Acoustimeters are individually checked for calibration (though they are not individually calibrated as we reject any that do not pass our tests and replace the advanced RF detector chip – that is only about 1 in 200 from production as the detectors prove extremely stable and reliable). Both the Acoustimeter and the AcoustiCom2 use the Analog Devices AD8317 advanced RF detector chip whose response is very highly and tightly specified over frequency, time and temperature.

We did extensive development testing in a certified EMC test lab as well as in our own lab and in the field. The Acoustimeter AM10 readings are generally close to those from other good quality meters. However that can be differences, especially with “average power”. Many cheap meters display a “power” reading that roughly approximates (when lucky – depending on frequency and pulse shape) with peak pulse power (i.e. assumes a CW signal). Peak pulse power is not generally a specified parameter in Standards (and where it is specified it is 1000s of times higher than the average power density allowed by the FCC and ICNIRP). So we display peak signal strength in V/m (which is what almost all sensitive non-thermal RF meters internally use) and also a properly calculated “average power” over every 6400 samples updated 4 times every second.

The quick and easy test is to apply a CW (non-pulsing signal) and then you will see that the LED rows correctly move up the peak and average columns equally.

We find good agreement with our HF59B Gigahertz Solutions meter using a laboratory sources and reasonable agreement in the field around cellular base-stations. It agrees well with our Anritsu 2721A spectrum analyser and calibrated antennas. It has also been found to generally agree well with the average shown by Narda instruments which are used for official safety measurements.

Other differences can be due to the speed of the meter’s pulse response. The Acoustimeter has an exceptionally fast pulse response speed / wide bandwidth (even suitable for fast radar pulses and WiFi bursts). Obviously, if another make of meter does not respond to the very fast rising edge of modern pulsatile signals, then it will under-read the average even if the pulse is long enough for it to read the peak reasonably accurately.

This is particularly the case for 3G/UMTS/LTE measurements. Most broad-band meters under-read the average value of these due to the spread spectrum techniques needing wide bandwidth and good summing characteristics.

So my belief is that the Acoustimeter gives you a more correct average value (usually lower) than some other commonly used meters. We did a lot of pulse testing and are confident in the accuracy of our average calculation being the best way to calculate an average for non-thermal signals.

The Acoustimeter is an excellent general purpose reasonably accurate microwave exposure meter in the semi-professional range. We started selling the Acoustimeter in 2009. Of the many thousands of AM10s currently being used, many by professional engineers, we have not had any serious questions regarding accuracy.

Having said all that, for legal court evidence work we would recommend a modern Narda or B&K meter that has been officially calibrated within the previous 12 months – that is not the market sector that the Acoustimeter is intended for.

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