BUROSCH

Audio-Video-Technik

Power Consumption Measurement

according to IEC 62087

EuP Measurement

A. Introduction

This is just a sample measurement. There was no power consumption measurement for internet and static picture content performed also the power consumption for RF input has not been measured. Until yet no stand-by measurement was performed for this Plasma 46”display.
50hz
sound offf

Actual consumption: [W] means the real power
Apparent consumption: [VA] means the apparent power

The following figures and measured values are calculated average values of four readings.

1. first measurement – default setting

Product:	*TX – P46 GQ 11*
Manufacturer:	*Panasonic*
Device:	*Plasma TV display*
Serial Nr.:	*FK-9360805*
Software-Version:	*1407-10000*
Test Nr.:	*1 – dynamic_default*
Date:	*2.12.2009*
Time:	*12:30*
Tester:	*Gregor Baumert*
Temperature:	*25°C*
Warm-Up Time:	*30 minutes*
Test Mode:	*~~static~~ / dynamic*
Total measurement time:	*40 min.*
Room Brightness:	*230 lux*
Declared consumption by manufacturer in the manual:	**410 W**
Burosch measured average consumption:	**389 W**

Measurement Device:	*Digital Power Meter*
Source:	*Blu-ray Disc: IEC 62087 BD*
Connection:	*HDMI*
Setup:	*default manufacturer settings*
Sound:	*no sound*
Frame Rate:	*50Hz*
Notes:	*Display tested with default manufacturer settings.* *Dynamic Test sequence (duration 10min.) played 4 times.*

