TEST REPORT

REPORT NUMBER:141222001SHJ-BP-1
ORIGINAL ISSUE DATE: January 23, 2015

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, Guangdong, P.R.China

PRODUCT EVALUATED
Electronic Lock
Guardian RFID Elegant (G2), Guardian RFID Elegant Li (G3)

EVALUATION PROPERTY
Fire Resistance

Report of Testing Guardian RFID Elegant – Model of G2 in Single Leaf Single Acting 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, shutter and openable window assemblies and elements of building hardware – Part 1: Fire resistance tests for doors, shutters and openable windows.*

1 Table of Contents

2 Introduction

Intertek has conducted an evaluation for GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED to determine the fire resistance characteristics of the Guardian RFID Elegant, Model of G2 in Single Leaf Single Acting Wooden Composite Fire Door. The test was designed to demonstrate evaluation on 2 models of locksets including Guardian RFID Elegant, Model of G2 and Guardian RFID Elegant Li, Model of G3. This evaluation began on December 22, 2014 and was completed on January 23, 2015. The test was conducted on January 21, 2015.

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

3 Test Samples

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 December 31, 2014.

3.2. SAMPLE AND ASSEMBLY DESCRIPTION

Door	Type	Single Leaf Single Acting Wooden Composite Fire Door
	Nominal Size	806 mm wide by 2047 mm high by 58 mm thick
	Main materials	Mineral core, Density: 530 Kg/m^3 Solid wood rail and stile, Density: 620 Kg/m^3 Lipping: Solid wood, Density: 620 Kg/m^3
Frame	Nominal Size	900 mm wide by 2100 mm high by 150 mm thick
	Material	Solid wood with the density of 620 Kg/m^3
Hardware	Electronic lock	Guardian RFID Elegant, Model: G2 Lock case size: 152.5mm×99mm×16mm Backset: 65mm; Latch throw length: 15 mm Latch bolt: Engaged; Dead bolt: Disengaged Installation: The handle with battery cover was on the unexposed side of the door.
	Hinge	Ball bearing stainless steel butt hinge Size: 4”×3”×3 mm Quality: Three
	Bedding material for Lock, Hinge	Bedding material: lintumescent strip Model: THERM-A-STRIP, 2 mm thick
Intumescent Seal	Model: Lorient LP2004 Size: 2×20×4 mm Location: at header and jamb sides of frame	

The sample ID number is S141222001-001.

Full products description:

No.	Model	Lock case size/mm	C-C distance of latch and key hole/mm	Configuration	Latch throw/mm
1	Guardian RFID Elegant , model of G2	99x152.5x16	98	Latch and dead bolt	15
2	Guardian RFID Elegant Li, model of G3		98.5		

According to the sponsor's declaration, both models employ same material, structure and cutout size, the only difference between these two models is the center to center distance of latch and key hole. Guardian RFID Elegant, model of G2 with a smaller center to center distance was selected to test to cover the other one.

The drawings of the Guardian RFID Elegant, model of G2, Guardian RFID Elegant Li, model of G3, fire door assembly, and test wall construction can be found in Appendices A, B, and C respectively.

4 Testing and Evaluation Methods

The test was conducted in accordance with EN 1634-1: 2014 "Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware – Part 1: Fire resistance tests for doors, shutters 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 sample moved in front of the furnace for the fire exposure. The test door was oriented to open into the furnace, and was built into a concrete masonry unit partition, with fully mortared joints. The nominal dimensions of the test wall were 3 m high by 2 m wide. 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.

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.

5 Testing and Evaluation Results

5.1. INTEGRITY

The assembly withstood the fire resistance test without passage of flame or gases hot enough to ignite cotton waste for 60 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 60 minutes fire exposure period no significant flaming was observed on the unexposed face of the assembly.

This assembly therefore met the criteria of the test standards for integrity performance of 60 minutes.

5.2. INSULATION

Transmission of heat through the assembly during the fire resistance test did not raise the average temperature on the unexposed surface by more than 140°C, and did not raise the maximum temperature on the unexposed surface by more than 180°C. 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.

The Performance criteria “insulation” shall automatically be assumed not to be satisfied when the “integrity” criterion ceases to be satisfied. This assembly passed the insulation portion of the test of 60 minutes. A full set of test data is included in Appendix E, and photographs have been presented in Appendix F.

6 Conclusion

The Guardian RFID Elegant, model of G2 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, shutter and openable window assemblies and elements of building hardware – Part 1: Fire resistance tests for doors, shutters and openable windows”. This test was designed to demonstrate evaluation on 2 models of locksets including Guardian RFID Elegant, model of G2 and Guardian RFID Elegant Li, model of G3.

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

Integrity	Sustained flaming	60 minutes
	Gap gauge	60 minutes
	Cotton pad	60 minutes
Insulation		60 minutes

The test was discontinued after a period of 60 minutes.

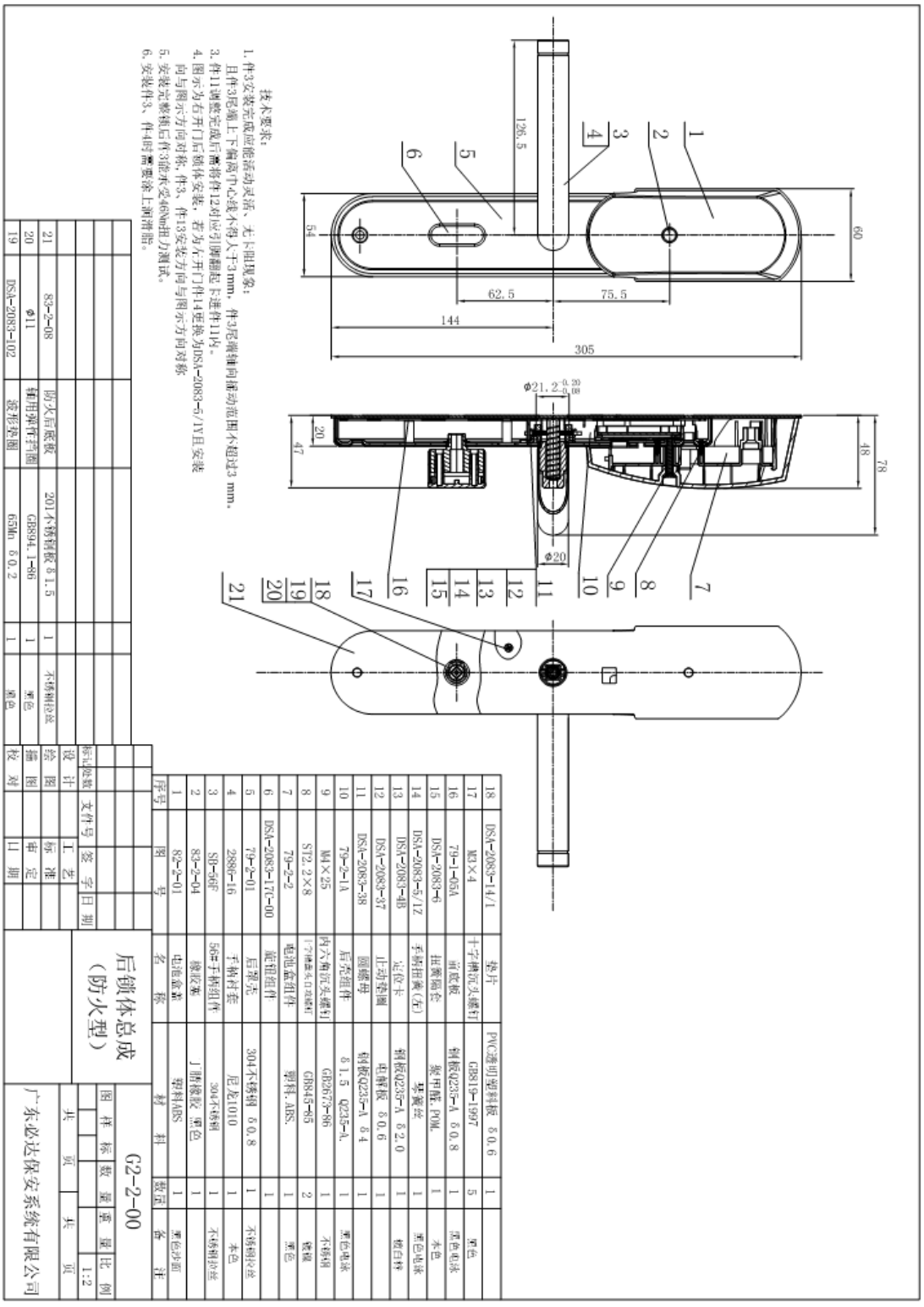
The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

