

Report of the Independent Inspector to the VA on CSTBs - 2012 - 2013



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Summary

General

This is the third report of the Independent Inspector to the Voluntary Agreement (VA) on Complex Set Top Boxes (CSTBs). 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.

By August 13, after the end of the third reporting period, one Signatory has left and one Signatory has merged with another compared to the previous period. Therefore, this report covers 24 signatories to the VA, among them 11 equipment manufacturers and 6 service providers. 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 7 signatories are either component manufacturers or software providers and do not have yet specific reporting obligations.

Results and conclusions from the 3rd monitoring period

All 17 Signatories with reporting obligations provided reports that complied with the commitments stipulated in Chapter 4.3.1. of the VA, stating that each Signatory shall ensure that 90% of its CSTBs comply with the applicable energy consumption targets specified in Annex D to the VA. On average more than 99% of their boxes put on the market have been declared as compliant.

Two Signatories reported on the compliance with Tier 2 requirements. All box types they had placed on the market in the monitoring period fulfilled Tier 2 TEC (Total Energy Consumption) requirements. However, a substantial portion of all types of boxes did not have Auto Power Down (APD) and therefore do not fully comply with Tier 2 requirements.

APD is compulsory in the next reporting period and the percentage of boxes put on the market by Service Providers equipped with APD has risen from 48% last reporting period to 69% this reporting period.

As in the previous reporting period, it was observed that for some Signatories the reported box types did not provide an APD functionality which operated within the time limits specified in A.4. Some others did not report any time limits implemented. When APD functionality becomes compulsory, A.4 specifies that the period of time after which a CSTB switches itself into the APD mode should be no more than 4 hours. In the next reporting period when APD is compulsory the time period until APD should be reported by all Signatories and those exceeding a period of 4 hours will be considered to be non-compliant for Manufacturers and Service Providers.

By means of a random check, the Independent Inspector asked 3 Signatories for the test reports of the models that were reported by them in this period.

This turned out to be a more complicated request than was anticipated. In conclusion, some effort had to be made to complete the requested information and get clarity on the information supplied, but in the end all information supplied was in order. It is recommended that Signatories keep test reports available in future monitoring periods.

An audit and compliance test has been carried out for one Signatory. The boxes complied to Tier 1, but potential non-compliance issues for the 4th monitoring period have been found.

Comments on the monitoring process

The monitoring process went as planned for the majority of Signatories. Most reports were sent before the deadline or shortly thereafter. However, 2 reports came in more than a month after the deadline. The Steering Committee does not want to penalise Signatories who sent in reports past the deadline with being non-compliant. The consequence of this is that there is always the chance of a few Signatories sending in their reports past the deadline. Data processing can only really 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.

The speed of answering questions from the Independent Inspector varied. Normally Signatories are requested to reply in a week. This time the turnaround time between questions and complete answers ranged from less than a week to more than 2.5 weeks.

Recommendations

The Independent Inspector recommends that

1. The Steering Committee develops a clear procedure in case of non-compliance. The VA is a replacement of European regulation. To be credible there should be consequences for non-compliant Signatories.
2. All Signatories double check and ensure their 100% compliance to presence and power level of APD and the time duration before entering into APD for the fourth monitoring period.
3. Signatories keep test reports with test results on file.
4. The Steering Committee keeps encouraging all Signatories to report in time and respond to questions in a timely manner.

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1 Introduction and background

This is the Third Report of the Independent Inspector to the Voluntary Agreement on Complex Set Top Boxes (VA on CSTBs). It covers the period 1 July 2012 – 1 July 2013.

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 1.1 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. A second report for the monitoring period 1 July 2011 – 1 July 2012 was prepared and made public by the Independent Inspector.

For this third monitoring period (1 July 2012 – 1 July 2013) 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.

After the work for the second monitoring period was started the European Commission released the draft of the new 'guidelines on the self-regulation measures concluded by industry under the Ecodesign Directive 2009/125/EC.' At the time of preparing this third report the guidelines were not yet final. Nonetheless, care was taken to at least include the information required under 4.7 (conformity reports).

2 Method of data collection and processing

2.1 Standardised reporting template

The same reporting template is used in the third reporting period as the second. 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 2013, although some leniency was given by the Steering Committee as it was the first time that the deadline was so shortly after the monitoring period had ended, allowing submission in the month of September and shortly thereafter.

For this monitoring period again the emphasis has been on collecting evidence from manufacturers and service providers. Other types of Signatories have not received questions.

2.3 Data processing, additional queries and audit

Data processing can only really 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 submitted required clarification,
- random checks asking for more detailed information (e.g. in-house test reports).

Usually a turnaround time for answering questions of one week was requested by the Independent Inspector. In several cases, this was not met by the Signatories and has led to delay in processing and analysis.

2.3.1 Audit

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

- A teleconference for a Q&A session for additional questions and background information
- Compliance measurements

The procedure followed for the compliance measurements is given in Annex E.

For the compliance measurements test laboratory Testronics was commissioned to perform the tests. 3 boxes of 3 CSTB models, 9 boxes in total, were randomly selected in the Signatories' warehouse by

the independent inspector. The boxes were packed in the presence of the Independent Inspector and sent to the Testronics laboratory.

The Testronics laboratory was used as it can provide conditional access (CA) to the network to which the CSTBs are intended to be connected and a proper TV signal. .

The complete test procedure in Annex of the VA (3.0) was followed. As in the previous period, some boxes have been measured overnight to check the stability of the standby mode power consumption. The boxes were tested with currently deployed software.

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 which was already implemented in second reporting period: publication of Annex D on anonymised performance data of individual CSTB types. This is done in Annex D to this report.

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 the third reporting period Virgin Media has become a part of Liberty Global. Liberty Global included Virgin Media in its reporting. The total number of service providers and Signatories therefore excludes Virgin.

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
11 manufacturers	11 reports	10 reports
6 service providers	6 reports	6 reports
7 other signatories	-	-
Total of 24 Signatories	17 reports	16 reports with sales data

By the official deadline for data submission, 1 September 2013, 12 out of 17 service providers and manufacturers had responded. By Sept. 5 three additional reports were received. By Oct. 4 all 17 reports were in. 2 reports were received after Sept. 30.

Annex B to this report lists all Signatories, when they joined the VA, whether they reported or not, their compliance status and reason for not reporting.

The 16 signatories that submitted reports with sales data, placed 24.6 million CSTBs on the market between July 2012 and July 2013, comprising 292 different models. It should be noted that this number contains overlap between manufacturers and service providers.

92-99% 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.

It was noted that an increased number of boxes reportedly has new functionality that was disabled during the measurements, as the VA allows¹.

In the first year there were no such boxes sold. In the second year its total amounted to 2% of all sales. This third year the total amounts to 7% of all sales. 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

¹ Annex A, A.6.

3.2 Compliance with Chapter 4.3.1

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).”

One signatory submitted energy consumption data but did not report sales data. All models reported by that signatory were compliant.

The compliance rate averaged over the 16 signatories who submitted energy consumption data as well as sales data was found to be 99.6-99.7%. The range is caused by the following: One Signatory did not report energy consumption data on all types but did report sales on all types (this reportedly concerned an older type placed on the market in smaller numbers and was therefore not measured in detail). All of the signatories had individual compliance rates over 90%, as required by the VA, as can be seen from Table II. The data in the table reflects that fact that for one Signatory the compliance rate could not be determined exactly.

Table II shows the distribution of the individual compliance rates of all 17 Signatories with reporting duties.

All compliant CSTB-types are listed² in Annex C to this report.

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.

Table II Individual compliance rates of all 17 Signatories who submitted a report.

Compliance range [%]	Number of signatories in range
90-92	0
92-94	0
94-96	0-1
96-98	0
98-100	3
100	13-14

3.3 Functionality and energy consumption

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

Table III Energy consumption per box, averaged over all models, all Signatories.

Energy consumption	kWh/yr
Average over all models	83
Average allowance per model	156
Minimum consumption	~ 15
Maximum consumption	~ 280

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

The average over all models is almost the same as in the previous period (82 kWh/yr) and somewhat higher than in the first period (78 kWh/yr). Although important to report and compare for reasons of transparency, care should be taken to conclude anything on trends in average energy consumption as the differences are small. In addition, an average per model may not be the most representative for the whole population of boxes, as it is not weighted by sales volume. On the other hand, it is still considered to be important to report as Signatories who do not report sales volumes are not included in sales weighted averages.

Table IV shows the the sales averaged energy consumption per box reported by manufacturers and by service.

Table IV Average yearly energy consumption for various selections of CSTBs, averaged according to sales.

Selection of CSTBs	manufacturers kWh/yr (% of allowance)	service providers, kWh/yr (% of allowance)
all boxes	88 (52%)	118 (64%)
boxes with same specifications	93 (50%)	111 (60%)
same specs and standby > 1 W	123 (67%)	129 (70%)
same specs, standby > 1 W and no APD	123 (67%)	171 (92%)

In the first row the consumption averaged over sales of all boxes is given. This compares to 70 / 117 kWh/yr for the first monitoring period and 85 /118 kWh/yr for the second monitoring period for manufacturers and service providers, respectively.

