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Final Technical Report
Part I, Gallium-Doped Germanium

Evaluation of Photoconductors

W. J. MOORE

Semiconductors Branch
Electronics Technology Division

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FINAL TECHNICAL REPORT
PART I, GALLIUM-DOPED GERMANIUM
Evaluation of Photoconductors

Introduction

An extended program has been carried out to determine the characteristics of gallium-doped germanium detectors produced by the Santa Barbara Research Center. Particular attention has been paid to those characteristics which were believed to be unusual or otherwise of an unpredictable nature with respect to IRAS performance.

Some general conclusions are possible based on these tests and, although many are self-evident, they will be repeated here.

(1) These devices can operate in the background limited (BLIP) condition for backgrounds in the 6-7 x 10^{8} phot $sec^{-1}cm^{-2}$ range (or perhaps lower) at a temperature of 2.5K. Under these conditions the NEP is of the order of $4x10^{-17}$ watt $Hz^{-\frac{1}{2}}$.

(2) Operation at 3K imposes a severe penalty in that it produces conditions equivalent to a background of approximately $2x10^{10}$ photons $sec^{-1}cm^{-2}$ and may increase the 1/f noise above thermal g-r noise. At 3K the NEP is limited to about $1.5x10^{-16}$ watt $Hz^{-\frac{1}{2}}$.

(3) Anomalous signal and noise characteristics were observed with some, but not all, detectors. These anomalies are most severe at the lowest temperatures used in these tests (i.e. 2K). The device exhibiting the greatest anomalies would have optimum performance between 3K and 2K.

(4) Cosmic ray pulse fall times observed on both the 3- and 4-

Note: Manuscript submitted December 22, 1978.

series of detectors were of the order of 2 msec with a transimpedance amplifier and these observed times were amplifier limited.

(5) Noise spectra increase approximately as $P_n \propto f^{-1}$, where P_n is the noise power and f is the frequency, from 1 Hz down to at least .03 Hz.

(6) Signal responsivities were in excellent agreement with the manufacturer's data. Variations from the manufacturer's data occurred only as a result of differences in the operating conditions here and at SBRC. In general, a device would have substantially higher resistance at a given temperature and background in these tests than indicated by the manufacturer.[1]

(7) The responsivity of these devices was high. Scaling previous Ge:Ga data calculated by the "power inband" method to the dimensions of these devices (a factor of 170) predicts responsivities of the order of 180 mho watt^{-1}; whereas maximum measured responsivities for these devices were greater than 200 mho watt^{-1}. It is concluded that the material from which these devices were constructed is at least as good as the best NRL material and that no serious damage occurs in processing.

(8) Signal vs frequency data determined from device response to a signal step indicate rolloff due to a single 6 dB/octave rolloff with a 3 dB point in the 1-3 Hz range at 3K. Some reduction in 3 dB frequency to about 0.2 to 1 Hz occurs at 2.5K. At 2K a second, slower, time constant appears and introduces additional signal reduction.

(9) Interfacing these devices to preamplifiers presents significant problems. These devices will have resistances of the order of 1×10^{12} ohms at minimum background ($\phi \tilde{\sim} 5 \times 10^{8}$ phot sec^{-1}) at 2.5K and consider-

ably lower resistance at higher backgrounds and higher temperature. As a result it is difficult to interface these devices optimally to transimpedance amplifiers for all possible operating conditions. This has been a substantial problem in these tests.

Experimental Details and Results

A. Signal and NEP Measurements

The requirements of these tests (low background, low temperature) necessitated the design and construction of the third calibration system to be used in this series of tests. This system is based on the dipstick system built by the author at Cornell University.[2] The major changes from the Cornell system were an increase in the dipstick diameter and inclusion of a movable aperture block which served as a low speed chopper for frequencies at or below 1Hz. The design of this system is shown in Fig. 1. Results reported here will not include data on sample 3- 2b 1-4 which was measured early in the program nor will the details of the anomalous signal response with time at 2K be reviewed. Both these topics were covered in interim reports. A typical calibration run consisted of strip chart recordings of the output of the source-follower preamplifier for bias off, bias on-signal off, and bias on-signal on. These measurements were repeated for various values of bias and as a function of both blackbody and detector temperatures. Results are presented in Appendix A.

The data in Appendix A include a number of entries for each calibration condition. These entries are described below.

TEMP. ≡ The detector temperature as determined by a carbon resistor

on the detector mounting block. The entire enclosure was flooded with He gas for thermal equilibrium with the bath.

BB INTEGRATED FROM ... TO ... ≡ All responsivities (both power and photon) were calculated using all blackbody power in the approximate spectral band of the detector with cold crystal sapphire and crystal quartz filters.

BB TEMP ≡ The temperature of the calibration blackbody as measured with a type E thermocouple. Both room temperature and liquid nitrogen temperature reference junctions were used during this study.

BIAS ≡ The applied bias across the detector plus load.

BIAS DELTA V ≡ The change in output of the source-follower preamplifier for a change from bias-off to bias-on. This value is the potential drop across the detector times the preamplifier gain. The preamplifier gain was approximately 0.9.

SIG DEL V ≡ The change in source-follower output for a change from signal radiation off to signal on. Signal radiation was turned off with the movable shutter.

DC/1 Hz ≡ This ratio is the ratio of peak dc signal volts to peak-to-peak signal volts when chopping with the movable shutter at 1 Hz.

NOISE ≡ The rms noise value observed on a wave analyzer at 1 Hz.

BLACKBODY OUTPUT ≡ The calculated blackbody radiation incident on the detector-sensitive area for the temperature and integration band given.

SIG. CONDUCTANCE (DC) ≡ This is a derived quantity equal to the change in conductance per watt (or photon per sec) of signal. The calculation uses the large signal equations to derive a number characteristic of the device which is relatively independent of bias and measurement

conditions.

VOLT. RESP. (DC) ≡ The voltage responsivity calculated with the large-signal equations. When the signal is, in fact, large the calculation determines the correct small-signal responsivity.

CURR. RESP. (DC) ≡ The current responsivity.

SIG. CONDUCTANCE (1 Hz) ≡ As above but calculated using the 1 Hz signal as determined from the DC/1 Hz ratio.

VOLT. RESP. (1 Hz) ≡ As above for 1 Hz.

CURR. RESP. (1 Hz) ≡ As above for 1 Hz.

DETECTOR RESISTANCE ≡ The resistance of the detector as calculated from the values of total bias, bias across detector, and load resistance. The major uncertainty is in the load resistance. An error as great as 40% is possible. Note that the SBRC data sheets assume a load resistance independent of temperature below 3K. An error in excess of 100% is possible with that assumption.

DETECTOR BIAS ≡ A number equal to the bias delta V divided by preamp gain.

BACKGROUND PHOTON FLUX DENSITY ≡ The photon flux density required to produce the measured detector resistance calculated using the measured signal conductance. Note that the value calculated assumes that the detector resistance is optically (not thermally) limited. For a thermally limited resistance the background can be considered to be an optical equivalent of the operating temperature.

PC GAIN (Q.E. = 0.3) ≡ This quantity (and the following quantities) are calculated using both the ac and dc responsivities described above with an assumed quantum efficiency of 0.3. Calculation of device parameters

using the ac responsivity implies that the lower ac response is the result of a slow process within the detector and not a result of RC rolloff prior to the preamp. A comparison of experimental NEP data with theoretical BLIP NEP values indicates that the ac results are appropriate for a detector at 2.5K (i.e. slow processes within the detector dominate the signal rolloff at 2.5K) while the dc results apply at 3K (i.e. RC rolloff dominates the signal rolloff at 3K).

SHOT NOISE ≡ A calculated shot noise assuming a quantum efficiency of 0.3.

BLIP NEP ≡ A calculated NEP for a noise equal to the shot noise.

QUAN EFFIC. IF BLIP ≡ The quantum efficiency required to make the measured NEP a background limited value. When this quantity is of the order of 0.3 one can consider the detector to be, in fact, BLIP. Some of the NEP data is shown graphically in Figs. 2, 3 and 4.

Signal vs frequency measurements were made by determining the response to a step increase in signal. Analysis of these signal steps indicated a predominantly one time constant rise for operating temperatures of 2.5K or greater. At 2.5K the time constant ranged from 0.1 to 0.8 seconds and decreased to approximately .05 sec at 3K. Very slow secondary time constants were observed at 2K where $T \tilde{\sim} 6$ sec. These rise times indicate 3 dB frequencies at 3Hz for 3K operation and from 0.2 to 1 Hz for 2.5K operation.

B. Spectral Response

Spectral response has been determined by two different experimental techniques. Initial measurements were made with a grating spectrometer

and a Golay cell. These measurements indicated relatively little reduction in response at 50 microns with respect to the peak response near 100 microns. However, these measurements were considered to be of questionable value due to contamination of the spectrometer output by higher order radiation in spite of a considerable effort to minimize out of band signals.

In order to avoid these problems a new approach was taken. Detector signal measurements were made as a function of blackbody temperature over the 30K to 120K range. An assumed detector response was then fed to a desktop computer which calculated and plotted the responsivity (mho $phot^{-1}$ sec) for each temperature. The spectral response was varied to give the most consistent responsivity over the blackbody temperature range used. This technique is not sensitive to details in the spectral response curve but does not have serious out-of-band radiation problems. The major weakness of this method is contamination by light leaks around the blackbody. These tend to cause an underestimation of the short wavelength response and therefore result in a worst case spectrum. Short wavelength response will be at least as good as indicated from these measurements.

A series of plots for two detectors are given in Figs. 5 through 14. The detector (with quartz and sapphire filters) is assumed to turn on at L1 microns, the smallest sensitive wavelength, rise linearly to L2 microns and fall to zero at L3 microns. The relative response at L1 is given by G1. The average conductance responsivity is given by G. An inset shows the assumed spectral response.

C. Noise vs Frequency

As originally envisioned the noise vs frequency measurements below 1 Hz would have been done with an analog-to-digital converter and a computer. Equipment malfunctions prevented the use of this technique and forced reliance on an analog approach. This limited the lowest frequency at which we could make measurements to .03 Hz rather than the planned .01 Hz but did pay a dividend by making apparent a possible problem with digital noise data.

Detectors of the size of the SBRC Ge:Ga devices (.05 x .15 x .3 cm) exhibit a cosmic ray noise pulse every few minutes at sea level. Digital noise data consists of many digitized samples taken from the noise waveform over several minutes. In order to prevent aliasing of the Fourier transform a high frequency cutoff filter limits the maximum frequency present to half the inverse of the sampling period. That is $f_{max} = \frac{1}{2T}$, where T is the sampling period. Therefore at least two samples are taken per period of the highest frequency present. A cosmic ray pulse passing through such filters is considerably reduced in amplitude and broadened but not eliminated. These pulses then contribute to the measured noise at low frequencies.

The analog system used here consists of an FM analog tape recorder on which the noise is recorded at minimum tape speed (1 7/8 ips) and played back at maximum tape speed (60 ips) resulting in a frequency multiplication by a factor of 32. On playback the noise is measured with a wave analyzer down to 1 Hz. With this system the cosmic ray pulses are very apparent and contribute to the noise spectrum if the result is read on the meter. This problem was avoided by recording the

wave analyzer output on a strip chart recorder and reading between the pulses.

The results on two detectors indicate that the noise increases approximately as 1/f below 1 Hz for the conditions of the tests. These conditions were not optimum for sample Ge:Ga 4-5b1-1 in that the background was higher than desired, and the noise was masked by pulses for $f \lesssim 0.1$ Hz. The data are given in Fig. 15. However, for sample 3-2b1-3 the conditions were nearly optimum ($\phi \approx 5 \times 10^8$ phot sec^{-1} cm^{-2}). These data are given in Fig. 16.

The noise spectrum for sample 3-2b1-3 is an interesting one in that it appears to consist of a section of noise above about 1 Hz which has been rolled off by the RC time constant and a section of 1/f noise below 1 Hz which is free of RC rolloff. This interpretation is consistent with the observation that this device appears to be nearly BLIP at 1 Hz under these conditions. Above about 2 Hz the device is amplifier noise limited. It is concluded from these spectra that the device noise has a 1/f spectrum throughout the region below 1 Hz.

REFERENCES

1. P.R. Bratt and N.N. Lewis, "Development of Doped Germanium Photoconductors for Astronomical Observations at Wavelengths from 30 to 120 Micrometers," Final Technical Report, Contract NAS 2-9385, Santa Barbara Research Center, 30 Nov. 1977 (NASA-CR-152,046).
2. W.J. Moore, "100 Micron Detector Development Program" Report No. CRSR 642, Cornell University (1976).

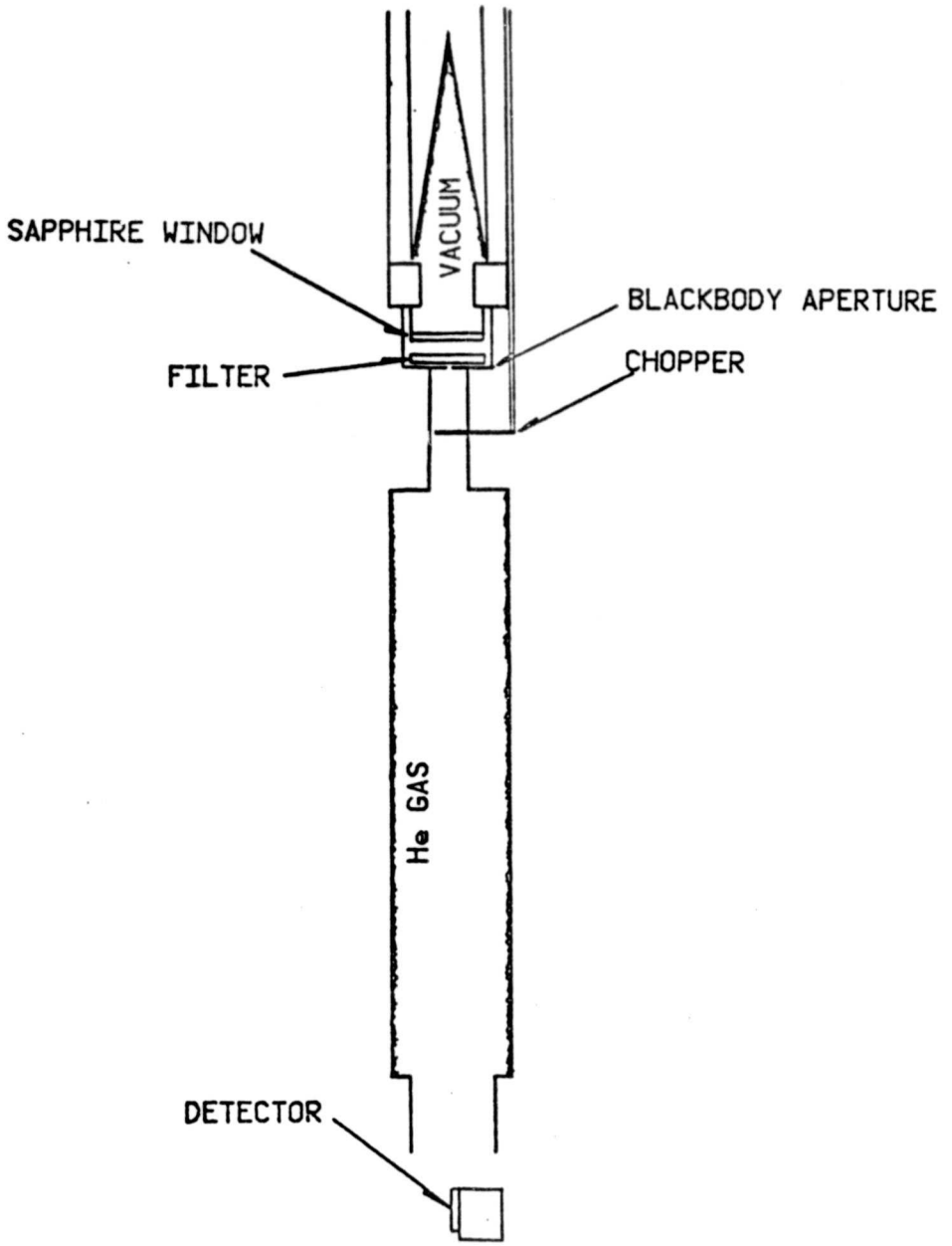

Fig. 1 — A schematic drawing of the calibration apparatus. The calibrating source, a blackbody, is located in vacuum in the upper part of the drawing. A sapphire window separates the blackbody vacuum from the detector atmosphere: low pressure helium gas. A quartz filter, aperture, and manually operated chopper complete the optical components. The assembly is immersed in pumped liquid He for cooling. Temperatures are determined by a type E thermocouple in the blackbody and a carbon resistor on the sample mounting block.

