A measurement system that provide instant dynamic range as low as -60db

Dynamic range.

Dynamic range in RF systems is the ability of the receiver to pick out weak signals compared to the strong ones. Think about it as trying to hear a person talking when somebody in the room is screaming. For Network analyzers the dynamic range is the maximum signal power the receiver can measure minus the noise floor of the receiver. To achieve a higher dynamic range of NVAs it must be in tuned-receiver mode (Narrowband). If you reduce the bandwidth then the overall noise floor will go down, so it logical that it would have higher dynamic range. [1]

In a normal receiver the dynamic range goes from the Third order intercept point and the sensitivity of the receiver. Third order intercept points are caused by overdriving the receiver with too much input and that causes distortion and signal saturation. The sensitivity is more dependent on the operating environment and the recovers noise figure. [2FIND BETTER SOURCE?] This means that a RF receiver is highly dependent on the mixer and amplifier with regards to dynamic range.

To measure dynamic ranges to -60dB a special measurement setup would be required to increase the dynamic range.

* Measuring a very narrow bandwidth
* Averaging the noise so that the variance is reduced (but longer measuring time)

[1] http://cp.literature.agilent.com/litweb/pdf/5965-7917E.pdf

[2] http://mwrf.com/test-and-measurement/understanding-dynamic-range