Broadband Connectivity Service (BBCS)
xDSL-Info Interface Description

Version	19
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Contents

Checklist of changes

Version	Date	Changed by	Comments / nature of the change
15	15.09.2010	HP (Theo Pfaff)	Version WSG-8.2 / Nov10 - formal changes only (no functional changes)
16	27.04.2011	HP	Version WSG-8.4 / Jun11 - updates for ICA Result
17	24.09.2012	HP	Version WSG-9.2 / Oct12
18	31.07.2015	HP	Version WSG-9.13 / Aug15
18	29.10.2015	Roland Staub	Updated classification
19	09.05.2016	HPE	Version WSG-9.16 / May16

Release

Version	Date	Released by	Comments / nature of the change
15	15.10.2010	H. Künzi	Released for WSG-8.2 (Jun 2011)
16	15.10.2011	H.Künzi	Released for WSG-8.4 (Nov 2010)
17	28.10.2012	H.Künzi	Released for WSG-9.2 (Oct 2012)
18	13.08.2015	H.Künzi	Released for WSG-9.3 (Aug2015)
19	11.05.2016	H.Künzi	Released for WSG-9.16 (Mai2016)

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1   General

This document describes the interface to the Swisscom xDSL Info for use by ISPs. The interface provides relevant information concerning BBCS quality parameters. The interface is based on XML SOAP.

2   Purpose of xDSL Info

xDSL Info is an interface which provides measured values and summarized access line information to enable the ISP to improve the trouble-shooting process of BBCS access-lines (all BB-Types on copper as well as on fiber). So that even non-technicians can quickly recognise whether there is a problem with the xDSL connection, information is presented in the same way as traffic lights.

2.1 Information sources

The interface provides relevant information concerning BBCS quality parameters. The information provided by the interface is related to "static" values from Swisscom databases and "dynamic" values measured between the DSLAM and the TP (transfer point).
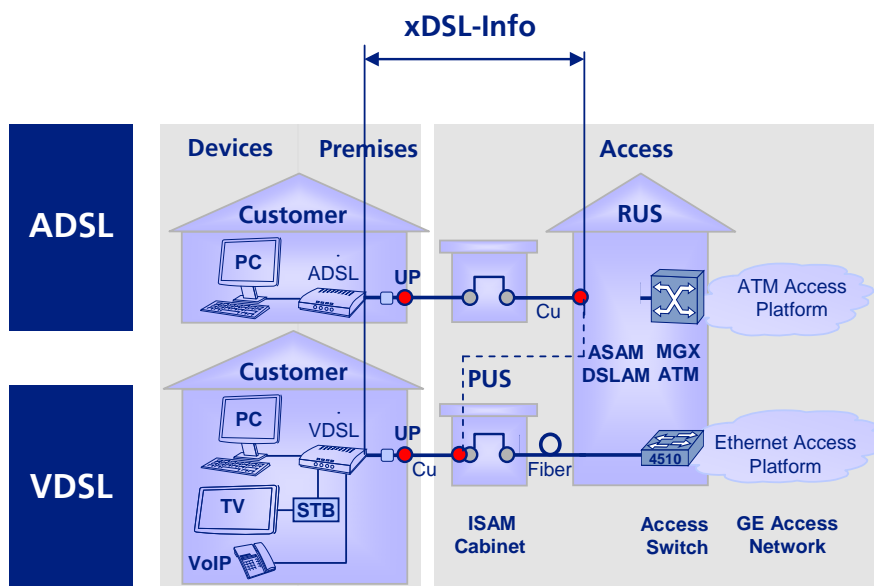

Illustration 2-1 xDSL Info action range

2.2 Advantages of xDSL Check facility

- Provides an improved trouble shooting facility for BBCS access lines and straightforward fault isolation.
- This leads to superior service quality for the end customer.
- Simplifies and enhances problem allocation for to enable action by the ISP.
- Accelerates process flow and hence reduces down time.

- Simplifies communication e.g. from 1st to 2nd level support teams.

3 Interface description

ISPs can access the xDSL Info interface through a web-service based on XML SOAP. How to access the web-service is described in the following "Technical Support Documentation (BBCS Interface Specification)":

→ B2B BBCS Assurance.

Additional information describing the details of the interface can be found on the CUG (Closed User Group) under:

→ https://wholesale.swisscom.com/login/intern/index.jsp?login (General ISP Information)

The interface description is defined in chapter 3.4.

3.1 Information provisioning

Data is collected from the provisioning systems and databases (static information), and additionally measurements for the connection line are also taken (dynamic information). Some values are aggregated to enable a quick statement about the status (see Traffic Light functionality).

The goal is to make the response time as short as possible. The target response time for xDSL info requests is 30 seconds.

3.2 Request limitation

So that the BBCS production systems are not negatively influenced by xDSL info requests, Swisscom (WSG) reserves the right to limit the number of xDSL info requests per unit of time or to turn the service completely off from time to time. Once the threshold values have been attained, requests will be denied.

3.3 Functionality overview

The table below shows the parameters that will be made available over xDSL Info. The columns "static value" and "dynamic value" indicate whether the values are taken from Swisscom databases or whether they are measured between the DSLAM and the TP. The column "input for traffic light" shows the parameters that are used for the traffic light logic.

No.	Parameter	Value	Format / Comment	dynamic value	static value	input for traffic light
1	xDSL Line Status	up	up			
		down	down			
		operational down	The equipment was operationally down			
		administrative down	The equipment was administrative down			
		down - maintenance	The equipment was in maintenance			
		down - loss of signal	Connection was down because loss of signal. OR The CPE is not connected or switched off. (Last show time ended because of loss of signal).	X		X
		down - loss of signal word	Connection was down because loss of signal word.			

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	down - loss of frame	Connection was down because of loss of frame. OR The CPE is not connected or switched off. (Last show time ended because of loss of frame).	
	down - loss of power	Connection was down because of loss of power OR the CPE is not connected or switched off.	
	down - loss of margin	Connection was down because of loss of margin OR the CPE is not connected or switched off. (Last show time ended because of loss of margin).	
	down - loss of line	Connection was down because loss of line. OR the CPE is not connected or switched off. (Last show time ended because of loss of line).	
	down - communication failure	Communication failure, modems do not succeed in successful initialization	
	down - no ATU-R detected	No modem detected at the customer side	

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down - bitrate threshold crossed	Connection was down because of bitrate threshold crossed.	
down - initialization failure	Modem was not able to initialize with requested configuration data	
down - profile error	Error in configuration profile. The modem cannot accept the provided configuration, because of unsupported values, not allowed values or unsupported combinations	
down - configuration not feasible	Configuration not feasible. Structural or temporal line problem	
down - excessive severe errors	Connection was down because of excessive severe errors. OR the CPE is not connected or switched off. (Last show time ended because of excessive severe errors)	
down - no application	No application card was found for the slot	
down - loop attenuation alarm		
down - SNR margin alarm		
down - DC continuity fault		
down - device fault		
down - configuration error		
down - loopback active		
down - SHDSL loss of power		

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		down - non conform				
		down - ATM ncd				
		down - ATM lcd				
		down - CPE Interoperability				
2	Last xDSL Status Change	date	Milliseconds starting from 1 January 1970 00:00:00 UTC	X		
3	spontaneous resyncs (Connection interruptions)	numberOfSpontaneousResyncs	numeric character	X		X
4	Noise Margins	noiseMarginUp noiseMarginDown noiseMarginUnit	Two numeric characters, each in up and down [dB] Signal/noise ratio, between transmitting signal and disturbing signal in the upstream. (Range 0…31dB)	X		X
5	Noise Margins SecondPair	noiseMarginSecondPairUp noiseMarginSecondPairDown noiseMarginSecondPairUnit	Two numeric characters, each in up and down [dB] The noise margin value (2nd wire pair). ???	X	-	X
6	Attainable Bitrates	attainableBitrateUp attainableBitrateDown attainableBitrateUnit	two numeric characters, each in up and down, [kb/s]	X		
7	Actual Bitrate	ActualBitrateUp ActualBitrateDown ActualBitrateUnit	two numeric characters, each in up and down, [kb/s]	X		X

8	Attenuations	attenuationUp attenuationDown attenuationUnit	two numeric characters, each in up and down, [dB] Attenuation in downstream, depending on connection-disposition (Range 0…60dB)	**X**		**X**
9	AttenuationSecondPair	attenuationSecondPairUp attenuationSecondPairDown attenuationSecondPairUnit	two numeric characters, each in up and down, [dB]	X	-	X
10	capacityOccupation	capacityOccupationUp capacityOccupationDown capacityOccupationUnit	two numeric characters, each in up and down, [%]	**X**		
11	BB Type	ADSL VDSL (Technology, Broadband Type) BX	alphabetic characters			**X**

| 12 | Contract Element | ID 110 = BBCS on TDM
ID 120 = BBCS Standalone
ID 420 = BBCS_F (Fiber)
ID 100 = Best Effort
ID 9 = Streaming
ID 12 = Real Time
ID 101 = Best Effort on Fiber | Alphabetic characters
The following values are possible:
ID 110 = BBCS on TDM
ID 120 = BBCS Standalone
ID 420 = BBCS_F (Fiber)

ID 100 = Best Effort
ID 9 = Streaming
ID 12 = Real Time
NOTE: A normal BBCS connection always consists of a Basis Contract Element (BBCS on TDM or BBCS naked) and a Service (Best Effort, Real Time, Streaming). At the B2B interface, the Basis Contract Element is supplied in the field <contrElementId></contrElementId> and the Service Contract Element in the field <contrEleId></contrEleId>. The latter can occur several times if several Services are in use (e.g., Best Effort & Streaming). Service Contract Element is not provided if line belongs to another ISP. | | X | |
| 13 | calculated Line Length (Access line length) | number | numeric characters (in meter) | | X | |

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14	correctionDbLineLength	number	numeric characters (in meter)		X	
15	DN Type	1 = Economy Line 6 = Multi Line STNR 7 = Multi Line MSN 11 = Business Line 13 = Net Services Number	numeric characters		X	
16	DnVnNsn	number	numeric characters Number on which the xDSLInfo-Request was started		X	
17	Interleave Mode	Interleave Medium Fast path	alphabetic characters		X	
18	ISP Id	number	numeric characters		X	
19	ISP Id Provider	number	numeric characters ==Not provided if line belongs to another ISP.==		X	
20	lastStatusChange	date	Date and time with seconds	X		
21	lineStateId	number	numeric characters ==No more provided.==		X	
22	Session Type	DHCP PPP	alphabetic characters		X	
23	Service Profile Description	speedDescriptionService	Description Text (String) e.g.: [max 3500 down / 300 up] NOTE: This is only a Description Field. It is only a text description of the Service Profile. Usually the data is described as above, but it can also be empty. ==Not provided if line belongs to another ISP.==		X	

24	Effective Speed	speedDescriptionEffective speedValueShapingUp speedValueShapingDown	Numeric characters in kb/s These parameters can be found on the B2B interface in the response in the block <services></services> . <mark>Not provided if line belongs to another ISP</mark>.		X	
25	Service Profile	speedValueServiceUp speedValueServiceDown speedProfileNr	Numeric characters (in kb/s) The parameter SpeedProfileNr is conveyed as a pure number. These parameters are to be found at the B2B interface in the response in the block <services></services> . <mark>Not provided if line belongs to another ISP</mark>.		X	
26	Access Profile	Configured speed at the DSLAM (to which the modem synchronises): speedProfileDescription speedProfileName accessSpeedProfileNr technologyType	alphanumeric characters, kbit/second respectively up and down (e.g. "5000 down / 500 up") technologyType: current VDSL technology (VDSL2, VDSL Vectoring or G.FAST)		X	
27	Service Type	flat light	alphabetic characters (string) <mark>Not provided if line belongs to another ISP</mark>.		X	