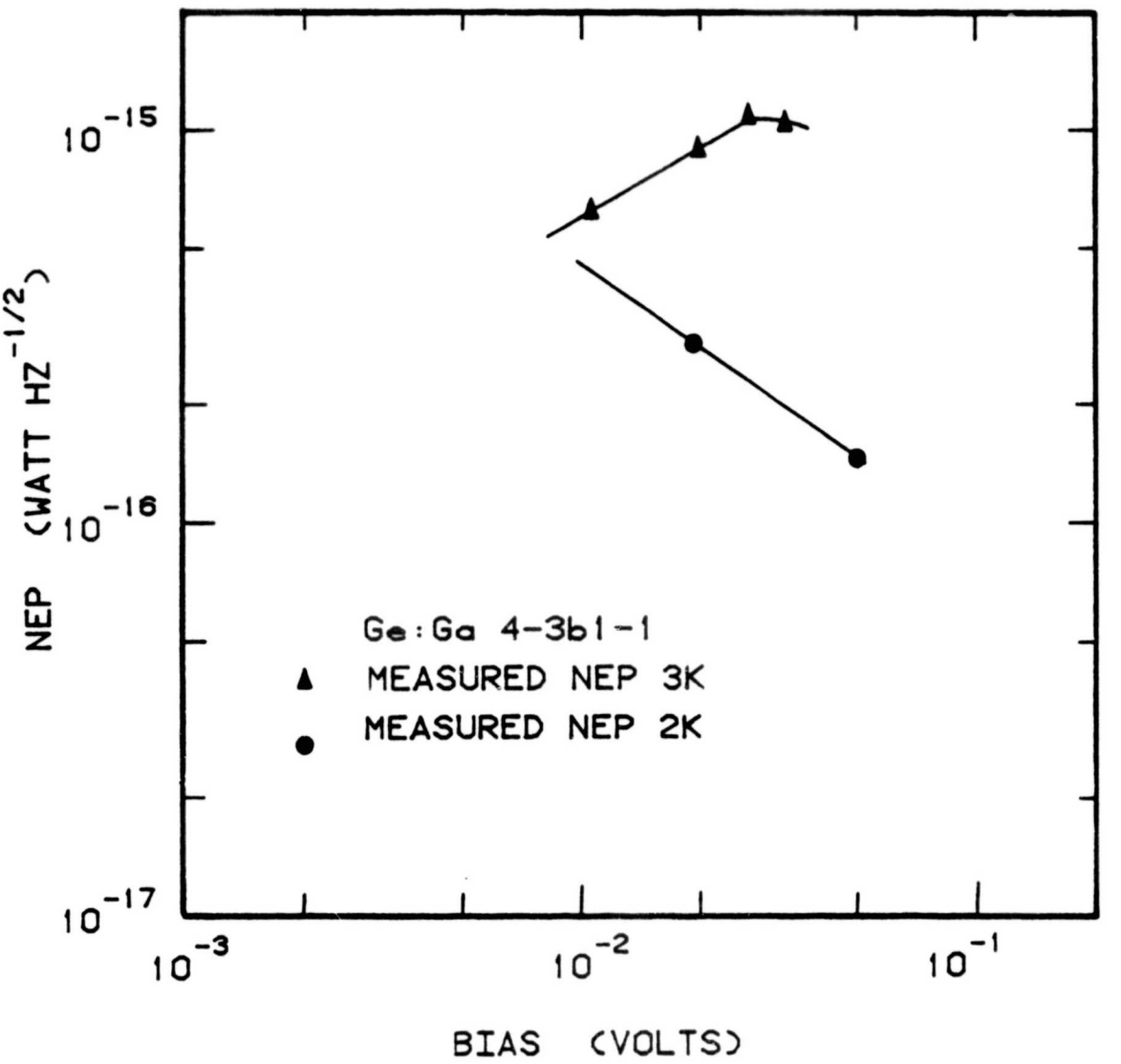

Fig. 2 — NEP at 1 Hz vs bias for sample 4-3bl-1. The anomalous rising curve at 3K was due to excess noise at that temperature attributable to a noisy contact. This noise was absent at 2K but a slow signal response time limited the NEP at that temperature.

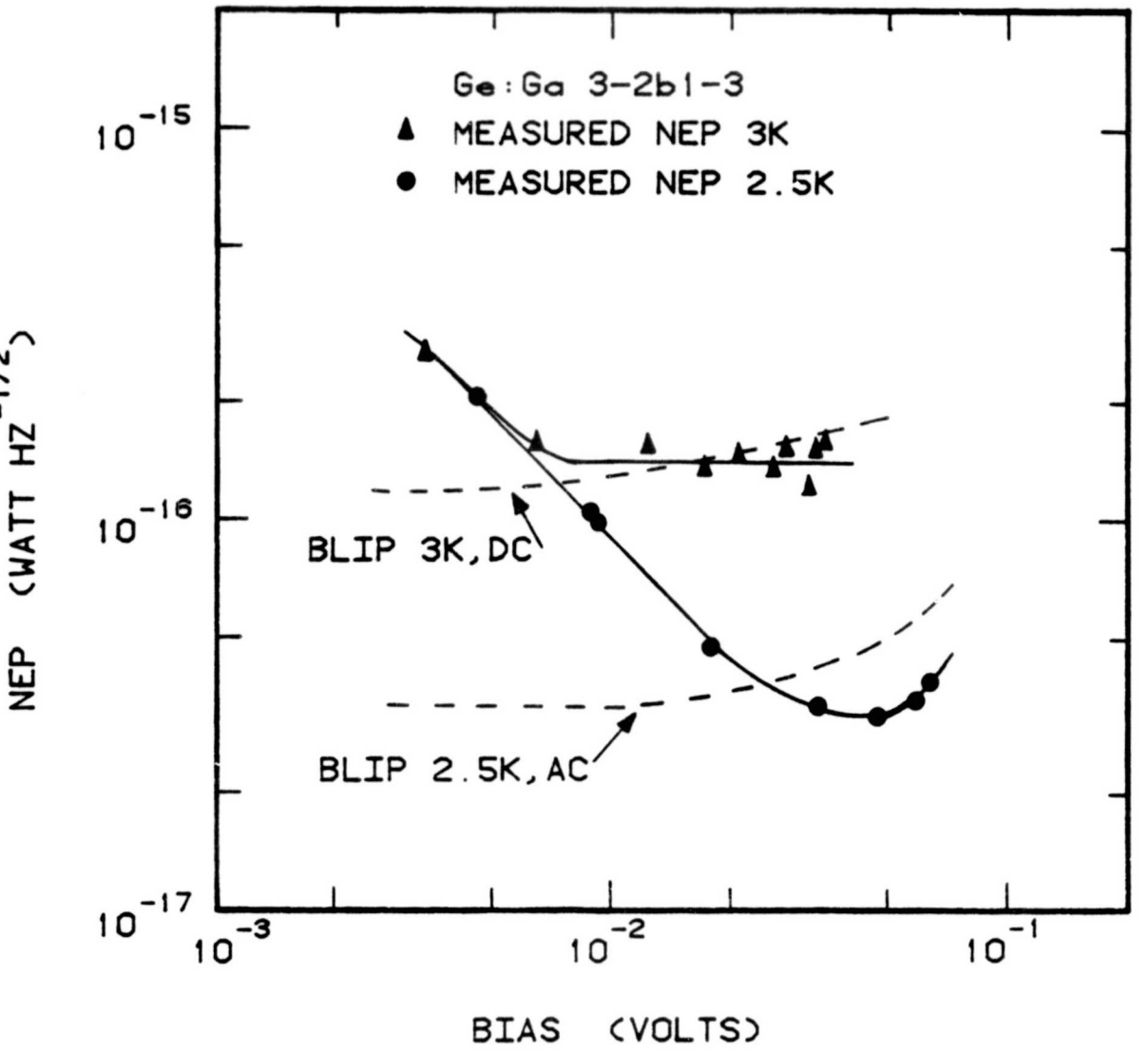

Fig. 3 — NEP at 1 Hz bias for sample 3-2b1-3. The dashed curves are calculated values for the BLIP NEP as discussed in the text.

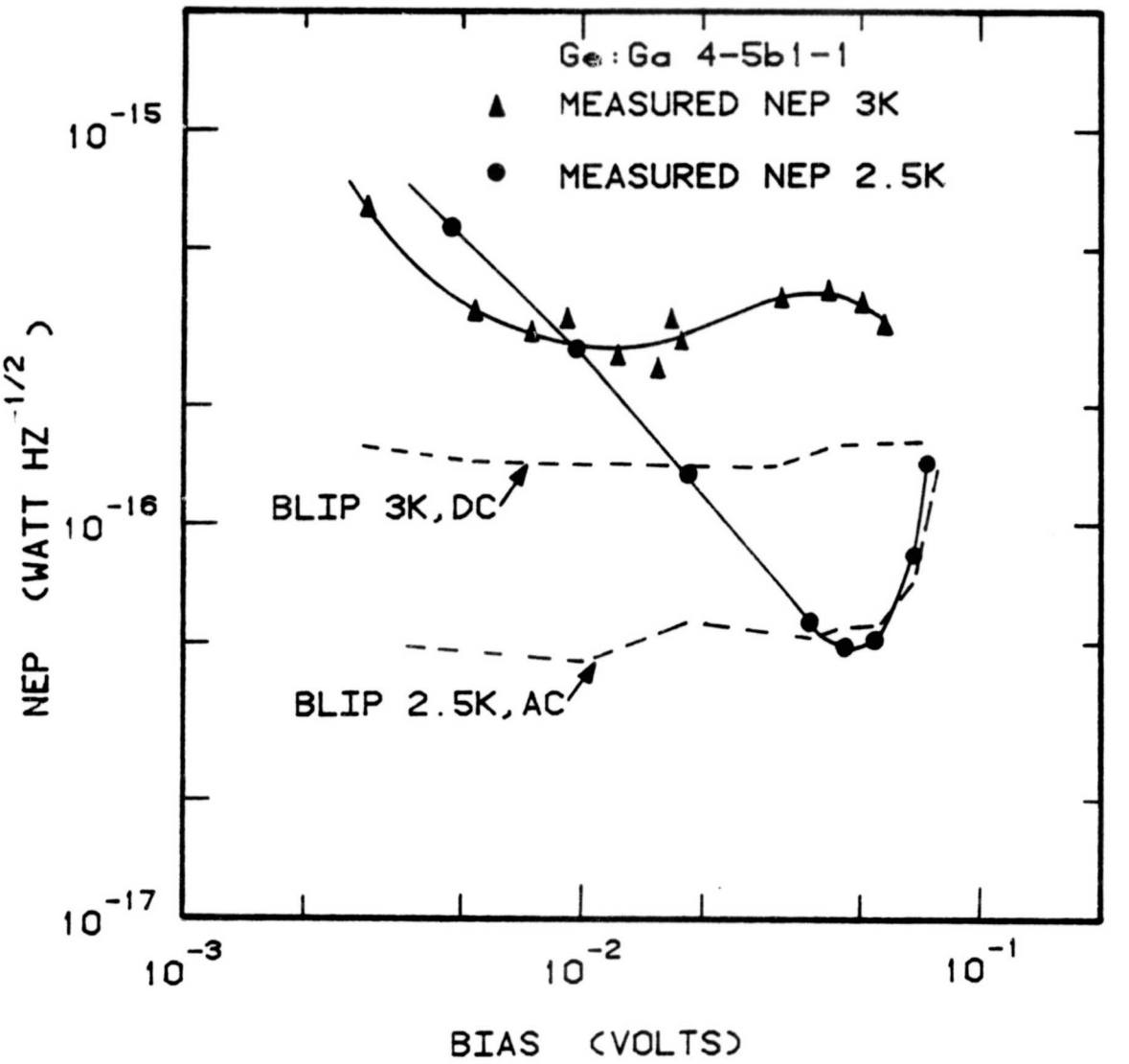

Fig. 4 — NEP at 1 Hz vs bias for sample 4-5b1-1. The dashed curves are calculated values for the BLIP NEP as discussed in the text.

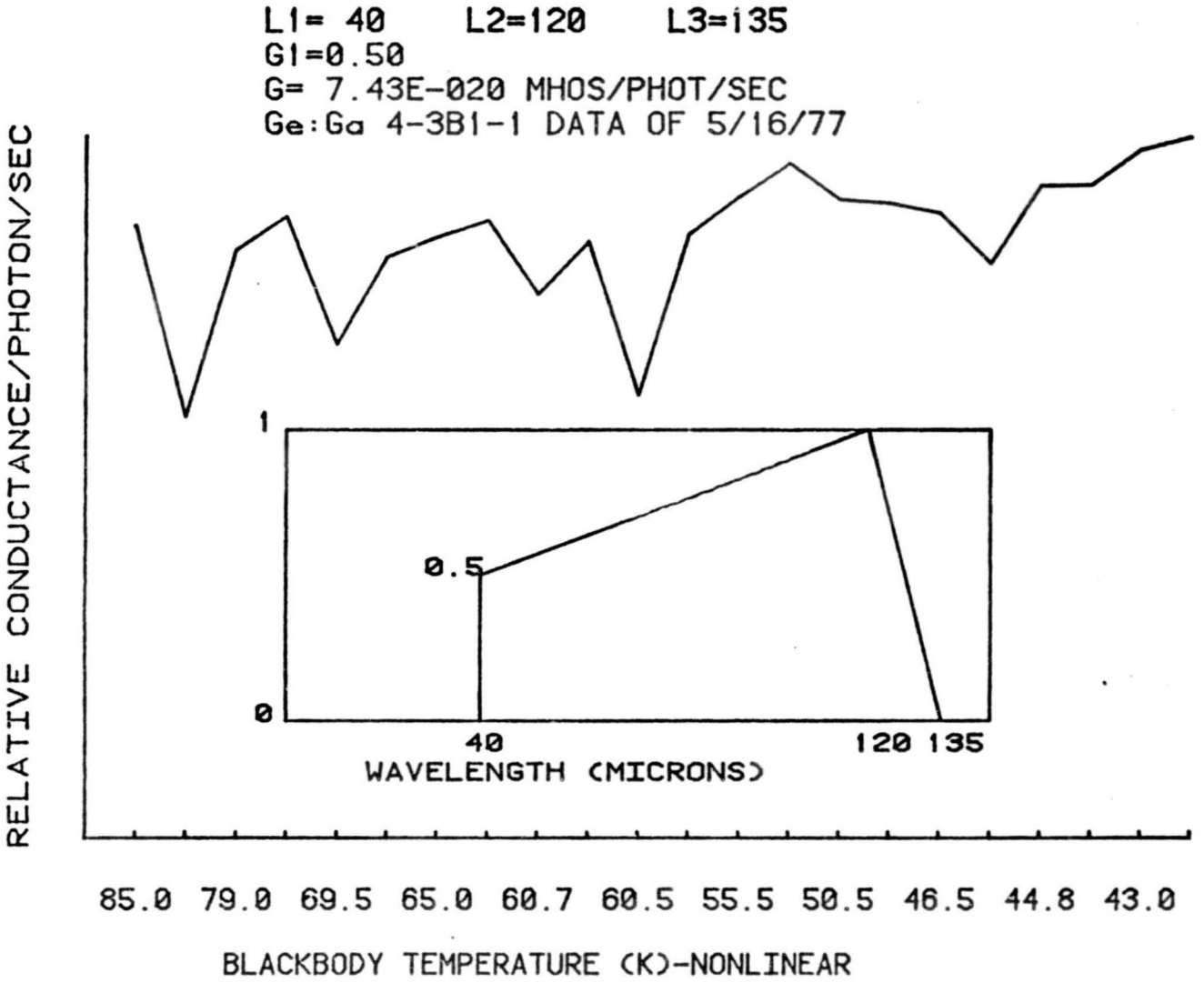

Fig. 5 — Relative conductance per photon per second for sample 4-3bl-1 as a function of blackbody temperature. The assumed spectral response is given in the inset.

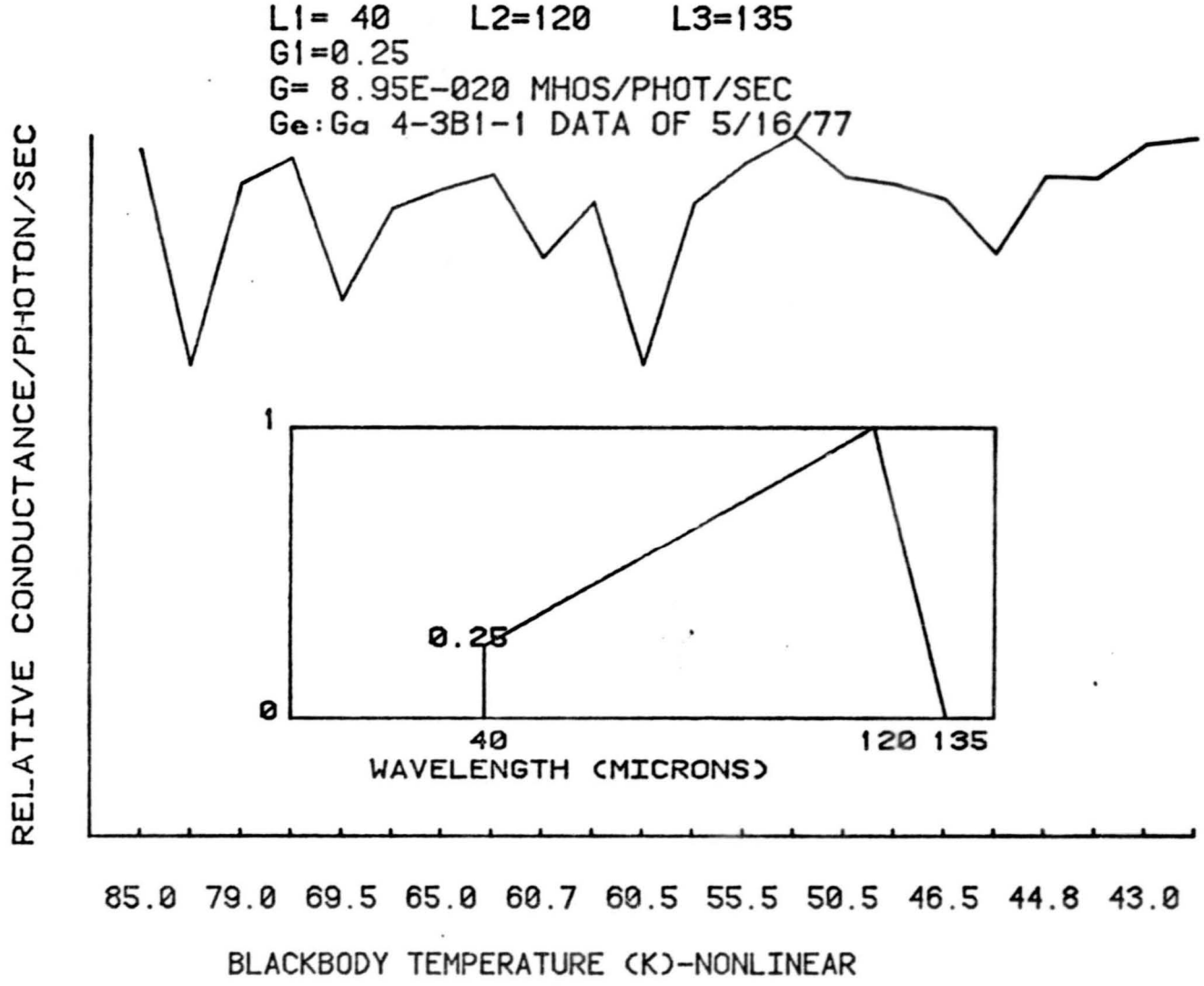

Fig. 6 — Relative conductance per photon per second for sample 4-3bl-1 as a function of blackbody temperature. The assumed spectral response is given in the inset.