In the second row the consumption averaged over sales of a group of boxes with the same specification and with a significant market share is given. This group of boxes has an allowance of 180 – 185 kWh/yr, depending on whether it was a terrestrial / IP box or satellite/ cable box. In the first and second row the percentage of the allowance is also given, in brackets. The specifications of these boxes according to Annex B to this report are as follows:

- No additional functionality present that was turned off during the measurement
- Access to 1 additional RF channel
- Advanced Video Processing present
- DVR (Digital Video Recording) present
- No DOCSIS 3.0 or VDSL functionality
- Capable of HD
- Return path functionality present
- No multi-decode and multi-display functionality

In the 3rd and 4th row the average energy consumption is given for the same groups of boxes, but filtered for standby power > 1 W and standby power > 1 W + absence of APD (Auto Power Down), respectively.

The table shows in that for all boxes together (first row) a considerable difference exists in the average consumption of all boxes between manufacturers and service providers, similar to the first and

second reporting period. For boxes with the same specifications (second row) the average consumption of boxes from manufacturers and service providers shows a smaller difference. The additional filtering in the third and fourth row results in increased consumption with respect to the second row for both manufacturers and service providers. In interpreting these results it should be realised that the number of models of boxes over which the averaging takes place decreases with increased filtering. In the bottom row (same specs, standby > 1 W and no APD) averaging takes place over 29 box models for manufacturers and service providers together.

In figure 1 the distribution of sales³ as a function of the energy consumption of the boxes is given, expressed in % of allowed energy consumption.

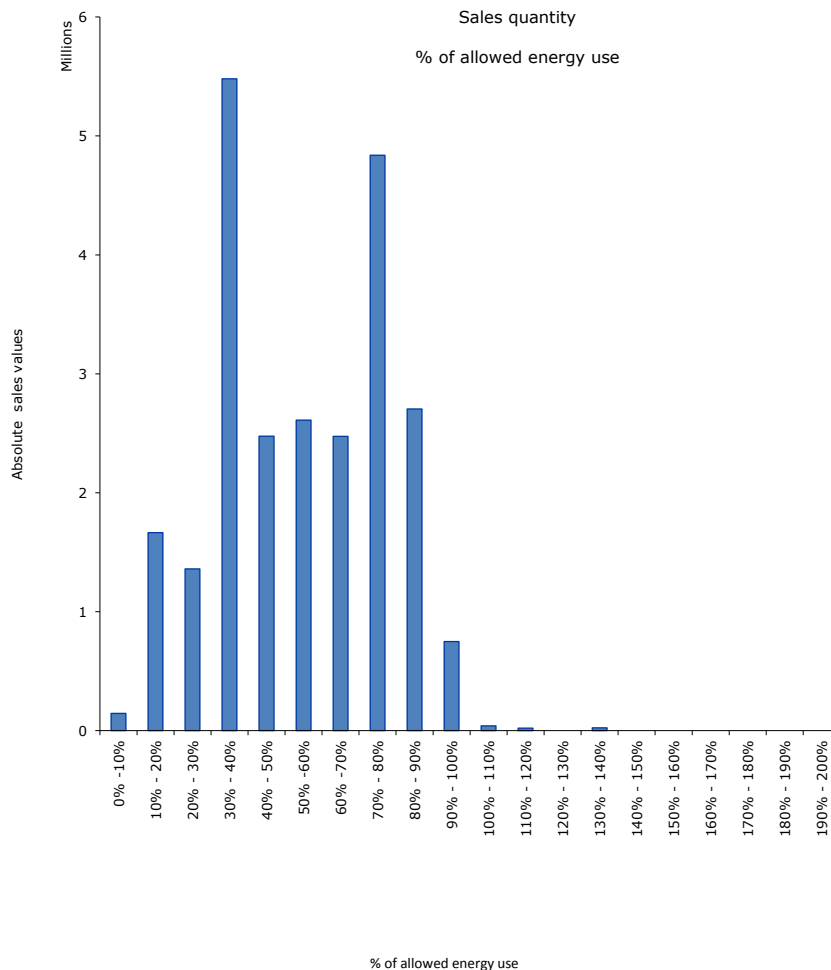


Figure 1 CSTBs put on the market distributed according to percentage of allowed energy consumption.

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

The data reported above come from 94% of all Signatories with reporting duties.

3.4 Findings on specific Chapters other than 4.3.1

3.4.1 Chapter 4.3.3 Compliance with subsequent energy targets from Annex D

Two Signatories reported Tier 2 data. All box types complied with Tier 2 requirements for Total Energy Consumption.

However, a substantial portion of all types of boxes did not have APD and therefore do not fully comply with Tier 2 requirements.

In the same way as last reporting period, we report on the ratio between Tier 2 and Tier 1 allowance for the box types for which Tier 2 data were reported. It again concerns a limited number of box types from a limited number of Signatories.

First, the ratio of Tier 2 to Tier 1 allowance for all box types were determined. Then categories of this ratio were defined and the percentage of box types falling into each category calculated. This is shown in the first two columns in Table V. For example, for 5% of the box types the Tier 2 allowance (in kWh/year) is 90-100% of that of the Tier 1 allowance (i.e. for these box types Tier 2 is 0-10% more stringent than Tier 1), for 42% of the box types the Tier 2 allowance is 80-90% of that of the Tier 1 allowance etc..

The last column in the table indicates whether functionality specific to Tier 2 is present⁴.

Table V. Percentage of box types per category of Tier 2 / Tier 1 allowance

Tier2 / Tier1 allowance	% of box types	Tier 2 functionality present?
40 - 50%	5%	N
50 - 60%	11%	N
60 - 70%	16%	Y/N
70 - 80%	21%	Y
80 - 90%	42%	Y
90 - 100%	5%	Y

This limited data set shows that

- Tier 2 requirements are always more stringent than Tier 1 requirements. There is a distribution of differences.
- For boxes without functionality specific to Tier 2, Tier 2 requirements are significantly more stringent (Tier 2 allowances are 40-70% of Tier 1 allowances).

⁴ An overview of Tier 1 and Tier 2 reporting requirements and functionality is given in Annex A to this report.

3.4.2 Chapter 4.8 Information to consumers

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

3.4.3 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.

3.4.4 Annex A.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)?'

An overview of 'Auto Power Down time statistics' is given in Table VI.

Table VI Auto Power Down time statistics

Selection of CSTBs	all Signatories	service providers
% equipped with APD - sales weighted average	36%	69%
% with APD time reported - sales weighted	35%	69%
APD time - sales weighted average (hr)	3.1	2.9
APD time - min - max (hr)	0.4 - 12	2 - 12

For Tier 1 presence of an Auto Power Down mode is not yet compulsory⁵. The percentage of boxes put on the market by Service Providers equipped with APD has risen from 48% in the last reporting period to 69% this reporting period. This is not so surprising, as it will become compulsory in the next reporting period.

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. This was not always the case. One manufacturer reported slightly higher APD times for some boxes, shipped to service providers that are not Signatories to the VA. Some manufacturers did not specify the APD times. One service provider reported higher default APD times. When asked to comment on this the signatory indicated that they have a software update planned that fixes this problem. More on this is discussed in section 3.6.

In this reporting period, APD is not yet compulsory so it could be argued that longer APD times or unreported APD times are allowed. However, as the presence of APD is rewarded in the Total Energy Consumption calculation, claiming APD should imply having the values implemented as prescribed in A.4 (a default APD time of no more than 4 hours and a user adjustable APD time of no more than 8 hours).

In the next reporting period the time period until APD should be reported by all Signatories. Exceeding a period of 4 hours will then also be considered to be non-compliant for Manufacturers and Service Providers.

⁵ If APD is present this can be taken into account in the TEC (Total Energy Consumption, kWh/yr). Instead of 9 hours on mode, 4.5 hours on mode and 4.5 hours APD mode is taken for the determination of the TEC.

3.4.5 Annex A.5

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

3.4.6 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 in the second reporting period.

All service providers used the latest template in this reporting period, in contrast to the previous reporting period. Of the 6 service providers that reported

- 2 indicated with their answers that speculative recording functionality is not present, 1 indicated that it is available for one of its subsidiaries but not for all.
- 3 have speculative recording functionality enabled.

Of the 3 service providers that have recording functionality enabled, 2 report a user accessible menu option to disable the feature. 1 reports that a disable function can be applied upon user request.

3.5 Checking of test reports

By means of a random check, the Independent Inspector asked 3 Signatories for the test reports of the models that were reported by them in this period.

This turned out to be a more complicated request than was anticipated. It was anticipated that test reports are readily available as it was assumed that these reports are filed for internal QA purposes. A previous request in an earlier reporting period had resulted in a very quick turnaround time. However, this time none of the Signatories was able to meet the requested turnaround period of one week.

From two Signatories incomplete information was received, resulting in a request for the missing information. This was received in the second round.

One Signatory had to redo measurements on some models as test reports could not be traced. The consumption values provided in two test reports showed slight variations from the Signatory reports (approximately 5% difference). However, they were still compliant.