28	XDSL Info Light	trafficLight: green yellow red	alphabetic characters Includes traffic light logic depending on other parameters --> refer to column "input for traffic light"	X		
29	End Point	dnOffice site bbDeviceLocation	String		X	
		siteCategory	[LOV-ID: 9008]		X	
		AvalableTechnologyTypes	Complex. VDSL technologies which are supported by the DSLAM.		X	
31	OP Status	Status of the Open Pipe	String		X	
32	Fix IP	Configured fix IP Address OR „dynamic"	String	X		
33	Problem Description	Description of the Problem occurred on the access line	String	X		
34	Proposed Repair Action	Proposed Action for fixing or detecting the problem	String	X		
35	Access Network	OK/NOK. Shows if there is a problem on the Access Network at the moment.	string	X		
36	Approximately expected Repair Time	Expected Duration for fixing the Problem on the Access Network in hours.	Numeric value	X		
37	Access Network History	History Records of occurred Problems on the Access Network	List of Parameters		X	
38	Historical Measurement Values	History of Measured values for the access line. Further attributes are: - dslamName - bbLogPortNr - serialNumber (of the CPE) - accessSpeedProfileNr - interleaveMode - psdClass	List of numeric values, LOV values and strings		X	
39	icaResult	analysisDate	Date of last analysis	X		

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			analysisDate24h	Date of last analysis	**X**		
			analysisState	[LOV-ID: 3012] State of last analysis (Finished, Cancel, Abort, Error, ErrorCAN, …)	**X**		
			analysisType	[LOV-ID: 3013] Type of last analysis (SELT, LQD)	**X**		
			problemDetected	[LOV-ID: 3016] Problem detected in last analysis (Yes Impact, Yes Noimpact, No)	**X**		
			potentialAttainBitrateDown	Potential new downstream bitrate after problem fix	**X**		
			potentialAttainBitrateUp	Potential new upstream bitrate after problem fix	**X**		
			potentialAccessProfileNr	Potential access profile after problem fix ([LOV-ID: 1010] speed profile number)	**X**		
			accessSpeedGainDown	Potential net access downstream bitrate gain	**X**		
			accessSpeedGainUp	Potential net access upstream bitrate gain	**X**		
			accessProblemType	[LOV-ID: 3015] Calculated stability problem of the access	**X**		
			bbrSocketInstalled	BBR socket installed	**X**		
			bbrSocketInstallationDate	BBR socket installation date	**X**		

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		icaProblems		X		X
		description	[LOV-ID: 3014] Problem code			
		descriptionText	Problem description			
		confidence	Problem probability in percent			
		impact	Impact description			
		impactAttainBitrateDown	Potential impact on the attainable downstream bitrate			
		impactAttainBitrateUp	Potential impact on the attainable upstream bitrate			
		remainTime	remaining time in minutes during which the line remains blocked			
40	CPE Info	cpeType	String		X	
		cpeName	String		X	
		dslamTypeAllowed	Complex. DSLAM Types(s) which are supported by the CPE.		X	
		Capability	Complex. VDSL technologies which are supported by the CPE overall, by Hardware and by Firmware.		X	
		Comment	String		X	
41	Stability Info	overallStability codingViolationDownstreamStability codingViolationUpstreamStability severelyErrorSecondsDownstreamStability severelyErrorSecondsUpstreamStability spontaneousResyncsStability	StabilityClass [LOV-ID: 1351]	X		X
		attainableActualBitrateRatio	[LOV-ID: 1352]	X		

42	FAN Port State Light	trafficLight: green yellow red	alphabetic characters Includes traffic light logic depending on other parameters --> refer to column "input for traffic light"	X		
43	BB ADSL Emulated	ADSL emulated flag.	[LOV-ID: 0401]		X	
44	Reason of Potential	List of: - potentialCode - potentialDescription	Answers the question: Why is the current Access Speed lower than the maxium?	X		
45	DSLAM Name	Name of the DSLAM	String		X	
46	Network Type	Type of the Network	[LOV-ID: 1315]		X	
47	PSD Class	Power Spectral Density Class	[LOV-ID: 1061]		X	
48	Vectorized	True if current VDSL technology is "VDSL Vectoring".	Boolean		X	
49	BB Port Line Type	Type of BB Port (analogue/digital)	[LOV-ID: 1353]		X	

Table 3-1 Functionality overview

Please Note:

Values from certain parameters must lie within a certain range so that the quality of the access line can be ensured. The corresponding thresholds may be fine-tuned based on empirical values during the pilot phase and are not listed here for that reason. In addition, combinations of various values (e.g., line lengths, noise margins, attainable bitrates, and attenuations) and not just individual values may sometimes be considered for a qualitative statement about the access line.

3.3.1   DSL Line Status / Synchronisation

As soon as the xDSL connection between ATU-C and ATU-R reaches a steady synchronisation state (> 3-4 minutes), the line is good. The line can only be synchronized if the line characteristics are in a "valid" range.

3.3.2   Noise Margin for Upstream (NM_UP)

The noise margin is a very significant parameter for determining the quality of the line. The height of the noise margin is primarily dependent upon the ADSL bitrate (defined in the "ADSL Line Profile").

The upstream noise margin (NM_UP) is a more precise indicator than the downstream noise margin (NM_DN) because the variation around a given average is typically smaller.

If the line is to be synchronised, the NM_UP must be at least 6dB. During operation, this can fall to 0dB. A NM_UP of at least 9 dB typifies a line that is good.

3.3.3   Noise Margin for Downstream (NM_DN)

As previously mentioned, the NM_DN is less precise than the NM_UP. In addition, the downstream noise margin is sometimes influenced by the hardware used at xDSL terminals.

If the line is to be synchronised, the NM_DN must be at least 6dB. During operation, this can fall to 0dB. A NM_DN of at least 10 dB typifies a line that is good.

3.3.4   Attenuation for Upstream (Att_UP)

The Att_UP is a value for the upstream line attenuation. The values for the Att_UP are more meaningful, since the variation around the average is smaller than with downstream (Att_DN).

3.3.5   Attenuation for Downstream (Att_DN)

The Att_DN is a value for the downstream line attenuation. The downstream values can vary significantly, depending on the xDSL terminal. For this reason, these values are imprecise.

3.3.6   Attainable Bitrate for Upstream (AttBR_UP)

The AttBR_UP gives the maximum possible upstream bitrate that can be attained on an xDSL line. In most cases, the AttBR_UP approaches the maximum value.

3.3.7   Attainable Bitrate for Downstream (AttBR_DN)

The AttBR_DN gives the maximum possible downstream bitrate that can be attained on an xDSL line.

3.3.8   Actual Bitrate for Upstream (AttBR_UP)

The AttBR_UP gives the upstream bitrate that is configured for the current line on the DSLAM.

3.3.9   Actual Bitrate for Downstream (AttBR_DN)

The AttBR_DN gives the downstream bitrate that is configured for the current line on the DSLAM.

3.3.10   Spontaneous Resyncs

The value gives information about brief connection interruptions on the line for the previous day(s). This value is used to determine the traffic light colour.

3.3.11   DN Office

This attribute shows the corresponding DN Central Office.

3.3.12   BB Device Location

Shows the Broadband Device Location where the DSLAM is located. The Broadband Device Location could be a part of the DN Office.

3.3.13   Site Category

Shows the SiteCategory where the DSLAM is located

3.3.14   OP Status

Shows the Open Pipe status and refers to the status of the open pipe from the access line of the requested DN. (Open Pipe = every connection is activated with the maximum possible speed and then optimised to the respective subscription speed)

3.3.15   Fix IP

Shows the customer's fixed IP address (if there is one) or "dynamic" (if there is no fixed IP). The value will be displayed regardless of problems at the customer's end in getting the IP because it is read from the configuration at Swisscom's end and not "measured" in real time at the customer's CPE.

3.3.16   Problem Description

Describes the problem on the access line.

3.3.17   Proposed Repair Action

A suggestion of what might be done to fix or encapsulate the problem in detail. This value is based on experience.

3.3.18 AccessNetwork

Shows whether there is a pending problem on the access network.

3.3.19 Approximately expected Repair Time

This is a value based on experience. Normally the actual access network problem should be resolved within this time.

3.3.20 Access Network History

Each entry in this list shows a previous access network problem with start and end date/time.

3.3.21 Historical Measurement Values

This list shows the measurement values for the access line for the last couple of days.

3.4   Interface description / definition

The interface Description can be found in the ZIP File provided wsgTt_v**.*.*.zip and the corresponding B2B Documentation B2B_BBCS_Assurance_V*.pdf

Traffic light functionality

So that non-technicians can quickly recognise whether there is a problem with the xDSL connection, information is presented in the same way as a traffic light. The current status is displayed in colour. The goal is to identify the cause of the malfunction by interpreting information about the xDSL connection so as to quickly correct the error. (Focus on customer side; focus on ISP-side; focus on FWS side; open a Trouble-Ticket; dispatch to 2nd level support, etc.)
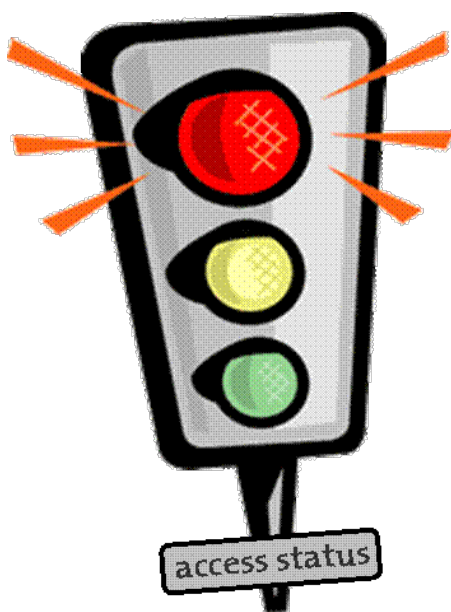
Red:

- A problem occurred on the xDSL access-line

Yellow:

- No clear automatic classification possible

- Detailed analysis of additional access-line information is required

Green:

- Synchronization of access is OK, line attenuation within recommendation.

- Problem might be:

  - a BBCS defect but not in the access area

  - customer side: wiring, CPE, PC, config.

- ISP side: login, connectivity, config.

Illustration 3-1: Traffic light

This takes only data from the DSL part into consideration. Parameters from layers 2 and 3 are not evaluated for the traffic light indication.

Conditions:
Customer modem is installed and turned on.

3.5 Traffic light logic

Displayed below are the parameters that define the traffic light function. These parameters are adjustable.

Please note:

- Adjustments to the traffic light logic are subject to change without notice in order to improve the informative value of the traffic light functionality.

- Additional parameters will further improve the informative value of the traffic light functionality in the future. (e.g., DSLAM failure, etc.)

- Major or local malfunctions in the IPSS network are not reflected in the traffic light logic.

Ambiguity:

If the traffic light colour **cannot be clearly** established, or not at all established, then an exception occurs. The WSG error message D83 appears in the GUI or is conveyed to the caller of the xDSL info service.

