

Report of the Independent Inspector to the VA on CSTBs - 2014 - 2015



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Summary

General

This is the 5th report of the Independent Inspector to the Voluntary Agreement (VA) on Complex Set Top Boxes (CSTBs). This is the second time that reporting obligations cover Tier 2 requirements. 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.

After the end of the 4th reporting period, three Signatories have left and one Signatory has newly entered to VA. This report covers 22 Signatories to the VA, among them 12 equipment manufacturers and six 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 at this stage have specific reporting obligations.

Results and conclusions from the 4th monitoring period:

Compliance to Chapter 4.3.1 (TEC requirement)

Sixteen Signatories complied with Chapter 4.3.1. The average compliance rate was found to be 96%. Two Signatories (one equipment manufacturer and one service provider) are non-compliant to Chapter 4.3.1, with < 90% compliance. In the case of the service provider the non-compliance was due to one model type with large amount in the stock that was continued to be sold in the 5th reporting period as it was in the 4th reporting period. In the case of the equipment manufacturer the Signatory has reported that the non-compliant model types are old designs and they are expected to be obsolete within the next year.

Compliance to 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 4th reporting period, the APD is compulsory. In 5th reporting period 12 Signatories had a compliance rate of 100% by providing APD in their model types. Fifteen Signatories had > 90% of their boxes equipped with APD. The compliance rate for only Chapter 4.1 averaged over sales of all 18 Signatories was found to be 97%.

One-third of the signatories with reporting requirements did not comply with the APD requirements.

In this period, as in previous periods, it became clear once more that service providers, not part of the VA, are not always willing to support manufacturers that are part of the VA by implementing VA requirements. This especially concerns A.3 (presence of APD). It is important to clarify that the VA,

although voluntary, is a replacement of regulation and therefore needs to function properly, and requires their support.

Overall compliance to Tier 2 requirements

The data provided by the Signatories shows that substantial non-compliance to Chapter 4.3.1 and 4.1 is reported. The Signatories and the background reasons for their non-compliance are found to be the same as the 4th reporting period. The main reasons stated by the signatories are:

- delayed phasing out of box types non-compliant to Tier 2 (mentioned by four 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)

The compliance rate averaged over all sales of the signatories increased to 93% compared to 87% in the previous period. The average energy consumption decreased significantly compared to the previous period. However, problems of non-compliance of a number of signatories persist. The Signatories that were non-compliant in the 4th reporting period have achieved little progress in fulfilling the Tier 2 requirements in 5th reporting period.

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. We therefore propose to discuss this in the Steering Committee with the Commission present.

Chapter 4.8 (Performance information to consumers)

In this 5th reporting period, once again it was seen that the performance information provided by the service providers to their customers has a diverse nature. Additionally in the majority of the cases it is not possible for the independent inspector to trace the information due to two issues;

- brand names in web sites do not correspond with the model types in the signatory reports.
- the URLs provided by the Signatories lead to an overview web page and does not provide access to the documents that contain desired technical information per brand or model type.

In chapter 3.5.1. of the 4th report a proposal for standardisation of the information related to the characteristics and performance of CTBs was provided. It is important to standardize the information in line with the proposal provided in the 4th report.

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 inline 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.
Resulting in decisions on follow-up actions.

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1 Introduction and background

This is the 5th Report of the Independent Inspector to the Voluntary Agreement on Complex Set Top Boxes (VA on CSTBs). It covers the period 1 July 2014 – 1 July 2015. This is the second time that compliance to 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

The contents of this report are as follows:

- In Section 1.1 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.

1.1 Background

A background to the project was given in the report that covered the first monitoring period. The 2nd 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 has reviewed compliance to 'V3.1' of Voluntary Industry Agreement has been prepared and published in February 2014. The 4th report for the monitoring period 1 July 2013 – 1 July 2014 that has also reviewed compliance to V3.1 of the VA on CSTBs was prepared and published in January 2015.

For this 5th monitoring period (1 July 2014 – 1 July 2015), as in the last two years, the Independent Inspector has reviewed compliance to 'V3.1' of Voluntary Industry Agreement to improve the energy consumption of Complex Set Top Boxes within the EU, dated 2 September 2011.

At the start of the fourth monitoring period the 'guidelines on the self-regulation measures concluded by industry under the Ecodesign Directive 2009/125/EC.' were not finalised. The work on new guidelines were still in progress during the preparation of the 5th monitoring report. Therefore the same approach in analysis was carried out for this monitoring period as in previous years.

2 Method of data collection and processing

2.1 Standardised reporting template

The reporting template used in the 4th reporting period was also suitable to be used for this period. However an older version was uploaded to the EU CSTB website¹. Some signatories used the template they received at fourth reporting period and sent their data with no further clarification requests. The Signatories who had used the erroneous templates were all contacted by email and asked to use the final template. Data was received in good order following the notifications send by the Independent Inspector and responses from the signatories. 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 at 1 September 2015.

The emphasis has been on collecting evidence from equipment manufacturers and service providers. Other types of Signatories have not received questions.

2.3 Data processing, additional queries and audit

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 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 submitted required clarification,

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

In 5th monitoring period an audit was not carried out. In 4th monitoring period the results of the audit showed that significant share of the differences in the audits and signatory reports were due to the lack of clarity in VA regarding to the testing of certain features or definitions of certain functionality (specifically DVR functionality). Given that the VA has not been changed regarding to the mentioned ambiguity the audit is not carried out for the fifth reporting period. It is planned for the coming reporting period following the update of the VA.

