

Report of the Independent
Inspector
to the VA on CSTBs - 2015 - 2016



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Summary

General

This is the Sixth Report of the Independent Inspector to the Voluntary Agreement on Complex Set Top Boxes (VA on CSTBs). It covers the period 1 July 2015 – 31 June 2016. This is the third time that compliance with Tier 2 requirements is obligatory. The aim of the VA on CSTBs is to contribute to the objectives of the Ecodesign Directive (2009/125/EC) by reducing the potential environmental impact of CSTBs, in particular their energy consumption. The VA, endorsed by the European Commission in November 2012, is considered an alternative measure to an Ecodesign Regulation if providing comparable results.

This report covers 20 Signatories to the VA, among them 10 equipment manufacturers and 6 service providers. Equipment manufacturers and service providers need to report information on the energy consumption of the CSTBs that have been placed on the EU market or put into service in the monitoring period, including the number of devices per type placed on the market. The other four signatories are either component manufacturers, chip vendors or software providers and do not have yet specific reporting obligations.

Results and conclusions from the sixth monitoring period:

Compliance with Chapter 4.3.1 (TEC requirement)

Sixteen Signatories complied with Chapter 4.3.1. The compliance rate for only Chapter 4.3.1 averaged over sales of all 16 Signatories was found to be 99%.

Compliance with Chapter 4.1 (Article A.3) (APD requirement)

According to Tier 2 requirements, Article A.3 of Annex A demands that all CSTBs should have Auto Power Down (APD) capability. Therefore, since the fourth reporting period, the APD is compulsory. In the sixth reporting period 12 Signatories had a compliance rate of 100% by providing APD in their model types. The number of boxes equipped with APD of the four other Signatories were larger than 90% but less than 100%. The compliance rate for only Chapter 4.1 averaged over sales of all 16 Signatories was found to be 99%.

The data provided by the Signatories shows that non-compliance with 4.1 is still reported. The Signatories and the background reasons for their non-compliance are found to be the same as in the previous reporting period. The main reasons stated by the signatories are:

- delayed phasing out of box types non-compliant to Tier 2 (mentioned by two Signatories)
- customers of the equipment manufacturers, Service providers who are not part of the VA, that do not want an APD function activated per default on their CSTBs (mentioned by two equipment manufacturers).

It is concluded that in this period progress has been achieved in fulfilling the Tier 2 requirements. It should be stressed that the VA, endorsed by the European Commission in November 2012, is considered an alternative measure to an Ecodesign Regulation if providing comparable results.

Chapter 4.8 (Performance information to consumers)

The results show that compared to previous reporting periods, progress is made in standardizing the performance information as the majority of the Signatories have provided information. However, the requirement is deemed to be only partially satisfied. Once again it was seen that the performance information provided by the service providers to their customers has a diverse nature. In some cases, it is not possible for the Independent Inspector to trace the information due to two reasons;

- information is only provided for a number of model types and the list of models does not correspond with the model types in the signatory reports.
- the URLs provided by the Signatories lead to overview web pages which do not provide access to the documents that contain desired technical information per brand or model type.

Recommendations

First and foremost, the Independent Inspector recommends that discussions are held in the Steering Committee

- on how to deal with the (repeated) non-compliance of signatories,
- to collect further data in order to evaluate the overall market share of the compliant products to be able to assess whether the impact of the VA is in line with eco-design requirements,
- on how to motivate service providers who are not part of the VA to abide by the requirements of the VA,
- on the standardisation of performance information to consumers,

Furthermore, the Independent Inspector recommends that the Steering Committee

- Speaks out on the validity of not submitting a report (claiming exemption) by a Signatory who has re-entered the VA.
- Keeps encouraging all Signatories to report in time, ensuring accuracy of the provided information and respond to questions in a timely manner.

Table of contents

1	Introduction and background	1
1.1	Introduction	1
1.2	Background	1
2	Method of data collection and processing	3
2.1	Standardised reporting template	3
2.2	Data collection process	3
2.3	Data processing, additional queries and audit	3
2.3.1	Data processing	3
2.3.2	Audit	3
2.4	Report of the Independent Inspector	4
3	Results	6
3.1	General statistics	6
3.2	Compliance with Chapter 4.1 and Chapter 4.3.1	7
3.3	Functionality and energy consumption	10
3.4	Auto Power Down Statistics	12
3.5	Findings on specific Chapters other than 4.3.1	12
3.5.1	Chapter 4.8 Information to consumers	13
3.5.2	Chapter 4.9 Procurement specifications	13
3.5.3	Annex A.4	13
3.5.4	Annex A.5	13
3.5.5	Annex A.8	14
3.6	Checking of test reports	14
3.7	Results of audit and compliance measurements	14
4	Conclusions	16
4.1	Conclusions on compliance with the commitments	16
4.2	Conclusions on the monitoring process	17
4.3	Recommendations	17
5	Annex A Reporting Template for Signatories	18
6	Annex B List of Signatories	20
7	Annex C List of compliant CSTBs	22
8	Annex D CSTB properties	29

1 Introduction and background

1.1 Introduction

This is the Sixth Report of the Independent Inspector to the Voluntary Agreement on Complex Set Top Boxes (VA on CSTBs). It covers the period 1 July 2015 – 31 June 2016. This is the third time that compliance with Tier 2 requirements is obligatory.

This report is commissioned by the Steering Committee of the VA and will be made available to the European Commission and Ecodesign stakeholders (members of the Consultation Forum established under Article 18 of the Ecodesign Directive 2009/125/EC).

The findings of the Independent Inspector are based on

1. Confidential data received by the Signatories in the Reporting Template
2. Queries by the Independent Inspector to selected Signatories
3. An on-site inspection (audit) of one Signatory

The contents of this report are as follows:

- In Section 1.2 an update on the background on the Voluntary Agreement and the process of monitoring and inspection is given.
- In Chapter 2 an update of the method of data collection and processing is explained.
- In Chapter 3 the findings are presented.
- In Chapter 4 conclusions are drawn and recommendations for the monitoring and verification process are made.

1.2 Background

The background to the project was described in the report that covered the first monitoring period. A second report for the monitoring period 1 July 2011 – 1 July 2012 was prepared and made public by the Independent Inspector. The third report for the monitoring period 1 July 2012-1 July 2013 that reviewed compliance with 'V3.1' of the Voluntary Industry Agreement was prepared and published in February 2014. The fourth report for the monitoring period 1 July 2013 – 1 July 2014 that has reviewed compliance with V3.1 of the VA on CSTBs was prepared and published in January 2015. The fifth report for the monitoring period 1 July 2014 – 1 July 2015 that reviewed compliance with 'V3.1' of Voluntary Industry Agreement was prepared and published in February 2016.

For this sixth monitoring period (1 July 2015 – 1 July 2016), as in the last three years, the Independent Inspector has reviewed compliance with 'V3.1' of Voluntary Industry Agreement to improve the energy consumption of Complex Set Top Boxes within the EU.

At the start of the fifth monitoring period, the 'guidelines on the self-regulation measures concluded by industry under the Ecodesign Directive 2009/125/EC.' were not yet final. During the preparation of this sixth monitoring report the work on these new guidelines has been made available and a new VA version with Tier 3 requirements was drafted. Considering that the sixth reporting period is still bound to follow 'V3.1' of Voluntary Industry Agreement to improve the energy consumption of Complex Set Top Boxes within the EU, the same approach in analysis was carried out for this monitoring period as in previous years. However, the new guidelines and the new VA version was considered in cases of conflict and ambiguities seen in the V3.1.

2 Method of data collection and processing

2.1 Standardised reporting template

The spreadsheet-based reporting template used in the fifth reporting period was also suitable to be used for this period. One signatory used an older template. The signatory was contacted by email and asked to use the final template. Data was received in good order following the notifications sent by the Independent Inspector. The final data to be reported are given in Annex A to this report.

2.2 Data collection process

The deadline for reporting was set to 1 September 2016. The emphasis has been on collecting evidence from equipment manufacturers and service providers. Other types of Signatories did not receive any requests for clarifications or questions.

2.3 Data processing, additional queries and audit

2.3.1 Data processing

Data processing can only start after the last report has been received, so that all reports receive the same attention and because all reports are needed to produce the statistics.

Following the data collection and some first processing, queries were made to selected Signatories. The reasons for requesting (additional) information were:

- information was found to be missing in the standardised reporting template,
- information seemed to be exactly the same as in the previous report (including the annual sales quantity), therefore needed update
- information submitted required clarification.

Usually, a turnaround time for answering questions of one week was requested by the Independent Inspector.

2.3.2 Audit

An audit was carried out with one Signatory (a manufacturer). The audit consisted of:

- Compliance measurements

- Sharing results with the Signatory following the compliance measurements receiving their comments on the results of the measurements and any additional questions

The procedure followed for the compliance measurements is given in Annex E. Test laboratory Eurofins, former Testronics, was commissioned to perform the tests.

A signatory was selected and approached for starting the process for compliance testing on November 10th 2016. Within a week, the Signatory declared its decision to leave the VA thus did not agree to take part in compliance testing (The leaving signatory will be reported in the seventh reporting period as it was after the end of the sixth reporting period). On December 1st, another signatory was selected for compliance tests and has been informed for starting the process.

