Baker *et al.* Reply: Our Letter [1] places a new experimental limit on the electric dipole moment (EDM) of the neutron. The Comment [2] points out that we did not explicitly include in our analysis the effect of the Earth's rotation, which shifts all of the frequency ratio measurements R_a to lower (higher) values by 1.3 ppm when the B_0 field was upwards (downwards). However, this effect is essentially indistinguishable from other effects that can shift R_a, and all such shifts were compensated for in [1] by using experimentally determined values of R_{a0} (which we call $R_{a0\downarrow}$ $R_{a0\uparrow}$, respectively, for the two polarities of B_0), where $\langle \partial B_z / \partial z \rangle_V = 0$.

We turn now to the details. Naively, one would expect that the crossing point of the lines in Fig. 2 of [1] (which lies at $R_a - 1 = 5.9 \pm 0.8$ ppm) would have $\langle \partial B_z / \partial z \rangle_V = 0$, with its ordinate yielding the true EDM. However, what were referred to in [1] as horizontal quadrupole fields (involving $\partial B_x / \partial y$, etc.) shift these lines towards the right. A difference in the strengths of these quadrupolar fields upon B_0 reversal leads to a differential shift in R_a, and thus to a vertical displacement of the crossing point. The Earth's rotation mimics this behavior precisely, by moving the B_0-down (-up) line leftwards (rightwards). Thus, where quadrupole fields are mentioned in [1], one might better read this as "quadrupole fields and Earth-rotation effects combined." The "quadrupole shift" listed in Table 1 of [1] simply represents the move from the crossing point to the average of the EDM values determined (independently) by the measured $R_{a0\downarrow}$ and $R_{a0\uparrow}$ values.

The shift measurements are described (rather than just "mentioned") in [1]. First, the strongest constraint arises from a study of the depolarization of the neutrons as a function of R_a, and thus, effectively, as a function of $\langle \partial B_z / \partial z \rangle_V$. Neutrons of different energies have different heights of their centers of mass, and thus the T_2 spin relaxation is maximized when $\langle (\partial B_z / \partial z)^2 \rangle_V$ is minimized. The values of $R_a - 1$ at which the polarization product α was found to peak were $(5.7 \pm 0.2, 5.9 \pm 0.2)$ ppm for B_0 up, down, respectively. In the presence of the dipole in the region of the door of the storage chamber [1], the point for B_0 down (up) at which $\langle (\partial B_z / \partial z)^2 \rangle_V$ is minimized is 0.2 ppm higher (lower) than the point $R_{a0\downarrow}$ ($R_{a0\uparrow}$). These data provide direct, independent measurements for each B_0 polarity of the actual values R_{a0} at which $\langle \partial B_z / \partial z \rangle_V = 0$, taking into account any and all shift mechanisms, known or unknown, acting on R_a. Since these depolarization results are drawn from the EDM data themselves, they cannot be described as "*ex post facto*." We conclude from our data that the differential quadrupole shift and Earth rotation effect cancel to within 15% in our apparatus. The fact that the resulting d_n values $[(-0.6 \pm 2.3, -0.9 \pm 2.3) \times 10^{-26} e$ cm for B_0 up, down, respectively] agree so well with each other gives added confidence in the experimental results overall.

Second, after about 60% of the data had been taken, a bottle of variable height was used to measure the profile of the magnetic field within the storage volume. Extrapolation of these data to the EDM bottle yields $R_{a0\uparrow} - R_{a0\downarrow} = (1.5 \pm 1.0)$ ppm. [This number is affected by the Earth's rotation: This is because the quadrupole fields influence the data-taking bottle (radius $r_b = 23.5$ cm) a factor of 1.7 more strongly than the auxiliary bottle ($r_b = 18.5$ cm), whereas the Earth's rotation acts identically upon both. However, the effect upon the final EDM result is very small indeed because the value of $R_{a0\uparrow} - R_{a0\downarrow}$ is determined mainly by the depolarization measurements.]

Our data show no evidence for changes in the relevant long-term B-field properties from the periodic disassembly of the magnetic shields.

Since the publication of [1], we have improved our fitting procedure to take full account of correlations between the quadrupole and dipole corrections, and to include explicitly the effect of the Earth's rotation. The results yield new net shifts (to be compared with those listed in Table 1 of [1]) for the dipole and combined quadrupole/Earth-rotation effects of $(-0.46, +0.30) \times 10^{-26} e$ cm, respectively, with a net uncertainty of $0.37 \times 10^{-26} e$ cm for both. In combination with the other effects discussed in [1] this yields an overall systematic correction to the crossing point of $(0.20 \pm 0.76) \times 10^{-26} e$ cm for the second analysis of [1]. The final value for the EDM from this analysis is then $(-0.4 \pm 1.5(\text{stat}) \pm 0.8(\text{syst})) \times 10^{-26} e$ cm implying $|d_n| < 2.8 \times 10^{-26} e$ cm (90% C.L.), identical to the previous limit from this analysis.

The Comment asserts incorrectly that the $R_a - 1$ values averaged to zero in the first analysis of [1]. By choice of the applied $\partial B_z / \partial z$, they averaged to 8.9 ppm for both B_0 polarities. Since any net differential shifts in R_a have been shown to be small, this analysis need not be altered.

In conclusion, the overall limit of $|d_n| < 2.9 \times 10^{-26} e$ cm (90% C.L.) remains unchanged.

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[1] C. Baker *et al.*, Phys. Rev. Lett. **97**, 131801 (2006).
[2] S. Lamoreaux and R. Golub, preceding Comment, Phys. Rev. Lett. **98**, 149101 (2007).