UContextReleaseRequest.InterFreqRedirection
Internal Failures	internalFailure	VS.UContextReleaseRequest.InternalFailure
Inter RAT Redirections	interRATRedirection	VS.UContextReleaseRequest.InterRATRedirection
No Initial Context Setup Requests	noInitialCtxSetupReq	VS.UContextReleaseRequest.NoInitialContextSetupRequest
Radio Interface Failures	radioInterfaceFailure	VS.UContextReleaseRequest.RadioInterfaceFailure
Radio Link Failure	radioLinkFailure	VS.UContextReleaseRequest.RadioLinkFailure
Security Algorithm Not Compatible Failures	securityAlgoNotCompatible	VS.UContextReleaseRequest.SecurityAlgorithmNotCompatible
UE Context Release Request T Mobility From Eutra CCO Timeout With NACC	tMobilityFromEutraCCOTimeoutWithNACC	VS.UContextReleaseRequest.TMobilityFromEutraCCOTimeoutWithNACC
UE Context Release Request T Mobility From Eutra CCO Timeout Without NACC	tMobilityFromEutraCCOTimeoutWithoutNACC	VS.UContextReleaseRequest.TMobilityFromEutraCCOTimeoutWithoutNACC

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
TS1 Reloc Overall For PS HO To UTRAN Timeouts	ts1RelocOverallForPSHOToUtraTimeout	VS.UContextReleaseRequest.TS1RelocOverallForPSHOToUtraTimeout
TS1 Relocation Overall For S1 HO Timeout	ts1RelocOverallForS1HOTimeout	VS.UContextReleaseRequest.TS1RelocOverallForS1HOTimeout
User Inactivity	userInactivity	VS.UContextReleaseRequest.UserInactivity
X2 Release Timeouts	x2ReleaseTimeout	VS.UContextReleaseRequest.X2ReleaseTimeout

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Table A-88 UE Context Setup Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Sum Of Initial Context Setup Failed	initialContextSetupFailedSum	VS.InitialContextSetupFailedSum
CAC Failure	cacFailure	VS.InitialContextSetupFailed.CACFailure
CS Fallback Not Possible Failures	csFallbackNotPossible	VS.InitialContextSetupFailed.CsFallbackNotPossible
E-RAB Context Allocation Failures	erabContextAllocationFailure	VS.InitialContextSetupFailed.ERABContextAllocationFailure
Integrity Failures	integrityFailure	VS.InitialContextSetupFailed.IntegrityFailure
Internal Failures	internalFailure	VS.InitialContextSetupFailed.InternalFailure
RRC Connection Reestablishments	rrcConnectionReestablishment	VS.InitialContextSetupFailed.RRCConnectionReestablishment
Security Activation Failures	securityActivationFailure	VS.InitialContextSetupFailed.SecurityActivationFailure
Security Algorithm Not Compatible Failures	securityAlgoNotCompatible	VS.InitialContextSetupFailed.SecurityAlgoNotCompatible
Timeouts	timeout	VS.InitialContextSetupFailed.Timeout
Initial Context Setup Success	initialContextSetupSuccess	VS.InitialContextSetupSuccess
After DLNAS Transport	initialCtxtSetupAfterDLNATransp	VS.InitialContextSetupSuccess.AfterDLNASTransport
Without Previous DLNAS Transport	initialCtxtSetupWithoutPrevDLNASTransp	VS.InitialContextSetupSuccess.WithoutPreviousDLNASTransport

Table A-89 UE scheduled per TTI Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Nb Ue Scheduled Per DLTTI	nbUeScheduledPerDLTTI	VS.NbUeScheduledPerDLTTI
Nb Ue Scheduled Per DLTTI Cum	nbUeScheduledPerDLTTICum	VS.NbUeScheduledPerDLTTI.Cum
Nb Ue Scheduled Per DLTTI Max	nbUeScheduledPerDLTTIMax	VS.NbUeScheduledPerDLTTI.Max

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Nb Ue Scheduled Per DLTTI Min	nbUeScheduledPerDLTTIMin	VS.NbUeScheduledPerDLTTI.Min
Nb Ue Scheduled Per DLTTI Nb Evt	nbUeScheduledPerDLTTINbEvt	VS.NbUeScheduledPerDLTTI.NbEvt
Nb Ue Scheduled Per ULTTI	nbUeScheduledPerULTTI	VS.NbUeScheduledPerULTTI