Communication with that Signatory proved that there are significant limitations on the boxes for sampling. On January 9th, the first information about the availability of stock for sampling was received from the Signatory. Three out of eleven box types were identified suitable for compliance testing. For the selection of test samples the Signatory made an overview of possible locations where sufficient samples were stored in order to select samples. The Signatory explained that they do not keep all box types mentioned in their signatory report in storage. On February 2nd, further enquiry of the Signatory revealed that one of the three box types was not in mass production anymore. As a result, 2 CSTB models were identified by the Independent Inspector for compliance testing. The availability of a first model type was confirmed on March 17th, however testing could not be carried out as legal issues were raised by the Signatory regarding the provision of smart cards by a third party, which are required for operation of the CSTB. Sampling for the second box type was conducted by the Independent Inspector at the warehouse of one of the Signatory's customers on June 9th. Three boxes in total were randomly selected by the Independent Inspector. The boxes were packed in the presence of the Independent Inspector and sent to the Eurofins laboratory. Test reports were received on June 28th and shared with the Signatory on July 25th after reviews and clarifications with the test laboratory.

The sampling of the first box type was carried out by the signatory at a retailer. Despite numerous attempts, the signatory did not receive the third party's authorisation to provide the Independent Inspector the smart card that is required for the compliance testing. Due to the significant delay without progressing in getting the smart card and samples, it was decided to complete this report with the available data on compliance testing.

The Eurofins laboratory was used as all facilities necessary for the measurements are present and because their staff is familiar with the procedure from previous reporting periods. The complete test procedure in the Annex of the VA (3.1) was followed. As in previous periods, some boxes have been measured overnight to check the stability of the standby mode power consumption. The boxes were tested with currently deployed software. The testing results are summarized in section 3.7.

2.4 Report of the Independent Inspector

In the process of preparing the first report, the Steering Committee agreed which kind of data the Independent Inspector could report without breaching the Non-Disclosure Agreement. This agreement was respected in this

report, with one important change that was already implemented in the second reporting period: publication of Annex D on anonymised performance data of individual CSTB types.

3 Results

3.1 General statistics

Table I provides a general overview of the number and nature of the Signatories for this reporting period, during the sixth reporting period (1 July 2015 – 31 June 2016),

- no Signatories left the VA,
- no new Signatory has entered to VA,

Cisco has been purchased by Technicolor, therefore is reported under the company name Technicolor.

Pace has been purchased by Arris, therefore is reported under the company name Arris.

Table I Overview of final response per type of Signatory.

Type and number of Signatories	Final response per type of Signatory	Reports incl. sales data
10 equipment manufacturers	10 reports	10 reports
6 service providers	6 reports	6 reports
4 other signatories	-	-
Total of 20 Signatories	16 reports	16 reports with sales data

In this reporting period, all Signatories with reporting duties submitted reports including their sales data.

By the official deadline for data submission, 1 September 2016, 11 out of 16 service providers and equipment manufacturers had responded. Until 30 September 2016 one additional report was received. By 21 October 2016 another four reports were received. One Signatory appeared to be missing model types compared to last year data and given the information on the company mergers. They were requested to check and include all the box types. Upon request, the model list was completed by the Signatory. The last complete report was received on 13 November 2016.

Signatory reports include a cover sheet where the Signatory's company name and main activity should be provided. The main activity was to be selected from a drop-down menu e.g. equipment manufacturer, service provider, software provider, etc. Similar to what was observed in the previous reporting period, one equipment manufacturer had mistakenly chosen the "service provider" option which was the default field setting of the template document. Clarification is requested from the Signatory and the option was corrected on the signatory report by the Independent Inspector.

Annex B to this report lists all Signatories, their main activity, when they joined the VA, and their compliance status.

The 16 signatories that submitted reports with sales data placed approximately 19 million CSTBs on the EU market between July 2015 and July 2016, comprising 248 different models. However, this number contains overlap of approximately 2% between equipment manufacturers and service providers.

The number of boxes with new functionality that was disabled during the measurements (as the VA allows¹.) has declined this year, unlike the trend observed in previous years. In the first year, no such boxes were sold. In the second year, its total amounted to 2% of all sales. In the third year, the total amounted to 7% of all sales. In the fourth year, the total amounted to 8% of all sales. In the fifth year, 9% of all sales accounted for CSTB where new functionalities had been disabled during the consumption measurements. In the sixth year, 4% of sales had new functionality that was disabled during the measurements.

The following types of functionality were turned off:

- 2nd year: Wi-Fi hotspot and VoIP, Blue-Ray, PLT (Power Line Transmission)
- 3rd year: Wi-Fi hotspot and VoIP, VoIP, Blue-Ray, PLT
- 4th year: VoIP, Blue-Ray and PLT
- 5th year: Wi-Fi hotspot, Blue-Ray and PLT
- 6th year: Blue-Ray and PLT

3.2 Compliance with Chapter 4.1 and Chapter 4.3.1

Following last year, in this sixth reporting period we analyse the Signatory data regarding two main verifiable obligations within Tier 2 requirements, namely VA Chapter 4.3.1 (“each Signatory shall ensure that 90% of its CSTBs comply with the applicable energy consumption targets of the VA...”) and VA Chapter 4.1 that refers to Article 3 of Annex A (that “For Tier 2, an APD feature shall be provided”).

The argument for granting 10% allowance for non-compliance also for chapter 4.1 has been discussed within the work of update of the VA, version 4. However, as version 4 was still in draft status, the review of compliance in this reporting period has been done according to V3.1 of the VA on CSTBs.

In this report, the box types that have default APD time higher than 4 hrs are regarded as non-compliant. Section 3.4 provides detailed results of APD statistics.

It has been acknowledged in previous reports that Signatories have assumed the 90% minimum compliance rate to refer to all obligations, not just those in Chapter 4.3.1 and this was the original intention in the VA. We therefore kept the distinction between being more or less than 90% compliant to Chapter 4.1 in our reporting of the compliance status per Signatory in Annex B.

¹ Annex A, A.6.

In Table II, an overview is given of compliance of all 16 Signatories with reporting duties to the different VA chapters. Following the approach taken in previous years, the compliance rates are shown in three columns. The first column shows the number of Signatories that are in a given compliance range for both the APD and TEC requirement together. All Signatories are above 90% compliance, although for one Signatory the compliance rate is only slightly above the 90% threshold. Nine Signatories have a compliance rate of 100%. In the second column, compliance with only the APD requirement is given. Four Signatories have a compliance rate below 100%. In the third column, compliance with only the Tier 2 TEC requirement is given. All Signatories have a compliance rate above 90%.

Table II Individual compliance rates of all 18 Signatories according to Chapter 4.1 and 4.3.1.

Compliance range [%]	Number of signatories in range according to Chapter 4.1 and 4.3.1 (APD and TEC requirement)	Number of signatories in range according to Chapter 4.1 (APD requirement)	Number of signatories in range according to Chapter 4.3.1 (TEC requirement)
<50	0	0	0
50-60	0	0	0
60-70	0	0	0
70-80	0	0	0
80-90	0	0	0
90-92	1	0	1
92-94	0	0	0
94-96	2	2	0
96-98	1	1	0
98-100	3	1	3
100	9	12	12

The compliance rate for only Chapter 4.1 averaged over sales of all 16 Signatories was found to be 99%.

The compliance rate for only Chapter 4.3.1 averaged over sales of all 16 Signatories was found to be 99%. This rate was 96% in the fifth reporting period and 94% in the fourth reporting period.

The compliance rate for Tier 2 (complying to Art. 4.1 as well as Art. 4.3.1) averaged over sales of all 16 Signatories was found to be 98%. The figure is higher than the last two years which was 94% and 87% in fifth and fourth reporting years, respectively.

All CSTB-types that are compliant according to Tier 2 requirements are listed in Annex C to this report².

We investigated reasons for the non-compliance rates that were shown in Table II. Some Signatories provided additional information at the time of submitting the report on their own initiative. Other Signatories were asked to provide more information on how their non-compliance has come about and what they are doing to improve the situation. The information is given in anonymised form below.

- One service provider with a compliance rate between 90-100% to Art. 4.1 and 100% to Art 4.3.1. reported that they have shipped the last non-compliant box from stock and introduced a new compliant product which is expected to be the primary box type.
- One equipment manufacturer has a compliance rate of 98% to Art. 4.1. The compliance rate to Art. 4.3.1 is 99%. The signatory reported that the CSTBs without APD are supplied to service providers who are not signatories to the VA. APD is not the default condition when the product is shipped from the equipment manufacturer. Although it is the belief of the signatory that the majority of service providers utilise ADP, they have no confirmation on this matter; therefore, they have reported the status as shipped out from their facilities.
- One equipment manufacturer has a compliance rate of 96% to Art. 4.1. The compliance rate for Art. 4.3.1 is 100%. The non-compliant boxes are the same box types where the Signatory reported the reason for non-compliance as several of their customers do not want an APD function activated per default on their CSTBs.
- One equipment manufacturer has a compliance rate of 99.8% to Art. 4.1. The compliance rate for Art. 4.3.1 is 100%. There was one model type without APD. In their reply to our enquiry the signatory has explained that the box type is nearing the end of its life and future sales into the EU are very unlikely.

An overview is provided in Table III to compare the number of signatories that have not complied with the Tier 2 requirements in last reporting periods.

Table III Number of non-compliant Signatories according to Chapter 4.1 and 4.3.1. in 4th and 5th reporting period.

