

Net Monitor

# User Manual

## Alarms & Performance



**Vodafone Service Monitor**

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# 1. Welcome

## 1.1 Introduction

In "Alarms & Performance" you can see any alarms and check the status of the individual performance parameters of your services. It is integrated into the "Network Monitor" application of your Service Monitor.

After Chapter [2: "Alarms & Performance" start page](#), Chapter [3: Details page of a service](#) shows you how to call up service details. Chapter [4: User menu](#) shows you how to manage users within the application. In Chapter [5: Appendix](#) you will find information on products and the definition of performance parameters.

## 1.2 Target group

This user manual is aimed at administrators in companies who monitor the status of services.

## 1.3 Preparation

The Net monitor is an application of the Service Monitor. To use it, you need the latest version of a web browser. Depending on the variant and version, individual views may not be displayed as required.

If you do not yet have a user account for the Service Monitor, please request one from your Vodafone contact person. Once your account is set up, you will receive an email with a registration link.

To start the Service Monitor, please use the URL <https://servicemonitor.vodafone.de/alarms/>. Enter your registration user data there.

## 2. Homepage Alarms & Performance

"Alarms & Performance" can be found in the "Net monitor" application.

Notes: The following sections are based on a two-column layout. Depending on the window width and screen resolution, the display will be in one column. We refer to the German-language version. It is possible to switch to English.

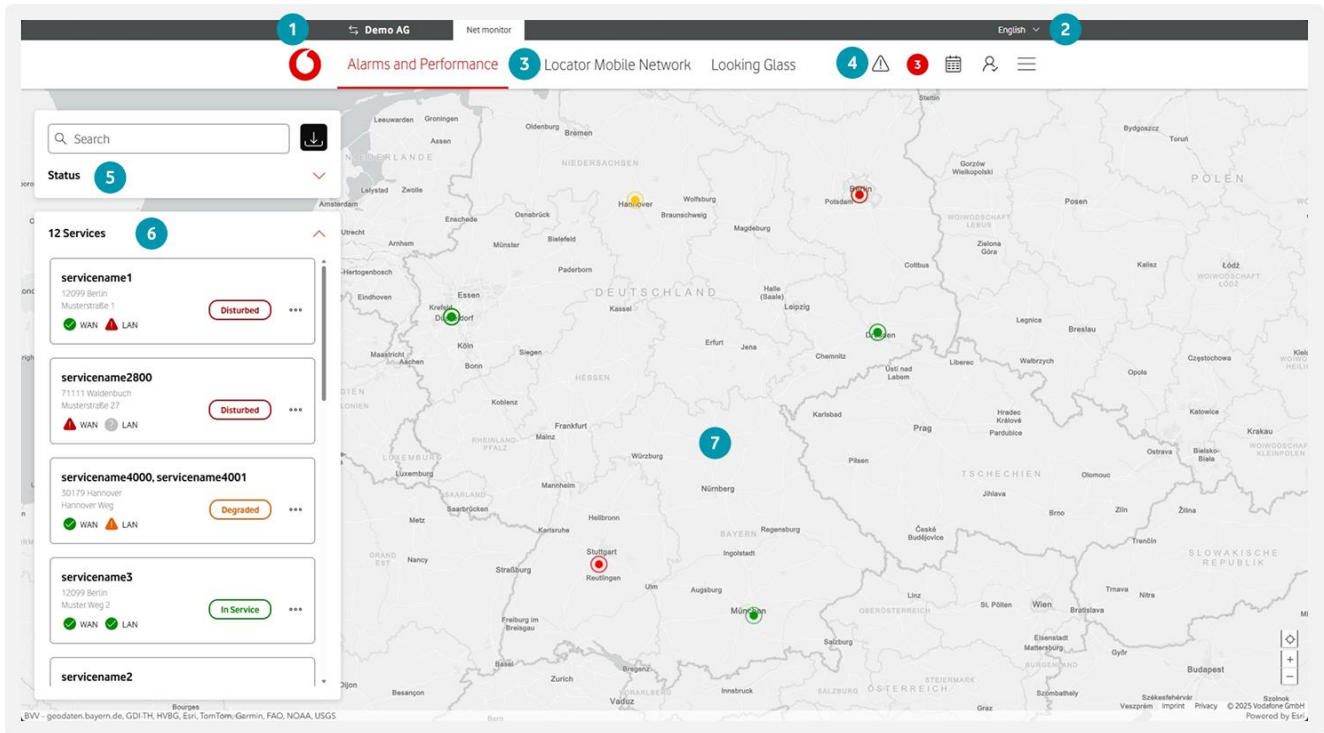


Figure 1: Homepage "Alarms & Performance"

This is what the individual markings from [Figure 1: Homepage "Alarms & Performance"](#)

1. Company and application name
2. Language selection (German and English)
3. Menu (consisting of "Alarms and Performance", "Net Locator Mobile Network" and "Looking Glass")
4. Further functions:  
Icons from left to right: cooperation, notifications, calendar, user, application change
5. Search, filter options and CSV export
  - a. Search bar: Free text search, e.g. search by service name, WAN Primary, WAN Secondary (if available)
  - b. Status filter: in service, degraded, disturbed, pre-operational, disabled
  - c. CSV export (export of the entire service list, regardless of the filter set)
6. Service list: all services activated for the user, filtered if requested
7. Overview map: all locations in the filtered service list, including status (red = disturbed; yellow = degraded; green = in service, blue = pre-operational, grey = disabled)

### 3. Detail page of a service

Select a service to see the details. You have two options for this:

1. Click on a service in the service list
2. Click on a location on the map

After selecting a service, the corresponding detail page opens [Figure 2: Details page of a service](#).

