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**EVALUATION CENTER**

Intertek Testing Services Ltd., Shanghai  
Plant 7, No. 6958 Daye Road, Fengxian District, Shanghai, China

**RENDERED TO**

**GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED**  
**NO.17, Keyuan 3 Road, Ronggui, Shunde High-Tech Zone**  
**Foshan**

**PRODUCT EVALUATED**

Electronic lock  
Model: Base RFID (75)

**EVALUATION PROPERTY**

Fire Resistance

**Report of Testing Electronic lock – Model of Base RFID (75) in Single Leaf Single Action Wooden Composite Fire Door for compliance with the applicable requirements of the following criteria: EN 1634-1:2014, Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 1: Fire resistance test for door and shutter assemblies and openable windows.**

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## 2 Introduction

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Intertek has conducted an evaluation for GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED to determine the fire resistance characteristics of the Electronic lock, Model of Base RFID (75) in Single Leaf Single Action Wooden Composite Fire Door. This test was designed to demonstrate evaluation on the Electronic lock of four types including Model Base RFID (75), Model Base RFID (65), Model Base RFID (81) and Model Guardian RFID(G4). This evaluation began on March 6, 2017 and was completed on May 5, 2017. The test was conducted on April 28, 2017.

The test was conducted in accordance with EN 1634-1:2014, "Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 1: Fire resistance test for door and shutter assemblies and openable windows."

## 3 Test Samples

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### 3.1. SAMPLE SELECTION

Samples were submitted to Intertek directly from the client. Samples were not independently selected for testing. Samples were received at the Evaluation Center on February 27, 2017.

### 3.2. SAMPLE AND ASSEMBLY DESCRIPTION





One model Base RFID (75) was tested. The specification of Model Base RFID (75) was provided by the client.

Door	Type	Single Leaf Single Acting Swing Wooden Composite Fire Door
	Nominal Size	836 mm wide by 2040 mm high by 54 mm thick
	Main materials	Faces: 2.5 mm medium density fiberboard, 800 Kg/m <sup>3</sup> Door core: TL-60 door core Stile: Ash wood, 49 mm x 50 mm, 670 Kg/m <sup>3</sup> Rail: Ash wood, 49 mm x 40 mm / 49 mm x 50 mm / 49 mm x 60 mm, 670 Kg/m <sup>3</sup> Edge Lipping: 5 mm, Ash wood, 670 Kg/m <sup>3</sup>
Frame	Nominal Size	898 mm wide by 2079 mm high by 150 mm thick Ash wood, 670 Kg/m <sup>3</sup>
Intumescent Seal		Model: Lorient LP2004; Size: 20x4 mm Location: 2 pieces around door frame
Hardware	Hinge	304 Stainless Steel Hinge Quality: Three; Size: 4" x 3" x 3 mm Location: refer to the door assembly drawing.

Hardware	Electronic lock	Model: Base RFID (75) Lock Body Size: 98.8 x 152.5 x 16.2 mm Backset: 61.5 mm, Latch: 15.9 mm, Dead bolt: 20 mm * Latched but not locked during test.
		Front escutcheon: in the unexposed side to fire Size: 284 x 78 mm Induction panel: Fire retardant ABS Shell: 304 stainless steel
		Back escutcheon: in the exposed side to fire Size: 240 x 78 mm Shell: 304 stainless steel
		Battery: Panasonic LR6-AA Industrial ALKALINE Quantity: 4 pieces, in the front escutcheon.

The sample ID number is S170306005SHF-002.

Documents and samples of four type of Electronic lock including Model Base RFID (75), Model Base RFID (65), Model Base RFID (81) and Model Guardian RFID(G4) were checked, and found that these electronic lock are equipped with same mortise lock and similar stiffening plate, the main difference between them is front assembly. Model of Base RFID (75) with larger plastic area in front assembly is selected to be tested to cover the other three models.

Model	Picture	Front escutcheon	Back escutcheon	Lock body
Base RFID (75)		Size: 284 x 78 mm Induction panel: ABS Shell: 304 stainless steel	Size: 240 x 78 mm Shell: 304 stainless steel	Model: S65 Size: 98.8 x 152.5 x 16.2 mm Backset: 61.5 mm, Latch: 15.9 mm Dead bolt: 20 mm
Base RFID (65)		Size: 244.7 x 78 mm Induction panel: ABS Shell: 304 stainless steel	Size: 240 x 78 mm Shell: 304 stainless steel	
Base RFID (81)		Size: 279.1 x 78 mm Induction panel: ABS Shell: 304 stainless steel	Size: 240 x 78 mm Shell: 304 stainless steel	
Guardian RFID(G4)		Size: 268.3 x 78 mm Induction panel: ABS Shell: 304 stainless steel	Size: 240 x 78 mm Shell: 304 stainless steel	

The document register list of the Electronic locks, Drawing of fire door assembly and test wall construction can be found in Appendices A, B, and C respectively.

## 4 Testing and Evaluation Methods

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The test was conducted in accordance with EN 1634-1:2014, "Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 1: Fire resistance test for door and shutter assemblies and openable windows." and EN 1363-1: 2012 "Fire Resistance Tests – Part 1: General Requirements".

