




Report sponsors		Report issue date	Report no.
Pyropanel Developments Pty Ltd 235 Huntingdale Road Oakleigh VIC 3166, Australia	Digital Door Locks Pty Ltd Suite 250/1 Queens Rd Melbourne 3004 VIC, Australia	19 March 2020	38577000 R5.2
		Report validity date	Project Reference No.
		31 March 2025	FAS190379

Table 1 Amendment schedule

Version	Date	Information about report			
R1.0	4 December 2015	Description	Initial issue		
			Prepared by	Reviewed by	Authorised by
		Name	Patrick Chen	Steven Halliday	N/A
R 2.0	-		Patrick Chen	Steven Halliday	N/A
R 3.0	19 May 2017		Anthony Rosamilia	Patrick Chan	N/A
R 4.0	13 Oct 2017		Anthony Rosamilia	Patrick Chan	N/A
R 5.0	07 Jan 2020	Description	Inclusion of new door lever		
			Alim Rasel	Mahmoud Akl	Omar Saad
R 5.1	29 Jan 2020	Description	Revised with typographical amendments		
		Name	Alim Rasel	Mahmoud Akl	Omar Saad
R 5.2	19 March 2020	Description	Changes to the model number		
		Name	Alim Rasel	Mahmoud Akl	Mahmoud Akl
		Signature			

Objective

To assess the fire resistance of Samsung digital levers with Samsung mortise lock SHS-AML220 if installed to Pyropanel Pandor maxi core doorset.

Variations considered in this report

Fitting following levers instead of the door lever tested in the referenced test.

- SHS-H505FMK/AU.
- SHS-H705FMK/EN.
- SHP-DH538MC/AU.
- SHP-DH538MU/AU.
- SHP-DH537MC/AU.
- SHP-DH537MU/AU.
- SHP-DH525MK/EN

Table 2 Referenced test reports

Test reference	Doorset description	Test standard
FR 2482	Single leaf Pyropanel Pandor core doorset nominally 48 mm thick	BS 476: Part 22:1987
FR 2485	Pyropanel Pandor core double doorset nominally 48 mm thick	BS 476: Part 22:1987

Table 3 Additional supporting information

Test report	Doorset description	Test duration	Test standard
EWFA 3857700	Maxi Pyropanel Pandor Door nominally 48mm thick	61 minutes	AS 1530.4:2005
<p>A pilot scale fire resistance test in accordance with Appendix B11 of AS 1530.4:2005 was conducted on a pilot scale doorset on the 20 October 2015. It included a Samsung SHS-H705FMK/EN lockset fitted to the door leaf.</p>			

Description of the tested door hardware

	
<p>Figure 1 Unexposed view of the door lever</p>	<p>Figure 2 Exposed view of the door lever</p>

