# Guidance Note
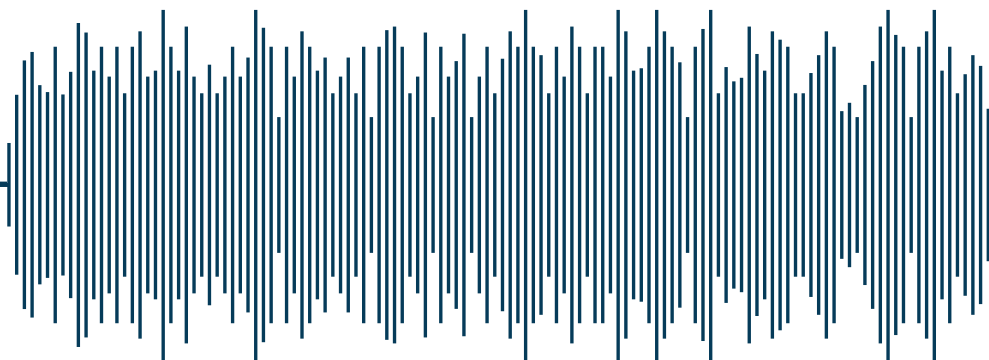
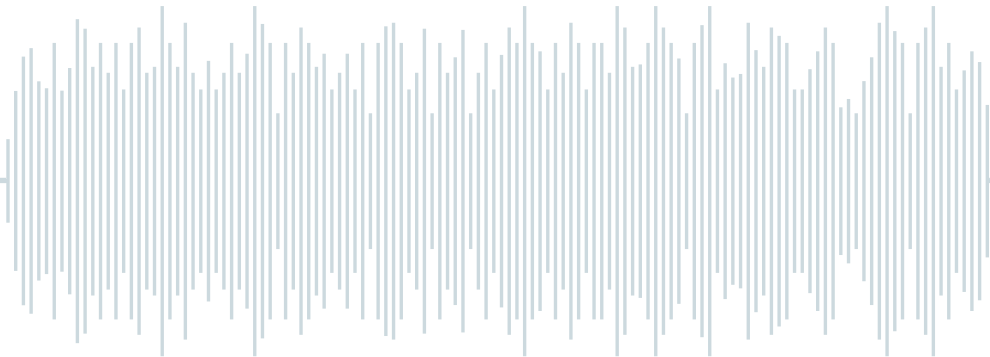**Fire Industry Association**

# Some Key Differences Between Fire & Security Wireless Product Standards

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## 1. INTRODUCTION

This Guidance Note is intended to provide some basic details about the differences between wireless product standards used for Fire and Security system devices. The FIA Wireless Working Group was asked to compile this summary because of member interest where systems are installed in the same projects or where integration may be considered.

## 2. BACKGROUND

For some time many system providers have been involved in the supply and installation of both fire and security systems. Indeed in certain cases fully integrated systems are designed and installed covering a wide range of project sizes from small residential to large public buildings.

However designers and installers must be aware that there are still some distinct differences between the product standards used for fire and security devices which must be borne in mind when creating integrated solutions. This is also certainly the case for Wireless Products used in such projects.

## 3. WHY IS SELECTING FACTORY PREPARED DOORSETS IMPORTANT?

This Guidance Note is intended to highlight some of the key differences but should not be regarded as totally comprehensive. Designers and installers are encouraged to carry out their own reviews and risk assessments to ensure products installed are fit for purpose.

## 4. COMPARISONS

When comparing requirements for fire and security wireless devices a number of categories have been considered, including:

• Applicable Standards & Regulations

• Certification Requirements

• Battery Requirements & Life

• Environmental Performance

• Alarm & Fault Response Time

• Communication Performance

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## TABLE

To make comparison easier key information is set out in the table below:

| CATEGORY | FIRE | SECURITY | COMMON |
|---|---|---|---|
| **Standards & Regs** | EN54-25 Components using radio links | EN50131-5-3 Interconnections using Radio | EN 300-220 EN 301-489 RED |
| | BS5839-1 Code of practice for design, installation, commissioning and maintenance | EN 50131-1 System requirements | 1.5 x maximum system pressure / 2 hrs |
| **Certification** | Third party assessment mandatory | Self declaration accepted | |
| **Battery Requirements** | 3 year minimum life | None, but may be requirement in related product standard | |
| | Dual batteries required by BS5839-1 | None, but may be requirement in related product standard | |
| | Low power warning within 60 mins | None, but may be requirement in related product standard | |
| | Warning of end of life at least 30 days before when still capable of 30 mins alarm activation | None, but may be requirement in related product standard | |
| **Environmental** | Shock test EN 60068-2-27 | None, but may be requirement in related product standard | |
| | Vibration test EN 60068-2-6 | None, but may be requirement in related product standard | |
| | Temperature test -10°C to +55°C (indoor) | None, but may be requirement in related product standard | |
| | Humidity test 93% 40C | None, but may be requirement in related product standard | |
| | $SO_2$ Corrosion test | None, but may be requirement in related product standard | |
| | EMC Immunity tests EN 50130-4 | None, but may be requirement in related product standard | |

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| CATEGORY | FIRE | SECURITY | COMMON |
|---|---|---|---|
| Alarm notification | BS 5839-1: <3 sec<br>EN54: <10 sec | <10 sec | |
| Fault notification (loss of comms) | <300 sec | Grade 1: <240 mins<br>Grade 2: <120 mins<br>Grade 3: <100 sec<br>Grade 4: <10 sec | |
| Communication requirement | Bi-directional | None, but may be requirement in related product standard | |
| Receiver performance | | | |
| Adjacent channel selectivity | >35dB | No definition – as required by RED | |
| Immunity to interference | Blocking test Clause 4.2.4 | Out of band noise Clause 4.4.2 & 4.4.3 | |
| Spurious response rejection | >40dB | No definition – as required by RED | |
| Alarm signal integrity | 10 activation tests to or from components<br>1 in 10 sec<br>All within 100 sec | Alarm in 10 sec<br>Grade 1: 10% 240 min<br>Grade 2: 10% 120 min<br>Grade 3: 10% 100 sec<br>Grade 4: 10% 10 sec | |
| Identification performance | 1:1,000,000 | G1 – 1:100,000<br>G2 – 1:1,000,000<br>G3 – 1:10,000,000<br>G4 – 1:100,000,000 | |
| Immunity to site attenuation | Typically 10-30dB depending upon manufacturer | G1: 3dB<br>G2: 6dB<br>G3: 9dB<br>G4: 12dB | |
| Repeatability | <6dB | None, but may be requirement in related product standard | |
| Reproducibility | <6dB | None, but may be requirement in related product standard | |

## 5. SUMMARY

Although performance and requirements for Fire & Security wireless products has been converging in recent years there are still some significant differences. Designers, installers and users of such products must therefore take such differences into account when deciding upon system choices and application.

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