



**Electromagnetic compatibility
and Radio spectrum Matters (ERM);
System Reference document (SRdoc):
Spectrum Requirements for Short Range Device,
Metropolitan Mesh Machine Networks (M3N)
and Smart Metering (SM) applications**

Reference

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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

Introduction

Short Range Device (SRD) technology is technology of growing use to interconnect sensors, actuators and remote control and monitoring systems. With time, technological progress and higher awareness of environment related questions will promote widespread use of sensor networks able to gather data at the scale of a city.

Consequently, SRD technology will be used to interconnect all of those sensors, actuators and infrastructures.

The present document examines whether the performance requirements, access mechanism and transmitted power currently in use for SRDs are adequate for Metropolitan Mesh Machine Network (M3N) and opens a discussion on further work required to establish the magnitude of any compatibility issues in sharing the 870 MHz to 876 MHz frequency band.

The present document identifies a relevant set of M3N applications that will transmit data over the M3N network. This permits to model a typical M3N deployment in term of number of devices, infrastructures and density. The same applications set also identify the key service requirements which will impact the volume of traffic to be transmitted between endpoints and network infrastructure. A structured mesh network is assumed as it accommodates the limited power available for data transmission and minimises the number of gateways. The mesh traffic is modelled and the expected network performance established. This is then compared with the current SRD regulatory limits.

The present document then discusses required changes in SRD rules to enable reliable and economically viable M3N operations. The discussion on compatibility assumes that the military services will be displaced by E-GSM-R and that it is with this service that the SRDs will share the frequency band. Intersystem interferences have already been addressed in TR 102 649-2 [i.7] and TR 102 886 [i.1], and is not repeated here.