The test assembly was installed in a steel restraint frame. The test door was built into a concrete masonry unit partition, with fully mortared joints. The test sample moved in front of the furnace for the fire exposure. Prior to the commencement of the EN 1634-1 fire test, the specimen to be test was checked for operability in the fire test frame by operating from fully closed to fully open, for 25 cycles. The test measurement data was shown in Appendix D.

The test door was oriented to open into the furnace.

The nominal dimensions of the test wall were 3 m high by 3 wide.

After positioning the assembly frame over the furnace opening, the burners were ignited and the timer was started. Temperatures within the furnace were monitored using thermocouples and the data was recorded. The burners were controlled to keep the furnace temperatures within the allowable limits specified in the test standards. After 5 minutes, the furnace pressure was adjusted so that the neutral plane was established at a maximum of 500 mm above notional floor level. Periodic observations were made of the surfaces of the test assembly during the fire resistance test.

Door deflection relative to the frame, where applicable, was monitored throughout the test. Position for measurement of deflection and unexposed temperature was presented in the drawing of Appendix D.

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## **5 Testing and Evaluation Results**

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### **5.1. INTEGRITY**

The assembly withstood the fire resistance test without passage of flame or gases hot enough to ignite cotton waste for 59 minutes. No through openings or penetrations were evident at this 60 minutes fire exposure portion of the test and the door latch remained engaged to the strike. During this 59 minutes fire exposure period no significant flaming was observed on the unexposed face of the assembly.

After exposed to the fire for a period of 59 minutes, sustained flame was observed at the electronic lockset position. The integrity failure was deemed to occur.

This assembly therefore met the criteria of the test standards for integrity performance of 59 minutes.

### **5.2. INSULATION**

Transmission of heat through the assembly during the fire resistance test of 60 minutes did not raise the average temperature on the unexposed surface by more than 140°C above its initial value, and did not raise the maximum temperature on the unexposed surface by more than 180°C above the initial mean unexposed face temperature. In addition, the transmission of heat through the assembly did not raise the maximum temperature of the unexposed surface of the frame by more than 360°C for 60 minutes.

The Performance criteria “insulation” shall automatically be assumed not to be satisfied when the “integrity” criterion ceases to be satisfied.

The assembly passed the insulation portion of the test of 59 minutes.

A full set of test data is included in Appendix E, and photographs have been presented in Appendix F.

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## 6 Conclusion

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The Electronic lock - Model of Base RFID (75) and Wooden Composite Door assembly identified in this report has been tested in accordance with EN 1634-1: 2014, "Fire resistance and smoke control tests for door and shutter assemblies and openable windows and elements of building hardware – Part 1: Fire resistance test for door and shutter assemblies and openable windows". This test was designed to demonstrate evaluation on the Electronic lock of four types including Model Base RFID (75), Model Base RFID (65), Model Base RFID (81) and Model Guardian RFID(G4).

The test assembly satisfied the performance requirements for the following periods:

<b>Integrity</b>	Sustained flaming	59 minutes
	Gap gauge	60 minutes
	Cotton pad	59 minutes
<b>Insulation</b>		59 minutes

The test was discontinued after a period of 60 minutes at the request of the sponsor.

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

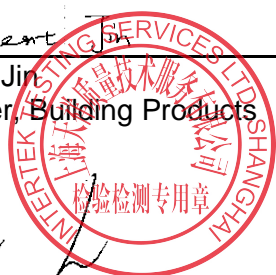
### INTERTEK

Reported by: \_\_\_\_\_

Vincent Jin  
Engineer, Building Products

Reviewed by: \_\_\_\_\_

Sun Sun  
Operation Manager, Building Products



## 7 Appendix A: Document Register List

Model No.	Document Ref.	Document Title	Issue	Date
Base RFID (65)	65-1-02 感应面板 -2015-10-20- Model	感应面板	12/2016	02/2017
	Base RFID(65)-1- 03 前锁体总成 Model (1)	前锁体总成	08/2017	08/2017
	Base RFID(65)爆炸 图 Model (1)	Base RFID (65)	08/2017	08/2017
	Base RFID(65)-2- 01 后锁体总成 Model (1)	后锁体总成	08/2017	08/2017
	65M-Z14B-A	65M-Z14B-A.SCH	12/2016	02/2017
	65M-Z14B-B	65M-Z14B-B.SCH	12/2016	02/2017
	65M-Z15A	65M-Z15A	12/2016	02/2017
Base RFID (75)	75-1-01 感应面板 -2015-10-20- Model	面板	12/2016	02/2017
	Base RFID(75)-1- 00 前锁体总成 Model (1)	前锁体总成	08/2017	08/2017
	Base RFID(75)爆炸 图 Model (1)	Base RFID (75)	08/2017	08/2017
	Base RFID(65) 爆 炸图 20170105	7536M-S65	08/2017	08/2017
	75M-Z07A-A	75M-Z07A-A.SCH	12/2016	02/2017
	75M-Z07A-B	75M-Z01A-B.SCH	12/2016	02/2017
	75M-Z07A-C	75M-Z01A-C.SCH	12/2016	02/2017
	75M-Z07A	75M-Z07A	12/2016	02/2017
Base RFID (81)	81-1-01C 感应 面板-2015-10-20 -Model	感应面板	12/2016	02/2017
	Base RFID(81)-1- 00 前锁体总成 Model (1)	前锁体总成	08/2017	08/2017



