

E&CENTIS

# Drop cable assessment

Use case

**Avoid drowning your  
HFC investment!**



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## Introduction

How to validate the future capacity and identify churn risks in the 10G DOCSIS era. Would there be a smarter way to allocate and prioritize the HFC upgrade budget?

Many operators execute HFC upgrade investments almost blindly. Teams make decisions without full visibility, only to realize that the infrastructure was worse than expected, forcing them to spend millions more than planned to fix additional problems.

With Excentis, you can safeguard your investment. Using our drop cable assessment, we evaluate whether the risk is worth taking. The analysis helps the cable operator remove the blindfold and clearly understand whether the investment will fall short, as well as identify opportunities to future proof modems that cannot reach their full capacity. In a 10G future network, this ultimately avoids customer churn and extends the life of the HFC asset.

### Think about it:



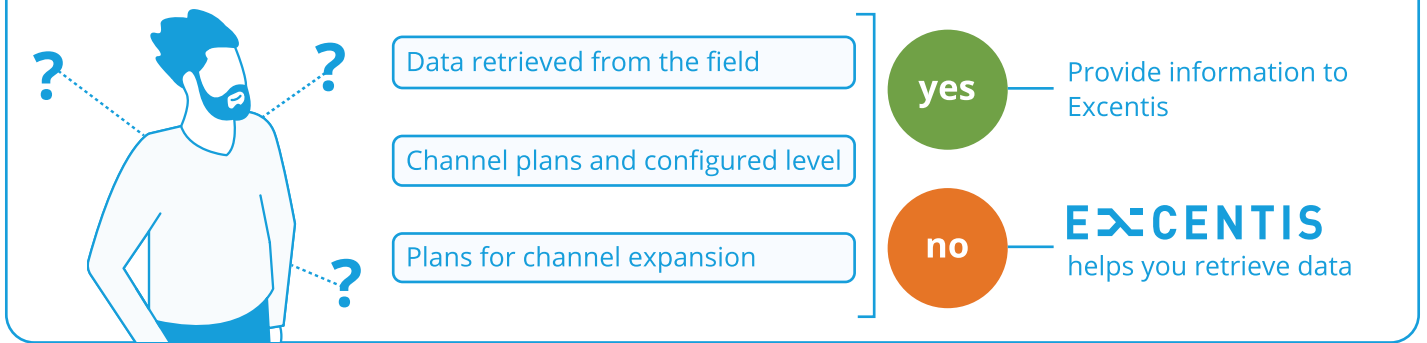
### The importance of **informed investments**



Uninformed initial investment + Realizing network is not ready + Fixing out the network

**= bleeding out your budget**

## Do you know your data?



All relevant field data should be collected to enable a comprehensive analysis. If the data is already available, it should be provided in a well-documented and structured format.

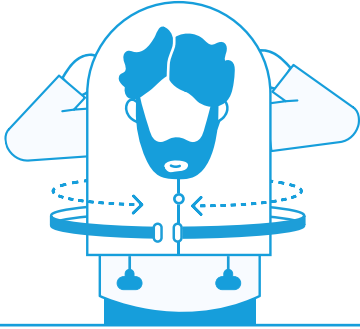
In cases where the required data is not yet captured, Excentis can support this through a tailored project approach. Additionally, detailed information on channel plans and configured levels (such as power settings) should be included, along with any planned channel expansions, particularly when capacity estimation is required. For this specific use case the estimated capacity of each drop cable was assessed under the assumption that three OFDM channels are deployed in the highest frequency band defined by DOCSIS 3.1 (up to 1.2 GHz).

For cases where the connection quality was estimated to be too low to deliver additional capacity, the most likely root causes were identified.

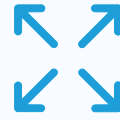
It should be noted that, in some instances, the primary source of degradation was likely not the drop cable itself, but rather a cable or tap located further upstream in the network. If the topology information is made available, this can be taken into account to identify the potential root cause of bad quality.

