RA 3226 – Secondary Surveillance Radar (SSR)

Rationale
SSR provides controllers with essential information on an Air System’s identity, position and level which must therefore be confirmed as accurate.

Contents
3226(1): Validation of Mode 3/A Codes
3226(2): Verification of Mode C Data
3226(3): Level Occupancy using SSR

Regulation
3226(1) Validation of Mode 3/A Codes
A controller assigning any Mode 3/A code shall validate the code as soon as possible.

Acceptable Means of Compliance
3226(1) Validation of Mode 3/A Codes
1. Mode 3/A codes should be validated as follows:
   a. A controller assigning any Mode 3/A code should validate the code by checking as soon as possible, either by direct reference to his surveillance display or with the assistance of another controlling agency, that the data displayed corresponds with the code which has been assigned.
   b. If this is not the case, the pilot should be instructed to reset the assigned code. Where this fails to achieve display of the assigned code, then he should be instructed to select SSR mode A 0000.
   c. If a corrupt code still exists, the pilot should normally be instructed to switch off the transponder. However, where approved by local procedures and provided the Mode C has been verified, the corrupt code may be retained to assist identification and tracking. Associated Air Traffic Service (ATS) units should be informed of the retention of corrupt data.
   d. At units where code callsign conversion equipment is in use, procedures to ensure the correct correlation of the callsign with the assigned code should be utilized by controllers and included in Local/Unit Orders.
   e. Where a controller can ascertain from the Code Allocation Plan that a discrete Mode 3/A code has been assigned by a unit capable of validating the code, and has not been notified that the code is corrupt, then that code should be deemed validated.

2. SSR Code assignments mean that codes may be re-used in more than one area and controllers should therefore act with caution in areas where duplicate code allocations may occur.

Guidance Material
3226(1) Validation of Mode 3/A Codes
3. Code Allocation Plan. Controllers assign Mode 3/A codes to Air Systems according to the Code Allocation Plan, which comprises:
   a. Discrete codes comprising:
      (1) Domestic codes which are allocated to Air Systems flying within the areas of responsibility of a unit.
      (2) Centralised SSR Code Assignment and Management System (CCAMS) codes which are assigned to international flights will normally be retained beyond the area of responsibility of the assigning unit.
Guidance Material

3226(1)

b. Special purpose codes allocated internationally.

c. Conspicuity codes, allocated nationally, or to specific users/units.

Verification of Mode C Data

3226(2) Controllers shall verify Mode C data transmitted by an Air System for accuracy on initial contact once the Air System has been positively identified.

Acceptable Means of Compliance

3226(2)

Verification of Mode C Data

4. Controllers should verify Mode C data transmitted by an Air System for accuracy on initial contact once the Air System has been positively identified.

5. Mode C data should be verified by one of the following methods:
   a. By a visual check of the data readout immediately on receipt of a pilot’s report giving his present or passing level. Particular care must be exercised when assessing the accuracy of the Mode C readout if the Air System is climbing or descending.
   b. By coordination with another unit.

6. There is no requirement to monitor Mode C readouts for possible discrepancies once verification has been effected, nor is it necessary to notify a pilot whose Mode C data is within the permitted limit. However, if a controller observes a discrepancy of more than 200 ft either during initial verification or during the subsequent provision of an ATS, the controller should:
   a. Ask the pilot to confirm his altimeter setting and level.
   b. If the discrepancy remains the pilot should be instructed to switch off Mode C. If independent switching of Mode C is not possible the pilot should be instructed to select SSR mode A 0000 to indicate a transponder malfunction.

7. A Mode C readout may be deemed verified if it is associated with a validated, or deemed validated, Mode 3/A code. Codes with which the associated Mode C data must be considered unvalidated and unverified are annotated accordingly in the UK SSR Code Allocation Plan.

Guidance Material

3226(2)

Verification of Mode 3C Data

8. Mode C provides information on the vertical position of an Air System in flight. This information is normally displayed as a flight level, but information transmitted by an Air System flying below a pre-determined datum may be converted to an altitude by use of Air Traffic Control (ATC) data processing equipment.

Regulation

3226(3)

Level Occupancy using SSR

3226(3) Controllers shall ensure specified criteria are met when utilizing SSR to assess level occupancy.

Acceptable Means of Compliance

3226(3)

Level Occupancy using SSR

9. Criteria for Assessing Level Occupancy. The assessment of level occupancy by use of verified Mode C should be based on the following criteria:
   a. In Level Flight. An Air System should be considered to be at an assigned level provided that the Mode C readout indicates 200 ft or less from

---

1 In this context level may refer to altitude, height or flight level.
that level.

b. **Vacating an Assigned Level.** An Air System which is known to have been cleared to vacate a level should be considered to have done so when the Mode C readout indicates a change of 400 ft or more in the anticipated direction.

c. **Passing a Level.** An Air System climbing or descending should be considered to have passed through a level when the Mode C readout indicates that the level has been passed by 400 ft or more in the required direction.

d. **Reaching a Level.** An Air System should be considered to have reached an assigned level when three successive Mode C readouts indicate 200 ft or less from that level.

---

**Level Occupancy using SSR**

10. Mode C information may be used to determine whether an Air System has reached, is maintaining, has vacated, or is passing a level or altitude, and accordingly the vertical displacement between Air System and/or rate of change may be deduced.