Reporting Period	Number of signatories do not comply with Chapter 4.1 (APD requirement)	Number of signatories do not comply with Chapter 4.3.1 (TEC requirement)
4 th reporting period (1 July 2013 – 1 July 2014)	8	3
5 th reporting period (1 July 2014 – 1 July 2015)	6	2
6 th reporting period (1 July 2015 – 1 July 2016)	4	0

² This list provides e.g. Member States the opportunity to perform their own compliance testing.

In this third year of Tier 2 requirements, the compliance rates to the APD requirements have increased substantially. Four signatories with reporting requirements did not comply with the APD requirements to the 100% compliance rate. However, the compliance rate of one of these four signatories is only marginally (0.2%) below the 100% compliance rate. The fact that this share has been improving over the last years, shows that efforts are made and results are achieved in order to accomplish the overall objectives of the VA.

The complete set of data related to energy performances is published in Annex D in an anonymised form and in accordance to the decision of the Steering Committee at its meeting on 12 February 2013.

3.3 Functionality and energy consumption

Basic information on energy consumption of the CSTB population in this monitoring period is given in Table IV.

Table IV Energy consumption per box, averaged over all models, all Signatories

Energy consumption	kWh/year
Average over all models	46
Average allowance per model	108
Minimum consumption	8
Maximum consumption	226

The trend in decrease in the average energy consumption over all models has also been observed in the sixth reporting period. It is 46 kWh/year in this sixth reporting period, 49 kWh/year in the fifth reporting period, 61 kWh/year in the fourth reporting period. A dominant factor that caused this difference is likely to be the increased implementation of APD. This notion is supported by the data in Table IV. Nonetheless, an average per model may not be the most representative for the whole population of boxes, as it is not weighted by sales volume.

Table V provides an overview of energy consumption data for products with and without APD.

Table V Energy consumption according to APD support feature, averaged over all models, all Signatories

Reporting period	Does product support APD?	Average of Total Annual Energy Allowance (kWh/year)	Average of Product Annual Energy Consumption (kWh/year)	Min of Product Annual Energy Consumption (kWh/year)	Max of Product Annual Energy Consumption (kWh/year)
6 th	No	111	71	15	114
	Yes	108	45	8	226
5 th	No	93	62	27	108
	Yes	105	48	8	192

Table VI shows the *sales averaged* energy consumption per box reported by manufacturers and by service providers.

Table VI Average yearly energy consumption of CSTBs, averaged according to sales, for all reporting periods.

Selection of CSTBs	Equipment manufacturers kWh/year (% of allowance)	Service providers kWh/year (% of allowance)
all boxes 6 th reporting period	49 (37%)	73 (64%)
all boxes 5 th reporting period	50 (41%)	64 (65%)
all boxes 4 th reporting period	73 (61%)	87 (77%)
all boxes 3 rd reporting period	88 (52%)	118 (64%)
all boxes 2 nd reporting period	85 (54%)	118 (66%)
all boxes 1 st reporting period	70 (46%)	117 (67%)

A steady decrease in consumption could be observed in previous periods, both for manufacturers and for service providers. Quite likely this was related to the accelerated implementation of APD. However, in the sixth reporting period, the average energy consumption for service provider's CSBT increased. The reason may be the trend towards more functionalities per CSBT which in turn were deactivated in less cases during the signatories' performance test.

Figure 1 shows the distribution of sales³ as a function of the energy consumption allowance of the boxes. The figure shows that there has been improvement in efficiency compared to previous years of Tier 2 requirements. More than 60% of sales of boxes have an energy use of 50% or less than the allowed energy use. However, still a good share of boxes can achieve better efficiency levels.

³ For simplicity reasons, both 'placing on the market' (true sales) and 'putting into service' (by service providers) is called 'sales' here.

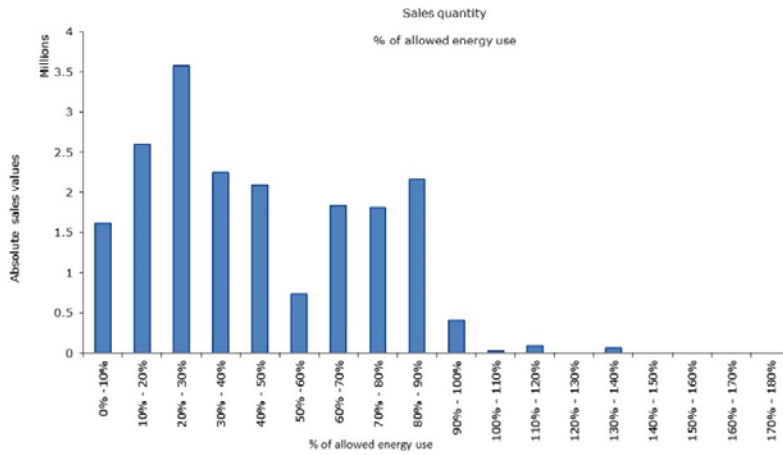


Figure 1 CSTBs put on the EU market distributed according to percentage of allowed energy consumption.

3.4 Auto Power Down Statistics

Within Tier 2 requirements, presence of an Auto Power Down mode is compulsory according to the VA. An overview of 'Auto Power Down time statistics' is given in Table VII.

Table VII Auto Power Down time statistics

Selection of CSTBs	all Signatories	service providers
% equipped with APD - sales weighted average	99%	100%
% with APD time reported - sales weighted	100%	100%
APD time - sales weighted average (hr)	3.33	2.65
APD time - min – max (hr)	0.2-4	0.2-4

Since the second reporting period, the reporting template contains the following question concerning Annex A.4: 'if APD is supported, what is the default time period after which the CSTB switches itself into standby (hrs)?'.

According to Art. A.4, if APD is present, the default time after which the device switches itself into the APD mode should not exceed 4 hours. None of Signatories reported higher APD times in the sixth reporting period.

3.5 Findings on specific Chapters other than 4.3.1

The following chapters summarize the findings per subchapter of the Voluntary Industry Agreement V3.1

3.5.1 Chapter 4.8 Information to consumers

The six service providers were asked to provide an "URL where environmental characteristics and performance of CSTB-types are reported". If not available online, they were asked to state where the information for consumers can be found. All six of them indicated one or more "URL where environmental characteristics and performance of CSTB - types are reported".

The directly available (with the final link) information on performance of CSTBs has been limited in the previous years. In the sixth reporting period, two service providers referred to a general website or annual company report where no detailed information was found. Four service providers referred to a specific web page. Three of them provided desired performance information per brand or model. Within the three service providers who delivered a link with desired information, two signatories have provided partial information as not all but the majority of the models reported under the VA were possible to be found within the information published for consumers on the website.

The results show that compared to previous reporting periods, progress has been made in standardizing the performance information as the majority of the Signatories have provided information. However, the requirement is deemed to be only partially satisfied.

3.5.2 Chapter 4.9 Procurement specifications

No checks against this Chapter were done at this time as this was not a priority for this reporting period.

3.5.3 Annex A.4

This has already been discussed in section 3.4.

3.5.4 Annex A.5

No checks against this Chapter were done at this time as this was not a priority for this reporting period.

3.5.5 Annex A.8

Annex A.8 states that CSTBs “that provide for speculative recording⁴ must have a user-accessible menu option allowing the user to disable this feature at will”. This was translated into an additional question for service providers in the reporting template since the second reporting period.

Out of the six service providers that reported:

- three have indicated that speculative recording functionality is not present, three have the speculative recording functionality enabled,
- of the three service providers that have recording functionality enabled, two reported a user accessible menu option to disable the feature,
- one service provider that has recording functionality enabled reported that a disable function can be applied upon user request.

3.6 Checking of test reports

Checking of test reports was done as part of the compliance measurements. The signatory’s report on their own testing has been checked for the purpose of comparing with the results from the recent compliance testing. The findings are reported in the next section.

3.7 Results of audit and compliance measurements

As mentioned in section 2.3.2, compliance measurements were done for 1 box type, with 2 boxes. 1 additional box was shipped for the case of irregularities with the tested boxes. The results are summarised as follows:

Deviations from the signatory’s reporting were found that should be mentioned for transparency or required more explanation or discussion:

1. The signatory did not claim the allowance for *Full HD resolution* since the device also supports *Ultra HD resolution*. For Tier 2, it was possible to claim both allowances in parallel.
2. The signatory did not claim the allowance for an *Access to additional RF Channels* despite an additional channel was available. This additional RF channel has not been tested during the compliance testing.
3. *APD* only works from the - user initiated – Daydream (Screen saver) mode, it does not activate from the “on mode” as intended by (VIA3.1, Annex A.4).

⁴ Typically push video-on-demand content.

4. The timer for *APD* can be set to “never”. Since “never” basically exceeds the maximum period of 8 hours, this ability is not compliant with VIA3.1, Annex A.4.

For the noncompliance with *APD*, the Signatory explained that the configuration of the STB is an Android application which is provided by a service provider and another third party who do not want to have an *APD* when their application is running or who do want to develop the *APD* function.

Conclusions on compliance testing

1. While the Signatory’s box met all TEC requirements, it did not meet *APD* requirements due to the possibility of exceeding maximum period of 8 hours. Some differences in measurement methods and outcomes were observed. The box type b is excluded from Annex C, however the result did not have an influence on the overall status of the Signatory’s compliance.
2. A mistake in claiming functionality was observed in one case, leading to claiming less functionality.

