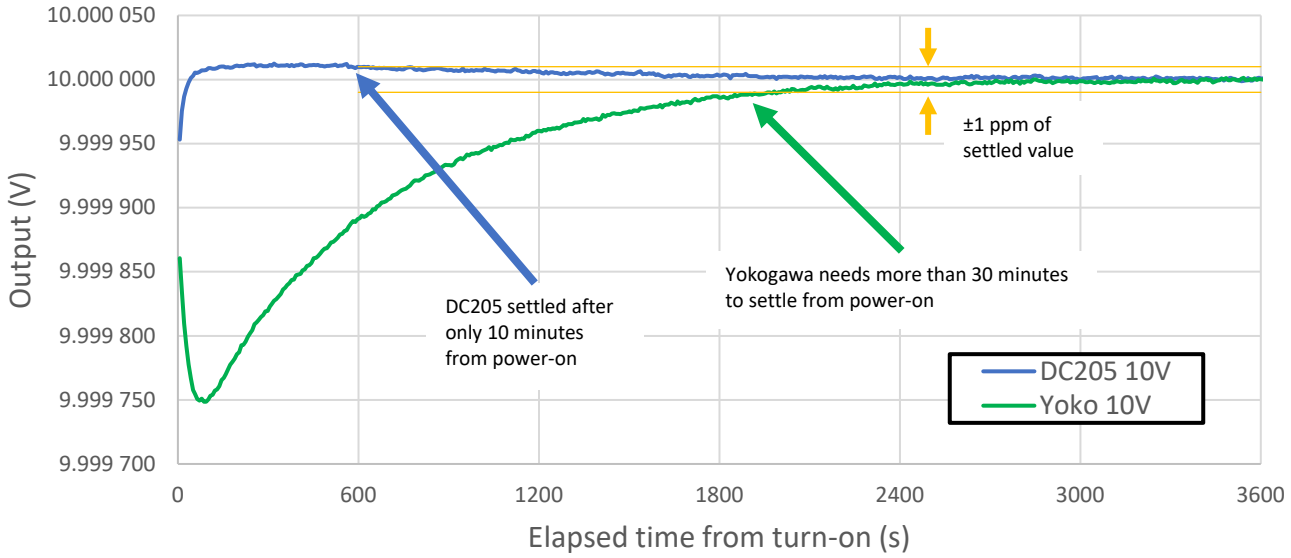
SRS Tech Note

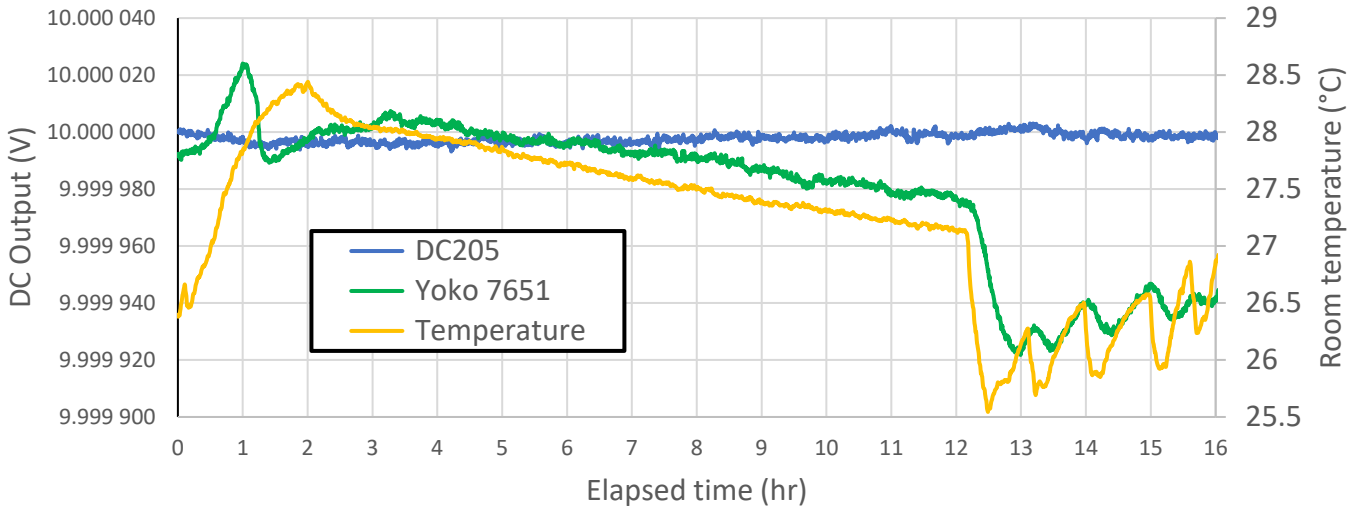
This note summarizes the output stability and noise performance of the DC205 Precision DC Voltage Source, compared with a Yokogawa model 7651 Programmable DC Source.

