



ICAO

International Civil Aviation Organization  
North American, Central American and Caribbean Office

WORKING PAPER

NACC/WG/SAR/TF/4 — WP/03  
11/07/23

**Fourth NAM/CAR North American, Central American and Caribbean Working Group  
Search and Rescue Implementation Task Force (NACC/WG/SAR/TF/4) Meeting  
ICAO NACC Regional Office, Mexico City, Mexico, 9 to 11 August 2023**

**Agenda Item 3: SAR Coordination Affairs  
3.3 Maritime and Aeronautical SAR Coordination**

**SMARTPHONES EMERGENCY SATELLITE COMMUNICATIONS AND AUTOMATIC CRASH DETECTION  
FUNCTION – IMPACT ON SAR AND ANS UNITS**

(Presented by United States)

<b>EXECUTIVE SUMMARY</b>	
This paper presents an overview of new capabilities on certain smartphones that could impact SAR and ANS units.	
<b>Action:</b>	Suggested actions are included in Section 3
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"><li>• Safety</li></ul>

**1. Introduction**

1.1 In 2022 Apple released a software update to enable its iPhone 14 users to text emergency services when out of cellular and Wi-Fi coverage. A press release in January 2023 announced that Android smartphones would have a similar capability in late 2023. As an example of what commercial companies may provide, more information can be found in the web link to the iPhone application: <https://support.apple.com/en-us/HT213426>

1.2 The iPhone 14 offers two different capabilities:

- “Emergency SOS” via satellite to text emergency services when you are out of cellular and Wi-Fi coverage. Service for now is only around North America. (Service can become global as the satellite constellation is turned on for other regions.)
- Automatic “Crash Detection” using local cellular connection or Wi-Fi calling with an Internet connection from the Apple Watch or iPhone.

1.3 These smartphones are examples of emerging capability via satellite systems that relay distress alerts outside of the traditional distress alerting systems. Issues of policy and operational procedures associated with the growing use of satellite-capable devices should be considered on the international level, and that such international guidance and standards could then also be helpful for national application. This may also lead to future amendments to the IAMSAR Manual to provide guidance for national authorities and commercial companies to mitigate possible negative unintended consequences on rescue coordination centers (RCCs).

## 2. Background

2.1 The new capabilities in these smartphones and the growing number of commercial satellite systems and devices which could provide the communications network are examples of disruptive communications alerting systems that SAR services will face regarding new devices that are not properly regulated or interfaced with reliable and standardized message distribution systems. But, SAR services must be adaptable and make use of credible technology used by persons in distress. A good example is that the mobile telephone is often used in coastal waters rather than the internationally established radiotelephone channel 16 VHF-FM.

2.2 Apple discussed its new capabilities with North American emergency services agencies, including the SAR services, and made arrangements with them prior to offering their services to the general public. Other countries will be approached in the future to expand these capabilities. The United States, as do many States but not all, benefits from a national telephone number to connect into the national and local level telephone network of 'Public Safety Answering Points (PSAPs)' (or similarly named network) which is a key part of this smartphone capability.

### Emergency SOS via satellite

2.3 Apple made arrangements with the national emergency services to enable Apple iPhones to connect into the PSAP network. This iPhone feature is designed to send text messages directly to PSAPs which are text enabled. For regions with emergency services or PSAPs which do not have text capability, the message is routed to a relay center and then passed to the appropriate emergency responder contact point via voice call. Apple provides details in its *Emergency SOS Via Satellite Operations Guide*.

2.4 Although not intended for distress alerting in the offshore environment, this feature is anticipated to function out in the ocean. Distress alerts in the maritime environment are expected to be relayed to the appropriate RCC via voice call. (U.S. Coast Guard JRCCs are not connected to the PSAP network but the appropriate RCC will receive the voice call relay.)

2.5 When a user attempts to call or text emergency services in a supported country, and no cellular or Wi-Fi network is available, iPhone can prompt the user to text emergency services via satellite. The iPhone will guide the user to answer common questions before beginning two-way text communications.

2.6 When using the satellite connection, the texting experience is different than sending or receiving a message via cellular. In ideal conditions with a direct view of the sky and the horizon, a message might take 15 seconds to send, and over a minute to send under trees and other obstructions. Connection times can be impacted by the surroundings, the length of the message, and the status and availability of the satellite network.

2.7 The web link in paragraph 1.1 provides further explanation, many more details on the features of this capability, what the user has to do, etc.

#### Crash Detection

2.8 “Crash Detection” capability might be available in other States at this time. It uses the local cellular connection or Wi-Fi calling with an Internet connection from the Apple Watch or iPhone. It is designed to detect severe car crashes. On supported iPhone and Apple Watch models, Crash Detection is turned on by default. If the user is unable to make the local call or text then the device automatically calls emergency services after a 20-second delay. Australia and New Zealand have reported ‘crash detection’ of car accidents and small, fast boats hitting waves. Hard impact of small aircraft might also initiate a ‘crash detection’ call.

2.9 SAR services must adapt and evolve as new technology offers the potential to improve their performance. However, such technology and devices are often not properly regulated or interfaced with reliable message distribution systems. For now, these new capabilities fall under the responsibility of national authorities to regulate and guide the functional design of the equipment and its operation to provide consistent and common capability for users and to ensure SAR services are not negatively impacted.

### **3. Suggested Actions**

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) discuss any relevant matters regarding SAR concerns and how to ensure national regulators include SAR services concerns in anticipation of commercial companies seeking to expand capabilities as discussed in this paper.