¹ <http://cstb.eu/index.php/documents/>

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. The agreement made then was respected in this report, with one important change that was already implemented in 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. In this 5th reporting period,

- six Signatories left the VA,
- one new Signatory has entered to VA.

BskyB has been rebranded as Sky UK, therefore is reported as Sky UK.

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
12 equipment manufacturers	12 reports	12 reports
6 service providers	6 reports	6 reports
4 other signatories	-	-
Total of 22 Signatories	18 reports	18 reports with sales data

In this reporting period all Signatories with reporting duties have send in reports including their sales data.

By the official deadline for data submission, 1 September 2015, 12 out of 18 service providers and equipment manufacturers had responded. Up till 24 September 2015 two additional reports were received. By 20 October 2015 another two reports were received. Due to the confusion on the template uploaded on the EU CSTB web site, seven Signatories initially sent their data in an old reporting template and they were asked to update it by using the latest template. The Signatory reports were updated within the first two weeks of October. All 18 reports were received by the Independent Inspector by 5 November 2015.

Signatory reports include a cover sheet where the Signatory 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. 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 18 Signatories that submitted reports with sales data placed approximately 21 million CSTBs on the market between July 2014 and July 2015, comprising 245 different models. It should be noted that this number contains overlap between equipment manufacturers and service providers.

89 – 100% of those CSTBs placed on the market by service providers who are Signatories to the VA are from manufacturers who are also Signatories to the VA.

6 – 68% of those CSTBs placed on the market by equipment manufacturers are supplied to service providers who are in the VA.

The increasing trend in the number of boxes with new functionality that was disabled during the measurements (as the VA allows².) was also observed this year.

In the first year there were no such boxes sold. In the second year its total amounted to 2% of all sales. In the third year the total amounts to 7% of all sales. In the fourth year the total amounts to 8% of all sales. In this fifth year 9% of sales had new functionality that was disabled during the measurements. Types of functionality that was turned off:

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

3.2 Compliance with Chapter 4.1 and Chapter 4.3.1

Following the previous year, in this 5th reporting period we analyse the Signatory data regarding to main verifiable obligations within Tier 2 requirements. Those obligations are described under Chapter 4.1 and Chapter 4.3.1 of the VA. The explanation on each requirement was provided in 4th reporting period as follows:

"Chapter 4.3.1. requires that "Each Signatory shall ensure that 90% of its CSTBs comply with the applicable energy consumption targets of the Voluntary Agreement as set out in Annex D (Maximum Energy Consumption Targets and Time Schedule)." This requirement was also applicable for Tier 1 in the previous three reporting periods.

Chapter 4.1 states that Signatories will make their reasonable efforts to "Abide by the general principles of CSTB hardware and software design set out in Annex A (General Principles of CSTB Design)". The third Article in Annex A states that "For Tier 2, an APD feature shall be provided"³. In contrast to chapter 4.3.1, that requires at least 90% compliance, this Chapter 4.1 does not mention a minimum compliance rate. This implies that 100% of all CSTBs should fulfil this condition. Therefore, a less than 100% compliance to 4.1 is considered to be non-compliant to this Chapter. However, it turned out during the previous reporting period that some Signatories have assumed the 90% minimum compliance rate to refer to all obligations, not just those in Chapter 4.3.1. Supposedly this was the original intention in the VA. We therefore make a 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."

² Annex A, A.6.

³ APD: Auto Power Down

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

According to the VA, if APD is present, the default time after which the device switches itself into the APD mode should not exceed 4 hours. The fourth Article in Annex A states that *"If the APD feature is present it is required that the CSTB automatically switches itself into the lowest standby mode which the Service Provider deems to be appropriate, after a period of time in the On mode following the last user interaction. This period of time shall be set at a default of no more than 4 hours by the Equipment Manufacturer or Service Provider and may be user adjustable but shall not be able to be set to a period of more than 8 hours."* 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 over APD statistics.

In Table II an overview is given of compliance of all 18 Signatories with reporting duties to the different chapters. Following the approach taken last year 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. Four Signatories are below 90% compliance. In the second column, compliance to only the APD requirement is given. Six Signatories have a compliance rate below 100% and three Signatories have a compliance rate below 90%. In the third column, compliance to only the Tier 2 TEC requirement is given. Two Signatories have a compliance rate below 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	1	1	0
50-60	1	0	0
60-70	0	0	0
70-80	0	0	1
80-90	2	2	1
90-92	0	0	0
92-94	0	0	0
94-96	2	1	1
96-98	2	0	2
98-100	1	2	2
100	9	12	11

The compliance rate for only Chapter 4.1 averaged over sales of all 18 Signatories was found to be 97%.

The compliance rate for only Chapter 4.3.1 averaged over sales of all 18 Signatories was found to be 96%. This rate was 94% in the fourth reporting period and 99% in the third 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 18 Signatories was found to be 93%. The figure is higher than the last year which was 87%.

All CSTB-types that are compliant according to Tier 2 requirements are listed in Annex C to this report⁴.

