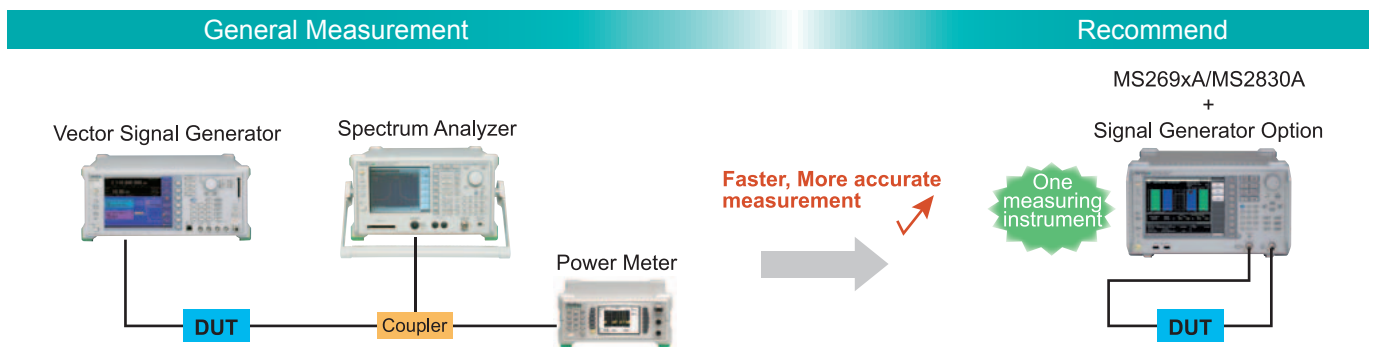


MS269xA/MS2830A series  
Signal Analyzer

# Fast Output Power Calibration with One Remote Command High-speed, High-accuracy AMP Evaluation Proposal

- Power Calibration Time: 100 ms (typ.)
- High-accuracy Measurement:  $\pm 0.02$  dB (typ.)
- One Remote Command Controls Signal Analyzer (SA) and Signal Generator (SG)



**Measurement Condition Example**

Example of Tx command (W-CDMA modulation) → Spectrum Analyzer mode

[1] Frequency: 2 GHz [2] Analysis width: 5 MHz [3] Trace points: 1001 [4] Analysis length: 667  $\mu$ s  
 [5] Start SG output level (calibration start level): -30 dBm [6] Maximum SG output level (upper limit): -5 dBm  
 [7] Calibration target level: -10 dBm [8] Calibration range: 0.05 dB [9] Calibration count: 10 [10] Log output: OFF [11] SG level offset: OFF

**Tx Command** MEAS:POW? 5000000,667US,-30,-5,-10,0.05,2GHZ,1001,10,OFF,OFF } One remote command

## Measurement Result Example

Improved output power adjustment accuracy suppresses EVM, ACP, and HD measurement

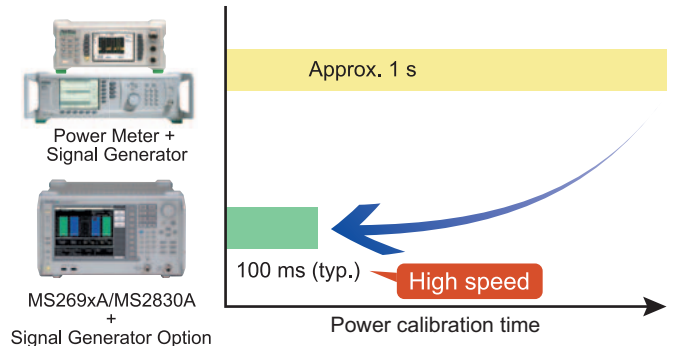
Power calibration accuracy	Measurement repeatability			
	EVM	ACP_upper	ACP_lower	2HD
0.14 dB	1.96 dB	1.14 dB	1.12 dB	1.12 dB
0.05 dB	0.44 dB	0.89 dB	0.88 dB	0.72 dB
0.03 dB	0.27 dB	0.27 dB	0.54 dB	0.40 dB

High accuracy

\*: 100 samples (per power calibration accuracy)