The following rules determine the traffic light colour (BbType dependent):

3.5.1 ADSL

Ergebnis	Nr.	Regel

(green light)	1	(LineUp = true)
		
		AND (
		        (noiseMarginUp >= 6)
		AND (noiseMarginDown >= 6)
		AND (actualBitrateUp <= attainableBitrateUp)
		AND (actualBitrateDown <= attainableBitrateDown)
		AND (attenuationUp <= 60)
		AND (attenuationDown <= 60)
		AND (numberOfSpontaneousResyncs < 2))
		
		OR
		
		(LineUp = false)
		
		AND (
		        (problem.description = "INFL (inflex, actual rate smaller than planned)"))

(yellow light)	2	(LineUp = true) **AND (** (noiseMarginUp < 6) OR (noiseMarginDown < 6) OR (actualBitrateUp > attainableBitrateUp) OR (actualBitrateDown > attainableBitrateDown) OR (numberOfSpontaneousResyncs >= 2)) **OR**

Ergebnis	Nr.	Regel
<td style="background-color:yellow"></td>		(LineUp = false) **AND (** (BT (BridgeTap)) OR (DC (Degraded Contact)) OR (MS (Missing Splitter)) OR (MA (Missing Splitter on alarm system (Business-Entscheid))) OR (IF (External Interference detected)) OR (IC (Intermittent contact)) OR (LU (Loop unbalanced)) OR (UT (Untwisted in-house wiring)) OR (VN (Time varying noise (crosstalk and RFI))) OR (CP (CPE interoperability problem)) OR (BL (Black-listed CPE)) OR (AC (Abnormal crosstalk)) OR (BO (BridgeTap on overhead line)) OR (CONF (network element configuration issue)) OR (CPS (CPE silent)) OR (CPF (CPE failed)) OR (CSD (connection status down)) OR (CPCO (CPE silent and/or configration issue on the line and/or line is interrupted.)) OR (CPSP (CPE silent because of loss of power)) OR (CPSS (CPE silent because of loss of signal)) OR (CPSC (CPE silent because of initialization failure)) OR (CPSF (CPE silent because of loss of frame.)) OR (OI (Other unknown (not mapped) impact)))
	3	(LineUp = false) **AND (** (RG (Rogue Line)))
Fehlermeldung D83		Else

Table 4-1 Traffic light depiction – specific parameters for ADSL

3.5.2   VDSL

Ergebnis	Nr.	Regel
	1	(LineUp = true) **AND (** (OverallStability = 3 (OR NULL)) AND (noiseMarginUp >= 6) AND (noiseMarginDown >= 6)) **OR**

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Ergebnis	Nr.	Regel
■■■		(LineUp = false) **AND (** (problem.description = "INFL (inflex, actual rate smaller than planned)"))

■■■	2	(LineUp = true)
		
		AND (
		    (OverallStability = 2)
		OR (noiseMarginUp < 6)
		OR (noiseMarginDown < 6))
		
		OR
		
		(LineUp = false)
		
		AND (
		    (BT (BridgeTap))
		OR (DC (Degraded Contact))
		OR (MS (Missing Splitter))
		OR (MA (Missing Splitter on alarm system (Business-Entscheid)))
		OR (IF (External Interference detected))
		OR (IC (Intermittent contact))
		OR (LU (Loop unbalanced))
		OR (UT (Untwisted in-house wiring))
		OR (VN (Time varying noise (crosstalk and RFI)))
		OR (CP (CPE interoperability problem))
		OR (BL (Black-listed CPE))
		OR (AC (Abnormal crosstalk))
		OR (BO (BridgeTap on overhead line))
		OR (CONF (network element configuration issue))
		OR (CPS (CPE silent))
		OR (CPF (CPE failed))
		OR (CSD (connection status down))
		OR (CPCO (CPE silent and/or confdigration issue on the line and/or line is interrupted.))
		OR (CPSP (CPE silent because of loss of power))
		OR (CPSS (CPE silent because of loss of signal))
		OR (CPSC (CPE silent because of initialization failure))
		OR (CPSF (CPE silent because of loss of frame.))
		OR (OI (Other unknown (not mapped) impact)))

■■■	3	(LineUp = true)
		
		AND (
		    (OverallStability = 1))
		
		OR
		
		(LineUp = false)
		
		AND (
		    (RG (Rogue Line)))

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Table 4-2 Traffic light depiction – specific parameters for VDSL

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3.5.3   SDSL

Ergebnis	Nr.	Regel

🟢	1	(LineUp = true)
		
		AND (
		     (noiseMarginUp >= 6)
		AND (noiseMarginDown >= 6)
		AND (actualBitrateUp <= attainableBitrateUp)
		AND (actualBitrateDown <= attainableBitrateDown)
		AND (numberOfSpontaneousResyncs < 2))
		
		OR
		
		(LineUp = false)
		
		AND (
		    (problem.description = "INFL (inflex, actual rate smaller than planned)"))

🟡	2	(LineUp = true)
		
		AND (
		    (noiseMarginUp < 6)
		OR (noiseMarginDown < 6)
		OR (actualBitrateUp > attainableBitrateUp)
		OR (actualBitrateDown > attainableBitrateDown)
		OR (numberOfSpontaneousResyncs >= 2))
		
		OR
		
		(LineUp = false)
		
		AND (
		    (BT (BridgeTap))
		OR (DC (Degraded Contact))
		OR (MS (Missing Splitter))
		OR (MA (Missing Splitter on alarm system (Business-Entscheid)))
		OR (IF (External Interference detected))
		OR (IC (Intermittent contact))
		OR (LU (Loop unbalanced))
		OR (UT (Untwisted in-house wiring))
		OR (VN (Time varying noise (crosstalk and RFI)))
		OR (CP (CPE interoperability problem))
		OR (BL (Black-listed CPE))
		OR (AC (Abnormal crosstalk))
		OR (BO (BridgeTap on overhead line))
		OR (CONF (network element configuration issue))
		OR (CPS (CPE silent))
		OR (CPF (CPE failed))
		OR (CSD (connection status down))
		OR (CPCO (CPE silent and/or configration issue on the line and/or line is interrupted.))
		OR (CPSP (CPE silent because of loss of power))
		OR (CPSS (CPE silent because of loss of signal))
		OR (CPSC (CPE silent because of initialization failure))
		OR (CPSF (CPE silent because of loss of frame.))
		OR (OI (Other unknown (not mapped) impact)))

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Ergebnis	Nr.	Regel
🔴	3	(LineUp = false) **AND (** 　　　(RG (Rogue Line)))
Fehlermeldung D83		Else

Table 4-1 Traffic light depiction – specific parameters for SDSL

3.5.4　BX

Ergebnis	Nr.	Regel
🟢	1	(LineUp = true)
🟡	2	(LineUp = false) **AND (** 　　　(XANPortStatus.ifoperstatus.testing) OR　　(XANPortStatus.ifoperstatus.unknown) OR　　(XANPortStatus.ifoperstatus.dormant) OR　　(XANPortStatus.ifoperstatus.notPresent) OR　　(XANPortStatus.ifoperstatus.lowerLayerDown))
🔴	3	(LineUp = false) **AND (** 　　　(XANPortStatus.ifoperstatus.down))
Fehlermeldung D83		Else

Table 4-1 Traffic light depiction – specific parameters for BX

3.6 Explanations for the attributes used

The following table contains descriptions for the parameters used:

Parameter	Data	Description
DSL Line Status	administrative down	Admin down, there is an alarm on the DSLAM side.
	maintenance	Maintenance is an alarm on the DSLAM side.
	Loss of line	Admin down, maintenance, and profile error are alarms on the DSLAM side.
	Loss of signal or frame or link	Comm. and init. failures occur if the modem cannot quite be synchronized.
	Loss of power	Power loss
	No ATU-R detected	"No ATU-R detected" means the DSLAM does not recognize a remote modem, i.e. there is a disconnection, which can either occur on the customer's end or in the HV/copper.
	Bit rate threshold crossed	"Bitrate threshold crossed" means less access speed in flex mode (actual < max) => not an alarm.
	profile error	Profile error is an alarm on the DSLAM side.
Last status change	Date, milliseconds started from 1.1.1970, 00:00:00 UTC	Displays if the last connection status has changed.
Number of "spontaneous" resyncs	number	Spontaneous resyncs from the previous day only => ask customer, if modem from previous day was temporarily turned off
Noise Margins	two numeric characters each up and down in dB	Current data from the network. Data is only available if the line was synchronized.
Attainable bitrates	two numeric characters each up and down in kb/s	Current data from the network. Data is only available if the line was synchronized.
Actual bitrates	two numeric characters each up and down in kb/s	Current data from the network. Data is only available if the line was synchronized.
Attenuations (Modem)	two numeric characters each up and down in dB	Modem attenuation not considered for the analysis

Table 3-2 : Description of parameters for the traffic light depiction

4 xDSLInfo GUI

On the Web Service Gateway (WSG) the xDSLInfo can be used as a GUI function under the Trouble Ticket service part.
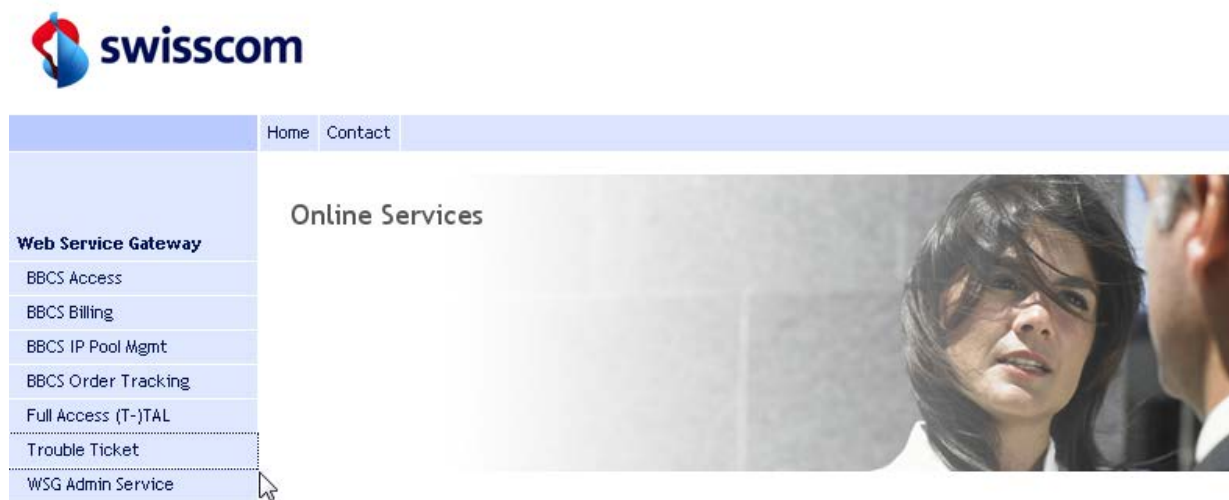

Illustration 4-1: Online Service GUI Window

4.1 Entrance into xDSLInfo

Access to "xDSLInfo" is via the Trouble Ticket part of WSG.