Recommendations

1. We recommend to further define/limit the term “overridden” in Annex A.4 to strengthen the *APD* requirement and to stress the legal meaning of “shall” to the signatories since the requirements of Annex A.3 and A.4 appear to be interpreted as optional.

4 Conclusions

4.1 Conclusions on compliance with the commitments

In this sixth reporting period, 20 Signatories committed to the VA. Among those, 16 Signatories had to send in data according to the specified reporting template. This is the third reporting period where data templates included only data entry for Tier 2 requirements.

In the same manner as the fifth reporting period, the compliance of the 16 Signatories was analysed with respect to two main obligations, namely VA Chapter 4.3.1 (“each Signatory shall ensure that 90% of its CSTBs comply with the applicable energy consumption targets of the VA...”) and VA Chapter 4.1 that refers to Article 3 of Annex A (that “For Tier 2, an APD feature shall be provided”).

Compliance with Chapter 4.3.1

All 16 Signatories complied with Chapter 4.3.1. The average compliance rate was found to be 99%. One Signatory’s (service provider) compliance rate was only slightly above the 90% compliance rate threshold according to Chapter 4.3.1. No further investigations were done among the Signatories regarding compliance with chapter 4.3.1.

Compliance with Chapter 4.1 (Article A.3 and A4)

According to Tier 2 requirements, Article A.3 of Annex A demands, that all CSTBs should have an APD capability. According to Article A.4, when APD is present, the default period after which CSTB switches itself into the lowest standby mode should be no more than 4 hours. In the sixth reporting period, 12 Signatories had a compliance rate of 100% by providing APD in their model types. Four Signatories had a compliance rate that is greater than 90% but smaller than 100%. The compliance rate for only Chapter 4.1 averaged over sales of all 16 Signatories was 99%.

The Signatories’ reports show a high rate of compliance with Chapter 4.3.1 and 4.1. The Signatories and the reasons for their non-compliance are the same as in the previous two reporting periods. The main reasons stated by the signatories are:

- delayed phasing out of box types non-compliant to Tier 2 (mentioned by two Signatories)
- Customers of the equipment manufacturers, Service providers who are not part of the VA, that do not want an APD function activated per default on their CSTBs (mentioned by two equipment manufacturers)

It can be concluded that in the sixth reporting period, progress has been achieved in fulfilling the Tier 2 requirements, yet not all Signatories actually fully meet all requirements.

Chapter 4.8 (Performance information to consumers)

In the sixth reporting period, once again it was seen that the performance information provided by the service providers to their customers has a diverse nature. In some cases it is not possible for the Independent Inspector to trace the information due to two reasons;

- information is only provided for a number of model types and the list of models does not correspond with the model types in the signatory reports,
- the URLs provided by the Signatories lead to overview web pages which do not provide access to the documents that contain desired technical information per brand or model type.

In chapter 3.5.1. of the fourth report of the Independent Inspector, a proposal for standardization of the information related to the characteristics and performance of CSTBs was provided. It is beneficial to standardize the information in line with this proposal to provide customers with transparent, easily accessible environmental characteristics and energy performance information on their purchased products.

4.2 Conclusions on the monitoring process

For this reporting period, the last complete report was received on November 13th. The Signatories who have not submitted reports on time were reminded to submit their reports through September and October. As in previous reports, we stress that data processing can only start after the last report has been received not only because all reports can receive the same attention but also because all reports are needed to produce the statistics.

4.3 Recommendations

The topics that were raised as a problem for the VA are similar to what had been observed in previous years. The Independent Inspector recommends that discussions are held in the Steering Committee resulting in decisions on follow-up actions.

- On how to deal with the (repeated) non-compliance of signatories,
- to collect further data in order to evaluate the overall market share of the compliant products to be able to assess whether the impact of the VA is in line with eco-design requirements,
- on how to motivate service providers who are not part of the VA to abide by the requirements of the VA,
- on the standardisation of performance information to consumers.

Furthermore, the Independent Inspector recommends that the Steering Committee

- Speaks out on the validity of not submitting a report (claiming exemption) by a Signatory who has re-entered the VA,
- keeps encouraging all Signatories to report in time, ensuring accuracy of the provided information and respond to questions in a timely manner.

5 Annex A Reporting Template for Signatories

Columns standard reporting template, Tier 2
Manufacturer / Brand
Model Type
Base Functionality
NEW innovative functionality disabled?
Access to additional RF channels
Advanced Video Processing
High efficiency Processing
DVR
DOCSIS 3.0 or VDSL
HD
Return path functionality
Full HD
Ultra HD
3D-TV
Advanced graphics processing
DOCSIS 2.0 or ADSL
Multi decode
Multi-display
In home network
Total Annual Energy Allowance (kWh/year)
On Power (W)
Standby Power (W)
Does product support APD?
APD Power (W)
A.4: if APD supported, what is default time period after which the CSTB switches itself into standby (hrs)?
Product Annual Energy Consumption (kWh/year)
Compliance margin (%)
% of allowed energy use
Complies with VIA 3.0
Tier 2
Annual Sales Quantity placed on the internal market during the reporting period?

In addition, service providers are requested to provide answers to questions related to Art. 4.8 and A.8.

Concerning 4.8 they are asked to provide

- A URL where environmental characteristics and performance of CSTB-types are reported:
- If this is not available online they are asked to state where information can be found

Concerning A.8 they are asked the following for devices with recording functionality:

- Is there a user-accessible menu option allowing the user to disable this feature at will?
- Is there a disable function that can be applied upon user request (for example via the Service Provider call centre)?
- Are instructions provided for disabling speculative recording?

6 Annex B List of Signatories

As of Nov. 5th, 2015

	Company	Main activity	Signed up on	Status	reported (Y/N)	Compliant acc. to Art 4.1.3 and art 4.3 of VA
1	Advanced Digital Broadcast S.A.	equipment manuf.	Nov. 2011	already in VA	y	Compliant
2	Amino Communications Ltd	equipment manuf.	Nov. 2011	already in VA	y	Compliant to 4.3.1 Non-compliant to 4.1
3	ARRIS	equipment manuf.	26th March 2012	already in VA	y	Compliant to 4.3.1 Non-compliant to 4.1
5	Deutsche Telekom AG	service provider	27th January 2012	already in VA	y	Compliant
6	Entropic Communications	silicon and software solutions	30th July 2012	already in VA	n	N/A*
7	Humax Digital	equipment manuf.	Nov. 2011	already in VA	y	Compliant
8	Intel	third category	Nov. 2011	already in VA	n	N/A*
9	Kaon Media	equipment manuf.	Feb. 2014	already in VA	y	Compliant
11	Proximus	service provider	Nov. 2014	new entered to VA	y	Compliant
12	Sagemcom Broadband SAS	equipment manuf.	Aug. 2011	already in VA	y	Compliant**
13	Samsung	equipment manuf.	Jul. 2011	already in VA	y	Compliant
14	Sky Deutschland Fernsehen GmbH & Co.	service provider	Aug. 2011	already in VA	y	Compliant
15	Sky Italia Srl	service provider	May 2011	already in VA	y	Compliant
16	Sky UK	service provider	Nov. 2011	already in VA as BskyB	y	Compliant
17	Smardtv	equipment manuf.	Jun. 2014	already in VA	y	Compliant
18	ST Microelectronics International N.V	chip vendor	Apr. 2013	already in VA	n	N/A*
19	Tatung Technology Inc	equipment manuf.	Oct. 2011	already in VA	y	Compliant

	Company	Main activity	Signed up on	Status	reported (Y/N)	Compliant acc. to Art 4.1.3 and art 4.3 of VA
20	Technicolor	equipment manuf.	Sept. 2011	already in VA	y	Compliant to 4.3.1 Non-compliant to 4.1
21	Texas Instruments	component manuf.	Oct. 2011	already in VA	n	N/A*
22	Viasat Satellite Services AB	service provider	Aug. 2011	already in VA	y	Compliant to 4.3.1 Non-compliant to 4.1

(*) N/A is put for signatories who are not required to send in regular reports and who have not received additional questions from the Independent Inspector

(**) Sagemcom declined to take part in Independent Inspector Audit in the sixth reporting period as they have declared to leave the VA in the seventh reporting period.

