File Security

OUTSIDE CONTACT REPORT

22 October 1948

Organization Visited: Alertronic Protective Corporation
222 E 38 St.
New York City

Persons Contacted: Mr. Bagnal - Alertronic
Mr. H. [illegible], Kannee - Alertronic
Representatives of: Federal Bureau of Investigation, Treasury Department, Chemical Corps, Central Intelligence Agency, Counter Intelligence Corps, Signal Corps, Navy
Mr. Brann - Army Security Agency

SUBJECT: Supersonic Alarm Equipment

1. This device is intended to provide an alarm (visual, audible and/or recorded), in case of surreptitious entry into any room so equipped.

2. The device consists of a signal generator, sound transmitter, microphone, receiver and alarm. The developmental prototype occupies about 1 cubic foot and will weigh about 15 pounds. The size may be considerably reduced in the production model. The signal generator and receiver will handle 5 transmitter-microphone combinations. Mr. Bagnal stated one transmitter-microphone would handle a room having 1000 square feet of floor space. The device has been tested by Underwriter Laboratories and their approval is dependent upon results of field tests not yet conducted.

3. The signal generator provides a 16 to 20KC square wave signal. This signal is conducted over a physical two wire circuit to the primary of a transformer mounted in the transmitter. This sound transmitter consists of a pan, about 8" diameter, 2½" in depth and made from 24 gauge aluminum. The secondary of the transformer is connected to a rochelle salt crystal affixed to the inside center of the pan where the electrical signals are converted to sound waves of identical frequency. This sound energy is radiated into space and reflected by walls, ceilings, floors and any objects that may be in the room. The statement was made that ordinary walls, etc. would absorb about 10% of this radiated energy. This radiated sound was received by a device similar to the transmitter and there the sound is converted into electrical signals. The transmitted electrical signals and the received electrical signals are fed into an electronic circuit where one signal is heterodyned against the other. If there is no frequency variation between the two signals, one cancels the other. If however there is any movement of a material body (between 6 inches per second and 270 inches per second) in the room there will be a difference between the received frequency and the transmitted frequency. This variation will depend upon the speed of motion and will cause a beat frequency (between 15 and 200 CPS) to be developed in the electronic mixer.

0.5D

(Outside Contact Report, dtd. 22 Oct 48, Cont'd.)

Any sudden air turbulence of considerable magnitude will have the same effect as a moving body. The frequency variation is caused by utilising the Doppler effect caused by a body moving in the room. The current derived from the beat frequency is amplified and controls the operation of a relay which in turn controls the alarm(s). The sensitivity of the device may be closely regulated over a very wide range by means of a potentiometer controlling the characteristics of a high pass filter. The sensitivity will range from the detection of an ignited flame to the non-detection of a moving person. Heat and smoke will not cause the device to operate. Temperature variations of less than 1° per second will not affect the capabilities of the device. Power requirements for this device will be about 50 watts.

4. It is believed that this device may be of value for the protection of cryptovaults, cryptocenters not occupied 24 hours daily and various installations of the Central Intelligence Agency. This device may be equipped with an audible (bell or siren) visual, (oscilloscope) or recording (Esterline-Angus) alarm. Circuits that may not be nullified by tampering are available for connecting the device and the alarm. It is believed that the device itself is proof against nullification and that a power failure may be registered as an alarm. Further testing under actual conditions is necessary before a decision can be made as to suitability of the equipment for Army Security Agency use.

5. It was suggested that one of these devices be secured for further testing by one of the Agencies, i.e., Central Intelligence Agency, State Department, Counter Intelligence Corps or Army Security Agency as a representative of all the Agencies. This was agreeable to [redacted] Central Intelligence Agency and Colonel Homan, of Counter Intelligence Corps. Mr. Kannee agreed to provide this equipment upon request.

6. Interested personnel in these various Agencies will be requested to agree upon the Agency to conduct the proposed test and Mr. Kannee will be requested to provide the equipment.

7. A copy of this report will be forwarded to Colonel Homan per his request.

OGA

WILLIAM BRANN
Chief, Technical Staff
Security Division