INTERTEK

Reported by: Jason. b. xu
Jason b Xu
Engineer, Building Products

Reviewed by: Harrison Li
Harrison Li
Senior Project Engineer, Building Products

7 Appendix A:Electronic Locksets Drawings



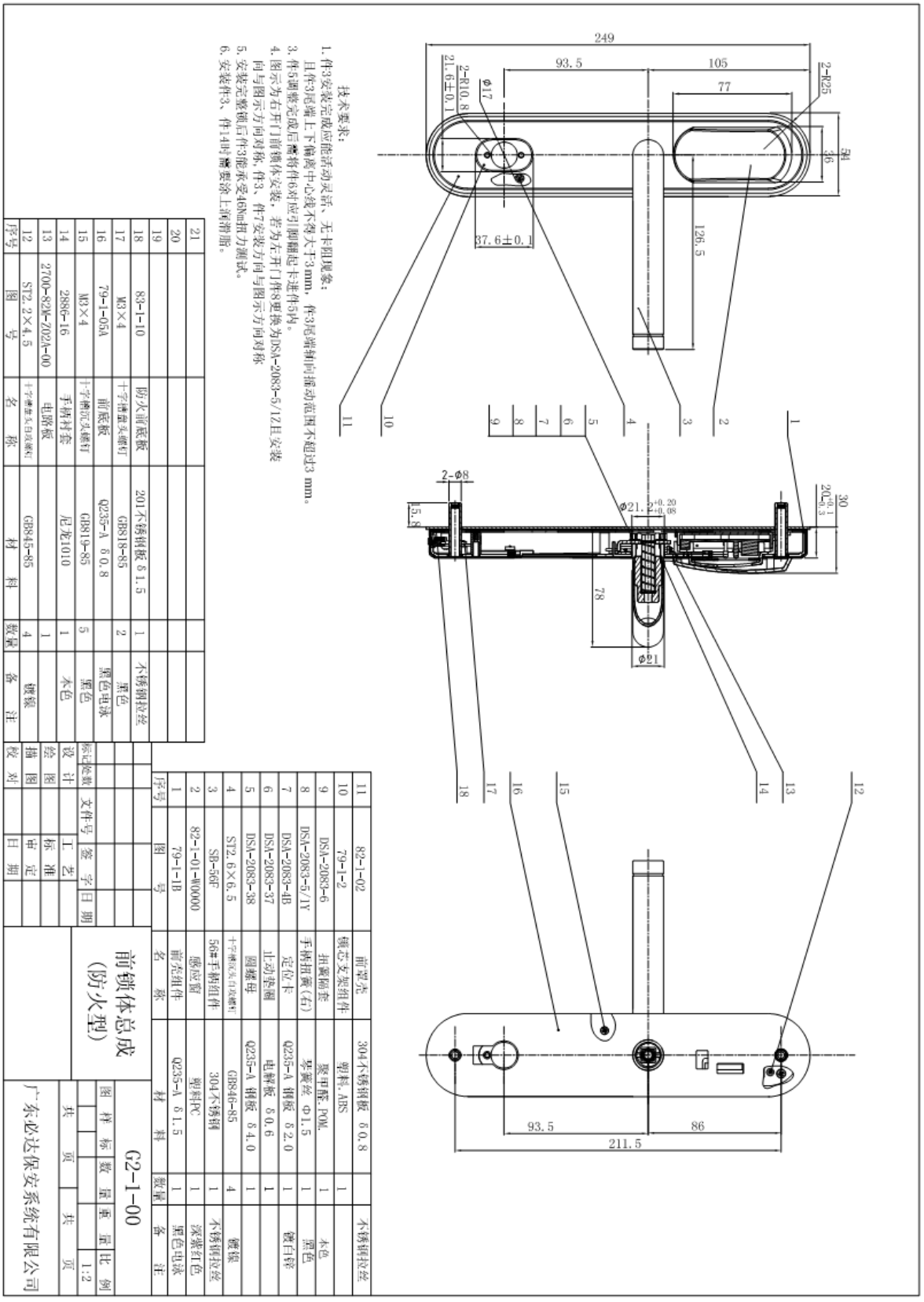
序号	图号	名称	材料	数量	备注
1	82-2-01	电池盒盖	塑料ABS	1	黑色沙面
2	82-2-04	橡胶塞	丁腈橡胶 黑色	1	
3	S8-06F	56#子母组件	304不锈钢	1	不锈钢沙丝
4	2886-16	子母衬套	尼龙1010	1	本色
5	79-2-01	后录壳	304不锈钢 δ0.8	1	不锈钢沙丝
6	DSA-2083-17L-00	旋钮组件		1	
7	79-2-2	电池盒组件	塑料. ABS.	1	黑色
8	ST2.2×8	十字槽头自攻螺钉	GB845-85	2	镀镍
9	M4×25	内六角沉头螺钉	GB2672-86	1	黑色电泳
10	79-2-1A	后壳组件	δ1.5 Q235-A.	1	黑色电泳
11	DSA-2083-38	圆螺母	铜板Q235-A δ4	1	
12	DSA-2083-37	止动垫圈	电解板 δ0.6	1	
13	DSA-2083-4B	定位卡	铜板Q235-A δ2.0	1	镀白锌
14	DSA-2083-5/1Z	手臂扭簧（左）	弹簧丝	1	黑色电泳
15	DSA-2083-6	扭簧隔套	聚甲醛. POM.	1	本色
16	79-1-05A	前底板	铜板Q235-A δ0.8	1	黑色电泳
17	M3×4	十字槽沉头螺钉	GB819-1997	5	黑色
18	DSA-2083-14/1	垫片	PVC透明塑料板 δ0.6	1	

标记	处数	分区	更改文件号	签字	日期
设计			标准化		
绘图			工艺		
描图			审定		
校对			批准		

图样标记	重量	比例
		1:2
共 页	第 页	

19	DSA-2083-102	Φ11	钣形垫圈	1	黑色
20		82-2-08	转用弹性销圈	GB894.1-86	65Mn δ0.2
21		82-2-08	防火后底板	201不锈钢板 δ1.5	1

Drawing of Guardian RFID Elegant, model of G2



技术要求：

1. 件3安装完成应能活动灵活、无卡阻现象；
2. 且件3摇臂上下偏离中心线不得大于3mm，件3摇臂前向摇动范围不超过3 mm。
3. 件5调紧完成后需将件6对应引脚掰起卡进件5内。
4. 图示为右开门前锁体安装，若为左开门件8更换为DSA-2083-5/12且安装向与图示方向对称
5. 安装完整锁后件3能承受46Nm扭力测试。
6. 安装件3、件14均需要涂上润滑脂。