We investigated reasons for the non-compliance rates that were shown in Table II. Some Signatories supplied us with 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 equipment manufacturer had a compliance rate to both articles of 53%. The percentage equipped with APD per box type has increased strongly with respect to the previous reporting period, however still well below 90%. For the 5 models without APD, the Signatory has received written confirmation from the service providers that they consider APD to be inappropriate for their application. The share of boxes that exceed the Total Energy Allowance have increased compared to previous reporting period. The signatory reported that three models that are not compliant to Art 4.3.1 are old designs and they are expected to be obsolete within the next year. This information was sent together with the report on the initiative of the Signatory.
- One equipment manufacturer had a compliance rate of 18% to Art. 4.1. The compliance rate for Art. 4.3.1 is 100%. The Signatory reported the reason for non-compliance as several of their customers does not want of an APD function activated per default on their CSTBs. This information was sent together with the report by the own initiative of the Signatory. In addition to the box types with no APD, majority of the box types with APD has the default time after which the device switches itself into the APD mode higher than 4hrs (4.5 hrs).
- One service provider has equipped all box types with APD increasing their compliance rate to 100% to Art 4.1. But they still had < 90% compliance to 4.3.1, as it was in forth reporting period. The reason for the non-compliance in the 4th and 5th reporting period is the same non-compliant satellite box type that was still put in the market in 2015. In their response to the enquiries for the fourth reporting period the signatory mentioned lower than expected sales for the non-compliant box type. The signatory has mentioned in his clarification to the enquiries in fifth reporting period that the planned run-time for this non-compliant satellite box also extended in 2015. The new improved satellite box is already ordered and the disposal is planned for next year.
- One service provider with compliance rate < 90% to Art. 4.1 and 100% to Art 4.3.1 reported that they had a large number of non-compliant boxes in stock. They have removed the non-compliant box type from line-up and cleared the remaining boxes from the warehouse as of July 2015.

⁴ This list provides e.g. Member States the opportunity to perform their own compliance testing.

- Another 3 Signatories reported compliance rates to Art. 4.1 > 90% but < 100%. Together with sending the data one has reported that corrective action was taken by setting the two non-compliant set-top boxes to end-of-life as of December 2014.

An overview is provided in the Table III to compare the number of signatories that do not comply with the Tier 2 requirements in last two 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

It is seen that in the second year of Tier 2 requirements, 5th reporting period, one-third of the signatories with reporting requirements did not comply with the APD requirements. Considering this share has only slightly improved compared to the previous year, such significant share of non-compliant signatories shows that more efforts are needed 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, 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/yr
Average over all models	49
Average allowance per model	104
Minimum consumption	8
Maximum consumption	192

The average overall models is significantly lower than the previous periods (In 4th monitoring is 61 kWh/yr, 3rd and 2nd monitoring period is 82 kWh/yr, and the 1st period is 78 kWh/yr). 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 it should still be noted that 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 **Error! Reference source not found.** 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

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)
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/yr (% of allowance)	service providers, kWh/yr (% of allowance)
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 ^m reporting period	85 (54%)	118 (66%)
all boxes 1 st reporting period	70 (46%)	117 (67%)

Again a significant decrease in consumption can be observed, both for manufacturers and for service providers. Quite likely this is related to the strongly increased implementation of APD.

Figure 1 shows the distribution of sales⁵ as a function of the energy consumption allowance of the boxes is given. The data reported above come from 18 Signatories who submitted reports. The figure also suggest that there is still significant room for improving efficiency compared to Tier 2 requirements.

⁵ For simplicity reasons, both 'placing on the market' (true sales) and 'putting into service' (by service providers) is called 'sales' here.

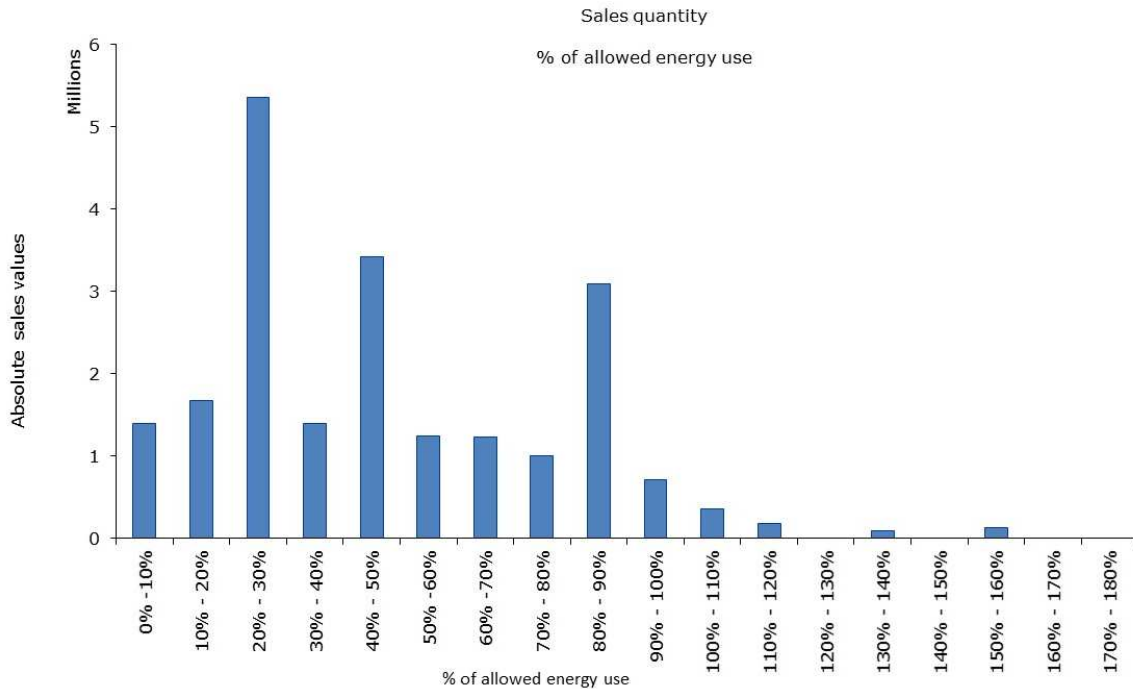


Figure 1 CSTBs put on the market distributed according to percentage of allowed energy consumption.