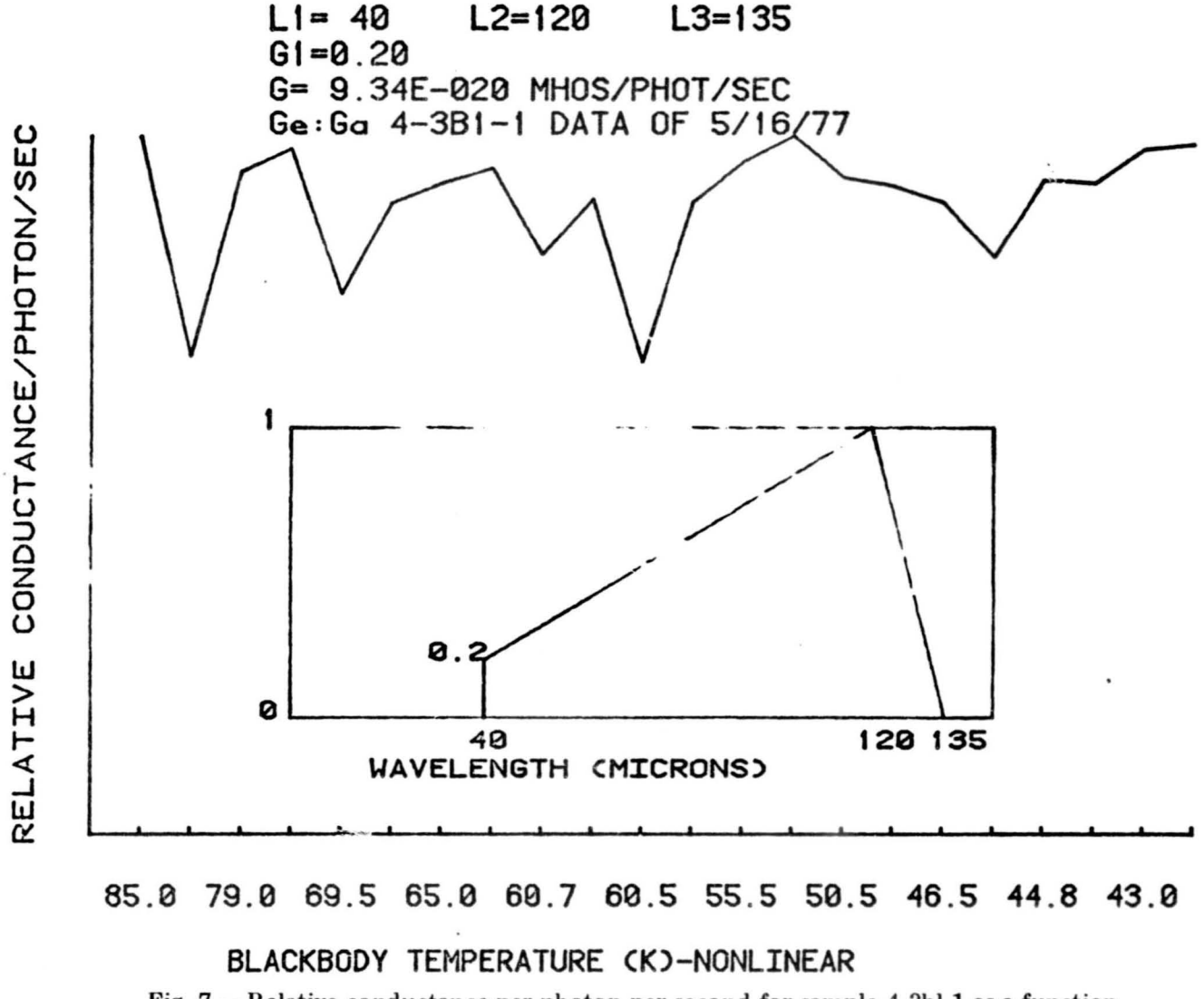

Fig. 7 — Relative conductance per photon per second for sample 4-3bl-1 as a function of blackbody temperature. The assumed spectral response is given in the inset.

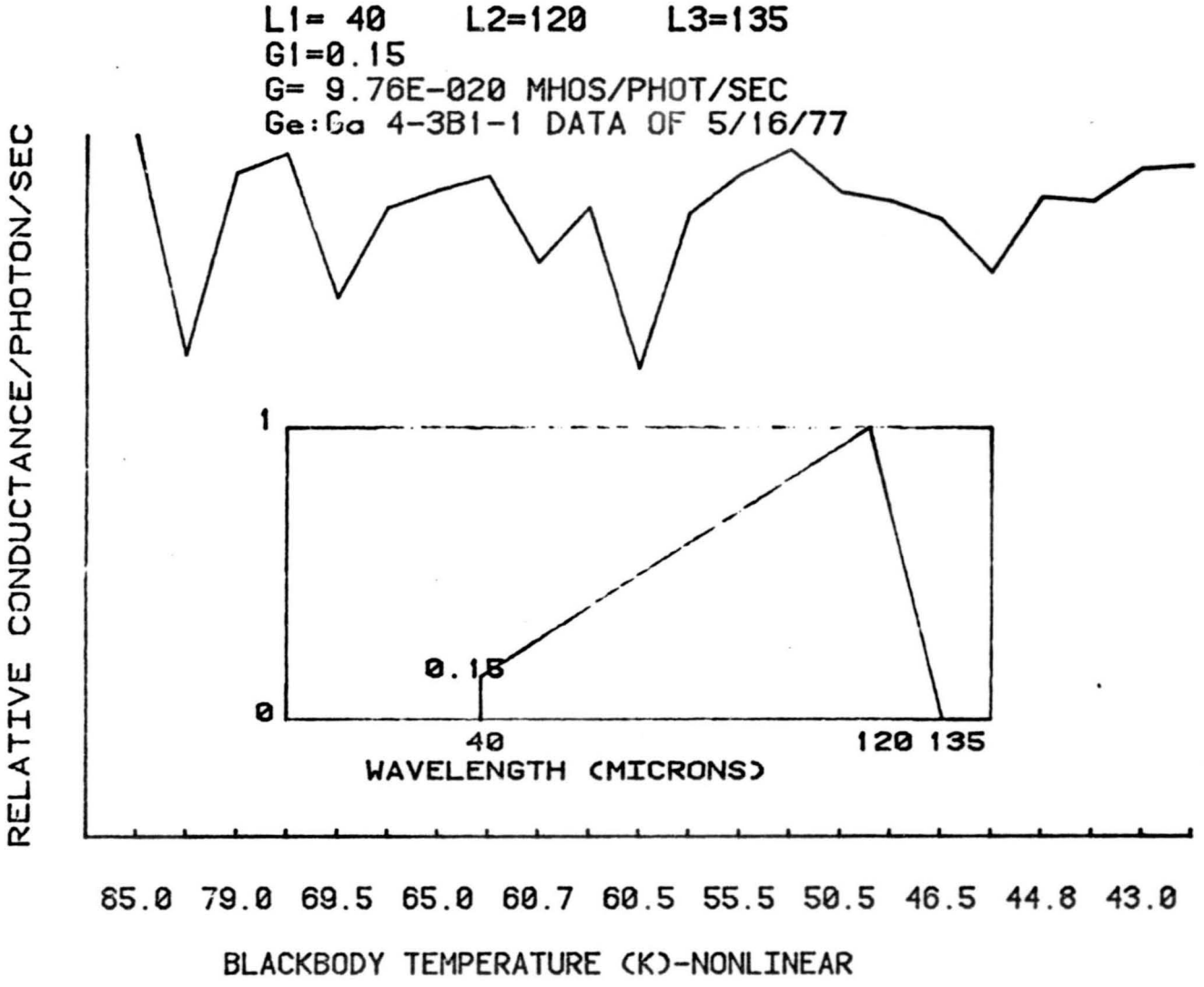

Fig. 8 — Relative conductance per photon per second for sample 4-3bl-1 as a function of blackbody temperature. The assumed spectral response is given in the inset.

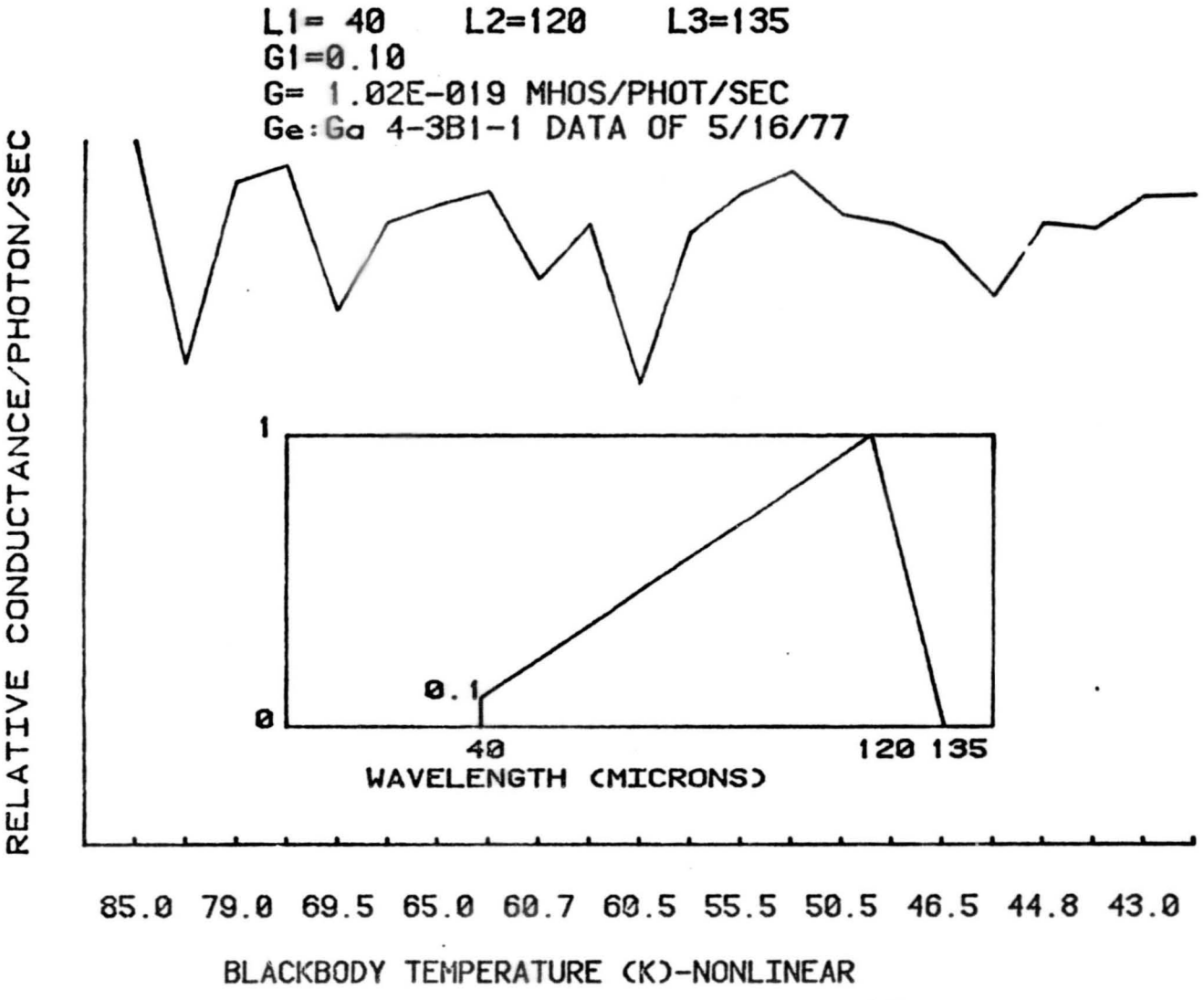

Fig. 9 — Relative conductance per photon per second for sample 4-3bl-1 as a function of blackbody temperature. The assumed spectral response is given in the inset.

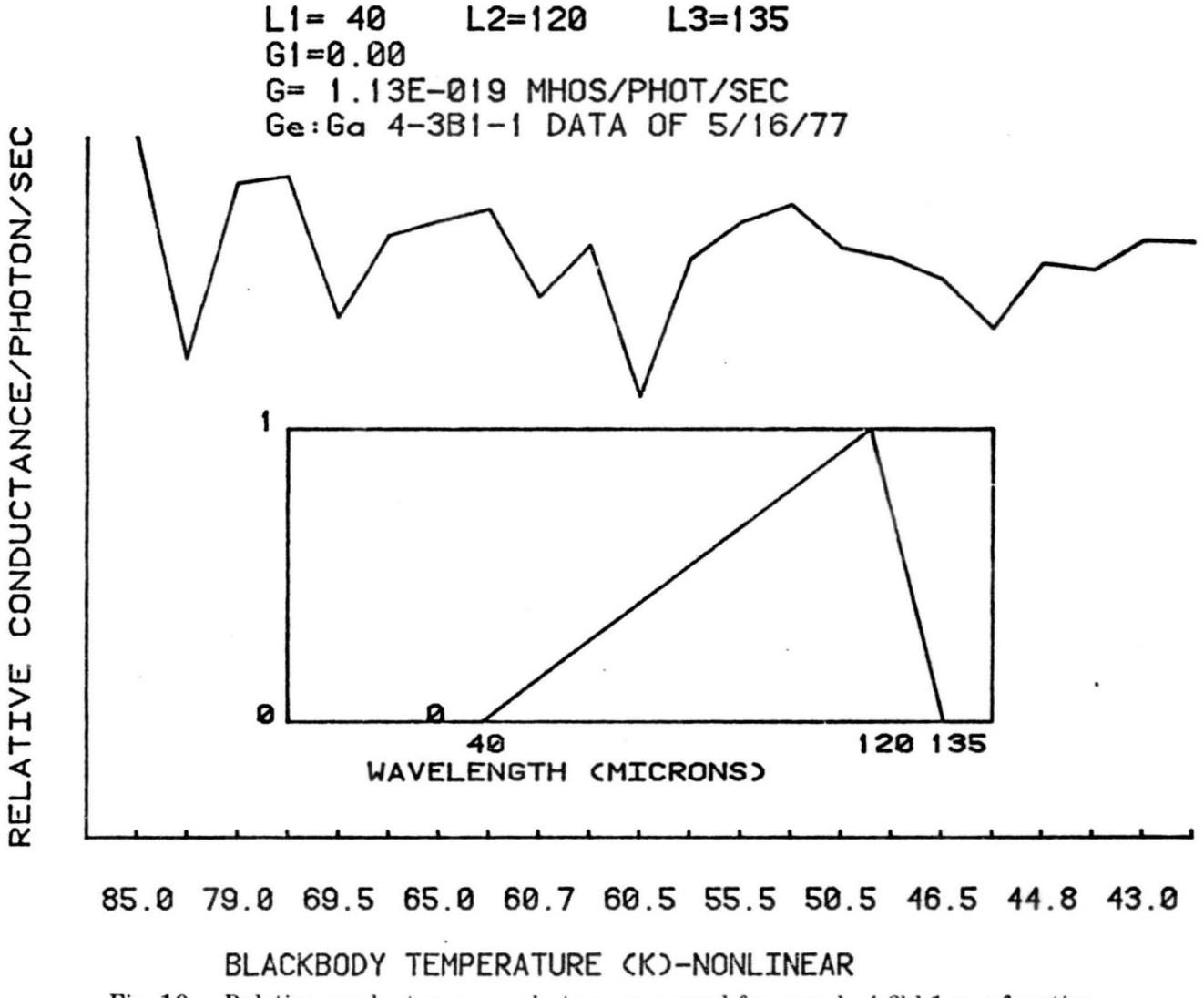

Fig. 10 — Relative conductance per photon per second for sample 4-3bl-1 as a function of blackbody temperature. The assumed spectral response is given in the inset.

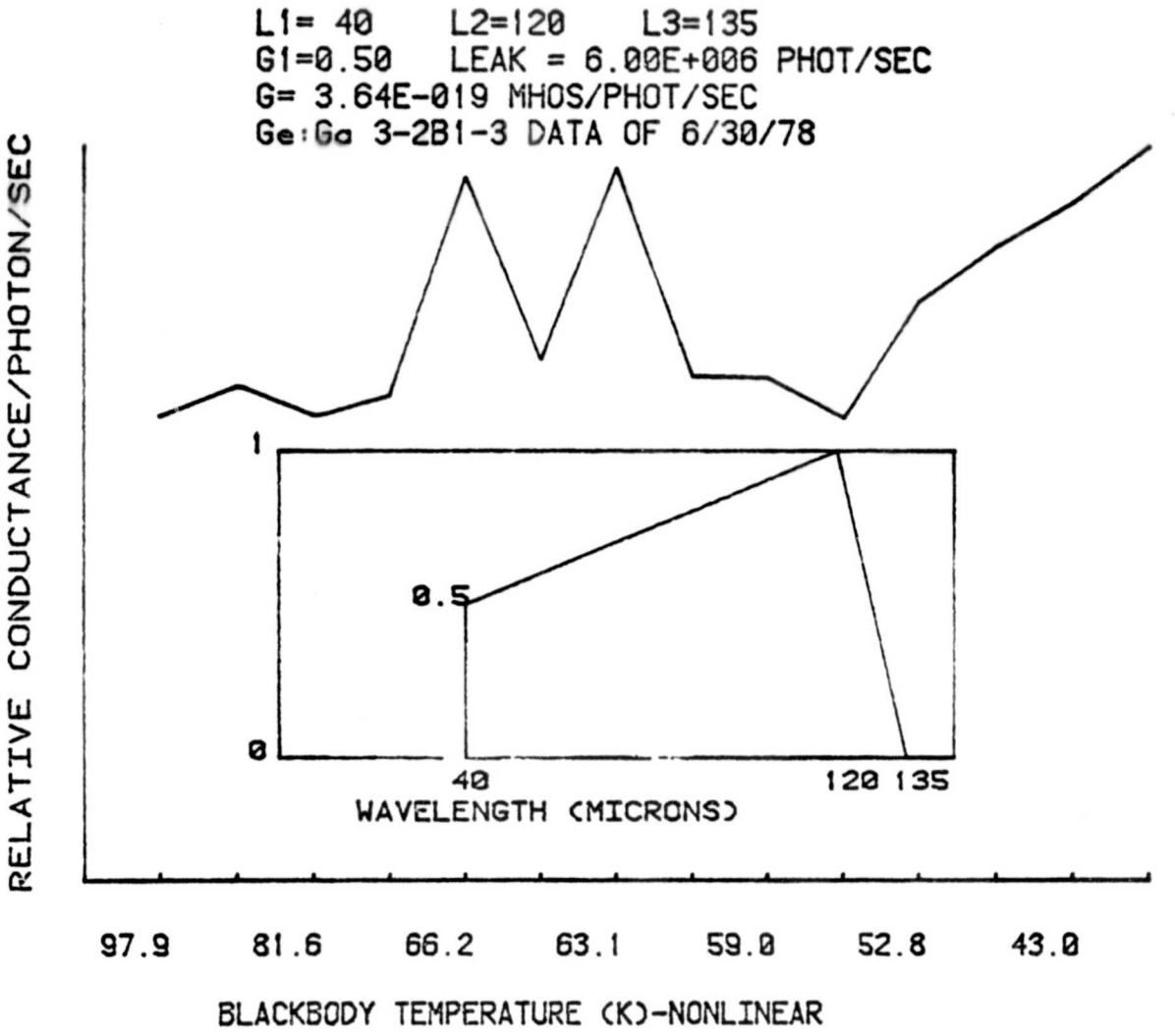

Fig. 11 — Relative conductance per photon per second for sample 3-2b1-3 as a function of blackbody temperature. The assumed spectral response is given in the insert. A constant light leak of 6×10^6 phot/sec (8×10^8 phot $sec^{-1}cm^{-2}$) has been assumed based on measurements of signal with a cold blackbody.

