Description of Transformation – UA_UCS_2000 to ITRS/ITRF2000 (epoch 2005.0)	
Attribute	**Entry**
Operation identifier	UA_UCS-2000 to ITRS/ITRF2000 (epoch 2005.0)
Operation identifier alias	
Country	Ukraine
Country identifier	UA
Operation valid area	Ukraine
Operation scope	
Source coordinate referencesystem identifier	UA_UCS_2000 (X, Y, Z)
Target coordinate referencesystem identifier	ITRS/ITRF2000 (X, Y, Z)
Operation version	
Operation method name	7 Parameter Helmert Transformation
Operation method name alias	Position Vector Transformation
Operation method formula	7 Parameter Helmert Transformation $\begin{bmatrix} X \\ Y \\ Z \end{bmatrix}_T = \begin{bmatrix} X \\ Y \\ Z \end{bmatrix}_S + \begin{bmatrix} T_X \\ T_Y \\ T_Z \end{bmatrix} + \begin{bmatrix} 0 & -R_Z & +R_Y \\ +R_Z & 0 & -R_X \\ -R_Y & +R_X & 0 \end{bmatrix} \times \begin{bmatrix} X \\ Y \\ Z \end{bmatrix}_S + D \times \begin{bmatrix} X \\ Y \\ Z \end{bmatrix}_S$ T – Target Datum (ITRS/ITRF2000) S – Source Datum (UA_UCS_2000) Tx, Ty, Tz – geocentric X/Y/Z translations {m} Rx, Ry, Rz – rotations around X/Y/Z axis {radian} D – correction of scale {ppm} see Boucher, C., Altamimi, Z. (1992): The EUREF TerrestrialReferenceSystem and its First Realizations. Veroffentlichungen der BayerischenKommission fur dieInternationaleErdmessung, Heft 52, Munchen 1992, pages205-213 (1) REMARKS: in (1) correction of scale D is included in the rotation matrix **********Attention********** In some transformation applications a different formulathan the formula above could be in use. The signs and order of the rotation parameters are then define differently rotation unit can be arcseconds. For test purposes you can find in this information system verification data to check your application to get correct results. Distinguish the following case: a) change of signs of rotation (Coordinate Frame Rotation) Rx=-Rx Ry=-Ry Rz=-Rz b) change of signs and order of rotation Rx=-Rx Ry=-Ry Rz=-Rz **********Attention**********

Description of Transformation – UA_UCS_2000 to ITRS/ITRF2000 (epoch 2005.0)	
Attribute	**Entry**
Operation method parameters number	7
Operation method remarks	
Operation parameter name	geocentric X translation
Operation parameter value	+ 24.322 m
Operation parameter remarks	
Operation parameter name	geocentric Y translation
Operation parameter value	– 121.372 m
Operation parameter remarks	
Operation parameter name	geocentric Z translation
Operation parameter value	– 75.847 m
Operation parameter remarks	
Operation parameter name	rotation X-axis
Operation parameter value	0.000 m
Operation parameter remarks	to be in agreement with formulas the rotation parameter has to be converted to Radians
Operation parameter name	rotation Y-axis
Operation parameter value	0.000 m
Operation parameter remarks	to be in agreement with formulas the rotation parameter has to be converted to Radians
Operation parameter name	Rotation Z -axis
Operation parameter value	0.000 m
Operation parameter remarks	to be in agreement with formulas the rotation parameter has to be converted to Radians
Operation parameter name	Correction of scale
Operation parameter value	0 ppm
Operation parameter remarks	

UA_UCS_2000 to ITRS/ITRF2000 (epoch 2005.0)
Quality of Transformation
Agreement for publishing the transformation parameters with an accuracy of 0.02 m