

(Further Reading) Equipment Standards

Currently equipment requirements as dictated by CAP670 are strongly recommended for FIS recording; The CAA is proposing the use of these requirements for FIS recording in future, with some minor exceptions as described in this document, this change will impact COM 01.5 - 01.7 of CAP 670. Those UK FIS Units who are currently not recording voice communications are therefore encouraged to refer to the Appendix attached to COM-01 in CAP 670 and to paragraph COM01A.48, "Recording and Replay Quality" as part of their procurement process.

The CAA is proposing that custom PC based solutions are permitted as a short term solution, however in order to guarantee the safe and reliable operation of such equipment, a number of stipulations are outlined in appendix B. Such solutions (already in operation in many FIS units) are permitted for a duration of 5 years.

Accurate time stamping of the voice recordings made at a FIS Unit is needed to assist and enable comparison with data obtained from other sources such as radar surveillance records or telephone calls. The accuracy required for recordings made at ATC Units is +/- 2 seconds of UTC and the CAA intends to use the same tolerances for automatic recordings made at a UK FIS Unit.

The CAA is mindful of the need to minimise, in as much as is practicable and possible, the quantity of data being recorded and retained from the recordings of voice communications made at a UK FIS Unit but any technique used to compress or reduce the data must neither compromise nor or degrade the quality of the replayed data.

Recorders activated by radio transceivers are acceptable; however the sensitivity of such a system must ensure that recordings are collected reliably.

The replay system must be capable of providing "spoken time" on a separate audio output during replay (as required in CAP 670, COM01A.26), alternatively it is acceptable to insert a time stamp into the filename of the recording, provided a separate log of all recordings made is also produced and stored. The need for accurate time (in UTC) to be displayed to the officer on duty is stressed in paragraph 20.5 of Section 7 in CAP 797 and "time stamping" must be employed in the recording system used to capture each of the radio communications exchanged with the FIS Unit during operational hours.

Recording systems which derive their time source from the internet using a NTP server or "Windows Time" are advised that these systems could be at risk from virus threats and other malicious software unless they are suitably protected with appropriate security measures such as a "firewall" between the recorder and the access point to the internet and virus protection measures etc. These measures include the use of a 'standalone PC' dedicated for the task of recording.

The use of local accurate time sources such as local GPS receivers is highly recommended. Where such systems are not employed recording time clocks will need to be checked on a daily basis to ensure they are operating within the dictated accuracy.

The recording & replay system shall provide a means of identifying and retrieving all the relevant records during the quarantine period. The recording system or equipment shall also be able to produce an identical and verifiable copy of the quarantine data.

Replay of the extracted data shall faithfully and accurately reproduce the recorded content for the entire duration of the event, or events, being investigated at that time.

Implications on FIS units

The implication for FIS units is that they will need to provide suitable recording systems to capture and store messages. The requirement for recording no doubt introduces a financial burden on units that have not yet equipped or as a result of the requirement will need to upgrade equipment to meet the associated equipment requirements. In addition the equipment will need to be managed and maintained appropriately.

Impact Assessment

The CAA has researched the market place to establish whether a range of cost effective alternative systems are available to the UK FIS community and the results of our investigations are summarised in Appendix C.

Impounding of recordings

The CAA or Air Accident Investigations Branch (AAIB) may request the “impounding” of any recordings made during the ICAO 30 day minimum retention period.

The impound request will require that the FISO Unit identify all recordings made during a period of 4 hours either side of the event occurrence time i.e. 8 hours in total unless the earliest time precedes the opening time of that days watch.

On receiving the detailed request, the FIS Unit shall quarantine the relevant data to ensure the recordings cannot be erased or over-written. Relevant data includes all audio and related time information including associated software logs. The quarantined data should not be solely stored on the active (in service) HDD/SDD and quarantined data must be copied onto a separate internal or external HDD/SDD.

Data retained in the quarantine area should not be replayed, copied, deleted or over-written until official authority is given by the CAA for the release of such data.

Those using custom PC based recorders will likely be able to only record in a non proprietary format, such as .wav file. Whilst this is not ideal, in order to permit such systems FIS units will be required to abide by the requirements in appendix B.