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Table A-90 UL PRB Usage Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Usage Per Traffic Class	usagePerTrafficClass	VS.ULPRBUsagePerTrafficClass
Usage Per Traffic Class - GBR	usagePerTrafficClassGBR	VS.ULPRBUsagePerTrafficClass.GBR
Usage Per Traffic Class - NonGBR	usagePerTrafficClassNonGBR	VS.ULPRBUsagePerTrafficClass.NonGBR
Usage Per Traffic Class - VoIP	usagePerTrafficClassVoIP	VS.ULPRBUsagePerTrafficClass.VoIP
UL Total PRB Usage	ulTotalPRBUsage	VS.ULTotalPRBUsage

Table A-91 Uplink Cell PDCP SDU Volume Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
DRB PdcP Sdu Bit Rate UL	drbPdcP SduBitRate	VS.DRBPdcP SduBitRateUL
DRB PdcP Sdu Kbytes UL	drbPdcP SduKbytes	VS.DRBPdcP SduKbytesUL
DRB PdcP Sdu Kbytes UL Non GBR	nonGBR	VS.DRBPdcP SduKbytesUL.NonGBR
DRB PdcP Sdu Kbytes UL Other GBR	otherGBR	VS.DRBPdcP SduKbytesUL.OtherGBR
DRB PdcP Sdu Kbytes UL Vo IP	voip	VS.DRBPdcP SduKbytesUL.VoIP

Table A-92 Uplink Grants per TTI Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Grant 0 Grant	ul0Grant	VS.ULGrant.0Grant
UL Grant 1 Grant	ul1Grant	VS.ULGrant.1Grant
UL Grant 2 Grants	ul2Grant	VS.ULGrant.2Grants
UL Grant 3 Grants	ul3Grant	VS.ULGrant.3Grants
UL Grant 4 Grants	ul4Grant	VS.ULGrant.4Grants
UL Grant 5 Grants	ul5Grant	VS.ULGrant.5Grants
UL Grant 6or More Grants	ul6orMoreGrants	VS.ULGrant.6orMoreGrants

Table A-93 Uplink L2 Traffic and Throughput Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Rlc Pdu Kbytes GBR	ulrlcPduKbytesGBR	VS.ULRlcPduKbytes.GBR
UL Rlc Pdu Kbytes Non GBR	ulrlcPduKbytesNonGBR	VS.ULRlcPduKbytes.NonGBR
UL Rlc Pdu Kbytes Vo IP	ulrlcPduKbytesVoIP	VS.ULRlcPduKbytes.VoIP
UL Rlc Pdu Received GBR	ulrlcPduReceivedGBR	VS.ULRlcPduReceived.GBR
UL Rlc Pdu Received Non GBR	ulrlcPduReceivedNonGBR	VS.ULRlcPduReceived.NonGBR
UL Rlc Pdu Received Vo IP	ulrlcPduReceivedVoIP	VS.ULRlcPduReceived.VoIP

Table A-94 Uplink Noise For PRB100 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB100
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB100
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB100
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB100
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB100

Table A-95 Uplink Noise For PRB10 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB10
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB10
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB10
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB10
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB10

Table A-96 Uplink Noise For PRB10 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 10	gtRg1LeRg2PRBg10	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg10

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 10	gtRg2LeRg3PRBg10	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg10
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 10	gtRg3LeRg4PRBg10	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg10
UL Noise Per PRB Group Gt Rg 4PR Bg 10	gtRg4PRBg10	VS.ULNoisePerPRBGroup.GtRg4PRBg10
UL Noise Per PRB Group Le Rg 1PR Bg 10	leRg1PRBg10	VS.ULNoisePerPRBGroup.LeRg1PRBg10

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Table A-97 Uplink Noise For PRB11 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB11
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB11
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB11
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB11
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB11

Table A-98 Uplink Noise For PRB11 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 11	gtRg1LeRg2PRBg11	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg11
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 11	gtRg2LeRg3PRBg11	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg11
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 11	gtRg3LeRg4PRBg11	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg11
UL Noise Per PRB Group Gt Rg 4PR Bg 11	gtRg4PRBg11	VS.ULNoisePerPRBGroup.GtRg4PRBg11
UL Noise Per PRB Group Le Rg 1PR Bg 11	leRg1PRBg11	VS.ULNoisePerPRBGroup.LeRg1PRBg11

Table A-99 Uplink Noise For PRB12 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB12

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB12
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB12
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB12
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB12

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Table A-100 Uplink Noise For PRB12 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 12	gtRg1LeRg2PRBg12	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg12
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 12	gtRg2LeRg3PRBg12	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg12
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 12	gtRg3LeRg4PRBg12	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg12
UL Noise Per PRB Group Gt Rg 4PR Bg 12	gtRg4PRBg12	VS.ULNoisePerPRBGroup.GtRg4PRBg12
UL Noise Per PRB Group Le Rg 1PR Bg 12	leRg1PRBg12	VS.ULNoisePerPRBGroup.LeRg1PRBg12