3.4 Auto Power Down Statistics

Within Tier 2 requirements presence of an Auto Power Down mode is compulsory according to 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	97%	99%
% with APD time reported - sales weighted	98%	99%
APD time - sales weighted average (hr)	3.44	2.65
APD time - min - max (hr)	2-4.5	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. The number of Signatories who have reported higher APD times is reduced from three last year to one this year. The box types that were reported with APD times higher than 4 hours are regarded as non-compliant.

3.5 Findings on specific Chapters other than 4.3.1

3.5.1 Chapter 4.8 Information to consumers

All six service providers were asked to provide an "URL where environmental characteristics and performance of CSTB-types are reported". If not available online, they are asked to state where the information for consumers can be found. All 6 of them indicated one or more "URL where environmental characteristics and performance of CSTB - types are reported".

In the fourth report it was already pointed that the nature of the information provided in the web sites varied enormously. In fifth reporting period the directly available (with the final link) information on performance of CSTBs was even far less than what could be found in the previous year. Four service providers referred to an overview web page rather than a document or link that provides desired performance information per brand or model. Except for the two service providers it was not possible to find a correspondence of model type as reported under the VA and the names published for consumers on the website. In the few cases where this match was possible the information on power consumption and energy saving was scarce. The results show that the proposal provided last year for standardising the performance information was not adopted by any of the service provider Signatories.

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

Already discussed in 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 recording⁶ 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.

Of the six service providers that reported, two have indicated that speculative recording functionality is not present, four have the speculative recording functionality enabled.

Of the four 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.

⁶ Typically push video-on-demand content.

4 Conclusions

4.1 Conclusions on compliance to the commitments

In this 5th reporting period 22 Signatories committed to the VA. Among those, 18 Signatories had to send in data according to the specified reporting template. This is the second reporting period where data template included only data entry for Tier 2 requirements.

In the same manner as the previous reporting period, the compliance of the 18 Signatories were analysed with respect to two main obligations, namely Chapter 4.3.1 (“each Signatory shall ensure that 90% of its CSTBs comply the applicable energy consumption targets of the VA...”) and Chapter 4.1 that refers to Article 3 of Annex A (that “For Tier 2, an APD feature shall be provided”).

Compliance to Chapter 4.3.1

Sixteen Signatories complied with Chapter 4.3.1. The average compliance rate was found to be 96%. Two Signatories (one equipment manufacturer and one service provider) are non-compliant to Chapter 4.3.1, with < 90% compliance. In the case of the service provider the non-compliance was due to one model type with large amount in the stock that was continued to be sold in the 5th reporting period as it was in the 4th reporting period. In the case of the equipment manufacturer the Signatory has reported that the non-compliant model types are old designs and they are expected to be obsolete within the next year.

Compliance to Chapter 4.1 (Article A.3)

According to Tier 2 requirements, Article A.3 of Annex A demands that all CSTBs should have APD capability. Therefore, since the 4th reporting period, the APD is compulsory. In 5th reporting period 12 Signatories had a compliance rate of 100% by providing APD in their model types. Fifteen Signatories had > 90% of their boxes equipped with APD. The compliance rate for only Chapter 4.1 averaged over sales of all 18 Signatories was found to be 97%.

One-third of the signatories with reporting requirements did not comply with the APD requirements

Overall compliance to Tier 2 requirements

The data provided by the Signatories shows that substantial non-compliance to Chapter 4.3.1 and 4.1 is reported. The Signatories and the background reasons for their non-compliance are found to be the same as the 4th reporting period. The main reasons stated by the signatories are:

- delayed phasing out of box types non-compliant to Tier 2 (mentioned by four 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)

The compliance rate averaged over all sales of the signatories increased to 93% compared to 87% in the previous period. The average energy consumption decreased significantly compared to the previous period. However, problems of non-compliance of a number of signatories persist. The Signatories that were non-compliant in the 4th reporting period have achieved little progress in fulfilling the Tier 2 requirements in 5th reporting period.

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. We therefore propose to discuss this in the Steering Committee with the Commission present.

Chapter 4.8 (Performance information to consumers)

In this 5th reporting period, once again it was seen that the performance information provided by the service providers to their customers has a diverse nature. Additionally in the majority of the cases it is not possible for the independent inspector to trace the information due to two reasons;

- brand names in web sites do not correspond with the model types in the signatory reports.
- the URLs provided by the Signatories lead to an overview web page and does not provide access to the documents that contain desired technical information per brand or model type.

In the chapter 3.5.1. of the 4th report a proposal for standardisation of the information related to the characteristics and performance of CTBs was provided. It is important to standardise the information in line with the proposal provided in the fourth report.

4.2 Conclusions on the monitoring process

For this reporting period, the last complete report was received on November 5th. The delay was partly related to the error found in the template uploaded in the EU VA website and partly due to signatories who did not submit their report within the deadline or even after receiving reminders from the Independent Inspector. 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

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 inline 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.

Resulting in decisions on follow-up actions.

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 afterwhich 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?