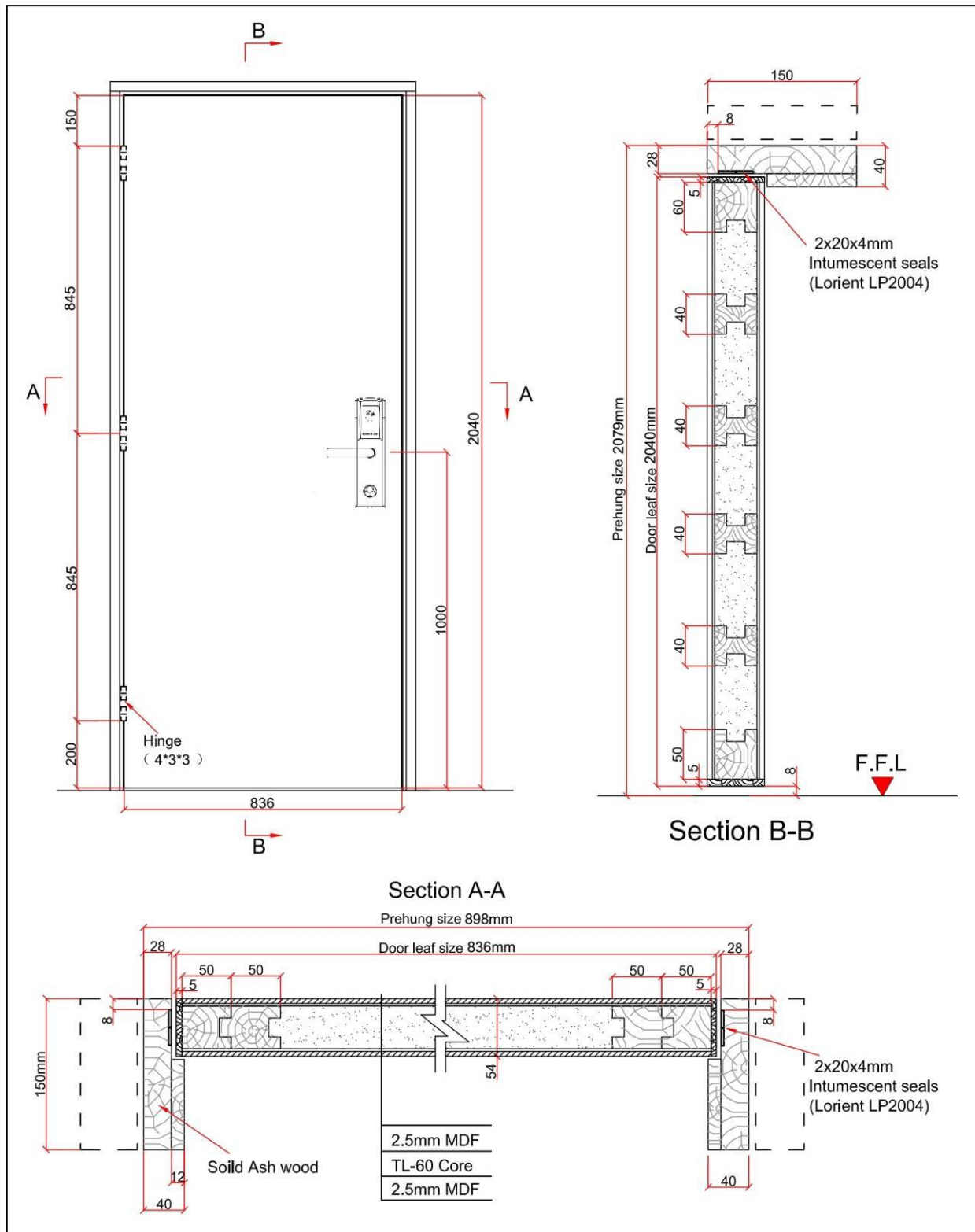
	Base RFID(81)-2-01 后锁体总成 Model (1)	后锁体总成	08/2017	08/2017
	Base RFID(81)整锁爆炸图 Model (1)	Base RFID (81)	08/2017	08/2017
	65M-Z14B-A	65M-Z14B-A.SCH	12/2016	02/2017
	65M-Z14B-B	65M-Z14B-B.SCH	12/2016	02/2017
	65M-Z15A	65M-Z15A	12/2016	02/2017
Guardian RFID(G4)	87-1-02 感应面板 -2015-10-20- Model	感应面板	12/2016	02/2017
	Guardian RFID(G4)-1-00 前锁体总成 Model (1)	前锁体总成	08/2017	08/2017
	Guardian RFID(G4) Model (1)	Guardian RFID(G4)	08/2017	08/2017
	Guardian RFID(G4)-2-00 后锁体总成 Model (1)	后锁体总成	08/2017	08/2017
	65M-Z14B-A	65M-Z14B-A.SCH	12/2016	02/2017
	65M-Z14B-B	65M-Z14B-B.SCH	12/2016	02/2017
	65M-Z15A	65M-Z15A	12/2016	02/2017