	SRS DC205	Yokogawa
Ranges compared	±1 V, ±10 V, and ±100 V	±1 V, ±10 V, ±32 V
Resolution (ppm of full scale)	1 ppm 1 µV (1 V), 10 µV (10 V), 100 µV (100V)	10 ppm 10 µV (1 V), 100 µV (10 V), 1 mV (32V)

Output stability from cold power-on



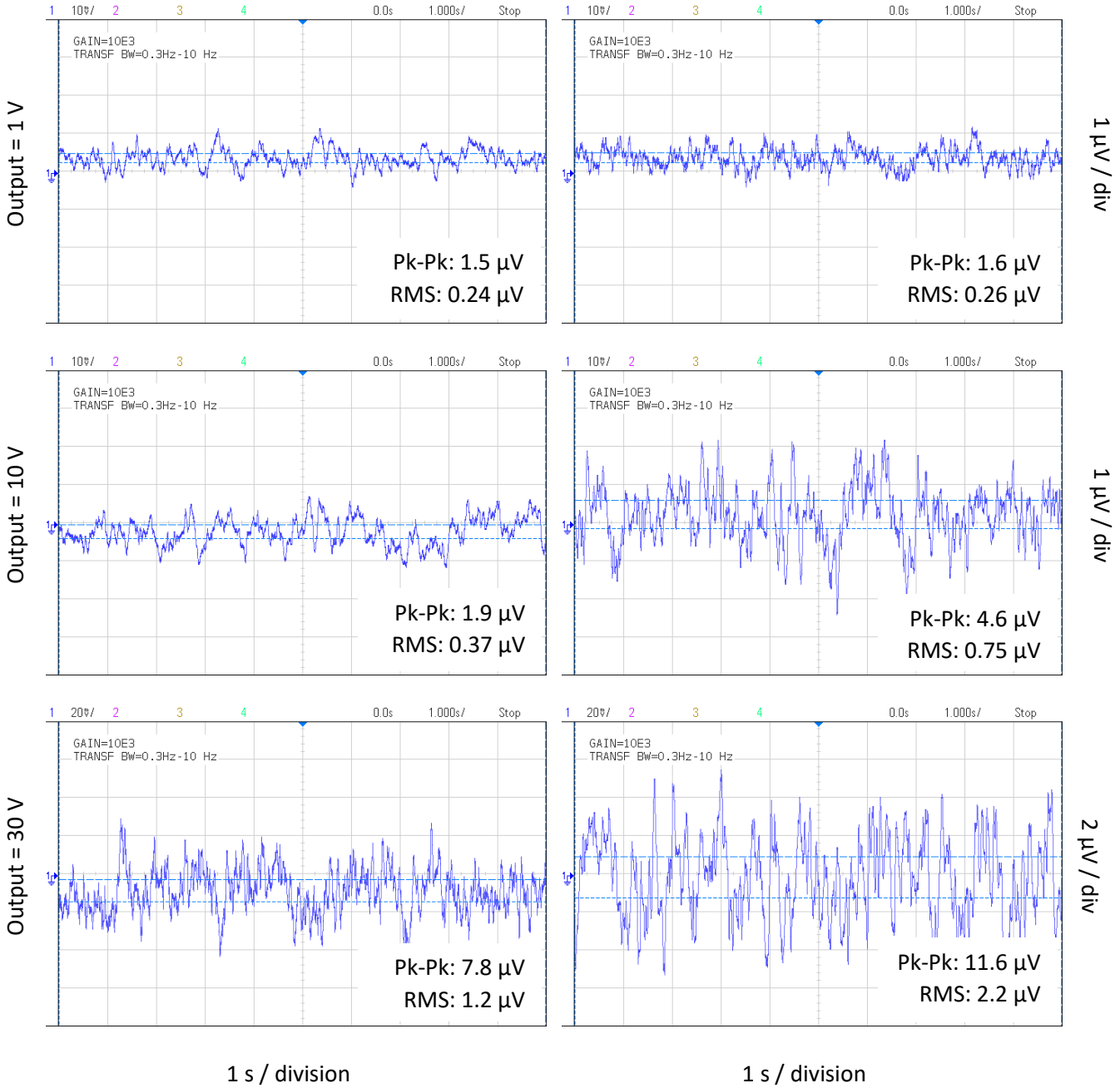
Overnight stability



Low frequency noise measured through 200 mF blocking capacitor into a SR554 Transformer Preamplifier and SR560 Preamplifier. Total gain ×10,000.