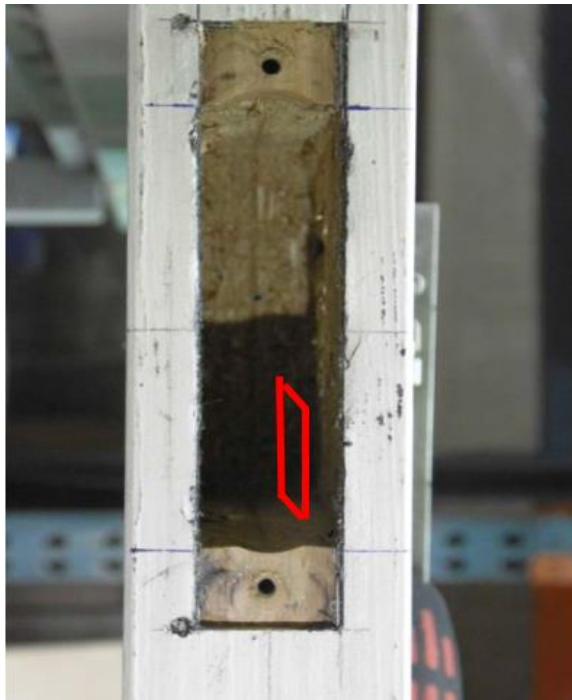


Figure 3 Modified Internal of the door leaf. Extra core removal shown in red

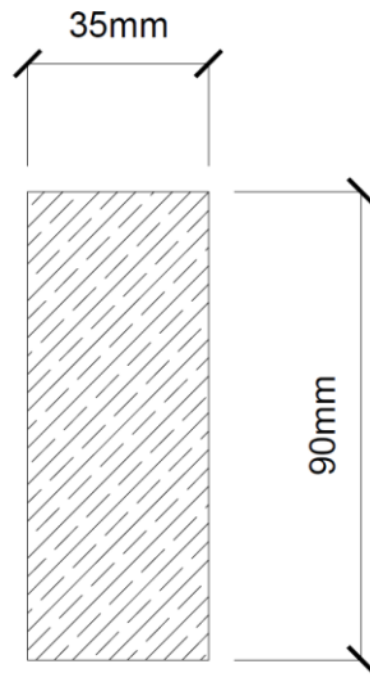


Figure 4 Applied intumescent strip

Table 4 Specimen description

Item	Description
Product name	Samsung SHS-H705FMK/EN door lockset
Door system properties	
Door leaf thickness	48 mm (measured)
Backset	68 mm (measured)
Lockset type	Mortise lock
Location	190mm from the bottom edge of the door leaf and 32mm from the open edge
Intumescent strip density	1000 kg/m ³
Cut out side of lockset	To fit the mortise lock, with the additional removal of 4mm deep section of core, removed by chisel, within the lock reinforcement plate. The removal is to allow electronic cable for the mortise lock to slip out.
Function verification	50 opening and closing cycle: Completed prior to test. Opening force: 0.98N Closing force: 1.22N Latching force: 18.4N Average gap clearance: Top edge: 0.8 mm Open edge: 2.4 mm Hinge edge: 0.5 mm

Discussion

If the proposed that if SHS-H705FMK/EN smart door lock does not initiate failure of the pilot scale doorset before failure occurred on the referenced doorsets, then it is expected that substituting the door lockset in the referenced test with the proposed door locksets will not have detrimental effect on the performance of the referenced doorsets.

AS 1530.4:2014 states that sustained flaming on the surface of the unexposed face for 10 seconds or longer constitutes integrity failure. AS 1530.4:2014 also states that latching mechanism ceasing to be engaged constitutes integrity failure. During the reference test EWFA 3857700, SHS-H705FMK/EN did not initiate failure of the doorset for the duration of the test.

Results from the pilot scale test EWFA 3857700 show that the SHS-H705FMK/EN smart door lock are positively assessed for the test periods as indicated in our conclusion.

Performance of SHS-H505FMK/AU, SHP-DH538MC/AU, SHP-DH538MU/AU, SHP-DH537MC/AU, SHP-DH537MU/AU and SHP-DH525MK/EN digital lever fitted with Samsung SHS-AML220 Mortice lockset

It has been confirmed by the report sponsor that SHS-H505FMK/AU, SHP-DH538MC/AU, SHP-DH538MU/AU, SHP-DH537MC/AU, SHP-DH537MU/AU and SHP-DH525MK/EN digital locksets are manufactured from the same materials, have the same operating mechanism design and similar construction as the tested SHS-H705FMK/EN digital lockset with the following variations (as applicable based on the product).

- Replacement of the fingerprint reading panel with card reader (as applicable).
- Turning moment of the lever handle.
- Door leaf area covered by the Escutcheon plate and its profile.

AS 1530.4:2014 Clauses 7.9.7 (i) and (j) stipulates:

(i) Changes may be made in the operating characteristics of latchset or lockset hardware, provided the changes do not require modification of the door leaf or door frame and changes to the functions of latchsets involving the operating mechanism.