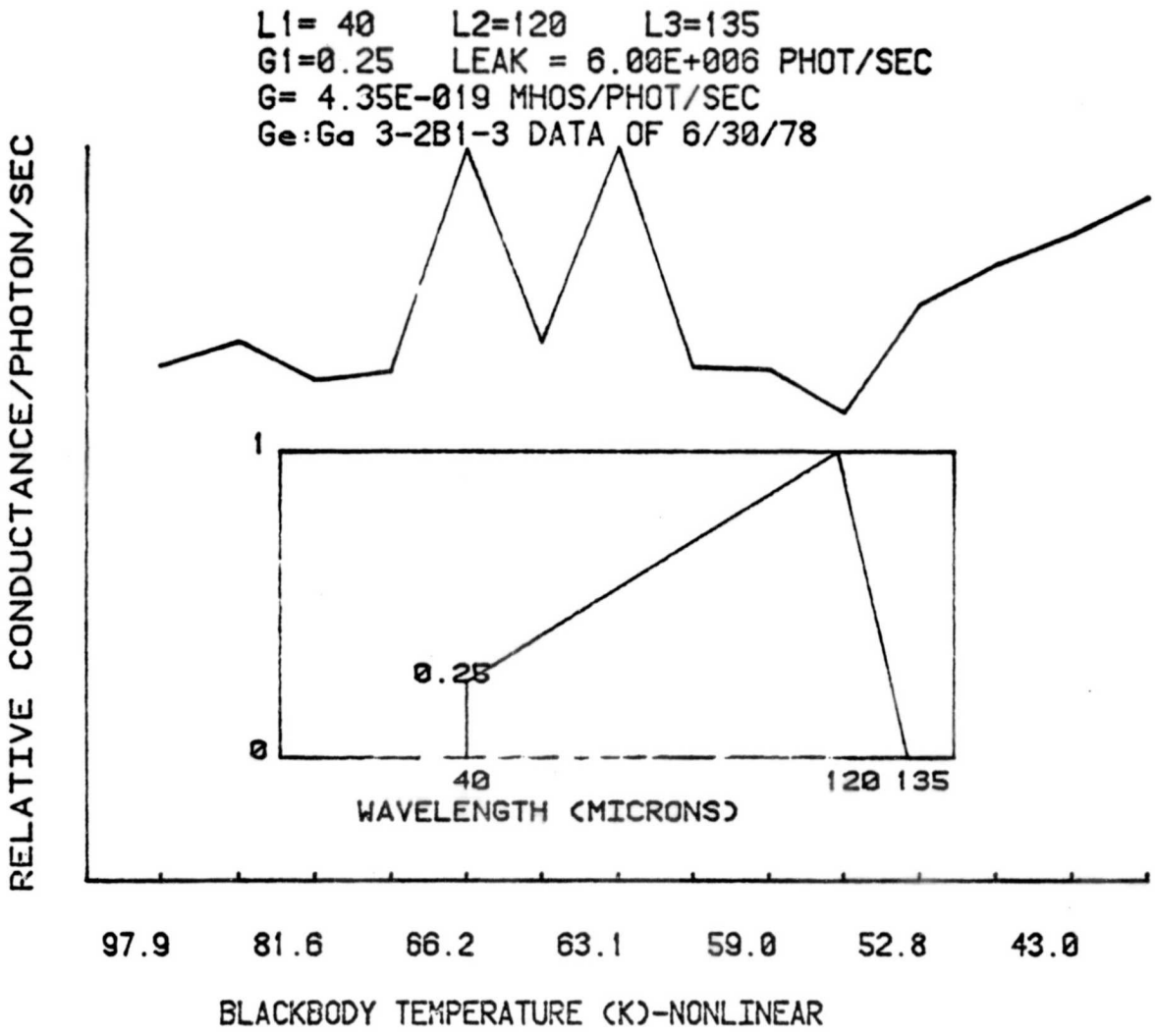

Fig. 12 — Relative conductance per photon per second for sample 3-2bl-3 as a function of blackbody temperature. The assumed spectral response is given in the insert. A constant light leak of 6×10^6 phot/sec (8×10^8 phot sec^{-1} cm^{-2}) has been assumed based on measurements of signal with a cold blackbody.

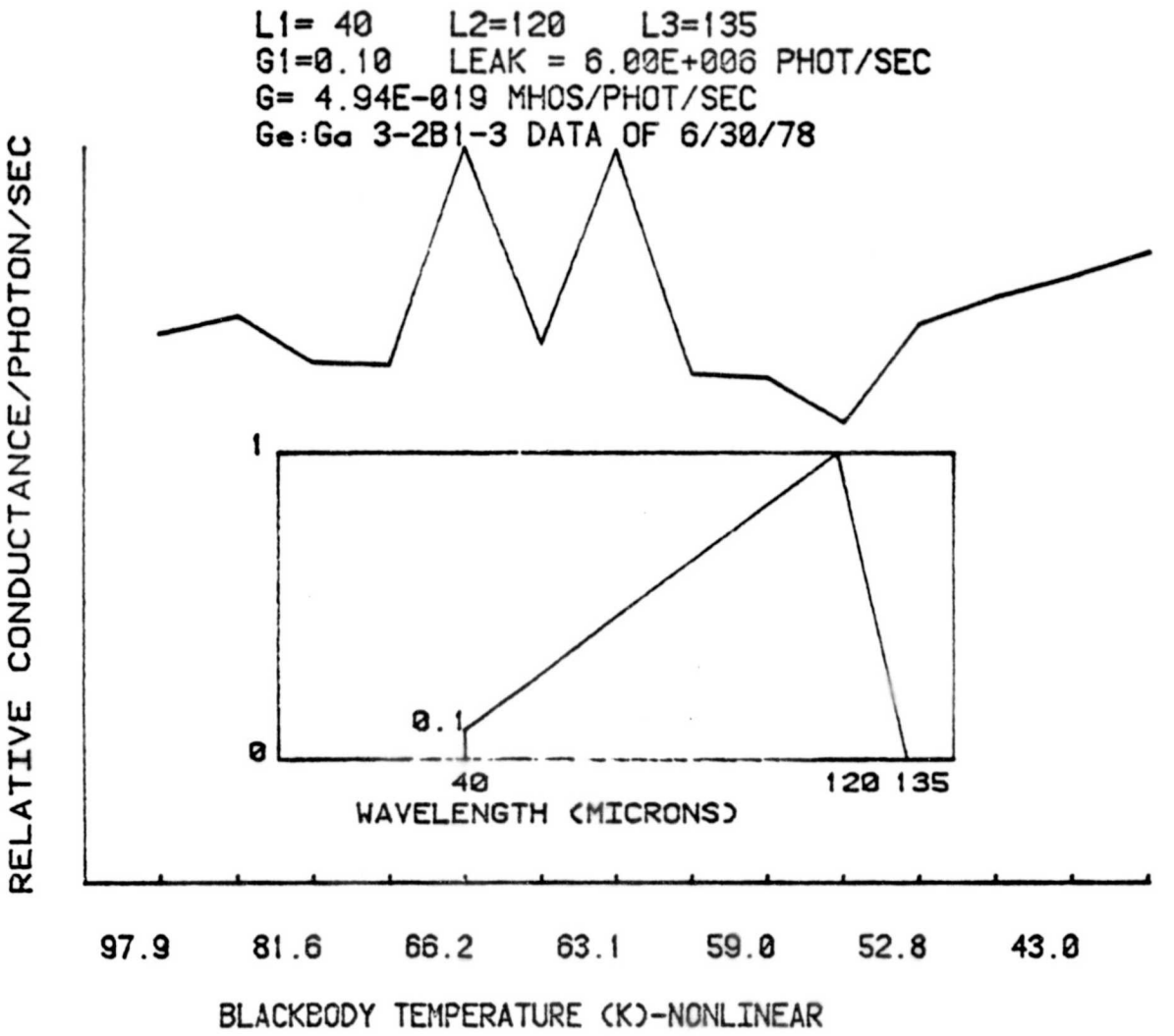

Fig. 13 — Relative conductance per photon per second for sample 3-2b1-3 as a function of blackbody temperature. The assumed spectral response is given in the insert. A constant light leak of 6×10^6 phot/sec (8×10^8 phot sec^{-1} cm^{-2}) has been assumed based on measurements of signal with a cold blackbody.

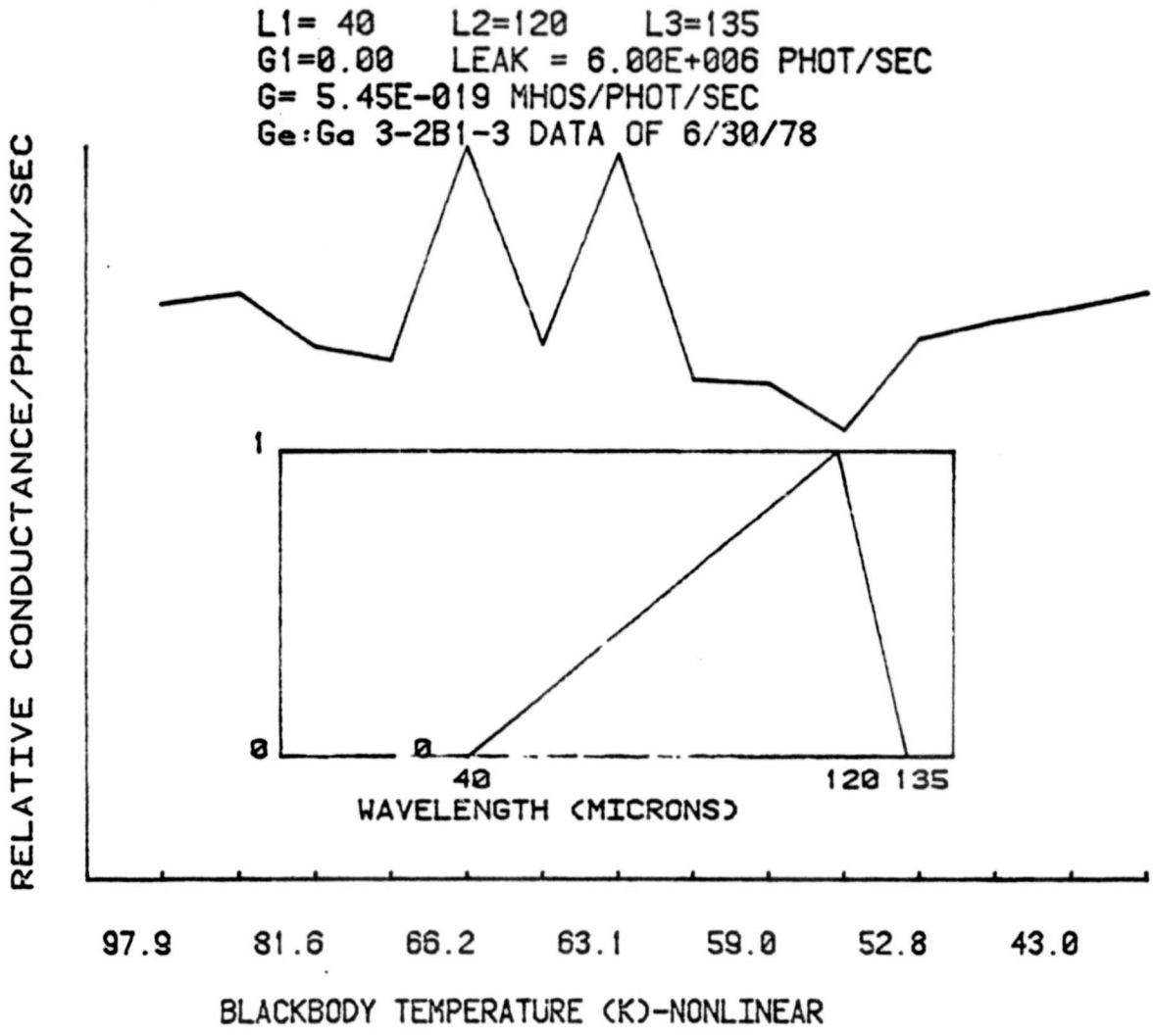

Fig. 14 — Relative conductance per photon per second for sample 3-2b1-3 as a function of blackbody temperature. The assumed spectral response is given in the insert. A constant light leak of 6×10^6 phot/sec (8×10^8 phot sec^{-1} cm^{-2}) has been assumed based on measurements of signal with a cold blackbody.

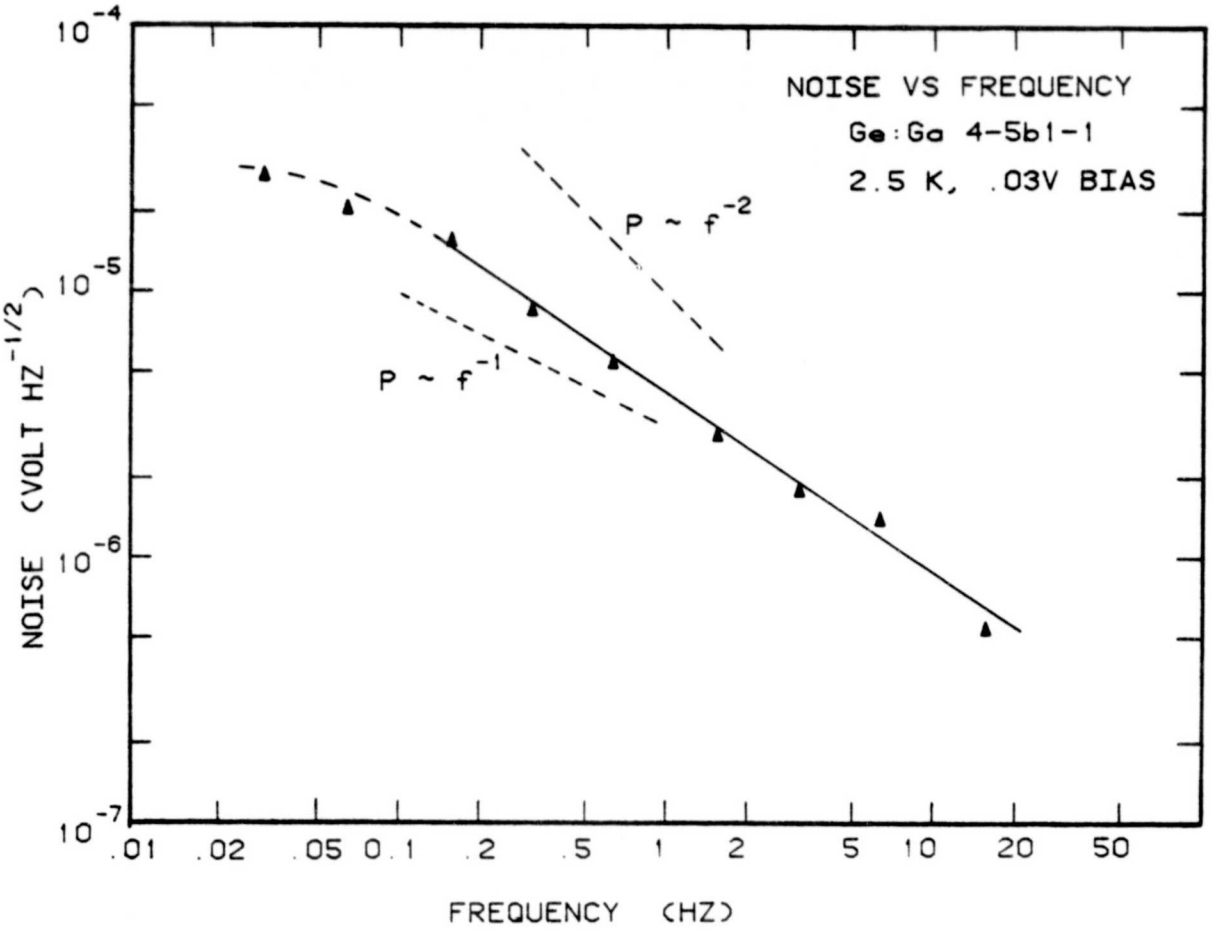

Fig. 15 — Noise vs frequency for sample 4-5bl-1. Data below about 0.1 Hz are uncertain due to interference from cosmic background radiation.

