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DAA/HQ

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FOR SPACE ASTRONOMY, PHASE 3 Quarterly
Report (Honeywell, Inc.) 8 p HC A02/MF A01
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A MOAIC INFRARED SENSOR
FOR SPACE ASTRONOMY
THIRD QUARTERLY REPORT
PHASE III

FOR

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Note that the array with the lowest $s_0f(b)$ has a very low carrier concentration. It is possible that the $s_0f(b)$ obtained on ST11 and ST06 is artificially high due to an inversion layer that would increase the area of g-r current generation. Further investigations are necessary to determine the exact source of the high g-r current.

CONCLUSION

One of the three arrays fabricated this quarter with very low carrier concentration shows excellent low temperature performance. Extremely low g-r currents were observed indicating a well passivated surface. It is anticipated that very low tunneling currents will be observed at very low temperatures due to the low base carrier concentration. This array will be sent to D. Hall for further investigation.

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TABLE 1

WAFER ID	$p(77)$ cm^{-3}	μ	μ	$Sof(b)(175K)$ cm^2/S
ST06	6×10^{14}	2.41		8×10^5
ST09	1.6×10^{14}	2.40	1×10^4	
ST11	1×10^{14}	2.41		2×10^5

Summary of the measured electrical characteristic of the three wafers evaluated this quarter.

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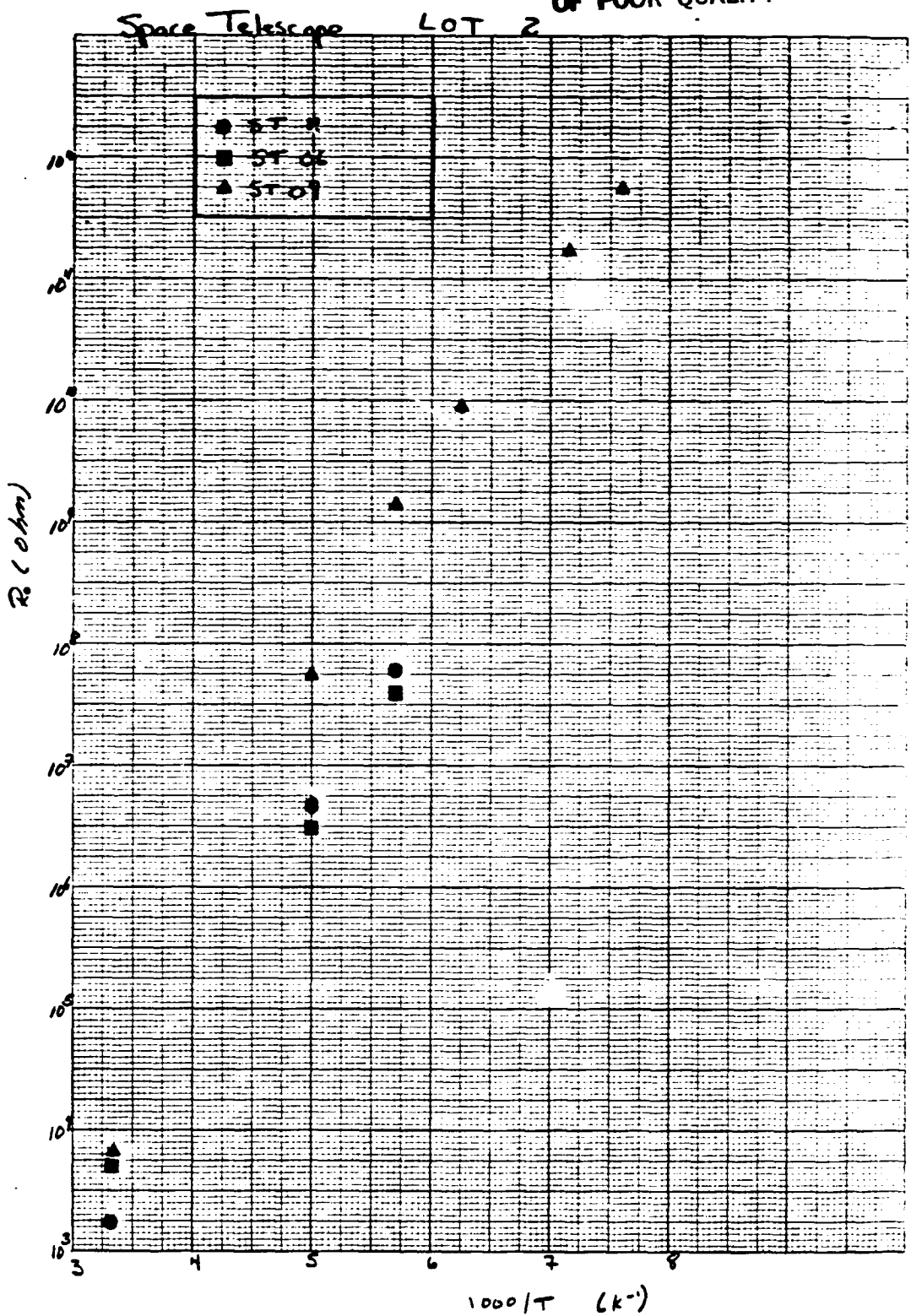