Illustration 4-2: WSG Trouble Ticket GUI Window

The ISP has the option of selecting from two functions.
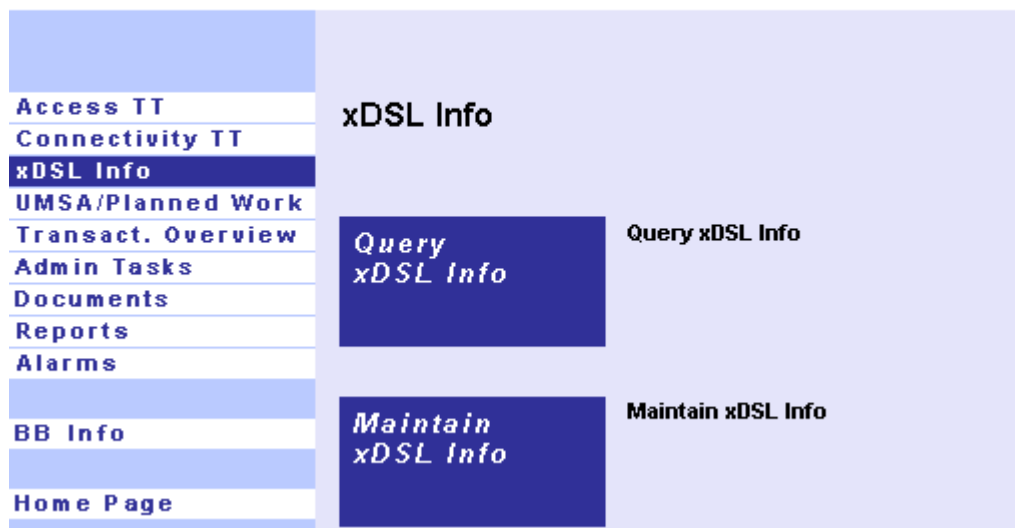

Illustration 4-3: WSG GUI xDSLInfo Window

4.2   Query xDSLInfo

The "Query xDSLInfo" function is the main function of xDSLInfo. Measurement is initiated using this function. The entry window can be opened with a mouse click.
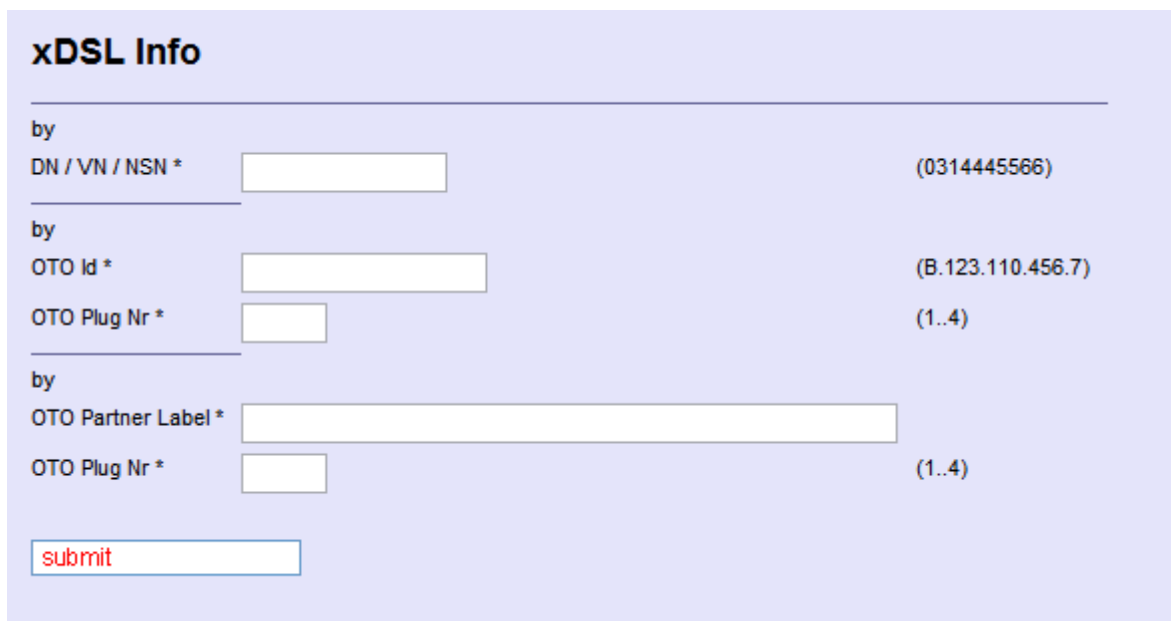

Illustration 4-4: xDSLInfo input window

In this window, the agent can enter the telephone number (DN) or NSN for which values are to be obtained. The entry format is the area code including the zero and then the telephone number. All digits must be entered without spaces.

Pressing the 'submit' button initiates measurement.

Measurement results are shown in the GUI as follows. The picture below shows a measurement that has been conducted for the first time for this telephone number. If another measurement is taken by pressing the 'refresh' button, the GUI shows the results of both measurements next to one another. If measurements are repeated multiple times, the last two measurements are shown. If the measurement was conducted more than one week earlier, only the current measurement will be displayed.

Under certain conditions, the Network Analyser reports various statuses, which result in the measurement not being carried out completely. xDSLInfo then reports;

1. PORT_NR provided in Unity answer for GetServiceStatus is invalid: Not possible to complete the NA request due to data inconsistency. Please contact SPOC BBCS.

2. Card not installed.

3. DSLAM is not reachable/down.

4. No Board Installed in Slot or No card installed in the slot on the DSLAM.

5. Max. # of xDSL-Info requests for the last 60 minutes reached. Please try again later.
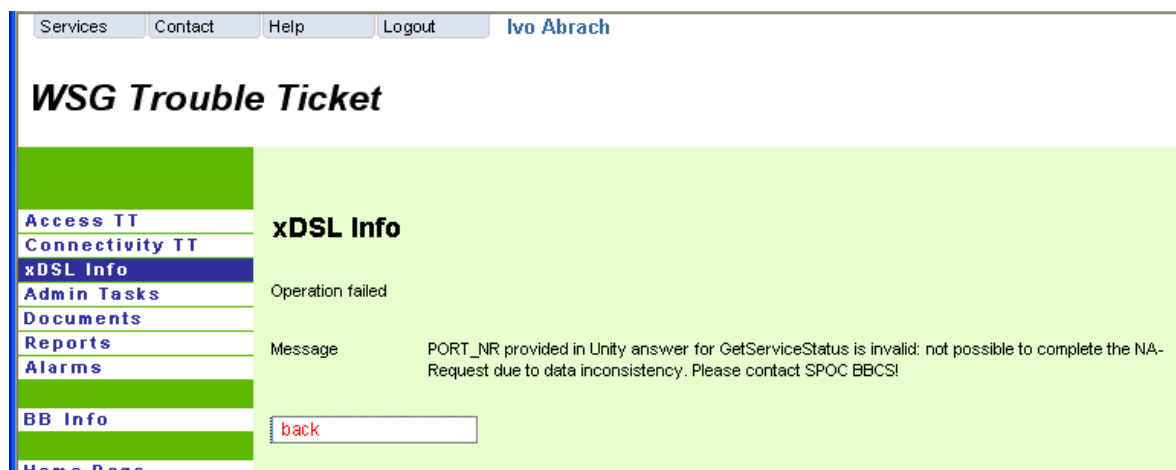

Illustration 4-5: xDSLInfo Operation Failed information

Message 1 is sent by xDSLInfo in the event of data inconsistency. This should only occur in exceptional cases.

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In the case of messages 3 and 4 there is an alarm or a problem on an active element (DSLAM or card). In these cases it can be assumed that troubleshooting is in process.

Message 5 shows up when the ISP has started more xDSLInfo measurements as specified. If such a message shows up several times please contact your Account Manager, to check if the counter could be raised.

The xDSLInfo result will be displayed in three different windows. These are:

- xDSLInfo
- Alarms
- Measure History
- CPE Info
- Day Charts
- 15 Min. Charts

The values shown are described in chapter 3.3 Functionality overview. The traffic light function is described in chapter 3.5.

xDSL Info

ISP   100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN 0314445566

back	refresh	Transaction Overview	create ticket	modify access profile

start LQD 24hrs	start LQD 2min	start Profile CP	start Profile CPSI	start Resync Line	start Reconfig Line

xDSL Info | Alarms | Measure History | CPE Info | Inactive Endpoint | Day Charts | 15 Min. Charts

Request Date/Time	06/05/2016 10:31:14	06/05/2016 09:10:48
Response Date/Time	06/05/2016 10:31:18	06/05/2016 09:10:52
User name	SU SC-TT	ISP User
TIBCO/NC-CIA	OK	OK
NA	OK	OK
Line State Id	23684239	23684238
BB Type	VDSL	VDSL
BB ADSL Emulated	-	-
Contr Element	BBCS_on_TDM	BBCS_on_TDM
Dn Type	Multi Line	Multi Line
BB Port Line Type	dig	dig
Interleave Mode	Interleave Medium	Interleave Medium
Session Type	DHCP	DHCP
Access Speed	50000 down / 10000 up	50000 down / 10000 up
Access Speed Southbound	-	-
DN Office	64BEMN	64BEMN
BB Device Location	BEMN	BEMN
Site	BEMN	BEMN
Site Category	RUS	RUS
Available Technology Type	VDSL2, VDSL Vectoring	VDSL2, VDSL Vectoring
DSLAM Name	IPC-SUR710-S-DM-04	IPC-SUR710-S-DM-04
Technology Type	VDSL Vectoring	VDSL Vectoring
Vectorized	Yes	Yes
Op Status	Open Pipe Exception	Open Pipe Exception
Reason of Potential	1000 - Pending upgrooming	1000 - Pending upgrooming
Network Type	-	-
BB Psd Class	Spec_VDSL2_17a	Spec_VDSL2_17a
	Best Effort	Best Effort
Service Type	-	-
Service Profile	max 20000 down / 1000 up	max 20000 down / 1000 up
	Real Time	Real Time
Service Type	-	-
Service Profile	ENABLING	ENABLING
Traffic_Light	🟢	🟢
xDSL Line Status	up	up
Problem description	Degraded Contact	Degraded Contact
Proposed Repair Action	If the stability and performance is ok, then do nothing. Else check and correct the inhouse cabling (install broad band ready).	If the stability and performance is ok, then do nothing. Else check and correct the inhouse cabling (install broad band ready).
Problem description	BridgeTap	BridgeTap
Proposed Repair Action	If the stability and performance is ok, then do nothing. Else check and correct the inhouse cabling (install broad band ready).	If the stability and performance is ok, then do nothing. Else check and correct the inhouse cabling (install broad band ready).

