

WORKING PAPER NO. 8

RARITY OF UAP SOUND

REPORTS

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INTRODUCTION

1. An initial overview on UAP sound is at Working Paper No. 1. This paper further sound in the context that there appears to be a contradiction between the occasional report of sounds, the frequent lack of sound when high UAP velocities are reported when, unusually there are no corresponding reports of 'sonic booms' nearby. Normally, sound is either generated and then emitted by a stationary body due to some inherent mechanical or electrical vibrating, oscillating or rotating device mounted internally or on its surface. A moving body produces sound due to bulk or frictional displacement of air. Sound may also be caused by electrical discharge or chemical action.

2. **Anomalies** When an object is in the air and, however erroneously is considered to be a 'vehicle', a witness normally expects to hear some sort of noise. The faster a UAP is perceived as travelling, then the greater is the expectation of sound. The lack of sound at the witness location may be due to:

- An over-estimate of the object's actual velocity.
- The presence of some atmospheric conditions (e.g. wind absorbing cloud) that suppressed the sound to an inaudible level.
- The probability that, while reported as being in the atmosphere, the object is in fact in space.
- The object - though travelling sometimes at high speed, has not actually disturbed the atmosphere through which it has clearly seemed to pass.
- The fact that the 'object' seen may have no mass, or negligible mass, compared with its surrounding atmosphere (i.e. it is a 'visible mass' only, caused by reflections from its ionised gases or an internally-generated colour temperature).

3. **Discussion** The first effect above is not unexpected as most UAP witnesses are untrained. The second can occur when the

sonic shock wave is distorted and the conical pattern of the shock front does not reach the ground. It is also noted that the classic bow and tail shocks may not both be heard as they are at different intensities. Hence, as the public are aware (and may recognise a double shock as a supersonic aircraft), a single shock 'bump' may not be recognised as coming from a genuine aircraft. Further, the lateral extent of a supersonic shock wave causes a variation in intensity. This effect coupled with windspeed can either reinforce or weaken the sound heard.

4. **Geometry** Unless the observer is along the track of the target, \pm a few kilometres, the double (or even single) 'boom' may not be heard. Airframe aerodynamic design can reduce shock wave effects, though not eliminate them.

5. **Future Systems** It is of interest, here in the UAP context, that the first experiments to modify airflow using electromagnetic fields (and plasmas) took place in the 1960s, and is a topic of current interest with its 'read-across' to target signature control (i.e. RCS reduction). It is not clear, at present, how much the reduction of drag will affect the overall audio noise generated. Intuitively the majority of noise heard on the ground is generated by the engine thrust, relatively little being generated by the airflow over a smooth vehicle body.

6. **Mis-reported Sounds** Finally, one must consider that sounds may be mis-reported (e.g. mistaken description of the noise itself) or are a figment of the imagination engendered and embellished with the rest of the alleged phenomena. For example, it is as easy to imagine a charged mass to have a dome and portholes as it is to attribute a whine when it 'takes off'! Sound reports, as with other attributes, suffer from not having a first-hand debrief immediately after the event and before reports become forgotten or the information of interest is lost.

SUMMARY

7. It seems most likely that the reasons for few reports of sound (for those sightings in which nearby aircraft can be eliminated) are that many objects are beyond the range at which sound would be heard, are mis-reported in range, they are satellites; or are 'charged' air masses of various sorts which emit little or no sound. (e.g. Charged aerosols or plasmas, etc.)