FIGURE 1. R₀ TEMPERATURE DEPENDANCE OF THE THREE ARRAYS ANALYZED

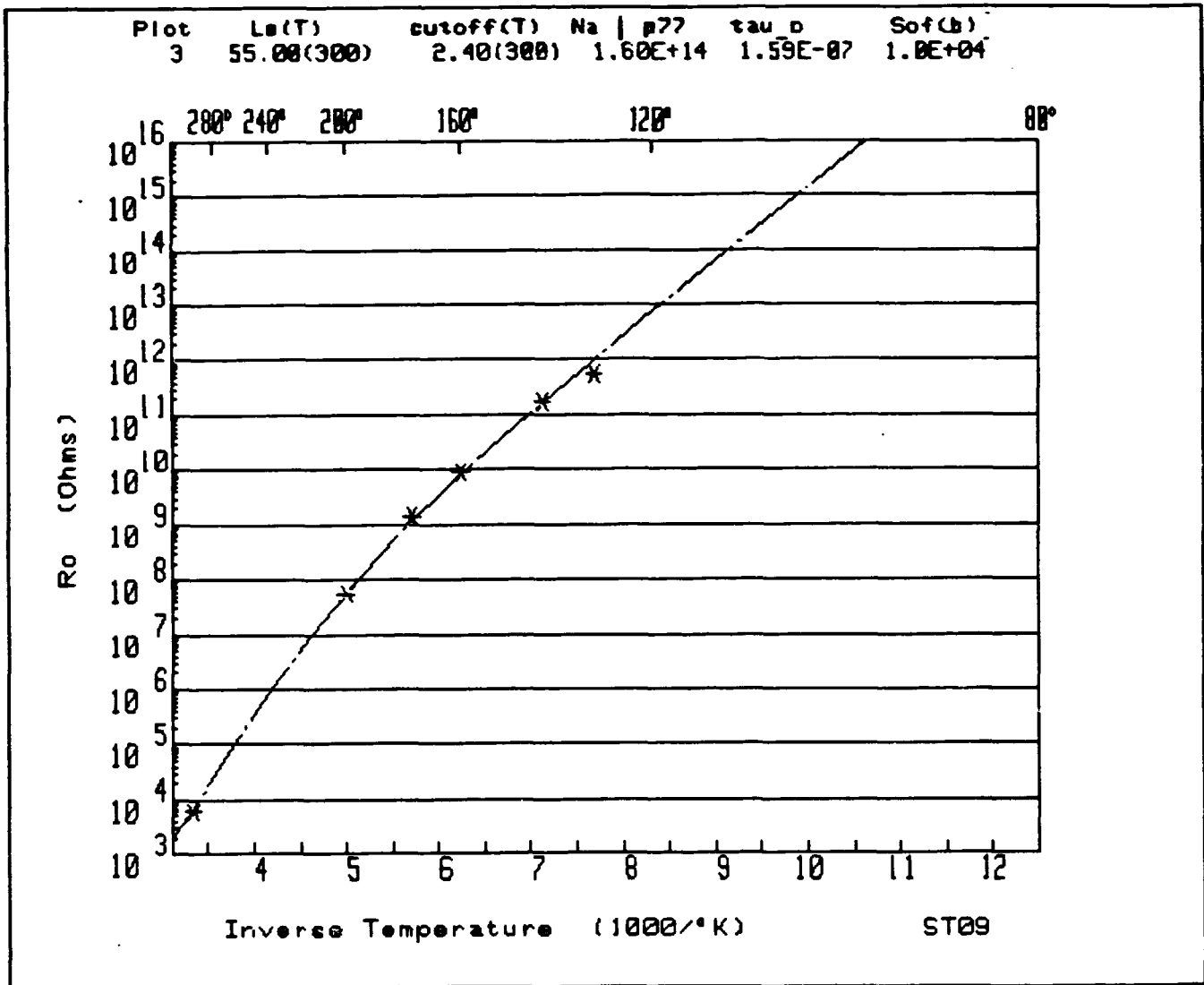


FIGURE 2. ANALYSIS OF THE R_0 TEMPERATURE SHOWS LOW GENERATION RECOMBINATION CURRENTS ARE RESPONSIBLE FOR EXCELLENT MODERATE TEMPERATURE PERFORMANCE.