序号	图号	名称	材料	数量	备注
1	82-1-02	前罩壳	304不锈钢板 δ0.8	1	不锈钢拉丝
2	79-1-2	锁芯支架组件	塑料，ABS	1	
3	DSA-2083-6	扭簧销座	聚甲醛，POM	1	本色
4	DSA-2083-5/1Y	手柄扭簧（右）	琴簧丝 Φ1.5	1	黑色
5	DSA-2083-4B	定位卡	Q235-A 钢板 δ2.0	1	镀白锌
6	DSA-2083-37	止动垫圈	电解板 δ0.6	1	
7	DSA-2083-38	圆螺母	Q235-A 钢板 δ4.0	1	
8	ST2.6×6.5	十字槽沉头自攻螺钉	GB846-85	4	镀镍
9	SB-56F	56#手柄组件	304不锈钢	1	不锈钢拉丝
10	82-1-01-H0000	感应窗	塑料PC	1	深紫红色
11	79-1-1B	前壳组件	Q235-A δ1.5	1	黑色电泳
12	ST2.2×4.5	十字槽盘头自攻螺钉	GB845-85	4	镀镍
13	2700-82M-202A-00	电路板		1	
14	2886-16	手柄衬套	尼龙1010	1	本色
15	M3×4	十字槽沉头螺钉	GB819-85	5	黑色
16	79-1-05A	前底板	Q235-A δ0.8		黑色电泳
17	M3×4	十字槽盘头螺钉	GB818-85	2	黑色
18	83-1-10	防火前底板	201不锈钢板 δ1.5	1	不锈钢拉丝
19					
20					
21					

标记	处数	文件号	签字	日期
设计		工艺		
绘图		标准		
描图		审定		
校对		日期		

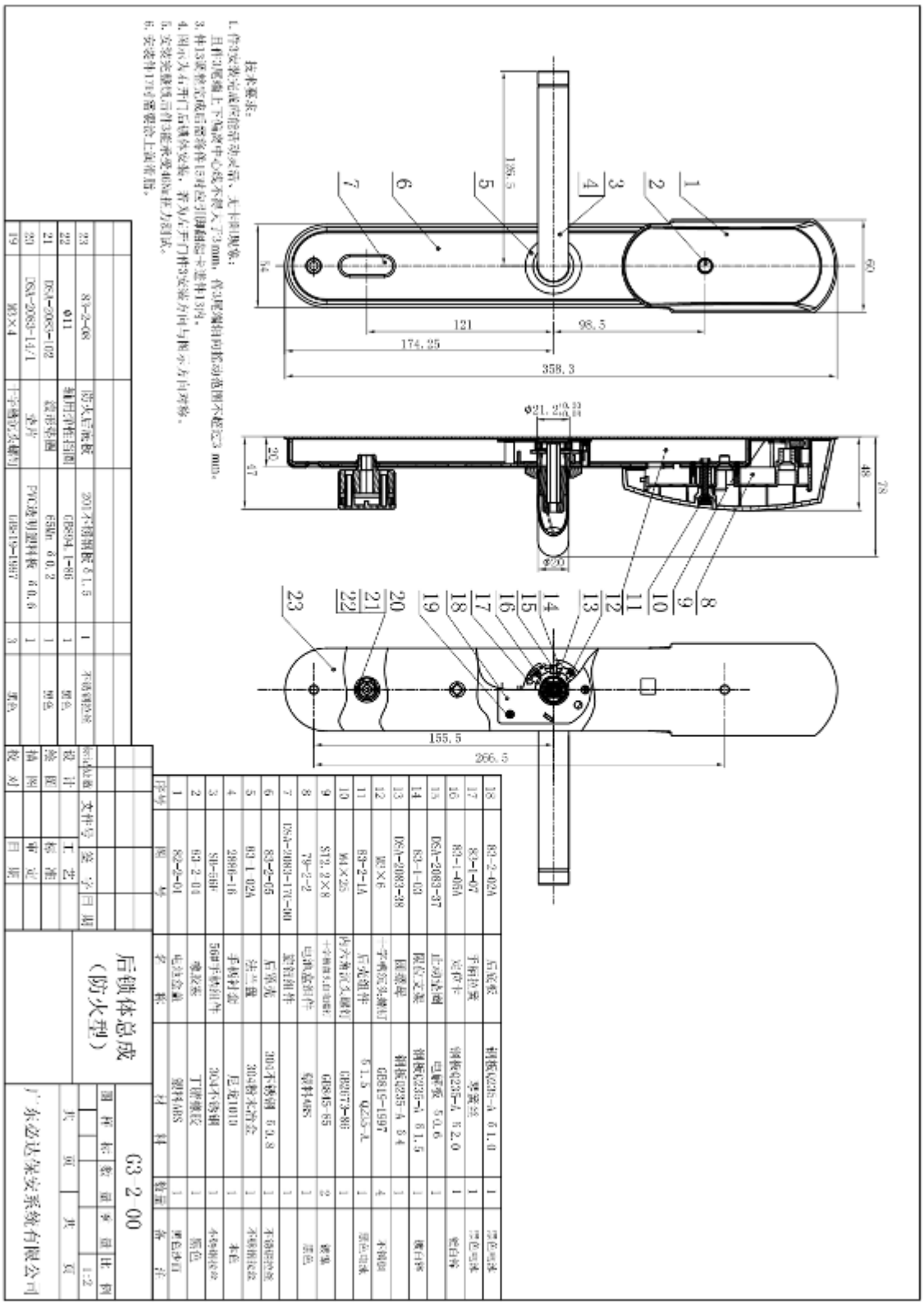
前锁体总成
(防火型)