Note:

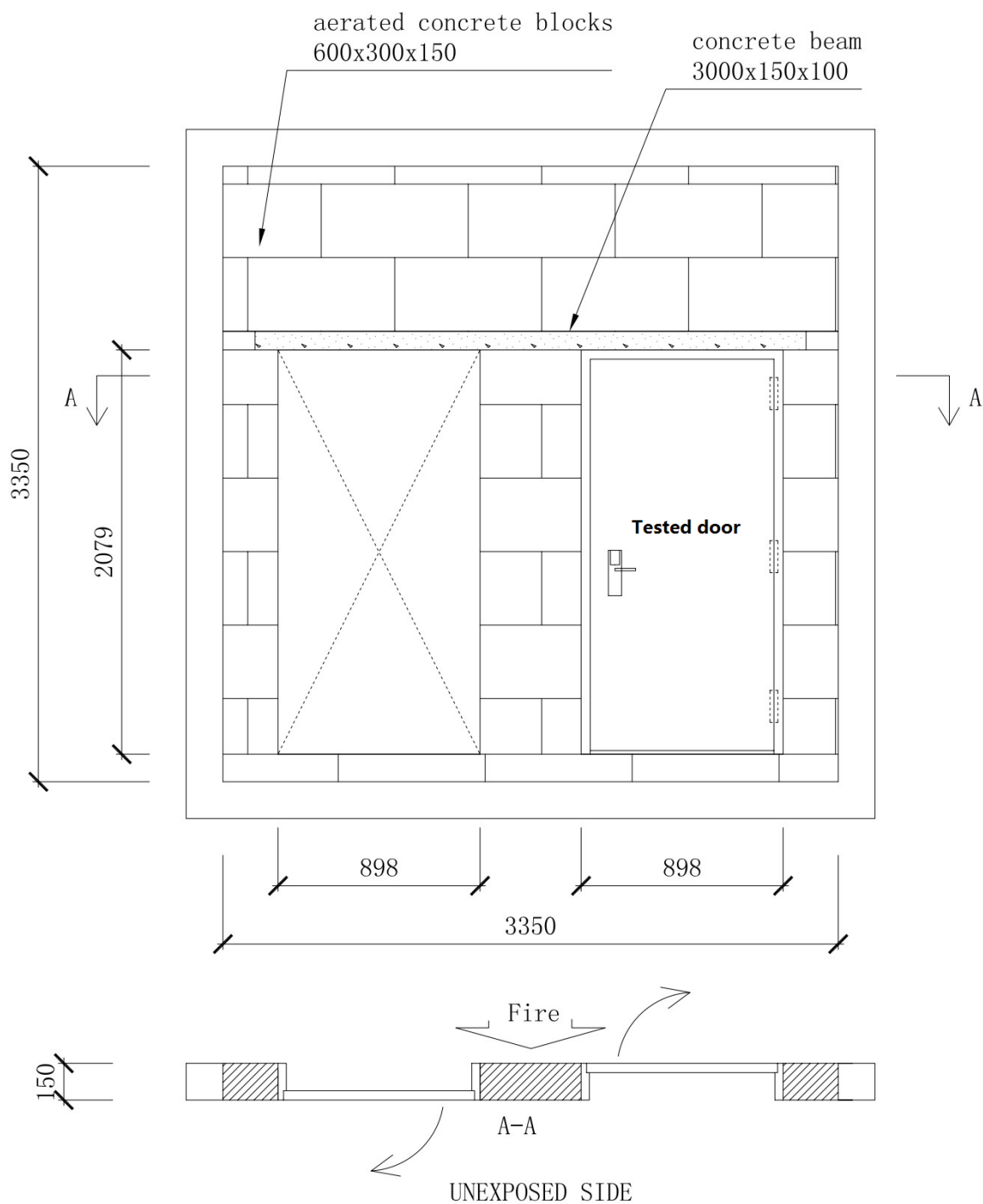
It is a mandatory requirement that Intertek is informed of any modifications or changes to the following:

- Product submitted for approval or that has been approved
- Manufacturing process
- Manufacturing address
- Materials
- Materials supplier
- Documents recorded within this register