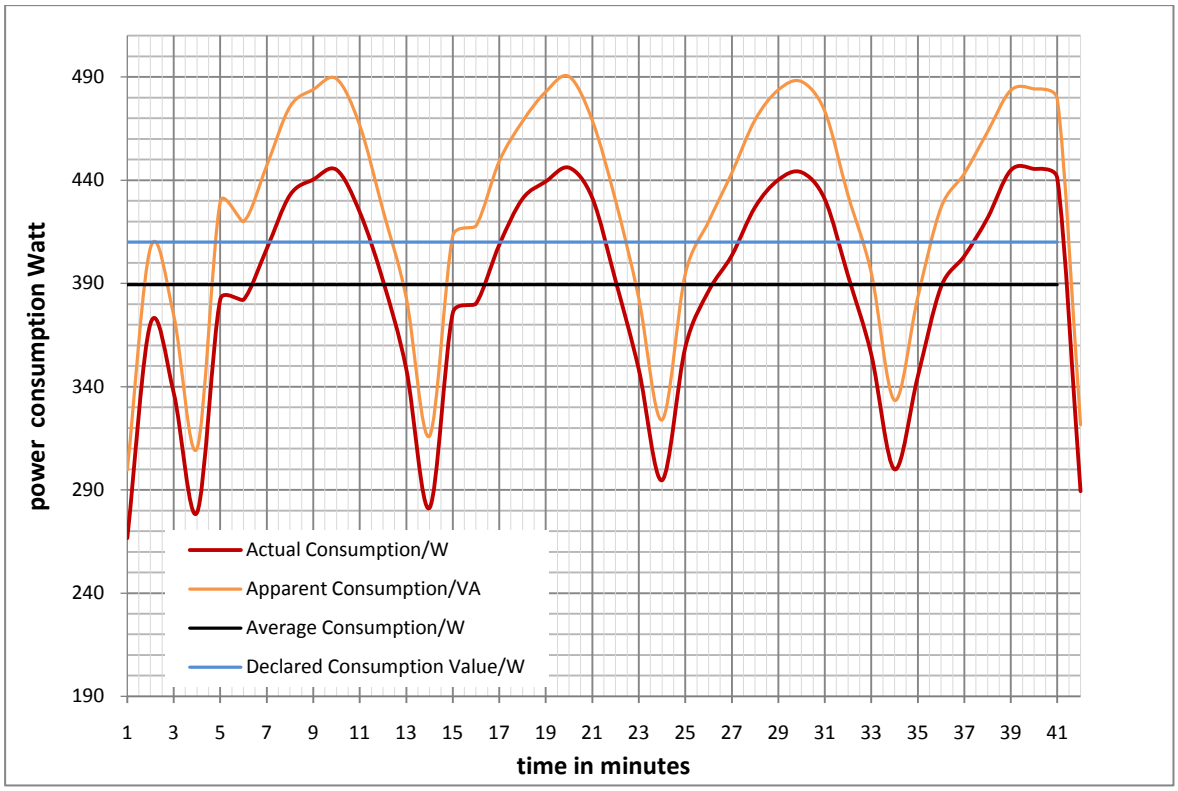


Figure 1 – 1 – dynamic_default Power consumption

Difference between declared and measured value in percent: - 5,0%
Difference between declared and measured value in Watt: - 21W
Values apply to actual consumption!

2. second measurement – user random settings

For this test the display was adjusted with the Burosch Professional FullHD Blu-ray.
As well to the picture adjustment (brightness, contrast, sharpness, overscan and colour) the following values have been switched off.
- Colour Management
- x.v. Colour
- ECO Mode
- Intelligent Frame Creation

All other settings according to the default values in particular the sound settings.

Product:	*TX – P46 GQ 11*
Manufacturer:	*Panasonic*
Device:	*Plasma TV display*
Serial Nr.:	*FK-9360805*
Software-Version:	*1407-10000*
Test Nr.:	*2 – dynamic_user1*
Date:	*2.12.2009*
Time:	*14:00*
Tester:	*Gregor Baumert*
Temperature:	*25°C*
Warm-Up Time:	*60 minutes*
Test Mode:	*~~static~~ / dynamic*
Total measurement time:	*40 min.*
Room Brightness:	*230 lux*
Declared consumption by manufacturer in the manual:	**410 W**
Burosch measured average consumption:	**354 W**

Measurement Device:	*Digital Power Meter*
Source:	*Blu-ray Disc: IEC 62087 BD*
Connection:	*HDMI*
Setup:	*User settings*
Sound:	*no sound*
Frame Rate:	*50Hz*
Notes:	*Display measured with user settings, adjusted with Burosch Professional FullHD Blu-ray. Dynamic Test sequence (duration 10min.) played 4 times.*