Stability Info	Overall Stability	good stability/quality	good stability/quality
	Coding Violation Down	good stability/quality	good stability/quality
	Coding Violation Up	good stability/quality	good stability/quality
	Severely Error Seconds Down	good stability/quality	good stability/quality
	Severely Error Seconds Up	good stability/quality	good stability/quality
	Spontaneous Resyncs	bad stability/quality	bad stability/quality
	Attainable Actual Bitrate Ratio	High Margin	High Margin
	Last Status Change Date/Time	01/01/1970 01:00:00	01/01/1970 01:00:00
Parameter	Noise Margin up	11.1 db	11.1 db
	Noise Margin down	14 db	14 db
	Actual Bit Rate up	16504 kb/s	16504 kb/s
	Actual Bit Rate down	55040 kb/s	55040 kb/s
	Attainable Bit Rate up	23728 kb/s	23728 kb/s
	Attainable Bit Rate down	83904 kb/s	83904 kb/s
	Attenuation up	16.8 db	16.8 db
	Attenuation down	14.8 db	14.8 db
	Capacity Occupation up	64 %	64 %
	Capacity Occupation down	81 %	81 %
ICA Result	Last Analysis Data/Time	15/03/2016 14:46:15	15/03/2016 14:46:15
	Last Analysis 24h Date/Time	10/03/2016 14:46:15	10/03/2016 14:46:15
	ICA Analysis State	NotAvailable	NotAvailable
	ICA Analysis Type	LQD	LQD
	ICA Problem Detected	No problem detected	No problem detected
	Potential Attain Bitrate Down	-1	-1
	Potential Attain Bitrate Up	-1	-1
	Potential Access Profile	ENABLING	ENABLING
	Access Speed Gain Down	-1	-1
	Access Speed Gain Up	-1	-1
	ICA Access Problem Type	no problem	no problem
	BBR Socket Installed	N	N
	BBR Socket Installation Date	01/01/1970 02:00:00	01/01/1970 02:00:00
ICA Problem	Problem Id	4445149	4445147
	Description	Degraded Contact	Degraded Contact
	Description Text	Degraded Contact	Degraded Contact
	Confidence	91	91
	Impact	reduced.attainable.rate.us.ds.quantified 6968 1528 kb/s	reduced.attainable.rate.us.ds.quantified 6968 1528 kb/s
	Impact Attain Bitrate Down	0	0
	Impact Attain Bitrate Up	0	0
	Remaining Time (min)	-	-

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Problem Id	4445148	4445146
Description	BridgeTap	BridgeTap
Description Text	BridgeTap	BridgeTap
Confidence	90	90
Impact	reduced.attainable.rate.us.ds.quantified 6968 1528 kb/s	reduced.attainable.rate.us.ds.quantified 6968 1528 kb/s
Impact Attain Bitrate Down	0	0
Impact Attain Bitrate Up	0	0
Remaining Time (min)	-	-
Calculated Line Length	862	862
Correction DB Line Length	872	872
Number of Spontaneous Resyncs	12	12

back	refresh	Transaction Overview	create ticket	modify access profile
start LQD 24hrs	start LQD 2min	start Profile CP	start Profile CPSI	start Resync Line	start Reconfig Line

Illustration 4-6: xDSLInfo Result window

DSLAM status display in Alarms window

At the same time, the status of the DSLAM for this subscriber will also be displayed to the ISP. Not only is the current status displayed but also the history. This is also valid for BBCS-F.

Illustration 4-7: xDSLInfo Alarm window

If there is an alarm (DSLAM or card or BNG) on an active element in the Access network and it is displayed by xDSLInfo in the form of "Access Network NOK", the ISP does not need to send a TT to Swisscom because we are aware of these types of errors.

At the same time, we will also display the estimated repair time. It can be assumed that after this time the error will have been corrected.

If the ISP's customer experiences a defect that occurred in the past, the ISP can check at the same time whether an alarm was previously issued. If so, it is necessary to check whether the customer's service history shows all alarms on the DSLAM or on the card or the BNG within the past seven days.

Display of history values in the "Measure history" window

Moreover, once it has initiated the first query, the ISP can display the historical values. The following attributes are displayed in the history query:

- MEASURED DATE / TIME
- DSLAM NAME

- LOGICAL PORT
- SPONTANEOUS RESYNCS
- CODING VIOLATIONS
- NOISE MARGIN
- ACTUAL BITRATES
- ATTAINABLE BITRATES
- ATTENUATION
- SERIAL NUMBER
- ACCESS SPEED
- INTERLEAVE MODE
- BB PSD CLASS

Illustration 4-8: xDSLInfo measure history window

Experience has shown that when the following values were exceeded, the quality of the line values was inadequate.

From the current point of view, if the values listed below are exceeded, it can be assumed that the quality of line for the corresponding service is impaired.

- Class3 (Service Type Streaming)
  - <=1 Resync per day (average per measurement period)
  - 500 CV / Mbit/s / day (average per measurement period)

- Class2 (Service Type Real Time)
  - <=4 Resync per day (average per measurement period)
  - 2000 CVs / Mbit/s / day (average per measurement period)

- Class1 (Service type Best Effort)
  - <=7 Resync per day (average per measurement period)
  - 10,000 CVs / Mbit/s / day (average per measurement period)

The following rule of thumb will be applied for the interpretation of the values:

- The coding violations (CV) limit is not exceeded, the resync limit is exceeded:
  In this case, it can be assumed that the error has been caused by a splitter in the in-house installation.

- The coding violations (CV) limit in the upstream has been exceeded:
  If the customer has an access profile greater than 20 Mbits/sec, the line quality can be achieved by downgrading the access profile: Otherwise the line between UP and modem will have to be checked.

- The coding violations (CV) limit in the downstream has been exceed:
  The line between UP and modem should first be checked. If this does not resolve the situation, the fault must be remedied by downgrading the access.

Comments:
Unfortunately, it is not possible to determine by means of measurement values whether the fault in the line is within the apartment building or the apartment's wiring. In addition, please note chapter 5 "Home- and facility-installation". We distinguish between three areas: home network, facility installation and home installation.

If the CVs (coding violations) and resyncs exceed limits, the CVs will override the resyncs in localizing of the possible fault.

CPE Info window

This window displays information about the CPE (newest data is displayed on the left side; data of the previous most recent xDSL-Info request is displayed on the right side, if available):

| xDSL Info | Alarms | Measure History | **CPE Info** | Inactive Endpoint | Day Charts | 15 Min. Charts |

| CPE Info | CPE Name | Motorola HGW5 7347-44-20SC WIAD "CPE5 WIAD (POTS)", FW 7.8.6r5, IKNS r71 | | | | Motorola HGW5 7347-44-20SC WIAD "CPE5 WIAD (POTS)", FW 7.8.6r5, IKNS r71 | | | |

Left side:

DSLAM Type Allowed		
Technology	Dslam Type	
ADSL	ISAM, CAN	

Capability			
Technology Type	Capability Overall	Capability Hardware	Capability Firmware
VDSL2	capable	no	yes
VDSL Vectoring	forced friendly	yes	yes, but SFP needed
G.FAST	disturber	no	yes, but SFP needed

Right side:

DSLAM Type Allowed		
Technology	Dslam Type	
ADSL	ISAM, CAN	

Capability			
Technology Type	Capability Overall	Capability Hardware	Capability Firmware
VDSL2	capable	no	yes
VDSL Vectoring	forced friendly	yes	yes, but SFP needed
G.FAST	disturber	no	yes, but SFP needed

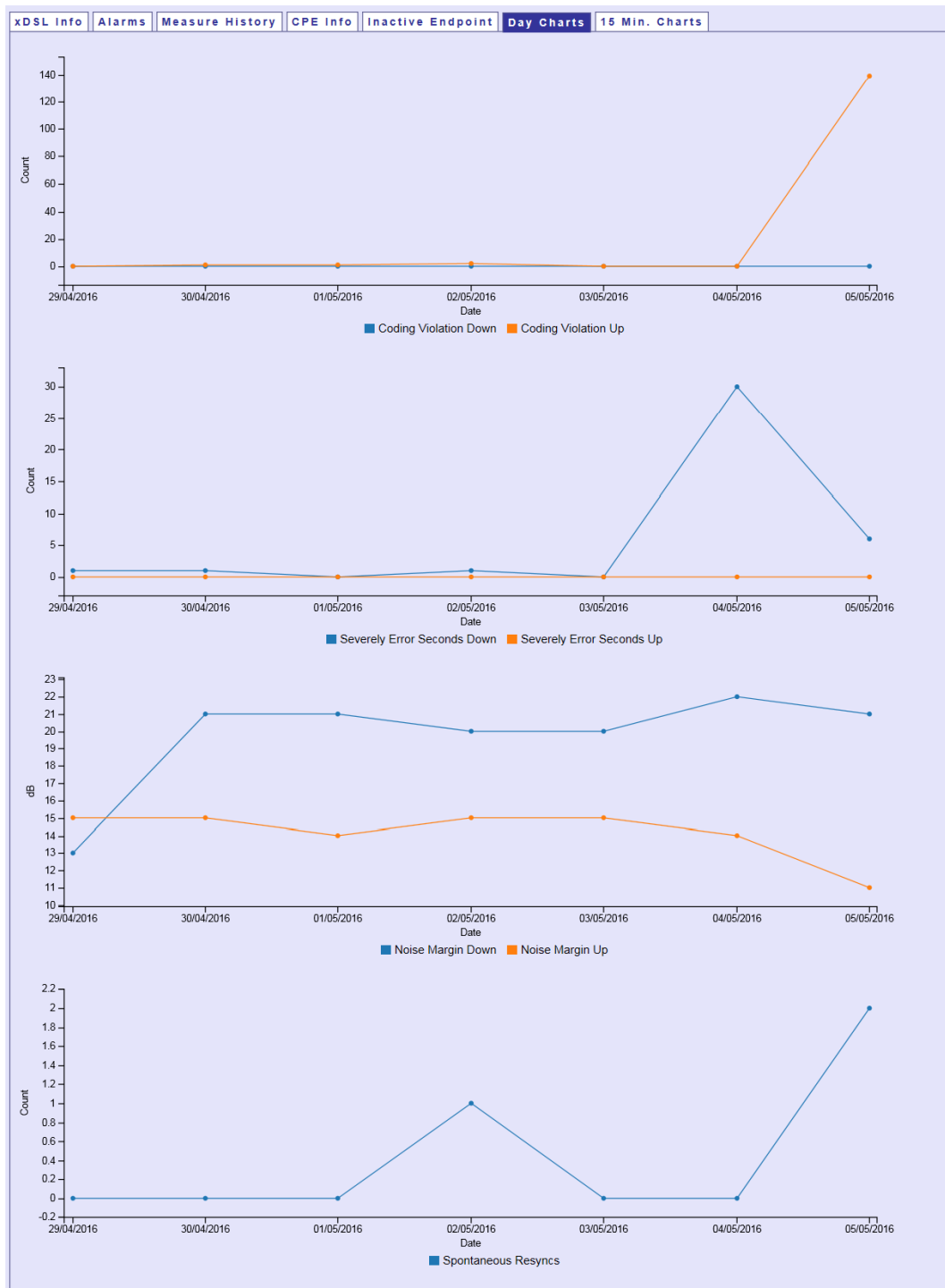|		Left	Right
	CPE Comment	CPE Info Comment	CPE Info Comment
	CPE Type	ADB V226N1 Centro Grande	ADB V226N1 Centro Grande
Vectoring	Current Vectoring Group	D06:2	D06:2

Inactive Endpoint window

This window displays information about inactive endpoint(s), if available:

| xDSL Info | Alarms | Measure History | CPE Info | **Inactive Endpoint** | Day Charts | 15 Min. Charts |

Inactive Endpoint 1	Tax Region	71	71
	BB Device Location	SRDLI	SRDLI
	Site Category	RUS	RUS
	DSLAM Name	IPC-SUR710-S-DM-05	IPC-SUR710-S-DM-05
	BB Splitter Port	04-546	04-546
	BB Logical Port	XXXX-1-3-6-18	XXXX-1-3-6-18
	BB Port Type	BBDIG	BBDIG
	BB Port Technology	adsl	adsl
	BB Port Line Type	ana	ana
	BB Port Active State	active	active
	BB Port Block State	free	free
	Dslam Type	ASAM	ASAM
	Network Type	EAP	EAP
Inactive Endpoint 2	Tax Region	71	71
	BB Device Location	SRDLW	SRDLW
	Site Category	AVE	AVE
	DSLAM Name	IPC-SUR710-S-DM-08	IPC-SUR710-S-DM-08
	BB Splitter Port	04-548	04-548
	BB Logical Port	XXXX-1-3-6-28	XXXX-1-3-6-28
	BB Port Type	BBDIG	BBDIG
	BB Port Technology	adsl	adsl
	BB Port Line Type	ana	ana
	BB Port Active State	active	active
	BB Port Block State	free	free
	Dslam Type	ASAM	ASAM
	Network Type	EAP	EAP

