

Office Memorandum • UNITED STATES GOVERNMENT

TO : Mr. Harbo *RB*
FROM : I. W. Conrad

DATE: September 23, 1952

SUBJECT: MICROPHONES AND TECHNICAL INSTALLATIONS
IN US EMBASSIES ABROAD
ESPIONAGE - R

JUNE

- Tolson _____
- Ladd _____
- Nichols _____
- Belmont _____
- Glavin _____
- Harbo _____
- Rosen _____
- Tracy _____
- Mohr _____
- Tele. Rm. _____
- Nease _____
- Gandy _____

Reference is made to memorandum under date of September 11, 1952, from Mr. A. H. Belmont to Mr. D. M. Ladd advising of the finding of an ultramodern radio transmitter concealed in the library in the residence of the U.S. Ambassador in Moscow. The transmitter was found by State Department technicians.

The transmitter mentioned above was delivered to the Laboratory and examined by personnel of the Radio and Electrical Section on September 16 and 17.

RESULTS OF LABORATORY EXAMINATION

It was found that the "ultramodern radio transmitter" consisted of a cavity resonator with a condenser microphone built into the high impedance end of the cavity and with a $1\frac{1}{2}$ wave length antenna extending out the side of the cavity. It was immediately apparent that the device was designed for use as a microphone unit without any external wire connections by beaming a UHF radio signal of suitable strength and frequency toward the antenna of the unit and by using suitable UHF radio receiving equipment which would pick up and demodulate the re-radiated and modulated signal emitted by the antenna of the device.

Attempts were made by using the available electronics test equipment in the Laboratory to determine the UHF operating frequency of the device. These attempts were at first unsuccessful due to the fact our test equipment would not operate at frequencies higher than approximately 400 mc. Personnel of the electronics division of the National Bureau of Standards were then contacted in an endeavor to locate suitable test equipment for this project. As a result of this contact, the Bureau was able to borrow, for a period of one day, one Power Oscillator, Airborne Instruments Laboratory, Inc., type 124, range 300-2500 mc; one Hewlett-Packard model 610A UHF Signal Generator with range 450-1200 mc; one tuning unit TN-19/APR-4 (975-2200 mc range), and one tuning unit TN-54/APR-4 (2150-4000 mc range). After obtaining the above equipment from the Bureau of Standards and checking throughout the frequency range of 100-2500 mc it was determined that the "ultramodern radio transmitter" was designed to operate on a frequency between the limits of approximately 1650-1800 mc, the exact operating frequency being determined by the setting of an adjustment which was built into the cavity resonator of the unit.

Soviet Microphone Installations in the United States Embassy, Moscow

H. J. ...
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Attachment
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After the operating frequency of the device was determined, tests were conducted to determine the microphone sensitivity of the unit. Results of these tests indicated that the microphone was very sensitive with good pickup range and good quality of speech reproduction. There are attached hereto, photographs of the device in various stages of assembly and positions and a diagram showing the various dimensions of the unit.

ACTION

It is recommended that this report be placed in the Bureau file.