One Signatory did not mention the software used during the tests. Even though it is not compulsory to do so according to the VA (although there is mention of it in A.3, in the claiming of APD credit) it is considered to be good practice to include this information in a test report.

In conclusion, some effort had to be made to complete the requested information and get clarity on the information supplied, but in the end all information supplied was in order. It is recommended that Signatories keep test reports available in future monitoring periods.

⁶ Typically push video-on-demand content.

3.6 Results audit and compliance measurements

As mentioned in 2.3.1, compliance measurements were done with 3 box types, 2 boxes each of one Signatory (a service provider). 2 box types were equipped with APD.

The results are summarised as follows:

Compliance Tier 1

1. For the box types with APD present an APD default time of 12 hours was found. This confirmed the values found in the Signatories' report. See the discussion in section 3.4.4. on the value.
2. For the box types with APD present lower standby power than reported was found and higher APD power than reported. This turned out to be a difference in interpretation and reporting of these values, as discussed below.
3. Apart from the difference in determination, measured power values agreed reasonably well with values reported. Values measured were mostly lower than reported (9 – 13% lower). Two measurements reported higher values (3 and 6%, respectively).

Other than the APD default time issue the boxes complied to Tier 1.

Tier 2 outlook

Even though the report covers the period 1 July 2012 – 1 July 2013, in which Tier 1 was in effect, the boxes for testing were taken from the shelf in December 2013. During this time, Tier 2 already applied. Therefore, results of measurements were also compared to some Tier 2 requirements, thereby giving an outlook on potential compliance issues under Tier 2 in the 4th reporting period.

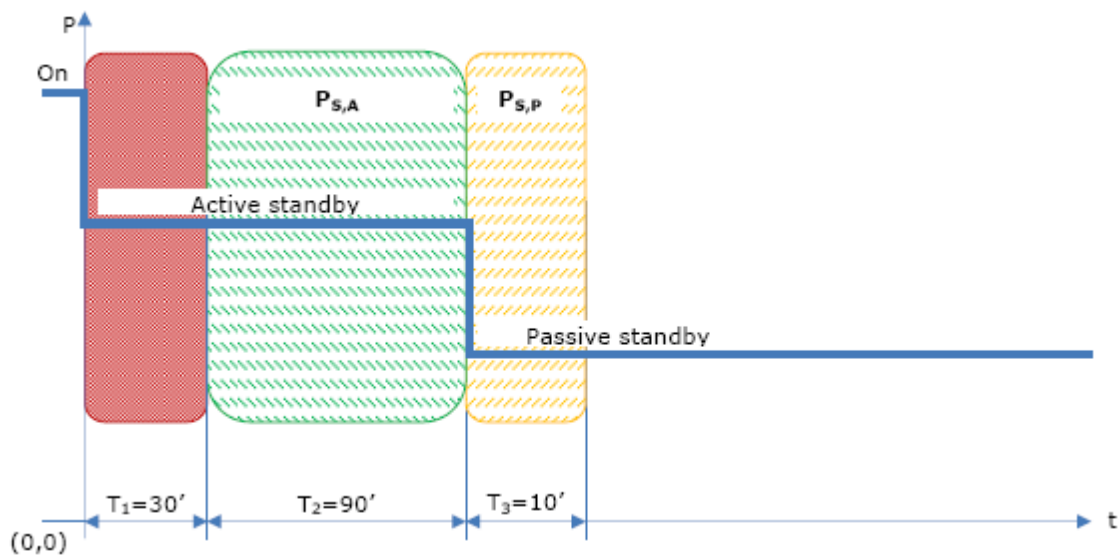
This resulted in the following observations and comments:

1. For the boxes with APD present: APD is compulsory under Tier 2 and the higher default APD times found are non-compliant to Tier 2 requirements. As already mentioned in 3.4.4, the service provider in question indicated that they have a software update planned that fixes this problem. This software update is part of an extensive software update, to be rolled out to all boxes placed with customers in the spring of 2014. This roll-out was scheduled to take place in the summer of 2013, but was delayed because development of the software took longer than planned.
2. The box type without APD present complies with Tier 1, but not Tier 2. According to the VA, Chapter 4.1, Signatories are to abide by 'the general principles of CSTB hardware and software design set out in Annex A'. According to A.3 of Annex A 'an APD feature shall be provided' for Tier 2. Other than Chapter 4.3.1, there is no text referring to the allowance of less than 100% compliance to any of the commitments. Therefore, any box put into service in the 4th monitoring period should comply to A.3 and have APD. The Signatory commented that it concerns an older box that is scheduled to be replaced.

Reporting of standby - and APD power

It was mentioned that differences in standby - and APD power values were found. The cause of this turned out to be as follows:

The box types with APD had two levels of standby. When entering a standby mode (either actively or after having been untouched for the APD default time period) the boxes first entered a higher standby mode ('active standby', $P_{S,A}$ in the picture), and after two hours a lower standby mode was entered ('passive standby', $P_{S,P}$ in the picture). According to the test procedure⁷ the average energy should be measured or calculated taking into account the daily time duration in each of the modes. It turned out that the Signatory had reported the active standby as standby power consumption and the passive standby as the APD power consumption. This resulted in a higher reported standby power consumption and a lower reported APD power consumption than determined in the tests.



Example of variable power usage in standby

Conclusions and recommendations audit and compliance testing

1. A default APD time of 12 hours was found for 2 box types, in agreement with the reported values. This is caused by a delay in a major software update into the Tier 2 period.
2. Other than the APD default time issue the boxes complied to Tier 1.
3. An additional potential non-compliance issue for the 4th monitoring period was found. This concerns the absence of APD on one of the three tested box types.

Concerning the third case: it should be clear to all Signatories that the VA requires APD functionality for all boxes placed on the market now that Tier 2 has entered into force. Action needs to be taken to enforce this.

These concerns for the 4th monitoring period demonstrate that there is a need for the Steering Committee to develop and implement a procedure for non-compliance.

⁷ E3.6 in VA 3.0 or E3.F in VA 3.1

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4 Conclusions

4.1 Conclusions on compliance to the commitments

In a similar way to the first two reports, the focus of this third report was on the 17 out of 24 Signatories that had to send in data according to the specified reporting template. No changes were made to the reporting template compared to the second period.

Of all 17 Signatories with reporting duties, determination of compliance with Chapter 4.3.1 (“each Signatory shall ensure that 90% of its CSTBs comply the applicable energy consumption targets of the VA..”) was a key task.

All 17 Signatories complied with Chapter 4.3.1. The average compliance rate was found to be more than 99%.

APD is compulsory in the next reporting period and the percentage of boxes put on the market by Service Providers equipped with APD has risen from 48% last reporting period to 69% this reporting period.

As in the previous reporting period, it was observed that for some Signatories the reported box types did not provide an APD functionality which operated within the time limits specified in A.4. Some others did not report the time limits implemented. When APD functionality becomes compulsory, A.4 specifies that the period of time after which a CSTB switches itself into the APD mode should be no more than 4 hours. In the next reporting period when APD is compulsory the time period until APD should be reported by all Signatories and those exceeding a period of 4 hours will be considered to be non-compliant for Manufacturers and Service Providers.

By means of a random check, the Independent Inspector asked 3 Signatories for the test reports of the models that were reported by them in this period.

This turned out to be a more complicated request than was anticipated. In conclusion, some effort had to be made to complete the requested information and get clarity on the information supplied, but in the end all information supplied was in order. It is recommended that Signatories keep test reports available in future monitoring periods.

Audit and compliance testing

An audit and compliance tests were carried out with one Signatory. Results and conclusions from the tests can be summarised as follows:

1. A default APD time of 12 hours was found for 2 box types, in agreement with the reported values. This is caused by a delay in a major software update into the Tier 2 period.
2. Other than the APD default time issue the boxes complied to Tier 1.
3. In addition to the longer APD default times, another potential non-compliance issue for the 4th monitoring period was found. This concerns the absence of APD on one of the three tested box types.

The potential non-compliance for the 4th monitoring period demonstrates a need for the Steering Committee to develop and implement a procedure for non-compliance.

4.2 Conclusions on the monitoring process

The monitoring process went as planned for the majority of Signatories. Most reports were sent before the deadline or shortly thereafter. However, 2 reports came in more than a month after the deadline. The Steering Committee does not want to penalise Signatories who sent in reports past the deadline with being non-compliant. The consequence of this is that there is always the chance of a few Signatories sending in their reports past the deadline. Data processing can only really 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. Delays in submitting reports could therefore have a knock-on effect on the Independent Inspector work.

The speed of answering questions from the Independent Inspector varied. Normally Signatories are requested to reply in a week. This time the turnaround time between questions and complete answers ranged from less than a week to 2.5 weeks.

4.3 Recommendations

The Independent Inspector recommends that

5. The Steering Committee develops a clear procedure in case of non-compliance. The VA is a replacement of European regulation. To be credible there should be consequences for non-compliant Signatories.
6. All Signatories double check and ensure their 100% compliance to presence and power level of APD and the time duration before entering into APD for the fourth monitoring period.
7. Signatories keep test reports with test results on file.
8. The Steering Committee keeps encouraging all Signatories to report in time and respond to questions in a timely manner.