G2-1-00

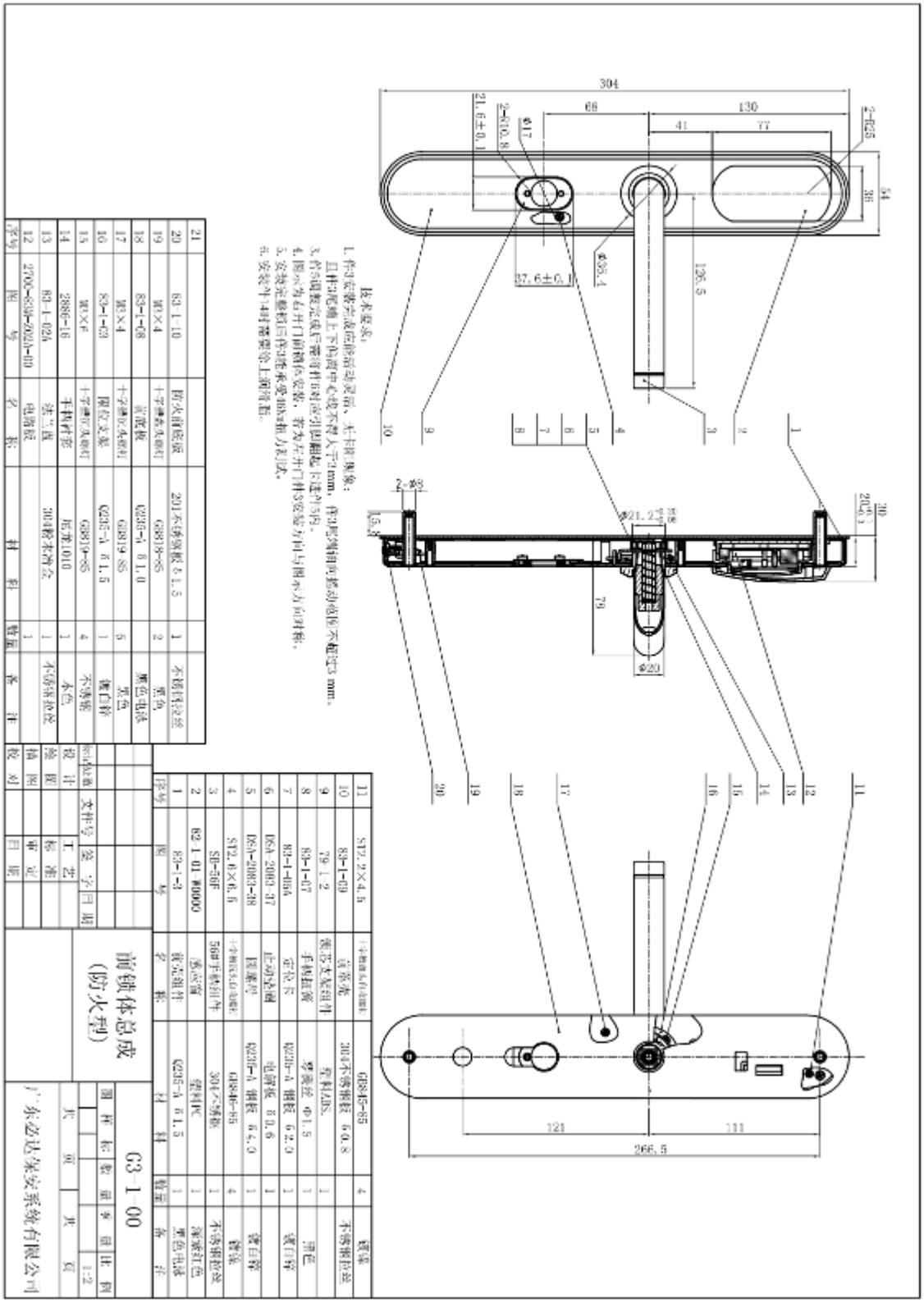
图样标记	数量	重量	比例
			1:2
共 页	第 页		

广东必达保安系统有限公司

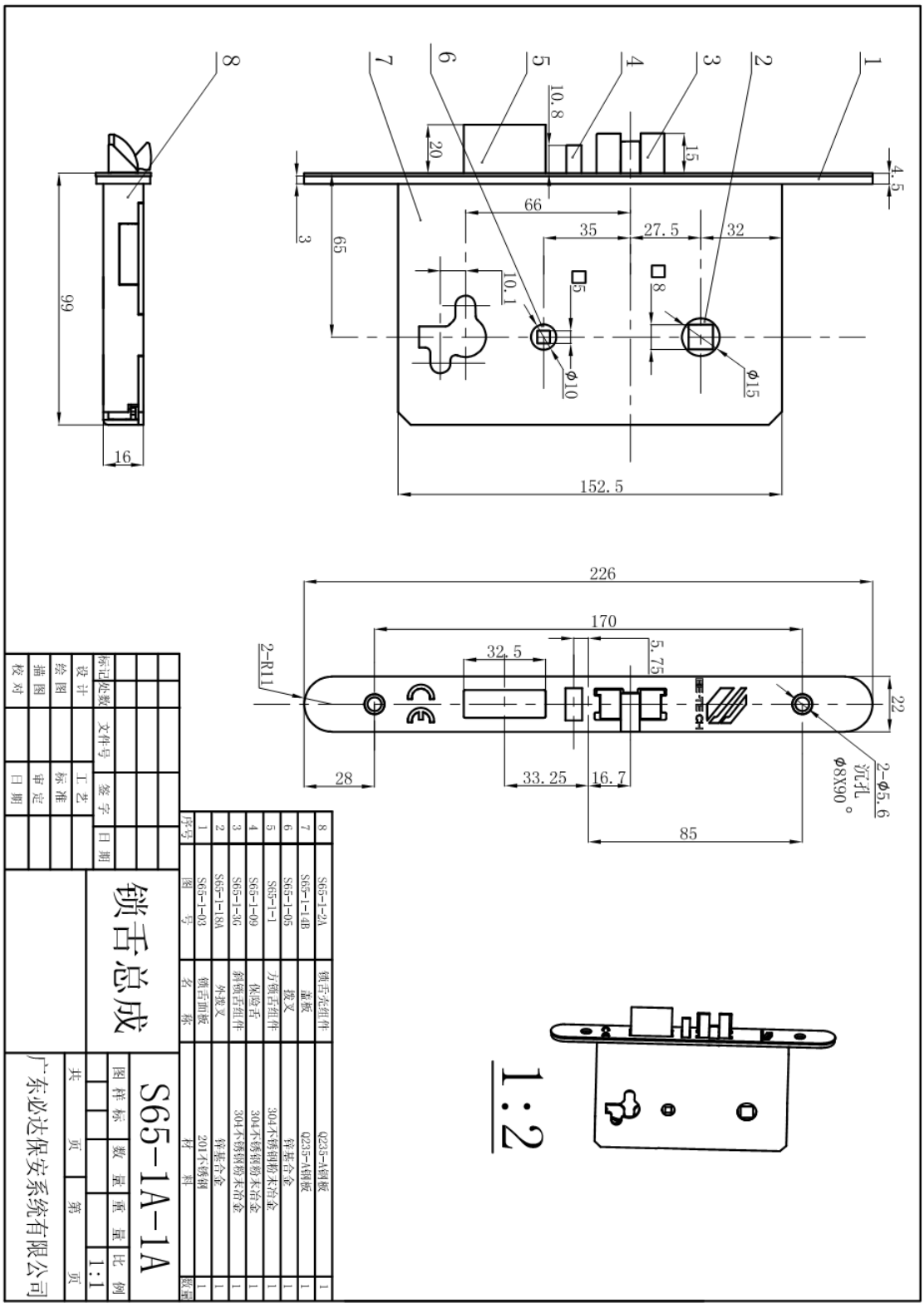
Drawing of Guardian RFID Elegant, model of G2