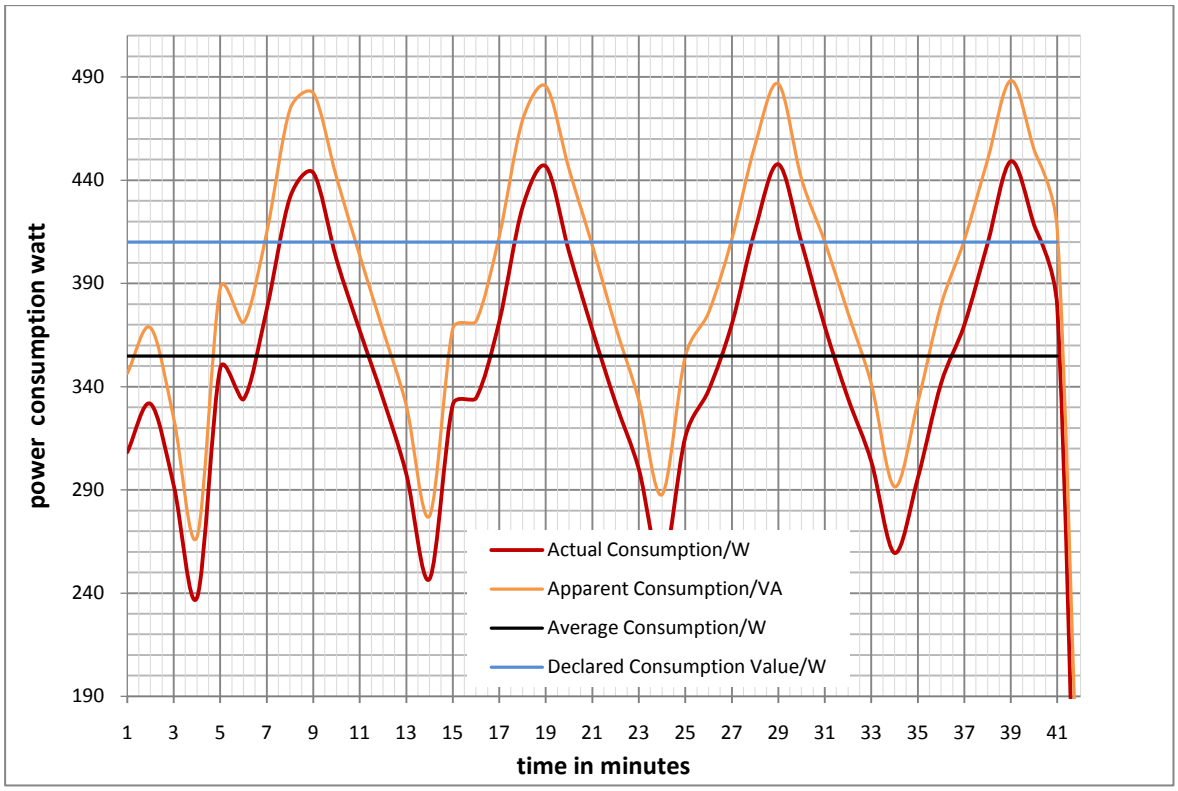


Figure 2 – 2-dynamic_user Power consumption

Difference between declared and measured value in percent: - 13,0%
Difference between declared and measured value in Watt: - 55W
Values apply to actual consumption!