Table A-101 Uplink Noise For PRB13 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB13
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB13
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB13
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB13
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB13

Table A-102 Uplink Noise For PRB13 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 13	gtRg1LeRg2PRBg13	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg13
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 13	gtRg2LeRg3PRBg13	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg13

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 13	gtRg3LeRg4PRBg13	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg13
UL Noise Per PRB Group Gt Rg 4PR Bg 13	gtRg4PRBg13	VS.ULNoisePerPRBGroup.GtRg4PRBg13
UL Noise Per PRB Group Le Rg 1PR Bg 13	leRg1PRBg13	VS.ULNoisePerPRBGroup.LeRg1PRBg13

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Table A-103 Uplink Noise For PRB14 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB14
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB14
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB14
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB14
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB14

Table A-104 Uplink Noise For PRB14 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 14	gtRg1LeRg2PRBg14	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg14
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 14	gtRg2LeRg3PRBg14	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg14
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 14	gtRg3LeRg4PRBg14	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg14
UL Noise Per PRB Group Gt Rg 4PR Bg 14	gtRg4PRBg14	VS.ULNoisePerPRBGroup.GtRg4PRBg14
UL Noise Per PRB Group Le Rg 1PR Bg 14	leRg1PRBg14	VS.ULNoisePerPRBGroup.LeRg1PRBg14

Table A-105 Uplink Noise For PRB15 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB15
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB15

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB15
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB15
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB15

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Table A-106 Uplink Noise For PRB15 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 15	gtRg1LeRg2PRBg15	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg15
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 15	gtRg2LeRg3PRBg15	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg15
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 15	gtRg3LeRg4PRBg15	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg15
UL Noise Per PRB Group Gt Rg 4PR Bg 15	gtRg4PRBg15	VS.ULNoisePerPRBGroup.GtRg4PRBg15
UL Noise Per PRB Group Le Rg 1PR Bg 15	leRg1PRBg15	VS.ULNoisePerPRBGroup.LeRg1PRBg15

Table A-107 Uplink Noise For PRB16 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB16
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB16
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB16
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB16
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB16

Table A-108 Uplink Noise For PRB16 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 16	gtRg1LeRg2PRBg16	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg16
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 16	gtRg2LeRg3PRBg16	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg16
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 16	gtRg3LeRg4PRBg16	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg16

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 4PR Bg 16	gtRg4PRBg16	VS.ULNoisePerPRBGroup.GtRg4PRBg16
UL Noise Per PRB Group Le Rg 1PR Bg 16	leRg1PRBg16	VS.ULNoisePerPRBGroup.LeRg1PRBg16

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Table A-109 Uplink Noise For PRB17 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB17
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB17
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB17
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB17
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB17

Table A-110 Uplink Noise For PRB17 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 17	gtRg1LeRg2PRBg17	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg17
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 17	gtRg2LeRg3PRBg17	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg17
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 17	gtRg3LeRg4PRBg17	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg17
UL Noise Per PRB Group Gt Rg 4PR Bg 17	gtRg4PRBg17	VS.ULNoisePerPRBGroup.GtRg4PRBg17
UL Noise Per PRB Group Le Rg 1PR Bg 17	leRg1PRBg17	VS.ULNoisePerPRBGroup.LeRg1PRBg17

Table A-111 Uplink Noise For PRB18 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB18
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB18
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB18

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB18
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB18

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Table A-112 Uplink Noise For PRB19 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB19
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB19
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB19
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB19
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB19

Table A-113 Uplink Noise For PRB19 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 19	gtRg1LeRg2PRBg19	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg19
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 19	gtRg2LeRg3PRBg19	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg19
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 19	gtRg3LeRg4PRBg19	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg19
UL Noise Per PRB Group Gt Rg 4PR Bg 19	gtRg4PRBg19	VS.ULNoisePerPRBGroup.GtRg4PRBg19
UL Noise Per PRB Group Le Rg 1PR Bg 19	leRg1PRBg19	VS.ULNoisePerPRBGroup.LeRg1PRBg19

Table A-114 Uplink Noise For PRB1 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB1
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB1
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB1
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB1
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB1

Table A-115 Uplink Noise For PRB1 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 And Lower Or Equal To Range2 For 4 PRBs Group1.	gtRg1LeRg2PRBg1	VS.GtRg1LeRg2PRBg1
Greater Than Range2 And Lower Or Equal To Range3 For 4 PRBs Group1.	gtRg2LeRg3PRBg1	VS.GtRg2LeRg3PRBg1
Greater Than Range3 And Lower Or Equal To Range4 For 4 PRBs Group1.	gtRg3LeRg4PRBg1	VS.GtRg3LeRg4PRBg1
Greater Than Range4 For 4 PRBs Group1.	gtRg4PRBg1	VS.GtRg4PRBg1
Lower Or Equal To Range1 For 4 PRBs Group1	leRg1PRBg1	VS.LeRg1PRBg1

