The Smell of Molten Projects in the Morning

ELECTRONICS WORKBENCH

Tektronix AM503, A6302, and A6303 In Full Effect

Over the past few months I picked up a pair of Tektronix AM503 Current Probe Amplifiers, plus A6302 20 A and A6303 100 A Hall effect probes. The proper calibration procedures require rather specialized (and, in some cases, custom-built) equipment that I don't have, but I'll mostly use these things for non-contact / isolated current measurements where just seeing what's going on counts for more than absolute accuracy (https://softsolder.com/2016/06/20/squidwrench-power-wheels-racer-motor-current/).

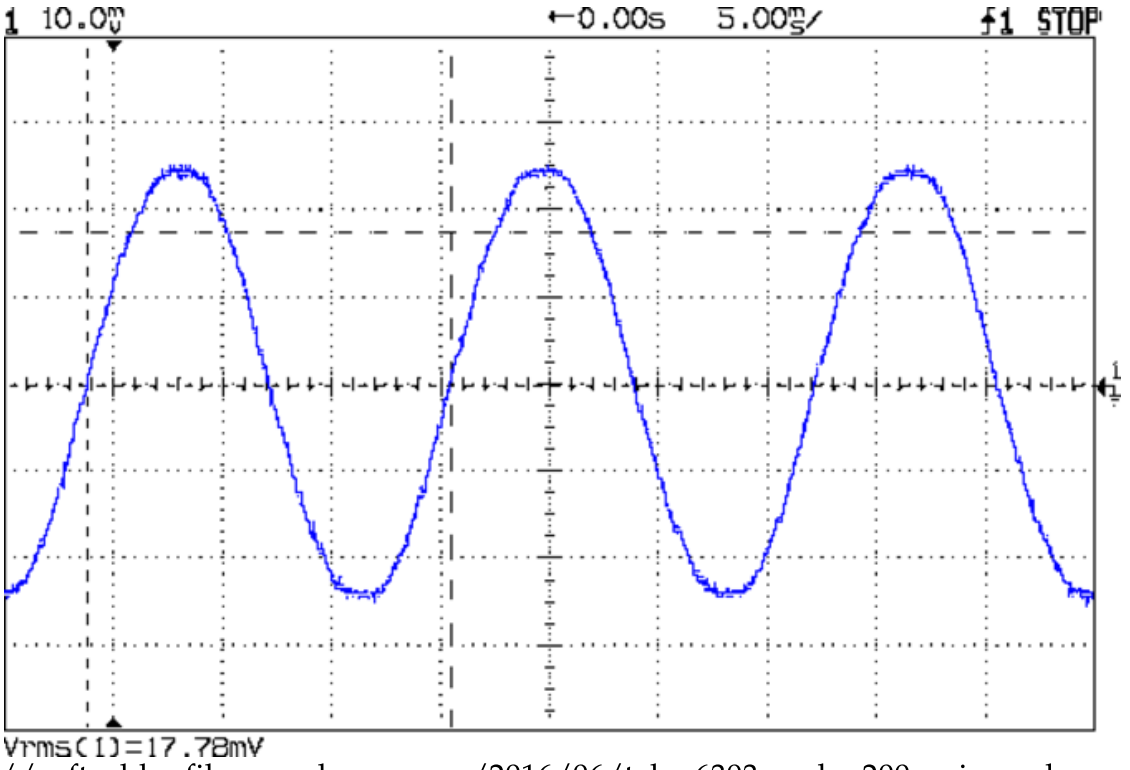
For a quick check, I set up a pair of 100 W incandescent bulbs with a plug/socket that breaks out the line conductor into a widowmaker zip cord intended for a foot switch, but I'm not fussy:

(https://softsolder.files.wordpress.com/2016/06/dsc08753-tektronix-a6302-a6303-current-probes-test-load.jpg)

Tektronix A6302 A6303 Current Probes – test load

That's an old (pronounced "vintage" in eBay-speak) Radio Shack ("Micronta") clamp-on AC ammeter that, for my present purposes, I can regard as the Gold Standard for current measurement. The 200 W resistive load reads 1.6 A, which is pretty close to the 1.7 A you'd expect.