7 Annex C List of compliant CSTBs

Compliant CSTB models equipment manufacturers

Manufacturer	Model
ADB	1110SV Storm
ADB	ADB-3831CD
ADB	ADB-3831CD
ADB	ADB-3831CDX
ADB	ADB-3831CD
ADB	ADB-3831CDX
ADB	ADB-2841TW
ADB	TLA-1722W
ADB	4000T2
ADB	ADB-3831CDX
ADB	HD5000
ADB	3900T2
ADB	4000S
ADB	3900S
ADB	NCP-4740SF
ADB	HD6500
ADB	HD4500
ADB	ADB-1750C
ADB	TLN-5744CX (DC-AD2200)
ADB	VEC-1721C
ADB	ADB-2840C
ADB	VEC-4730CD
ADB	ADB-3830CD
ADB	BLZ-1721C
ADB	4900T+
ADB	5000T+
Amino Communications Ltd	A140
Amino Communications Ltd	A540
Amino Communications Ltd	M540
Amino Communications Ltd	A50
Amino Communications Ltd	A150
Amino Communications Ltd	H150
Amino Communications Ltd	A550
Arris	VIP2262V2

Manufacturer	Model
Arris	HMC3000
Arris	VIP1103
Arris	VIP1113
Arris	VIP1113W
Arris	VIP2853
Arris	VIP2853C
Arris	VIP2853 DVR
Arris	VIP2952 D V2
Arris	DCX960
Arris	HMC4120
Arris	VIP4302
Arris	VIP4302W BT
Arris	DCR7151/24
Arris	HDS7241/16
Arris	TDS866NSDX
Arris	DZC3000NGT
Arris	DZS3001NS
Arris	DGC7001NGT
Arris	DPS5001IFN
Arris	DZS3001IFN
Arris	DPS5002NS
Arris	ZD4500ZNO
Arris	DCR7111
Arris	DMC7002KLG2
Arris	DMC7002KLG2 diskless
Arris	ZC3010LDC
Arris	DSR8151/24
Humax Digital	HDR-4100C/DE
Humax Digital	HDR-4000C/E
Humax Digital	iHD-FOX C
Humax Digital	CXHD-5100C
Humax Digital	S HD3
Humax Digital	S HD4
Humax Digital	HD-FOX C
Humax Digital	HD-FOX C/Delta
Humax Digital	HDR-1002C
Humax Digital	DTR-T2100
Humax Digital	DTR-T2110
Humax Digital	DTR-T2120
Humax Digital	IRHD-5300C

Manufacturer	Model
Humax Digital	IRHD-5300C/NL/Caiway
Humax Digital	IRHD-5300C/Ziggo
Humax Digital	iHDR-5200C/NL
Humax Digital	iHDR-5400C
Humax Digital	BXR-HD2
Humax Digital	BXR-HD+2
Humax Digital	CDIG-1000C/SE
Humax Digital	CXHD-6000C/SE
Humax Digital	DTR-T4000
Humax Digital	DB-T2200
Humax Digital	DB-T2220
Humax Digital	UH-FOX/HD/CZ
Humax Digital	HD NANO Connect/DE
Humax Digital	iCord Cable/500G/DE
Humax Digital	iCord Pro/500GB
Humax Digital	iCord Pro/1&1
Humax Digital	iCord NEO
Humax Digital	HMS-1000S/DE
Humax Digital	HD NANO ECO
Humax Digital	HDR-2000T/500G
Humax Digital	HDR-2000T/1TB
Humax Digital	DTR-T1010/GB/1TB
Humax Digital	DTR-T1010/GB/2TB
Humax Digital	HB-1000S
Humax Digital	HDR-1000S/500G
Humax Digital	HDR-1000S/1TB
Humax Digital	HDR-1000S/2TB
Humax Digital	HDR-1010S
Humax Digital	FR1000HD
Humax Digital	HD-5400S
Humax Digital	HD-5600S
Humax Digital	TIVUMAX PRO
Humax Digital	HDR-1001S
Humax Digital	HDR-1000T
Humax Digital	HMS-1000S/IT
Humax Digital	HDR-1800T/GB/320GB
Humax Digital	DTR-T2000/GB/500GB
Humax Digital	DTR-T2000/GB/1TB
Humax Digital	Digimax Easy
Humax Digital	H1/DE

Manufacturer	Model
Humax Digital	HD NANO FREE
Humax Digital	TN7000HD
Humax Digital	YSR-2000/DK
Humax Digital	YS-1000/DK
Humax Digital	CDIG-2000C/R/SE
Humax Digital	FVP-4000T/GB/BR/500GB
Humax Digital	FVP-4000T/GB/BR/1TB
Humax Digital	FVP-4000T/GB/DB/500GB/MC
Humax Digital	FVP-4000T/GB/DB/1TB
Humax Digital	FVP-4000T/GB/BL/2TB
Humax Digital	HDR-1100S/GB/WH/500GB
Humax Digital	HDR-1100S/GB/WH/1TB
Humax Digital	HDR-1100S/GB/WH/2TB
Humax Digital	HDR-1100S/GB/BL/500GB
Humax Digital	HDR-1100S/GB/BL/1TB
Humax Digital	H3/NL
Humax Digital	Simply Connect (Boulangr)
Humax Digital	TN8000HD/Bundle
Humax Digital	HD NEO/DE
Humax Digital	HGS-1000S
Humax Digital	HD-6400S
Humax Digital	HD-6600S
Humax Digital	HD-6800S
Kaon Media	CO3600
Kaon Media	KCF-SA900PCO
Sagemcom Broadband SAS	DCI85 HD
Sagemcom Broadband SAS	RCI88-xxx
Sagemcom Broadband SAS	ESCI91-HD V2
Sagemcom Broadband SAS	EGCI426-00
Sagemcom Broadband SAS	EGCI429
Sagemcom Broadband SAS	RTI422-320
Sagemcom Broadband SAS	RTIB421-320
Sagemcom Broadband SAS	ETI916-500 MA
Sagemcom Broadband SAS	DTIW77 HD
Sagemcom Broadband SAS	ITSAD88 HD
Sagemcom Broadband SAS	DSIW79 HD
Sagemcom Broadband SAS	DSIW74 HD
Sagemcom Broadband SAS	RTIW383
Sagemcom Broadband SAS	ESI383-500
Sagemcom Broadband SAS	DTIW384 UHD UK

Manufacturer	Model
Sagemcom Broadband SAS	DTIW384 UHD SP
Sagemcom Broadband SAS	DTIW384 UHD IT
Sagemcom Broadband SAS	DEC EGCI384 UHD
Samsung	SMT-E6400/XEN
Samsung	SMT-G7400/XEN
Samsung	SMT-G7401/XEN
Samsung	SMT-E7100N/OFR
Samsung	SMT-E7100W/NFR
Samsung	GX-MT730EK/MT
Samsung	GX-MT731EK/MT
Samsung	GX-SM540SH/ZG
Samsung	GX-SM550SH/ZG
Samsung	GX-SM650SJ/ZG
Samsung	MR303BP/XEG
Samsung	SMT-C5120A/XEG
Samsung	GX-ME530TK/ZT
Samsung	GX-CM700CF/COM
Samsung	GX-VI680SJ/VIA
Samsung	SMT-S5140/VIA
Samsung	SMT-S7140/VIA
Samsung	GX-PT640SJ/PT
Samsung	GX-PT730SH/PT
Samsung	SMT-C7100A/VML
Smardtv	VT 30 HD+
Smardtv	STB-301VDS
Tatung Technology Inc	STB3210
Tatung Technology Inc	STB3310
Tatung Technology Inc	STB-3112CDA
Tatung Technology Inc	STB-3012CDA
Tatung Technology Inc	STB-3112CEE
Tatung Technology Inc	STB-3012CEE
Tatung Technology Inc	STB-3212
Tatung Technology Inc	STB-3112
Tatung Technology Inc	STB-3012
Tatung Technology Inc	STB-3312
Tatung Technology Inc	STB-2560
Tatung Technology Inc	STB-3030
Tatung Technology Inc	STB3032
Tatung Technology Inc	STB3132
Technicolor	DTI744CNL

Manufacturer	Model
Technicolor	DCI402-KE
Technicolor	DTI716TI2
Technicolor	DSI810OTE
Technicolor	DCI811WNC
Technicolor	DSI810WNC
Technicolor	8620DVB
Technicolor	8685DVB
Technicolor	ISB8430
Technicolor	IPV5001
Technicolor	ISB2201
Technicolor	ISB2231

Compliant CSTB models service providers

Model
DZS3001NS
DPS5002NS
DRX892i
TT4200
DRX890WL
DRX895WL
DRX595L
ES130
ES140
EM150
2400SK
4200SK
4500SK
4201SP
TDS865NSD (S PVR HD1)
TDS866NSD (S HD PVR 101)
TDS865NSDX (S HD2)
TDS865NSDX (S HD2) incl. 320GB /500GB HDD
TDS865NSDX (S HD2) incl. 2TB HDD
TDS866NSDX (S HD201)
TDS866NSDX (S HD201) incl. 320GB /500GB HDD
TDS866NSDX (S HD201) incl. 2TB HDD
PR-HD3000 (S HD4) old HW (BA1134)
PR-HD3000 (S HD4) old HW (BA1134) incl. 320GB /500GB HDD

Model
PR-HD3000 (S HD4) old HW (BA1134) incl. 2TB HDD
PR-HD3000 (S HD4) new HW (BA1147)
PR-HD3000 (S HD4) new HW (BA1147) incl. 320GB /500GB HDD
PR-HD3000 (S HD4) new HW (BA1147) incl. 2TB HDD
TDC866NSDX (S HD501C)
TDC866NSDX (S HD501C) incl. 320GB /500GB HDD
TDC866NSDX (S HD501C) incl. 2TB HDD
PR-HD3000C (S HD3) old HW (BA1135)
PR-HD3000C (S HD3) old HW (BA1135) incl. 320GB /500GB HDD
PR-HD3000C (S HD3) old HW (BA1135) incl. 2TB HDD
PR-HD3000C (S HD3) new HW (BA1148)
PR-HD3000C (S HD3) new HW (BA1148) incl. 320GB /500GB HDD
PR-HD3000C (S HD3) new HW (BA1148) incl. 2TB HDD
MR 102+
MR 303 A+
MR 303 B+
MR 200
MR 400
SMT-S7140
SMT-S5140
SMT-S5140 IP
TDS865NV
GX-VI680SJ
V5 compact
V5