Annex A Reporting Template for Signatories

Columns standard reporting template, Tier 1	Columns standard reporting template, Tier 2
Manufacturer / brand	Manufacturer / Brand
Model Type	Model Type
Base Functionality	Base Functionality
NEW innovative functionality disabled?	NEW innovative functionality disabled?
Access to additional RF channels	Access to additional RF channels
Advanced Video Processing	Advanced Video Processing
	High efficiency Processing
DVR	DVR
(Euro) DOCSIS 3.0 or VDSL	DOCSIS 3.0 or VDSL
HD	HD
Return path	Return path functionality
	Full HD
	Ultra HD
	3D-TV
	Advanced graphics processing
	DOCSIS 2.0 or ADSL
Multi decode & multi display	Multi decode
	Multi-display
	In home network
Total Annual Energy Allowance (kWh/year)	Total Annual Energy Allowance (kWh/year)
On Power (W)	On Power (W)
Standby Power (W)	Standby Power (W)
Does product support APD?	Does product support APD?
APD Power (W)	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)	Product Annual Energy Consumption (kWh/year)
Compliance margin (%)	Compliance margin (%)
% of allowed energy use	% of allowed energy use
Complies with VIA 3.0 Tier1?	Complies with VIA 3.0 Tier 2
Annual Sales Quantity placed on the internal market during the reporting period?	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 Oct. 16th, 2013

	Company	main activity	signed up on	Reported (Y/N)	Compliance status
1	Advanced Digital Broadcast S.A.	producer	Nov. 2011	y	Compliant
2	Amino Communications Ltd	producer	Nov. 2011	y	Compliant
3	BskyB	service provider	Nov. 2011	y	Compliant
4	Cisco	producer	9th May 2012	y	Compliant
5	Deutsche Telekom AG	service provider	27th Jan 2012	y	Compliant
6	Echostar	producer	Oct. 2011	y	Compliant
7	Entropic Communications	other	30th July 2012	n	N/A
8	Humax Digital	producer	Nov. 2011	y	Compliant
9	Intel	other	Nov. 2011	n	N/A
10	Irdeto	other	Oct. 2011	n	N/A
11	Liberty Global	service provider	Sept. 2011	y	Compliant
12	Maxlinear	other	13th June 2012	n	N/A
13	Microsoft	other	Jul. 2011	n	N/A
14	Motorola	producer	26th March 2012	y	Compliant
15	NDS Group	other	Jul. 2011	n	N/A
16	Pace	producer	Oct. 2011	y	Compliant
17	Sagemcom Broadband SAS	producer	Aug. 2011	y	Compliant
18	Samsung	producer	Jul. 2011	y	Compliant
19	Sky Deutschland Fernsehen GmbH & Co. KG	service provider	Aug. 2011	y	Compliant
20	Sky Italia Srl	service provider	May 2011	y	Compliant
21	Tatung Technology Inc	producer	Oct. 2011	y	Compliant
22	Technicolor	producer	Sept. 2011	y	Compliant
23	Texas Instruments	component manuf.	Oct. 2011	n	N/A
24	Viasat Satellite Services AB	service provider	Aug. 2011	y	Compliant

Signatories that have left since last period

Telenor

Virgin Media became part of Liberty global

	new in third reporting period
	signatory who submitted first report

*: 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 manufacturers

Manufacturer	Model
Amino Communications	A125
Amino Communications	A130
Amino Communications	A130H
Amino Communications	A130M
Amino Communications	A140
Amino Communications	A540
Amino Communications	H140
Amino Communications	M540
Amino Communications	Cubovision
Amino Communications	A110
Amino Communications	A139
ADB	2720W
ADB	2720WX
ADB	2840C
ADB	2851T
ADB	3740SX
ADB	3830CD
ADB	5723CX
ADB	5743CDX
Cisco	IST6122-T (4037173)
Cisco	IST6002 (4037177)
Cisco	IST6122-T (4034720)
Cisco	IST6122-T (4037173)
Cisco	IST6002 (4037177)
Cisco	ISB8230-E (4043853)
Cisco	ISB2001 (4035825)
Cisco	ISB2201 (4042382)
Cisco	ISB2201 (4036311)
Cisco	ISB2201 (4080628)
Cisco	ISB2231 (4042383)
Cisco	ISB2231 (4041374)
Cisco	ISB2231 (4042384)
Cisco	ISB6030 (4039815)
Cisco	ISB6030 (4029833)
Cisco	ISB6030 (4029833)

Cisco	KMM3010 (4027772)
Cisco	ISB6350 (4037000)
Cisco	ISB2231 (4042381)
Cisco	8685DVB (4038000)
Cisco	8685DVB (4042608)
Cisco	8685DVB (4042636)
Cisco	4585DVB (4034403)
Cisco	4682DVB (4042454)
Cisco	8485DVB (4028092)
Cisco	8485DVB (4030673)
Cisco	8485DVB (4033377)
Cisco	8485DVB (4027645)
Cisco	8620DVB (4036462)
Cisco	8675DVB (4041021)
Cisco	8685DVB (4035928)
Cisco	8685DVB (4037336)
Cisco	8685DVB (4037335)
Cisco	PDS2100 (PDS2120)
EchoStar	HDC-601DER
Humax	EUROFOX HD+
Humax	HD NANO
Humax	HD NANO Basic
Humax	HD NANO Connect
Humax	DTT-3600
Humax	HD-5400S
Humax	HD-5500T
Humax	HD-5600S
Humax	HD-5700T
Humax	TIVUMAX PRO
Humax	HDR-1000T
Humax	HD-FOX/HD+
Humax	HD-FOX+
Humax	HD FOX C
Humax	iCord HD/B50/CR/AT
Humax	iCord Cable
Humax	iCord HD+
Humax	iCord Mini
Humax	IRHD-5100S
Humax	NA-FOX HD
Humax	FOXSAT-HD (Freesat Zapper)
Humax	PVR-9300TB/GB/320G

Humax	FOXSAT-HDR
Humax	PVR-9150TB/GB/160G Mass M
Humax	FOXSAT-HD/ARGOS/GB
Humax	PVR-9300T/GB/500G
Humax	HD-FOX T2/GB
Humax	FOXSAT-HDR/GB/500GB
Humax	HDR-FOX T2
Humax	DTR-T1000
Humax	HDR-FOX T2/GB/1TB
Humax	FOXSAT-HDR/GB/1TB
Humax	HDR-1000S/GB/1TB
Humax	DTR-T1000/GB/1TB
Humax	HDR-1000S/GB/500GB
Humax	HDR-1010S/GB/1TB
Humax	DTR-T1010/GB/1TB
Humax	DTR-T1000/GB/500GB(DEV)
Humax	HDR-FOX T2/500G/RE
Humax	DTR-T1010/GB/500GB
Humax	CXHD-5100C
Humax	DIGI+C
Humax	DIGI+C HD2
Humax	iHD-FOX C
Humax	iHD-PVR C
Humax	UD-FOX HD
Humax	HDR-4100C
Humax	iRHD-5100C
Humax	iHDR-5200C
Humax	IRHD-5300C
Humax	S HD3
Humax	S HD4
Humax	DTR-T1000
Humax	HDR-1002C
Humax	BXR-HD+
Humax	BXR-HD+2
Humax	BXR-HD2
Motorola Mobility	VIP1003, IP-STB
Motorola Mobility	VIP1853, IP-STB
Motorola Mobility	VIP1853 D, IP-STB
Motorola Mobility	VIP1853 D TS, IP-STB
Motorola Mobility	VIP1903 SC, IP-STB
Motorola Mobility	VIP1963, IP STB

Motorola Mobility	VIP1963 DB, IP-STB
Motorola Mobility	VIP1903C SC, IP/DVB-C STB
Motorola Mobility	VIP1903C SC DB, IP/DVB-C STB
Motorola Mobility	VIP1903C SC V2, IP/DVB-C STB
Motorola Mobility	VIP1903C SC DB V2, IP/DVB-C STB
Motorola Mobility	VIP1963C SC, IP/DVB-C STB
Motorola Mobility	VIP1963C SC DB, IP/DVB-C STB
Motorola Mobility	VIP1963C SC V2, IP/DVB-C STB
Motorola Mobility	VIP1963C SC DB V2, IP/DVB-C STB
Motorola Mobility	VIP1200E, IP-STB
Motorola Mobility	VIP1232E, IP-STB
Motorola Mobility	VIP1002E, IP-STB
Motorola Mobility	VIP2262E, IP-STB
Viasat	DS250NV
Viasat	TDS865NV
Viasat	TDS865NV K1
Viasat	DS830NV
Viasat	DS830NV K1
Digital+	DSR6231/16
UPC	DCR7111/03
Digital+	HDS7241/16
UPC	DCR7111/05
UPC	DCR7111/06
Multichoice Hellas	TDS865IMH
Multichoice Hellas	DS831IMH
TV Cabo	DSR7151/24
TV Cabo	DCR8151/24
Sky Italia	DS831NS
Canal+	DTR8221/19
T-Com	DSR7151/53
Elisa Finland	DIT7100/14
GET	DZC3000NGT
GET	DGC7000NGT
Canal+	DSR8221/19
GET	DGC7001NGT
PLDT	DS830NPT
Haldon	DC840OH
COS	DSR8211/59
Cyfra+	HDS7241/91
M7	DSR8141/22
BT	DiT7431/05

