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[redacted]  
[redacted]  
F  
23 February 1967

attached to  
[redacted]

MEMORANDUM FOR: [redacted] F  
THROUGH : [redacted] F  
SUBJECT : Range Calibration of Health Hazard Radiometer, Project TUMS

1. The Health Hazard Radiometer was calibrated in the RF anechoic chamber at the Walter Reed Research Institute on 22 February 1967. Due to the availability of only 10 watts output power and a single 2-4 GHz sweep generator, maximum power density on target was limited to less than 0.3 milliwatts per square centimeter across S-band.

2. The attached strip chart recording was taken during the final calibration. The trace line has been inked in red for clarity on the Xerox copies. The original chart will be retained in the project file. After the last calibration adjustment the following values were obtained using the substitution method for power measurement.

<u>Radiometer Reading</u>	<u>Range Calibration</u>	<u>Frequency</u>
.26 mW/cm <sup>2</sup>	.281 mW/cm <sup>2</sup>	3.6 GHz
.23	.275	3.4
.23	.284	3.2
.27	.226	3.0
.22	.258	2.8
.23	.230	2.6


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SUBJECT: Range Calibration of Health Hazard Radiometer,  
Project TUMS

3. The integrity of the anechoic chamber and range instrumentation was stated to be within  $\pm 1/2$  dB. The radiometer should be at least that good over the narrow-band of interest. The differences in power on target at different frequencies is due to the fact that power leveling was not employed and the fact that antenna gain changes with frequency. Within the limits of measurement accuracy it can be seen from the figures that the radiometer readings, though generally lower, are still within 11% (or 1 dB) of the calibrated range readings. Since during the tests the radiometer was placed to the side of the microwave horn used for range calibration, it is felt that the slightly lower readings accurately reflect the field density at the sensors. In any case, field readings may be quickly correlated with tests currently in progress in the range.

A 4. Upon completion of testing, the radiometer was left with the remainder of the equipment supplied by  and Wright-Patterson AFB, which is to be transferred to the Department of State over the week-end and prepared for shipment to the field.

5. Every effort will be made to expedite the modification and upgrading of the original two State Department radiometers. A realistic target date for delivery of the two systems should be determined within the next two weeks.

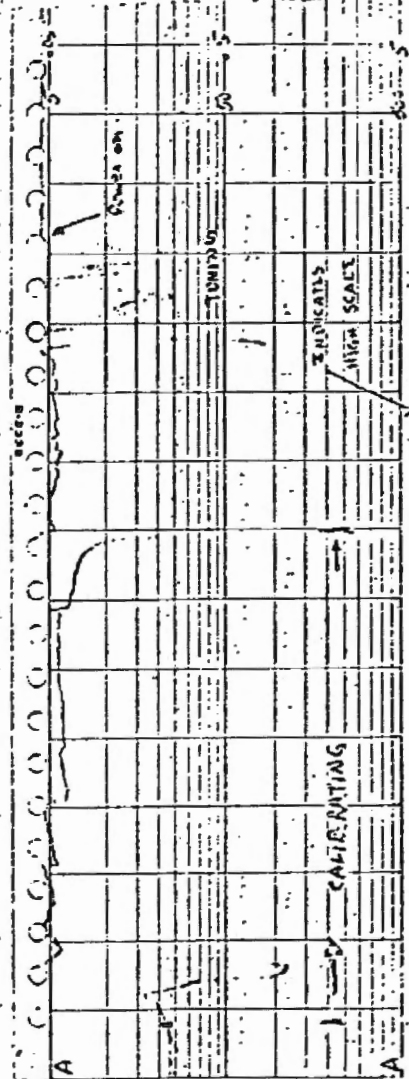
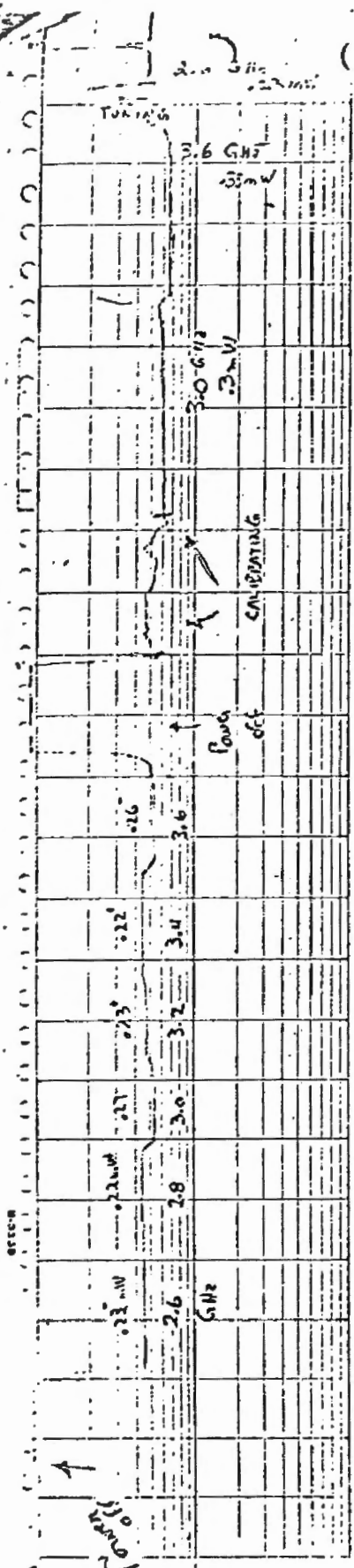
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Atts  
Strip Chart Recordings

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HEALTH HAZARD RADIOMETER



PAPER SPEED 24" / HOUR

START