

LTE Cat-M1 Wireless technology for mSafety

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When designing the mSafety wearable for remote health and safety monitoring, two key objectives were to eliminate dependency on a companion device for connectivity and to ensure a long battery life. Achieving both these goals would simplify life for end-users and allow service providers to create more innovative solutions.

But of course there were challenges. To eliminate dependency on a companion device, we had to make the mSafety wearable capable of connecting directly to the mobile network. And to extend the battery life of a wearable that's always connected, we had to explore the latest telecom technologies in search of the best solution for IoT devices. In the end, we decided to use LTE Cat-M1. As you will learn below, it satisfies mSafety's requirements for reliability, security, resilience, scalability and good coverage.

mSafety – helping save people's lives

The mSafety platform consists of a wearable device with a back-end that delivers real-time data to service providers and users. It is not a turnkey solution, but rather a comprehensive remote monitoring platform upon which B2B customers can build their own mobile health and safety services. Typical use cases within healthcare include remote monitoring

of the elderly and people with chronic conditions, as well as gathering health data from participants in clinical trials. Typical safety applications include the monitoring of workers in high-risk occupations or remote workplaces and search & rescue services for outdoor sports enthusiasts.

IoT-specific network technology

LTE Cat-M1 is a low-power, wide-area (LPWA) network technology that was specifically developed for Internet of Things (IoT) applications, and it is now being used for IoT devices in most major markets. IoT applications are characterised by high-latency and low-data rates, which means they transfer relatively small quantities of data. However, they still impose tough demands on security, resilience and scalability. Sony chose Cat-M1 for the mSafety service for all the reasons described below.

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Extended battery life

Unlike LTE, which is focused on high bandwidth and low-latency applications that consume much more power, Cat-M1 offers the required data transfer without the high-power consumption. In the majority of use cases for wearable devices, there is no need for the high bandwidth provided by LTE. More important are low bandwidth and longer battery life, and LTE Cat-M1 caters for both these needs.

An alternative technology for low bandwidth and improved battery usage is LTE NB. However, this type of communication is more suited to use with stationary devices like vending machines. As a wearable device, Sony's mSafety involves larger applications and is – by its very nature – mobile. It must therefore be capable of functioning on the go, in different environments, and even different countries.

Enhanced network coverage

The frequencies used for LTE Cat-M1 provide longer distance capability and thereby better coverage. For mSafety, that means reliable IoT connectivity even in places that have traditionally been hard to reach, such as rural and offshore locations. The result is that lone workers such as lumberjacks or telecom engineers can rely on the mSafety device to stay connected with

their command centre, and kite-surfers or kayakers are always reachable by emergency services if they should run into trouble. Similarly, travellers with a health condition can depend on their device to continue working while they're on holiday abroad.

Global roaming profile

mSafety comes with a eUICC (embedded Universal Integrated Circuit Card), which simplifies life for the end-user and the service provider when setting up a service. There's no need for the user to handle SIM identification or get the communication up and running. All they have to do is charge the device and switch it on. Using the LTE Cat-M1 network, the wearable then connects directly to the service provided with mSafety.

Scalable and future-proof

With a 4G infrastructure capable of handling millions of smart devices day in, day out, Cat-M1 offers almost unlimited scalability. Moreover, it is a global standard with a roadmap for continuous development, so will carry on evolving to meet new demands as they arise. Sony complements the network's features with a straightforward device-management platform that allows service providers to manage their wearables fleet easily, regardless of size.