The big A6303 probe loafs along at the low end of its range:

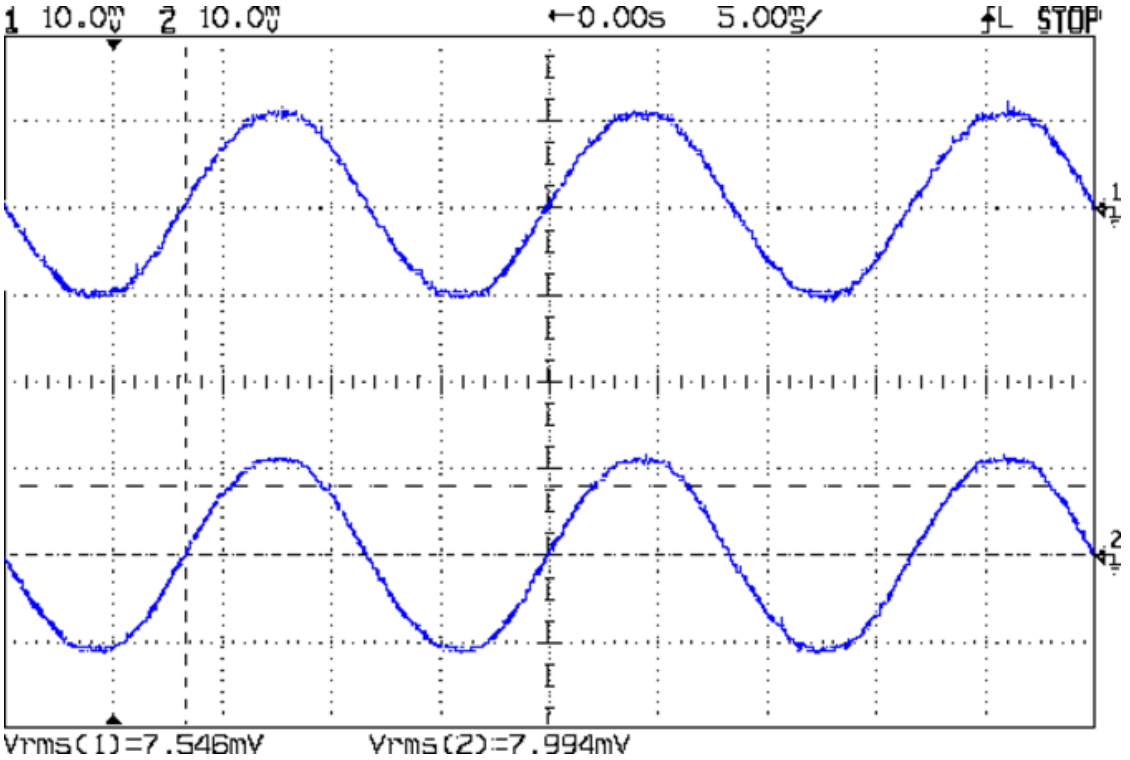


(https://softsolder.files.wordpress.com/2016/06/tek-a6303-probe-200-w-incandescent.png)

Tek A6303 probe – 200 W incandescent

The scope says 17.78 mV RMS, which translates to 1.8 A with the AM503 set to 1 A/div. A bit hot, perhaps, but not off by too much.

The two AM503 amps produce slightly different results when switching the probes back and forth, but this arrangement looks consistent:



(https://softsolder.files.wordpress.com/2016/06/tek-a6303-a6302-probes-1-6-a-rms.png)

Tek A6303 A6302 probes – 1.6 A rms

With the AM503 amps set to 2 A/div, 7.546 mV = 1.5 A and 7.994 mV = 1.6 A. The last few digits of those RMS calculations absolutely don't matter.

The overall error (at least for low-range AC) looks to be around 10%, which is certainly good enough for my immediate needs. I doubt that I can gimmick up a square wave current calibration fixture that I'd trust.

Labeling the amps improves the odds that I'll plug the probes in correctly:

(https://softsolder.files.wordpress.com/2016/06/dsc08751-tektronix-tm502-mainframe-with-am503-current-probe-amps.jpg)

Tektronix TM502 Mainframe with AM503 Current Probe Amps

The A6303 amp lights the "high range" indicator, the A6302 lights the "low range" indicator. Newer (but still obsolete) AM503A and AM503B amps have an LED readout showing the current/division, but …

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One thought on "Tektronix AM503, A6302, and A6303 In Full Effect"

1. Pingback: Nothing Exceeds Like Excess: Tektronix CT-5 Current Transformer Probe | The Smell of Molten Projects in the Morning

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