Table A-116 Uplink Noise For PRB20 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB20
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB20
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB20
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB20
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB20

Table A-117 Uplink Noise For PRB20 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 20	gtRg1LeRg2PRBg20	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg20
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 20	gtRg2LeRg3PRBg20	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg20
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 20	gtRg3LeRg4PRBg20	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg20
UL Noise Per PRB Group Gt Rg 4PR Bg 20	gtRg4PRBg20	VS.ULNoisePerPRBGroup.GtRg4PRBg20
UL Noise Per PRB Group Le Rg 1PR Bg 20	leRg1PRBg20	VS.ULNoisePerPRBGroup.LeRg1PRBg20

Table A-118 Uplink Noise For PRB21 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB21
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB21
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB21
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB21
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB21

Table A-119 Uplink Noise For PRB21 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 21	gtRg1LeRg2PRBg21	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg21
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 21	gtRg2LeRg3PRBg21	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg21
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 21	gtRg3LeRg4PRBg21	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg21
UL Noise Per PRB Group Gt Rg 4PR Bg 21	gtRg4PRBg21	VS.ULNoisePerPRBGroup.GtRg4PRBg21
UL Noise Per PRB Group Le Rg 1PR Bg 21	leRg1PRBg21	VS.ULNoisePerPRBGroup.LeRg1PRBg21

Table A-120 Uplink Noise For PRB22 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB22
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB22
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB22
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB22
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB22

Table A-121 Uplink Noise For PRB22 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 22	gtRg1LeRg2PRBg22	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg22
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 22	gtRg2LeRg3PRBg22	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg22
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 22	gtRg3LeRg4PRBg22	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg22
UL Noise Per PRB Group Gt Rg 4PR Bg 22	gtRg4PRBg22	VS.ULNoisePerPRBGroup.GtRg4PRBg22
UL Noise Per PRB Group Le Rg 1PR Bg 22	leRg1PRBg22	VS.ULNoisePerPRBGroup.LeRg1PRBg22

Table A-122 Uplink Noise For PRB23 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB23
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB23
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB23
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB23
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB23

Table A-123 Uplink Noise For PRB23 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 23	gtRg1LeRg2PRBg23	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg23
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 23	gtRg2LeRg3PRBg23	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg23
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 23	gtRg3LeRg4PRBg23	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg23
UL Noise Per PRB Group Gt Rg 4PR Bg 23	gtRg4PRBg23	VS.ULNoisePerPRBGroup.GtRg4PRBg23
UL Noise Per PRB Group Le Rg 1PR Bg 23	leRg1PRBg23	VS.ULNoisePerPRBGroup.LeRg1PRBg23

Table A-124 Uplink Noise For PRB24 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB24
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB24
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB24
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB24
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB24

Table A-125 Uplink Noise For PRB24 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 24	gtRg1LeRg2PRBg24	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg24
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 24	gtRg2LeRg3PRBg24	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg24
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 24	gtRg3LeRg4PRBg24	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg24
UL Noise Per PRB Group Gt Rg 4PR Bg 24	gtRg4PRBg24	VS.ULNoisePerPRBGroup.GtRg4PRBg24
UL Noise Per PRB Group Le Rg 1PR Bg 24	leRg1PRBg24	VS.ULNoisePerPRBGroup.LeRg1PRBg24

Table A-126 Uplink Noise For PRB25 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB25
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB25
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB25
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB25
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB25

Table A-127 Uplink Noise For PRB25 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 25	gtRg1LeRg2PRBg25	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg25
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 25	gtRg2LeRg3PRBg25	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg25
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 25	gtRg3LeRg4PRBg25	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg25
UL Noise Per PRB Group Gt Rg 4PR Bg 25	gtRg4PRBg25	VS.ULNoisePerPRBGroup.GtRg4PRBg25
UL Noise Per PRB Group Le Rg 1PR Bg 25	leRg1PRBg25	VS.ULNoisePerPRBGroup.LeRg1PRBg25

Table A-128 Uplink Noise For PRB26 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB26
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB26
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB26
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB26
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB26

Table A-129 Uplink Noise For PRB27 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB27
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB27
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB27
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB27
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB27

Table A-130 Uplink Noise For PRB28 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB28
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB28
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB28
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB28
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB28

Table A-131 Uplink Noise For PRB29 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB29
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB29
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB29
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB29
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB29

Table A-132 Uplink Noise For PRB2 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB2
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB2
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB2
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB2
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB2