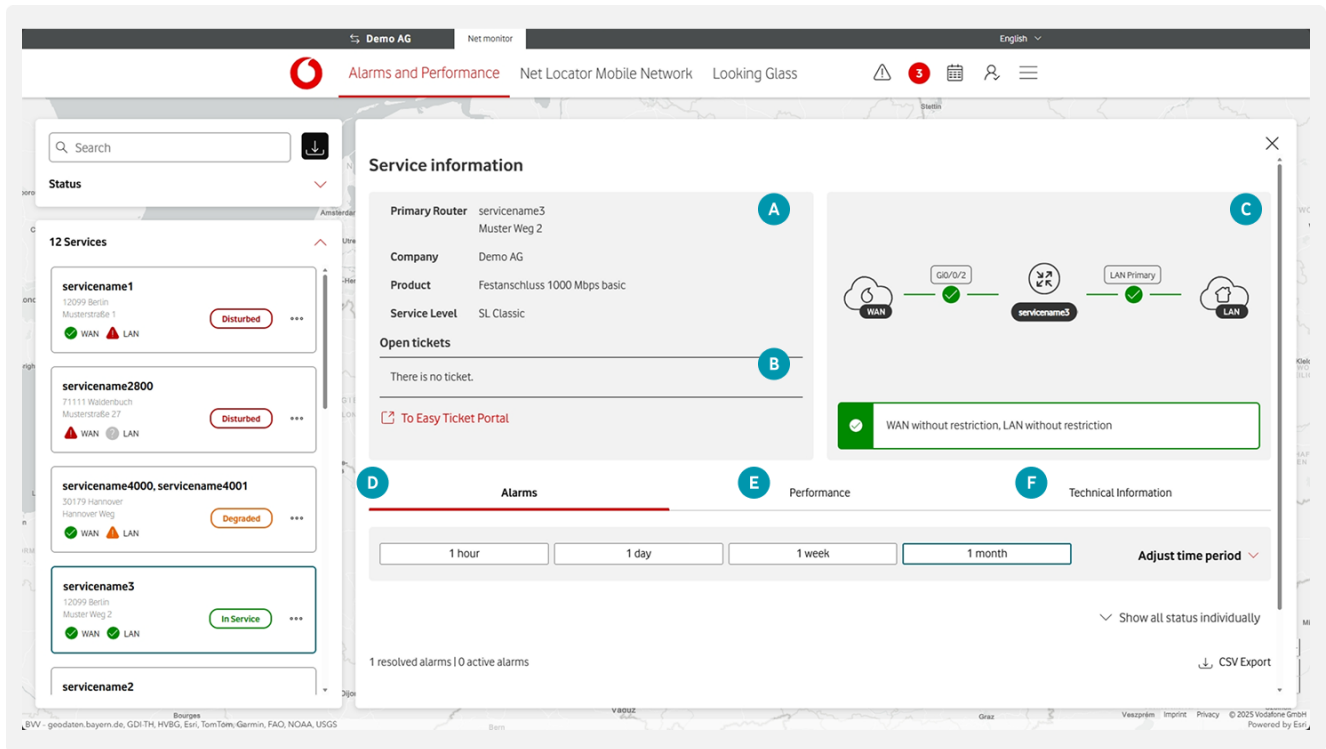


Figure 2: Details page of a service

### 3.1 A: General service information

In this area you can see general information about the selected service: [Figure 3: Service information](#)

|                  |   |
|------------------|---|
| Primary Router   | routename1234<br>Hannover Weg, 30179 Hannover   |
| Secondary Router | routename1234<br>Hannover Weg, 30179 Hannover   |
| Company          | Demo AG   |
| Product          | Company Net - Company Dialog VDSL Regio 50 Mb/s |
| Service Level    | Classic Plus                                    |

Figure 3: Service information

### 3.2 B: Tickets for current issues

In this area, you can see whether there is an open ticket. You will also find the link to the "Easy Ticket" portal. [Figure 4: Link to "Easy Ticket"](#) will take you to the login page of the Easy Ticket portal.

**Open tickets**

There is no ticket.


 [To Easy Ticket Portal](#)

Figure 4: Link to "Easy Ticket"

### 3.3 C: Network diagrams

In addition to the router, the network diagram also shows the respective WAN and LAN connections including the associated status. The details vary depending on the connection variant, see [Table 1: Network diagrams](#). Information on the alarm status can be found in section: [3.4.1 Possible alarms](#)


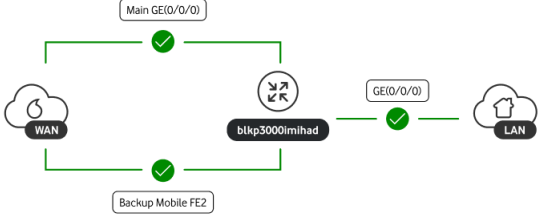
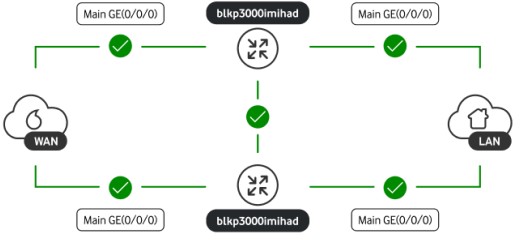
| Service level   | Network diagram   | Description  |
|---|---|--|
| Classic   |    | <ul style="list-style-type: none"><li>• one router</li><li>• Primary connection to WAN and LAN</li></ul>   |
| Figure 5 : Network diagram for Classic                            |   |  |
| Classic Plus  |   | <ul style="list-style-type: none"><li>• one router</li><li>• Primary connection to WAN and LAN</li><li>• Secondary connection to WAN</li></ul>   |
| Figure 6 : Network diagram Classic Plus                           |   |  |
| Classic Plus<br>Advanced /<br>Classic Premium                     |  | <ul style="list-style-type: none"><li>• Two routers<br/>Main router (Primary) and backup router (Secondary)</li><li>• Crosslink between both routers</li><li>• Primary connection to WAN and LAN</li><li>• Secondary connection to WAN and LAN</li></ul> |
| Figure 7 : Network diagram Classic Plus Advanced /Classic Premium |   |  |

Table 1: Network diagrams



## 3.4 D: "Alarms"

The tab "Alarms" essentially consists of an alarm history, see [Figure 8: Alarm overview](#). Here you can see all open alarms and those that have been resolved in the selected time period. The time period to be displayed can be configured individually, see chapter [3.4.2 Time filter](#). Initially, the last 30 days are displayed, which also corresponds to the maximum range in the past.