For this use case the provided data initially consisted of data of 10317 cable modems, but the initial analysis showed that approximately 9500 datasets were complete enough to perform the analysis. Sanity checks were performed on the provided channel line-ups, it is expected that this does not cause any misinterpretation on the data.

## Excentis assessment (your life jacket)



Estimated capacity gains



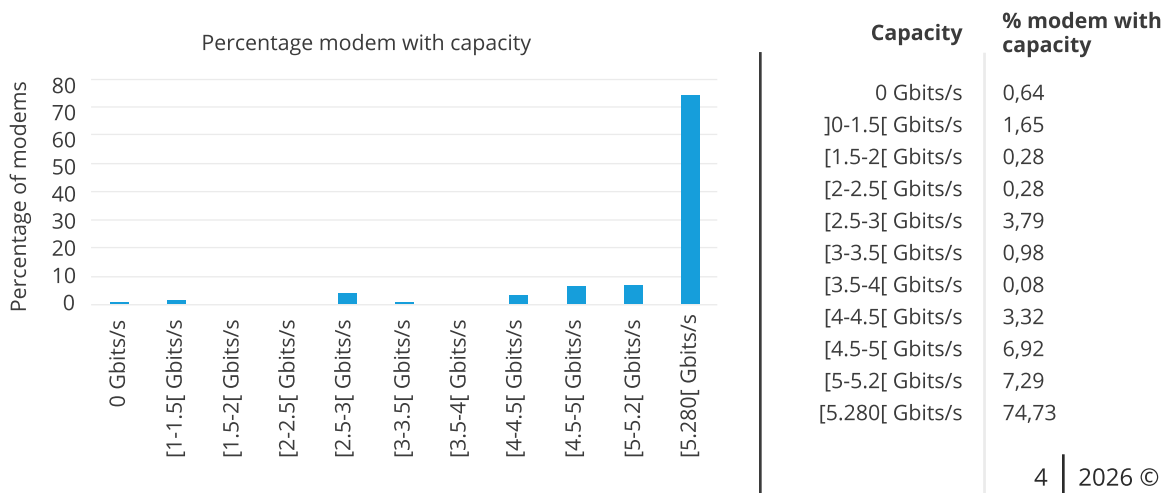
Quality of the drop cable



Excentis will perform an analysis to assess the estimated capacity gains and evaluate the quality of the drop cable. The analysis will focus on cable modems with marginal or no expected capacity gain, identifying the most likely root causes of degradation. In cases where capacity improvement is not the primary objective, the analysis will instead target the worst-performing modems to determine the most probable issues that could impact customer experience, enabling a proactive approach to network maintenance.

For this use case, out of the 9,634 analysed cable modems, it was estimated that for 62 of them the connection quality was poor. As a result, these modems were not able to use any of the OFDM capacity in the frequency range of the three highest DOCSIS 3.1 OFDM channels. The three OFDM channels used for the evaluation were [100-110 MHz], [110-120 MHz], and [120-130 MHz]. The operator can now deliver the best user experience to all customers and upgrade the network capacity.

The graph below shows the estimated distribution of the modems that could use a certain capacity. About 75% is estimated to be of good enough quality so that the OFDM-channels could be used at highest modulation. About 92% has a capacity of 4 Gbit/s or more. The provided table also shows the estimated percentages.



