

Table 16. CuSO<sub>4</sub> fiducial sphere solution values at 3.0 T for all serial numbers. Measured at various temperatures. NIST traceable.

	CuSO <sub>4</sub> concentration (mM)*	T <sub>1</sub> reported (ms)	T <sub>1</sub> uncertainty (ms)**	T <sub>2</sub> reported (ms)	T <sub>2</sub> uncertainty (ms)***
16°C	2.9	350.23	7.71	300.27	6.61
18°C	2.9	370.96	8.16	317.88	6.99
20°C	2.9	391.51	8.61	335.56	7.38
22°C	2.9	412.02	9.06	352.51	7.76
24°C	2.9	432.78	9.52	370.62	8.15
26°C	2.9	453.81	9.98	388.91	8.56

\*Concentrations provided by CaliberMRI, based on Certificates of Analysis from Sigma-Aldrich.

\*\* The temperatures listed are prescribed values. The uncertainty in the temperature measurement is included in the T<sub>1</sub>, T<sub>2</sub> uncertainty values.

\*\*\* The uncertainties, u, are calculated using a Monte Carlo-Bloch simulator as described in NIST SP250-97. The uncertainty is given by  $u = 3 \cdot SD$  where SD is the maximum observed T<sub>1</sub>, T<sub>2</sub> standard deviation given by the Monte Carlo Bloch simulations. There is 99.7% probability that the real values fall within the reported values  $\pm u$ . The full uncertainty analysis is available on request.