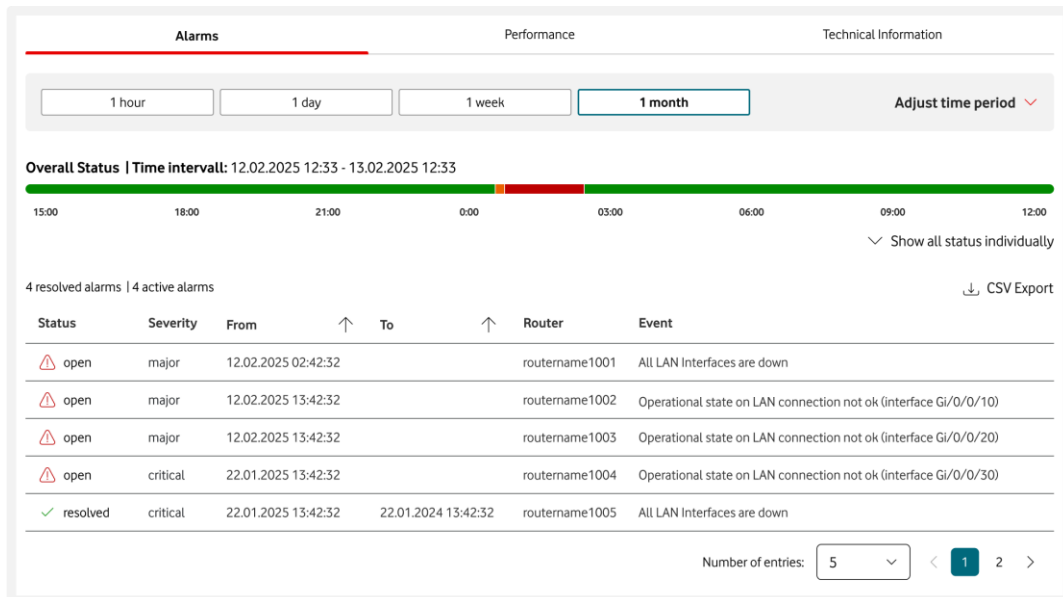


Figure 8: Alarm overview

### 3.4.1 Possible alarms

Alarms are displayed for both LAN and WAN interfaces. In addition to the specific error description in the "Alarms" tab, you can also see the status in the network diagram in section [3.3C: Network diagrams](#).

- LAN status
  - All LAN interfaces "down": LAN status "down" (red)
  - At least one LAN interface restricted: LAN status "down" (yellow)
  - All LAN interfaces without restrictions: LAN status "active" (green)
  - LAN status unknown (grey)
- WAN status
  - All WAN interfaces "down": WAN status "down" (red)
  - One WAN interface restricted or down, the other active: WAN status "down" (yellow)
  - All WAN interfaces without restrictions: WAN status "active" (green)
  - WAN status unknown (grey)

You will also find an alarm description below the network diagram.

### 3.4.2 Time filter

The time period to be displayed can be configured: Initially, alarms from the last month are shown.

In the selection menu, you can choose between one hour, one day, one week and one month. Clicking on 'Adjust time period' opens another menu. In this area, you can set a custom time period (see [Figure 9: Time filter - Alarms](#)).

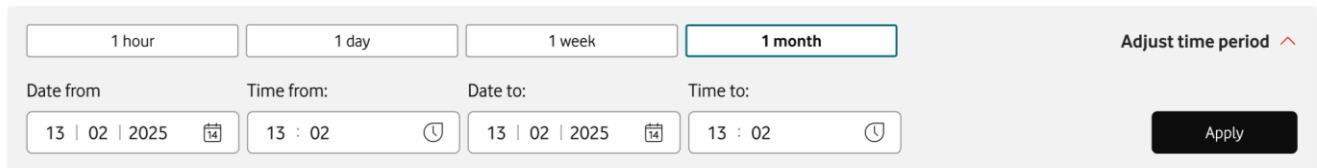


Figure 9: Time filter - Alarms

### 3.4.3 CSV export

Click on "CSV export" to download the currently displayed list of alarms for the selected time period. The CSV file contains the following entries:

- Status (open or resolved)
- Severity (info, warning, minor, major or critical)
- From (start of the alarm)
- To (end of the alarm)
- Router
- Event (problem description)

## 3.5 E: "Performance"

The "Performance" tab contains the service-specific performance parameters. Firstly, the rough structure is presented, see [Figure 10: Start page of the "Performance" tab](#).

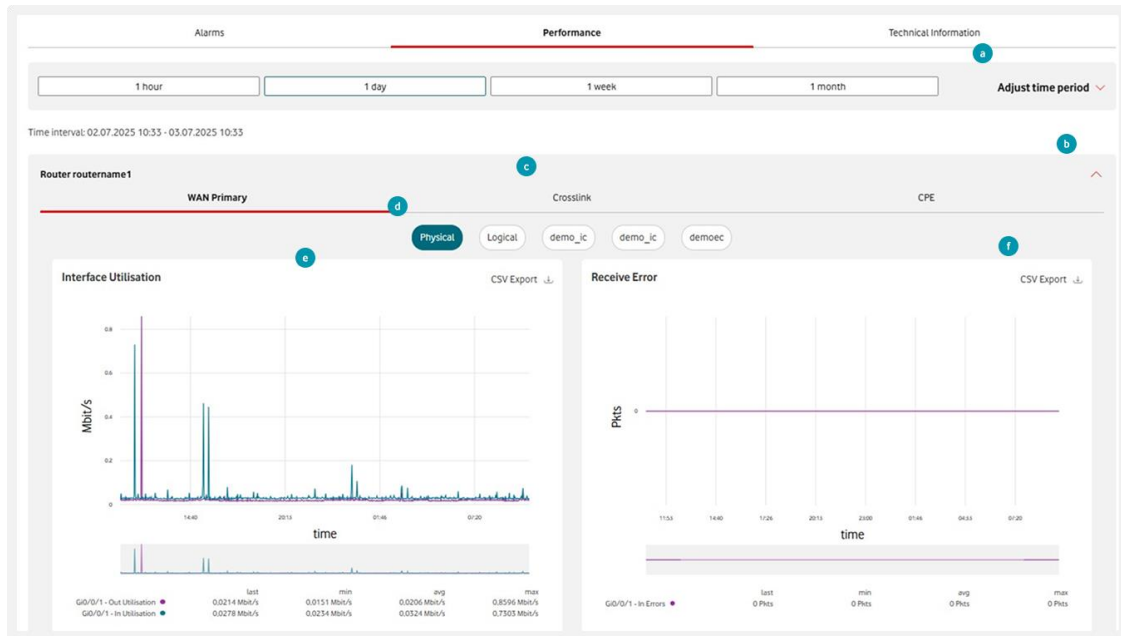


Figure 10: Start page of the "Performance" tab

- a: Time filter - see section: [3.5.1a: Time filter](#)
- b: Expandable and collapsible section per router  
Depending on the connection variant., there are one or two routers. The first section is initially expanded, the second is initially collapsed.
- c: Selection between "WAN Primary", "WAN Secondary" or "Crosslink" (depending on the connection variant) and "CPE" (depending on the product)
- d: Selection between "Physical", "Logical" (depending on configuration) and VRF (Virtual Routing and Forwarding - depending on configuration) - see section: [5.2 Physical and logical interfaces](#)
- e: Display of the individual parameter graphs, see section: [3.5.2e: Parameter box](#)
- f: CSV export

### 3.5.1 a: Time filter

The time period to be displayed can be configured. Initially, the performance data of the last 24 hours is displayed.

