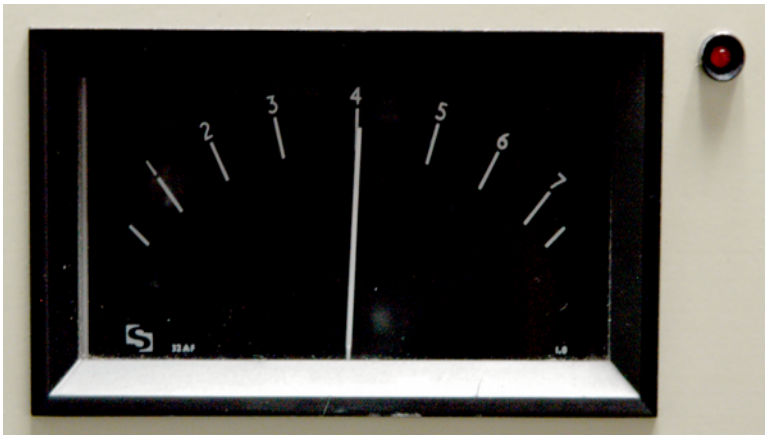
Video Fundamentals 17 PPM's & Rasterizors Brian Summers G8GQS

Using a PPM or Peak Programme Meter is the way sound levels are measured in Broadcast applications, none broadcast users favour the VU meter or Volume Units. The standard 0dB. line-up tone is PPM level 4 or 775mV. Traditionally this was across a 600Ω resistor developing 1mW. This practice of “terminating” the line has long since ceased and output devices are a low impedance source and receiving device (the PPM in this case) a high input impedance. There are 4dBs between the scale markings thus the peak signal should be less than PPM 6 or +8dB which is the maximum voltage level.

One of the main differences between PPM and VU meters is the response time. PPM meters have a demanding ballistic specification and display the peak of the programme level with a slow fall back time. The VU meter is a simple voltmeter that responds quickly but falls back quickly. In a VU meter zero level is typically, but not always, -8 on the VU scale.



An analogue PPM meter

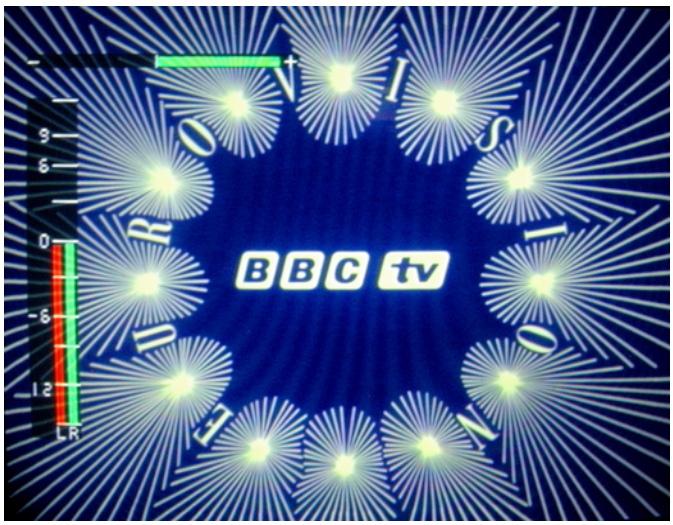
This PPM meter, which is half of a stereo pair has the addition of an LED that comes on as the signal approaches PPM 6.

The history of the PPM goes back a long way almost to the birth of broadcasting. The BBC used a “Programme Meter” for level control in the newly built Broadcasting House in 1932. See the extensive Wikipedia page for more information.

The use of digital signals and the easy digitization of analogue signals led to a change in the way PPM's, waveforms and the like could be displayed. Once in the digital domain the data could be manipulation and it became easy to create or overlay a video signal for display on a picture monitor. This process is known as “rasterization”.

This overlay was produced by a Hamlet unit, it has 4 audio channels, left & right pairs which can be displayed on either side of the screen. The green (+) and red (-) bar at the top indicated the phase between the L & R inputs. The display can be set to a PPM scale, a VU scale or as photographed a Nordic scale.

This discarded broadcast unit came to me at a very reasonable price because the video input/output is 625 analogue. A casualty of the move to HD! The “Eurovision” caption makes a nice change from boring colour bars.



TV picture with overlaid “Nordic” PPM indicator



The Tektronix Rasterizer seems to do everything!

Tektronix make a video/audio/data monitor and analyser all-in-one platform that does almost everything! (but it does not make the tea!)

When I was gainfully employed, not that many years ago, we used this rasterization equipment. A single 20” Apple computer display showing up to 8 small pictures, with cameras 1 to 4 and mixer out plus waveform displays. It is a very flexible arrangement and all pictures could be re-selected, resized or moved around the screen. A very useful spin-off from the use of a flat panel display was to create a storage cupboard behind. On OB's there was always a need for more storage: co-ax adaptors, plugs, cleaning spray, gaffer tape, first-aid kit.... the things never considered by OB unit designers.



Hamlet DigiScope DS9000

This Hamlet Digiscope unit showing R,G,B video signals, a vector display, the picture and 4 channels of audio PPMs. Although there is no subcarrier or vector phases in the PAL sense with SDI or HD SDI, a tradition vector display is of use in assessing the colours and their balance and saturation.

This display by “Leader” has 4 pictures the large one might be mixer out and overridden by the iris & lit selector on the operators OCP to give that cameras picture on the large display. This unit has the option for cues or tallies, red and green ones.

There are many different rasterizers each with numerous options



Leader LV7390 Rasterizer display with 4 pictures and Cues

https://en.wikipedia.org/wiki/Peak_programme_meter