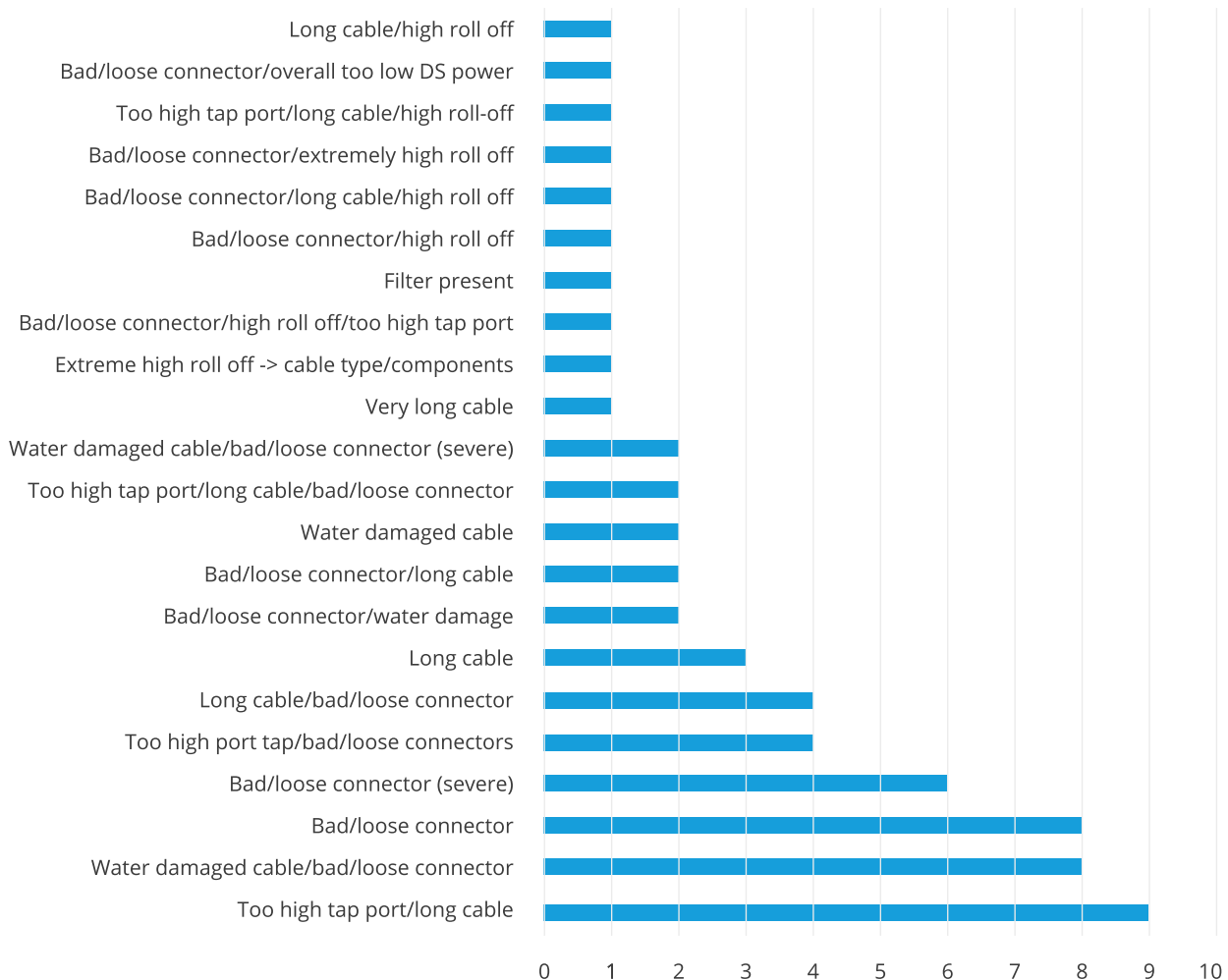
\*Graphs extracted from Excentis' Drop Cable Assessment

For the 62 cases with 0 Gbit/s capacity an analysis was performed on the most likely root cause. Note that sometimes more than one most likely root cause was provided.

The results are shown in the graph below.