In the selection menu, you can choose between one hour, one day, one week and one month. Clicking on 'Adjust time period' opens another menu. In this area, you can set a custom period (see [Figure 11: Time filter – Performance](#)): the set time period is retained within the "Performance" tab.

1 hour

1 day

1 week

1 month

Adjust time period ^

Date from

Time from:

Date to:

Time to:

13 | 02 | 2025

13 : 02

13 | 02 | 2025

13 : 02

Apply

Figure 11: Time filter – Performance

### 3.5.2 e: Parameter box

In the "Performance" tab, you will see several parameter boxes (e) that display the data of the respective performance parameters. In some parameter boxes exactly one performance parameter is displayed, in others several performance parameters are displayed.

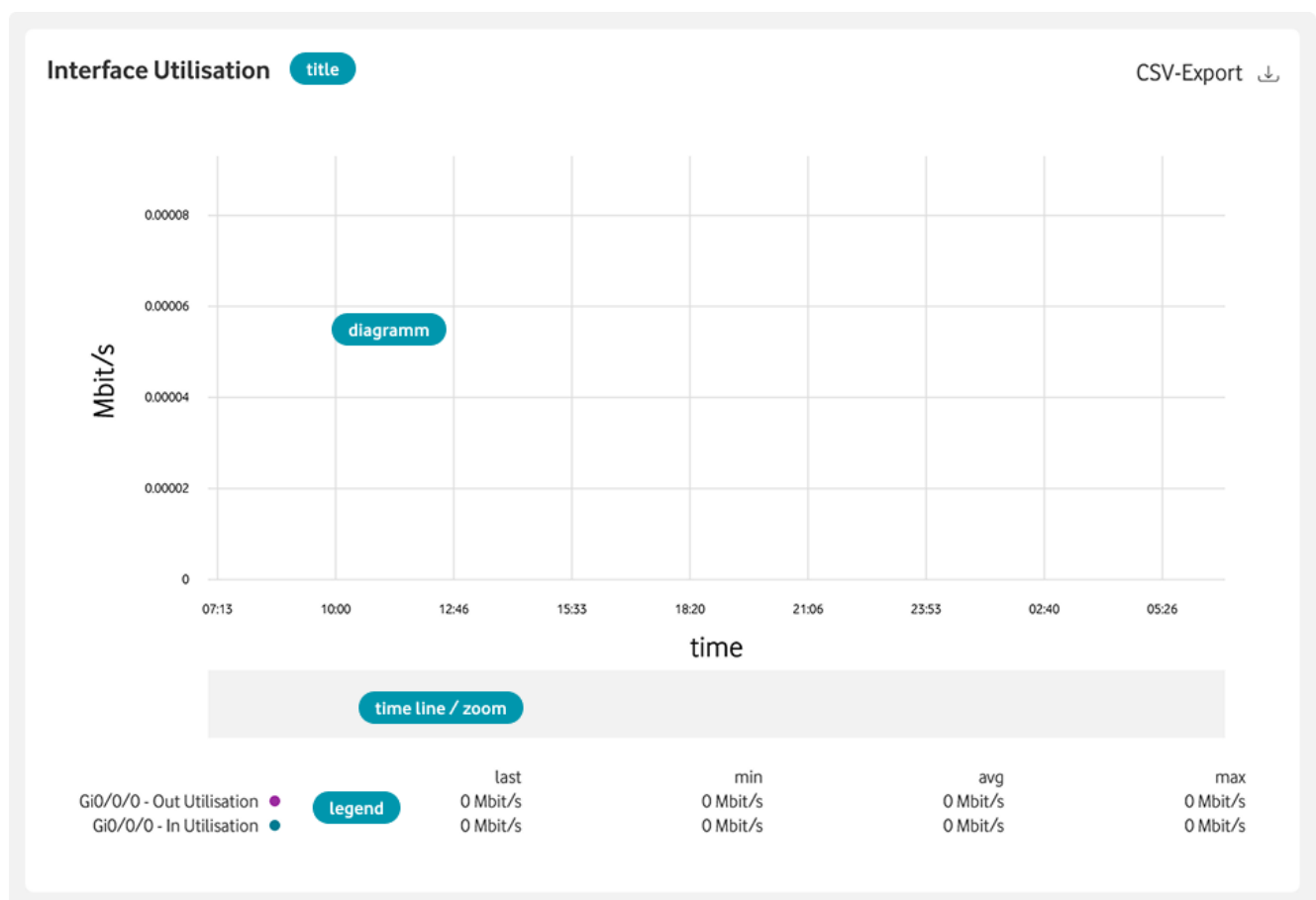


Figure 12: Definition of terms within a parameter box

At the top of each box there is a **title** indicating which performance parameter(s) is/are displayed. Below this, you will see a **diagram** in which the graphs of all the performance parameters listed in the **legend** are displayed:

- individual colour per performance parameter
- x-axis corresponds to timeline: Depending on the time filter set, the date or time is displayed
- y-axis indicates measured values - the corresponding unit is shown to the left of the y-axis

Below the diagram, there is a **timeline/zoom** that you can use to focus on a continuous time period within the set time interval (see [3.5.2.3 Zoom](#)). Below the timeline, you will find a **legend** with these five entries:

- Parameter name, possibly preceded by the interface name
- Parameter values within the set time filter (see section: [3.5.1 Time filter](#))
  - Last transmitted value ("last")
  - smallest value ("min")
  - average value ("avg")
  - highest value ("max")

### 3.5.2.1 Activating/deactivating individual graphs

Individual graphs can be deactivated by clicking on a legend entry; the graph is then no longer displayed. By clicking on legend entries again, individual graphs can be reactivated, the graph is displayed again (see [Figure 13: Parameter box with all available graphs](#)). The y-axis is scaled dynamically based on the active graphs (see [Figure 14: Parameter box with deactivated graphs and rescaled y-axis](#)).