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 (Motorola)	equipment manuf.	26th March 2012	already in VA	y	Compliant
4	Cisco	equipment manuf.	9th May 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	Non-compliant to 4.3.1 Compliant to 4.1
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
10	Pace	equipment manuf.	Oct. 2011	already in VA	y	Non-compliant to 4.3.1 Non-compliant to 4.1
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 to 4.3.1 Non-compliant to 4.1
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 (BskyB)	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
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

Signatories that have left since last period

Microsoft
Liberty Global
Echostar

*: 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

Annex C List of compliant CSTBs

Compliant CSTSB models equipment manufacturers

Manufacturer	Model
ADB	TLA-5720SWX
ADB	1110SV Storm
ADB	ADB-2840TW
ADB	P.VU2000S-OT-0EFO0-00740-1
ADB	P.VU2000S-RT-0EFO0-00740-1
ADB	ADB-2841TW
ADB	1200T-A Night
ADB	TLA-2722W
ADB	TLA-1722W
ADB	ADB-1741W
ADB	4000T2
ADB	HD5000
ADB	3900T2
ADB	4000S
ADB	3900S
ADB	HD6500
ADB	HD4500
Amino Communications Ltd	A140
Amino Communications Ltd	A540
Amino Communications Ltd	H140
Amino Communications Ltd	M540
Amino Communications Ltd	A50
Amino Communications Ltd	A150
Amino Communications Ltd	H150
Amino Communications Ltd	A550
Arris	VIP1002ESL
Arris	VIP2262ESL
Arris	VIP2262E-V2
Arris	HMC3021
Arris	VIP1103
Arris	VIP1113
Arris	VIP1113W
Arris	VIP2853
Arris	VIP2853C
Arris	VIP2952 D TS

Manufacturer	Model
Arris	VIP1853
Arris	VIP2853 DVR
Cisco	4585DVB
Cisco	8620DVB
Cisco	8685DVB
Cisco	ISB8430
Cisco	IPV5001
Cisco	ISB2201
Cisco	ISB2231
Cisco	ISB8320-E
Cisco	8675DVB
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
Humax Digital	IRHD-5300C/NL/Caiway
Humax Digital	IRHD-5300C/Ziggo
Humax Digital	iHDR-5200C/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-T2220
Humax Digital	UD-FOX/HD/HU
Humax Digital	UH-FOX/HD/CZ
Humax Digital	HD NANO Basic/DE
Humax Digital	HD NANO Connect/DE
Humax Digital	iCord Cable/500G/DE

Manufacturer	Model
Humax Digital	iCord Pro/500GB
Humax Digital	iCord Pro/1&1
Humax Digital	iCord NEO
Humax Digital	HMS-1000S/DE
Humax Digital	IRHD-5100S/CZ
Humax Digital	VAHD-5300/CH
Humax Digital	NA-FOX HD/CH
Humax Digital	HD NANO ECO
Humax Digital	HDR-2000T/500G
Humax Digital	HDR-2000T/1TB
Humax Digital	DTR-T1010/GB/500GB
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	TN5050HDR
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	Digimax Easy
Humax Digital	H1/DE
Humax Digital	HD NANO FREE
Humax Digital	TERBOX CONNECT (Metronic)
Humax Digital	TN7000HD
Humax Digital	THC-1000
Kaon Media	CO3600
Kaon Media	KCF-SA700PCO
Pace	DIT7100/14
Pace	DS831MH
Pace	DZS3001/FN
Pace	DIP3000KLG1

Manufacturer	Model
Pace	DMC7000KLG
Pace	DCR7111
Pace	DSR8141/22
Pace	DPS5002NS
Pace	DMC7002KLG
Pace	DMC7002 KLG2
Pace	DZS3003KPR
Pace	DZS3001NS
Sagemcom Broadband SAS	EGCI421-00
Sagemcom Broadband SAS	DCI85 HD
Sagemcom Broadband SAS	RCI88-xxx
Sagemcom Broadband SAS	ESCI91-HD V2
Sagemcom Broadband SAS	RTI422-320
Sagemcom Broadband SAS	RTIB421-320
Sagemcom Broadband SAS	ETI916-500 MA
Sagemcom Broadband SAS	DSIW88-4
Sagemcom Broadband SAS	ITSAD88 HD
Sagemcom Broadband SAS	DSIW79 HD
Sagemcom Broadband SAS	DCIW344
Sagemcom Broadband SAS	DSI83 CPL
Sagemcom Broadband SAS	DTIW77 HD
Sagemcom Broadband SAS	EGCI424-00
Sagemcom Broadband SAS	EGCI426-00
Sagemcom Broadband SAS	EGCI424
Sagemcom Broadband SAS	EGCI428
Sagemcom Broadband SAS	EGCI429
Sagemcom Broadband SAS	DSIW74 HD
Sagemcom Broadband SAS	DT90 T2 HD
Samsung	SMT-G7400/XEN
Samsung	SMT-E6400/XEN
Samsung	SMT-G7401/XEN
Samsung	SMT-C7140B/XEN
Samsung	SMT-C7100A/VML
Samsung	SMT-C7101A/VML
Samsung	SMT-C5120A/XEG
Samsung	MR303BP/XEG
Samsung	GX-SM550SH/ZG
Samsung	GX-SM540SH/ZG
Samsung	SMT-E7100W/NFR
Samsung	SMT-E7100N/OFR