3. Comparison first and second measurement

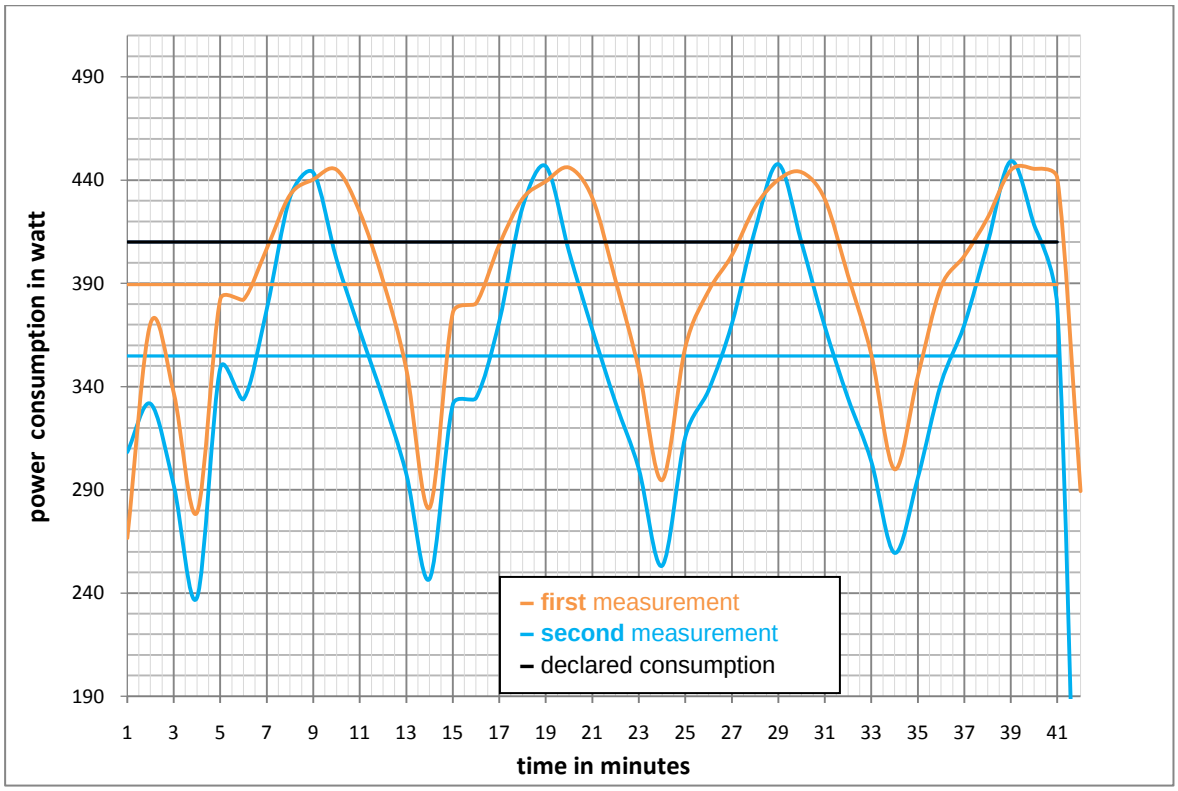


Figure 3 - comparison reading 1 and reading 2

Difference between first and second measurement: -35W equal to -8,5%
Values apply to actual consumption!

4. Third measurement – Eco Mode enabled

For this test the display was adjusted with the Burosch Professional FullHD Blu-ray like before, but also the ECO Function, x.v. Colour, Intelligent Frame Creation, Colour Management and the Power Save function have been activated.

Product:	*TX – P46 GQ 11*
Manufacturer:	*Panasonic*
Device:	*Plasma TV display*
Serial Nr.:	*FK-9360805*
Software-Version:	*1407-10000*
Test Nr.:	*3 – dynamic_user2*
Date:	*2.12.2009*
Time:	*15:50*
Tester:	*Gregor Baumert*
Temperature:	*25°C*
Warm-Up Time:	*60 minutes*
Test Mode:	*~~static~~ / dynamic*
Total measurement time:	*40 min.*
Room Brightness:	*230 lux*
Declared consumption by manufacturer in the manual:	**410 W**
Burosch measured average consumption:	**362 W**

Measurement Device:	*Digital Power Meter*
Source:	*Blu-ray Disc: IEC 62087 BD*
Connection:	*HDMI*
Setup:	*User settings*
Sound:	*no sound*
Frame Rate:	*50Hz*
Notes:	*Display measured with user settings, adjusted with Burosch Professional FullHD Blu-ray. ECO Mode activated. Dynamic Test sequence (duration 10min.) played 4 times.*