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Day Charts window

If the corresponding Historical Measurement Values are availabe, WSG is displaying charts of some interesting Daily Counters of the last 7 days:

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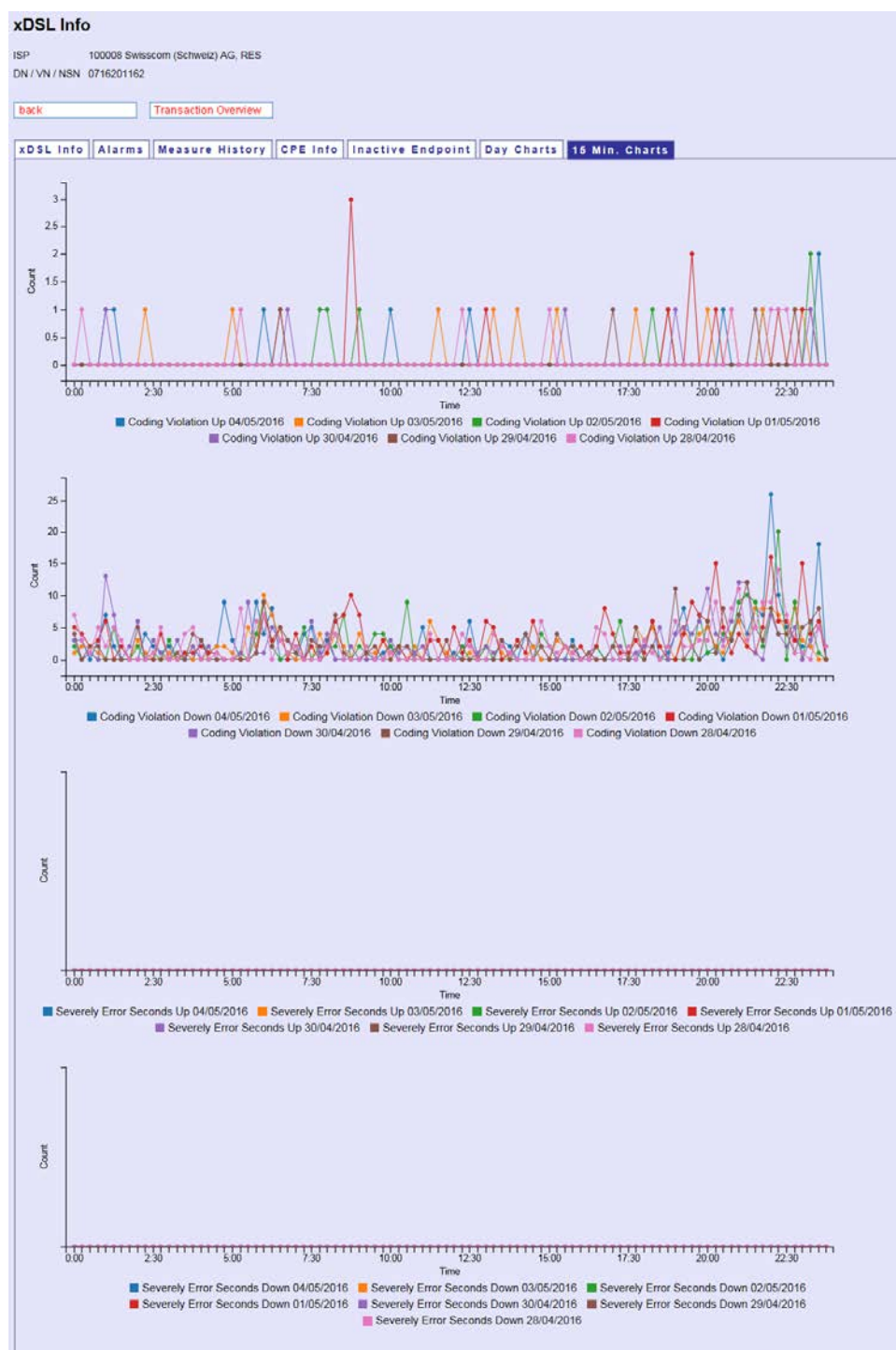
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15 Min. Charts window

If the corresponding Historical Measurement Values are availabe, WSG is displaying charts of some interesting 15 Minutes Counters of the last 7 days:

Line Status, Problem Description & Proposed Repair Action

A possible "problem description" and a possible "proposed repair action" will be displayed to the IPS by the NA.

Problem description	Degraded Contact
Proposed Repair Action	If the stability and performance is ok, then do nothing. Else check and correct the inhouse cabling (install broad band ready).
Problem description	BridgeTap
Proposed Repair Action	If the stability and performance is ok, then do nothing. Else check and correct the inhouse cabling (install broad band ready).

Illustration 4-9: xDSLInfo Problem Description & Proposed Repair Action

This information should be helpful to the ISP in localizing the error. Information will not be displayed in all cases, however, but in individual cases it can prove helpful.

4.2.1 Displaying open tickets or orders

Illustration 4-10 Command line

If open tickets or orders are available, they can be displayed using the "transaction overview" function.

Illustration 4-11 Access Trouble Ticket Summary Window

By selecting the details, the ticket details are displayed for the agent. If the ISP opens another ticket, the old ticket ID should be given as well.

4.2.2   Triggering a Trouble Ticket

back	refresh	Transaction Overview	create ticket	modify access profile
start LQD 24hrs	start LQD 2min	start Profile CP	start Profile CPSI	start Resync Line	start Reconfig Line

Illustration 4-12 Command line

If an error makes it necessary to open a WSG ticket, this can be done directly from the xDSLInfo GUI. To accomplish this, one must use the command "create ticket".

If there are tickets that have not yet been completed, the following window will appear:

Microsoft Internet Explorer

There is already at least one ticket registered with this DN in this service! Click <OK> to continue anyway or <Cancel> to abort.

OK   Abbrechen

Illustration 4-13 Popup Window Information

If the ISP has already established that a ticket exists and still thinks another ticket has to be opened, then click 'OK'. Otherwise 'Cancel'.

If the ISP realises that an open ticket already exists, then the old ticket should be looked at before creating a new one.

The values as well as the commercial information of the participant number (DN) are copied into the ticket.

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Place Access Trouble Ticket (step 2/2)

ISP   100008 Bluewin

ISP phone   [   ]

ISP ticket ref.   [   ]

Suppress checks   ☐

End-user login   [   ]

End-user name   [   ]

End-user phone   [   ]

┌─ Address (in case of SDSL) ──────────────────────────
│ Street/Nr   [   ] [   ]
│
│ Building   [   ]
│
│ ZIP/City   [   ] [   ]
└──

BBCS DN/VN/NSN   0318291751

DN Type   [Multi Line   ▼]

BB Type   ADSL

Assurance SLA   [Default ▼]

Problem description   [▲]
                         [   ]
                         [   ]
                         [▼]

Contracted Elements

Contract Element	Service Profile	BBCS equipment	Error Category	Add Contract Element ▼
Internet	max 5000 down / 500up ▼	[ ]		Remove Contract Element

Checklist

End-user complains about   [other issue   ▼]

Problem occurrence date   [   ] . [   ] . [   ] / [   ] : [   ] (dd.mm.yyyy/hh:mi)

Voice affected by problem   [Yes ▼]

Login affected by problem   [Yes ▼]

Last successful login   [   ] . [   ] . [   ] / [   ] : [   ] (dd.mm.yyyy/hh:mi)

Comment   [▲]
                            [▼]

[back]   [submit]   [reset]

Illustration 4-14 Window "Place Access Trouble Ticket"

Selecting 'Submit' saves the ticket.

A ticket can be directly opened from the xDSLInfo. The measured values listed below are provided directly with the ticket:
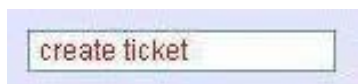

Illustration 4-15: xDSLInfo Button create ticket

- NUMBER_OF_SPONTANEOUS_RESYNCS NUMBER

- XDSL_LINE_STATUS

- Problem Description & Proposed Repair Action

- LAST_STATUS_CHANGE DATE

- NOISE_MARGIN_UP NUMBER

- NOISE_MARGIN_DOWN NUMBER

- ACTUAL_BITRATE_UP NUMBER

- ACTUAL_BITRATE_DOWN NUMBER

- ATTAINABLE_BITRATE_UP NUMBER

- ATTAINABLE_BITRATE_DOWN NUMBER

- ATTENUATION_UP NUMBER

- ATTENUATION_DOWN NUMBER

- CALCULATED_LINE_LENGTH NUMBER

- CORRECTION_DB_LINE_LENGTH NUMBER

The attributes listed above are automatically included in the WSG ticket and show which of the ISP's measured data were supplied by xDSLInfo. This helps Swisscom because a complete restart of the entire analysis is no longer needed.

Access Trouble Ticket Detail

| Main | **xDSL Info** | Response | Billing | *Internal* |

xDSL Line Status	up
Last Status Change Date/Time	22/05/2008 08:51
Noise Margin up	12
Noise Margin down	17
Actual Bit Rate up	640
Actual Bit Rate down	5632
Attainable Bit Rate up	736
Attainable Bit Rate down	8128
Attenuation up	13
Attenuation down	28
Calculated Line Length	1675
Correction DB Line Length	-
Number of Spontaneous Resyncs	0

Illustration 4-16: WSG ticket with measured data by xDSLInfo

If on creation of a WSG Access TT, an xDSLInfo message is present that is not older than 24 hours, this data will always be in the Access TT regardless of whether the TT is opened by xDSLInfo or via the normal routine (Place trouble ticket)

4.2.3   Modify Access Profile

back	refresh	Transaction Overview	create ticket	modify access profile
start LQD 24hrs	start LQD 2min	start Profile CP	start Profile CPSI	start Resync Line	start Reconfig Line

Using the command "modify access profile", you can change

- the Access Profile

and/or

- the Interleave Mode

and/or

- the PSD Class

and/or

- the Technology Type   (e.g. to change from VDSL2 to VDSL Vectoring or vice versa).