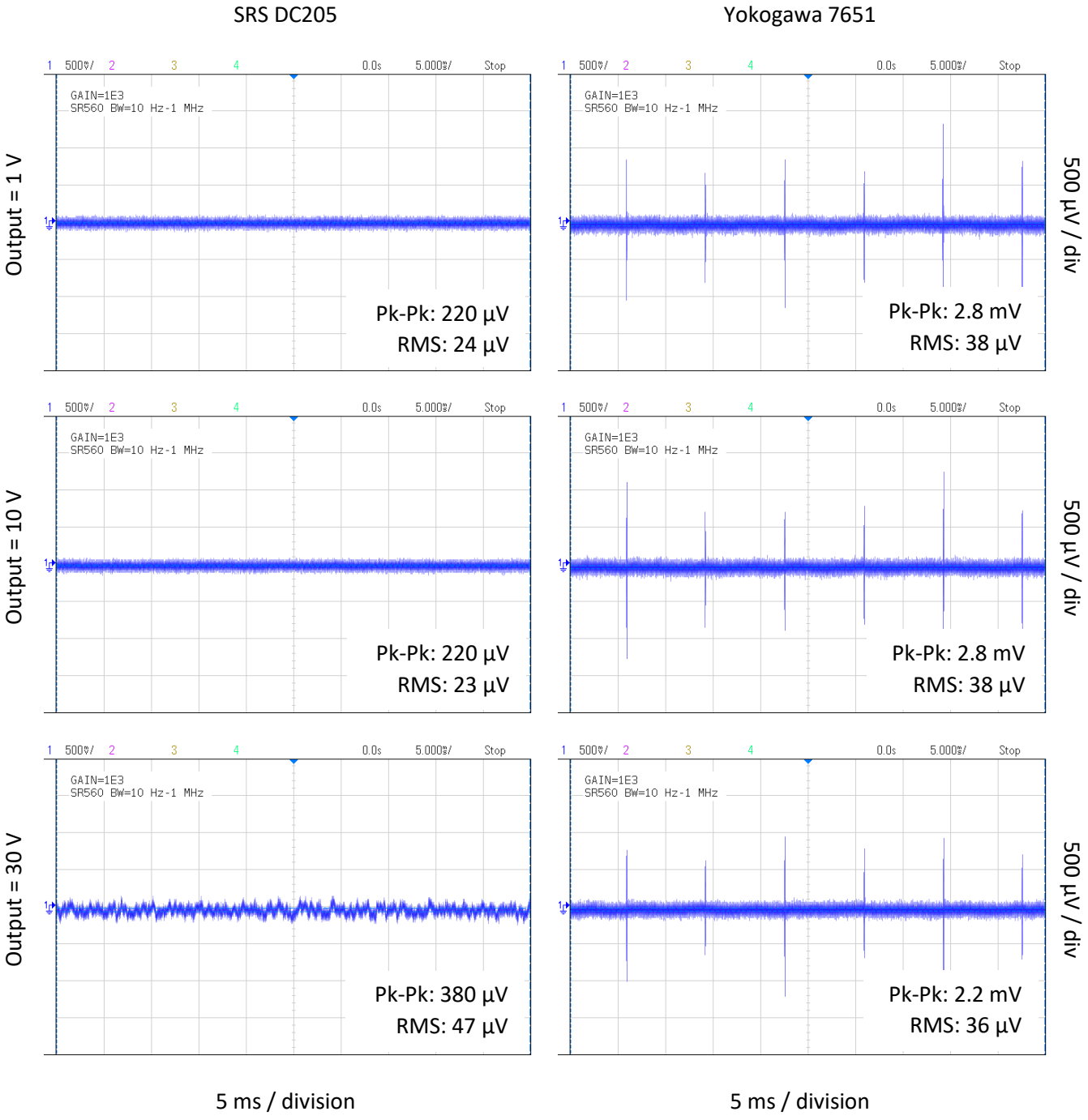
Low frequency noise (0.3 Hz to 10 Hz)

SRS DC205 | Yokogawa 7651



High frequency noise measured directly with a SR560 Preamplifier, gain ×1000.

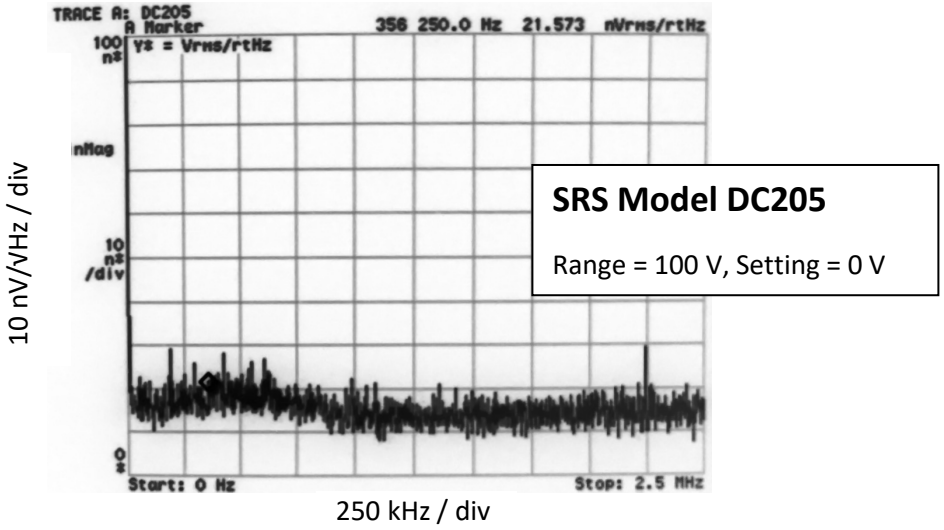
High frequency noise (10 Hz to 1 MHz)