BT	DiT7831/05
Bouygues	RCI92-160
Cabo Visao	EGCI421-00
CDT	EGCI421-00
KDG	DCI85 HD
KDG	RCI88-320
Numericable	EGCI421-00
Vodafone	ESCI91-HD V2
Vodafone	ESCI91-HD
Bouygues	RTI422-320
Orange	RTIB421-320
OS	IAD84 HD
SFR	ETI916-250 HD
SFR	DI916-8
BTC	DS87 HD
C+	DSIW88-4
Cyfra +	DSI83
Orange	ITSAD88 HD
Orange	ITSAD88 HD NEWTV-2
Sagemcom	DSI86 HD FREESAT
sagemcom	DS77 TINTSAT FR
Sagemcom	DS87 HD TINTSAT
Sagemcom	DSI89 HD TINTSAT
SFR	DSI87-8 HD SFR
Sagemcom	DT90 T2
Sagemcom	RT90-500 HD
Sagemcom	RT90-320 HD
Tatung Technology Inc	STB3210
Tatung Technology Inc	STB3310
Tatung Technology Inc	STB3011
Tatung Technology Inc	STB3110
Tatung Technology Inc	STB-2530
Tatung Technology Inc	STB2313
Tatung Technology Inc	STB3112CDA
Tatung Technology Inc	STB-3012CDA
Tatung Technology Inc	STB-3112CEE
Tatung Technology Inc	STB-3212
Tatung Technology Inc	STB-3112
Tatung Technology Inc	STB-3012
Tatung Technology Inc	STB-3212
Samsung	DTB-H380Z/XEE



Samsung	GX-CM700CF/COM
Samsung	MR303B/XEG
Samsung	MR303BP/XEG
Samsung	SMT-C5120A/XEG
Samsung	SMT-C5270A/XEG
Samsung	SMT-C5400/XEN
Samsung	SMT-C7100A/VML
Samsung	SMT-C7101A/VML
Samsung	SMT-C7140A/XEN
Samsung	SMT-C7140B/XEN
Samsung	SMT-C7160B/XEE
Samsung	SMT-C7200A/XEG
Samsung	SMT-E7100N/OFR
Samsung	SMT-E7100W/OFR
Samsung	SMT-G7400/XEN
Samsung	SMT-G7440/BYT
Samsung	SMT-G7441/BYT
Samsung	SMT-H3126B/TDC
Samsung	SMT-S5140/VIA
Samsung	SMT-S5140/XEE
Samsung	SMT-S5240/PT
Samsung	SMT-S7140/VIA
Samsung	SMT-S7140/XEE
Samsung	SMT-S7800/XEU
Technicolor	DBI8500E-T
Technicolor	DBI2210E
Technicolor	DCI713
Technicolor	DCI402
Technicolor	DCI804
Technicolor	DTI716

Compliant CSTB models service providers

Model
DRX595
DRX890
DRX895
MR 303 A



MR 303 A+
MR 303 B
MR 303 B+
MR 102
MR 102+
MR 500 Sat
MR 500 Sat (HW>=1.1.0.3)
DCR7111
DVB8685
SMT-G7400
SMT-C5400
UD-Fox HD
K-B4003HCO
KCF-SA700PCO
K-ES1280CO
KSF-ES270
HDC-601DER
SMT-C5120A
DC-AD2100
DB-AD210
4585DVB
SMT-H3110
CT8685
CT8620
S7100
S7101
TDS865NSD (S PVR HD1)
TDS866NSD (S HD PVR 101)
TDS865NSDX (S HD2)
TDS866NSDX (S HD201)
PR-HD3000 (S HD4) old HW
PR-HD3000 (S HD4) new HW
TDC866NSDX (S HD501C)
PR-HD3000C (S HD3) old HW
PR-HD3000C (S HD3) new HW
DH313 (DH310 hotel version - same features)
DS831NS
DSB-P990N
DSB-P990V
DRX890i
DRX892i

SMT-S7140
SMT-S5140
DSB-B560N
DS830NV
DS830NV IP
TDS865NV
DS250NV

Annex D CSTB properties

Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	DVR	(Euro) DOCSIS 3.0 or VDSL	HD	Return path	Multi decode & multi display	On Power (W)	Standby Power (W)	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Cable	no	1	Yes	No	No	Yes	No	No	9.19	0.43	0.43	18.16
Cable		0	No	No	No	No	No	No	9	0.8	0.8	20.48
Cable		0	Yes	No	No	Yes	Yes	No	8.49	0.97	0.97	20.85
Cable		0	Yes	No	No	Yes	Yes	No	11.7	0.36	0.36	21.78
Cable		0	Yes	No	No	Yes	No	No	14	0.4	0.4	25.84
Cable		1	Yes	No	No	Yes	No	No	14.1	0.4	0.4	26.01
Cable		0	Yes	No	No	Yes	Yes	No	5.51	1.5		26.31
Cable		0	Yes	Yes	No	Yes	Yes	No	17	0.3	0.3	30.06
Cable		1	Yes	Yes	No	Yes	Yes	No	17	0.43	0.43	30.98
Cable		1	Yes	Yes	No	Yes	Yes	No	15.54	0.79	0.79	31.15
Cable		0	Yes	No	No	Yes	Yes	No	17.7	0.4	0.4	31.92
Cable	n.a.	1	Yes	Yes	No	Yes	Yes	No	18.96	0.46	0.46	34.42
Cable		0	Yes	No	Yes	Yes	Yes	No	5.01	5.01	0.27	36.10
Cable	n.a.	1	Yes	Yes	No	Yes	Yes	No	18.44	0.9	0.9	36.69
Cable	n.a.	1	Yes	Yes	No	Yes	Yes	No	18.96	0.82	0.82	36.98
Cable	no	1	Yes	Yes	No	Yes	No	No	19.52	1.01	1.01	39.25
Cable		0	Yes	No	No	Yes	Yes	No	11.6	0.41		40.35
Cable	No	0	Yes	No	No	Yes	Yes	No	6.17	4.37		44.19
Cable		0	Yes	No	No	Yes	Yes	No	12.58	0.6		44.61
Cable		0	Yes	No	No	Yes	Yes	No	12.9	0.64		45.88
Cable	no	1	Yes	No	No	Yes	Yes	No	13.95	4.07	4.03	51.82
Cable		0	Yes	No	No	Yes	Yes	No	14.77	0.83	0.4	53.06
Cable		0	No	No	No	No	No	No	7.18	5.44		53.37
Cable		0	Yes	No	No	Yes	Yes	No	7.51	6.03		57.68
Cable		1	Yes	No	No	Yes	Yes	No	17	0.43		58.20
Cable		0	Yes	No	No	Yes	Yes	No	7.63	6.44	6.44	58.37
Cable		0	Yes	No	No	Yes	Yes	No	7.47	6.35		59.31
Cable		0	No	No	No	No	No	No	7.5	6.7		61.32
Cable		0	Yes	No	No	Yes	Yes	No	7.55	6.81		62.09
Cable		0	Yes	No	No	Yes	Yes	No	8.47	6.35		62.59
Cable		1	Yes	Yes	No	Yes	Yes	No	18.6	0.32		62.85
Cable		0	Yes	No	No	Yes	Yes	No	8	7.15		65.43