## Measurement Time Example

Power calibration -10 dBm,  $\pm 0.05$  dB

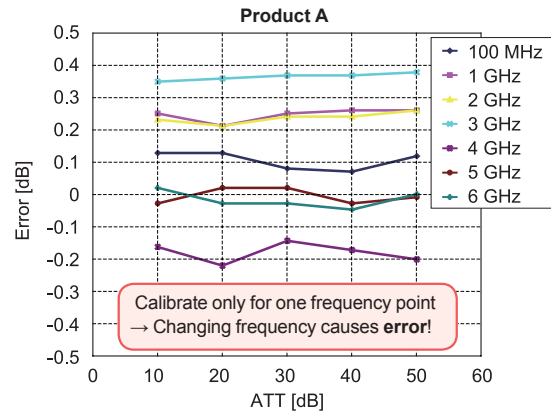
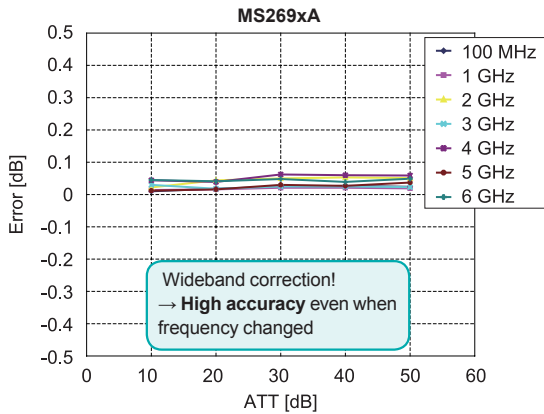


- ◆ Previously, power calibration measurements required multiple remote commands to control several measurement instruments. The all-in-one MS269xA/MS2830A controls the SA and SG using one remote command, supporting fast and high-accuracy measurements.
- ◆ Improved output power adjustment accuracy suppresses EVM, ACP, and HD measurement errors and improves yield rate.
- ◆ The measurement system is compact and simple.

**Level accuracy: ±0.3 dB (typ.)**  
**Excellent Level Accuracy Improves Yield Rate**

General-purpose Spectrum Analyzers (see Product A) are only calibrated for one frequency point, so there are large errors when frequency and attenuation are changed. In this case, adding this error to the test specifications as a margin at measurement does not really meet the standards. Specifications with added margin are severe and, as a result, sometimes even 'Pass' units are evaluated as 'Fail'. However, the MS269xA's technology supports level correction over a wide frequency range from 50 Hz to 6 GHz (MS2830A: 300kHz to 4GHz), supporting stable measurement with excellent level accuracy even when frequency and attenuation are changed.

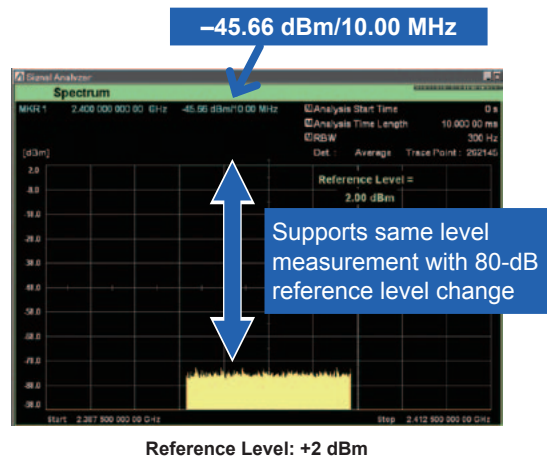
Eliminating pointless margins increases yields by cutting the number of 'Fail' evaluations.



**Better Linearity and Repeatability than Power Meter!**

Although conventional Spectrum Analyzers have good level accuracy for points near the log-scale reference level, accuracy becomes worse for points further away, because these Spectrum Analyzers use an analog IF and log-amp. In contrast, the MS269xA/MS2830A measures every point with the same excellent accuracy because it uses a digital IF.

\*: With Signal Analyzer mode, Using WiMAX 10-MHz waveform



- ◆ Supports high-accuracy measurement at low level
- ◆ Using all-in-one SA and SG supports high-repeatability level measurements even for burst WiMAX signal waveforms like those above.

**Ordering Information (extract)**

Model	Name
<b>- Main frame -</b>	
MS2690A	Signal Analyzer (50 Hz to 6.0 GHz)
MS2691A	Signal Analyzer (50 Hz to 13.5 GHz)
MS2692A	Signal Analyzer (50 Hz to 26.5 GHz)
<b>- Signal Generator Option -</b>	
MS2690A-020	Vector Signal Generator (125 MHz to 6.0 GHz)

Model	Name
<b>- Main frame -</b>	
MS2830A-040	Signal Analyzer (9 kHz to 3.6 GHz)
MS2830A-041	Signal Analyzer (9 kHz to 6.0 GHz)
MS2830A-043	Signal Analyzer (9 kHz to 13.5 GHz)
<b>- Signal Generator Option -</b>	
MS2830A-020	Vector Signal Generator (250 kHz to 3.6 GHz)
MS2830A-021	Vector Signal Generator (250 kHz to 6.0 GHz)