Table A-133 Uplink Noise For PRB2 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 And Lower Or Equal To Range2 For 4 PRBs Group2.	gtRg1LeRg2PRBg2	VS.GtRg1LeRg2PRBg2

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range2 And Lower Or Equal To Range3 For 4 PRBs Group2.	gtRg2LeRg3PRBg2	VS.GtRg2LeRg3PRBg2
Greater Than Range3 And Lower Or Equal To Range4 For 4 PRBs Group2.	gtRg3LeRg4PRBg2	VS.GtRg3LeRg4PRBg2
Greater Than Range4 For 4 PRBs Group2.	gtRg4PRBg2	VS.GtRg4PRBg2
Lower Or Equal To Range1 For 4 PRBs Group2	leRg1PRBg2	VS.LeRg1PRBg2

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Table A-134 Uplink Noise For PRB30 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB30
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB30
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB30
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB30
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB30

Table A-135 Uplink Noise For PRB31 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB31
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB31
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB31
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB31
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB31

Table A-136 Uplink Noise For PRB32 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB32
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB32

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB32
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB32
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB32

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Table A-137 Uplink Noise For PRB33 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB33
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB33
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB33
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB33
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB33

Table A-138 Uplink Noise For PRB34 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB34
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB34
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB34
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB34
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB34

Table A-139 Uplink Noise For PRB35 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB35
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB35
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB35
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB35

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB35

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Table A-140 Uplink Noise For PRB36 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB36
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB36
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB36
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB36
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB36

Table A-141 Uplink Noise For PRB37 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB37
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB37
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB37
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB37
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB37

Table A-142 Uplink Noise For PRB38 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB38
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB38
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB38
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB38
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB38

Table A-143 Uplink Noise For PRB39 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB39
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB39
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB39
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB39
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB39

Table A-144 Uplink Noise For PRB3 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB3
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB3
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB3
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB3
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB3

Table A-145 Uplink Noise For PRB3 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 And Lower Or Equal To Range2 For 4 PRBs Group3.	gtRg1LeRg2PRBg3	VS.GtRg1LeRg2PRBg3
Greater Than Range2 And Lower Or Equal To Range3 For 4 PRBs Group3.	gtRg2LeRg3PRBg3	VS.GtRg2LeRg3PRBg3
Greater Than Range3 And Lower Or Equal To Range4 For 4 PRBs Group3.	gtRg3LeRg4PRBg3	VS.GtRg3LeRg4PRBg3
Greater Than Range4 For 4 PRBs Group3.	gtRg4PRBg3	VS.GtRg4PRBg3
Lower Or Equal To Range1 For 4 PRBs Group2	leRg1PRBg3	VS.LeRg1PRBg3

Table A-146 Uplink Noise For PRB40 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB40
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB40
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB40
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB40
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB40

Table A-147 Uplink Noise For PRB41 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB41
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB41
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB41
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB41
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB41

Table A-148 Uplink Noise For PRB42 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB42
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB42
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB42
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB42
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB42

Table A-149 Uplink Noise For PRB43 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB43

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB43
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB43
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB43
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB43

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Table A-150 Uplink Noise For PRB44 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB44
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB44
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB44
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB44
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB44

Table A-151 Uplink Noise For PRB45 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB45
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB45
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB45
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB45
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB45

Table A-152 Uplink Noise For PRB46 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB46
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB46
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB46

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB46
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB46

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Table A-153 Uplink Noise For PRB47 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB47
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB47
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB47
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB47
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB47

Table A-154 Uplink Noise For PRB48 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB48
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB48
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB48
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB48
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB48

Table A-155 Uplink Noise For PRB49 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB49
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB49
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB49
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB49
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB49

Table A-156 Uplink Noise For PRB4 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB4
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB4
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB4
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB4
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB4

Table A-157 Uplink Noise For PRB4 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Gt Rg 1 Le Rg 2PR Bg 4	gtRg1LeRg2PRBg4	VS.GtRg1LeRg2PRBg4
Gt Rg 2 Le Rg 3PR Bg 4	gtRg2LeRg3PRBg4	VS.GtRg2LeRg3PRBg4
Gt Rg 3 Le Rg 4PR Bg 4	gtRg3LeRg4PRBg4	VS.GtRg3LeRg4PRBg4
Gt Rg 4PR Bg 4	gtRg4PRBg4	VS.GtRg4PRBg4
Le Rg 1PR Bg 4	leRg1PRBg4	VS.LeRg1PRBg4

Table A-158 Uplink Noise For PRB50 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB50
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB50
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB50
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB50
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB50

Table A-159 Uplink Noise For PRB51 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB51
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB51

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB51
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB51
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB51

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Table A-160 Uplink Noise For PRB52 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB52
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB52
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB52
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB52
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB52