ECOFYS

Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	DVR	(Euro) DOCSIS 3.0 or VDSL	HD	Return path	Multi decode & multi display	On Power (W)	Standby Power (W)	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Cable		1	Yes	Yes	No	Yes	Yes	No	9.2	8.7		77.85
Cable		0	Yes	Yes	No	Yes	Yes	No	18.5	3.3		78.84
Cable	no	0	Yes	No	No	Yes	Yes	No	10.21	8.97	8.92	80.53
Cable		1	Yes	Yes	No	Yes	Yes	No	20.5	2.44		80.70
Cable		1	Yes	Yes	No	Yes	Yes	No	10.2	8.7		81.14
Cable		3	Yes	No	No	Yes	Yes	No	24.06	0.41		81.28
Cable		1	Yes	Yes	No	Yes	Yes	No	10.1	9.2		83.55
Cable		0	Yes	No	No	Yes	Yes	No	10.34	9.65	9.65	85.67
Cable		1	Yes	Yes	No	Yes	Yes	No	11.1	9.2		86.83
Cable		1	Yes	No	No	Yes	Yes	No	9.87	10.02		87.28
Cable		2	Yes	No	Yes	Yes	Yes	Yes	24.14	8.7	0.39	87.92
Cable		0	Yes	No	No	Yes	Yes	No	13.1	8.5		89.57
Cable		0	Yes	No	No	Yes	Yes	No	13.1	8.5		89.57
Cable		0	Yes	No	No	Yes	Yes	No	13.1	8.5		89.57
Cable	no	0	Yes	No	No	Yes	Yes	No	12	9.5	NA	91.43
Cable	no	2	Yes	Yes	No	Yes	Yes	No	26.26	7.09	7.45	94.19
Cable	no	2	Yes	Yes	No	Yes	Yes	No	14	11.3	NA	107.86
Cable	No	0	Yes	No	No	Yes	Yes	No	13.34	11.73		108.04
Cable		1	Yes	Yes	Yes	Yes	Yes	No	15.02	10.98		109.46
Cable	No	2	Yes	Yes	No	Yes	Yes	No	25.09	6.58	19.89	109.91
Cable		0	Yes	No	No	Yes	Yes	No	14.1	12.1		112.57
Cable		1	Yes	No	No	Yes	Yes	No	13.2	12.9		113.99
Cable	No	0	Yes	No	No	Yes	Yes	No	14.06	13.14		118.13
Cable	no	0	Yes	No	No	Yes	Yes	No	14.06	13.14	NA	118.13
Cable		1	Yes	Yes	No	Yes	Yes	No	20.2	10.13		121.82
Cable		1	Yes	Yes	No	Yes	Yes	No	17.1	12.8		126.25
Cable		3	Yes	Yes	No	Yes	Yes	No	21	11.4		131.40
Cable		1	Yes	Yes	No	Yes	Yes	No	15.98	14.92		134.18
Cable		1	Yes	Yes	No	Yes	Yes	No	18.98	14.72		142.94
Cable		1	Yes	Yes	No	Yes	Yes	No	18.98	14.72		142.94
Cable	no	1	Yes	Yes	No	Yes	Yes	No	21.28	15.71	15.7	146.75
Cable		1	Yes	Yes	No	Yes	Yes	No	17.87	16.26		147.73

ECOFYS

Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	DVR	(Euro) DOCSIS 3.0 or VDSL	HD	Return path	Multi decode & multi display	On Power (W)	Standby Power (W)	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Cable		7	Yes	Yes	No	Yes	Yes	No	20.8	16.635	16.635	152.56
Cable	No	2	Yes	Yes	No	Yes	Yes	No	19.14	18.32		163.18
Cable	no	2	Yes	Yes	No	Yes	Yes	No	19.14	18.32	NA	163.18
Cable	No	2	Yes	Yes	No	Yes	Yes	No	18.73	18.77		164.29
Cable	No	1	Yes	Yes	No	Yes	Yes	No	22.68	16.41		164.35
Cable		3	Yes	Yes	Yes	Yes	Yes	Yes	28.52	12.92		164.43
Cable	No	2	Yes	Yes	No	Yes	Yes	No	18.73	18.91		165.06
Cable	No	1	Yes	Yes	No	Yes	Yes	No	23.99	16.26		167.83
Cable	No	1	Yes	Yes	No	Yes	Yes	No	23.99	16.26		167.83
Cable	No	1	Yes	Yes	No	Yes	Yes	No	23.99	16.26		167.83
Cable	No	2	Yes	Yes	No	Yes	Yes	No	19.76	18.91		168.44
Cable	no	2	Yes	Yes	No	Yes	Yes	No	19.76	18.91	NA	168.44
Cable	No	1	Yes	Yes	No	Yes	Yes	No	23.29	17.25		170.95
Cable	No	1	Yes	Yes	No	Yes	Yes	No	23.56	17.64		173.97
Cable	No	1	Yes	Yes	No	Yes	Yes	No	23.56	17.64		173.97
Cable	no	2	Yes	Yes	No	Yes	Yes	No	21.1	19.9	NA	178.27
Cable	no	2	Yes	Yes	No	Yes	Yes	No	21.17	19.93	NA	178.66
Cable		1	Yes	Yes	No	Yes	Yes	No	27.1	19.95	19.95	186.51
Cable	no	2	Yes	Yes	No	Yes	Yes	Yes	24.89	19.79	NA	190.11
Cable		7	Yes	Yes	Yes	Yes	Yes	Yes	25.04	21.74	21.82	195.99
Cable		7	Yes	Yes	No	Yes	Yes	Yes	25.04	21.74	21.82	195.99
Cable		1	Yes	Yes	No	Yes	Yes	No	26.1	21.4		202.90
Cable	VoIP	1	Yes	No	Yes	Yes	Yes	No	26.59	23.1	23.19	208.24
Cable		3	Yes	Yes	No	Yes	Yes	No	25.52	25.31		222.41
Cable		0	Yes	Yes	Yes	Yes	Yes	Yes	42.4	16.24		228.20
Cable		2	No	Yes	Yes	Yes	Yes	No	28.5	28		246.92
Cable	Blue-Ray	1	Yes	Yes	Yes	Yes	Yes	Yes	33.2	30.1		273.86
Cable	Blue-Ray	3	Yes	Yes	Yes	Yes	Yes	Yes	33.2	30.2		274.41
Cable	Blue-Ray	3	Yes	Yes	Yes	Yes	Yes	Yes	33.2	30.2		274.41
Cable	WiFi hotspot and VoIP	4	Yes	Yes	Yes	Yes	Yes	No	41.57	29.89	29.62	280.58
IP	No	0	Yes	No	No	Yes	Yes	No				0.00
IP		1	Yes	No	No	No	Yes	No	13.4	0.62	0.62	26.42

ECOFYS

Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	DVR	(Euro) DOCSIS 3.0 or VDSL	HD	Return path	Multi decode & multi display	On Power (W)	Standby Power (W)	APD Power (W)	Product Annual Energy Consumption (kWh/year)
IP	No	0	No	No	No	No	Yes	No	3.75	2.78		27.54
IP	No	0	Yes	No	No	Yes	Yes	No	4.5	3.87		35.97
IP	No	0	Yes	No	No	No	Yes	No	4.5	3.9		36.14
IP	No	0	Yes	No	No	Yes	Yes	No	5.2	4.5		41.72
IP		0	Yes	No	No	Yes	Yes	No	5.44	4.52		42.62
IP		0	Yes	No	No	Yes	Yes	No	5.3	4.8		43.69
IP		0	Yes	No	No	Yes	Yes	No	5.7	4.8		45.00
IP		0	Yes	No	No	Yes	Yes	No	6.19	4.66		45.85
IP	No	0	Yes	No	No	Yes	Yes	No	5.7	5.1		46.65
IP	No	0	Yes	Yes	No	Yes	Yes	No	6.85	4.51		47.19
IP		0	Yes	Yes	No	Yes	Yes	No	6.1	5.15		48.23
IP		0	Yes	No	No	Yes	No	Yes	6.47	5.1		49.18
IP	No	0	Yes	No	No	Yes	Yes	No	6.5	5.1		49.28
IP		0	Yes	No	No	Yes	No	Yes	6.88	5.11		50.58
IP	No	0	Yes	No	No	Yes	Yes	No	6.5	5.9		53.66
IP		0	Yes	No	No	Yes	Yes	No	9.25	7.2	0.45	55.35
IP	No	0	Yes	No	No	Yes	Yes	No	6.81	6.19		56.26
IP	No	0	Yes	No	No	Yes	Yes	No	6.81	6.19		56.26
IP	No	0	Yes	Yes	No	Yes	Yes	No	6.8	6.2		56.28
IP	PLT	0	Yes	No	No	Yes	Yes	No	6.59	6.49		57.18
IP		0	Yes	No	No	Yes	Yes	No	8.5	6.15	6.15	57.73
IP	No	0	Yes	Yes	No	Yes	Yes	No	7.3	6.3		58.47
IP		0	Yes	No	No	Yes	Yes	No	7.98	6.04		59.28
IP		0	Yes	Yes	No	Yes	Yes	Yes	13.5	3		60.77
IP		0	Yes	Yes	No	Yes	Yes	Yes	13.5	3		60.77
IP	No	0	Yes	No	No	Yes	Yes	No	7.9	6.5		61.54
IP		0	Yes	Yes	No	Yes	Yes	No	10.3	8.47	0.4	63.95
IP		0	Yes	Yes	No	Yes	Yes	No	7.8	7.05		64.22
IP		0	Yes	Yes	No	Yes	Yes	No	8.8	7.05		67.51
IP		0	Yes	Yes	No	Yes	Yes	No	9.82	6.5		67.85
IP	No	2	Yes	Yes	No	Yes	Yes	No	19.5	0.77		68.27
IP		0	Yes	Yes	No	Yes	No	Yes	9.41	7.14		70.00