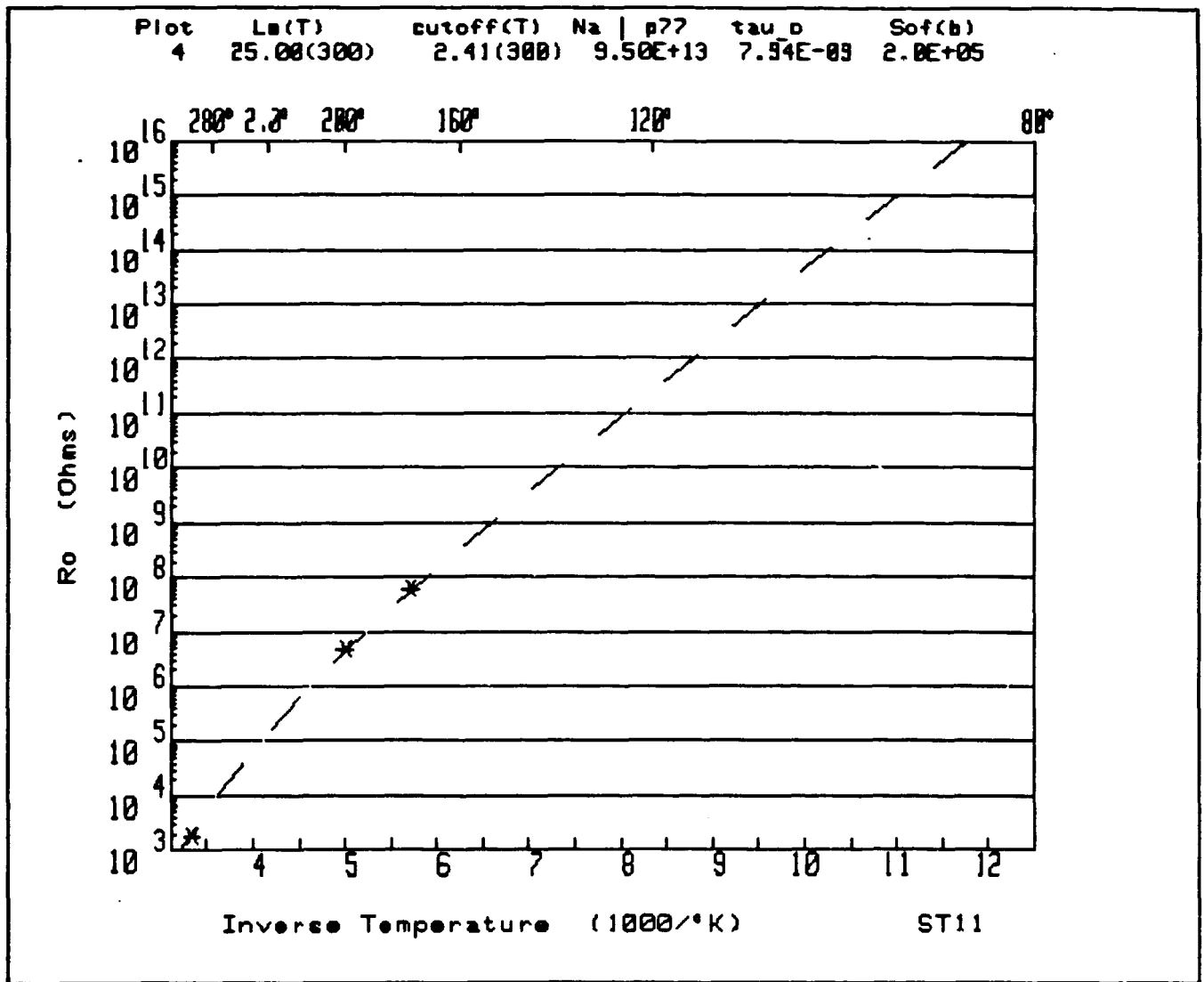


FIGURE 3. ANALYSIS OF THE R_o TEMPERATURE DEPENDANCE SHOWS HIGH GR CURRENTS DOMINATE MODERATE TEMPERATURE PERFORMANCE.