Table A-161 Uplink Noise For PRB53 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB53
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB53
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB53
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB53
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB53

Table A-162 Uplink Noise For PRB54 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB54
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB54
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB54
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB54

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB54

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Table A-163 Uplink Noise For PRB55 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB55
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB55
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB55
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB55
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB55

Table A-164 Uplink Noise For PRB56 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB56
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB56
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB56
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB56
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB56

Table A-165 Uplink Noise For PRB57 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB57
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB57
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB57
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB57
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB57

Table A-166 Uplink Noise For PRB58 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB58
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB58
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB58
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB58
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB58

Table A-167 Uplink Noise For PRB59 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB59
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB59
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB59
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB59
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB59

Table A-168 Uplink Noise For PRB5 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB5
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB5
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB5
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB5
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB5

Table A-169 Uplink Noise For PRB5 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 5	gtRg1LeRg2PRBg5	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg5

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 5	gtRg2LeRg3PRBg5	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg5
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 5	gtRg3LeRg4PRBg5	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg5
UL Noise Per PRB Group Gt Rg 4PR Bg 5	gtRg4PRBg5	VS.ULNoisePerPRBGroup.GtRg4PRBg5
UL Noise Per PRB Group Le Rg 1PR Bg 5	leRg1PRBg5	VS.ULNoisePerPRBGroup.LeRg1PRBg5

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Table A-170 Uplink Noise For PRB60 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB60
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB60
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB60
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB60
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB60

Table A-171 Uplink Noise For PRB61 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB61
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB61
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB61
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB61
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB61

Table A-172 Uplink Noise For PRB62 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB62
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB62

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB62
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB62
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB62

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Table A-173 Uplink Noise For PRB63 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB63
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB63
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB63
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB63
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB63

Table A-174 Uplink Noise For PRB64 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB64
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB64
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB64
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB64
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB64

Table A-175 Uplink Noise For PRB65 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB65
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB65
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB65
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB65

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB65

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Table A-176 Uplink Noise For PRB66 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB66
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB66
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB66
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB66
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB66

Table A-177 Uplink Noise For PRB67 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB67
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB67
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB67
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB67
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB67

Table A-178 Uplink Noise For PRB68 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB68
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB68
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB68
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB68
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB68

Table A-179 Uplink Noise For PRB69 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB69
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB69
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB69
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB69
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB69

Table A-180 Uplink Noise For PRB6 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB6
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB6
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB6
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB6
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB6

Table A-181 Uplink Noise For PRB6 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 6	gtRg1LeRg2PRBg6	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg6
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 6	gtRg2LeRg3PRBg6	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg6
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 6	gtRg3LeRg4PRBg6	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg6
UL Noise Per PRB Group Gt Rg 4PR Bg 6	gtRg4PRBg6	VS.ULNoisePerPRBGroup.GtRg4PRBg6
UL Noise Per PRB Group Le Rg 1PR Bg 6	leRg1PRBg6	VS.ULNoisePerPRBGroup.LeRg1PRBg6

Table A-182 Uplink Noise For PRB70 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB70
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB70
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB70
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB70
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB70

Table A-183 Uplink Noise For PRB71 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB71
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB71
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB71
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB71
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB71

Table A-184 Uplink Noise For PRB72 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB72
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB72
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB72
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB72
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB72

Table A-185 Uplink Noise For PRB73 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB73

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB73
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB73
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB73
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB73

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Table A-186 Uplink Noise For PRB74 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB74
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB74
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB74
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB74
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB74

Table A-187 Uplink Noise For PRB75 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB75
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB75
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB75
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB75
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB75

Table A-188 Uplink Noise For PRB76 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB76
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB76
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB76

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB76
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB76

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Table A-189 Uplink Noise For PRB77 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB77
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB77
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB77
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB77
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB77

Table A-190 Uplink Noise For PRB78 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB78
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB78
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB78
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB78
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB78

Table A-191 Uplink Noise For PRB79 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB79
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB79
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB79
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB79
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB79

Table A-192 Uplink Noise For PRB7 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB7
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB7
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB7
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB7
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB7

Table A-193 Uplink Noise For PRB7 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 7	gtRg1LeRg2PRBg7	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg7
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 7	gtRg2LeRg3PRBg7	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg7
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 7	gtRg3LeRg4PRBg7	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg7
UL Noise Per PRB Group Gt Rg 4PR Bg 7	gtRg4PRBg7	VS.ULNoisePerPRBGroup.GtRg4PRBg7
UL Noise Per PRB Group Le Rg 1PR Bg 7	leRg1PRBg7	VS.ULNoisePerPRBGroup.LeRg1PRBg7

Table A-194 Uplink Noise For PRB80 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB80
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB80
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB80
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB80
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB80

