The Italian National Police is responsible for the internal national security of our Country and for granting the continuity and maintenance of law and order. As a Techical Office of the Italian National Police, dealing with radiocommunication systems, we would like to express our position concerning the Strategy on the future use of the frequency band 470-694 MHz beyond 2030 in the EU.

Generally speaking, PPDR organisations (such as police itself, security and fire and rescue services) have to rely on mission-critical radiocommunication systems for the response to emergencies, the protection of life, property and other values of society, and for the response to and management of disasters. These systems enable communication between personnel and the coordination of their actions in both normal operations and in extremely critical situations. Especially in those crucial moments, PPDR organisations need mission-critical communication networks and services that are highly available, reliable and secure.

Current mission-critical communications systems in Europe consist of dedicated national networks using the same dedicated spectrum throughout Europe. These robust national PPDR networks use TETRA and Tetrapol narrowband technologies, which enable the secure transmission of voice and very limited amount of data, thus offering capabilities comparable to 2G mobile technologies.

Today, the use of data services such as messaging applications and video from bodycams and drones is radically changing the way PPDR users work. These users need mission-critical broadband communications they can trust 100 percent in terms of availability, reliability and security.

The Italian Ministry of Interior is very committed to deploy a nationwide broadband mission critical infrastructure for public safety capable of providing advanced services to the end users, thanks to the new data driven applications that can be introduced with 4G and 5G. In the first phase of the program, the public safety broadband network will be deployed in eleven cities.

Unfortunately, the spectrum allocated in the 700 MHz range in Italy for PPDR is very limited and it’s split into 2 x 5 MHz and in 2 x 3 MHz. In addition to not fully satisfying the operational needs, it entailed various disadvantages including: band fragmentation, the technical impossibility of carrying out "carrier aggregation", their allocation on the guard bands, the limited availability of radio devices operating in the B68 band with consequent poor usability of 5 of the 8 MHz assigned (equal to 62.5% of the assigned spectrum).

Moreover, the European decision on the harmonisation of the 700 MHz range from 2016 has not been implemented optimally for PPDR users in Europe at a national level.

The recent geopolitical and technological developments in the European continent have already shown an increase in the demand for spectrum also from the military. This might directly increase the pressure for a timely migration of PPDR narrowband communication networks to mission-critical broadband. Enough available and harmonised spectrum is an enabler of mission-critical broadband communication for PPDR independently of the deployment model.

Despite the availability of harmonised sub-bands for BB-PPDR in some Country, the allocation of spectrum is a national decision and might vary from country to country especially if regulation is too flexible. Such a fragmented outcome is causing additional challenges associated to the availability of devices and mission-critical cross-border interoperability making, as of today, part of the theoretically available spectrum for PPDR users in practice not usable.

Frequencies below 1 GHz present appropriate propagation characteristics to meet the stringent availability requirements of PPDR and to achieve a good geographical and indoor coverage in an efficient way. The frequency band 470-694 MHz under discussion in the

agenda item 1.5 of the World Radio Conference in 2023 (WRC-23) offers a unique opportunity for PPDR in Europe to meet their additional spectrum needs at the national level.

Over the last 20 years there has been a remarkable evolution of telecommunications with particular regard to mobile telephony and broadcast TV. In the first case, the 3G, 4G, 5G standards were introduced; in the second case, older analogue television broadcasting technology has been converted to and replaced by digital television (DVB-T and DVB-T2 standards).

As regards broadcast TV, the new digital standards led to a significant optimization of communications: maintaining the same spectral occupation of 8MHz, it has been possible to improve the quality of the images (increasing the resolution) and expand the number of channels transmitted simultaneously.

Digital IP and satellite streaming platforms are now widely used, and services are provided by major broadcasting operators, which, for a fee, offer users an on-demand online entertainment source for TV shows, movies and other streaming media.

This has led to a progressive reassignment of spectrum previously assigned to TV to mobile telephony services (from 470-862MHz to 470-690 MHz).

Further evolutions concerning broadcasting TV transmissions are expected to take place soon: the HEVC codec is going to be implemented this year, while the new standard called "DVB-I" (Digital Video Broadcasting over Internet) will be implemented in the coming years as a new platform for broadcasting content audio/video also internet based.

The UHF TV broadcast spectrum was defined in the 50s / 60s. At that time the national frequency regulatory plans did not consider the use of frequencies above 1GHz. Contents on commercial TVs were very few and could be considered almost exclusively narrowband services. Mobile telephony was not implemented yet. Since then, Technological and social evolution has been radically changing the conditions under which UHF television frequencies were defined 50 years ago Today it makes no sense to keep maintaining a substantial part of the 470-694 spectrum for TV broadcasting needs, considering that much of their content is provided via cable or via RF and that all televisions on sale incorporate “smart” features for being connected to the internet

It should be noted that while point-to-point or point-to-multipoint communications can be implemented via RF and cable, mobile communications can only be implemented via RF. For this reason, and in consideration of a completely changed scenario compared to the 50s / 60s, it is necessary that a part of the 470 – 694 MHz spectrum could be reassigned to support the increasing broadband mobile communication services, with particular regard to PPDR services.

In our opinion, it is strictly necessary to define a harmonized PPDR band at European level in 470 – 694 MHz bandwidth so that each Member State is obliged to implement it. Differently than in the past, when each Member State was given the possibility to adopt different spectrum options for PPDR with the direct consequence not to have a harmonized spectrum, this is the only way to grant spectrum resources to PPDR in the same bandwidth and to implement the cross-border communications between Member States.

Indeed, the definition and implementation of a harmonized spectrum for PPDR at European level, as well as promoting and implementing the interoperability between EU Countries, would make it possible to pool the needs of many PPDR users in EU. This could attract the interests of technology vendor and manufacturer for investing in this sector and for developing and implementing equipment, devices and infrastructures at competitive costs for European PPDR users.

For all the above, Italian National Police is of the opinion that an **exclusive allocation of a continuous and unfragmented RF spectrum of at least 2x10 MHz in the band 470-694 MHz to PPDR services, harmonised at EU level for all Member States**, is the

necessary requirement to enable parts thereof as a Europe wide spectrum band for mission-critical broadband which would support the migration away from narrowband technologies and meet the stringent requirements of PPDR organisations.

Since such changes like the one we're proposing could take a long time to be agreed and implemented and could meet some resistance from the broadcaster side, it could be favourable to start right away discussing about these topics in the most proper forum at a European and international level. Next WRC 2023 could be a very important opportunity to make people understand the importance of these topics and direct the guidelines in favour of our position. Putting off the discussion about this topic to WRC in 2027 could be risky and the time needed to obtain the required bandwidth could stretch until 2040.

We would like to thank you for giving us the opportunity to propose our position and we wish that, with your support, PPDR European community can get the bandwidth requirements to deploy next generation broadband communication systems.