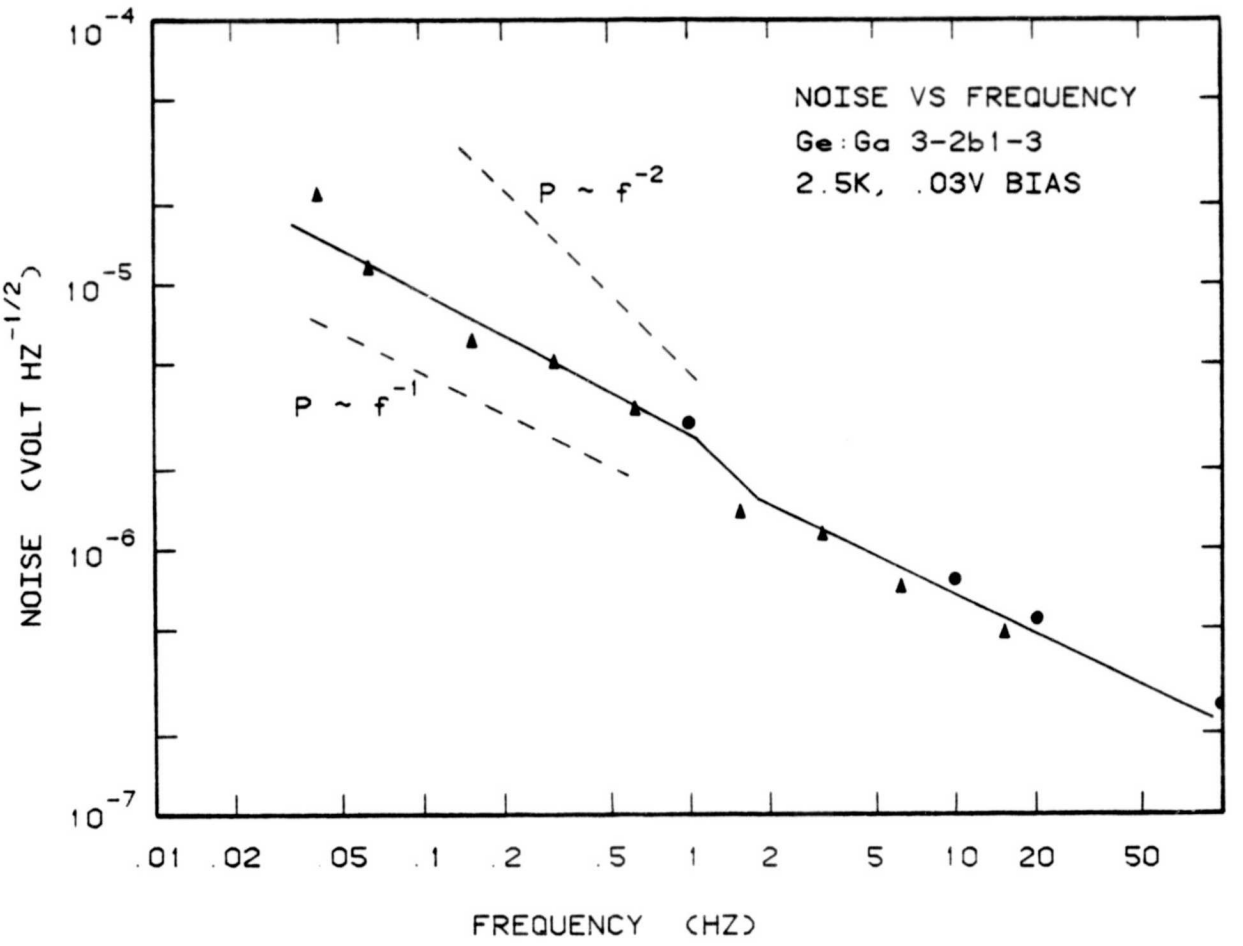

Fig. 16 — Noise vs frequency for sample 3-2b1-3

```
SAMPLE NO. GE:GA 4-3B1-1      RUN DATE 5/5/77     TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 2.35E-008            LOAD= 5.00E+010

BB TEMP=114.5          BIAS=0.0500              BIAS DELTA V=0.0097
SIG DEL V=0.00792      DC/1HZ=1.19              NOISE=5.1E-6
BLACKBODY OUTPUT=      2.86E-012 WATTS          9.03E+008 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.46E+002 MHOS/WATT      4.62E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      3.69E+009 VOLT/WATT      1.17E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.42E+000 AMP/WATT       4.48E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  7.18E+001 MHOS/WATT      2.27E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      3.00E+009 VOLT/WATT      9.48E-012 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       6.96E-001 AMP/WATT       2.20E-021 AMP/PHOT/SEC
NEP (1HZ)=             6.25E-016 WATT/HZ↑1/2    1.98E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  1.35E+010 OHMS
DETECTOR BIAS=         1.07E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 2.13E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    5.04E-002( AC)           1.03E-001( DC)
SHOT NOISE(Q.E.=0.3)=  1.55E-006 V/HZ↑1/2 (AC)  2.21E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   5.16E-016 W/HZ↑1/2 (AC)  7.36E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    2.04E-001 (AC)           4.15E-001 (DC)

BB TEMP=124.2          BIAS=0.1000              BIAS DELTA V=0.0180
SIG DEL V=0.01356      DC/1HZ=1.19              NOISE=9.5E-6
BLACKBODY OUTPUT=      3.48E-012 WATTS          1.09E+009 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.00E+002 MHOS/WATT      3.21E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      5.21E+009 VOLT/WATT      1.67E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.81E+000 AMP/WATT       5.78E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  5.44E+001 MHOS/WATT      1.74E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      4.25E+009 VOLT/WATT      1.36E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       9.79E-001 AMP/WATT       3.13E-021 AMP/PHOT/SEC
NEP (1HZ)=             8.93E-016 WATT/HZ↑1/2    2.79E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  1.23E+010 OHMS
DETECTOR BIAS=         1.98E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 3.37E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    7.17E-002( AC)           1.32E-001( DC)
SHOT NOISE(Q.E.=0.3)=  2.44E-006 V/HZ↑1/2 (AC)  3.32E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   5.74E-016 W/HZ↑1/2 (AC)  7.80E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    1.24E-001 (AC)           2.29E-001 (DC)
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ORIGINAL PAGE IS POOR QUALITY

```
SAMPLE NO. GE:GA 4-3B1-1      RUN DATE 5/5/77     TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 2.35E-008            LOAD= 5.00E+010

BB TEMP=114.8          BIAS=0.1500              BIAS DELTA V=0.0244
SIG DEL V=0.01700      DC/1HZ=1.19              NOISE=1.42E-5
BLACKBODY OUTPUT=      2.88E-012 WATTS          9.09E+008 PHOT/SEC
SIG.CONDUCTANCE( DC)=  8.94E+001 MHOS/WATT      2.83E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      7.42E+009 VOLT/WATT      2.35E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       2.18E+000 AMP/WATT       6.90E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  5.49E+001 MHOS/WATT      1.74E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      6.10E+009 VOLT/WATT      1.93E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.34E+000 AMP/WATT       4.24E-021 AMP/PHOT/SEC
NEP (1HZ)=             1.08E-015 WATT/HZ↑1/2    3.41E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  1.09E+010 OHMS
DETECTOR BIAS=         2.68E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 4.33E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    9.71E-002( AC)           1.58E-001( DC)
SHOT NOISE(Q.E.=0.3)=  3.18E-006 V/HZ↑1/2 (AC)  4.06E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   5.22E-016 W/HZ↑1/2 (AC)  6.66E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    7.03E-002 (AC)           1.14E-001 (DC)

BB TEMP=101.5          BIAS=0.2000              BIAS DELTA V=0.0306
SIG DEL V=0.01930      DC/1HZ=1.19              NOISE=1.9E-5
BLACKBODY OUTPUT=      2.09E-012 WATTS          6.75E+008 PHOT/SEC
SIG.CONDUCTANCE( DC)=  9.70E+001 MHOS/WATT      3.01E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      1.13E+010 VOLT/WATT      3.52E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       2.97E+000 AMP/WATT       9.21E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  6.41E+001 MHOS/WATT      1.99E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      9.34E+009 VOLT/WATT      2.90E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.96E+000 AMP/WATT       6.08E-021 AMP/PHOT/SEC
NEP (1HZ)=             1.05E-015 WATT/HZ↑1/2    3.38E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  1.01E+010 OHMS
DETECTOR BIAS=         3.36E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 4.38E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.39E-001( AC)           2.11E-001( DC)
SHOT NOISE(Q.E.=0.3)=  4.17E-006 V/HZ↑1/2 (AC)  5.13E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   4.46E-016 W/HZ↑1/2 (AC)  5.49E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    5.42E-002 (AC)           8.21E-002 (DC)
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SAMPLE NO: SE:SA 4=3B1-1 RUN DATE 3/28/77 TEMP.=2 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 2.35E-008 LOAD= 1.00E+011

BB TEMP=105.1	BIAS=0.0200	BIAS DELTA V=0.0179
SIG DEL V=0.01710	DC/1HZ=2.9	NOISE=2E-6
BLACKBODY OUTPUT=	2.30E-012 WATTS	7.36E+008 PHOT/SEC
SIG.CONDUCTANCE(DC)=	9.46E+001 MHOS/WATT	2.95E-019 MHOS/PHOT/SEC
VOLT. RESP.(DC)=	1.35E+011 VOLT/WATT	4.23E-010 VOLT/PHOT/SEC
CURR.RESP.(DC)=	1.69E+000 AMP/WATT	5.29E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=	2.17E+000 MHOS/WATT	6.79E-021 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=	4.17E+009 VOLT/WATT	1.30E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=	3.89E-002 AMP/WATT	1.22E-022 AMP/PHOT/SEC
NEP (1HZ)=	4.75E-016 WATT/HZ↑1/2	1.52E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =	5.97E+012 OHMS	
DETECTOR BIAS=	1.97E-002 VOLTS	

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA

BACKGROUND PHOTON FLUX DENSITY=		7.56E+007 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=	2.78E-003(AC)	1.21E-001(DC)
SHOT NOISE(Q.E.=0.3)=	2.17E-007 V/HZ↑1/2 (AC)	1.43E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=	5.20E-017 W/HZ↑1/2 (AC)	3.43E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=	3.58E-003 (AC)	1.56E-001 (DC)

BB TEMP=104.5	BIAS=0.0500	BIAS DELTA V=0.0445
SIG DEL V=0.04250	DC/1HZ=2.9	NOISE=2.8E-6
BLACKBODY OUTPUT=	2.26E-012 WATTS	7.25E+008 PHOT/SEC
SIG.CONDUCTANCE(DC)=	9.60E+001 MHOS/WATT	3.00E-019 MHOS/PHOT/SEC
VOLT. RESP.(DC)=	3.13E+011 VOLT/WATT	9.76E-010 VOLT/PHOT/SEC
CURR.RESP.(DC)=	4.27E+000 AMP/WATT	1.33E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=	2.22E+000 MHOS/WATT	6.92E-021 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=	1.05E+010 VOLT/WATT	3.27E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=	9.88E-002 AMP/WATT	3.08E-022 AMP/PHOT/SEC
NEP (1HZ)=	2.64E-016 WATT/HZ↑1/2	8.46E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =	4.45E+012 OHMS	
DETECTOR BIAS=	4.89E-002 VOLTS	

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA

BACKGROUND PHOTON FLUX DENSITY=		1.00E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=	7.05E-003(AC)	3.05E-001(DC)
SHOT NOISE(Q.E.=0.3)=	6.27E-007 V/HZ↑1/2 (AC)	4.12E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=	5.97E-017 W/HZ↑1/2 (AC)	3.93E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=	1.54E-002 (AC)	6.65E-001 (DC)

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SAMPLE NO. GE:GA 4-381-1      RUN DATE 3/28/77     TEMP.=2 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 2.35E-008            LOAD= 1.00E+011

BB TEMP= 76.8          BIAS=0.0200              BIAS DELTA V=0.0180
SIG DEL V=0.01290      DC/1HZ=2.9               NOISE=2E-6
BLACKBODY OUTPUT=      9.21E-013 WATTS          3.15E+008 PHOT/SEC
SIG.CONDUCTANCE( DC)=  2.78E+001 MHOS/WATT      8.13E-020 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      5.28E+010 VOLT/WATT      1.55E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       5.00E-001 AMP/WATT       1.46E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  3.60E+000 MHOS/WATT      1.06E-020 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      7.02E+009 VOLT/WATT      2.06E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       6.48E-002 AMP/WATT       1.90E-022 AMP/PHOT/SEC
NEP (1HZ)=             2.84E-016 WATT/HZ↑1/2    9.69E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  9.00E+012 OHMS
DETECTOR BIAS=         1.98E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 1.82E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    4.35E-003( AC)           3.35E-002( DC)
SHOT NOISE(Q.E.=0.3)=  2.23E-007 V/HZ↑1/2 (AC)  6.18E-007 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   3.17E-017 W/HZ↑1/2 (AC)  8.80E-017 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    3.74E-003 (AC)           2.68E-002 (DC)

BB TEMP= 76.5          BIAS=0.0500              BIAS DELTA V=0.0458
SIG DEL V=0.03450      DC/1HZ=2.9               NOISE=2.8E-6
BLACKBODY OUTPUT=      9.10E-013 WATTS          3.11E+008 PHOT/SEC
SIG.CONDUCTANCE( DC)=  3.33E+001 MHOS/WATT      9.76E-020 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      1.72E+011 VOLT/WATT      5.04E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.53E+000 AMP/WATT       4.47E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  3.83E+000 MHOS/WATT      1.12E-020 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.95E+010 VOLT/WATT      5.69E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.75E-001 AMP/WATT       5.14E-022 AMP/PHOT/SEC
NEP (1HZ)=             1.44E-016 WATT/HZ↑1/2    4.93E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =-1.53E+013 OHMS
DETECTOR BIAS=         5.03E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 8.95E+007 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.18E-002( AC)           1.02E-001( DC)
SHOT NOISE(Q.E.=0.3)=  4.50E-007 V/HZ↑1/2 (AC)  1.33E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   2.31E-017 W/HZ↑1/2 (AC)  6.83E-017 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    7.72E-003 (AC)           6.72E-002 (DC)
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SAMPLE NO. GE:GA 3-2B1-3      RUN DATE 6/9/78     TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 5.00E+010

BB TEMP= 59.5          BIAS=0.0050              BIAS DELTA V=0.0030
SIG DEL V=0.00120      DC/1HZ=2                 NOISE=2E-6
BLACKBODY OUTPUT=      1.10E-013 WATTS          4.02E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.84E+002 MHOS/WATT      5.03E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      1.63E+010 VOLT/WATT      4.45E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       5.53E-001 AMP/WATT       1.51E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  6.91E+001 MHOS/WATT      1.89E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      6.92E+009 VOLT/WATT      1.89E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       2.07E-001 AMP/WATT       5.66E-022 AMP/PHOT/SEC
NEP (1HZ)=             2.66E-016 WATT/HZ↑1/2    9.76E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  9.68E+010 OHMS
DETECTOR BIAS=         3.30E-003 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 2.74E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.30E-002( AC)           3.45E-002( DC)
SHOT NOISE(Q.E.=0.3)=  5.04E-007 V/HZ↑1/2 (AC)  8.23E-007 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   7.28E-017 W/HZ↑1/2 (AC)  1.19E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    2.24E-002 (AC)           5.99E-002 (DC)

BB TEMP= 59.2          BIAS=0.0100              BIAS DELTA V=0.0058
SIG DEL V=0.00225      DC/1HZ=2                 NOISE=2.2E-6
BLACKBODY OUTPUT=      1.08E-013 WATTS          3.95E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.85E+002 MHOS/WATT      5.03E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      3.05E+010 VOLT/WATT      8.31E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.07E+000 AMP/WATT       2.92E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  7.02E+001 MHOS/WATT      1.91E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.31E+010 VOLT/WATT      3.57E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       4.07E-001 AMP/WATT       1.11E-021 AMP/PHOT/SEC
NEP (1HZ)=             1.54E-016 WATT/HZ↑1/2    5.67E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  8.79E+010 OHMS
DETECTOR BIAS=         6.37E-003 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 3.01E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    2.54E-002( AC)           6.68E-002( DC)
SHOT NOISE(Q.E.=0.3)=  9.95E-007 V/HZ↑1/2 (AC)  1.62E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   7.59E-017 W/HZ↑1/2 (AC)  1.23E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    7.26E-002 (AC)           1.91E-001 (DC)
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SAMPLE NO. GE:GA 3-2B1-3      RUN DATE 6/9/78     TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 5.00E+010

BB TEMP= 59.2           BIAS=0.0200              BIAS DELTA V=0.0110
SIG DEL V=0.00382       DC/1HZ=2                 NOISE=3.6E-6
BLACKBODY OUTPUT=       1.08E-013 WATTS          3.95E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=   1.64E+002 MHOS/WATT      4.46E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=       4.94E+010 VOLT/WATT      1.34E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=        1.80E+000 AMP/WATT       4.90E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=   6.46E+001 MHOS/WATT      1.76E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=       2.18E+010 VOLT/WATT      5.94E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=        7.11E-001 AMP/WATT       1.94E-021 AMP/PHOT/SEC
NEP (1HZ)=              1.53E-016 WATT/HZ↑1/2    5.60E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =   7.64E+010 OHMS
DETECTOR BIAS=          1.21E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                  3.92E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=     4.43E-002( AC)           1.12E-001( DC)
SHOT NOISE(Q.E.=0.3)=   1.84E-006 V/HZ↑1/2 (AC)  2.93E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=    8.46E-017 W/HZ↑1/2 (AC)  1.35E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=     9.22E-002 (AC)           2.33E-001 (DC)

BB TEMP= 60.5           BIAS=0.0300              BIAS DELTA V=0.0155
SIG DEL V=0.00590       DC/1HZ=2                 NOISE=4.6E-6
BLACKBODY OUTPUT=       1.17E-013 WATTS          4.26E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=   1.85E+002 MHOS/WATT      5.08E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=       7.08E+010 VOLT/WATT      1.94E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=        2.87E+000 AMP/WATT       7.88E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=   7.09E+001 MHOS/WATT      1.94E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=       3.11E+010 VOLT/WATT      8.53E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=        1.10E+000 AMP/WATT       3.01E-021 AMP/PHOT/SEC
NEP (1HZ)=              1.34E-016 WATT/HZ↑1/2    4.89E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =   6.57E+010 OHMS
DETECTOR BIAS=          1.70E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                  3.99E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=     6.90E-002( AC)           1.80E-001( DC)
SHOT NOISE(Q.E.=0.3)=   2.76E-006 V/HZ↑1/2 (AC)  4.47E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=    8.88E-017 W/HZ↑1/2 (AC)  1.44E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=     1.31E-001 (AC)           3.44E-001 (DC)
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SAMPLE NO. GE:GA 3-2B1-3      RUN DATE 6/9/78     TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 5.00E+010

BB TEMP= 59.2          BIAS=0.0400              BIAS DELTA V=0.0189
SIG DEL V=0.00660      DC/1HZ=2                 NOISE=6E-6
BLACKBODY OUTPUT=      1.08E-013 WATTS          3.95E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.92E+002 MHOS/WATT      5.23E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      8.23E+010 VOLT/WATT      2.24E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       3.63E+000 AMP/WATT       9.89E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  7.57E+001 MHOS/WATT      2.06E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      3.71E+010 VOLT/WATT      1.01E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.43E+000 AMP/WATT       3.90E-021 AMP/PHOT/SEC
NEP (1HZ)=             1.47E-016 WATT/HZ↑1/2    5.40E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  5.40E+010 OHMS
DETECTOR BIAS=         2.08E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 4.72E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    8.92E-002( AC)           2.26E-001( DC)
SHOT NOISE(Q.E.=0.3)=  3.50E-006 V/HZ↑1/2 (AC)  5.58E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   9.45E-017 W/HZ↑1/2 (AC)  1.50E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    1.24E-001 (AC)           3.15E-001 (DC)