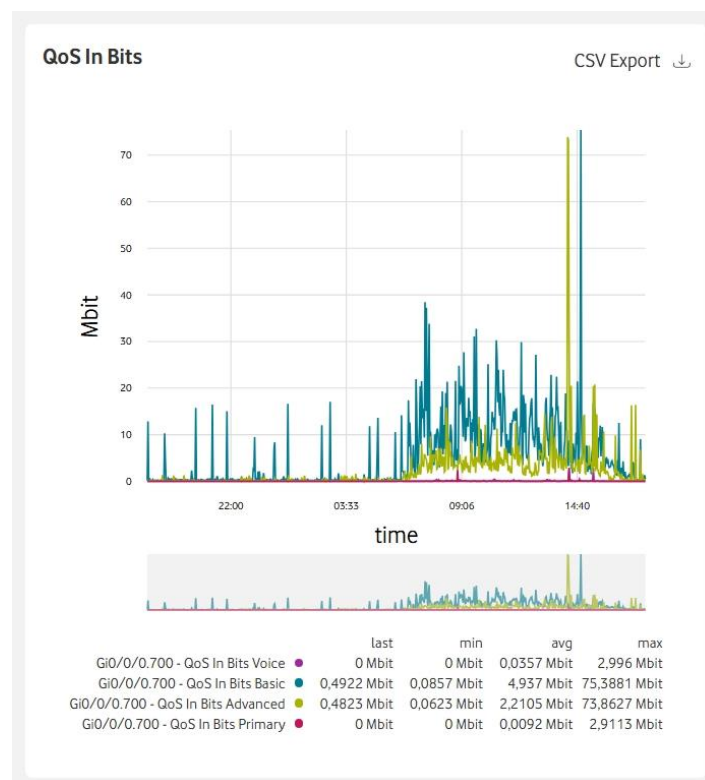


Figure 13: Parameter box with all available graphs

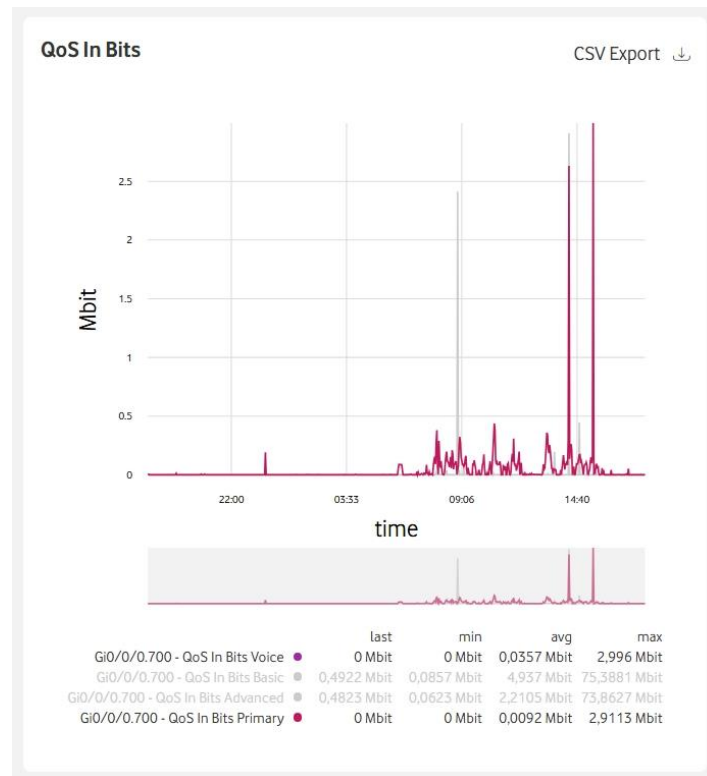


Figure 14: Parameter box with deactivated graphs and rescaled y-axis

### 3.5.2.2 Visual highlighting

When moving the mouse pointer over an individual graph or over a legend entry, the corresponding graph is shaded and the other graphs are faded. In addition, detailed information can be displayed for the selected data point (see [Figure 15: Highlighting a graph via diagram](#) and [Figure 16: Highlighting a graph via legend](#)).

If you move the mouse pointer over the diagram without fixing a graph, you will see the data for each activated graph at the selected time (see [Figure 17: Data points of all activated graphs at a selected point in time](#)).