Manufacturer	Model
Samsung	SMT-E7100W/OFR
Samsung	GX-CM700CF/COM
Samsung	SMT-S5140/VIA
Samsung	SMT-S7140/VIA
Samsung	SMT-S5140/XEE
Samsung	GX-PT730SH/PT
Smardtv	VT 50 HD+
Smardtv	STB-301VDS
Tatung Technology Inc	STB3210
Tatung Technology Inc	STB3310
Tatung Technology Inc	STB3112CDA
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
Technicolor	DCI402-KE
Technicolor	DTI716-TI

Compliant CSTB models service providers

Model
V5 compact
V5
MR 102+
MR 303 A+
MR 303 B+
DZS3001NS
DPS5002NS
DRX892i
TT4200
DRX890W
DRX895W
DRX595
Now TV
DRX890WL
DRX895WL
DRX595L
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
PR-HD3000 (S HD4) old HW incl. 320GB /500GB HDD
PR-HD3000 (S HD4) old HW incl. 2TB HDD
PR-HD3000 (S HD4) new HW
PR-HD3000 (S HD4) new HW incl. 320GB /500GB HDD
PR-HD3000 (S HD4) new HW 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
PR-HD3000C (S HD3) old HW incl. 320GB /500GB HDD
PR-HD3000C (S HD3) old HW incl. 2TB HDD
PR-HD3000C (S HD3) new HW

Model
PR-HD3000C (S HD3) new HW incl. 320GB /500GB HDD
PR-HD3000C (S HD3) new HW incl. 2TB HDD
SMT-S7140
SMT-S5140
TDS865NV

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	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	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	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	7.30	0.45	Yes	0.45	15.19
Cable		1	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No	No	No	No	1	8.43	0.46	Yes	0.46	17.09
Cable	No	0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	8.80	0.50	Yes	0.50	18.01
Cable		0	Yes		Yes					No	Yes		No		No		7.55	1.00	yes	1.00	19.52
Cable		0	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	0	5.51	1.50	Yes	1.50	19.73
Cable	No	1	Yes	No	Yes	Yes	No	No	No	No	Yes	Yes	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	n.a.	1	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No	No	0	12.38	0.40	Yes	0.40	23.18
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	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	12.58	0.43	Yes	0.43	23.72
Cable		0	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	14.00	0.40	Yes	0.40	25.84
Cable		1	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	14.10	0.40	Yes	0.40	26.01
Cable		0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	14.77	0.40	Yes	0.40	27.11
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	14.85	0.40	Yes	0.40	27.24
Cable	no	0	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	0	14.46	0.51	Yes	0.51	27.38
Cable		0	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	0	17.00	0.30	Yes	0.30	30.06
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No	No	0	15.00	0.78	Yes	0.78	30.19
Cable	wifi	1	yes		yes												7.20	2.64	Yes	2.64	30.62
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No	No	0	15.10	0.83	Yes	0.83	30.71
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	17.05	0.40	Yes	0.40	30.85
Cable		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	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	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	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	17.70	0.40	Yes	0.40	31.92
Cable		0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	17.70	0.40	Yes	0.40	31.92
Cable		0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	17.70	0.40	Yes	0.40	31.92
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	16.80	0.78	Yes	0.78	33.15
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	16.76	0.83	Yes	0.83	33.44
Cable		1	Yes		Yes					Yes	Yes		No		No		17.87	0.60	yes	0.60	33.62

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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	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	19.40	0.78	Yes	0.78	37.42
Cable	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	19.20	0.83	Yes	0.83	37.44
Cable	No	1	No	No	No	Yes	No	No	No	Yes	No	No	No	No	No	0	11.80	2.90	Yes	2.90	40.02
Cable		0	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	0	11.60	0.41	No		40.35
Cable		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		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		1	Yes		Yes					Yes	Yes		No		No		17.10	2.45	yes	2.45	45.52
Cable		1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	18.60	0.32	No		62.85
Cable		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	0.50	81.58
Cable		0	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	0	9.87	10.02	No		87.28
Cable	No	5	No	No	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	No	3	51.00	0.50	Yes	0.50	87.33
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	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	1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	1	15.98	14.72	Yes	0.28	107.30
Cable	no	0	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	0	13.34	11.73	No		108.04
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	3	Yes	No	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	1	21.00	11.40	Yes	11.40	115.63
Cable	no	2	Yes	No	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	0	19.59	12.30	Yes	12.30	119.72
Cable		3	Yes	No	Yes	No	No	No	Yes	Yes	Yes	No	Yes	No	Yes	2	29.60	10.40	Yes	10.40	122.64
Cable	Blue-Ray	3	Yes	yes		yes			yes	Yes	Yes		Yes	yes		1	38.38	9.30	Yes	9.30	129.23
Cable	Blue-Ray	3	Yes	yes		yes		Yes	Yes	Yes	Yes		Yes	Yes		1	38.38	9.30	Yes	9.30	129.23
Cable	Blue-Ray	3	Yes	yes		yes		Yes	Yes	Yes	Yes		Yes	Yes		1	38.38	9.30	Yes	9.30	129.23
Cable	Blue-Ray	3	Yes	yes		yes			yes	Yes	Yes		Yes	yes	Yes	1	33.20	11.30	yes	11.30	134.96
Cable	Blue-Ray	3	Yes	yes		yes			yes	Yes	Yes		Yes	yes	Yes	1	38.38	11.60	Yes	11.60	145.60
Cable	Blue-Ray	3	Yes	yes		yes			yes	Yes	Yes		Yes	yes	Yes	1	38.38	11.60	Yes	11.60	145.60
Cable	no	1	Yes	No	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	0	22.78	16.46	Yes	16.46	154.57
Cable		0	Yes	No	Yes	Yes	No	No	Yes	No	Yes	No	Yes	No	No	2	18.68	17.95	Yes	17.95	158.44
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		3	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	No	No	2	23.76	21.50	Yes	21.50	192.05
IP	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	Yes	No	0	3.95	0.16	Yes	0.16	7.63
IP		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	No	No	No	Yes	No	No	No	No	Yes	No	No	No	No	0	4.16	0.31	Yes	0.31	9.04
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	Yes	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	wifi				yes					no	no						5.80	0.30	Yes	0.30	11.66

