Table 9: Rubidium 87 D_2 ($5^2S_{1/2} \longrightarrow 5^2P_{3/2}$) Hyperfine Dipole Matrix Elements for σ^+ transitions ($F = 2, m_F \longrightarrow F', m'_F = m_F + 1$), expressed as multiples of $\langle J = 1/2||er||J' = 3/2\rangle$.

	$m_F = -2$	$m_F = -1$	$m_F = 0$	$m_F = 1$	$m_F = 2$
$F' = 3$	$\sqrt{\frac{1}{30}}$	$\sqrt{\frac{1}{10}}$	$\sqrt{\frac{1}{5}}$	$\sqrt{\frac{1}{3}}$	$\sqrt{\frac{1}{2}}$
$F' = 2$	$\sqrt{\frac{1}{12}}$	$\sqrt{\frac{1}{8}}$	$\sqrt{\frac{1}{8}}$	$\sqrt{\frac{1}{12}}$	
$F' = 1$	$\sqrt{\frac{1}{20}}$	$\sqrt{\frac{1}{40}}$	$\sqrt{\frac{1}{120}}$		

Table 10: Rubidium 87 D_2 ($5^2S_{1/2} \longrightarrow 5^2P_{3/2}$) Dipole Matrix Elements for π transitions ($F = 2, m_F \longrightarrow F'$, $m'_F = m_F$), expressed as multiples of $\langle J = 1/2||er||J' = 3/2\rangle$.

	$m_F = -2$	$m_F = -1$	$m_F = 0$	$m_F = 1$	$m_F = 2$
$F' = 3$	$-\sqrt{\frac{1}{6}}$	$-\sqrt{\frac{4}{15}}$	$-\sqrt{\frac{3}{10}}$	$-\sqrt{\frac{4}{15}}$	$-\sqrt{\frac{1}{6}}$
$F' = 2$	$-\sqrt{\frac{1}{6}}$	$-\sqrt{\frac{1}{24}}$	0	$\sqrt{\frac{1}{24}}$	$\sqrt{\frac{1}{6}}$
$F' = 1$		$\sqrt{\frac{1}{40}}$	$\sqrt{\frac{1}{30}}$	$\sqrt{\frac{1}{40}}$	

Table 11: Rubidium 87 D_2 ($5^2S_{1/2} \longrightarrow 5^2P_{3/2}$) Dipole Matrix Elements for σ^- transitions ($F = 2, m_F \longrightarrow F'$, $m'_F = m_F - 1$), expressed as multiples of $\langle J = 1/2||er||J' = 3/2\rangle$.

	$m_F = -2$	$m_F = -1$	$m_F = 0$	$m_F = 1$	$m_F = 2$
$F' = 3$	$\sqrt{\frac{1}{2}}$	$\sqrt{\frac{1}{3}}$	$\sqrt{\frac{1}{5}}$	$\sqrt{\frac{1}{10}}$	$\sqrt{\frac{1}{30}}$
$F' = 2$		$-\sqrt{\frac{1}{12}}$	$-\sqrt{\frac{1}{8}}$	$-\sqrt{\frac{1}{8}}$	$-\sqrt{\frac{1}{12}}$
$F' = 1$			$\sqrt{\frac{1}{120}}$	$\sqrt{\frac{1}{40}}$	$\sqrt{\frac{1}{20}}$