

Detailed explanation of Proposal no. 3 – Electronic Conspicuity (EC) device

Authoritative technical standards and requirements will be specified in section 9B and Appendix XIV of CAO 20.18 (see the draft instrument included with this consultation for details).

In summary, the following technical requirements would apply:

- The technical specifications specified in the 2nd edition of UK CAA Advisory Publication (CAP) 1391 dated April 2018, or later version as in force from time to time.
- The EC device uses a TABS Class B position source.
- The EC device transmits a Source Integrity Limit (SIL)¹ - where allowed in accordance with CAP 1391.
- Despite the standards in CAP 1391, the device, by design, is eligible for and transmits a SDA² value of one (1).
- The EC device uses a barometric encoder for altitude information.

Electronic Conspicuity is an umbrella term for a range of technologies that can help airspace users to be more aware of other aircraft in the same airspace. At the most basic level, aircraft equipped with an EC device effectively signal their presence to other airspace users using a 1090Mhz ADS-B compatible message, turning the 'see and avoid' concept into 'see, BE SEEN, and avoid.' Some EC devices can also receive the signals from others. This then alerts pilots to the presence of other aircraft, which may assist the pilot in being able to visually acquire the aircraft and take avoiding action as necessary.

Eligibility for use of EC transmitting devices

CASA proposes EC devices that transmit ADS-B messages will be useable in any VFR aircraft.

In which airspace will an EC transmitting device be useable?

CASA proposes that an EC device can be operated in any airspace below FL290. Within that airspace limit, an EC device can be operated in the transmitting mode concurrently with the aircraft's Mode A/C or S transponder, but not if the Mode S transponder is transmitting ADS-B.

However, an EC transmitting will not be able to substitute for a transponder, where the aircraft operation so requires a transponder - for example VFR operation in Class C & E airspace and above 10 000 ft AMSL in Class G airspace.

¹ SIL means Surveillance or Source Integrity Limit (the specific variant depending on the referenced technical standard) and is a numeric value between 0 and 3 that indicates the position source's probability of exceeding the reported integrity value. It is one of the messages transmitted by a modern ADS-B transmitting equipment. SIL is a static (unchanging) value, normally specified by the equipment manufacturer and normally set by the installer at the time of equipment installation.

² SDA is a numeric value between 0 and 3 that indicates the probability of an ADS-B equipment fault causing false or misleading position information to be transmitted. It is one of the messages transmitted by a modern ADS-B transmitting equipment. SDA is a static (unchanging) value, normally specified by the equipment manufacturer and either pre-set by the manufacturer or set by the equipment installer.

EC device in use

CASA envisages an EC device (one with both transmit and receive functionality) having prime utility in Class G airspace (including CTAF areas). The EC device would be linked to a suitable display (e.g. Tablet with Electronic Flight Bag (EFB) application, or indicator light system) or an aural warning system. The concept is for this system to enhance a pilot's situation awareness, but in no way to replace the essential requirement for an effective visual scan outside the aircraft.

Are EC devices available?

At this time, there are EC products currently available for purchase. At least one product is a portable combined transmitter/receiver device able to transmit ADS-B position and receive ADS-B position messages from both IFR-standard ADS-B transmitting equipment and other EC transmitting devices. The product is able to connect with a tablet device and provide ADS-B traffic information for display on Electronic Flight Bag (EFB) applications.