Table A-195 Uplink Noise For PRB81 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB81
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB81
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB81
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB81
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB81

Table A-196 Uplink Noise For PRB82 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB82
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB82
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB82
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB82
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB82

Table A-197 Uplink Noise For PRB83 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB83
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB83
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB83
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB83
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB83

Table A-198 Uplink Noise For PRB84 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB84

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB84
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB84
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB84
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB84

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Table A-199 Uplink Noise For PRB85 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB85
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB85
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB85
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB85
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB85

Table A-200 Uplink Noise For PRB86 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB86
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB86
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB86
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB86
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB86

Table A-201 Uplink Noise For PRB87 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB87
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB87
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB87

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB87
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB87

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Table A-202 Uplink Noise For PRB88 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB88
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB88
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB88
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB88
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB88

Table A-203 Uplink Noise For PRB89 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB89
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB89
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB89
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB89
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB89

Table A-204 Uplink Noise For PRB8 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB8
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB8
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB8
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB8
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB8

Table A-205 Uplink Noise For PRB8 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 8	gtRg1LeRg2PRBg8	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg8
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 8	gtRg2LeRg3PRBg8	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg8
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 8	gtRg3LeRg4PRBg8	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg8
UL Noise Per PRB Group Gt Rg 4PR Bg 8	gtRg4PRBg8	VS.ULNoisePerPRBGroup.GtRg4PRBg8
UL Noise Per PRB Group Le Rg 1PR Bg 8	leRg1PRBg8	VS.ULNoisePerPRBGroup.LeRg1PRBg8

Table A-206 Uplink Noise For PRB90 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB90
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB90
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB90
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB90
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB90

Table A-207 Uplink Noise For PRB91 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB91
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB91
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB91
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB91
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB91

Table A-208 Uplink Noise For PRB92 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB92
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB92
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB92
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB92
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB92

Table A-209 Uplink Noise For PRB93 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB93
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB93
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB93
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB93
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB93

Table A-210 Uplink Noise For PRB94 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB94
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB94
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB94
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB94
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB94

Table A-211 Uplink Noise For PRB95 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB95

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB95
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB95
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB95
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB95

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Table A-212 Uplink Noise For PRB96 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB96
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB96
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB96
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB96
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB96

Table A-213 Uplink Noise For PRB97 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB97
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB97
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB97
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB97
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB97

Table A-214 Uplink Noise For PRB98 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB98
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB98
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB98

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5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB98
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB98

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Table A-215 Uplink Noise For PRB99 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB99
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB99
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB99
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB99
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB99

Table A-216 Uplink Noise For PRB9 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Greater Than Range1 Lower Or Equal To Range2	gtRg1LeRg2	VS.ULNoise.GtRg1LeRg2PRB9
Greater Than Range2 Lower Or Equal To Range3	gtRg2LeRg3	VS.ULNoise.GtRg2LeRg3PRB9
Greater Than Range3 Lower Or Equal To Range4	gtRg3LeRg4	VS.ULNoise.GtRg3LeRg4PRB9
Greater Than Range4	gtRange4	VS.ULNoise.GtRg4PRB9
Lower Or Equal To Range1	leRange1	VS.ULNoise.LeRg1PRB9

Table A-217 Uplink Noise For PRB9 counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Noise Per PRB Group Gt Rg 1 Le Rg 2PR Bg 9	gtRg1LeRg2PRBg9	VS.ULNoisePerPRBGroup.GtRg1LeRg2PRBg9
UL Noise Per PRB Group Gt Rg 2 Le Rg 3PR Bg 9	gtRg2LeRg3PRBg9	VS.ULNoisePerPRBGroup.GtRg2LeRg3PRBg9
UL Noise Per PRB Group Gt Rg 3 Le Rg 4PR Bg 9	gtRg3LeRg4PRBg9	VS.ULNoisePerPRBGroup.GtRg3LeRg4PRBg9
UL Noise Per PRB Group Gt Rg 4PR Bg 9	gtRg4PRBg9	VS.ULNoisePerPRBGroup.GtRg4PRBg9
UL Noise Per PRB Group Le Rg 1PR Bg 9	leRg1PRBg9	VS.ULNoisePerPRBGroup.LeRg1PRBg9

Table A-218 Uplink Paired Grants per TTI Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
UL Paired Grant 0 Grant	ulPaired0Grant	VS.ULPairedGrant.0Grant
UL Paired Grant 1 Grants	ulPaired1Grant	VS.ULPairedGrant.1Grants
UL Paired Grant 2 Grants	ulPaired2Grant	VS.ULPairedGrant.2Grants

