Error source x_i	Type	Standard uncertainty $u(x_i)$	Sensitivity coefficient $c(x_i)$	Uncertainty contribution $u(x_i) \cdot c(x_i)$, μm
Calibrated length of the RWP at 20 °C ($l_{20\,\mathrm{rwp}} = 160.0013$ mm)	B	1.0 μm	0.9	0.9
Measured length of the WP ($l_{\mathrm{wp}} = 150.0015$ mm)	B	0.2 μm	1.0	0.2
– random effects during measurements	A	0.2 μm		
– measuring instrument	B	0.1 μm		
Measured length of the RWP ($l_{\mathrm{rwp}} = 160.0418$ mm)	B	0.2 μm	-0.9	-0.2
– random effects during measurements	A	0.2 μm		
– measuring instrument	B	0.1 μm		
Measured temperature of the RWP ($t_{\mathrm{rwp}} = \Delta t_{\mathrm{rwp}} + 20\,°\mathrm{C} = 43.5\,°\mathrm{C}$)	B	0.6 K	$0\ \mu\mathrm{m\,K^{-1}}$	0.0
– random effects during measurements	A	0.1 K		
– measuring instrument	B	0.6 K		
Calibrated CTE of the RWP ($\alpha_{\mathrm{rwp}} = 23.6 \times 10^{-6}\,\mathrm{K^{-1}}$)	B	$0.6 \times 10^{-6}\,\mathrm{K^{-1}}$	$0\ \mu\mathrm{m\,K}$	0.0
Known/assumed CTE of the scale ($\alpha_{\mathrm{rwp}} = 12.6 \times 10^{-6}\,\mathrm{K^{-1}}$)	–	Can be neglected	$0\ \mu\mathrm{m\,K^{-1}}$	0.0
Possible temperature difference between the RWP and the scale during measurements of length of the WP ($\delta t_{\mathrm{sc}}^{\mathrm{wp}} = 0$ K)	B	0.3 K	$1.9\ \mu\mathrm{m\,K^{-1}}$	0.5
Possible temperature difference between RWP and the scale temperature during measurements of length of the RWP ($\delta t_{\mathrm{sc}}^{\mathrm{rwp}} = 0$ K)	B	0.3 K	$-1.9\ \mu\mathrm{m\,K^{-1}}$	-0.5
Possible temperature difference between the RWP and the WP ($\delta t_{\mathrm{wp}} = 0$ K)	B	0.3 K	$-3.5\ \mu\mathrm{m\,K^{-1}}$	-1.0
Possible CTE difference between RWP and WP ($\delta\alpha_{\mathrm{wp}} = 0 \times 10^{-6}\,\mathrm{K^{-1}}$)	B	$0 \times 10^{-6}\,\mathrm{K^{-1}}$	$-3\,520\,237.2\ \mu\mathrm{m\,K}$	0.0
Calculated length of the WP at 20 °C	$l_{20\,\mathrm{wp}} = 149.9635$ mm			
Combined standard uncertainty	$u_{\mathrm{c}}(l_{20\,\mathrm{wp}}) = 1.6$ μm			
Coverage factor $k_{95} = 2$ expanded uncertainty (confidence level $p = 95\,\%$)	$U_{95} = k_{95} \cdot u_{\mathrm{c}}(l_{20\,\mathrm{wp}}) = 2 \cdot 1.6\,\mu\mathrm{m} = 3.2\,\mu\mathrm{m}$			