unit-cell volume $\mathcal{V}$ should be expected for the compounds with the same structure. The experimental value of eq^{exp} is related to the quadrupole coupling constant C_Q by the expression

$$eq^{exp}\ (V/m^2) = 41{,}37\ 10^{18}\ C_Q\ (MHz)/Q(barn) \qquad (3)$$

The following numerical values of the quadrupole moment Q(barn) and Sternheimer antishielding factor $(1-\gamma)$ were used in the calculation: 0.5 and 6, for TcO_4 ; 0.15 and 6.1, for Na-23,;0.06 and 20.2, for K-39; 0.14 and 56, for Rb-87; and 0.003 and 111, for Cs [2]. Table presents the experimental values of QCC, the unit-cell volumes $\mathcal{V}$, and calculated values eq^{lat} at the anion and cation positions.

Table. ***Values of the unit-cell volumes, QCCs, and local EFGs at the cation and anion positions of the pertechnetates.***

Compound	$\mathcal{V}\cdot10^{-30}$ m^3	Cation positions		Anion positions		
		C_Q (MHz)	$eq^{lat}10^{-18}$ V/m^2	C_Q (MHz)	$eq^{exp}10^{-18}$ V/m^2	$eq^{lat}10^{-18}$ V/m^2
$^{23}NaTcO_4$	338.32	0.95(3)	42.9	9.36(1)	774.5	305.7
$^{39}KTcO_4$	416.54	1.22(2)	41.6	5.19(1)	429.4	248.3
NH_4TcO_4	441.96	-	-	3.3(1)	273.0	222.2
$^{87}RbTcO_4$	448.92	7.0(1)	39.9	3.78(1)	312.7	228.8
$^{133}CsTcO_4$*	500.22	0.25(1)	31.1	2.00(5)	165.5	204.2
$AgTcO_4$	347.2	-	-	8.59(2)	710.7	295.1

* Measured at 430 K.

An eximination of the eq^{exp}(Tc-99) and eq^{exp}(cation)/$(1-\gamma)$ as a function of the unit-cell volume $\mathcal{V}$ revealed the linear dependences

$$eq^{exp}(Tc\text{-}99) = \alpha_a V^{-1} + \beta_a \qquad (4)$$
$$eq^{exp}(\text{cation nuclei})/(1-\gamma) = \alpha_c \mathcal{V}^{-1} + \beta_c$$

where $\alpha_a = 6.4\cdot10^{-7}$ V m , $\beta_a = -1121\cdot10^{18}$ V/m^2 , $\alpha_c = 0.1\cdot10^{-7}$ V·m, $\beta_c \cong 14\cdot10^{18}$ V/m^2. It is assumed that the observed changes in C_Q (Tc-99) and C_Q(cation) along the series of similar compounds with the same lattice structures are only caused by the changes in the lattice constants and that the structure and the symmetry of the TcO_4 anion remain unaltered. A comparison of eqs.(1), (2) and (4) makes it possible to assign the following meanings to the parameters α and β:

$\alpha_a \mathcal{V}^{-1} = (1-\gamma)\ eq^{lat}$ (Tc-99), $\beta_a = (1-R)\ eq^{val}$(Tc-99)