Modify Access Profile

Select Technology

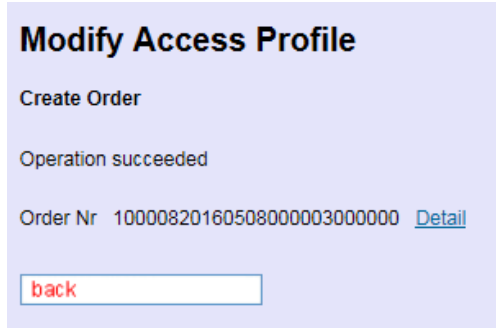|	
ISP *	100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN *	0314445566
BB Type	VDSL
Dslam Type	CAN
Dslam Vectoring Capable	Yes
Network Type	
Current Technology Type	VDSL Vectoring
Current Access Speed	59 - 50000 down / 10000 up
Current Interleave Mode	Interleave Medium
Current BB Psd Class	Spec_VDSL2_17a
New Technology Type	○ Not Constraint
	○ VDSL2
	● VDSL Vectoring

back	submit	reset

In the WSG GUI this is done by choosing one of the proposed combinations in a list:

Modify Access Profile

Select Access Profile

ISP *	100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN *	0314445566
BB Type	VDSL
Dslam Type	CAN
Dslam Vectoring Capable	Yes
Network Type	
Current Technology Type	VDSL Vectoring
Current Access Speed	59 - 50000 down / 10000 up
Current Interleave Mode	Interleave Medium
Current BB Psd Class	Spec_VDSL2_17a
New	

	Access Speed	Technology Type	Interleave Mode	BB Psd Class
○	168 - 5000-8000 down / 500-600 up	VDSL Vectoring	Interleave G.INP	Spec_VDSL2_17a_rtx
○	168 - 5000-8000 down / 500-600 up	VDSL Vectoring	Interleave G.INP	Spec_VDSL2_8b_rtx
○	160 - 5000-8000 down / 500-1000 up	VDSL Vectoring	Interleave G.INP	Spec_VDSL2_17a_rtx
○	160 - 5000-8000 down / 500-1000 up	VDSL Vectoring	Interleave G.INP	Spec_VDSL2_8b_rtx
○	169 - 5000-10000 down / 500-1000 up	VDSL Vectoring	Interleave G.INP	Spec_VDSL2_17a_rtx
○	169 - 5000-10000 down / 500-1000 up	VDSL Vectoring	Interleave G.INP	Spec_VDSL2_8b_rtx
○	161 - 5000-12000 down / 500-1000 up	VDSL Vectoring	Interleave G.INP	Spec_VDSL2_17a_rtx
○	161 - 5000-12000 down / 500-1000 up	VDSL Vectoring	Interleave G.INP	Spec_VDSL2_8b_rtx
○	162 - 5000-15000 down / 500-1000 up	VDSL Vectoring	Interleave G.INP	Spec_VDSL2_17a_rtx
○	162 - 5000-15000 down / 500-1000 up	VDSL Vectoring	Interleave G.INP	Spec_VDSL2_8b_rtx
○	184 - 5000-18000 down / 500-1000 up	VDSL Vectoring	Interleave G.INP	Spec_VDSL2_17a_rtx
○	184 - 5000-18000 down / 500-1000 up	VDSL Vectoring	Interleave G.INP	Spec_VDSL2_8b_rtx

Comment

| back | submit | reset |

Optionally a comment may be entered, which is then reflected in the generated MODIFY work order.

After pressing the "submit" button, you get a window showing you the ID of the created order:

Modify Access Profile

Create Order

Operation succeeded

Order Nr   100008201605080000003000000   Detail

[back]

Following the "Detail" link, you can monitor the fulfillment of the order.

Remark: See also chapters 4.2.6 and 4.2.7 for other possibilities to change the Access Profile.

4.2.4   Start LQD 24hrs

back	refresh	Transaction Overview	create ticket	modify access profile	
start LQD 24hrs	start LQD 2min	start Profile CP	start Profile CPSI	start Resync Line	start Reconfig Line

The "start LQD 24hrs" command lets you trigger a Line Quality Diagnosis for a measurement period of 24 hours.

Optionally you can

- enter a Mobile Number or an E-Mail address to get a notification when the Line Quality Diagnosis has terminated.
- check the "Picture Required" checkbox to also get graphical output of some measurements in the E-Mail.

Prepare Start Command

ISP	100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN	0314445566
Lov Start Command	start Line Quality Diagnosis 24hrs
Mobile Number	[ ] The mobile number to get a notification when the profile change or line quality diagnosis has termineted. Example +41791234567
E-Mail Address	[ ]
Picture Required	☐ Return a picture of the xDSL info result.

back	submit	reset

After pressing the "submit" button, you should get the "Start Command Submitted" window:

Start Command Submitted

ISP	100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN	0314445566
Lov Start Command	start Line Quality Diagnosis 24hrs

The LineQualityDiagnosis was successfully started!

back

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4.2.5   Start LQD 2min

back	refresh	Transaction Overview	create ticket	modify access profile
start LQD 24hrs	start LQD 2min	start Profile CP	start Profile CPSI	start Resync Line	start Reconfig Line

The "start LQD 2min" command lets you trigger a Line Quality Diagnosis for a measurement period of 2 minutes.

Optionally you can

- enter a Mobile Number or an E-Mail address to get a notification when the Line Quality Diagnosis has terminated.
- check the "Picture Required" checkbox to also get graphical output of some measurements in the E-Mail.

Prepare Start Command

ISP	100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN	0314445566
Lov Start Command	start Line Quality Diagnosis 2min

Mobile Number		The mobile number to get a notification when the profile change or line quality diagnosis has terminated. Example +41791234567
E-Mail Address		
Picture Required	☐	Return a picture of the xDSL info result.

back	submit	reset

After pressing the "submit" button, you should get the "Start Command Submitted" window:

Start Command Submitted

ISP	100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN	0314445566
Lov Start Command	start Line Quality Diagnosis 2min

The LineQualityDiagnosis was successfully started!

back

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CH-3050 Bern

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4.2.6   Start Profile CP

back	refresh	Transaction Overview	create ticket	modify access profile
start LQD 24hrs	start LQD 2min	start Profile CP	start Profile CPSI	start Resync Line	start Reconfig Line

Using the command "start Profile CP", you can initiate a "Standard" Access Profile Change. If the access profile is actually being changed depends on a measurement and on some logic:

> „Startet eine Punktmessung, aufgrund derer ein neues Fix-Profil geschaltet wird. Ein möglicher Service Impact wird gemeldet, d.h. das ermittelte, neue Fix-Profil darf keinen Serviceverlust verursachen - Downgrade höchstens bis Servicegrenze."

Prepare Start Command

ISP	100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN	0314445566
Lov Start Command	start Profile Change Standard
Mobile Number		The mobile number to get a notification when the profile change or line quality diagnosis has termineted. Example +41791234567

| back | submit | reset |

After pressing the "submit" button, you should get the "Start Command Submitted" window:

Start Command Submitted

ISP	100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN	0314445566
Lov Start Command	start Profile Change Standard

The LineQualityDiagnosis was successfully started!

| back |

4.2.7   Start Profile CPSI

back	refresh	Transaction Overview	create ticket	modify access profile
start LQD 24hrs	start LQD 2min	start Profile CP	start Profile CPSI	start Resync Line	start Reconfig Line

Using the command "start Profile CPSI", you can initiate an Access Profile Change, which might have a service impact:

> „Startet eine Punktmessung, aufgrund derer ein neues Fix-Profil geschaltet wird. Ein möglicher Service Impact wird nicht berücksichtigt, es kann also zu Serviceverlust kommen."

Prepare Start Command

ISP	100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN	0314445566
Lov Start Command	start Profile Change with potential Service Impact
Mobile Number	[ ] The mobile number to get a notification when the profile change or line quality diagnosis has termineted. Example +41791234567

back	submit	reset

After pressing the "submit" button, you should get the "Start Command Submitted" window:

Start Command Submitted

ISP	100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN	0314445566
Lov Start Command	start Profile Change with potential Service Impact

The LineQualityDiagnosis was successfully started!

back

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4.2.8   Start Resync Line

back	refresh	Transaction Overview	create ticket	modify access profile	
start LQD 24hrs	start LQD 2min	start Profile CP	start Profile CPSI	start Resync Line	start Reconfig Line

Using the command "start Resync Line", you can initiate a resynchronization of the line. This will result in a short service interruption.

Confirm Resynchronize Line Command

ISP   100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN   0314445566

Do you really want to resynchronize the line?

back	submit

After pressing the "submit" button, you should get the "Resynchronize Line Command Submitted" window:

Resynchronize Line Command Submitted

ISP   100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN   0314445566

Resynchronize Line Command was successfully started!

back

4.2.9 Start Reconfig Line

back	refresh	Transaction Overview	create ticket	modify access profile

start LQD 24hrs	start LQD 2min	start Profile CP	start Profile CPSI	start Resync Line	start Reconfig Line

Using the command "start Reconfig Line", you can initiate a reconfiguration of the line.
Note: The DSLAM configuration for the line will be completely removed and afterwards recreated, which takes a few minutes and results in a service interruption.

Confirm Reconfig Line Command

ISP   100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN   0314445566

Do you really want to reconfigure the line (Disconnect/Create 2nd Way)?

back	submit

After pressing the "submit" button, you should get the "Reconfig Line Command Submitted" window:

Reconfig Line Command Submitted

ISP   100008 Swisscom (Schweiz) AG, RES
DN / VN / NSN   0314445566

Reconfig Line Command was successfully started!

back

4.3   Maintain xDSLInfo

This function provides the ISP with the possibility to create an analysis of the measurement surveys which were carried out by the ISP. After the ISP has started the Maintain xDSL Info function, it has the possibility in the bottom screen to create a report about the measurements it produced using the WEB GUI.

The ISP field cannot be selected. Using login data, the WSG makes this data directly available.
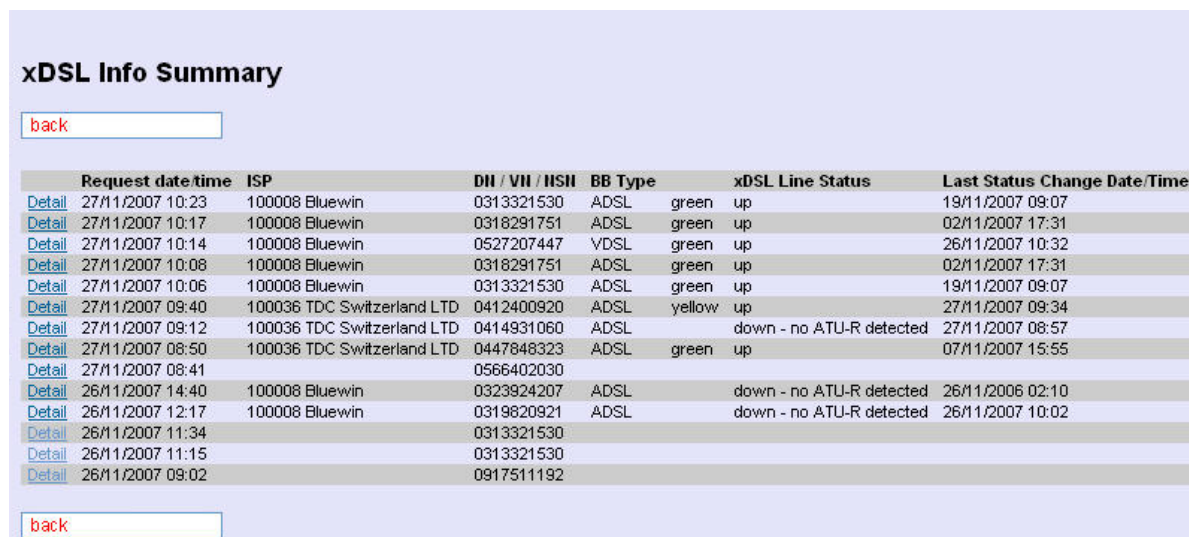
Illustration 4-17 Window, Standard report for xDSLInfo

The above screen must be used for this purpose. You can choose a specific telephone number or a specific timeframe for the queries' display.

Illustration 4-18 xDSLInfo Summary Window

The appropriate measurements are shown one after the other as a result. The measurement details can be shown using the 'Detail' link.

