

**Requirement Specification**

Document	Edition	Name	Section
SSF 1093	Edition 1 April 2015	Fixed mounted electromechanical locks – Burglar resistance – Requirements and test methods	5.1.19, 5.2.19, 6.2.6.2 and 6.2.18.

**Interpretation/Application**

Interpretation and application of requirements in this document are related to the following sections:

**Contents**

- 5.1.19 Control signal - requirements Approved 17-12-19
- 5.2.19 Control signal - requirements Approved 17-12-19
- 6.2.6.2 End load on deadbolt resistance with drill protection Approved 20-11-30
- 6.2.18 Control signal - testing Approved 17-12-19

**Background**

After consultation with the industry, a decision has been taken to adjust the requirements in SSF 1093: 2015.

- The Norm shall only be product-related without any installation requirements.  
**Note:** The installation requirements should be presented in SSF 210 or SSF 200.
- Requirements on encryption for signal transmission in cables are removed on Class 1 and Class 2.
- Drilling test class 1 - 3. Drilling angle is clarified with figure.

**Interpretation**

For the application of the above, this is interpreted as follows.

**Application**

Existing text in *italic*.

## Changes in section 5.1.19

### Existing requirements text.

#### **5.1.19 Control signal**

*Signals from an operating unit which are transmitted via cable (A), (B) or (C) to the electromechanical lock shall consist of encrypted messages of a cryptographic key length as shown in Table 1 in a replay-proof session or be installed in a protected environment for level 1, level 2A, 2B and level 3.*

*If wireless transmission takes place between a code carrier and a code reader (A) and/or between a code reader and a control unit (B), as well as a control unit and the electromechanical lock (C), it shall not be possible to read this signal/code in a sphere with a radius greater than 50 cm from the center of the reader unit. If such reading can take place, the code/signal shall be encrypted.*

*For level 2A, 2B, no coded signal is necessary if signal transfer between the units is installed in a protected environment.*

*For level 1A, 1B, no coded signal is necessary for signals transmitted using unprotected cabling on the inside of the door.*

*Protected environment:*

- *Equipment which is located on the inside door leaf or frame and cannot be accessed thanks to an arrangement that cannot be removed using standard tools.*
- *Equipment that is recessed in a door or frame and that cannot be accessed when the door is closed.*

*Other components and installation are regarded as unprotected.*

### **Interpretation and correction of the above:**

#### **5.1.19 Control signal**

Signals from an operating unit which are transmitted via cable (A), (B) or (C) to the electromechanical lock in Class 3, 4 and 5 shall consist of encrypted messages of a cryptographic key length as shown in Table 1 in a replay-proof session. See figure 2.

For levels 1A, 1B, 2A and 2B, encoded signal is not necessary.

If wireless transmission takes place between a code carrier and a code reader (A) and/or between a code reader and a control unit (B), as well as a control unit and the electromechanical lock (C), it shall not be possible to read this signal/code in a sphere with a radius greater than 50 cm from the centre of the reader unit. If such reading can take place, the code/signal shall be encrypted.

Decoding shall take place within the enclosure of the electromechanically operated lock arrangement.

Mutual authentication is required for classes 4 and 5.

Testing of the control signal shall take place as specified in 6.2.18.

## Changes in Table 1 (SSF 1093 page 20)

### Existing Table 1

Table 1 — Requirements for locks with single-point locking

Requirements for performance level of electrically operated lock cases for inclusion in SSF 3522 burglar-resistant locks								
Lock cases	unit	Level 1A	Level 1B	Level 2A	Level 2B	Level 3	Level 4	Level 5
5.1.19 Control signal (cryptographic key length)	Number of bits	48	48	48	48	48	50	100

### Interpretation and application of the above

Table 1 — Requirements for locks with single-point locking

Requirements for performance level of electrically operated lock cases for inclusion in SSF 3522 burglar-resistant locks								
Lock cases	unit	Level 1A	Level 1B	Level 2A	Level 2B	Level 3	Level 4	Level 5
5.1.19 Control signal (cryptographic key length)	Number of bits	Optional	Optional	Optional	Optional	48	50	100

**Note.** All other requirements, 5.1.2 to 5.1.27 in Table 1 (page 20), are unchanged

## Changes in section 5.2.19

### Existing requirements text.

#### 5.2.19 Control signal

Signals from an operating unit which are transmitted via cable (A), (B) or (C) to the electromechanical multipoint lock shall consist of encrypted messages of a cryptographic key length as shown in Table 2 in a replay-proof session or be installed in a protected environment for level 1, level 2 and level 3. See Figure 2.

If wireless transmission takes place between a code carrier and a code reader (A) and/or between a code reader and a control unit (B), as well as a control unit and the electromechanical multipoint lock (C), it shall not be possible to read this signal/code

*from a sphere with a radius greater than 50 cm from the reader unit. If such reading can take place, the code/signal shall be encrypted.*

*For level 2A, 2B, no coded signal is necessary if signal transfer between the units is installed in a protected environment.*

*For level 1A, 1B, no coded signal is necessary for signals transmitted using unprotected cabling on the inside of the door.*

*Protected environment:*

- *Equipment which is located on the inside door leaf or frame and cannot be accessed thanks to an arrangement that cannot be removed using standard tools.*
- *Equipment that is recessed in a door or frame and that cannot be accessed when the door is closed.*

*Other components and installation are regarded as unprotected.*

*Control signals between the control unit and the electrically operated lock arrangement shall comprise an adjustable binary code transmitted via cable or using other verified technology.*

*Decoding shall take place within the enclosure of the electromechanically operated lock arrangement.*

*Mutual authentication is required for classes 4 and 5.*

*Testing of the control signal shall take place as specified in 6.3.19*

### **Interpretation and correction of the above:**

#### **5.2.19 Control signal**

Signals from an operating unit which are transmitted via cable (A), (B) or (C) to the electromechanical multipoint lock in Class 3, 4 or 5 shall consist of encrypted messages of a cryptographic key length as shown in Table 2 in a replay-proof session according to table 2. See Figure 2.