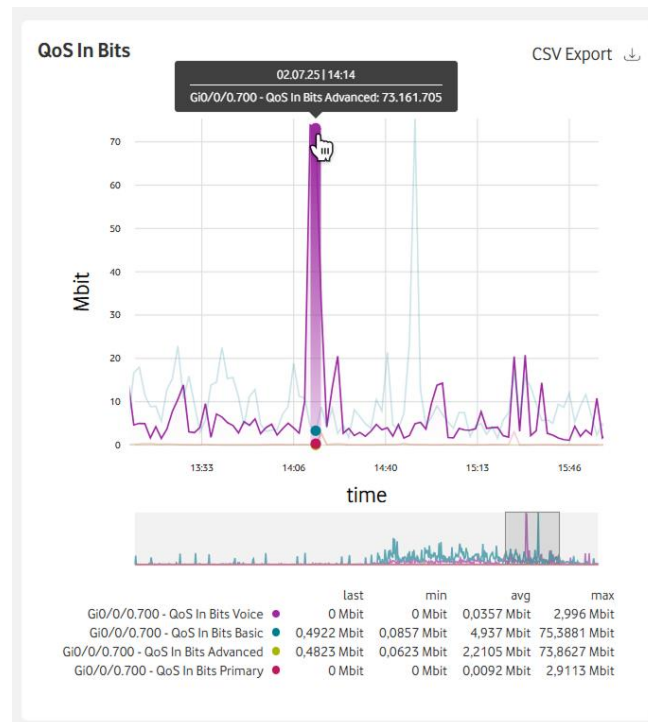


Figure 15: Highlighting a graph via diagram

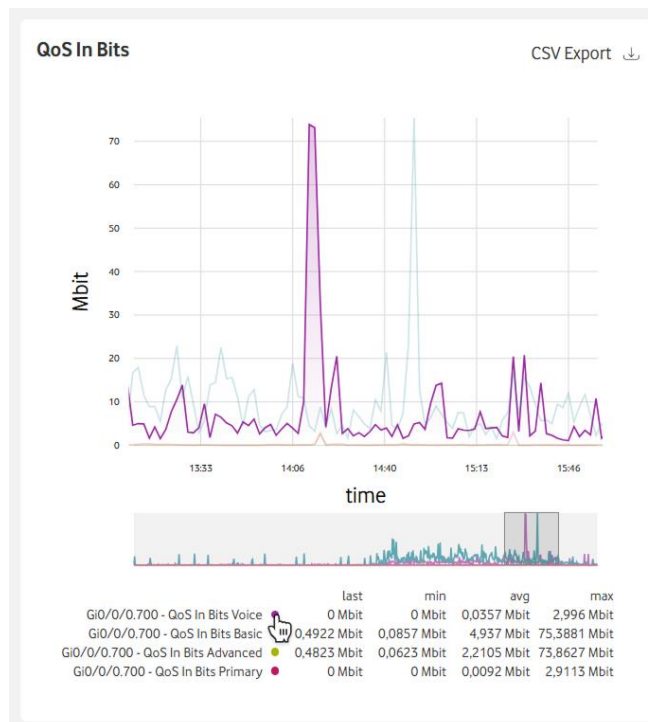


Figure 16: Highlighting a graph via legend

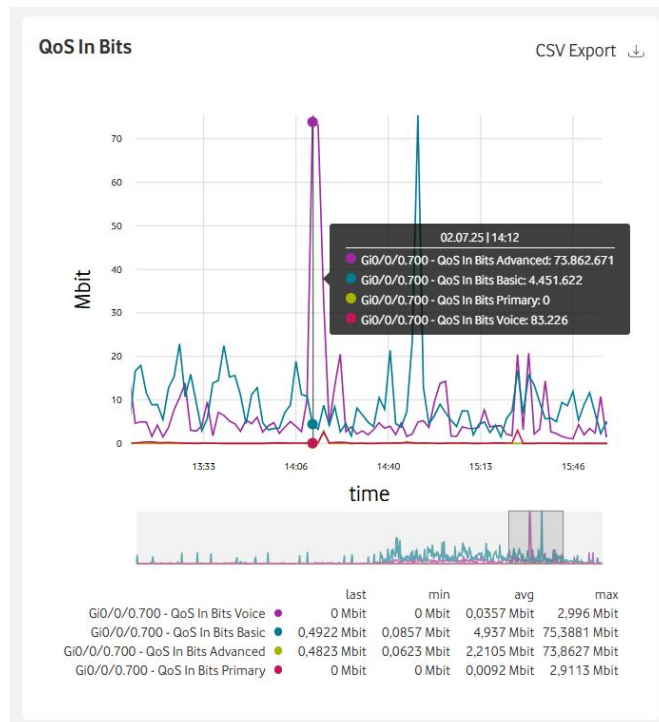


Figure 17: Data points of all activated graphs at a selected point in time

### 3.5.2.3 Zoom

There is a timeline under each graph. This allows individual zooming for each graph box. If the mouse pointer is positioned over the timeline, it turns into a crosshair. You can then set the desired area by holding down the primary mouse button (see [Figure 18: Timeline and zoom](#)). An area that has already been set can be moved as well as enlarged/reduced.

By simply clicking on the timeline, you can delete a selection that has already been made.

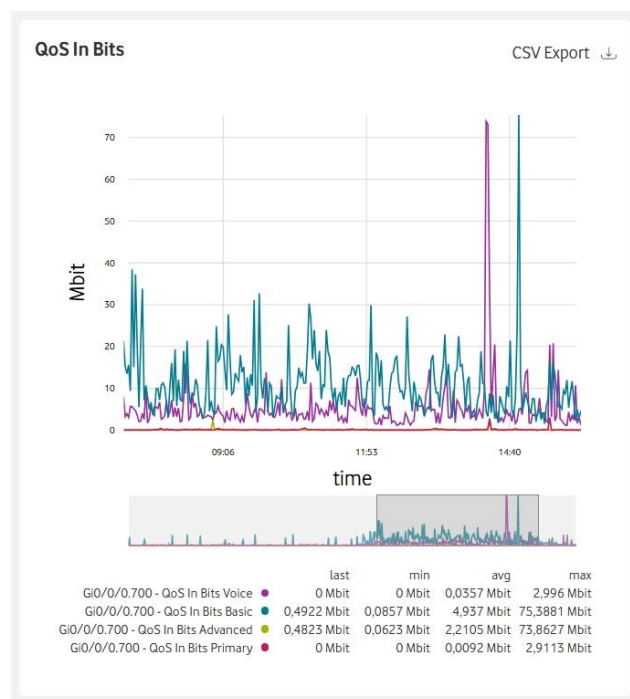


Figure 18: Timeline and zoom



#### 3.5.2.4 Measured values and time intervals

The time filter is initially set to one day. The query interval can be set using a time filter (see section: [3.5.1 Time filter](#)). If the query interval is within the last six weeks, exact measured values are displayed. The time intervals for the exact measured values vary depending on the parameter.

#### 3.5.2.5 csv download

The measured values of each diagram can be exported as a csv file. The export is a zip archive that contains at least two csv files:

1. <Route name>.csv: general router information with the columns:
  - a. Router name ("host")
  - b. VPN name ("vpn")
  - c. Street ("street")
  - d. House number ("streetNo")
  - e. Postcode ("zip")
  - f. City ("city")
2. <Interface name>.csv: a separate csv file with the columns for each diagram graph:
  - a. Router name ("host")
  - b. Interface name ("interface")
  - c. Name of the performance parameter ("metric")
  - d. Time stamp ("timestamp")
  - e. Value of the performance parameter ("value")
  - f. Unit of the performance parameter ("unit")
  - g. optional: reference name
  - h. optional: reference value
  - i. optional: reference unit ("reference unit")

The reference values listed at [2.g](#), [2.h](#) and [2.i](#) are used to categorise the actual values.

3.5.3 Error handling

In this chapter, we present the various error scenarios.

3.5.3.1 No data available for individual performance parameters

If no data is available for a mandatory performance parameter, a corresponding error message "no data available" is displayed instead of the graph. The legend is faded and the values are all shown as "n/a", see [Figure 19: Mandatory performance data not available](#).

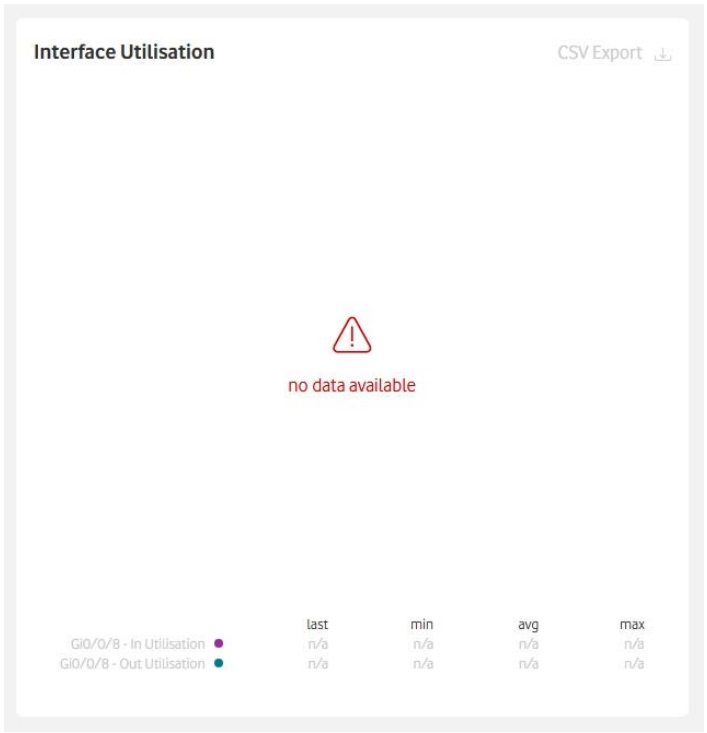


Figure 19: Mandatory performance data not available

3.5.3.2 No data available for WAN Primary

If no physical performance parameters are available for WAN Primary, you will see a corresponding error message instead of the parameter boxes (see [Figure 20: no performance parameters available](#)).