8 Annex D CSTB properties

Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	High efficiency Processing	HD	Full HD	Ultra HD	3D-TV	Advanced graphics processing	DVR	Return path	DOCSIS 2.0 or ADSL	DOCSIS 3.0 or VDSL	Multi decode	Multi display	In home network	On Power (W)	Standby Power (W)	Does product support APD?	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Cable	No	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	4.02	0.25	Yes	0.25	8.38
Cable	No	1	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes	No	0	6.80	0.25	Yes	0.25	12.95
Cable	0	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	0	7.30	0.45	Yes	0.45	15.19
Cable	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	7.30	0.45	Yes	0.45	15.19
Cable	0	1	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No	No	No	No	1	8.04	0.31	Yes	0.31	15.40
Cable	No	3	Yes	Yes	Yes	No	No	No	No	No	Yes	No	No	No	No	0	9.11	0.37	Yes	0.37	17.60
Cable	0	0	Yes	0	Yes	0	0	0	0	No	Yes	0	No	0	No	0	7.55	1.00	yes	1	19.52
Cable	0	0	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	0	5.51	1.50	Yes	1.5	19.73
Cable	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	10.11	0.48	Yes	0.48	20.02
Cable	No	1	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	11.90	0.28	Yes	0.28	21.54
Cable	No	1	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	11.90	0.28	Yes	0.28	21.54
Cable	no	5	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	Yes	No	0	12.03	0.36	Yes	0.36	22.32
Cable	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	12.48	0.28	Yes	0.28	22.49
Cable	No	3	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No	No	0	12.21	0.36	Yes	0.36	22.62
Cable	No	1	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	13.15	0.29	Yes	0.29	23.66
Cable	0	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	12.58	0.43	Yes	0.43	23.72
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No	No	0	12.83	0.41	Yes	0.41	23.99
Cable	0	3	Yes	No	Yes	Yes	No	No	No	No	Yes	Yes	0	No	No	0	14.40	0.25	Yes	0.2548	25.46
Cable	0	0	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	14.00	0.40	Yes	0.4	25.84
Cable	0	1	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	14.10	0.40	Yes	0.4	26.01
Cable	0	0	Yes	No	Yes	Yes	No	No	No	Yes	No	No	No	No	No	0	14.70	0.28	Yes	0.28	26.14

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Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	High efficiency Processing	HD	Full HD	Ultra HD	3D-TV	Advanced graphics processing	DVR	Return path	DOCSIS 2.0 or ADSL	DOCSIS 3.0 or VDSL	Multi decode	Multi display	In home network	On Power (W)	Standby Power (W)	Does product support APD?	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Cable	0	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	14.77	0.40	Yes	0.4	27.11
Cable	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	8.79	1.92	Yes	1.89	28.05
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	15.35	0.41	Yes	0.41	28.13
Cable	0	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	17.00	0.30	Yes	0.3	30.06
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No	No	0	15.12	0.83	Yes	0.83	30.74
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No	No	0	15.43	0.76	Yes	0.76	30.75
Cable	0	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	17.00	0.43	Yes	0.43	30.98
Cable	0	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	17.00	0.43	Yes	0.43	30.98
Cable	No	0	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	4.89	4.17	Yes	0.13	31.08
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	17.58	0.41	Yes	0.41	31.79
Cable	0	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	17.70	0.40	Yes	0.4	31.92
Cable	0	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	17.70	0.40	Yes	0.4	31.92
Cable	0	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	17.70	0.40	Yes	0.4	31.92
Cable	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	0	9.92	2.34	Yes	2.24	32.78
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	16.93	0.76	Yes	0.76	33.22
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	16.73	0.83	Yes	0.83	33.39
Cable	0	1	Yes	0	Yes	0	0	0	0	Yes	Yes	0	No	0	No	0	17.87	0.60	yes	0.6	33.62
Cable	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	0	5.01	5.01	Yes	0.274	36.11
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	19.21	0.83	Yes	0.83	37.46
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	19.65	0.76	Yes	0.76	37.68
Cable	No	1	No	No	No	Yes	No	No	No	Yes	No	No	No	No	No	0	11.80	2.90	Yes	2.9	40.02
Cable	0	0	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	0	11.60	0.41	No	0	40.35
Cable	0	3	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	24.06	0.41	Yes	0.41	42.44
Cable	0	3	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	24.06	0.41	Yes	0.41	42.44

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Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	High efficiency Processing	HD	Full HD	Ultra HD	3D-TV	Advanced graphics processing	DVR	Return path	DOCSIS 2.0 or ADSL	DOCSIS 3.0 or VDSL	Multi decode	Multi display	In home network	On Power (W)	Standby Power (W)	Does product support APD?	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Cable	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	8.85	4.20	Yes	4.2	44.43
Cable	0	1	Yes	0	Yes	0	0	0	0	Yes	Yes	0	No	0	No	0	17.10	2.45	yes	2.45	45.52
Cable	No	0	Yes	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No	No	No	1	12.53	3.75	Yes	3.7	47.19
Cable	No	1	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	0	10.00	8.90	Yes	8.9	79.77
Cable	No	0	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	0	10.58	8.98	Yes	8.97	81.28
Cable	No	5	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	No	3	47.50	0.50	Yes	0.5	81.58
Cable	No	0	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	0	10.17	9.37	Yes	9.37	83.40
Cable	No	1	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	12.75	11.76	Yes	0.44	86.05
Cable	No	0	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	0	10.80	9.80	Yes	9.4	86.83
Cable	0	0	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	0	9.87	10.02	No	0	87.28
Cable	No	5	No	No	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	No	3	51.00	0.50	Yes	0.5	87.33
Cable	No	0	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	0	11.62	10.15	Yes	10.15	91.33
Cable	No	0	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	0	11.62	10.15	Yes	10.15	91.33
Cable	No	1	Yes	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No	No	0	11.65	10.16	Yes	10.09	91.33
Cable	No	3	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	13.87	9.95	Yes	9.95	93.60
Cable	No	1	Yes	No	No	No	No	No	Yes	No	Yes	Yes	No	No	No	0	14.18	13.13	Yes	0.33	95.72
Cable	No	0	Yes	No	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	0	12.60	10.60	Yes	10.6	96.14
Cable	No	3	Yes	No	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	1	20.20	10.13	Yes	10.13	105.28
Cable	No	0	Yes	No	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	0	12.60	12.10	Yes	12.1	106.82
Cable	No	0	Yes	No	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	0	12.60	12.10	Yes	12.1	106.82
Cable	no	2	Yes	No	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	0	19.43	11.05	Yes	11.05	110.56
Cable	No	3	Yes	No	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	1	19.80	10.98	Yes	10.98	110.67
Cable	No	0	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	No	1	14.04	12.28	No	0	113.35
Cable	No	0	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes	No	1	15.42	11.51	No	0	113.67

ECOFYS

A Navigant Company

Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	High efficiency Processing	HD	Full HD	Ultra HD	3D-TV	Advanced graphics processing	DVR	Return path	DOCSIS 2.0 or ADSL	DOCSIS 3.0 or VDSL	Multi decode	Multi display	In home network	On Power (W)	Standby Power (W)	Does product support APD?	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Cable	no	2	Yes	No	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	0	19.59	12.30	Yes	12.3	119.72
Cable	Blue-Ray	3	Yes	yes	0	yes	0	0	yes	Yes	Yes	0	Yes	yes	0	1	38.38	9.30	Yes	9.3	129.23
Cable	0	3	Yes	yes	0	yes	0	Yes	Yes	Yes	Yes	0	Yes	Yes	0	1	38.38	9.30	Yes	9.3	129.23
Cable	No	3	Yes	No	Yes	Yes	No	No	Yes	No	Yes	No	Yes	No	No	2	18.68	19.95	Yes	14.11	163.08
cable	0	5	0	yes	0	0	yes	0	yes	yes	yes	0	yes	yes	0	1	27.50	14.70	yes	25	166.71
Cable	No	3	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	No	0	25.79	23.84	Yes	0.38	173.51
Cable	No	3	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	No	No	2	23.76	21.70	Yes	14.48	181.62
Cable	No	5	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	Yes	Yes	No	1	25.04	21.74	Yes	21.74	195.86
IP	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	3.95	0.16	Yes	0.16	7.63
IP	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	1	3.60	0.26	Yes	0.26	7.76
IP	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes	No	0	4.65	0.31	Yes	0.31	9.84
IP	No	0	Yes	No	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	0	5.06	0.25	Yes	0.25	10.09
IP	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes	No	0	5.82	0.22	Yes	0.22	11.13
IP	no	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes	No	0	5.42	0.37	Yes	0.37	11.54
IP	0	0	0	0	yes	0	0	0	0	no	no	0	0	0	0	0	5.80	0.30	Yes	0.3	11.66
IP	0	0	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	1	1.41	1.34	Yes	1.34	11.85
IP	No	0	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	1	5.72	0.49	Yes	0.49	12.88
IP	No	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	Yes	No	0	6.94	0.22	Yes	0.22	12.96
IP	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	3.81	1.20	Yes	0.4	13.48
IP	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes	No	1	7.48	0.33	Yes	0.33	14.63
IP	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes	No	0	4.23	0.29	No	0	15.48
IP	No	0	No	No	No	Yes	No	No	No	No	Yes	No	No	No	No	0	8.95	0.26	Yes	0.26	16.55
IP	no	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	Yes	No	0	9.64	0.36	Yes	0.36	18.40