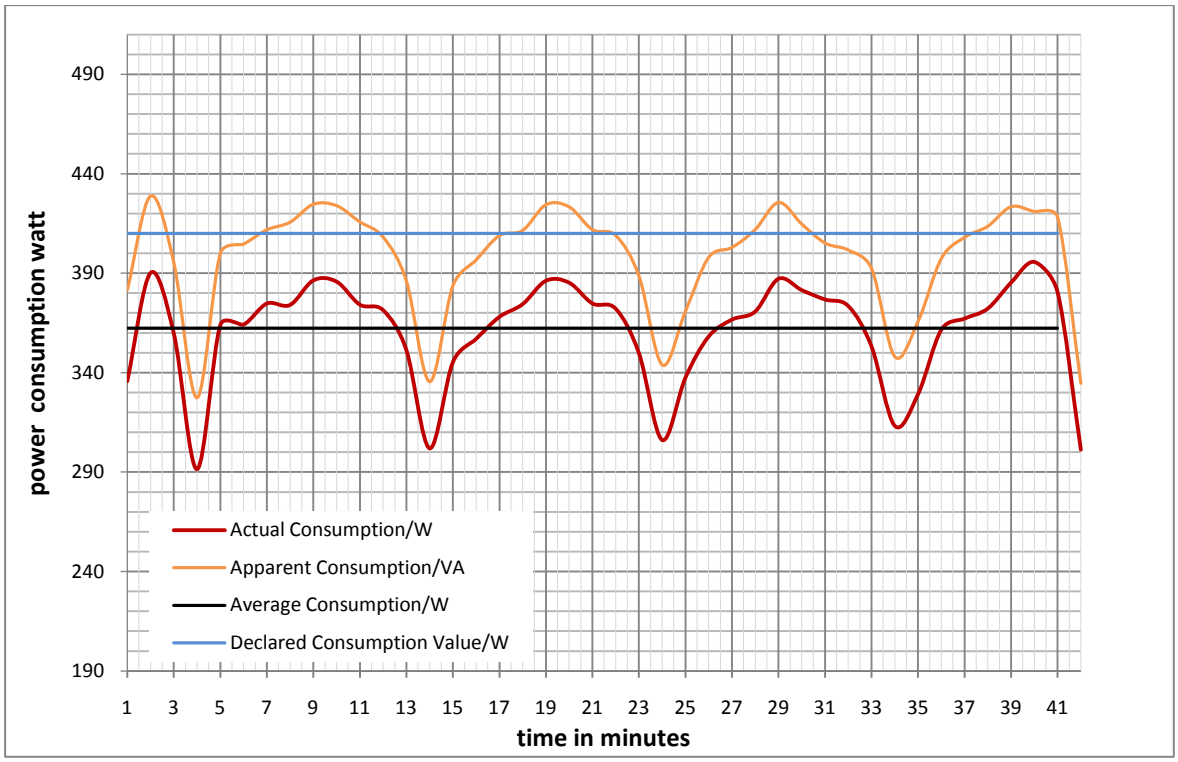


Figure 4 – 3-dynamic_user2 Power consumption

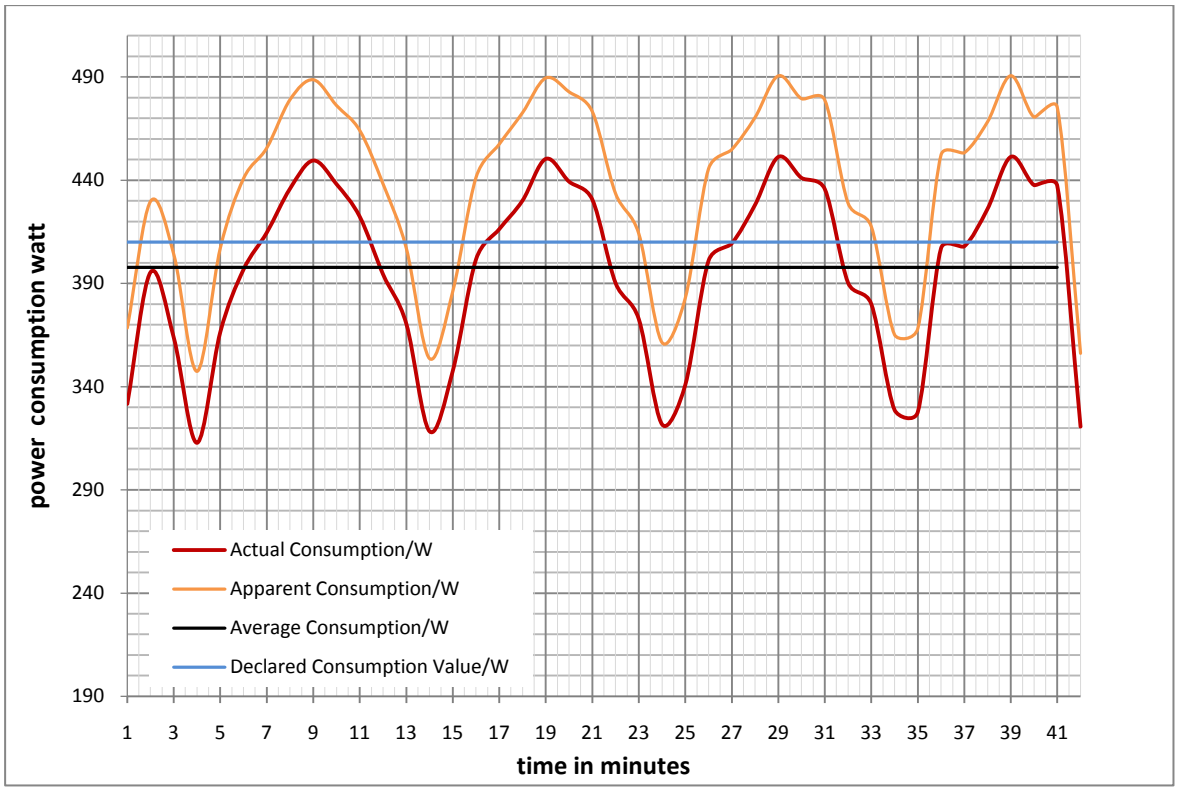
Difference between declared and measured value in percent: -11,6%

5. Fourth measurement – default with calibration

For this measurement the display was adjusted with the Burosch Professional FullHD Disk all other values according to the default values.