If wireless transmission takes place between a code carrier and a code reader (A) and/or between a code reader and a control unit (B), as well as a control unit and the electromechanical multipoint lock (C), it shall not be possible to read this signal/code from a sphere with a radius greater than 50 cm from the reader unit. If such reading can take place, the code/signal shall be encrypted

For levels 1A, 1B, 2A and 2B, encoded signal is not necessary.

Decoding shall take place within the enclosure of the electromechanically operated lock arrangement.

Mutual authentication is required for classes 4 and 5.

Testing of the control signal shall take place as specified in 6.3.19

## Changes in Table 2 (SSF 1093 page 32)

### Existing Table 2

*Table 2 — Requirements for electromechanical multipoint locks.*

<i>Requirements for performance level of electrically operated multipoint lock for inclusion in SSF 3522 burglar-resistant locks</i>								
<i>Lock cases</i>	<i>unit</i>	<i>Level 1A</i>	<i>Level 1B</i>	<i>Level 2A</i>	<i>Level 2B</i>	<i>Level 3</i>	<i>Level 4</i>	<i>Level 5</i>
5.2.19 Control signal (cryptographic key length)	Number of bits	48	48	48	48	48	50	100

### Interpretation and application of the above

*Table 2 — Requirements for electromechanical multipoint locks.*

<i>Requirements for performance level of electrically operated multipoint lock for inclusion in SSF 3522 burglar-resistant locks</i>								
<i>Lock cases</i>	<i>unit</i>	<i>Level 1A</i>	<i>Level 1B</i>	<i>Level 2A</i>	<i>Level 2B</i>	<i>Level 3</i>	<i>Level 4</i>	<i>Level 5</i>
5.2.19 Control signal (cryptographic key length)	Number of bits	Optional	Optional	Optional	Optional	48	50	100

**Note.** All other requirements, 5.2.2 to 5.2.27 in Table 2 (page 32), are unchanged

### Changes in section 6.2.6.2

#### Existing requirements text.

*6.2.6.2 End load on deadbolt resistance with drill protection*

*Classes 1 – 3: Drilling time 3 minutes*

*Drill the deadlock directly from the defined outside of the lock at a drilling angle of a maximum of 60° to the lockcase.*

*After drilling, the bolt shall withstand the force for each class during the deadlock test.*

### Interpretation and correction of the above:

6.2.6.2 End load on deadbolt resistance with drill protection

Classes 1 – 3: Drilling time 3 minutes.

Drilling takes place directly against the interlock from the defined outside of the lock with a drilling angle  $\alpha$  that can vary within  $\pm 30$  degrees from the normal axis N - N of the cover / locking box. The angle  $\beta$  must not be less than 60 degrees towards the cover / locking box. The drill is allowed to rotate 360 degrees around the normal axis, See figure 4 c.

After drilling, the bolt shall withstand the force for each class during the deadlock test.

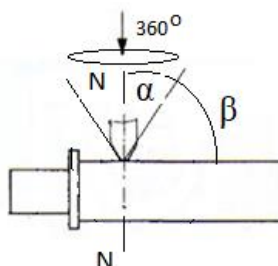


Figure 4 c – Drill angle

### Changes in section 6.2.18

#### Existing requirements text.

#### 6.2.18 Control signal

*The electromechanical lock with devices and all obstructions active is mounted in a wooden fixture (Figure 6) in accordance with the manufacturer's installation documentation.*

*Assessment of which equipment is in a protected environment.*

*Assessment is carried out to see whether the code can be read visually.*

*Attempts at reading shall take place using a reading instrument appropriate for the code transmission method at one cm from the center of the regular receiving point. The distance describes a sphere with a radius  $a \geq 50$  cm. If no reading that can be traced to the code transmission is recorded when the signal is sent, the requirement is met. If reading can take place, the manufacturer's technical documentation shall verify the encryption and communication method.*

*There is no requirement for the test laboratory to be capable of recreating the correct electrical code.*

*The manufacturer shall describe to the test laboratory the technology used for code transmission so that this provides guidance for the tester if reading needs to take place, and if so which instruments/methods are to be used.*

*Checking via the manufacturer's specification of coding of the control signal and the signals.*

*For wireless transmission of signals, testing shall take place on a dummy, with testing carried out according to SS-EN 50131-5-3.*

*Requirements as specified in 5.1.19 are checked against the manufacturer's specification.*

#### **Interpretation and correction of the above:**

##### **6.2.18 Control signal**

The electromechanical lock with devices and all obstructions active is mounted in a wooden fixture (Figure 6) in accordance with the manufacturer's installation documentation.

Assessment is carried out to see whether the code can be read visually.

Attempts at reading shall take place using a reading instrument appropriate for the code transmission method at one cm from the center of the regular receiving point. The distance describes a sphere with a radius  $a \geq 50$  cm. If no reading that can be traced to the code transmission is recorded when the signal is sent, the requirement is met. If reading can take place, the manufacturer's technical documentation shall verify the encryption and communication method.

There is no requirement for the test laboratory to be capable of recreating the correct electrical code.

The manufacturer shall describe to the test laboratory the technology used for code transmission so that this provides guidance for the tester if reading needs to take place, and if so which instruments/methods are to be used.

Checking via the manufacturer's specification of coding of the control signal and the signals.

For wireless transmission of signals, testing shall take place on a dummy, with testing carried out according to SS-EN 50131-5-3.

Requirements as specified in 5.1.19 are checked against the manufacturer's specification.