Table A-219 VoIP downlink FER Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Vo IPDLFERGT Range 1 Le Range 2	gtRange1LeRange2	VS.VoIPDLFER.GTRange1LeRange2
Vo IPDLFERGT Range 2 Le Range 3	gtRange2LeRange3	VS.VoIPDLFER.GTRange2LeRange3
Vo IPDLFERGT Range 3 Le Range 4	gtRange3LeRange4	VS.VoIPDLFER.GTRange3LeRange4
Vo IPDLFERGT Range 4	gtRange4	VS.VoIPDLFER.GTRange4
Vo IPDLFER Le Range 1	leRange1	VS.VoIPDLFER.LeRange1

Table A-220 VoIP downlink FER Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Vo IPDLFERGT Range 1 Le Range 2	voIPDLFERGTRange1LeRange2	VS.VoIPDLFER.GTRange1LeRange2
Vo IPDLFERGT Range 2 Le Range 3	voIPDLFERGTRange2LeRange3	VS.VoIPDLFER.GTRange2LeRange3
Vo IPDLFERGT Range 3 Le Range 4	voIPDLFERGTRange3LeRange4	VS.VoIPDLFER.GTRange3LeRange4
Vo IPDLFERGT Range 4	voIPDLFERGTRange4	VS.VoIPDLFER.GTRange4
Vo IPDLFER Le Range 1	voIPDLFERLeRange1	VS.VoIPDLFER.LeRange1

Table A-221 Wideband CQI Reported in Tx Diversity Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Layer 0 Tx Div WB Cqi Reported Cqi 0	layer0WBCqi0	VS.Layer0TxDivWBCqiReported.Cqi0
Layer 0 Tx Div WB Cqi Reported Cqi 1	layer0WBCqi1	VS.Layer0TxDivWBCqiReported.Cqi1
Layer 0 Tx Div WB Cqi Reported Cqi 10	layer0WBCqi10	VS.Layer0TxDivWBCqiReported.Cqi10
Layer 0 Tx Div WB Cqi Reported Cqi 11	layer0WBCqi11	VS.Layer0TxDivWBCqiReported.Cqi11
Layer 0 Tx Div WB Cqi Reported Cqi 12	layer0WBCqi12	VS.Layer0TxDivWBCqiReported.Cqi12
Layer 0 Tx Div WB Cqi Reported Cqi 13	layer0WBCqi13	VS.Layer0TxDivWBCqiReported.Cqi13

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A. eNodeB PM statistics counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
Layer 0 Tx Div WB Cqi Reported Cqi 14	layer0WBCqi14	VS.Layer0TxDivWBCqiReported.Cqi14
Layer 0 Tx Div WB Cqi Reported Cqi 15	layer0WBCqi15	VS.Layer0TxDivWBCqiReported.Cqi15
Layer 0 Tx Div WB Cqi Reported Cqi 2	layer0WBCqi2	VS.Layer0TxDivWBCqiReported.Cqi2
Layer 0 Tx Div WB Cqi Reported Cqi 3	layer0WBCqi3	VS.Layer0TxDivWBCqiReported.Cqi3
Layer 0 Tx Div WB Cqi Reported Cqi 4	layer0WBCqi4	VS.Layer0TxDivWBCqiReported.Cqi4
Layer 0 Tx Div WB Cqi Reported Cqi 5	layer0WBCqi5	VS.Layer0TxDivWBCqiReported.Cqi5
Layer 0 Tx Div WB Cqi Reported Cqi 6	layer0WBCqi6	VS.Layer0TxDivWBCqiReported.Cqi6
Layer 0 Tx Div WB Cqi Reported Cqi 7	layer0WBCqi7	VS.Layer0TxDivWBCqiReported.Cqi7
Layer 0 Tx Div WB Cqi Reported Cqi 8	layer0WBCqi8	VS.Layer0TxDivWBCqiReported.Cqi8
Layer 0 Tx Div WB Cqi Reported Cqi 9	layer0WBCqi9	VS.Layer0TxDivWBCqiReported.Cqi9

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Table A-222 X2 Sctp Traffic Stats counters

5620 SAM GUI name	5620 SAM OSS name	eNodeB 3GPP name
X 2 Sctp In Octets	x2SctpInOctets	VS.X2SctpInOctets
X 2 Sctp In Packets	x2SctpInPackets	VS.X2SctpInPackets
X 2 Sctp Out Octets	x2SctpOutOctets	VS.X2SctpOutOctets
X 2 Sctp Out Packets	x2SctpOutPackets	VS.X2SctpOutPackets

Customer documentation and product support



Customer documentation

<http://www.alcatel-lucent.com/myaccess>

Product manuals and documentation updates are available at [alcatel-lucent.com](http://www.alcatel-lucent.com). If you are a new user and require access to this service, please contact your Alcatel-Lucent sales representative.



Technical Support

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