## 8 Appendix B: Fire Door Assembly Drawings

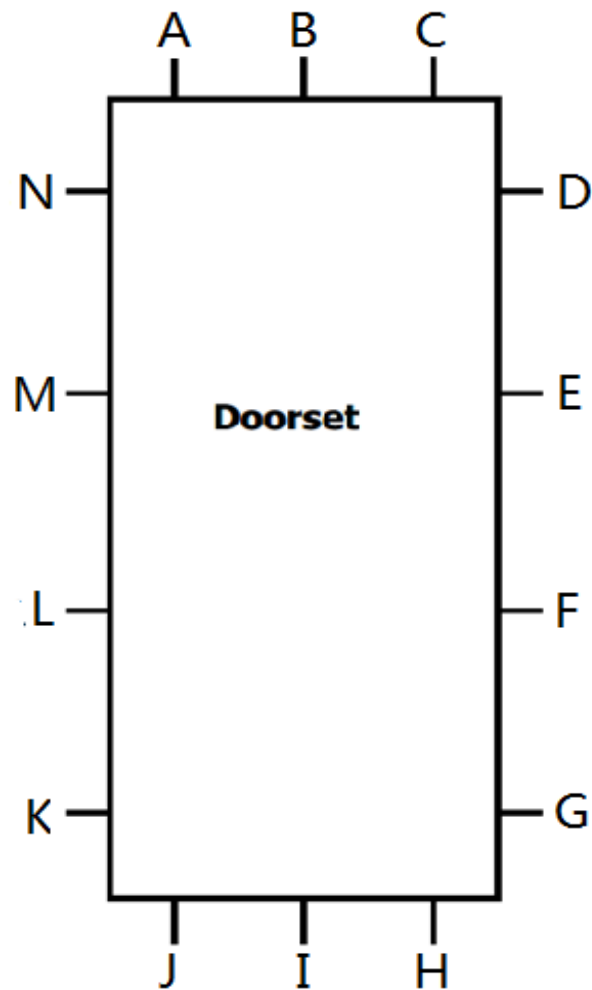


9     **Appendix C: Test Wall Construction Drawing**



## 10 Appendix D: Test Measurement Data

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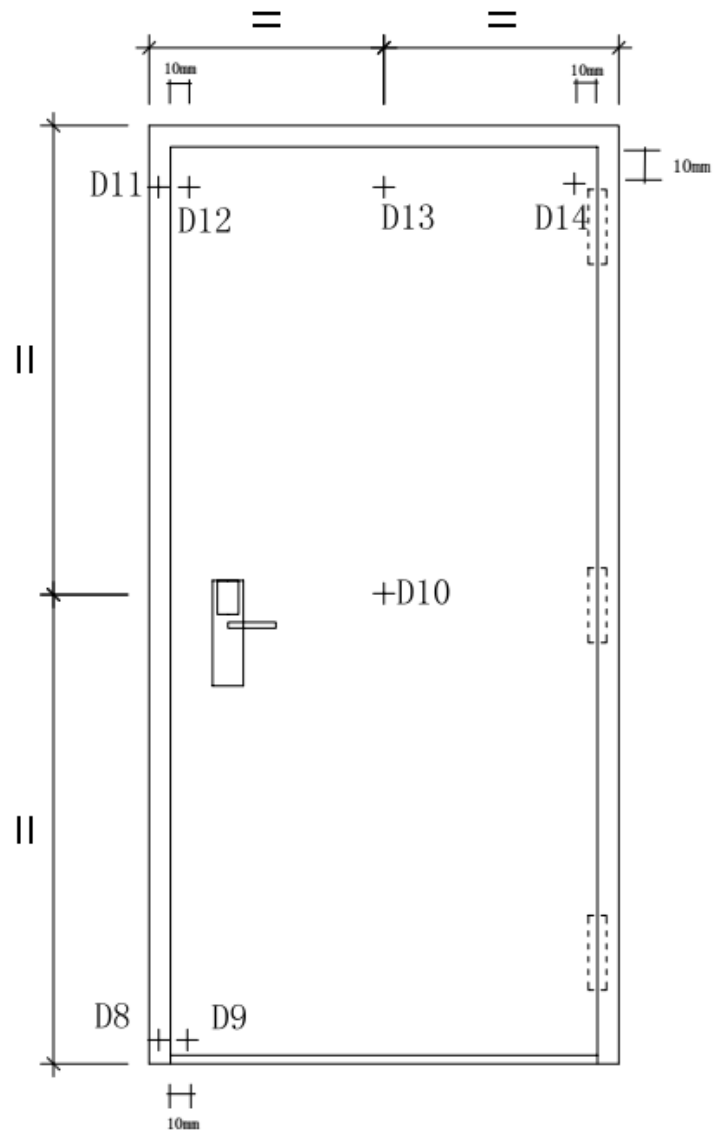
**EXPOSED SIDE**

Clearance dimension in mm at each position						
A	B	C	D	E	F	G
1.4	0.8	1.0	2.4	1.8	1.0	2.2
H	I	J	K	L	M	N
2.5	3.1	4.2	1.3	2.0	1.9	2.1