BB TEMP= 59.0          BIAS=0.0500              BIAS DELTA V=0.0230
SIG DEL V=0.00700      DC/1HZ=2                 NOISE=6E-6
BLACKBODY OUTPUT=      1.06E-013 WATTS          3.90E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.63E+002 MHOS/WATT      4.43E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      8.56E+010 VOLT/WATT      2.33E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       3.75E+000 AMP/WATT       1.02E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  6.68E+001 MHOS/WATT      1.82E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      3.92E+010 VOLT/WATT      1.07E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.54E+000 AMP/WATT       4.18E-021 AMP/PHOT/SEC
NEP (1HZ)=             1.41E-016 WATT/HZ↑1/2    5.16E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  5.11E+010 OHMS
DETECTOR BIAS=         2.53E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 5.88E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    9.58E-002( AC)           2.33E-001( DC)
SHOT NOISE(Q.E.=0.3)=  4.00E-006 V/HZ↑1/2 (AC)  6.25E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.02E-016 W/HZ↑1/2 (AC)  1.59E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    1.58E-001 (AC)           3.86E-001 (DC)
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SAMPLE NO. GE:GA 3-2B1-3      RUN DATE 6/9/78     TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 5.00E+010

BB TEMP= 59.0          BIAS=0.0500              BIAS DELTA V=0.0230
SIG DEL V=0.00740      DC/1HZ=2                 NOISE=6E-6
BLACKBODY OUTPUT=      1.06E-013 WATTS          3.90E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.77E+002 MHOS/WATT      4.81E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      9.14E+010 VOLT/WATT      2.49E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       4.06E+000 AMP/WATT       1.11E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  7.14E+001 MHOS/WATT      1.94E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      4.17E+010 VOLT/WATT      1.13E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.64E+000 AMP/WATT       4.47E-021 AMP/PHOT/SEC
NEP (1HZ)=             1.32E-016 WATT/HZ↑1/2    4.83E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  5.11E+010 OHMS
DETECTOR BIAS=         2.53E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 5.43E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.02E-001( AC)           2.53E-001( DC)
SHOT NOISE(Q.E.=0.3)=  4.14E-006 V/HZ↑1/2 (AC)  6.51E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   9.93E-017 W/HZ↑1/2 (AC)  1.56E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    1.71E-001 (AC)           4.23E-001 (DC)

BB TEMP= 59.0          BIAS=0.0600              BIAS DELTA V=0.0244
SIG DEL V=0.00820      DC/1HZ=2                 NOISE=7.5E-6
BLACKBODY OUTPUT=      1.06E-013 WATTS          3.90E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  2.13E+002 MHOS/WATT      5.80E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      9.98E+010 VOLT/WATT      2.72E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       5.20E+000 AMP/WATT       1.42E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  8.51E+001 MHOS/WATT      2.32E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      4.58E+010 VOLT/WATT      1.25E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       2.08E+000 AMP/WATT       5.65E-021 AMP/PHOT/SEC
NEP (1HZ)=             1.47E-016 WATT/HZ↑1/2    5.41E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  4.04E+010 OHMS
DETECTOR BIAS=         2.68E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 5.69E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.29E-001( AC)           3.24E-001( DC)
SHOT NOISE(Q.E.=0.3)=  4.77E-006 V/HZ↑1/2 (AC)  7.54E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.04E-016 W/HZ↑1/2 (AC)  1.65E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    1.50E-001 (AC)           3.75E-001 (DC)
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SAMPLE NO. GE:GA 3-2B1-3 RUN DATE 6/9/78 TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009 LOAD= 5.00E+010

BB TEMP= 59.0	BIAS=0.0700	BIAS DELTA V=0.0248
SIG DEL V=0.00850	DC/1HZ=2	NOISE=8E-6
BLACKBODY OUTPUT=	1.06E-013 WATTS	3.90E+007 PHOT/SEC
SIG.CONDUCTANCE(DC)=	2.52E+002 MHOS/WATT	6.86E-019 MHOS/PHOT/SEC
VOLT. RESP.(DC)=	1.01E+011 VOLT/WATT	2.76E-010 VOLT/PHOT/SEC
CURR.RESP.(DC)=	6.25E+000 AMP/WATT	1.70E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=	1.00E+002 MHOS/WATT	2.72E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=	4.71E+010 VOLT/WATT	1.28E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=	2.48E+000 AMP/WATT	6.75E-021 AMP/PHOT/SEC
NEP (1HZ)=	1.51E-016 WATT/HZ↑1/2	5.54E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =	3.19E+010 OHMS	
DETECTOR BIAS=	2.73E-002 VOLTS	

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA

BACKGROUND PHOTON FLUX DENSITY=		6.10E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=	1.54E-001(AC)	3.90E-001(DC)
SHOT NOISE(Q.E.=0.3)=	5.15E-006 V/HZ↑1/2 (AC)	8.18E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=	1.09E-016 W/HZ↑1/2 (AC)	1.74E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=	1.58E-001 (AC)	3.98E-001 (DC)

BB TEMP= 58.9	BIAS=0.0800	BIAS DELTA V=0.0288
SIG DEL V=0.01100	DC/1HZ=2	NOISE=8.5E-6
BLACKBODY OUTPUT=	1.06E-013 WATTS	3.88E+007 PHOT/SEC
SIG.CONDUCTANCE(DC)=	2.96E+002 MHOS/WATT	8.05E-019 MHOS/PHOT/SEC
VOLT. RESP.(DC)=	1.35E+011 VOLT/WATT	3.67E-010 VOLT/PHOT/SEC
CURR.RESP.(DC)=	8.52E+000 AMP/WATT	2.32E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=	1.13E+002 MHOS/WATT	3.07E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=	6.19E+010 VOLT/WATT	1.68E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=	3.26E+000 AMP/WATT	8.85E-021 AMP/PHOT/SEC
NEP (1HZ)=	1.20E-016 WATT/HZ↑1/2	4.42E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =	3.27E+010 OHMS	
DETECTOR BIAS=	3.16E-002 VOLTS	

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA

BACKGROUND PHOTON FLUX DENSITY=		5.06E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=	2.03E-001(AC)	5.31E-001(DC)
SHOT NOISE(Q.E.=0.3)=	6.38E-006 V/HZ↑1/2 (AC)	1.03E-005 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=	1.03E-016 W/HZ↑1/2 (AC)	1.67E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=	2.20E-001 (AC)	5.77E-001 (DC)

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SAMPLE NO. GE:GA 3-2B1-3      RUN DATE 6/9/78     TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 5.00E+010

BB TEMP= 58.9          BIAS=0.0900              BIAS DELTA V=0.0295
SIG DEL V=0.00955      DC/1HZ=2                 NOISE=9E-6
BLACKBODY OUTPUT=      1.06E-013 WATTS          3.88E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  2.52E+002 MHOS/WATT      6.85E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      1.13E+011 VOLT/WATT      3.06E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       7.43E+000 AMP/WATT       2.02E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.02E+002 MHOS/WATT      2.76E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      5.28E+010 VOLT/WATT      1.44E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       3.00E+000 AMP/WATT       8.15E-021 AMP/PHOT/SEC
NEP (1HZ)=             1.52E-016 WATT/HZ↑1/2    5.58E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  2.81E+010 OHMS
DETECTOR BIAS=         3.24E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 6.92E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.87E-001( AC)           4.62E-001( DC)
SHOT NOISE(Q.E.=0.3)=  6.08E-006 V/HZ↑1/2 (AC)  9.57E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.15E-016 W/HZ↑1/2 (AC)  1.81E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    1.73E-001 (AC)           4.28E-001 (DC)

BB TEMP= 58.8          BIAS=0.1000              BIAS DELTA V=0.0316
SIG DEL V=0.01010      DC/1HZ=2                 NOISE=1E-5
BLACKBODY OUTPUT=      1.05E-013 WATTS          3.86E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  2.58E+002 MHOS/WATT      7.01E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      1.19E+011 VOLT/WATT      3.24E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       8.15E+000 AMP/WATT       2.22E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.04E+002 MHOS/WATT      2.84E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      5.60E+010 VOLT/WATT      1.52E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       3.30E+000 AMP/WATT       8.97E-021 AMP/PHOT/SEC
NEP (1HZ)=             1.59E-016 WATT/HZ↑1/2    5.84E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  2.66E+010 OHMS
DETECTOR BIAS=         3.47E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 7.15E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    2.05E-001( AC)           5.07E-001( DC)
SHOT NOISE(Q.E.=0.3)=  6.55E-006 V/HZ↑1/2 (AC)  1.03E-005 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.17E-016 W/HZ↑1/2 (AC)  1.84E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    1.62E-001 (AC)           4.01E-001 (DC)
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SAMPLE NO. GE:GA 3-2B1-3     RUN DATE 6/9/78    TEMP.=2.5 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009           LOAD= 7.00E+010

BB TEMP= 59.0          BIAS=0.0050              BIAS DELTA V=0.0041
SIG DEL V=0.00202      DC/1HZ=2.2               NOISE=2.5E-6
BLACKBODY OUTPUT=      1.06E-013 WATTS          3.90E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.46E+002 MHOS/WATT      3.97E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      3.76E+010 VOLT/WATT      1.02E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       5.97E-001 AMP/WATT       1.62E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  4.33E+001 MHOS/WATT      1.18E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.19E+010 VOLT/WATT      3.24E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.77E-001 AMP/WATT       4.82E-022 AMP/PHOT/SEC
NEP (1HZ)=             2.04E-016 WATT/HZ↑1/2    7.50E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  6.22E+011 OHMS
DETECTOR BIAS=         4.49E-003 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 5.39E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.10E-002( AC)           3.72E-002( DC)
SHOT NOISE(Q.E.=0.3)=  4.09E-007 V/HZ↑1/2 (AC)  7.51E-007 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   3.44E-017 W/HZ↑1/2 (AC)  6.31E-017 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    8.50E-003 (AC)           2.87E-002 (DC)

BB TEMP= 58.9          BIAS=0.0100              BIAS DELTA V=0.0084
SIG DEL V=0.00419      DC/1HZ=2.2               NOISE=2.5E-6
BLACKBODY OUTPUT=      1.06E-013 WATTS          3.88E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.47E+002 MHOS/WATT      4.00E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      8.08E+010 VOLT/WATT      2.20E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.23E+000 AMP/WATT       3.35E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  4.32E+001 MHOS/WATT      1.18E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      2.51E+010 VOLT/WATT      6.82E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       3.62E-001 AMP/WATT       9.85E-022 AMP/PHOT/SEC
NEP (1HZ)=             9.74E-017 WATT/HZ↑1/2    3.58E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  8.15E+011 OHMS
DETECTOR BIAS=         9.21E-003 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 4.09E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    2.26E-002( AC)           7.67E-002( DC)
SHOT NOISE(Q.E.=0.3)=  7.49E-007 V/HZ↑1/2 (AC)  1.38E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   2.99E-017 W/HZ↑1/2 (AC)  5.51E-017 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    2.82E-002 (AC)           9.59E-002 (DC)
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SAMPLE NO. GE:GA 3-2B1-3 RUN DATE 6/9/78 TEMP.=2.5 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009 LOAD= 7.00E+010

BB TEMP= 58.8	BIAS=0.0100	BIAS DELTA V=0.0081
SIG DEL V=0.00395	DC/1HZ=2.2	NOISE=2.5E-6
BLACKBODY OUTPUT=	1.05E-013 WATTS	3.86E+007 PHOT/SEC
SIG.CONDUCTANCE(DC)=	1.46E+002 MHOS/WATT	3.96E-019 MHOS/PHOT/SEC
VOLT. RESP.(DC)=	7.31E+010 VOLT/WATT	1.99E-010 VOLT/PHOT/SEC
CURR.RESP.(DC)=	1.18E+000 AMP/WATT	3.21E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=	4.36E+001 MHOS/WATT	1.18E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=	2.34E+010 VOLT/WATT	6.37E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=	3.53E-001 AMP/WATT	9.60E-022 AMP/PHOT/SEC
NEP (1HZ)=	1.03E-016 WATT/HZ↑1/2	3.81E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =	5.67E+011 OHMS	
DETECTOR BIAS=	8.90E-003 VOLTS	

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA

BACKGROUND PHOTON FLUX DENSITY=		5.94E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=	2.20E-002(AC)	7.34E-002(DC)
SHOT NOISE(Q.E.=0.3)=	8.42E-007 V/HZ↑1/2 (AC)	1.54E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=	3.59E-017 W/HZ↑1/2 (AC)	6.57E-017 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=	3.62E-002 (AC)	1.21E-001 (DC)

BB TEMP= 58.8	BIAS=0.0200	BIAS DELTA V=0.0160
SIG DEL V=0.00825	DC/1HZ=2.2	NOISE=2.5E-6
BLACKBODY OUTPUT=	1.05E-013 WATTS	3.86E+007 PHOT/SEC
SIG.CONDUCTANCE(DC)=	1.65E+002 MHOS/WATT	4.48E-019 MHOS/PHOT/SEC
VOLT. RESP.(DC)=	1.58E+011 VOLT/WATT	4.30E-010 VOLT/PHOT/SEC
CURR.RESP.(DC)=	2.64E+000 AMP/WATT	7.17E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=	4.74E+001 MHOS/WATT	1.29E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=	4.95E+010 VOLT/WATT	1.35E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=	7.59E-001 AMP/WATT	2.06E-021 AMP/PHOT/SEC
NEP (1HZ)=	4.87E-017 WATT/HZ↑1/2	1.79E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =	5.09E+011 OHMS	
DETECTOR BIAS=	1.76E-002 VOLTS	

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA

BACKGROUND PHOTON FLUX DENSITY=		5.84E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=	4.72E-002(AC)	1.64E-001(DC)
SHOT NOISE(Q.E.=0.3)=	1.81E-006 V/HZ↑1/2 (AC)	3.37E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=	3.66E-017 W/HZ↑1/2 (AC)	6.82E-017 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=	1.69E-001 (AC)	5.88E-001 (DC)

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SAMPLE NO. GE:GA 3-2B1-3      RUN DATE 6/9/78     TEMP.=2.5 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 7.00E+010

BB TEMP= 58.8          BIAS=0.0300          BIAS DELTA V=0.0234
SIG DEL V=0.01250      DC/1HZ=2.2           NOISE=UNDEFINED0
BLACKBODY OUTPUT=      1.05E-013 WATTS      3.86E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.82E+002 MHOS/WATT  4.95E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      2.42E+011 VOLT/WATT  6.57E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       4.26E+000 AMP/WATT   1.16E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  5.10E+001 MHOS/WATT  1.39E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      7.52E+010 VOLT/WATT  2.04E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.19E+000 AMP/WATT   3.24E-021 AMP/PHOT/SEC
DETECTOR RESISTANCE =  4.20E+011 OHMS
DETECTOR BIAS=         2.57E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                    6.41E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    7.42E-002( AC)              2.65E-001( DC)
SHOT NOISE(Q.E.=0.3)=  2.94E-006 V/HZ↑1/2 (AC)     5.57E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   3.92E-017 W/HZ↑1/2 (AC)     7.41E-017 W/HZ↑1/2 (DC)

BB TEMP= 58.8          BIAS=0.0400          BIAS DELTA V=0.0300
SIG DEL V=0.01650      DC/1HZ=2.2           NOISE=3.5E-6
BLACKBODY OUTPUT=      1.05E-013 WATTS      3.86E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  2.02E+002 MHOS/WATT  5.49E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      3.16E+011 VOLT/WATT  8.60E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       6.06E+000 AMP/WATT   1.65E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  5.51E+001 MHOS/WATT  1.50E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      9.90E+010 VOLT/WATT  2.69E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.65E+000 AMP/WATT   4.49E-021 AMP/PHOT/SEC
NEP (1HZ)=             3.34E-017 WATT/HZ↑1/2 1.23E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  3.20E+011 OHMS
DETECTOR BIAS=         3.30E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                    7.40E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.03E-001( AC)              3.77E-001( DC)
SHOT NOISE(Q.E.=0.3)=  4.27E-006 V/HZ↑1/2 (AC)     8.18E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   4.31E-017 W/HZ↑1/2 (AC)     8.26E-017 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    5.00E-001 (AC)              1.83E+000 (DC)
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SAMPLE NO. GE:GA 3-2B1-3      RUN DATE 6/9/78     TEMP.=2.5 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 7.00E+010

BB TEMP= 58.5          BIAS=0.0500              BIAS DELTA V=0.0380
SIG DEL V=0.02050      DC/1HZ=2.2               NOISE=UNDEFINED0
BLACKBODY OUTPUT=      1.03E-013 WATTS          3.79E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)= 1.95E+002 MHOS/WATT       5.29E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      3.99E+011 VOLT/WATT      1.08E-009 VOLT/PHOT/SEC
CURR.RESP.( DC)=       7.40E+000 AMP/WATT       2.01E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)= 5.40E+001 MHOS/WATT       1.47E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.25E+011 VOLT/WATT      3.40E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       2.05E+000 AMP/WATT       5.57E-021 AMP/PHOT/SEC
DETECTOR RESISTANCE = 3.55E+011 OHMS
DETECTOR BIAS=         4.18E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 7.11E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.28E-001( AC)           4.60E-001( DC)
SHOT NOISE(Q.E.=0.3)= 5.22E-006 V/HZ↑1/2 (AC)  9.90E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   4.17E-017 W/HZ↑1/2 (AC)  7.91E-017 W/HZ↑1/2 (DC)