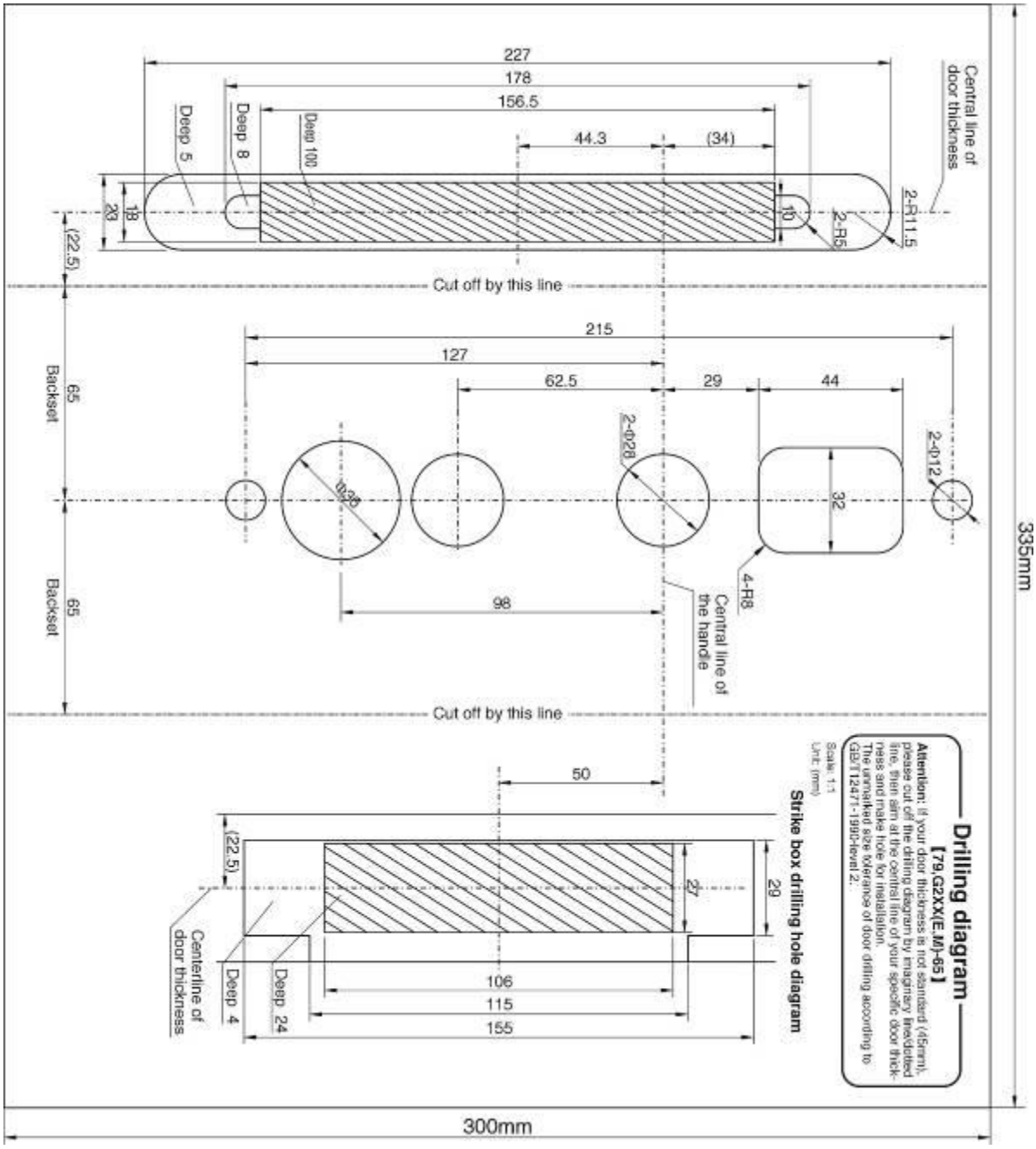
Drawing of Guardian RFID Elegant Li, model of G3



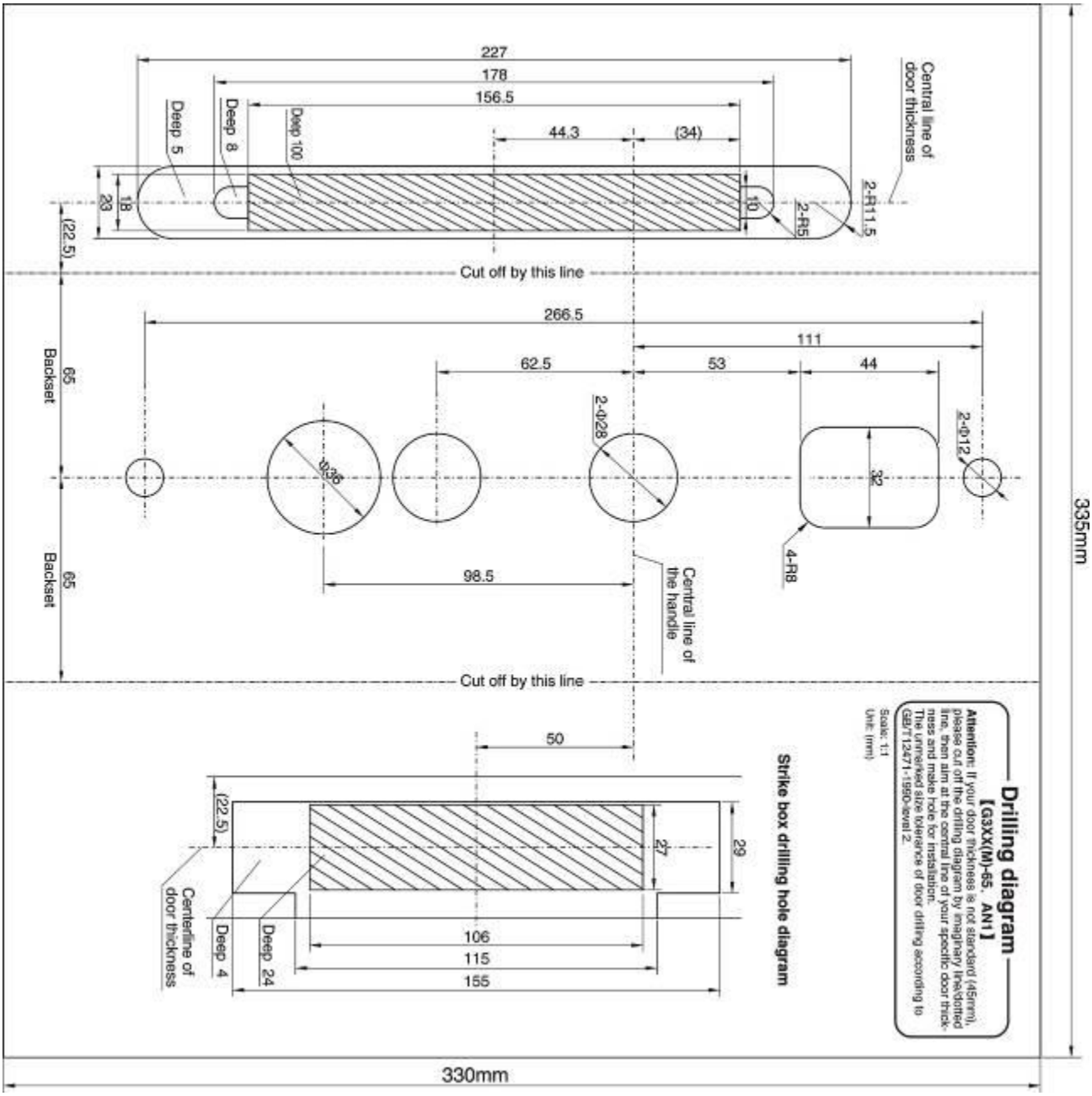
Drawing of Guardian RFID Elegant Li, model of G3



Lock Case Drawing of Guardian RFID Elegant, model of G2 and Guardian RFID Elegant Li, model of G3