DO NOT SCALE

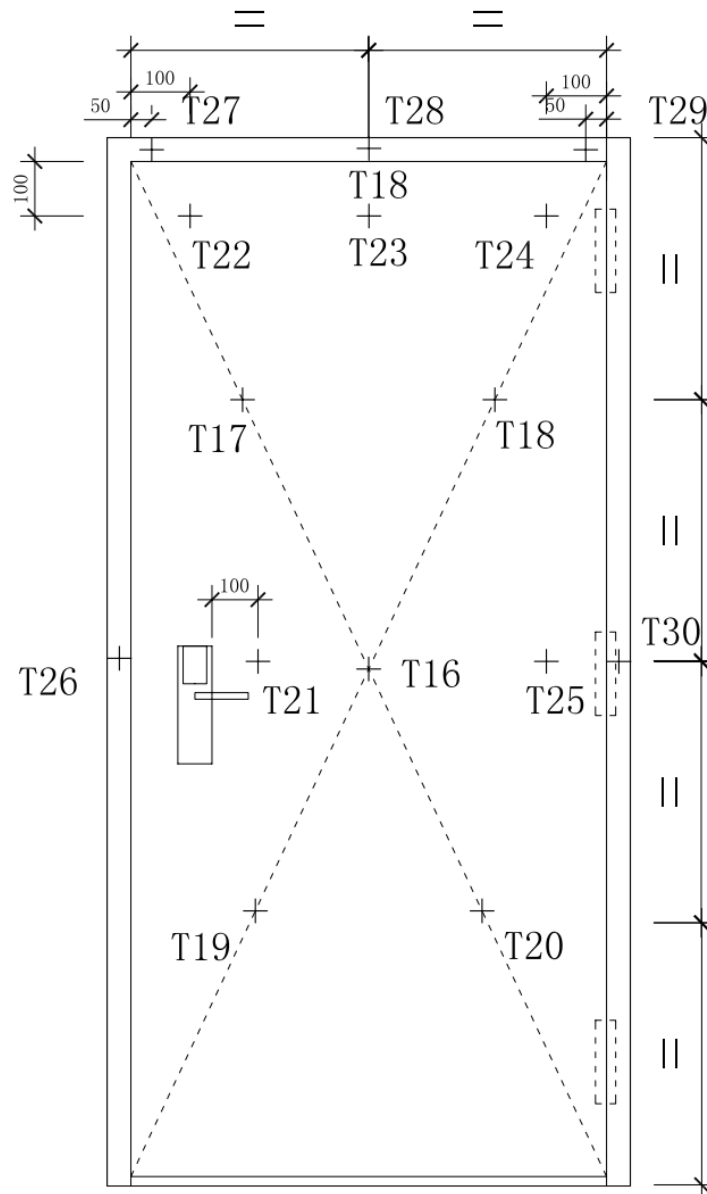
**DOOR ASSEMBLY INITIAL CLEARANCES**

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**UNEXPOSED SIDE**

**POSITION FOR MEASUREMENT OF HORIZONTAL DEFLECTION**



**POSITION FOR MEASUREMENT OF UNEXPOSED TEMPERATURE**

## 11 Appendix E: Test Data

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Standards: EN 1634-1:2014, "Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 1: Fire resistance test for door and shutter assemblies and openable windows."  
Procedure: Part 1: Fire resistance test for door and shutter assemblies and openable windows.  
Conditioning: According to EN1363-1, Section 8  
Equipment:

<i>Item</i>	<i>ID</i>
Vertical furnace	SH1097
Furnace pressure gauge	SH1097-15
Test Clock	SH1042
Furnace thermocouple	SH1097-4~6
Ambient temperature gauge	SH1097-11
Unexposed thermocouple	SH1097-12~14
Clearance Measurements	SH1061
Displacement Measurements	SH1163

Heating Conditions: According to EN 1363-1, Section 5.1  
Pressure Conditions: According to EN1363-1, Section 5.2  
Ambient Conditions: 10~40°C according to EN 1363-1, Section 5.6  
Test Specimen: According to EN 1634-1, Section 6  
Installation of test specimen: According to EN 1634-1, Section 7  
Furnace According to EN 1634-1, Section 9.1.1  
Thermocouples: According to EN 1634-1, Section 9.1.2  
Unexposed Face  
Thermocouples:  
Thermocouple Pads: Length and width 30 mm, thickness  $2.0 \pm 0.5$  mm, dry density  $900 \pm 90$  kg/m<sup>2</sup>  
Pressure According to EN 1634-1, Section 9.2  
Measurements:  
Deflection According to EN 1634-1, Section 9.3  
Measurements:  
Pre-test Examination: According to EN 1634-1, Section 10.1  
Test Procedure: According to EN 1634-1, Section 10.2

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**Test Observations:**

Time		All observations are from the unexposed face unless noted otherwise.
Mins	Secs	
00	00	Test started.
1	30	Smoke issues from top half of the door.
10	25	Smoke issues lock position of the door.
16	17	Discoloration is observed at lock position of the door.
51	20	Transient flame is observed on bottom edge of the door.
57	26	A cotton pad is applied to the lock position and the pad is not ignited.
59	10	Sustained flame is observed at lock panel position of the door. Integrity failure is deemed to occur.
60	00	Test is discontinued.