ECOFYS

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Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	High efficiency Processing	HD	Full HD	Ultra HD	3D-TV	Advanced graphics processing	DVR	Return path	DOCSIS 2.0 or ADSL	DOCSIS 3.0 or VDSL	Multi decode	Multi display	In home network	On Power (W)	Standby Power (W)	Does product support APD?	APD Power (W)	Product Annual Energy Consumption (kWh/year)
IP	0	0	0	yes	0	0	yes	0	0	0	yes	0	0	0	0	0	8.50	0.70	yes	0.7	18.94
IP	0	0	0	yes	0	0	yes	0	0	0	yes	0	0	0	0	0	8.50	0.70	yes	0.7	18.94
IP	0	0	0	yes	0	0	yes	0	0	0	yes	0	0	0	0	0	8.70	0.80	yes	0.8	19.98
IP	no	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	Yes	No	0	11.51	0.38	Yes	0.38	21.61
IP	0	1	Yes	No	No	Yes	No	No	No	No	Yes	No	No	No	No	1	11.66	0.39	Yes	0.39	21.93
IP	PLT	1	Yes	0	0	yes	0	0	0	Yes	Yes	0	No	yes	Yes	0	10.84	0.67	Yes	0.67	22.57
IP	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	10.03	1.27	Yes	1.28	25.53
IP	0	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	3.30	2.90	Yes	2.9	26.06
IP	0	0	Yes	No	Yes	Yes	No	No	Yes	No	Yes	No	No	No	No	1	13.40	0.62	Yes	0.62	26.42
IP	0	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	1	3.27	3.12	Yes	3.12	27.58
IP	0	0	Yes	No	Yes	Yes	No	No	Yes	No	Yes	No	No	No	No	1	14.09	0.63	Yes	0.6299	27.62
IP	0	0	Yes	Yes	Yes	No	Yes	No	No	No	Yes	No	No	No	No	1	6.44	1.28	no	1.278	28.14
IP	0	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	1	3.38	3.26	Yes	3.26	28.75
IP	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes	No	1	8.48	0.21	No	0	29.01
IP	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes	No	0	3.90	3.50	Yes	2.21	29.20
IP	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes	No	0	4.10	3.62	Yes	2.36	30.43
IP	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes	No	0	4.41	3.60	Yes	2.44	30.96
IP	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6.39	3.89	Yes	0.72	32.98
IP	N	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	7.10	3.30	Yes	3.3	35.15
IP	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	4.50	3.87	No	0	35.97
IP	Blue-Ray	2	Yes	yes	0	yes	0	yes	yes	Yes	Yes	0	No	yes	Yes	1	17.50	1.34	Yes	1.34	38.28
IP	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	5.71	4.28	Yes	4.53	40.25
IP	0	0	Yes	No	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	0	6.28	5.53	Yes	0.402	41.23

ECOFYS

A Navigant Company

Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	High efficiency Processing	HD	Full HD	Ultra HD	3D-TV	Advanced graphics processing	DVR	Return path	DOCSIS 2.0 or ADSL	DOCSIS 3.0 or VDSL	Multi decode	Multi display	In home network	On Power (W)	Standby Power (W)	Does product support APD?	APD Power (W)	Product Annual Energy Consumption (kWh/year)
IP	No	0	Yes	No	Yes	Yes	No	No	Yes	No	Yes	No	No	No	No	1	24.20	0.50	Yes	0.5	43.31
IP	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes	No	0	7.06	5.96	Yes	0.43	44.93
IP	No	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	Yes	No	0	6.90	5.27	Yes	4	46.76
IP	0	0	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	0	8.54	5.95	Yes	0.388	47.24
IP	N	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	8.9	5.3	Yes	3.3	49.056
IP	No	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	Yes	No	0	8.66	6.58	Yes	0.43	50.96
IP	No	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	7.10	5.64	Yes	5.87	52.18
IP	0	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	Yes	No	0	9.34	7.14	Yes	0.34	54.99
IP	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	Yes	No	0	9.41	7.14	Yes	0.41	55.22
IP	No	0	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	No	No	Yes	No	0	3.96	8.80	Yes	0.37	55.29
IP	No	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	8.01	5.99	Yes	6.21	56.15
IP	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	Yes	No	0	9.87	7.18	Yes	0.39	56.16
IP	No	1	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	0	7.40	6.30	Yes	6.3	56.99
IP	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	Yes	No	0	10.23	7.31	Yes	0.45	57.56
IP	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	Yes	No	0	11.25	7.75	Yes	0.36	61.50
IP	No	2	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	Yes	No	0	14.75	6.85	Yes	0.4	62.39
IP	0	0	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	0	12.54	7.58	Yes	0.3	62.59
IP	No	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	11.40	8.08	Yes	0.24	63.36
IP	0	0	Yes	Yes	0	0	Yes	0	yes	yes	yes	0	0	0	0	0	14.86	5.51	yes	5.51	63.62
IP	0	1	Yes	0	0	yes	0	0	0	Yes	Yes	0	No	yes	Yes	0	19.30	4.90	Yes	4.9	66.58
IP	No	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	Yes	No	0	12.53	8.46	Yes	0.44	67.62
IP	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	Yes	No	0	7.93	8.20	No	0	70.95
IP	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	Yes	No	1	10.89	9.56	Yes	0.5	71.05
IP	0	0	Yes	No	Yes	Yes	No	No	Yes	No	Yes	No	No	No	No	2	9.77	7.87	Yes	7.87	72.06

ECOFYS

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Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	High efficiency Processing	HD	Full HD	Ultra HD	3D-TV	Advanced graphics processing	DVR	Return path	DOCSIS 2.0 or ADSL	DOCSIS 3.0 or VDSL	Multi decode	Multi display	In home network	On Power (W)	Standby Power (W)	Does product support APD?	APD Power (W)	Product Annual Energy Consumption (kWh/year)
IP	0	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	Yes	No	0	15.19	8.67	Yes	0.26	72.84
IP	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	Yes	No	0	13.94	9.53	Yes	0.6	76.07
IP	No	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	Yes	No	0	15.02	9.32	Yes	0.383	76.33
IP	No	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	Yes	No	0	15.61	9.39	Yes	0.272	77.49
IP	No	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	Yes	No	0	16.15	9.64	Yes	0.4	79.96
IP	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	9.83	8.82	No	0	80.58
IP	No	0	Yes	No	Yes	No	No	No	Yes	Yes	Yes	No	No	Yes	No	1	10.25	8.90	No	0	82.40
IP	No	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	Yes	No	0	17.22	11.52	Yes	0.56	92.27
IP	No	0	Yes	No	Yes	No	No	No	Yes	Yes	Yes	No	No	Yes	No	0	13.21	10.84	Yes	10.7	98.62
IP	No	1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	15.20	13.37	Yes	0.39	98.81
IP	No	0	Yes	No	Yes	No	No	No	Yes	No	No	No	No	Yes	No	1	12.25	11.85	No	0	105.12
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	3.87	0.30	Yes	0.3	8.49
Satellite	No	1	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	5.44	0.24	Yes	0.24	10.64
Satellite	No	1	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	5.44	0.24	Yes	0.24	10.64
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	6.21	0.17	Yes	0.17	11.41
Satellite	No	2	No	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes	No	1	6.89	0.21	Yes	0.21	12.81
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	Yes	No	0	6.74	0.30	Yes	0.2974	13.19
Satellite	No	2	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No	Yes	No	1	7.21	0.21	Yes	0.21	13.34
Satellite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.51	0.24	Yes	0.24	14.04
Satellite	0	1	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	5.44	0.90	Yes	0.9	15.34
Satellite	0	0	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	7.69	0.39	Yes	0.39	15.41
Satellite	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	0	7.70	0.43	Yes	0.43	15.71
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	8.00	0.38	Yes	0.38	15.84
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	0	8.30	0.43	Yes	0.43	16.69

ECOFYS

A Navigant Company

Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	High efficiency Processing	HD	Full HD	Ultra HD	3D-TV	Advanced graphics processing	DVR	Return path	DOCSIS 2.0 or ADSL	DOCSIS 3.0 or VDSL	Multi decode	Multi display	In home network	On Power (W)	Standby Power (W)	Does product support APD?	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	0	8.50	0.40	Yes	0.4	16.81
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	8.50	0.40	Yes	0.4	16.81
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	8.50	0.40	Yes	0.4	16.81
Satellite	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	8.63	0.42	Yes	0.42	17.16
Satellite	0	0	yes	0	yes	0	0	0	yes	0	yes	0	0	0	0	0	9.54	0.22	Yes	0.22	17.24
Satellite	0	1	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No	No	No	No	1	8.99	0.47	Yes	0.471	18.10
Satellite	0	0	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	10.20	0.40	Yes	0.4	19.60
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	10.26	0.40	Yes	0.4	19.70
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	10.26	0.40	Yes	0.4	19.70
Satellite	No	1	Yes	No	Yes	Yes	No	No	Yes	No	Yes	No	No	No	No	1	11.95	0.24	Yes	0.24	21.34
Satellite	0	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	1	11.00	0.46	Yes	0.46	21.34
Satellite	0	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	1	11.00	0.46	Yes	0.46	21.34
Satellite	0	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	11.00	0.46	Yes	0.46	21.34
Satellite	0	0	yes	0	yes	0	0	0	0	0	0	0	0	0	0	0	11.46	0.50	Yes	0.5	22.39
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	13.50	0.24	Yes	0.24	23.88
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	13.50	0.24	Yes	0.24	23.88
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	13.50	0.24	Yes	0.24	23.88
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	13.50	0.24	Yes	0.24	23.88
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	13.50	0.24	Yes	0.24	23.88
Satellite	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	10.03	1.27	Yes	1.28	25.53
Satellite	0	0	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	14.00	0.40	Yes	0.4	25.84
Satellite	0	0	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	14.00	0.40	Yes	0.4	25.84
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	14.21	0.42	Yes	0.42	26.33
Satellite	No	1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	15.41	0.33	Yes	0.334	27.69