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Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	DVR	(Euro) DOCSIS 3.0 or VDSL	HD	Return path	Multi decode & multi display	On Power (W)	Standby Power (W)	APD Power (W)	Product Annual Energy Consumption (kWh/year)
IP		0	Yes	Yes	No	Yes	No	Yes	9.87	7.18		71.73
IP		0	Yes	No	No	Yes	Yes	No	8.6	8.2		73.15
IP		0	Yes	Yes	No	Yes	Yes	Yes	11.08	7.9	7.9	74.43
IP		0	Yes	Yes	No	Yes	Yes	No	11.5	6.72		74.57
IP		0	Yes	Yes	No	Yes	No	Yes	11.25	7.23		76.54
IP		0	Yes	Yes	No	Yes	Yes	No	12.38	10.55	0.29	78.57
IP		0	Yes	Yes	No	Yes	Yes	No	11.5	7.5		78.84
IP	No	0	Yes	No	No	Yes	Yes	No	10.37	8.58		81.04
IP	No	0	Yes	No	No	Yes	Yes	No	10.37	8.58		81.04
IP	No	0	Yes	No	No	Yes	Yes	No	10.37	8.58		81.04
IP	No	0	Yes	No	No	Yes	Yes	No	10.37	8.58		81.04
IP		0	Yes	Yes	No	Yes	Yes	No	11.28	8.05		81.13
IP		0	Yes	No	No	Yes	No	Yes	11.21	8.85		85.28
IP		0	Yes	No	No	Yes	Yes	No	9.67	9.83		85.59
IP		0	Yes	No	No	Yes	Yes	No	11.11	9.14		86.54
IP	No	0	Yes	Yes	No	Yes	Yes	No	11.97	8.68		86.84
IP	No	0	Yes	Yes	No	Yes	Yes	No	11.97	8.68		86.84
IP	No	0	Yes	Yes	No	Yes	Yes	No	11.97	8.68		86.84
IP		0	Yes	Yes	No	Yes	No	Yes	12.53	8.46		87.48
IP		0	Yes	No	No	Yes	Yes	No	10.37	9.95		88.54
IP		0	Yes	Yes	No	Yes	Yes	No	15.6	11.5	0.35	89.16
IP	PLT	0	Yes	Yes	No	Yes	Yes	No	10.84	10.81		94.79
IP	No	0	Yes	No	No	Yes	Yes	No	11.3	10.56		94.94
IP	No	0	Yes	Yes	No	Yes	Yes	No	13.4	9.8		97.67
IP		0	Yes	No	No	Yes	No	Yes	13.94	9.53		97.97
IP		0	Yes	Yes	No	Yes	No	Yes	15.02	9.32		100.37
IP		0	Yes	Yes	No	Yes	No	Yes	15.45	9.32		101.78
IP		0	Yes	No	No	Yes	No	Yes	15.61	9.39		102.69
IP		0	Yes	Yes	No	Yes	Yes	No	14.25	10.3		103.20
IP		0	Yes	Yes	No	Yes	No	Yes	16.93	10.32		112.12
IP		0	Yes	Yes	No	Yes	Yes	No	15.21	12.3		117.31

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Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	DVR	(Euro) DOCSIS 3.0 or VDSL	HD	Return path	Multi decode & multi display	On Power (W)	Standby Power (W)	APD Power (W)	Product Annual Energy Consumption (kWh/year)
IP		0	Yes	Yes	No	Yes	No	Yes	17.22	11.52		119.64
IP		0	Yes	Yes	No	Yes	Yes	No	16.68	12.29		122.08
IP		1	Yes	Yes	No	Yes	No	No	15.2	13.37		123.13
IP	No	0	Yes	Yes	No	Yes	Yes	No	16.74	12.61		124.03
IP	No	0	Yes	Yes	No	Yes	Yes	No	16.74	12.61		124.03
IP	No	0	Yes	Yes	No	Yes	Yes	No	16.74	12.61		124.03
IP		1	Yes	Yes	No	Yes	Yes	Yes	27.32	10.51		147.29
IP		0	Yes	Yes	No	Yes	Yes	Yes	20.14	15.9		153.21
IP	Blue-Ray	2	Yes	Yes	No	Yes	Yes	Yes	20.9	18.5		169.94
Satellite	no	0	No	No	No	No	No	No	6.13	0.51	0.52	13.71
Satellite	no	0	Yes	No	No	Yes	Yes	No	8.09	0.35	0.35	15.78
Satellite		1	Yes	Yes	No	Yes	Yes	No	8.31	0.39	0.39	16.43
Satellite		0	No	No	No	No	Yes	No	9.75	0.45	0.45	19.22
Satellite		0	Yes	No	No	Yes	No	No	10.2	0.4	0.4	19.60
Satellite		0	Yes	No	No	Yes	No	No	10.2	0.4	0.4	19.60
Satellite		0	Yes	No	No	Yes	No	No	10.2	0.4	0.4	19.60
Satellite		0	Yes	No	No	Yes	No	No	11.2	0.35	0.35	20.89
Satellite		0	Yes	No	No	Yes	No	No	11.2	0.35	0.35	20.89
Satellite		0	Yes	No	No	Yes	No	No	11.2	0.35	0.35	20.89
Satellite		0	Yes	No	No	Yes	Yes	No	11	0.46	0.46	21.34
Satellite		0	Yes	No	No	Yes	Yes	No	11	0.46	0.46	21.34
Satellite		0	Yes	No	No	Yes	Yes	No	11	0.46	0.46	21.34
Satellite		0	Yes	No	No	Yes	No	No	14	0.4	0.4	25.84
Satellite		0	Yes	No	No	Yes	No	No	7.32	0.37		26.07
Satellite		0	No	No	No	No	No	No	7.21	0.51		26.48
Satellite		1	Yes	Yes	No	No	No	No	14.53	0.45	0.45	27.07
Satellite		0	Yes	No	No	Yes	Yes	No	7.45	0.6		27.76
Satellite		1	Yes	Yes	No	Yes	Yes	No	18	0.26	0.26	31.42
Satellite		0	Yes	Yes	No	Yes	No	No	18.46	0.35	0.35	32.81
Satellite		0	Yes	Yes	No	Yes	No	No	18.46	0.35	0.35	32.81
Satellite		0	Yes	Yes	No	Yes	No	No	18.46	0.35	0.35	32.81
Satellite	no	0	No	No	No	No	No	No	8.76	0.74	NA	32.83

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Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	DVR	(Euro) DOCSIS 3.0 or VDSL	HD	Return path	Multi decode & multi display	On Power (W)	Standby Power (W)	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Satellite	n.a.	1	Yes	Yes	No	Yes	Yes	No	18.74	0.48	0.48	34.20
Satellite		0	Yes	No	No	Yes	No	No	9.2	0.82		34.71
Satellite		0	Yes	No	No	Yes	No	No	9.3	0.79		34.88
Satellite	n.a.	1	Yes	Yes	No	Yes	Yes	No	19.3	0.58	0.58	35.83
Satellite	n.a.	1	Yes	Yes	No	Yes	Yes	No	20.1	0.5	0.5	36.57
Satellite		1	Yes	Yes	No	Yes	Yes	No	20.16	0.54	0.54	36.96
Satellite		0	Yes	No	No	Yes	No	No	8.8	1.8		38.76
Satellite	n.a.	1	Yes	Yes	No	Yes	Yes	No	20.1	0.92	0.92	39.56
Satellite		1	Yes	No	No	Yes	No	No	11.6	0.39		40.24
Satellite		0	Yes	No	No	Yes	Yes	No	24	0.34	0.34	41.84
Satellite		1	Yes	Yes	No	Yes	No	No	12.38	0.6	12.6	44.31
Satellite		0	No	No	No	No	No	No	5.9	5.2		47.85
Satellite		2	Yes	Yes	No	Yes	No	No	13.66	1.01		50.40
Satellite		0	Yes	No	No	Yes	No	No	6.2	5.6		51.03
Satellite		1	Yes	Yes	No	Yes	Yes	Yes	14.9	0.9		53.87
Satellite	n.a.	1	Yes	Yes	No	Yes	Yes	No	15.72	0.59		54.87
Satellite		0	Yes	No	No	Yes	Yes	No	16	0.71	0.21	56.45
Satellite	n.a.	1	Yes	Yes	No	Yes	Yes	No	16.41	0.47		56.48
Satellite		0	Yes	No	No	Yes	No	No	16	0.8		56.94
Satellite		0	Yes	No	No	Yes	Yes	No	7.7	6.37	6.37	57.99
Satellite		3	Yes	Yes	No	Yes	No	No	17.95	0.49		61.65
Satellite		3	Yes	Yes	No	Yes	No	No	17.95	0.49		61.65
Satellite		1	Yes	No	No	Yes	No	Yes	16.57	1.53	16.57	62.81
Satellite		1	Yes	Yes	No	Yes	Yes	No	18.57	0.86		65.71
Satellite	No	0	No	No	No	No	Yes	No	8	7.5		67.34
Satellite		0	Yes	No	No	Yes	Yes	No	10	9.36	0.51	68.51
Satellite	no	0	Yes	No	No	Yes	Yes	No	8.55	7.81		70.85
Satellite		0	No	No	No	No	Yes	No	9.64	7.71		73.88
Satellite	No	0	No	No	No	No	Yes	No	9.64	7.71		73.88
Satellite	No	0	Yes	No	No	Yes	Yes	No	11.21	10.31	0.78	76.14
Satellite		0	Yes	Yes	No	Yes	No	No	22	0.8		76.65
Satellite		0	Yes	Yes	No	Yes	No	No	22	0.8		76.65