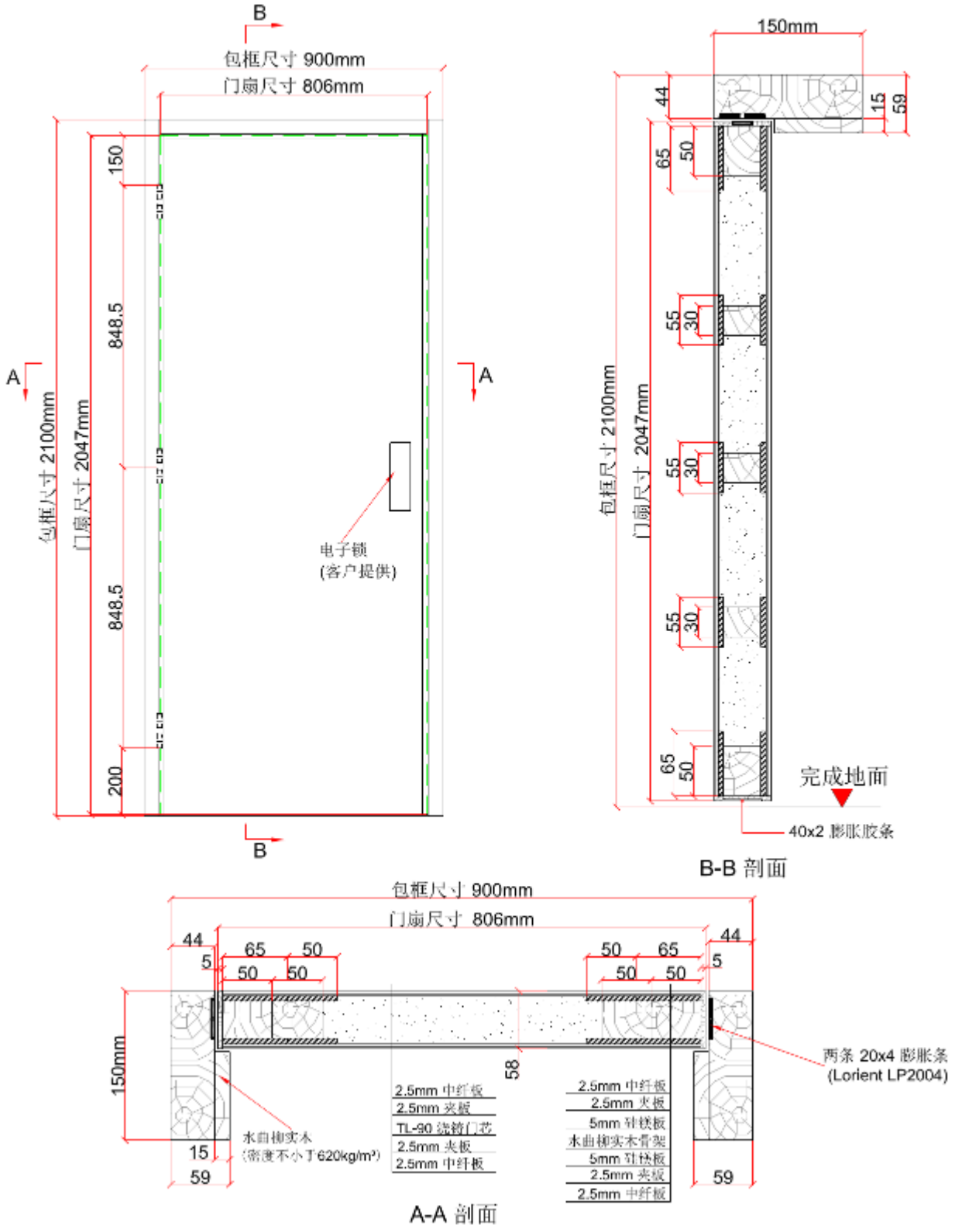


Drilling diagram of Guardian RFID Elegant, model of G2

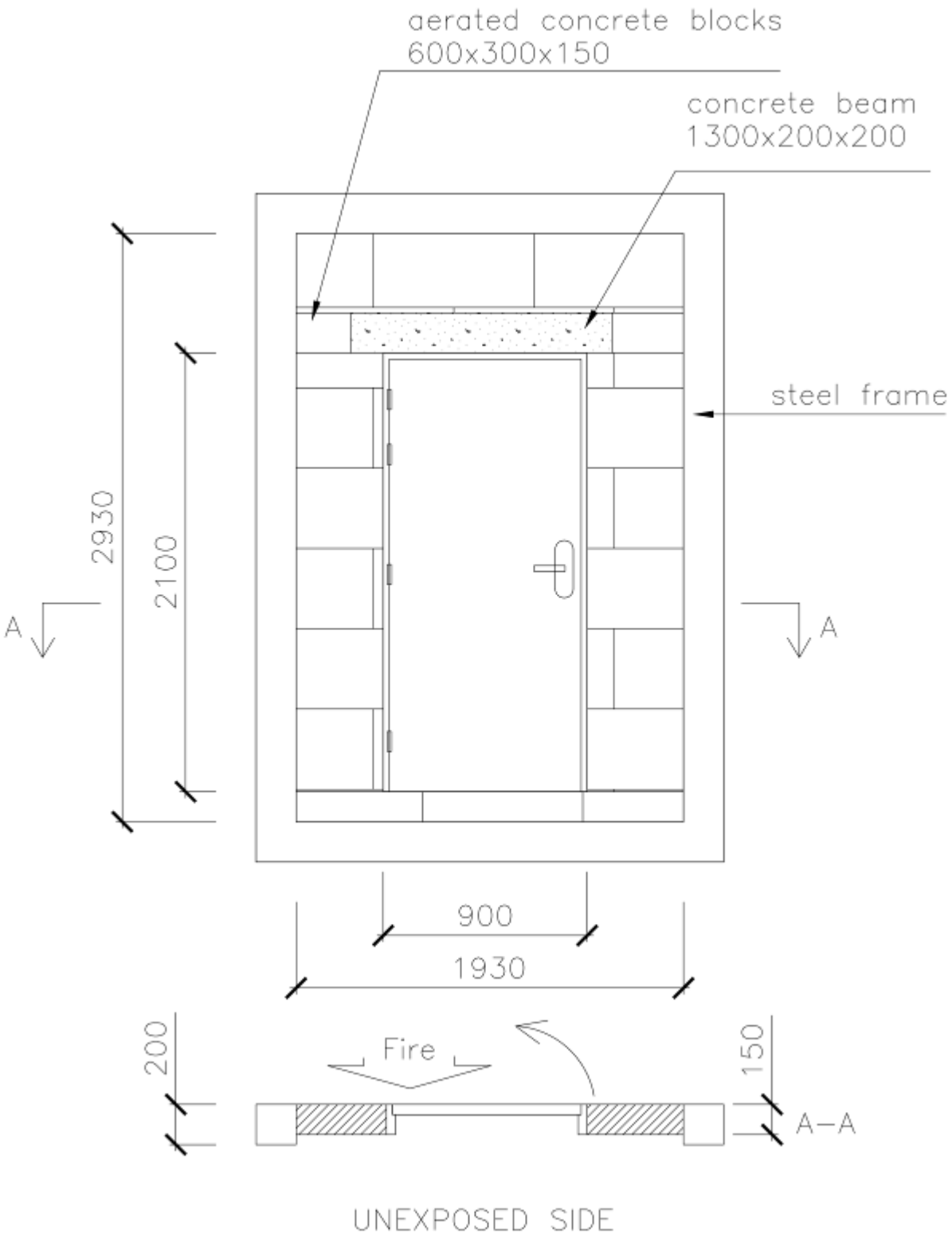


Drilling diagram drawing of Guardian RFID Elegant Li, model of G3

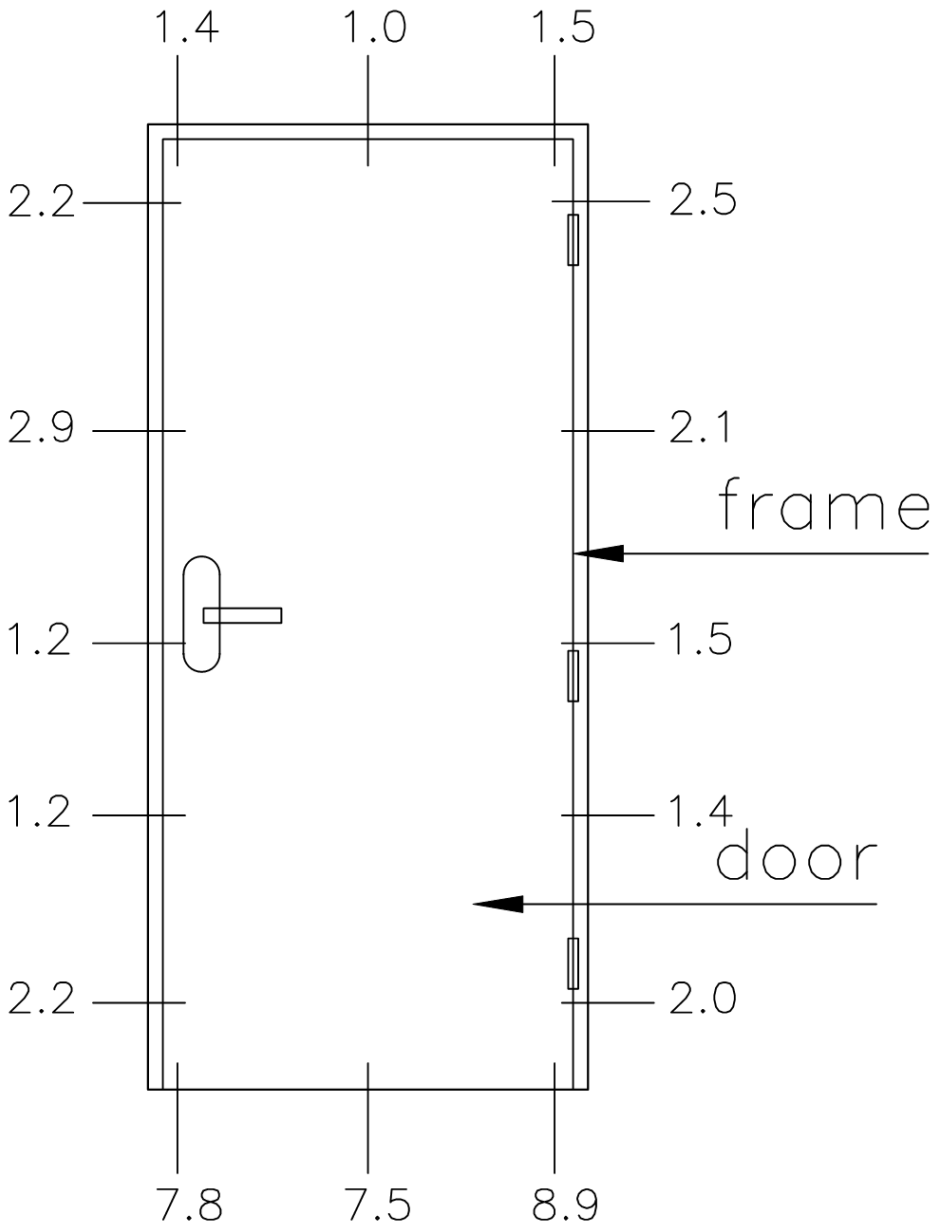
8 Appendix B: Fire Door Assembly Drawings