ECOFYS

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	Yes	No	No	No	No	No	No	No	No	No	No	No	No	1	1.41	1.34	Yes	1.34	11.85
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	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	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
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	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes	No	0	5.57	1.87	Yes	1.87	22.46
IP	PLT	1	Yes			yes				Yes	Yes		No	yes	Yes		10.84	0.67	Yes	0.67	22.57
IP		0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	3.30	2.90	Yes	2.90	26.06
IP		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	No	0	No	No	No	No	No	No	No	No	Yes	No	No	No	No	0	3.75	2.78	No		27.54
IP		0	Yes	No	Yes	Yes	No	No	Yes	No	Yes	No	No	No	No	1	14.09	0.63	Yes	0.63	27.62
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		1														1	6.39	3.89	Yes	0.72	32.98
IP	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	7.10	3.30	Yes	3.30	35.15
IP	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	4.50	3.87	No		35.97
IP	No	0	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	0	4.50	3.90	No		36.14
IP	No	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	4.95	3.90	Yes	4.10	36.22
IP	no	0	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	0	6.88	4.50	Yes	0.43	36.64
IP	Blue-Ray	2	Yes	yes		yes		yes	yes	Yes	Yes		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	No	0	Yes	No	Yes	Yes	No	No	Yes	No	Yes	No	No	No	No	1	24.20	0.50	Yes	0.50	43.31
IP	No	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	Yes	No	0	6.90	5.27	Yes	4.00	46.76
IP	No	0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	8.90	5.30	Yes	3.30	49.06
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	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	No	No	No	No	No	No	No	No	Yes	No	No	No	No	0	7.11	6.11	Yes	6.11	55.17
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	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	6.30	56.99
IP	PLT	1	Yes			yes				No	Yes		No	yes	Yes		6.59	6.49	No		57.18
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	No	No	No	No	No	No	No	No	Yes	No	No	No	No	0	7.56	6.57	Yes	6.57	59.18
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	0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	1	7.90	6.50	No		61.54
IP	No	2	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	Yes	No	0	14.75	6.85	Yes	0.40	62.39

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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	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	0	12.54	7.58	Yes	0.30	62.59
IP	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	Yes	No	0	9.90	6.60	Yes	6.60	63.24
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	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	10.30	8.47	Yes	0.40	63.95
IP		1	Yes			yes				Yes	Yes		No	yes	Yes		18.40	4.90	Yes	4.90	65.10
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	1	10.89	9.56	Yes	0.50	71.05
IP	No	0	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No	Yes	No	0	7.93	8.20	Yes	8.20	71.39
IP	No	1	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	9.00	8.00	Yes	8.00	71.72
IP		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	0.60	76.07
IP	No	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	Yes	No	0	15.02	9.32	Yes	0.38	76.33
IP	No	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	Yes	No	0	15.61	9.39	Yes	0.27	77.49
IP	No	0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	Yes	No	0	16.15	9.64	Yes	0.40	79.96
IP	No	0	Yes	No	Yes	No	No	No	Yes	Yes	Yes	No	No	Yes	No	1	10.25	8.90	Yes	8.90	80.18
IP	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	9.83	8.82	No		80.58
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	10.70	Yes	10.70	97.85
IP	No	0	Yes	No	Yes	No	No	No	Yes	No	No	No	No	Yes	No	1	12.25	11.85	Yes	11.85	104.46
IP	No	0	Yes	No	Yes	No	No	No	Yes	Yes	Yes	No	No	Yes	No	0	15.21	12.20	Yes	12.20	111.82
IP	No	2	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	Yes	No	0	17.20	12.10	Yes	12.10	114.37
Not selected	No	0	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	No	No	No	1	17.00	14.00	Yes	0.62	105.59
Satellite		0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	3.87	0.30	Yes	0.30	8.49
Satellite		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		1	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	1	5.44	0.24	Yes	0.24	10.64
Satellite		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		0	Yes	No	Yes	Yes	No	No	No	No	No	No	No	Yes	No	0	6.74	0.30	Yes	0.30	13.19
Satellite	PLT		Yes		Yes						Yes						7.26	0.23	Yes	0.23	13.59
Satellite																	7.44	0.24	Yes	0.24	13.93
Satellite		1	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	5.44	0.90	Yes	0.90	15.34
Satellite		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		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		0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	1	7.79	0.37	Yes	0.37	15.43
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	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	0	8.00	0.38	Yes	0.38	15.84
Satellite	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	8.00	0.43	Yes	0.43	16.20
Satellite	wifi		yes		yes				yes		yes						9.54	0.22	Yes	0.22	17.24
Satellite		1	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No	No	No	No	1	8.90	0.48	Yes	0.47	18.00
Satellite		0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	9.75	0.45	Yes	0.45	19.22