### Likely Root Cause (62 in total) 0 Gbits capacity

\*Graphs extracted from Excentis' Drop Cable Assessment

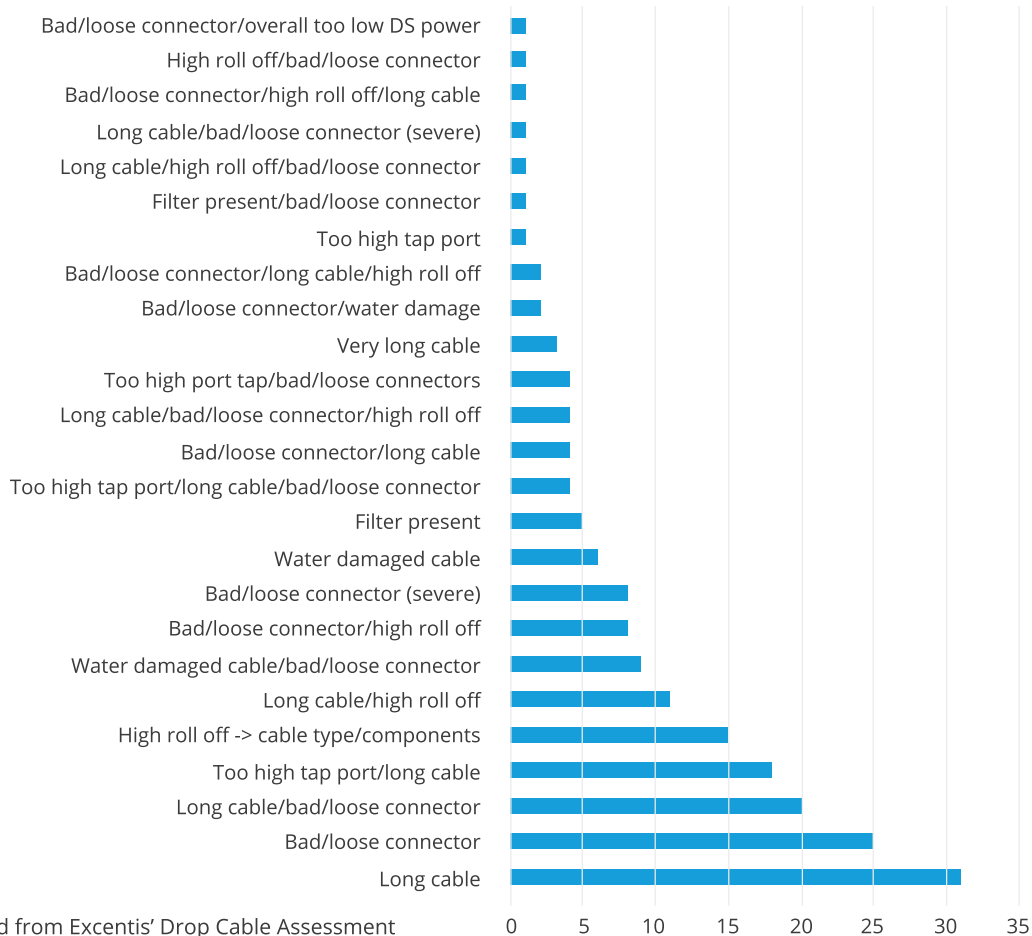


As was clear from the graph, a significant portion of the root cause was identified as being due to bad or loose connectors or water damage. The cases that were identified with the label long cable indicated that the signal dropped significantly with frequency. This could have been due either to a long cable or to the type of cable used. It was also noted that bad or loose connectors could hide other defects or problems; therefore, in cases where a bad or loose connector was identified, the estimation that the cable was also an issue might not have been correct.

In addition, eight cases were identified as severe issues with the quality of the connection (e.g., cable torn out of the connector or loose shielding). These connections were recommended for proactive maintenance to ensure customer service quality.

The likely root cause for the cases where the estimated capacity is more than 0 but less than 2 Gbit/s is given in the graph below.

