

# **Automatic Safety Alert**

## **Guidance for ASA product manufacturers**

### **General**

The ASA system is designed to enable a wide variety of products to be placed on the market, but ASA receivers have vital functions that other DAB+ receivers don't have – the main ones being the need to know where they are and to check for alerts every minute. This means that not every existing DAB+ product is necessarily suitable to be an ASA product. This Guideline aims to provide important information for manufacturers on the essential aspects of ASA that should be factored into the design of ASA receiver products.

### **Battery powered devices**

ASA makes new demands on domestic products which could lead to rapid depletion of the batteries unless proper consideration is given to power management. A domestic ASA device is required to monitor an ASA ensemble once per minute, but only the decode and analysis of the FIC is needed – the device does not need the audio decoder, audio amplifier, display, etc, to be active.

For long battery life, an ASA device implementation needs power management capabilities that are not needed for other DAB+ products in order to minimise power consumption in sleep and monitor modes. The ETSI specification TS 104 089 describes in clause 7.2.2.2 that the "Sleep mode" is the lowest power mode of an ASA product – an ASA product can never be completely switched off. One method to implement ASA using existing silicon solutions is to provide an external timer circuit which controls when the DAB core technology, audio amplifier and display are powered up – the sleep mode is controlled by the timer circuit which powers the DAB chip up every minute's edge and to check the FIC for alerts and then feedback to the timer circuit whether it can be powered down again or whether the radio need to be fully powered to playout of the alert when there is a match. Although this is not an optimised power management design, it is likely to extend battery life by a factor of 10 at least; a fully optimised power management solution may reach a factor of 100 or more.

Internal rechargeable batteries are recommended to avoid problems with unfitted batteries, and low charge indication should be provided. Designs with replaceable batteries are also possible, for which the user manual should recommend a back-up supply of in-date batteries. In all cases, the user manual should give an indication of how long the device will operate in sleep mode and how long it will operate with audio playout on a full charge or fresh batteries.

### **Mains powered devices**

For mains only devices, information should be provided in the user manual that the ASA feature will not be operational during power cuts. One of the key selling points of ASA is that radio is a very reliable medium and is the most likely information source to still be available when all others have lost power. Providing battery backup for the mains supply is therefore an attractive feature. However, the considerations for battery powered devices need to be taken into account in order to ensure that the back-up power source keeps the receiver running for many hours.

## **Mobility and location codes**

Products that are mains powered are likely to remain in the same location, so the user is likely to only need to enter the appropriate location code at initial installation. Battery powered products are likely to be more mobile and so careful consideration needs to be made on how to assist the user with maintaining the correct receiver location code: a receiver with the wrong location code cannot correctly respond to geo-fenced alerts.

Products intended to be routinely moved from place to place, such as construction site radios, are unlikely to always have the correct location code if manual look-up and entry is required. In such cases, an automated process should be implemented, for example, a periodic Bluetooth pairing to a GNSS enabled mobile phone

In-vehicle products require to have a minimum of two tuners and a continuous source of location data, for example, GNSS. These products also need to evaluate their location and their direction and speed to correctly determine which alerts are relevant to the vehicle occupants. Adding ASA capability to existing DAB+ adaptors and aftermarket in-vehicle products represents a major design and platform investment.