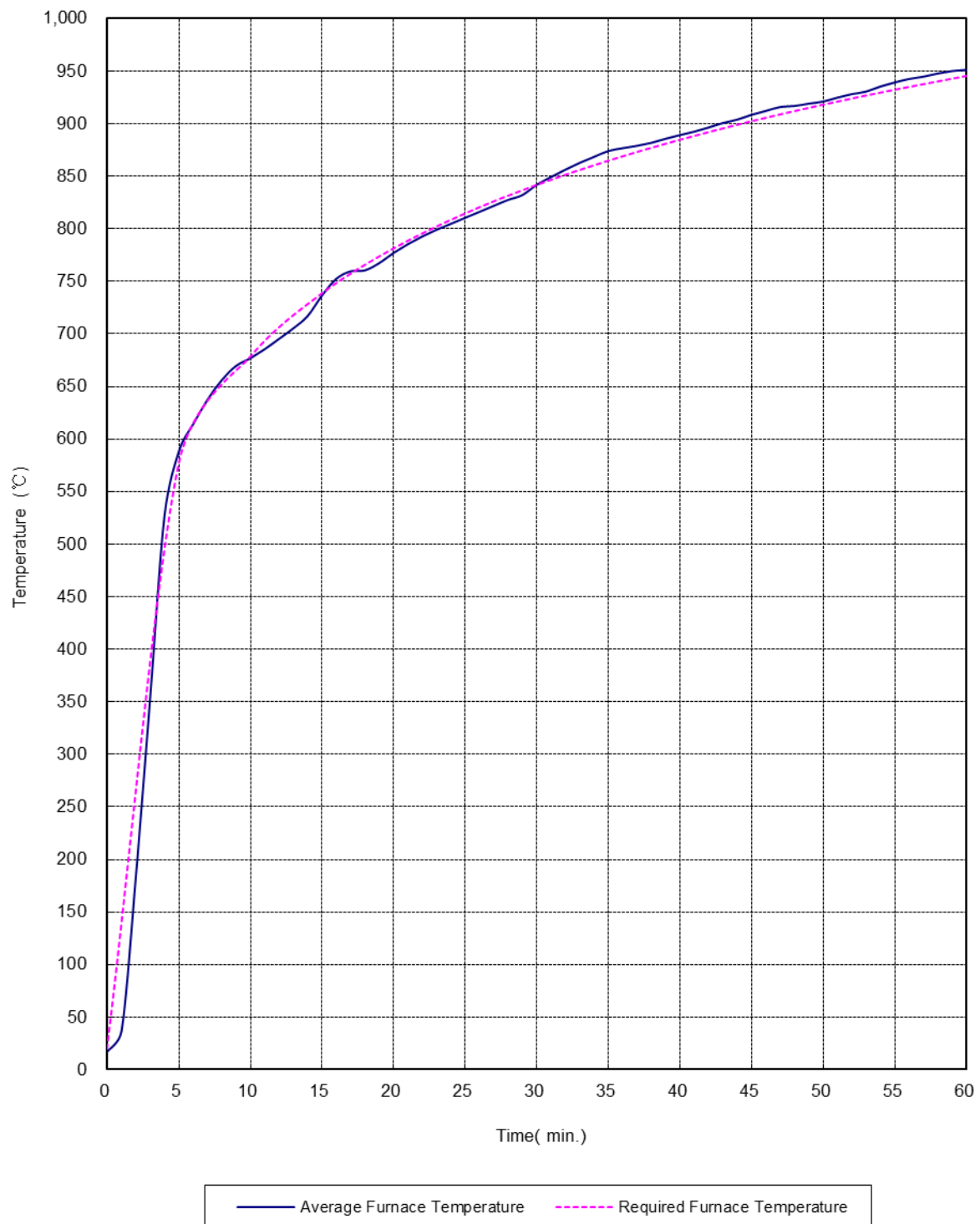


### Temperature Data:

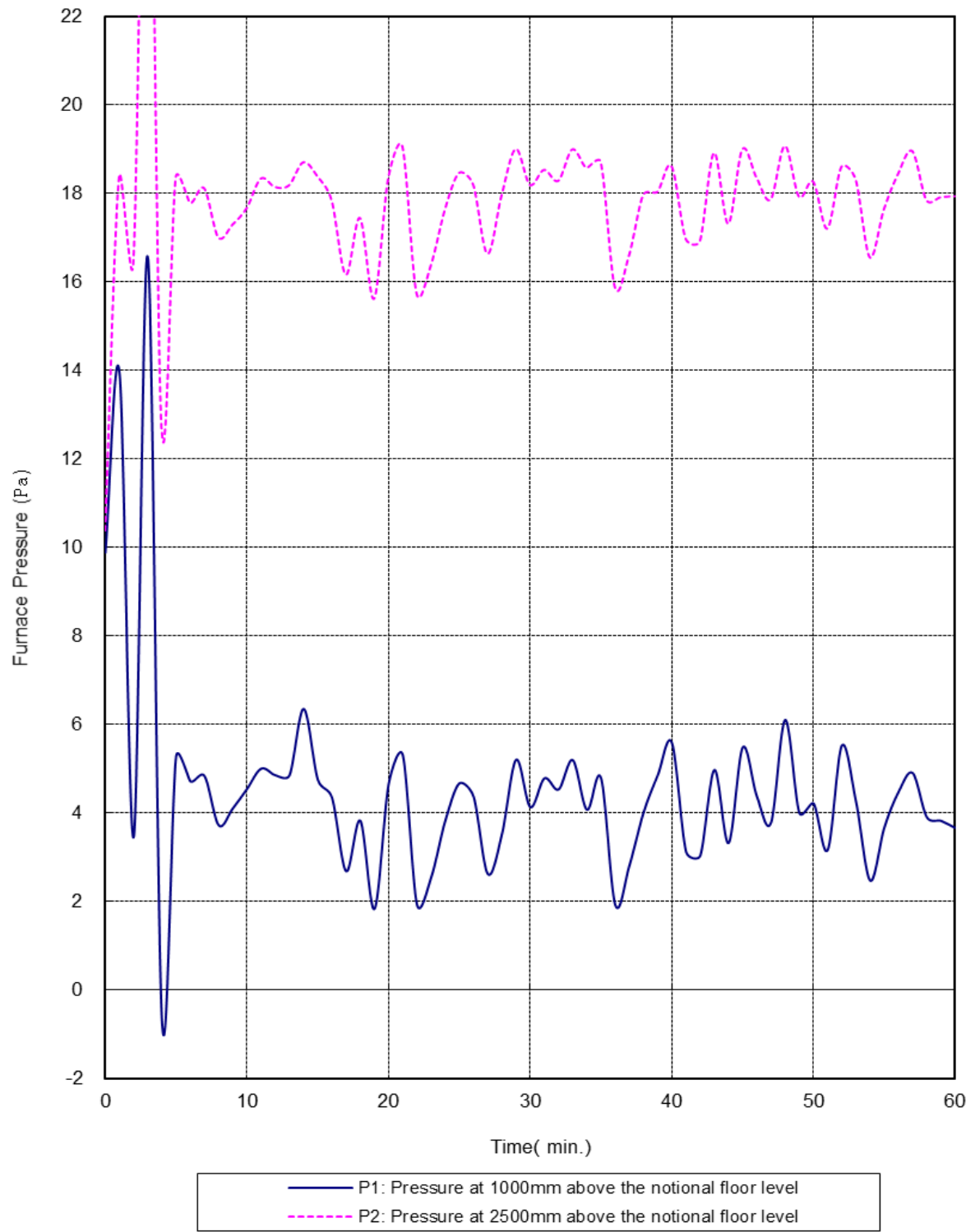
Mean furnace temperature together with temperature-time relationship specified in the standard