(j) Changes may be made to the materials of the essential latching components, provided the melting point of any part is the same or higher.

The manufacturer\supplier of the SHS-H505FMK/AU, SHP-DH538MC/AU, SHP-DH538MU/AU, SHP-DH537MC/AU, SHP-DH537MU/AU and SHP-DH525MK/EN digital lever has confirmed in writing that in comparison to the SHS-H705FMK/EN digital lockset:

- The changes made to the lockset do not require modification to the door leaf or frame nor do they change the function of the latch operating mechanism.
- The materials remain otherwise as tested or of higher melting point.

AS 1530.4:2014, clause 7.9.7 (l) states: **Where locksets or latchsets are operated by a steel shaft, their surface-mounted furniture may be varied provided—**

- **(i) the melting point of any part is not reduced.**
- **(ii) any replacement handle or knob is not so massive or asymmetrical as to introduce a turning moment about the operating shaft which exceeds 0.07 Nm.**
- **(iii) any replacement lever handle is not so massive or asymmetrical as to increase the turning moment about the operating shaft by more than 10%.**
- **(iv) any replacement escutcheon plate adequately covers any hole in the door leaf formed to accommodate the lockset or latchset but does not increase the area of the face of the door leaf covered by the escutcheon by more than 20%.**

The lockset listed in the “variations considered in this report” section fulfills all criteria which were cross checked and verified by product survey. Therefore, the listed products are all positively assessed.

Conclusion

Based on the discussion above, it is the opinion of this laboratory that the doorsets listed below will achieve the fire resistance level (FRL) shown in Table 5 if they are fitted with **SHS-H505FMK/AU, SHP-DH538MC/AU, SHP-DH538MU/AU, SHP-DH537MC/AU, SHP-DH537MU/AU, SHP-DH525MK/EN** and **SHS-H705FMK/EN** on the doorsets – as described in this assessment report.

This assessment has been prepared in accordance with Section 4.5 of AS 1905.1:2015 and is conditional upon the operational characteristics and materials of the doorset complying with Section 2 of AS 1905.1:2015. The field of application of the door latchset is defined by the field of application of the doorset that the door latchset is installed upon.

Table 5 Conclusion of assessment

Test reference	Description	FRL
FR 2482	Single leaf Pyropanel Pandor Core doorset, nominally 48mm thick.	-/60/30
FR 2485	Pyropanel Pandor Core Double doorset, nominally 48mm thick.	-/60/30

Conditions/validity

- The conclusions of this assessment may be used to directly assess the fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.
- Because of the nature of fire resistance testing, and the consequent difficulty in quantifying the uncertainty of measurement, it is not possible to provide a stated degree of accuracy of the result. The inherent variability in test procedures, materials and methods of construction, and installation may lead to variations in performance between elements of similar construction.
- The assessment can therefore only relate to the actual prototype test specimens, testing conditions and methodology described in the supporting data, and does not imply any performance abilities of constructions of subsequent manufacture.
- This assessment is based on information and experience available at the time of preparation of this report. The published procedures for the conduct of tests and the assessment of the test results are the subject of constant review and improvement and it is recommended that this report be reviewed before the validity date by Warringtonfire Australia Pty Ltd.
- The information in this report must not be used for the assessment of variations other than those stated in the conclusions above. The assessment is valid provided no modifications are made to the systems detailed in this report. All details of construction should be consistent with the requirements stated in the relevant test reports and all referenced documents.
- All work and services carried out by Warringtonfire Australia Pty Ltd are subject to, and conducted in accordance with, our standard terms and conditions of Warringtonfire Australia Pty Ltd, which are available at <https://www.element.com/terms/terms-and-conditions> or on request.

Testing authority	Warringtonfire Australia Pty Ltd
Address	Unit 2, 409-411 Hammond Road, Dandenong South, VIC 3175
Phone	T: +61 (0)3 9767 1000
ABN	81 050 241 524
Email	info.fire.melbourne@warringtonfire.com