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Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	High efficiency Processing	HD	Full HD	Ultra HD	3D-TV	Advanced graphics processing	DVR	Return path	DOCSIS 2.0 or ADSL	DOCSIS 3.0 or VDSL	Multi decode	Multi display	In home network	On Power (W)	Standby Power (W)	Does product support APD?	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	0	Yes	No	No	No	No	0	16.00	0.25	Yes	0.25	28.06
Satellite	0	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	15.70	0.35	Yes	0.35	28.28
Satellite	0	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	15.70	0.35	Yes	0.35	28.28
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No	No	0	15.02	0.54	Yes	0.54	28.51
Satellite	0	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	16.00	0.40	Yes	0.4	29.13
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No	No	0	16.21	0.47	Yes	0.47	29.97
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No	No	0	16.53	0.46	Yes	0.46	30.42
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No	No	0	15.62	0.78	Yes	0.78	31.21
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	17.87	0.34	Yes	0.34	31.77
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	17.42	0.47	Yes	0.47	31.96
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	18.00	0.40	Yes	0.4	32.41
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	17.40	0.55	Yes	0.55	32.49
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	17.61	0.54	Yes	0.54	32.77
Satellite	0	1	0	yes	yes	0	0	0	yes	yes	yes	0	0	0	0	1	18.10	0.43	yes	0.43	32.79
Satellite	0	0	Yes	No	Yes	No	No	No	No	Yes	No	No	No	No	No	0	18.46	0.35	Yes	0.35	32.81
Satellite	0	0	Yes	No	Yes	No	No	No	No	Yes	No	No	No	No	No	0	18.46	0.35	Yes	0.35	32.81
Satellite	0	0	Yes	No	Yes	No	No	No	No	Yes	No	No	No	No	No	0	18.46	0.35	Yes	0.35	32.81
Satellite	0	0	Yes	No	Yes	No	No	No	No	Yes	No	No	No	No	No	0	18.46	0.35	Yes	0.35	32.81
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	17.99	0.46	Yes	0.46	32.82
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	18.84	0.46	Yes	0.46	34.22
Satellite	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	6.74	0.30	Yes	13.259	34.48
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	19.04	0.47	Yes	0.47	34.62
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	17.75	0.78	Yes	0.78	34.71
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	18.98	0.54	Yes	0.54	35.02

ECOFYS

A Navigant Company

Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	High efficiency Processing	HD	Full HD	Ultra HD	3D-TV	Advanced graphics processing	DVR	Return path	DOCSIS 2.0 or ADSL	DOCSIS 3.0 or VDSL	Multi decode	Multi display	In home network	On Power (W)	Standby Power (W)	Does product support APD?	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	20.45	0.46	Yes	0.46	36.86
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	19.95	0.78	Yes	0.78	38.32
Satellite	NO	1	Yes	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes	No	1	6.46	5.25	Yes	0.28	39.81
Satellite	No	0	No	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	1	6.70	5.27	Yes	0.42	40.55
Satellite	No	0	No	No	No	No	No	No	No	No	Yes	No	No	No	No	0	6.10	4.50	Yes	4.5	42.05
Satellite	0	1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	26.00	0.33	Yes	0.33	45.05
Satellite	0	1	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	26.00	0.33	Yes	0.33	45.05
Satellite	0	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	6.70	4.89	Yes	4.89	45.81
Satellite	No	1	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	15.57	3.10	Yes	2.92	47.34
Satellite	No	3	No	Yes	No	Yes	No	No	Yes	Yes	Yes	No	No	No	No	0	20.00	2.62	Yes	0.72	48.38
Satellite	0	0	Yes	0	Yes	0	0	0	0	No	No	0	No	0	No	0	6.99	5.80	yes	5.8	52.76
Satellite	No	2	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	8.62	7.05	Yes	0.22	53.12
Satellite	0	1	Yes	0	Yes	0	0	0	0	Yes	Yes	0	No	0	No	0	13.99	4.47	Yes	4.47	54.79
Satellite	No	0	Yes	Yes	Yes	Yes	Yes	No	Yes	NO	No	No	No	No	No	1	8.42	7.85	Yes	0.17	57.09
Satellite	No	1	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	Yes	1	9.48	9.31	Yes	0.45	67.28
Satellite	No	1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	11.67	9.09	Yes	0.271	69.38
Satellite	0	1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	1	11.67	7.29	Yes	7.29	71.05
Satellite	No	4	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	No	Yes	Yes	1	11.50	10.02	Yes	0.5	74.57
Satellite	No	1	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	No	1	11.50	10.20	Yes	0.5	75.56
Satellite	No	0	Yes	No	Yes	Yes	No	No	Yes	No	Yes	No	No	No	No	1	11.29	10.31	Yes	0.78	76.27
Satellite	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	9.83	8.82	No	0	80.58
Satellite	No	1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	13.81	12.83	Yes	0.354	93.51
Satellite	0	1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	1	14.38	10.19	Yes	10.19	96.15
Satellite	0	1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	18.00	9.41	Yes	9.41	96.54

ECOFYS

A Navigant Company

Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	High efficiency Processing	HD	Full HD	Ultra HD	3D-TV	Advanced graphics processing	DVR	Return path	DOCSIS 2.0 or ADSL	DOCSIS 3.0 or VDSL	Multi decode	Multi display	In home network	On Power (W)	Standby Power (W)	Does product support APD?	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Satellite	0	1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	1	18.97	9.59	Yes	9.59	99.42
Satellite	No	1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	15.86	13.96	Yes	0.55	103.38
Satellite	No	1	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	15.86	13.96	Yes	0.55	103.38
Satellite	No	2	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	Yes	1	17.85	14.30	Yes	0.62	108.63
Satellite	No	3	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	16.98	15.22	Yes	0.376	111.84
Satellite	0	5	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	Yes	2	18.37	15.16	Yes	15.16	138.07
Satellite	0	1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	Yes	No	0	24.29	18.92	Yes	0.42	144.17
Satellite	0	5	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	Yes	2	27.08	25.55	Yes	25.55	226.33
Terrestrial	No	0	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No	No	No	No	0	6.68	0.25	Yes	0.25	12.75
Terrestrial	0	1	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	6.60	0.32	Yes	0.32	13.12
Terrestrial	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	6.51	0.35	Yes	0.35	13.18
Terrestrial	No	0	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	1	7.00	0.25	Yes	0.26	13.29
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	7.58	0.36	Yes	0.36	15.01
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	7.58	0.36	Yes	0.36	15.01
Terrestrial	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	0	6.50	0.99	Yes	0.99	17.72
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	11.30	0.24	Yes	0.24	20.27
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	11.30	0.24	Yes	0.24	20.27
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	10.90	0.36	Yes	0.36	20.47
Terrestrial	0	1	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	13.52	0.33	Yes	0.33	24.56
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	14.18	0.40	Yes	0.4	26.14
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	14.18	0.40	Yes	0.4	26.14
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	14.20	0.40	Yes	0.4	26.17
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	14.20	0.40	Yes	0.4	26.17

ECOFYS

A Navigant Company

Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	High efficiency Processing	HD	Full HD	Ultra HD	3D-TV	Advanced graphics processing	DVR	Return path	DOCSIS 2.0 or ADSL	DOCSIS 3.0 or VDSL	Multi decode	Multi display	In home network	On Power (W)	Standby Power (W)	Does product support APD?	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	15.22	0.29	Yes	0.29	27.06
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	16.64	0.42	Yes	0.42	30.32
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	16.64	0.42	Yes	0.42	30.32
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	16.64	0.42	Yes	0.42	30.32
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	16.64	0.42	Yes	0.42	30.32
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	16.64	0.42	Yes	0.42	30.32
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	18.00	0.40	Yes	0.4	32.41
Terrestrial	0	1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	20.00	0.21	Yes	0.21	34.34
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	22.00	0.21	Yes	0.21	37.63
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	22.00	0.21	Yes	0.21	37.63
Terrestrial	No	1	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	No	No	No	No	1	7.00	4.79	Yes	0.12	37.92
Terrestrial	No	3	No	Yes	No	Yes	No	No	Yes	Yes	Yes	No	No	No	No	0	20.00	2.62	Yes	0.72	48.38
Terrestrial	0	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	31.16	0.43	Yes	0.43	54.24
Terrestrial	0	1	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	1	9.33	8.93	Yes	0.373	64.86



