APPENDIX 4

VALUES FOR THE TEMPERATURE COEFFICIENTS a, b, c WHEN THE REFERENCE TEMPERATURE T_o IS CHANGED TO T_1. (EXAMPLE: THICKNESS MODE C, (yxwl)10°,−33°.)

The first-, second-, and third-order temperature coefficients of frequency a_o, b_o, c_o in the power series (A2-4) are related to the reference temperature T_o when the reference temperature T_o is changed to the temperature T_1. Equation (A2-5) which transforms a_o, b_o, c_o to a_1, b_1, c_1 holds. The equation may be applied to the cut $\phi = 10°$, $\theta = -33°$ which has temperature coefficients related to the 25°C temperature, as shown in Table 5. The temperature coefficients a, b, c were transformed to the temperature 0°, −40°, −60°, and −80°C. The transformed values are as follow:

T_1	a $10^{-6}/°C$	b $10^{-9}/(°C)^2$	c $10^{-12}/(°C)^3$	Inflection Temperature
25°C	−0.87	−7.81	−21.5	−96°C
0°C	−0.532	−6.19	−21.5	−96°C
−40°C	−0.130	−3.62	−21.5	−96°C
−60°C	−0.011	−2.33	−21.5	−96°C
−80°C	0.06	−1.04	−21.5	−96°C