

OSM/LUM DECISION SHEET (DSH)

Standard(s) (incl. year)	Subclause(s)	Tracking No.	Year
EN 60968:2015 EN 60969:1993/A2:2000	General	DSH 0998A	2019
Category			
LITE			
Subject	Keywords	Developed by	Approved at
Measurement of circuit power factor and supply current	- True power factor - Supply current - High frequency components	OSM/LUM-ETF5	2019 ETICS Plenary Meeting

Question

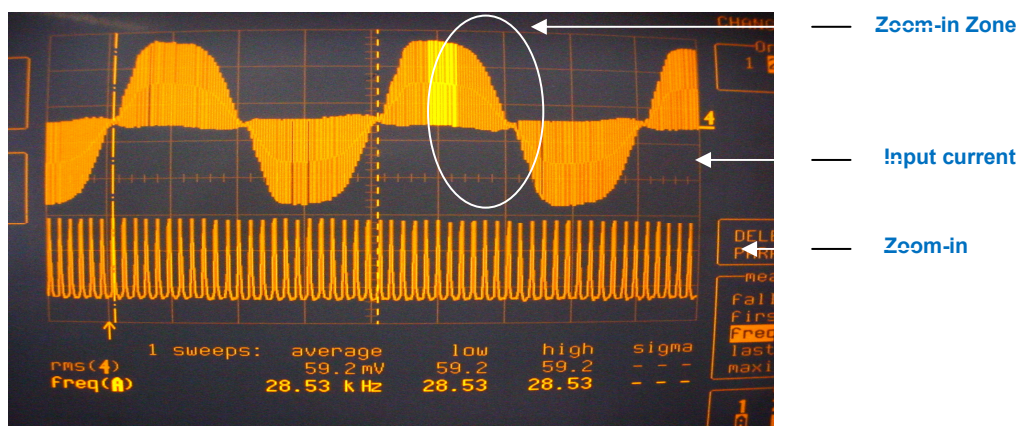
When measuring the circuit power factor and supply current of non linear load (a self-ballasted lamp), we would like to check if there is a need to consider the frequency range of the power meter. The product in question produced high frequency components as shown in Figure 1. The true power factor can only be measured with power meter set to encompass these high frequencies. With the power meter's frequency range specified from d.c. to 25 KHz, the power meter reads a power factor of 0,880 and a current of 330 mA. As the frequency range was extended to 50 KHz, we found the power factor is much lower compared with $\cos \phi$ (power factor measured at fundamental frequency). Which value of power factor can we accept on the product or on the manufacturer catalogue?

Decision

In case of high harmonics and high crest factor, to get an accurate measurement, a power meter with a higher frequency range has to be used.

Explanatory notes

Figure 1 – Input current waveform measured on oscilloscope



Measurements

Ir.m.s. = 592mA

Amplitude modulated current waveform on 50hz with carrier frequency of = 28.53kHz