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THE DISPENSING AND BEHAVIOR OF CHAFF IN SPACE

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Abstract: INVESTIGATIONS WERE CONDUCTED IN TWO AREAS OF THE SPACE-CHAFF PROBLEM. First, an experimental study was made to determine some possible methods of dispensing chaff at very high altitudes. Secondly, the behavior of chaff when dispensed from an earth satellite in a circular orbit was investigated. It was concluded that: (1) the vapor-pressure technique is very effective for separating dipoles in a space-like environment, (2) when dispensing fluid-saturated chaff in a low-pressure environment, the dipole velocity is approximately linear with the square root of the fluid vapor pressure, (3) chaff dispensed omnidirectionally from a vehicle in a circular geocentric orbit will form a belt around the earth, and (4) chaff given a uniform dispensing velocity perpendicular to the original circular orbital velocity will produce a chaff cloud which grows and changes in some cyclic manner. The cycle will repeat once each orbit and the cloud theoretically will not form an earth belt.

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