9 Appendix C: Test Wall Construction Drawing

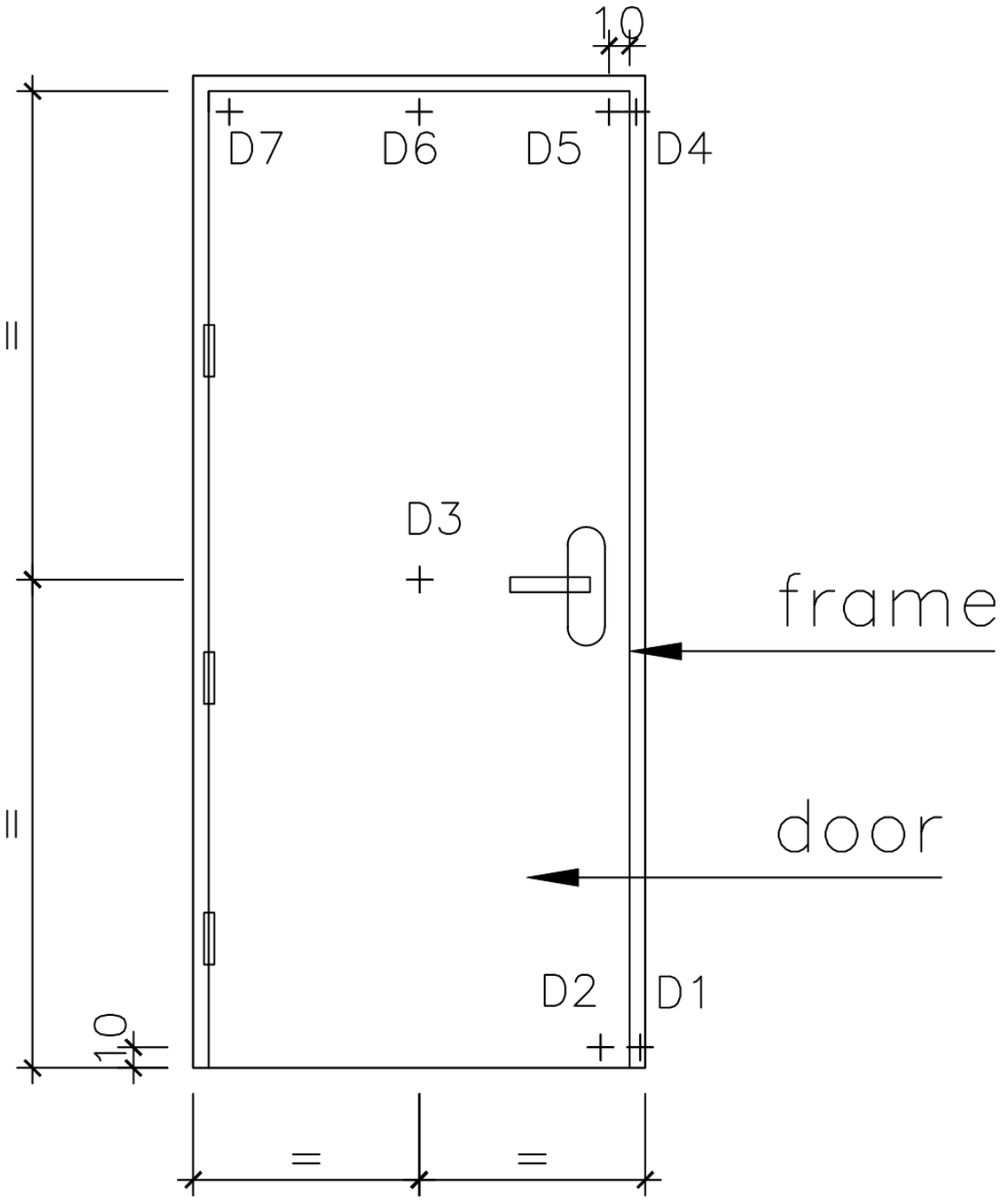


10 Appendix D: Test Measurement Data



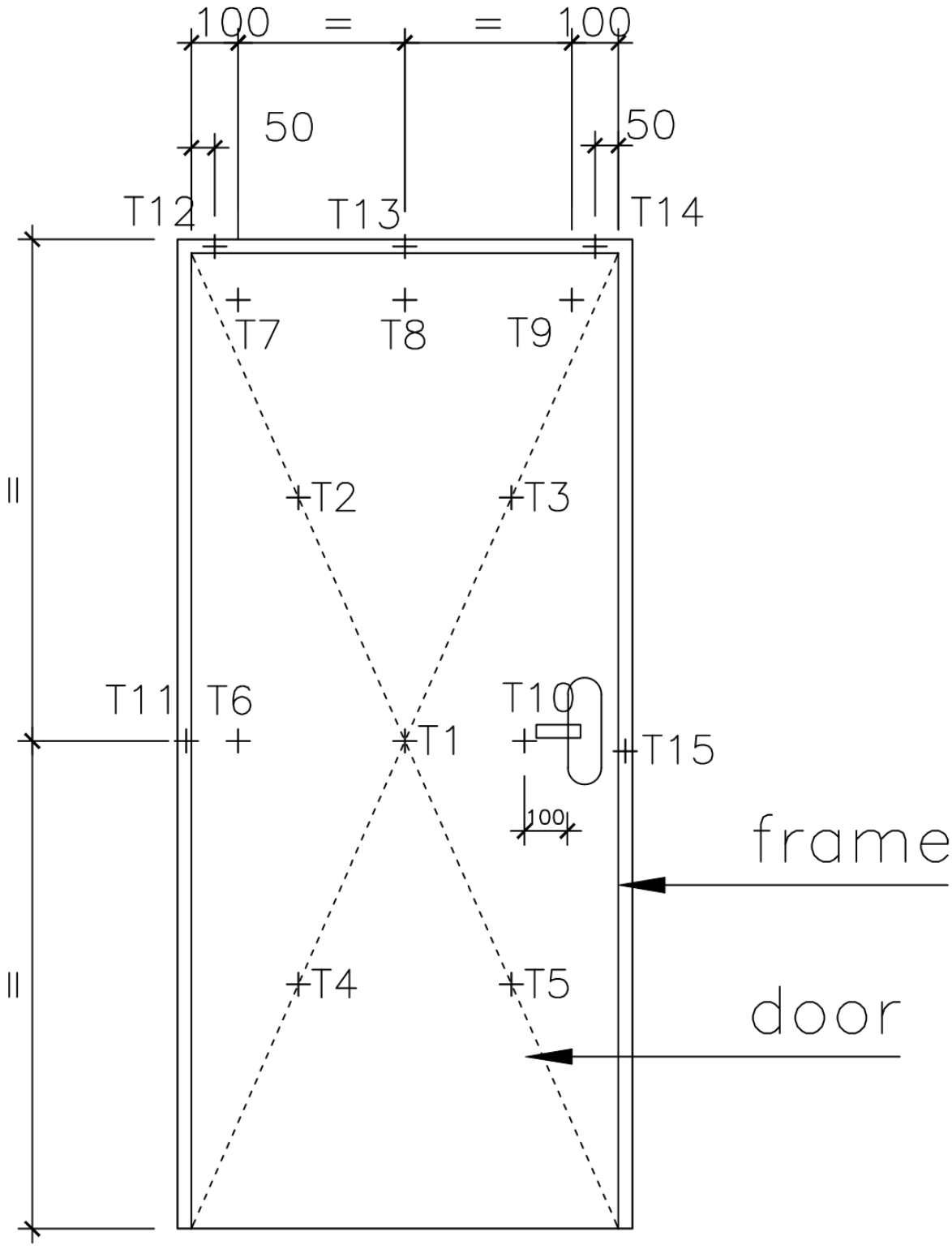
EXPOSED SIDE

DOOR ASSEMBLY INITIAL CLEARANCES



UNEXPOSED SIDE

POSITION FOR MEASUREMENT OF HORIZONTAL DEFLECTION



POSITION FOR MEASUREMENT OF UNEXPOSED TEMPERATURE

11 Appendix E: Test Data

Intertek

Test: Fire Resistance Reviewer: Harrison Li
Test Date: 2015.01.21
Job No: 141222001SHJ-BP
Client: GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED Eng/Tech: Jason b Xu
Sample: Guardian RFID Elegant, Model of G2
Sample ID: S141222001SHJ-001
Standards: EN1634-1:2014 Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware
Procedure: Part 1: Fire resistance tests for doors, shutters and openable windows
Conditioning: According to EN 1363-1, Section 8
Equipment:

Item	*ID*	*Cal Due Date*
Vertical furnace	SH1097	n/a
Furnace pressure gauge	SH1097-15	2015.8.16
Test Clock	SH1042	2015.8.11
Furnace thermocouple	SH1097-4~6	2015.4.10
Ambient temperature gauge	SH1097-11	2015.4.10
Unexposed thermocouple	SH1097-12~14	2015.4.10
Clearance Measurements	SH1057-1	2015.11.11
Displacement Measurements	SH1034	2015.8.5

Heating Conditions: According to EN 1363-1, Section 5.1
Pressure Conditions: According to EN 1363-1, 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 Thermocouples According to EN 1634-1, Section 9.1.1
Unexposed Face According to EN 1634-1, Section 9.1.2
Thermocouple Pads: Length and width 30 ± 0.5 mm, thickness 2.0 ± 0.5 mm, density 900 ± 100 kg/m^3
Pressure Measurements: According to EN 1634-1, Section 9.2
Deflection Measurements: According to EN 1634-1, Section 9.3
Pre-test Examination: According to EN 1634-1, Section 10.1
Test Procedure: According to EN 1634-1, Section 10.2

WSB099-1A
16 Feb 2011
PAGE 1 OF 6

Intertek

Test:	Fire Resistance	Reviewer: Harrison Li
Test Date:	2015.01.21	
Job No:	141222001SHJ-BP	
Client:	GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED	Eng/Tech: Jason b Xu
Sample:	Guardian RFID Elegant, Model of G2	
Sample ID:	S141222001SHJ-001	
Standards:	EN1634-1:2014 Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware	
Procedure:	Part 1: Fire resistance tests for doors, shutters and openable windows	
Performance Criteria:	According to EN 1634-1, Section 11.1 Gap gauges per 10.4.5.3 of EN 1363-1 Flaming per 10.4.5.4 of EN 1363-1	

