

# Safety First

Reinvesting the Digital Dividend in Safeguarding Citizens

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## Executive Summary



“Safety First”, a study on the communication needs of Public Safety Service providers, finds that given the growing demands for Public Safety Service communications it is already clear today that the current allocations will not suffice in the future. The Digital Dividend is an ideal opportunity for longer term harmonization, leading to the development of technical solutions that would allow the re-use of existing sites and needed economies of scale.

The “Safety First” study was funded jointly by European Aeronautic Defence and Space Company (EADS) and Motorola, two leading suppliers of Public Safety solutions for Europe. It gives voice and scientific underpinning to the concerns raised by Public Safety organisations in respect of their need for access to higher speed data services requiring further spectrum.

This paper offers informed guidance to the policy-makers and national regulators providing a detailed view of the technical and operational characteristics of Public Safety radio services necessary to achieve an optimal spectrum allocation that takes advantage of the latest technical advances, international harmonization, economies of scale, and so can ensure sufficient spectral resources for Public Safety services.

### Why dedicate more spectrum to Public Safety Services?

Public Safety Services – police, fire fighting and other emergency services – are indispensable. It amounts to a moral obligation to protect life, welfare, and property of each individual in society. This means, governments are expected to spend the necessary resources on public safety services. One of these resources is mission critical wireless communication.

Harmonisation is one of the driving forces behind the success of the European Union integration. This is important for achieving economies of scale and for resolving cross-border interference issues. In 1996, a series of decisions in the framework of the European Conference of Postal and Telecommunications Administrations produced a harmonized allocation of spectrum for Public Safety Services in the range of voice and narrowband data communications. For more than a decade, these decisions have resulted in an unprecedented success.

The spectrum now has to be expanded because:

- Most mission critical operations depend on

#### *Broadband for Public Safety - examples:*

- *remote checking of information such as passport and biometric details;*
- *the sending of detailed photographic images of children lost or people wanted to officers out in the field so they can act on requests immediately;*
- *providing access to the Fire services Gazetteer which holds information on what might be kept on a premises;*
- *transmission of live video information to the central command and control personnel so they can have access to the same visual information as their personnel in the field;*
- *relaying of ad-hoc video and surveillance camera real time information to patrol cars responding to incidents; or*
- *sending of full data on a patient's condition from the ambulance to the hospital.*

voice communications and currently have only two blocks of 5 MHz available in harmonised spectrum. Some existing networks in European cities are already operating at full **capacity** and there are now problems with supporting voice traffic at major incidents and planned events.

- Communication **needs** of Public Safety operations are evolving and broadband communications are rapidly becoming more essential. Enhanced broadband capabilities will empower Public Safety organizations to move human resources into the field, increase situational awareness and facilitate command and control. They will be used to collect and disseminate timely information such as medical records, details of dangerous substances, maps, pictures and video to the various emergency responders.

Whether a wireless network can economically provide secure, robust and immediate broadband communications is based on physical constraints directly connected to the available frequency band and the amount of spectrum (bandwidth) available. In an ideal situation, Public Safety Services would have two blocks of 15MHz allocated between 400 MHz and approximately 800 MHz. This allocation should be Pan-European even though different parts of the same frequency bands might be utilised in each country.

### Why decide now?

Two reasons call for a swift decision:

- The early identification of spectrum provides the necessary certainty to industry to invest and develop equipment meeting the needs of Public Safety organisations. This triggers a chain reaction of planning certainty for Public Safety Service providers, widespread adoption of interoperable communications systems, increasing in functionality and price performance. The 1996 decisions have shown this for voice and narrowband data services, and the next 12 to 18 months is appropriate timing to repeat this success for broadband communications.
- It is **now** that there is spectrum to distribute. The so-called Digital Dividend – the radio spectrum which will become available as analogue terrestrial broadcasting migrates to digital systems – is one of the most important and far reaching opportunities for communications policy of the past and the foreseeable future. These frequencies, sought after due to their excellent technical and propagation characteristics, also include spectrum in the amounts and within the timescales needed by Public Safety organizations.

We may regard the Public Safety communications policies for the Digital Dividend as a window to the future. However, if we return to first principles, we find that the essential need for emergency communications to have been the mother of spectrum policy, nearly a century ago. The basic framework for nearly all wireless communications regulation today finds its origins in the sinking of RMS Titanic in April of 1912. In the wake of this tragic disaster and staggering loss of life, governments around the world began to put in place the rules necessary, not only to enable wireless communications, but also to ensure those in peril have the ability to make distress calls. More recently, the Madrid and London bombings illustrate the challenges faced by the European Public Safety services and the immediate need to ensure there is sufficient capacity to support not only current needs but also the future development of emergency communications. Could there possibly be anything more important?