### Likely Root Cause (186 in total) 0 Gbits <capacity< 2Gbits/s



\*Graphs extracted from Excentis' Drop Cable Assessment

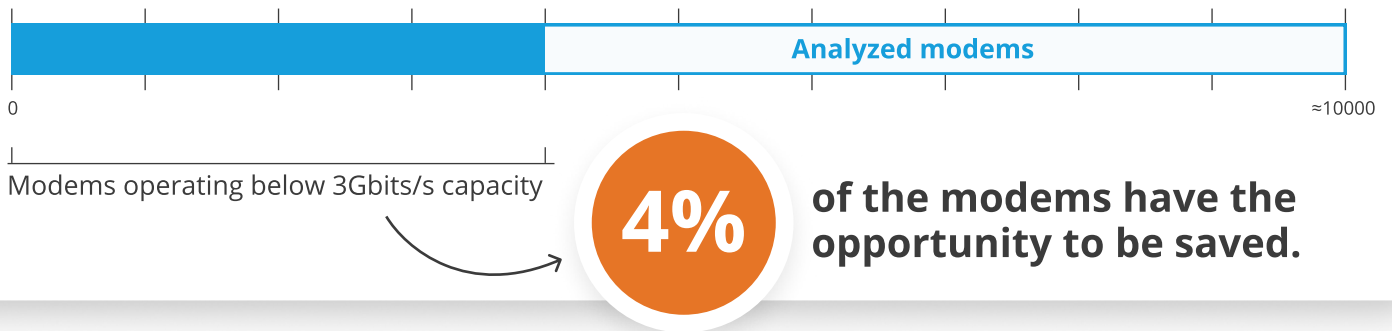
For the cases that were identified as filter present a very good estimate of the cable quality is harder due to the limited info provided by the full band capture data in the spectrum, nonetheless an estimate was performed.

Is your network ready for the investments it requires, or will increasing your investment fail to improve your customers' experience? With Excentis, you can make informed decisions by leveraging native cable modem reporting and analyzing end-to-end HFC network performance. This enables you to pinpoint whether the drop cable is truly the limiting factor before committing resources. With these insights, you can identify the exact root causes of drop cable failures and act proactively through Proactive Network Maintenance.

Instead of making blind investments, you gain clear insights to determine the most effective way to expand capacity and speed, while also evaluating and optimizing your field teams, ensuring every investment delivers real impact.



## Save your investment



For this assessment, the primary objective is to evaluate whether the network is prepared for a capacity upgrade and whether the associated investment is justified. In this case, only 4% of the modems were found to operate below the 3 Gbit/s capacity threshold. This suggests that the overall network condition is strong and supports a favorable outcome for the upgrade.

However, the picture could easily look different. Imagine analyzing a less healthy network where 30% of the infrastructure is constrained and unable to reach the required capacity. In such a scenario, proceeding directly with a capacity upgrade would likely introduce inefficiencies and additional remediation costs later on.

This is where Excentis plays a critical role. By providing a clear, data-driven view of the network's readiness, operators can make informed decisions on where and when to allocate investment. This helps avoid committing budget to upgrades that might subsequently require corrective work.

Even with a relatively small share of modems not reaching the target capacity, there is still an opportunity to act proactively. Addressing these cases can improve network performance and ultimately contribute to reducing customer churn.

In the next section, we will explore the financial implications of these findings.

Calculations scaled to 1.000.000 cable subscriptions.

	Without Excentis	With Excentis
Identified problematic modems		<b>4%</b>
Avg. yearly subscriber fee		€50 monthly x 12 = <b>€600</b>
EBITDA margin		45%
Churn saved	0%	2%
Customers saved	0	20.000
EBITDA protected	<b>0</b>	<b>€5.4 M</b>



# Reduce churn

**Save €5.4 M yearly**

With Excentis, cable operators can safeguard their investments. Our drop cable assessment evaluates whether the risks associated with existing infrastructure are worth taking. By providing a clear and data-driven analysis to , operators can remove the blindfold and fully understand where investments may fall short , while also identifying opportunities to future-proof modems that are currently unable to reach their full capacity. In the transition toward a 10G network, identifying proactive operational fixes ultimately helps avoid customer churn and extends the lifetime of valuable HFC assets to measure and understand future network capacity.

**Are you ready to assess your core network?**

Contact an expert



# We're humbled to be trusted by the best.

Advancing the network of today, paving the network of tomorrow.



## Let's advance networks together

We would welcome the opportunity to work with you to optimize, innovate and assure the robustness of your networks. And we put our heart into it, our work is our passion.

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Focusing on the needs of our customers is the core of our business for more than two decades.



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