Time Mins	Specified Furnace Temperature/ °C	Furnace Mean Temperature/ °C
0	20	17
5	576	588
10	678	677
15	739	737
20	781	777
25	815	810
30	842	842
35	865	874
40	885	889
45	902	908
50	918	921
55	932	939
60	945	951

Graph for mean furnace temperature and temperature-time curve specified in the standard



Furnace pressure graph



Unexposed surface temperatures

Time Mins	T16 (°C)	T17 (°C)	T18 (°C)	T19 (°C)	T20 (°C)	Mean temperature (°C)
0	19	20	19	18	18	19
5	19	20	20	18	19	19
10	20	21	21	19	19	20
15	24	23	25	21	22	23
20	39	31	40	36	34	36
25	54	43	58	53	51	52
30	61	54	68	62	60	61
35	58	58	72	66	65	64
40	61	61	75	69	68	67
45	62	64	77	71	71	69
50	62	62	79	72	73	70
55	64	62	80	74	75	71
60	66	63	81	75	76	72

Time Mins	T21 (°C)	T22 (°C)	T23 (°C)	T24 (°C)	T25 (°C)	Environment (°C)
0	18	18	18	19	18	19
5	18	18	20	25	20	19
10	19	20	20	23	20	19
15	22	21	25	35	20	19
20	33	27	36	50	23	19
25	49	42	43	57	29	19
30	59	59	57	62	36	19
35	60	69	64	67	44	19
40	64	71	68	70	53	19
45	68	75	70	73	60	19
50	70	77	73	76	70	19
55	72	79	77	78	83	19
60	74	92	83	76	92	19

Time Mins	T26 (°C)	T27 (°C)	T28 (°C)	T29 (°C)	T30 (°C)	Environment (°C)
0	19	19	18	18	18	19
5	19	19	21	22	19	19
10	20	19	20	24	19	19
15	20	20	20	22	19	19
20	20	19	21	22	19	19
25	21	20	22	22	20	19
30	22	20	23	23	20	19
35	22	20	24	24	21	19
40	23	20	25	25	21	19
45	24	20	26	26	22	19
50	24	21	28	28	23	19
55	25	20	30	30	25	19
60	27	21	32	33	26	19

Horizontal Deflection (Positive values indicate movement into the furnace)

Time Mins	D8 (mm)	D9 (mm)	D10 (mm)	D11 (mm)	D12 (mm)	D13 (mm)	D14 (mm)
0	0	0	0	0	0	0	0
10	0	0	2	0	9	3	0
20	0	-1	0	0	14	7	7
30	0	-6	8	0	20	14	15
40	0	0	18	0	23	18	25
50	0	-1	26	0	27	20	29

## 12 Appendix F: Test Photographs

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Fig. 1 – Unexposed Side Prior to the Fire Test



Fig. 2 – Exposed Side Prior to the Fire Test

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Fig. 3 – Unexposed Side after 10 Minutes



Fig. 4 – Unexposed Side after 20 Minutes



Fig. 5 – Unexposed Side after 30 Minutes



Fig. 6 – Unexposed Side after 51 Minutes





Fig. 7 – Unexposed Side after 57 Minutes



Fig. 8 – Unexposed Side after 59 Minutes



Fig. 9 – Unexposed Side after 60 Minutes



Fig. 10 – Exposed Side after 60 Minutes

## 13 Revision Page

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Revision No.	Date	Changes	Author	Reviewer
0	May 5, 2017	First issue	Vincent Jin	Ping Rao
1	September 8, 2017	Revise product model as Base RFID(65), Base RFID(75), Base RFID(81) and Guardian RFID(G4)	Vincent Jin	Sun Sun

END OF DOCUMENT

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