

SETTING THE RECORD STRAIGHT

I have a few corrections and comments on two articles that appeared in the April issue of **Popular Electronics**.

In "dBm Debate," which appeared in the "Letters" column, both letter-writer T.L. and author Joe Carr are wrong. Allow a Bell Labs retiree to set the record straight. The term dBm is defined by the Bell System *et al.* as the decibel ratio of some power level with reference to one milliwatt. *It has no relation to impedance.* In my 36-plus years in the Bell System, I observed that misuse and misunderstanding of dB and dBm was rampant. When working on telephone circuits, it was common to use meters with a 600-ohm impedance, but on some carrier systems the dBm meters had 135-ohm impedances and the dBm-reading power meters had no defined impedance at all. And (Joe Carr notwithstanding), VU is not another term for dBm. The VU, or volume unit, is used to measure peaks of power in complex waves, such as speech, relative to some specified reference level. In general, that reference level, 0 VU, indicates no precise electrical quantity, but the volume indicator is calibrated to read 0 VU on one mW of 1000-Hz power dissipated in a 600-ohm resistance. The VU level is read on a D'Arsonval meter with

specified dynamic characteristics. The calibration is such that it may be used as a dBm meter for steady 1000-Hz signals in 600-ohm circuits, but the conventional dBm meter may *not* be used to measure volume units.

Also in the April issue, in "Think Tank," there is a phone-line tester that is said to indicate correct polarity when the ring probe is positive with respect to the tip probe. That is reversed; the ring lead is negative under most conditions relative to the tip lead. That is correctly described in the second paragraph of an article called "Isolating Telephone Extensions" that appears later in the same issue. But that author goofed in the fourth paragraph, saying that the ringing signal is a 90-volt peak-to-peak AC signal. It is essentially a 90-volt RMS signal that is superimposed on the 50-volts DC on the ring lead. That is the voltage there can really bite.

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