BB TEMP= 58.3          BIAS=0.0600              BIAS DELTA V=0.0420
SIG DEL V=0.02400      DC/1HZ=2.2               NOISE=5E-6
BLACKBODY OUTPUT=      1.02E-013 WATTS          3.74E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)= 2.44E+002 MHOS/WATT       6.61E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      4.64E+011 VOLT/WATT      1.26E-009 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.02E+001 AMP/WATT       2.78E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)= 6.42E+001 MHOS/WATT       1.74E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.48E+011 VOLT/WATT      4.00E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       2.70E+000 AMP/WATT       7.31E-021 AMP/PHOT/SEC
NEP (1HZ)=             3.13E-017 WATT/HZ↑1/2    1.16E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE = 2.33E+011 OHMS
DETECTOR BIAS=         4.62E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 8.64E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.67E-001( AC)           6.36E-001( DC)
SHOT NOISE(Q.E.=0.3)= 7.13E-006 V/HZ↑1/2 (AC)  1.39E-005 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   4.83E-017 W/HZ↑1/2 (AC)  9.42E-017 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    7.13E-001 (AC)           2.71E+000 (DC)
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SAMPLE NO. GE:GA 3-2B1-3      RUN DATE 6/9/78     TEMP.=2.5 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 7.00E+010

BB TEMP= 58.2          BIAS=0.0600              BIAS DELTA V=0.0420
SIG DEL V=0.02400      DC/1HZ=2.2               NOISE=UNDEFINED0
BLACKBODY OUTPUT=      1.01E-013 WATTS          3.72E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)= 2.46E+002 MHOS/WATT       6.65E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      4.67E+011 VOLT/WATT      1.26E-009 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.03E+001 AMP/WATT       2.79E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)= 6.46E+001 MHOS/WATT       1.75E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.49E+011 VOLT/WATT      4.03E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       2.71E+000 AMP/WATT       7.35E-021 AMP/PHOT/SEC
DETECTOR RESISTANCE = 2.33E+011 OHMS
DETECTOR BIAS=         4.62E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 8.59E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.68E-001( AC)           6.40E-001( DC)
SHOT NOISE(Q.E.=0.3)= 7.15E-006 V/HZ↑1/2 (AC)  1.39E-005 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   4.81E-017 W/HZ↑1/2 (AC) 9.39E-017 W/HZ↑1/2 (DC)

BB TEMP= 58.2          BIAS=0.0700              BIAS DELTA V=0.0480
SIG DEL V=0.02700      DC/1HZ=2.2               NOISE=UNDEFINED0
BLACKBODY OUTPUT=      1.01E-013 WATTS          3.72E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)= 2.42E+002 MHOS/WATT       6.55E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      5.11E+011 VOLT/WATT      1.38E-009 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.16E+001 AMP/WATT       3.14E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)= 6.46E+001 MHOS/WATT       1.75E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.66E+011 VOLT/WATT      4.49E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       3.10E+000 AMP/WATT       8.40E-021 AMP/PHOT/SEC
DETECTOR RESISTANCE = 2.14E+011 OHMS
DETECTOR BIAS=         5.27E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 9.51E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.92E-001( AC)           7.20E-001( DC)
SHOT NOISE(Q.E.=0.3)= 8.36E-006 V/HZ↑1/2 (AC)  1.62E-005 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   5.05E-017 W/HZ↑1/2 (AC) 9.76E-017 W/HZ↑1/2 (DC)
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SAMPLE NO. GE:GA 3-2B1-3      RUN DATE 6/9/78     TEMP.=2.5 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 7.00E+010

BB TEMP= 58.1          BIAS=0.0800              BIAS DELTA V=0.0530
SIG DEL V=0.03000      DC/1HZ=2.2               NOISE=7E-6
BLACKBODY OUTPUT=      1.00E-013 WATTS          3.70E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)= 2.56E+002 MHOS/WATT       6.92E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      5.60E+011 VOLT/WATT      1.52E-009 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.35E+001 AMP/WATT       3.67E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)= 6.79E+001 MHOS/WATT       1.84E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.84E+011 VOLT/WATT      4.98E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       3.60E+000 AMP/WATT       9.74E-021 AMP/PHOT/SEC
NEP (1HZ)=             3.48E-017 WATT/HZ↑1/2    1.28E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  1.87E+011 OHMS
DETECTOR BIAS=         5.82E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 1.03E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    2.23E-001( AC)           8.40E-001( DC)
SHOT NOISE(Q.E.=0.3)= 9.77E-006 V/HZ↑1/2 (AC)   1.90E-005 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   5.31E-017 W/HZ↑1/2 (AC)  1.03E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    6.99E-001 (AC)           2.63E+000 (DC)

BB TEMP= 58.1          BIAS=0.0900              BIAS DELTA V=0.0555
SIG DEL V=0.03200      DC/1HZ=2.2               NOISE=UNDEFINED0
BLACKBODY OUTPUT=      1.00E-013 WATTS          3.70E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)= 2.87E+002 MHOS/WATT       7.76E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      5.76E+011 VOLT/WATT      1.56E-009 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.59E+001 AMP/WATT       4.31E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)= 7.47E+001 MHOS/WATT       2.02E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.94E+011 VOLT/WATT      5.25E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       4.15E+000 AMP/WATT       1.12E-020 AMP/PHOT/SEC
DETECTOR RESISTANCE =  1.47E+011 OHMS
DETECTOR BIAS=         6.10E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 1.17E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    2.57E-001( AC)           9.86E-001( DC)
SHOT NOISE(Q.E.=0.3)= 1.13E-005 V/HZ↑1/2 (AC)   2.21E-005 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   5.81E-017 W/HZ↑1/2 (AC)  1.14E-016 W/HZ↑1/2 (DC)
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SAMPLE NO. GE:GA 3-2B1-3 RUN DATE 6/9/78 TEMP.=2.5 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009 LOAD= 7.00E+010

BB TEMP= 58.1	BIAS=0.1000	BIAS DELTA V=0.0580
SIG DEL V=0.03400	DC/1HZ=2.2	NOISE=9E-6
BLACKBODY OUTPUT=	1.00E-013 WATTS	3.70E+007 PHOT/SEC
SIG.CONDUCTANCE(DC)=	3.17E+002 MHOS/WATT	8.58E-019 MHOS/PHOT/SEC
VOLT. RESP.(DC)=	5.95E+011 VOLT/WATT	1.61E-009 VOLT/PHOT/SEC
CURR.RESP.(DC)=	1.84E+001 AMP/WATT	4.98E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=	8.13E+001 MHOS/WATT	2.20E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=	2.04E+011 VOLT/WATT	5.53E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=	4.71E+000 AMP/WATT	1.28E-020 AMP/PHOT/SEC
NEP (1HZ)=	3.89E-017 WATT/HZ↑1/2	1.44E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =	1.23E+011 OHMS	
DETECTOR BIAS=	6.37E-002 VOLTS	

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA

BACKGROUND PHOTON FLUX DENSITY=		1.26E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=	2.92E-001(AC)	1.14E+000(DC)
SHOT NOISE(Q.E.=0.3)=	1.26E-005 V/HZ↑1/2 (AC)	2.50E-005 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=	6.19E-017 W/HZ↑1/2 (AC)	1.22E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=	7.58E-001 (AC)	2.95E+000 (DC)

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SAMPLE NO. GE:GA 4-5B1-1      RUN DATE 7/11/78     TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 5.00E+010

BB TEMP= 58.1          BIAS=0.0050              BIAS DELTA V=0.0007
SIG DEL V=0.00008      DC/1HZ=1.04              NOISE=UNDEFINED0
BLACKBODY OUTPUT=      1.00E-013 WATTS          3.70E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.56E+002 MHOS/WATT      4.22E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      8.37E+008 VOLT/WATT      2.27E-012 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.09E-001 AMP/WATT       2.95E-022 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.49E+002 MHOS/WATT      4.04E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      8.04E+008 VOLT/WATT      2.18E-012 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.04E-001 AMP/WATT       2.83E-022 AMP/PHOT/SEC
DETECTOR RESISTANCE = 9.09E+009 OHMS
DETECTOR BIAS=         7.69E-004 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 3.48E+010 PHOTONS/SEC-CM↑2
PC GAIN=               6.47E-003( AC)           6.76E-003( DC)
SHOT NOISE =           1.31E-007 V/HZ↑1/2 (AC)  1.34E-007 V/HZ↑1/2 (DC)
BLIP NEP=              1.63E-016 W/HZ↑1/2 (AC)  1.67E-016 W/HZ↑1/2 (DC)

BB TEMP= 59.8          BIAS=0.0100              BIAS DELTA V=0.0012
SIG DEL V=0.00018      DC/1HZ=1.04              NOISE=UNDEFINED0
BLACKBODY OUTPUT=      1.12E-013 WATTS          4.09E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  2.39E+002 MHOS/WATT      6.54E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      1.80E+009 VOLT/WATT      4.93E-012 VOLT/PHOT/SEC
CURR.RESP.( DC)=       2.87E-001 AMP/WATT       7.85E-022 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  2.29E+002 MHOS/WATT      6.25E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.73E+009 VOLT/WATT      4.74E-012 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       2.74E-001 AMP/WATT       7.50E-022 AMP/PHOT/SEC
DETECTOR RESISTANCE = 7.59E+009 OHMS
DETECTOR BIAS=         1.32E-003 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 2.68E+010 PHOTONS/SEC-CM↑2
PC GAIN=               1.72E-002( AC)           1.80E-002( DC)
SHOT NOISE =           2.62E-007 V/HZ↑1/2 (AC)  2.68E-007 V/HZ↑1/2 (DC)
BLIP NEP=              1.51E-016 W/HZ↑1/2 (AC)  1.55E-016 W/HZ↑1/2 (DC)
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SAMPLE NO. GE:GA 4-5B1-1      RUN DATE 7/11/78     TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 5.00E+010

BB TEMP= 60.0          BIAS=0.0200              BIAS DELTA V=0.0026
SIG DEL V=0.00038      DC/1HZ=1.04              NOISE=2.6E-6
BLACKBODY OUTPUT=      1.13E-013 WATTS          4.14E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)= 2.07E+002 MHOS/WATT       5.65E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      3.72E+009 VOLT/WATT      1.02E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       5.39E-001 AMP/WATT       1.48E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)= 1.97E+002 MHOS/WATT       5.40E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      3.57E+009 VOLT/WATT      9.77E-012 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       5.15E-001 AMP/WATT       1.41E-021 AMP/PHOT/SEC
NEP (1HZ)=             6.48E-016 WATT/HZ↑1/2    2.34E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE = 8.37E+009 OHMS
DETECTOR BIAS=         2.87E-003 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 2.82E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    3.23E-002( AC)           3.38E-002( DC)
SHOT NOISE(Q.E.=0.3)= 5.49E-007 V/HZ↑1/2 (AC)  5.62E-007 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.54E-016 W/HZ↑1/2 (AC)  1.57E-016 W/HZ↑1/2 (DC)
BLIP QUAN.EFFIC.=      1.73E-002 (AC)           1.81E-002 (DC)

BB TEMP= 60.2          BIAS=0.0300              BIAS DELTA V=0.0049
SIG DEL V=0.00084      DC/1HZ=1.04              NOISE=3.2E-6
BLACKBODY OUTPUT=      1.15E-013 WATTS          4.19E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)= 2.01E+002 MHOS/WATT       5.51E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      8.31E+009 VOLT/WATT      2.27E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       9.85E-001 AMP/WATT       2.70E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)= 1.92E+002 MHOS/WATT       5.25E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      7.98E+009 VOLT/WATT      2.18E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       9.40E-001 AMP/WATT       2.57E-021 AMP/PHOT/SEC
NEP (1HZ)=             3.45E-016 WATT/HZ↑1/2    1.26E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE = 1.09E+010 OHMS
DETECTOR BIAS=         5.38E-003 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 2.21E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    5.89E-002( AC)           6.18E-002( DC)
SHOT NOISE(Q.E.=0.3)= 1.11E-006 V/HZ↑1/2 (AC)  1.14E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.39E-016 W/HZ↑1/2 (AC)  1.43E-016 W/HZ↑1/2 (DC)
BLIP QUAN.EFFIC.=      4.90E-002 (AC)           5.13E-002 (DC)
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SAMPLE NO. GE:GA 4-5B1-1      RUN DATE 7/11/78     TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 5.00E+010

BB TEMP= 60.3          BIAS=0.0400              BIAS DELTA V=0.0068
SIG DEL V=0.00120      DC/1HZ=1.04              NOISE=4E-6
BLACKBODY OUTPUT=      1.15E-013 WATTS          4.21E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  2.01E+002 MHOS/WATT      5.50E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      1.18E+010 VOLT/WATT      3.24E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.36E+000 AMP/WATT       3.72E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.91E+002 MHOS/WATT      5.25E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.13E+010 VOLT/WATT      3.11E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.30E+000 AMP/WATT       3.55E-021 AMP/PHOT/SEC
NEP (1HZ)=             3.02E-016 WATT/HZ↑1/2    1.10E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  1.14E+010 OHMS
DETECTOR BIAS=         7.44E-003 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 2.12E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    8.13E-002( AC)           8.53E-002( DC)
SHOT NOISE(Q.E.=0.3)=  1.56E-006 V/HZ↑1/2 (AC)  1.60E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.37E-016 W/HZ↑1/2 (AC)  1.41E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    6.20E-002 (AC)           6.50E-002 (DC)

BB TEMP= 60.4          BIAS=0.0500              BIAS DELTA V=0.0083
SIG DEL V=0.00141      DC/1HZ=1.04              NOISE=5.1E-6
BLACKBODY OUTPUT=      1.16E-013 WATTS          4.24E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.93E+002 MHOS/WATT      5.30E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      1.38E+010 VOLT/WATT      3.78E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.60E+000 AMP/WATT       4.40E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.84E+002 MHOS/WATT      5.05E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.32E+010 VOLT/WATT      3.63E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.53E+000 AMP/WATT       4.19E-021 AMP/PHOT/SEC
NEP (1HZ)=             3.33E-016 WATT/HZ↑1/2    1.21E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  1.12E+010 OHMS
DETECTOR BIAS=         9.12E-003 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 2.26E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    9.60E-002( AC)           1.01E-001( DC)
SHOT NOISE(Q.E.=0.3)=  1.86E-006 V/HZ↑1/2 (AC)  1.90E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.41E-016 W/HZ↑1/2 (AC)  1.44E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    5.37E-002 (AC)           5.63E-002 (DC)
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SAMPLE NO. GE:GA 4-581-1      RUN DATE 7/11/78     TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 5.00E+010

BB TEMP= 60.7          BIAS=0.0600          BIAS DELTA V=0.0100
SIG DEL V=0.00172      DC/1HZ=1.04          NOISE=UNDEFINED0
BLACKBODY OUTPUT=      1.18E-013 WATTS      4.31E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.94E+002 MHOS/WATT  5.32E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      1.65E+010 VOLT/WATT  4.53E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.93E+000 AMP/WATT   5.30E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.85E+002 MHOS/WATT  5.08E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.58E+010 VOLT/WATT  4.35E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.84E+000 AMP/WATT   5.05E-021 AMP/PHOT/SEC
DETECTOR RESISTANCE =  1.11E+010 OHMS
DETECTOR BIAS=         1.09E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                    2.25E+010 PHOTONS/SEC-CMT2
PC GAIN (Q.E.=0.3)=    1.16E-001( AC)              1.21E-001( DC)
SHOT NOISE(Q.E.=0.3)=  2.23E-006 V/HZT1/2 (AC)     2.29E-006 V/HZT1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.41E-016 W/HZT1/2 (AC)     1.44E-016 W/HZT1/2 (DC)

BB TEMP= 60.7          BIAS=0.0700          BIAS DELTA V=0.0120
SIG DEL V=0.00202      DC/1HZ=1.04          NOISE=5.8E-6
BLACKBODY OUTPUT=      1.18E-013 WATTS      4.31E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.82E+002 MHOS/WATT  4.99E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      1.94E+010 VOLT/WATT  5.32E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       2.18E+000 AMP/WATT   5.99E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.73E+002 MHOS/WATT  4.76E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.86E+010 VOLT/WATT  5.11E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       2.08E+000 AMP/WATT   5.71E-021 AMP/PHOT/SEC
NEP (1HZ)=             2.69E-016 WATT/HZT1/2 9.81E+004 PHOT/SEC-HZT1/2
DETECTOR RESISTANCE =  1.16E+010 OHMS
DETECTOR BIAS=         1.32E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                    2.30E+010 PHOTONS/SEC-CMT2
PC GAIN (Q.E.=0.3)=    1.31E-001( AC)              1.37E-001( DC)
SHOT NOISE(Q.E.=0.3)=  2.64E-006 V/HZT1/2 (AC)     2.71E-006 V/HZT1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.42E-016 W/HZT1/2 (AC)     1.45E-016 W/HZT1/2 (DC)
QUAN.EFFIC.IF BLIP=    8.33E-002 (AC)              8.74E-002 (DC)
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SAMPLE NO. GE:GA 4-5B1-1      RUN DATE 7/11/78     TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 5.00E+013

BB TEMP= 60.6          BIAS=0.0800              BIAS DELTA V=0.0138
SIG DEL V=0.00238      DC/1HZ=1                 NOISE=6.7E-6
BLACKBODY OUTPUT=      1.18E-013 WATTS          4.29E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.87E+002 MHOS/WATT      5.13E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      2.30E+010 VOLT/WATT      6.31E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       2.58E+000 AMP/WATT       7.08E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.87E+002 MHOS/WATT      5.13E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      2.30E+010 VOLT/WATT      6.31E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       2.58E+000 AMP/WATT       7.08E-021 AMP/PHOT/SEC
NEP (1HZ)=             2.49E-016 WATT/HZ↑1/2    9.08E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  1.17E+010 OHMS
DETECTOR BIAS=         1.52E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 2.22E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.62E-001( AC)           1.62E-001( DC)
SHOT NOISE(Q.E.=0.3)=  3.16E-006 V/HZ↑1/2 (AC)  3.16E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.38E-016 W/HZ↑1/2 (AC)  1.38E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    9.14E-002 (AC)           9.14E-002 (DC)

BB TEMP= 60.4          BIAS=0.0900              BIAS DELTA V=0.0162
SIG DEL V=0.00260      DC/1HZ=1                 NOISE=8.5E-6
BLACKBODY OUTPUT=      1.16E-013 WATTS          4.24E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.66E+002 MHOS/WATT      4.56E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      2.54E+010 VOLT/WATT      6.97E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       2.70E+000 AMP/WATT       7.39E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.66E+002 MHOS/WATT      4.56E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      2.54E+010 VOLT/WATT      6.97E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       2.70E+000 AMP/WATT       7.39E-021 AMP/PHOT/SEC
NEP (1HZ)=             2.90E-016 WATT/HZ↑1/2    1.06E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  1.23E+010 OHMS
DETECTOR BIAS=         1.78E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 2.37E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.69E-001( AC)           1.69E-001( DC)
SHOT NOISE(Q.E.=0.3)=  3.56E-006 V/HZ↑1/2 (AC)  3.56E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.40E-016 W/HZ↑1/2 (AC)  1.40E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    7.00E-002 (AC)           7.00E-002 (DC)
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SAMPLE NO. GE:GA 4-5B1-1      RUN DATE 7/11/78     TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 5.00E+010