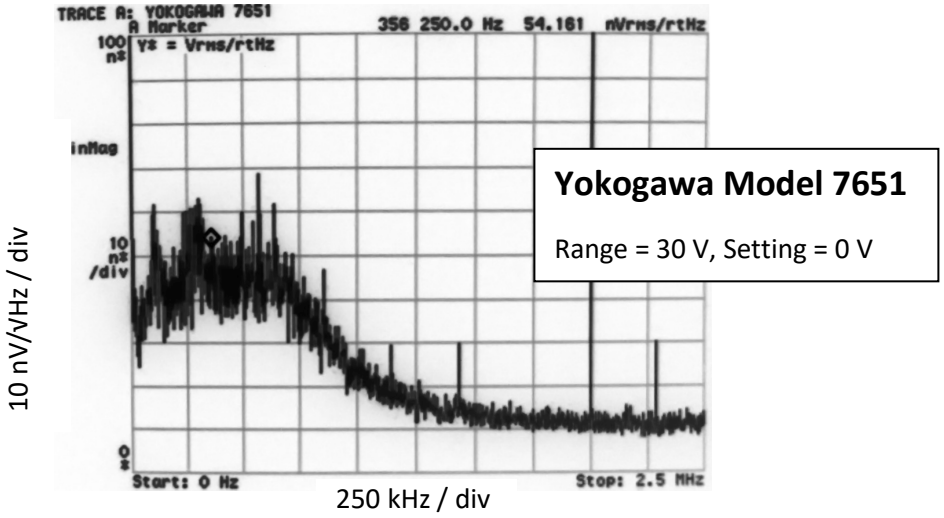


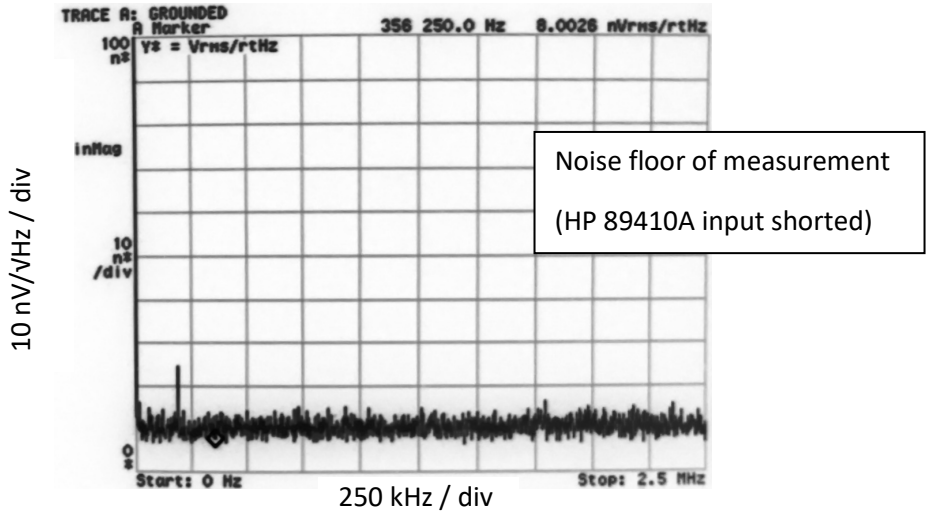
Noise measurements performed on DC205 (s/n 20500097) and Yokogawa 7651 (s/n 27D134535A).
The DC205 30 V measurements were made on the 100 V output range, to compare with the 7651 maximum output range of 30 V. Both sources were operated with ground-referenced outputs.

High frequency power spectum (to 2.5 MHz)

Measured with an HP Model 89410A 10 MHz Vector Signal Analyzer. Span DC to 2.5 MHz, RBW=1 kHz.







Comparison of the output resolution (least-significant steps) for the DC205 Precision DC Voltage Source and the Yokogawa model 7651 Programmable DC Source. Both instruments are set to an output range of 10 V. Note the step-to-step variation in the Yokogawa output, as well as the 10-fold resolution advantage of the DC205.

Least-significant output steps