

Table S1. Total magnetic field intensity and inclination differences with the home loft for the release sites used in this experiment and in Beason et al. (Beason et al., 1997) sorted in ascending order of intensity difference

Site (distance from loft)	Total field intensity difference from home loft (nT)	Inclination difference from home (deg)
la Sterza (39 km)	24	0.1366
Budesheim (17.2 km)	26	0.0641
Bickenbach (81.5 km) 12/9/90	45	0.036
Bickenbach (81.5 km) 26/6/92	46	0.0381
Keidrich (42.4 km)	50	0.0974
Montespertoli (61 km)	51	0.0529
Chiesina Uzzanese (40.3 km)	86	0.2073
Sterbritz (70.6 km)	94	0.1922
Lich (40.6 km)	102	0.2926
Gernsheim (42 km)	108	0.3095
Fulda-Sickels (82.3 km)	154	0.3741
Erlangen (168 km)**	174	0.3875
Braccagni (106.3 km) 10/8/10	216	0.7794
Braccagni (106.3 km) 1/8/11	216	0.7786
Mutterstadt (79 km)	215	0.6127
Hohenheim (90 km)	232	0.6613
Heringen (129 km)	237	0.6458
Elsenz (107 km) 7/8/90*	251	0.7702
Elsenz (107 km) 29/8/90	251	0.7702
Elsenz (107 km) 17/8/89*	274	0.7705
Hilgeshausen (123 km)	294	0.7975

Release sites were calculated from table 1 in Beason et al. (Beason et al., 1997). Intensity values were obtained from <http://www.ngdc.noaa.gov/geomag-web/#igrfwmm> using the IGRF11 model, which allows the calculation of the field strength and inclination for the precise date of the release.

\*Significant deflecting effect of pulse treatment for south anterior birds.

\*\*Significant difference in scatter for south anterior birds.