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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	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	10.20	0.40	Yes	0.40	19.60
Satellite		0	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	10.20	0.40	Yes	0.40	19.60
Satellite		0	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	11.20	0.35	Yes	0.35	20.89
Satellite		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	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	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	11.00	0.46	Yes	0.46	21.34
Satellite	wifi		yes		yes												11.46	0.50	Yes	0.50	22.39
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	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	14.00	0.40	Yes	0.40	25.84
Satellite		0	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No	0	14.00	0.40	Yes	0.40	25.84
Satellite		1	No	No	No	No	No	No	No	Yes	No	No	No	No	No	0	14.53	0.45	Yes	0.45	27.07
Satellite		0	Yes	No	Yes	Yes	No	No	No		Yes	No	No	No	No	0	16.00	0.25	Yes	0.25	28.06
Satellite		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	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	15.50	0.50	Yes	0.50	29.02
Satellite		0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	16.00	0.40	Yes	0.40	29.13
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No	No	0	16.15	0.49	Yes	0.49	30.01
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No	No	0	16.40	0.49	Yes	0.49	30.42
Satellite	no	3	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	17.07	0.37	Yes	0.37	30.67
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No	No	No	0	15.30	0.80	Yes	0.80	30.82
Satellite		1	Yes		Yes					Yes	Yes		No		Yes		14.90	0.90	Yes	0.90	30.88
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	17.10	0.50	Yes	0.50	31.65
Satellite		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	17.38	0.49	Yes	0.49	32.03
Satellite		0	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	1	18.00	0.40	Yes	0.40	32.41
Satellite		0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	18.00	0.40	Yes	0.40	32.41
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	17.87	0.48	Yes	0.48	32.77
Satellite		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	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	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	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	17.60	0.59	Yes	0.59	33.11
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	18.48	0.49	Yes	0.49	33.84
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	17.64	0.80	Yes	0.80	34.67
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	19.06	0.49	Yes	0.49	34.79
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	19.38	0.50	Yes	0.50	35.39
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	20.70	0.49	Yes	0.49	37.49
Satellite	n.a.	1	Yes	No	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	0	19.84	0.80	Yes	0.80	38.28
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

ECOFYS

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	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	24.00	0.34	Yes	0.34	41.84
Satellite	No	0	No	No	No	No	No	No	No	No	Yes	No	No	No	No	0	6.10	4.50	Yes	4.50	42.05
Satellite		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		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	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	6.70	4.87	Yes	4.87	45.67
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		2	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	1	13.66	1.01	No		50.40
Satellite		0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	7.70	5.43	Yes	5.43	51.30
Satellite		0	Yes		Yes					No	No		No		No		6.99	5.80	Yes	5.80	52.76
Satellite		1	Yes		Yes					Yes	Yes		No		No		13.99	4.47	Yes	4.47	54.79
Satellite		1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	1	34.00	0.40	Yes	0.40	58.69
Satellite		3	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	17.95	0.49	No		61.65
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		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	0	No	No	No	No	No	No	No	No	Yes	No	No	No	No	0	9.64	7.71	No		73.88
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	Yes	No	Yes	No	No	No	No	1	11.29	10.31	Yes	0.78	76.27
Satellite		1	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	0	10.00	9.00	Yes	9.00	80.48
Satellite	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	9.83	8.82	No		80.58
Satellite		1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	10.00	9.00	No		82.13
Satellite		1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	11.67	9.09	Yes	9.13	83.93
Satellite		1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	1	15.80	9.65	Yes	9.65	94.64
Satellite		1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	1	14.38	10.18	Yes	10.18	96.08
Satellite		1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	0	18.00	9.41	Yes	9.41	96.54
Satellite		0	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	0	14.13	13.61	Yes	0.90	99.20
Satellite		1	Yes	No	No	No	No	No	No	Yes	Yes	No	No	No	No	1	18.97	9.57	Yes	9.57	99.27
Satellite		1	Yes	No	No	No	No	No	No	Yes	Yes	No	No	No	No	1	17.40	10.07	Yes	10.07	100.25
Satellite		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	0	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		1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	Yes	No	0	24.29	18.92	Yes	0.42	144.17
Terrestrial		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		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	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	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	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	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	10.90	0.36	Yes	0.36	20.47

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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)
Terrestrial		0	Yes		Yes												8.30	1.00	Yes	1.00	20.75
Terrestrial	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	0	4.40	2.11	Yes	2.18	22.36
Terrestrial		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	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	14.18	0.40	Yes	0.40	26.14
Terrestrial		0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	14.20	0.40	Yes	0.40	26.17
Terrestrial		0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	14.20	0.40	Yes	0.40	26.17
Terrestrial		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	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	18.00	0.40	Yes	0.40	32.41
Terrestrial		0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	18.00	0.40	Yes	0.40	32.41
Terrestrial		0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	18.00	0.40	Yes	0.40	32.41
Terrestrial		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	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	14.18	0.40	Yes	0.40	26.14
Terrestrial		0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	14.20	0.40	Yes	0.40	26.17
Terrestrial		0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	0	14.20	0.40	Yes	0.40	26.17
Terrestrial		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	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	18.00	0.40	Yes	0.40	32.41
Terrestrial		0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	18.00	0.40	Yes	0.40	32.41
Terrestrial		0	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No	1	18.00	0.40	Yes	0.40	32.41
Terrestrial		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	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	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	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	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	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	No	0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	6.54	5.46	Yes	5.46	49.60
Terrestrial		1	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No	No	No	1	12.97	1.66	No		51.69
Terrestrial		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		1	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	1	9.33	8.93	Yes	0.37	64.86
Thin-Client/Remote		0	Yes	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	1	7.70	4.90	Yes	4.90	47.52

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