5   Home- and facility-installation

The data regarding the xDSL connection line pertain to values between the DSLAM and the xDSL modem (among others). This measuring section contains different partial sections. Swisscom is responsible for the connection line up to the house connection box (TP). The ISP is responsible for home installation.

Home installation can be divided into several sections. In the following 2 chapters, a distinction will be made between home installation and facility installation. In cases of faults with the connection line, errors often exist in the customer's home installation. Both of the following sections outline possible causes for errors.
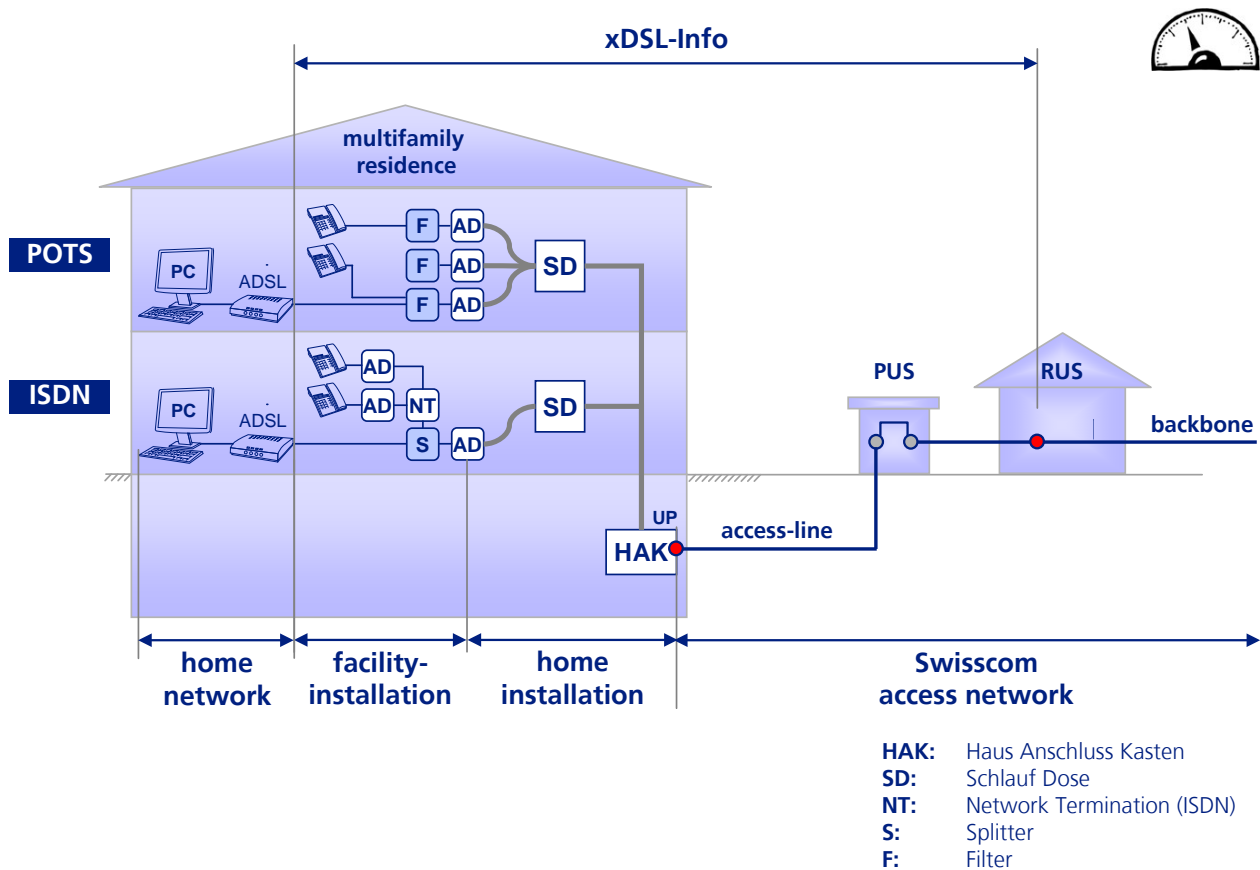
Illustration 5-1: Home installation areas

HAK: Haus Anschluss Kasten
SD: Schlauf Dose
NT: Network Termination (ISDN)
S: Splitter
F: Filter

5.1   Home-installation

Home installation refers to the area from the transfer point (TP) to the connection box (CB).

→ When conducting on-site measurements, the measured line characteristics at the connection box must be practically identical to the physical values shown at the TP. If the values at the connection box are significantly worse than at the TP, then the error is probably in the home installation.
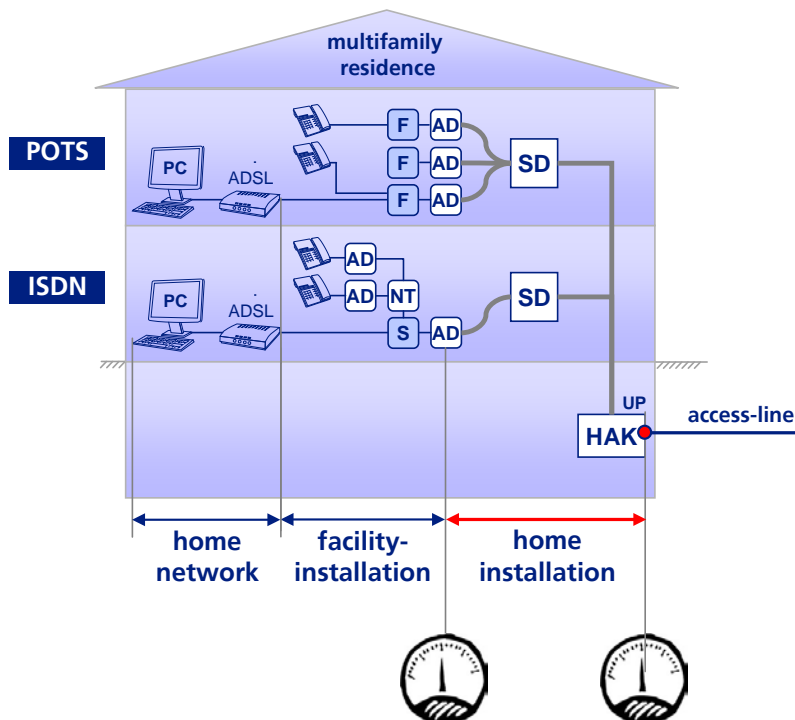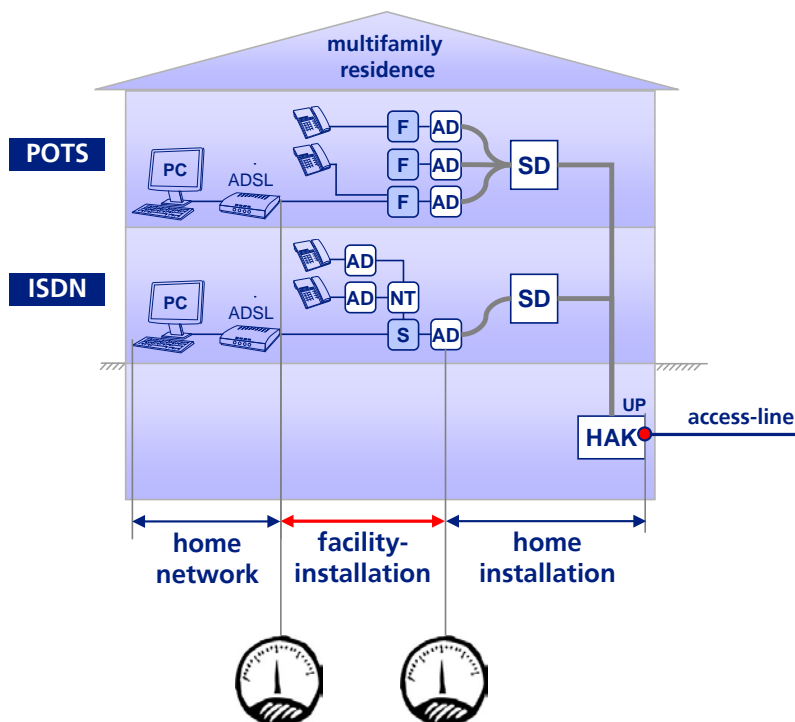

Illustration 5-2: Home installation

The following problems can result in, for example, the xDSL line being synchronized, but having poor line characteristics. This means that the connection is prone to faults depending on the application used.

- **Branch boxes:** Poor or incorrectly placed clamp connections. For example, clamps used are not appropriate for the cable diameter.

- **Telephone socket:** High contact resistance or incorrectly connected. With some outlets (ADSL with ISDN), jumpers must be correctly employed.

- **Installation cables**: With very old installations, it can occur that the cable no longer conducts the signal well or that the insulation is thin and ineffective.

5.2   Facility-installation

Facility installation refers to the area from the connection box to the xDSL device. This is the area where the customer him/herself often conducts the installation. Studies have shown that poor layer1 "port monitoring" values often come from facility installation.

→ When conducting on-site measurements, the measured line characteristics at the connection box must be practically identical to the physical values shown at the customer's xDSL terminal. If the values at the xDSL terminal are significantly worse than at the CB, then the error is probably in the facility installation.

Illustration 5-3: Facility installation

The following problems can result in, for example, the xDSL line being synchronized, but having poor line characteristics. This means that the connection is prone to faults depending on the application used.

- **ADSL filter incorrectly installed**: ADSL micro filter installed before ADSL terminal. One effect is that the ADSL line is briefly interrupted as soon as the telephone is used.

- **ADSL splitter / filter is defective:** A bad filter can affect the ADSL signal.

- **ADSL filter not installed:** No filter installed in front of the telephone / fax.

- **Connection cable defective:** Copper in the cable is interrupted, poor connection between cable and RJ plug.

- **Connection cable single-wire:** Connection cable used that has one pin assignment where the xDSL signal is only transmitted over one wire.

- **Poor contact to the plug / coupler.** Oxidised contacts on RJ plug, loose contact.

- **xDSL modem/router:** xDSL modem/router defective or incorrectly configured.

→ Please refer to [18] Approved End-User Equipment of the BBCS contract. This document includes a list of approved xDSL modems/routers as well as filter and splitter which were tested by Swisscom Fix net.

→ Please refer to [12] Technical Specification Access. This document describes technical aspects of the BBCS access line in further detail.

A. Index

– Index of tables

– Index of illustrations

– **List of abbreviations**

ADSL	Asymmetric Digital Subscriber Line
AttBR_DN	The maximum attainable downstream bitrate
AttBR_UP	The maximum attainable upstream bitrate
ATU-C	ADSL Transceiver Unit - Central Office End (LT card on the DSLAM)
ATU-R	ADSL Transceiver Unit - Remote Terminal End (ADSL terminal)
BNG	Broadband Network Gateway
CLP	Cell Loss Priority
DSL	Digital Subscriber Line
DSLAM	Digital Subscriber Line Access Multiplexer
FTP	File Transfer Protocol
IP	Internet Protocol
IPSS	IP Standard Services
NA	Network Analyzer
NE	Network element
NM_DN	Noise Margin in the Downstream
NM_UP	Noise Margin in the Upstream
SDSL	Symmetric Digital Subscriber Line
UP	Connection point
VDSL	Very High Speed Digital Subscriber Line
WSG TT	Web Service Gateway Trouble Ticket
xDSL	Umbrella term for various, DSL-based (Digital Subscriber Line) broadband technologies like, e.g., ADSL, SDSL, VDSL, etc.

Table A-1: List of abbreviations