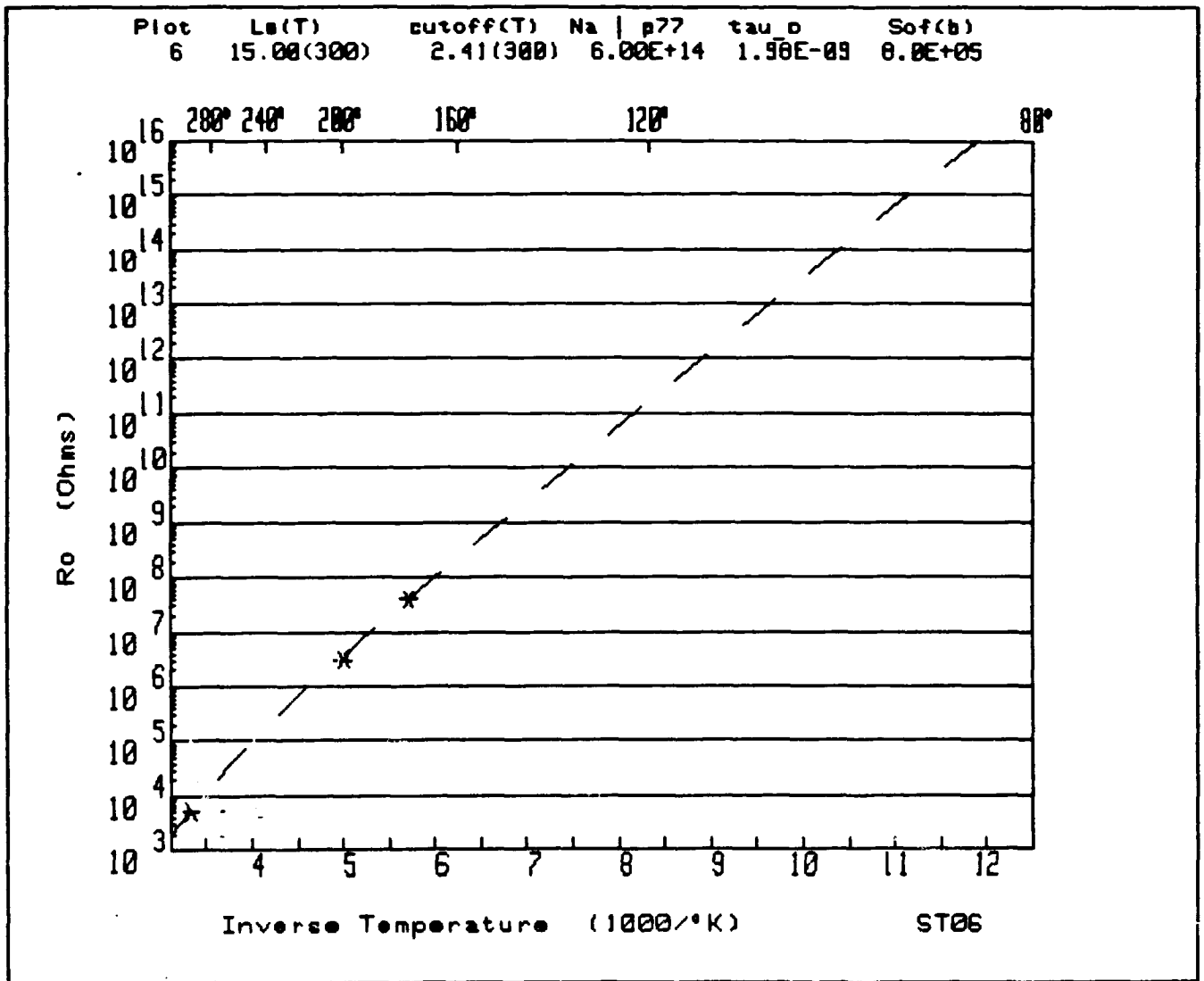


FIGURE 4. ANALYSIS OF THE R_o TEMPERATURE DEPENDANCE SHOWS HIGH GR CURRENTS DOMINATE MODERATE TEMPERATURE PERFORMANCE.

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