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Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	DVR	(Euro) DOCSIS 3.0 or VDSL	HD	Return path	Multi decode & multi display	On Power (W)	Standby Power (W)	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Satellite		0	Yes	Yes	No	Yes	No	No	22	0.8		76.65
Satellite		0	Yes	No	No	Yes	No	No	20.5	1.8		77.20
Satellite		0	Yes	No	No	Yes	No	No	20.5	1.8		77.20
Satellite		0	Yes	No	No	Yes	Yes	No	9.28	9.28		81.29
Satellite	no	0	Yes	No	No	Yes	Yes	No	9.28	9.28		81.29
Satellite		1	Yes	No	No	Yes	Yes	No	10	9		82.13
Satellite		1	Yes	No	No	Yes	Yes	No	10	9		82.13
Satellite		1	Yes	Yes	No	Yes	Yes	No	10.87	8.73		83.50
Satellite		1	Yes	Yes	No	Yes	Yes	No	13.99	6.98		84.17
Satellite		0	Yes	No	No	Yes	Yes	No	11.29	10.31		93.53
Satellite		0	Yes	No	No	Yes	Yes	No	11.29	10.31		93.53
Satellite		0	Yes	No	No	Yes	Yes	No	11.3	10.56		94.94
Satellite		0	Yes	No	No	Yes	Yes	No	11.3	10.56		94.94
Satellite		0	Yes	No	No	Yes	Yes	No	11.3	10.56		94.94
Satellite	No	0	Yes	No	No	Yes	Yes	No	11.3	10.56		94.94
Satellite		1	Yes	Yes	No	Yes	Yes	No	15.86	13.96	0.55	103.38
Satellite		1	Yes	Yes	No	Yes	Yes	No	15.86	13.96	0.55	103.38
Satellite	No	0	Yes	Yes	No	Yes	Yes	No	15.86	13.96	0.55	103.38
Satellite	No	1	Yes	Yes	No	Yes	Yes	No	14.75	14.3	0.73	103.72
Satellite		1	Yes	Yes	No	Yes	No	No	16.93	14.02	0.5	105.39
Satellite		1	Yes	Yes	No	Yes	Yes	No	20.5	14.3	0.7	113.11
Satellite		1	Yes	Yes	No	Yes	Yes	No	20.5	14.3	0.7	113.11
Satellite	no	1	Yes	Yes	No	Yes	Yes	No	16.8	12.3	12.3	115.14
Satellite	no	1	Yes	Yes	No	Yes	Yes	No	16.8	12.3	12.3	115.14
Satellite		1	Yes	Yes	No	Yes	Yes	No	22.2	13.1	13.1	129.70
Satellite		1	Yes	Yes	No	Yes	Yes	No	20.6	13.6	13.6	130.63
Satellite	no	1	Yes	Yes	No	Yes	Yes	No	18.7	13.4		134.79
Satellite	no	1	Yes	Yes	No	Yes	Yes	No	18.7	13.4		134.79
Satellite	No	1	Yes	Yes	No	Yes	Yes	No	16.29	15.85		140.29
Satellite		1	Yes	Yes	No	Yes	No	No	22.9	13		146.40
Satellite		1	Yes	Yes	No	Yes	Yes	No	25.35	19.1	0.5	147.03
Satellite		1	Yes	No	No	Yes	Yes	No	48.5	1	0.4	164.80

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Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	DVR	(Euro) DOCSIS 3.0 or VDSL	HD	Return path	Multi decode & multi display	On Power (W)	Standby Power (W)	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Satellite	No	1	Yes	Yes	No	Yes	Yes	No	23.19	17.88		174.07
Satellite		1	Yes	Yes	No	Yes	Yes	No	23.96	18.18		178.24
Terrestrial		1	Yes	No	No	Yes	No	No	6.6	0.32	0.32	13.12
Terrestrial		0	Yes	No	No	Yes	Yes	No	7.35	0.1	6.12	22.67
Terrestrial		1	Yes	No	No	Yes	Yes	No	13.52	0.33	0.33	24.56
Terrestrial		0	No	No	No	No	No	No	6.6	0.95		26.88
Terrestrial		0	Yes	No	No	Yes	No	No	8.3	1		32.74
Terrestrial		0	Yes	No	No	Yes	No	No	17	0.8	0.8	33.62
Terrestrial		1	Yes	Yes	No	Yes	Yes	No	20	0.21	0.21	34.34
Terrestrial		0	Yes	Yes	No	Yes	Yes	No	22	0.21	0.21	37.63
Terrestrial		0	Yes	Yes	No	Yes	Yes	No	22	0.21	0.21	37.63
Terrestrial		0	Yes	Yes	No	Yes	No	No	22	0.21	0.21	37.63
Terrestrial		0	Yes	Yes	No	Yes	No	No	22	0.21	0.21	37.63
Terrestrial		0	Yes	Yes	No	Yes	No	No	22	0.21	0.21	37.63
Terrestrial		0	Yes	Yes	No	Yes	Yes	No	22	0.21	0.21	37.63
Terrestrial		0	Yes	Yes	No	Yes	No	No	21.92	0.3	0.3	38.14
Terrestrial		0	Yes	Yes	No	Yes	Yes	No	21.92	0.3	0.3	38.14
Terrestrial		0	Yes	Yes	No	Yes	No	No	21.92	0.3	0.3	38.14
Terrestrial		1	Yes	Yes	No	Yes	Yes	No	25	0.49	0.49	44.55
Terrestrial		0	No	No	No	No	No	No	5.1	5.1		44.68
Terrestrial		0	No	No	No	No	No	No	5.1	5.1		44.68
Terrestrial		1	Yes	Yes	No	Yes	No	No	12.97	1.66		51.69
Terrestrial		1	Yes	Yes	No	Yes	No	No	13.34	1.48		51.92
Terrestrial		1	Yes	Yes	No	Yes	No	No	13.34	1.48		51.92
Terrestrial		1	Yes	Yes	No	Yes	Yes	No	16.48	0.83	14.71	55.77
Terrestrial		1	Yes	Yes	No	Yes	Yes	No	16.48	0.83	14.71	55.77
Terrestrial		0	Yes	No	No	Yes	Yes	No	16	0.7		56.39
Terrestrial		0	Yes	No	No	Yes	Yes	No	16	0.7		56.39
Terrestrial		0	No	Yes	No	No	Yes	No	20	3.4		84.32
Terrestrial		0	No	Yes	No	No	Yes	No	20	3.4		84.32
Terrestrial		0	No	Yes	No	No	Yes	No	20	3.4		84.32
Terrestrial		0	Yes	Yes	No	Yes	No	No	10	9.5		84.86

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Base Functionality	NEW innovative functionality disabled?	Access to additional RF channels	Advanced Video Processing	DVR	(Euro) DOCSIS 3.0 or VDSL	HD	Return path	Multi decode & multi display	On Power (W)	Standby Power (W)	APD Power (W)	Product Annual Energy Consumption (kWh/year)
Terrestrial	No	1	Yes	Yes	No	Yes	Yes	No	10.47	9.78		87.94
Terrestrial	No	1	Yes	Yes	No	Yes	Yes	No	10.47	9.78		87.94
Terrestrial	No	1	Yes	Yes	No	Yes	Yes	No	10.47	9.78		87.94
Terrestrial		1	Yes	Yes	No	Yes	No	No	23.12	11.78		140.44

Annex E Procedure compliance measurements

Preparation phase

1. First selection of boxes (platforms) to be tested will be announced. Selection of boxes (platforms) to test which are reported in reporting period by signatory.
2. Teleconference with Signatory, Test party and Independent Inspector
Teleconference with all involved parties to discuss the details of the tests:
 - a. Selection Test Location
Options: (1) Signatories premises (2) External test location used by Signatory, (3) at premises of Test Laboratory hired by Ecofys
 - i. Signals availability of locations
 - ii. Return path availability of locations (if needed)
 - b. Smart-cards and network access
 - c. Software version(s) and uploading of software to the box by Signatory
 - d. Additional functionality of boxes and disabling this by Signatory
3. Final selection of boxes (platforms) and test location will be announced.
4. Take random sample
Of every box (platform) 3 random samples will be picked from the distribution centre of signatory by the Independent Inspector. Two boxes are needed for parallel testing and one box will serve as spare.

Testing phase

5. Test program against VA V3.0
Boxes will be tested at energy usages at the predetermined location. Tests will be performed by independent Test party according to the test schedule.
6. Send the boxes back to the Signatory (depending on location)

Finalization phase

7. The confidential test reports will be received from the Test party by the Independent Inspector. The Independent Inspector will forward the report to the Signatory and base its own report on these test reports, amongst others.
8. The Independent Inspector will send its own audit results to the Signatory, giving the Signatory a chance to react to any findings and to check for any confidentiality issues.



9. The complete report of the Independent Inspector including the audit results are sent to the Chair of the Steering Committee.

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