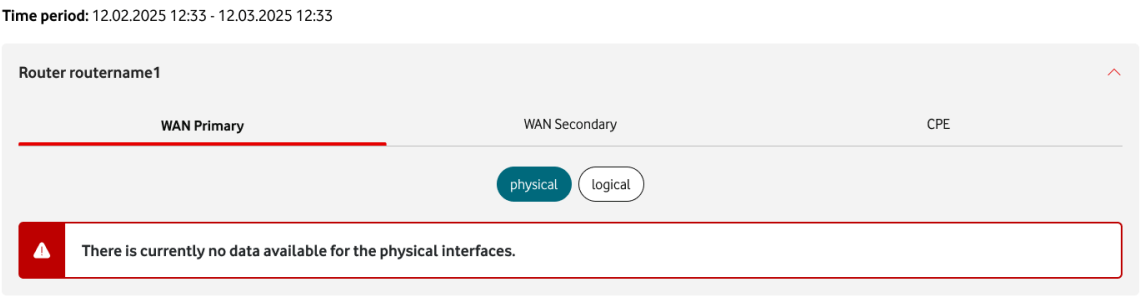


Figure 20: no performance parameters available

### 3.6 F: "Technical information"

Depending on the product and connection variant, you will find different technical information about your service here.

Alarms

Performance

Technical Information

Router routename1

VPN

vpnId

Model

Cisco ASR1001X

Service ID

0000000123456789

Supervise Management

✓

Bandwidth

1000 Mbps

Maximum number of voice channels

6500

Class of service

Service bandwidth

Voice

75.000 kBit

Interface

DHCP

IP address range

IP gateway address

GigabitEthernet0/0/0  
primary (direkt)

DHCP not configured

1.1.1.0/24

1.1.1.3

Router routename2

Figure 21: Technical information

## 4. User menu

Clicking on the user icon (see [Figure 22 : User administration](#)) opens a selection menu (see [Figure 23: User menu](#)). The individual menu items are described here:

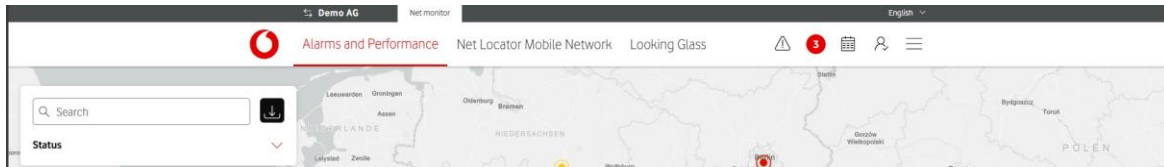


Figure 22 : User administration

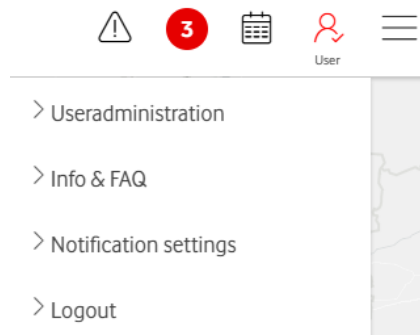


Figure 23: User menu

### 4.1 User management

One click takes you to your user management. There you can add, edit or delete users. Other functions include: assignment of organisational units, 2FA or administration permissions. Note: This is only possible in the 'Admin' role.

### 4.2 Info & FAQ


Clicking on "Info & FAQ" opens a new tab to the "Info & FAQ" page.

### 4.3 Notification settings

Clicking on "Notification settings" opens a menu where you can set whether and how you want to be informed about news, see [Figure 24: Notification settings](#).


## Notification settings


Categories


**Software updates/new functions**

Notification Center

Choose whether you would like to receive notifications about software updates and new functions.


 Notification Center


On 


**Order status updates**

Notification Center

Choose whether you would like to receive notifications about order status updates.


 Notification Center


On 


**Hardware shipments**


Notification Center


Choose whether you would like to receive notifications about hardware shipments.

 Notification Center

On 


 E-mail


Off 


**Cooperation**


Notification Center, E-mail


We will notify you in the Notification Centre and by e-mail about open cooperations.

 Notification Center

On 


 E-mail


On 


**NetEvents**

Notification Center, E-mail

Choose whether you would like to receive notifications about NetEvents.

 Notification Center

On 

 E-mail


On 

Figure 24: Notification settings

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# 5. Appendix

## 5.1 Products

These products, including their performance data, are displayed in "Alarms & Performance":

- Vodafone Company Net
- Vodafone Switched Ethernet
- Business Internet Connect
- Business Internet Pro with a premium router (Cisco or Huawei)

Operation of the "Performance" tab is independent of the product. Only the available parameters vary depending on the product, see [Table 2: Products and the associated performance parameters.](#)