BB TEMP= 60.4          BIAS=0.1000                BIAS DELTA V=0.0152
SIG DEL V=0.00245      DC/1HZ=1                   NOISE=9E-6
BLACKBODY OUTPUT=      1.16E-013 WATTS            4.24E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.98E+002 MHOS/WATT        5.43E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      2.38E+010 VOLT/WATT        6.53E-011 VOLT/PHOT/SEC
CURR.RESP.( DC)=       3.01E+000 AMP/WATT         8.26E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.98E+002 MHOS/WATT        5.43E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      2.38E+010 VOLT/WATT        6.53E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       3.01E+000 AMP/WATT         8.26E-021 AMP/PHOT/SEC
NEP (1HZ)=             3.26E-016 WATT/HZ↑1/2      1.19E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  1.00E+010 OHMS
DETECTOR BIAS=         1.67E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                   2.45E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.89E-001( AC)             1.89E-001( DC)
SHOT NOISE(Q.E.=0.3)=  3.41E-006 V/HZ↑1/2 (AC)    3.41E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.43E-016 W/HZ↑1/2 (AC)    1.43E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    5.80E-002 (AC)             5.80E-002 (DC)

BB TEMP= 60.4          BIAS=0.2000                BIAS DELTA V=0.0266
SIG DEL V=0.00385      DC/1HZ=.9                  NOISE=1.8E-5
BLACKBODY OUTPUT=      1.16E-013 WATTS            4.24E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.71E+002 MHOS/WATT        4.67E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      3.72E+010 VOLT/WATT        1.02E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       4.88E+000 AMP/WATT         1.34E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.93E+002 MHOS/WATT        5.28E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      4.15E+010 VOLT/WATT        1.14E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       5.51E+000 AMP/WATT         1.51E-020 AMP/PHOT/SEC
NEP (1HZ)=             3.78E-016 WATT/HZ↑1/2      1.38E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  9.32E+009 OHMS
DETECTOR BIAS=         3.14E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                   3.06E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    3.46E-001( AC)             3.06E-001( DC)
SHOT NOISE(Q.E.=0.3)=  6.18E-006 V/HZ↑1/2 (AC)    5.81E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.49E-016 W/HZ↑1/2 (AC)    1.40E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    4.66E-002 (AC)             4.12E-002 (DC)
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SAMPLE NO. GE:GA 4-5B1-1      RUN DATE 7/11/78     TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 5.00E+010

BB TEMP= 60.4          BIAS=0.3000              BIAS DELTA V=0.0378
SIG DEL V=0.00425      DC/1HZ=.9                NOISE=2E-5
BLACKBODY OUTPUT=      1.16E-013 WATTS          4.24E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.58E+002 MHOS/WATT      4.32E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      4.09E+010 VOLT/WATT      1.12E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       5.96E+000 AMP/WATT       1.63E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.78E+002 MHOS/WATT      4.87E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      4.55E+010 VOLT/WATT      1.25E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       6.71E+000 AMP/WATT       1.84E-020 AMP/PHOT/SEC
NEP (1HZ)=             3.92E-016 WATT/HZ↑1/2    1.43E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  8.04E+009 OHMS
DETECTOR BIAS=         4.15E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 3.84E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    4.21E-001( AC)           3.74E-001( DC)
SHOT NOISE(Q.E.=0.3)=  7.44E-006 V/HZ↑1/2 (AC)  7.81E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.64E-016 W/HZ↑1/2 (AC)  1.54E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    5.23E-002 (AC)           4.64E-002 (DC)

BB TEMP= 60.3          BIAS=0.4000              BIAS DELTA V=0.0456
SIG DEL V=0.00475      DC/1HZ=.9                NOISE=2.1E-5
BLACKBODY OUTPUT=      1.15E-013 WATTS          4.21E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.61E+002 MHOS/WATT      4.41E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      4.58E+010 VOLT/WATT      1.26E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       7.34E+000 AMP/WATT       2.01E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.81E+002 MHOS/WATT      4.96E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      5.10E+010 VOLT/WATT      1.40E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       8.26E+000 AMP/WATT       2.26E-020 AMP/PHOT/SEC
NEP (1HZ)=             3.69E-016 WATT/HZ↑1/2    1.35E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  7.16E+009 OHMS
DETECTOR BIAS=         5.01E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 4.22E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    5.18E-001( AC)           4.60E-001( DC)
SHOT NOISE(Q.E.=0.3)=  8.68E-006 V/HZ↑1/2 (AC)  8.18E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.70E-016 W/HZ↑1/2 (AC)  1.60E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    6.37E-002 (AC)           5.66E-002 (DC)
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SAMPLE NO. GE:GA 4-5B1-1 RUN DATE 7/11/78 TEMP.=3 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009 LOAD= 5.00E+010

BB TEMP= 60.3	BIAS=0.5000	BIAS DELTA V=0.0520
SIG DEL V=0.00570	DC/1HZ=.9	NOISE=2.2E-5
BLACKBODY OUTPUT=	1.15E-013 WATTS	4.21E+007 PHOT/SEC
SIG.CONDUCTANCE(DC)=	1.87E+002 MHOS/WATT	5.12E-019 MHOS/PHOT/SEC
VOLT. RESP.(DC)=	5.50E+010 VOLT/WATT	1.51E-010 VOLT/PHOT/SEC
CURR.RESP.(DC)=	9.71E+000 AMP/WATT	2.66E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=	2.10E+002 MHOS/WATT	5.76E-019 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=	6.12E+010 VOLT/WATT	1.68E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=	1.09E+001 AMP/WATT	3.00E-020 AMP/PHOT/SEC
NEP (1HZ)=	3.20E-016 WATT/HZ↑1/2	1.17E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =	6.45E+009 OHMS	
DETECTOR BIAS=	5.71E-002 VOLTS	

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA

BACKGROUND PHOTON FLUX DENSITY=		4.04E+010 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=	6.86E-001(AC)	6.09E-001(DC)
SHOT NOISE(Q.E.=0.3)=	1.03E-005 V/HZ↑1/2 (AC)	9.66E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=	1.68E-016 W/HZ↑1/2 (AC)	1.58E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=	8.22E-002 (AC)	7.29E-002 (DC)

SAMPLE NO. GE:GA 4-5B1-1 RUN DATE 7/11/78 TEMP.=2.5 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009 LOAD= 7.00E+010

BB TEMP= 59.7	BIAS=0.0050	BIAS DELTA V=0.0043
SIG DEL V=0.00148	DC/1HZ=4.7	NOISE=1.9E-6
BLACKBODY OUTPUT=	1.11E-013 WATTS	4.07E+007 PHOT/SEC
SIG.CONDUCTANCE(DC)=	7.14E+001 MHOS/WATT	1.95E-019 MHOS/PHOT/SEC
VOLT. RESP.(DC)=	2.17E+010 VOLT/WATT	5.93E-011 VOLT/PHOT/SEC
CURR.RESP.(DC)=	3.07E-001 AMP/WATT	8.39E-022 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=	1.08E+001 MHOS/WATT	2.94E-020 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=	3.35E+009 VOLT/WATT	9.14E-012 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=	4.62E-002 AMP/WATT	1.26E-022 AMP/PHOT/SEC
NEP (1HZ)=	5.65E-016 WATT/HZ↑1/2	2.07E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =	1.20E+012 OHMS	
DETECTOR BIAS=	4.73E-003 VOLTS	

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA

BACKGROUND PHOTON FLUX DENSITY=		5.68E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=	2.89E-003(AC)	1.92E-002(DC)
SHOT NOISE(Q.E.=0.3)=	1.62E-007 V/HZ↑1/2 (AC)	4.18E-007 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=	4.85E-017 W/HZ↑1/2 (AC)	1.25E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=	2.21E-003 (AC)	1.46E-002 (DC)

BB TEMP= 59.6	BIAS=0.0100	BIAS DELTA V=0.0087
SIG DEL V=0.00300	DC/1HZ=4.7	NOISE=1.9E-6
BLACKBODY OUTPUT=	1.10E-013 WATTS	4.04E+007 PHOT/SEC
SIG.CONDUCTANCE(DC)=	7.14E+001 MHOS/WATT	1.95E-019 MHOS/PHOT/SEC
VOLT. RESP.(DC)=	4.45E+010 VOLT/WATT	1.22E-010 VOLT/PHOT/SEC
CURR.RESP.(DC)=	6.21E-001 AMP/WATT	1.69E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=	1.07E+001 MHOS/WATT	2.93E-020 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=	6.83E+009 VOLT/WATT	1.87E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=	9.33E-002 AMP/WATT	2.55E-022 AMP/PHOT/SEC
NEP (1HZ)=	2.77E-016 WATT/HZ↑1/2	1.02E+005 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =	1.48E+012 OHMS	
DETECTOR BIAS=	9.55E-003 VOLTS	

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA

BACKGROUND PHOTON FLUX DENSITY=		4.61E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=	5.83E-003(AC)	3.88E-002(DC)
SHOT NOISE(Q.E.=0.3)=	2.98E-007 V/HZ↑1/2 (AC)	7.69E-007 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=	4.36E-017 W/HZ↑1/2 (AC)	1.13E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=	7.44E-003 (AC)	4.95E-002 (DC)

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SAMPLE NO. GE:GA 4-5B1-1      RUN DATE 7/11/78     TEMP.=2.5 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 7.00E+010

BB TEMP= 59.4          BIAS=0.0200              BIAS DELTA V=0.0168
SIG DEL V=0.00600      DC/1HZ=4.8               NOISE=1.8E-6
BLACKBODY OUTPUT=      1.09E-013 WATTS          4.00E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)= 7.89E+001 MHOS/WATT       2.15E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      9.02E+010 VOLT/WATT      2.46E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       1.33E+000 AMP/WATT       3.61E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)= 1.14E+001 MHOS/WATT       3.11E-020 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      1.35E+010 VOLT/WATT      3.69E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.92E-001 AMP/WATT       5.23E-022 AMP/PHOT/SEC
NEP (1HZ)=             1.32E-016 WATT/HZ↑1/2    4.65E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE = 8.40E+011 OHMS
DETECTOR BIAS=         1.85E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 7.38E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    1.20E-002( AC)           8.27E-002( DC)
SHOT NOISE(Q.E.=0.3)= 7.63E-007 V/HZ↑1/2 (AC)   2.81E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   5.64E-017 W/HZ↑1/2 (AC)  1.48E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    5.46E-002 (AC)           3.77E-001 (DC)

BB TEMP= 59.0          BIAS=0.0400              BIAS DELTA V=0.0337
SIG DEL V=0.01400      DC/1HZ=4.8               NOISE=1.9E-6
BLACKBODY OUTPUT=      1.06E-013 WATTS          3.90E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)= 1.03E+002 MHOS/WATT       2.81E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      2.35E+011 VOLT/WATT      6.40E-010 VOLT/PHOT/SEC
CURR.RESP.( DC)=       3.48E+000 AMP/WATT       9.46E-021 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)= 1.38E+001 MHOS/WATT       3.74E-020 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      3.28E+010 VOLT/WATT      8.92E-011 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       4.64E-001 AMP/WATT       1.26E-021 AMP/PHOT/SEC
NEP (1HZ)=             5.75E-017 WATT/HZ↑1/2    2.11E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE = 8.74E+011 OHMS
DETECTOR BIAS=         3.70E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 5.43E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    2.89E-002( AC)           2.17E-001( DC)
SHOT NOISE(Q.E.=0.3)= 1.65E-006 V/HZ↑1/2 (AC)   4.52E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   5.03E-017 W/HZ↑1/2 (AC)  1.38E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    2.30E-001 (AC)           1.72E+000 (DC)
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SAMPLE NO. GE:GA 4-5B1-1 RUN DATE 7/11/78 TEMP.=2.5 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009 LOAD= 7.00E+010

BB TEMP= 59.2	BIAS=0.0500	BIAS DELTA V=0.0416
SIG DEL V=0.01810	DC/1HZ=5	NOISE=2E-6
BLACKBODY OUTPUT=	1.08E-013 WATTS	3.95E+007 PHOT/SEC
SIG.CONDUCTANCE(DC)=	1.12E+002 MHOS/WATT	3.05E-019 MHOS/PHOT/SEC
VOLT. RESP.(DC)=	3.07E+011 VOLT/WATT	8.36E-010 VOLT/PHOT/SEC
CURR.RESP.(DC)=	4.65E+000 AMP/WATT	1.27E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=	1.38E+001 MHOS/WATT	3.77E-020 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=	4.02E+010 VOLT/WATT	1.09E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=	5.76E-001 AMP/WATT	1.57E-021 AMP/PHOT/SEC
NEP (1HZ)=	4.94E-017 WATT/HZ↑1/2	1.81E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =	7.47E+011 OHMS	
DETECTOR BIAS=	4.57E-002 VOLTS	

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA

BACKGROUND PHOTON FLUX DENSITY=		5.86E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=	3.59E-002(AC)	2.90E-001(DC)
SHOT NOISE(Q.E.=0.3)=	2.18E-006 V/HZ↑1/2 (AC)	6.21E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=	5.44E-017 W/HZ↑1/2 (AC)	1.55E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=	3.64E-001 (AC)	2.94E+000 (DC)

BB TEMP= 58.5	BIAS=0.0600	BIAS DELTA V=0.0495
SIG DEL V=0.02100	DC/1HZ=5	NOISE=2.5E-6
BLACKBODY OUTPUT=	1.03E-013 WATTS	3.79E+007 PHOT/SEC
SIG.CONDUCTANCE(DC)=	1.13E+002 MHOS/WATT	3.96E-019 MHOS/PHOT/SEC
VOLT. RESP.(DC)=	3.65E+011 VOLT/WATT	9.90E-010 VOLT/PHOT/SEC
CURR.RESP.(DC)=	5.59E+000 AMP/WATT	1.52E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=	1.42E+001 MHOS/WATT	3.86E-020 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=	4.86E+010 VOLT/WATT	1.32E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=	7.03E-001 AMP/WATT	1.91E-021 AMP/PHOT/SEC
NEP (1HZ)=	5.10E-017 WATT/HZ↑1/2	1.88E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =	6.79E+011 OHMS	
DETECTOR BIAS=	5.44E-002 VOLTS	

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA

BACKGROUND PHOTON FLUX DENSITY=		6.41E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=	4.37E-002(AC)	3.47E-001(DC)
SHOT NOISE(Q.E.=0.3)=	2.73E-006 V/HZ↑1/2 (AC)	7.70E-006 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=	5.62E-017 W/HZ↑1/2 (AC)	1.58E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=	3.65E-001 (AC)	2.90E+000 (DC)

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SAMPLE NO. GE:GA 4-5B1-1      RUN DATE 7/11/78    TEMP.=2.5 K
BB INTEGRATED FROM 40 TO 130 MICRONS STEP 0.2
ETENDUE= 6.84E-009            LOAD= 7.00E+010

BB TEMP= 58.5          BIAS=0.0800              BIAS DELTA V=0.0620
SIG DEL V=0.02700      DC/1HZ=5.2               NOISE=5E-6
BLACKBODY OUTPUT=      1.03E-013 WATTS          3.79E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.26E+002 MHOS/WATT      3.41E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      4.59E+011 VOLT/WATT      1.24E-009 VOLT/PHOT/SEC
CURR.RESP.( DC)=       7.80E+000 AMP/WATT       2.12E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.49E+001 MHOS/WATT      4.05E-020 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      5.97E+010 VOLT/WATT      1.62E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       9.24E-001 AMP/WATT       2.51E-021 AMP/PHOT/SEC
NEP (1HZ)=             8.26E-017 WATT/HZ↑1/2    3.04E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  4.02E+011 OHMS
DETECTOR BIAS=         6.81E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 9.72E+008 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    5.74E-002( AC)           4.85E-001( DC)
SHOT NOISE(Q.E.=0.3)=  4.28E-006 V/HZ↑1/2 (AC)  1.24E-005 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   7.17E-017 W/HZ↑1/2 (AC)  2.08E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    2.26E-001 (AC)           1.91E+000 (DC)

BB TEMP= 58.6          BIAS=0.1000              BIAS DELTA V=0.0663
SIG DEL V=0.02600      DC/1HZ=5.3               NOISE=8E-6
BLACKBODY OUTPUT=      1.04E-013 WATTS          3.81E+007 PHOT/SEC
SIG.CONDUCTANCE( DC)=  1.22E+002 MHOS/WATT      3.32E-019 MHOS/PHOT/SEC
VOLT. RESP.( DC)=      3.86E+011 VOLT/WATT      1.05E-009 VOLT/PHOT/SEC
CURR.RESP.( DC)=       8.10E+000 AMP/WATT       2.20E-020 AMP/PHOT/SEC
SIG.CONDUCTANCE(1HZ)=  1.51E+001 MHOS/WATT      4.11E-020 MHOS/PHOT/SEC
VOLT. RESP.(1HZ)=      5.50E+010 VOLT/WATT      1.49E-010 VOLT/PHOT/SEC
CURR.RESP.(1HZ)=       1.00E+000 AMP/WATT       2.72E-021 AMP/PHOT/SEC
NEP (1HZ)=             1.42E-016 WATT/HZ↑1/2    5.24E+004 PHOT/SEC-HZ↑1/2
DETECTOR RESISTANCE =  1.88E+011 OHMS
DETECTOR BIAS=         7.29E-002 VOLTS

THE FOLLOWING ARE CALCULATED FROM ABOVE DATA
BACKGROUND PHOTON FLUX DENSITY=                 2.14E+009 PHOTONS/SEC-CM↑2
PC GAIN (Q.E.=0.3)=    6.24E-002( AC)           5.04E-001( DC)
SHOT NOISE(Q.E.=0.3)=  5.77E-006 V/HZ↑1/2 (AC)  1.64E-005 V/HZ↑1/2 (DC)
BLIP NEP (Q.E.=0.3)=   1.05E-016 W/HZ↑1/2 (AC)  2.98E-016 W/HZ↑1/2 (DC)
QUAN.EFFIC.IF BLIP=    1.63E-001 (AC)           1.32E+000 (DC)
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