Product:	*TX – P46 GQ 11*
Manufacturer:	*Panasonic*
Device:	*Plasma TV display*
Serial Nr.:	*FK-9360805*
Software-Version:	*1407-10000*
Test Nr.:	*3 – dynamic_user3*
Date:	*2.12.2009*
Time:	*17:50*
Tester:	*Gregor Baumert*
Temperature:	*25°C*
Warm-Up Time:	*60 minutes*
Test Mode:	*~~static~~ / dynamic*
Total measurement time:	*40 min.*
Room Brightness:	*230 lux*
Declared consumption by manufacturer in the manual:	**410 W**
Burosch measured average consumption:	**397W**

Measurement Device:	*Digital Power Meter*
Source:	*Blu-ray Disc: IEC 62087 BD*
Connection:	*HDMI*
Setup:	*User settings*
Sound:	*no sound*
Frame Rate:	*50Hz*
Notes:	*Default values, only image adjustment settings with Burosch FullHD Disc.*


490
440
390
340
290
240
190
power consumption watt
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
33
35
37
39
41
time in minutes
Actual Consumption/W
Apparent Consumption/W
Average Consumption/W
Declared Consumption Value/W

6. Final comparison – first, second and third measurement

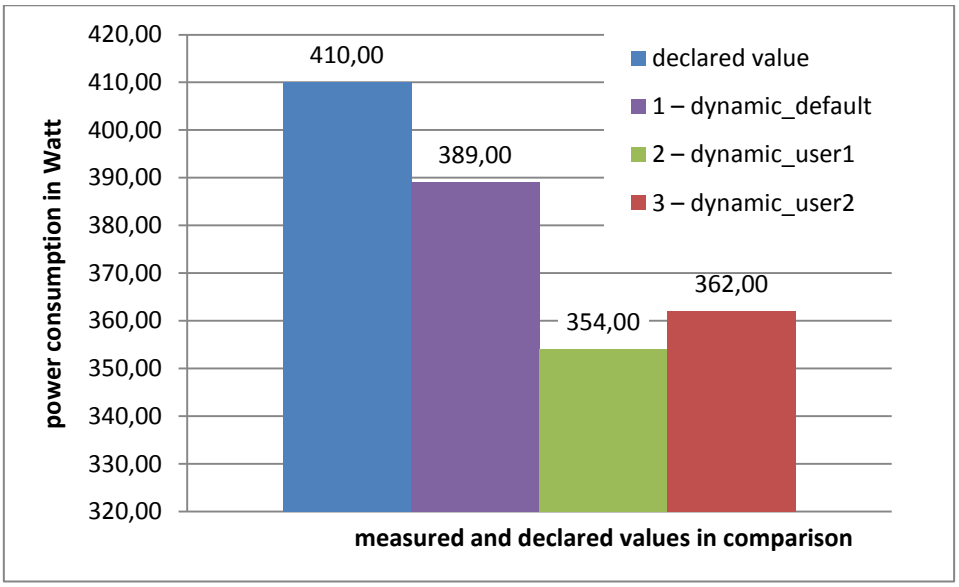


Figure 5 - power consumption in comparison

7. Conclusion

With all image manipulation functions (ECO Mode, intelligent Frame creation,…) switched off and a correct image setting (Brightness, Contrast,…) you can save around 35W which means around 8,5% less power consumption.

If we extrapolate this over one year with an average TV consumption of 4 hours a day this means a reduced power consumption of 51KWh. For a single display!
With the Image enhancement functions, the power save function switched on and the display correctly setup with the Burosch line up test data sequences the consumer can enjoy a better picture and will save around 40 KWh a year.

Annex:

P0_static – On (average) mode power consumption

Pa1_static – Power savings related to automatic brightness control

Pa2_static – Power savings related to other power saving functions

P0_broadcast

Pa1_broadcast

Pa2_broadcast

P0_Internet

Pa1_Internet

Pa2_Internet