

2.2.5 Procedures for Processing of Time Data

UAT equipment derives its timing for transmitter and receiver functions from GPS/GNSS (or equivalent) time sources. The Time of Applicability of the PVT data is presumed to be within +/- 5 milliseconds of the Leading Edge of the Time Mark signal to which it applies. Time Mark information is utilized by the UAT equipment in the following ways:

- a. Any extrapolation of Position data **shall** comply with the requirements of §2.2.7.2.1 and §2.2.7.2.2.
- b. The UAT transmit message timing **shall** comply with the requirements of §2.2.6.2.1 and §2.2.6.2.2.
- c. The UAT receiver time processing **shall** comply with the requirements of §2.2.8.3.5.

Notes:

1. A possible implementation of the GPS/GNSS Time Mark pulse is illustrated in [Figure 2-6](#), adapted from ARINC Characteristic 743A.
2. Determination of time source “equivalence” will be made by appropriate Certification Authorities. Useful information concerning recommended accuracy of such a time source may be found in Appendix I.

2.2.5.1 UTC Coupled Condition

The “UTC Coupled” subfield **shall** be set to ONE, except under the conditions discussed in §2.2.5.2.

Note: Operation of the UAT system in normal mode presumes GNSS, or equivalent, equipage on system participants to, for example, prevent media access conflict with the UAT ground up-link transmissions. Short term GNSS outages are mitigated by UAT ground infrastructure providing timing information and/or by the ability of UAT avionics to ~~maintain UAT system timing~~ prevent Airborne UAT Transmitting Subsystems from transmitting in the Ground Uplink segment for a minimum of 20 minutes in the absence of GNSS (§2.2.5.2[d]). In areas without ground up-link transmissions, there is no media access conflict.