|                      |                           | Company Net | Switched Ethernet | Internet Connect<br>Business Internet Pro |
|----------------------|---------------------------|-------------|-------------------|---|
| <b>Physical</b>      |                           |             |                   |   |
| General              | Data Volume Receive       | M           | M                 | M   |
|                      | Data Volume Transmit      | M           | M                 | M   |
|                      | Interface In Utilisation  | M           | M                 | M   |
|                      | Interface Out Utilisation | M           | M                 | M   |
|                      | Load Receive              | M           | M                 | M   |
|                      | Load Transmit             | M           | M                 | M   |
|                      | Receive Error             | M           | M                 | M   |
|                      | CPU Usage                 | M           | -                 | M   |
|                      | Memory Usage              | M           | -                 | M   |
| Optical              | Laser BIAS Current        | O           | O                 | O   |
|                      | Optical Power Receive     | O           | O                 | O   |
|                      | Optical Power Transmit    | O           | O                 | O   |
|                      | Optical Temperature       | O           | O                 | O   |
|                      | Optical Voltage           | O           | -                 | O   |
| Mobile radio         | RSSI                      | O           | -                 | O   |
|                      | RSRP                      | O           | -                 | O   |
|                      | RSRQ                      | O           | -                 | O   |
|                      | SNR                       | O           | -                 | O   |
| <b>Logical (VRF)</b> |                           |             |                   |   |
| General              | Data Volume Receive       | M           | -                 | -   |
|                      | Data Volume Transmit      | M           | -                 | -   |
|                      | Interface In Utilisation  | M           | -                 | M   |
|                      | Interface Out Utilisation | M           | -                 | M   |
|                      | Load Receive              | M           | -                 | -   |
|                      | Load Transmit             | M           | -                 | -   |
| Routing protocols    | VPPP status               | O           | -                 | O   |
|                      | BFD status                | O           | -                 | O   |
| QoS                  | QoS Statistics In-Bits    | O           | -                 | O   |
|                      | QoS Statistics Out-Bits   | O           | -                 | O   |
|                      | QoS Dropped Out Packets   | O           | -                 | O   |

M = mandatory, O = optional, - = not available

Table 2: Products and the associated performance parameters

## 5.2 Physical and logical interfaces

### 5.2.1 Physical interfaces

A physical interface is defined as an interface between a router and another system or a telecommunications network. With wireless interfaces, the connection to another system or telecommunications network is established via a wireless channel. In the case of cable-based physical interfaces, the physical interface refers to the system component to which the interface cable is connected.

### 5.2.2 Logical interfaces

A logical interface is linked to a physical interface. It subdivides the resources of a physical interface. It is generally created by configuration and has no physical equivalent of its own.

## 5.3 Definition of the performance parameters

All performance parameters defined in this section are measured in the router at certain times. The measured values are queried from the routers via SNMP, processed in Vodafone's IT systems and then displayed in "Alarms & Performance". The polling interval for the query via SNMP is 2, 5 or 10 minutes, depending on the performance parameter.

### 5.3.1 General parameters

#### 5.3.1.1 Data Volume Receive

This performance parameter is defined as the sum of the bytes received via an interface in the set time window.

Unit: GB (gigabyte)

#### 5.3.1.2 Data Volume Transmit

This performance parameter is defined as the sum of the bytes sent via an interface in the set time window.

Unit: GB (gigabyte)

#### 5.3.1.3 Interface In Utilisation

This performance parameter is defined as the number of data received per second. Instead of the data rate, it is usually referred to as the speed of the incoming data connection ("download speed").

Unit: Mbit/s (megabits per second)

#### 5.3.1.4 Interface Out Utilisation

This performance parameter is defined as the number of data sent per second. Instead of the data rate, it is usually referred to as the speed of the outgoing data connection ("upload speed").

Unit: Mbit/s (megabit per second)



#### **5.3.1.5 Load Receive**

This performance parameter is defined as the ratio of the Interface In Utilisation performance parameter to the nominal data rate of the interface in the receive direction.

Unit: %

#### **5.3.1.6 Load Transmit**

This performance parameter is defined as the ratio of the performance parameter Interface Out Utilisation to the nominal data rate of the interface in the transmit direction.

Unit: %

#### **5.3.1.7 Receive Error**

This performance parameter is defined as the number of faulty IP packets received.

Unit: Pkts (packets)

### **5.3.2 Optical parameters**

#### **5.3.2.1 Laser BIAS Current**

This performance parameter is defined as the direct current with which the operating point of the laser of the optical transmit and receive component is set. This direct current is superimposed on the electrical useful signal. The value can increase as the laser ages. It is therefore a measure to recognise when the laser should be replaced.

Unit: mA (milliampere)

#### **5.3.2.2 Optical Power Receive**

This performance parameter is defined as the power of the received optical signal in relation to the power of one milliwatt.

Unit: dBm (decibel related to one milliwatt)

#### **5.3.2.3 Optical Power Transmit**

This performance parameter is defined as the power of the transmitted optical signal in relation to the power of one milliwatt.

Unit: dBm (decibels in relation to one milliwatt)

#### **5.3.2.4 Optical Temperature**

This performance parameter is defined as the temperature of the optical transmit and receive components.

Unit: °C (degrees Celsius)

#### **5.3.2.5 Optical Voltage**

This performance parameter is defined as the DC voltage of the optical transmitter and receiver component.

Unit: V (Volt)

### 5.3.3 Mobile radio parameters

#### 5.3.3.1 RSRQ (Reference Signal Received Quality)

This performance parameter defines a measure of the quality of the received signal. It is the quotient of the performance of RSRP (see below) and RSSI (see below). If you calculate with the dBm values, it is the difference between RSRP and RSSI.

Unit: dB (decibel)

#### 5.3.3.2 RSSI (Received Signal Strength Indicator)

This performance parameter is defined as the power of the received signal at a mobile radio interface in relation to the power of 1mW. It is a measure of the quality of the received signal and therefore of the quality of the wireless network.

Unit: dBm (decibel in relation to 1 milliwatt)

#### 5.3.3.3 RSRP (Reference Signal Received Power)

This performance parameter is defined as the power of the reference signal received at the LTE mobile radio interface of a mobile end device in relation to the power of 1mW. It is a measure of the quality of the received LTE signal and therefore of the quality of the LTE wireless network.

Unit: dBm (decibel in relation to 1 milliwatt)

#### 5.3.3.4 SNR (signal-to-noise ratio)

This performance parameter indicates how large the signal-to-noise ratio is. It is the quotient of the power of the transmitted signal and the power of the noise - and therefore a measure of the quality of the received signals. In "Alarms & Performance", it describes the SNR on the 4G LTE interface.

Unit: dB (decibels)

### 5.3.4 QoS parameter

QoS stands for "Quality of Service". You can use different QoS classes in the Vodafone network. You need to set this up in your router. To monitor the values of the QoS classes, we have established some performance parameters..

#### 5.3.4.1 QoS Statistics In-Bits Voice/Primary/Advanced/Basic

This performance parameter defines the number of bits received in relation to the QoS class Voice/Primary/Advanced/Basic.

Unit: Mbit

#### 5.3.4.2 QoS Statistics Out-Bits Voice/Primary/Advanced/Basic

This performance parameter defines the number of bits sent in relation to the QoS class Voice/Primary/Advanced/Basic.

Unit: Mbit

#### 5.3.4.3 QoS Dropped Out Packets Voice/Primary/Advanced/Basic

This performance parameter defines the number of discarded IP packets per QoS class Voice/Primary/Advanced/Basic.

Unit: Pkts (Packets)