Time (min'sec")	Cotton Pad Check	6mm Gap Gauge Distance (mm)	25mm Gap Gauge "Pass Through"	Performance Observations
Initial	--	0	No "Pass Through"	The test commences.
0'42"	--	0	No "Pass Through"	Smoke emission is evident from the all edges of the doorset.
2'20"	--	0	No "Pass Through"	Heavy smoke emission is evident from the all areas of the doorset.
5'23"		0	No "Pass Through"	There is a reduction in the amount of smoke emission and it has reduced to a minimum
16'25"	--	0	No "Pass Through"	Smoke emission is evident from the latchset.
46'21"	--	0	No "Pass Through"	Smoke emission is evident from the upper edge.
61'08"	--	0	No "Pass Through"	Transient flame issues from the upper left corner.
53'00"	--	0	No "Pass Through"	Transient flame issues from the middle hinge side.
60'00	--	0	No "Pass Through"	No visible change
Requirement	No ignition	<150	No "Pass Through"	No excessive openings, Sustained flaming.

Intertek

Test:	Fire Resistance	Reviewer: Harrison Li
Test Date:	2015.01.21	
Job No:	141222001SHJ-BP	
Client:	GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED	Eng/Tech: Jason b Xu
Sample:	Guardian RFID Elegant, Model of G2	
Sample ID:	S141222001SHJ-001	
Standards:	EN1634-1:2014 Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware	
Procedure:	Part 1: Fire resistance tests for doors, shutters and openable windows	
Performance Criteria:	According to EN 1634-1, Section 9.3	

Time(Minutes)	Maximum perpendicular displacement where a positive measurement indicates movement towards the furnace (mm)						
	D1	D2	D3	D4	D5	D6	D7
Initial	0	0	0	0	0	0	0
10	0	0	0	0	0	2	1
20	0	0	0	0	5	3	3
30	0	1	0	0	5	5	5
40	0	2	4	0	5	5	8
50	0	6	9	0	17	14	9

Intertek

Test: Fire Resistance — Reviewer: Harrison Li
Test Date: 2015.01.21
Job No: 141222001SHJ-BP
Client: GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED — Eng/Tech: Jason b Xu
Sample: Guardian RFID Elegant, Model of G2
Sample ID: S141222001SHJ-001
Standards: EN1634-1:2014 Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware
Procedure: Part 1: Fire resistance tests for doors, shutters and openable windows
Performance Criteria: According to EN 1634-1, Section 11.2
2) Insulation: Average temperature rise 140°C according to EN1363-1. Maximum temperature rise 180°C according to EN 1363-1, Section 11.3, and of the frame of the door or shutter assembly shall be 360°C according to EN 1634-1, Section 11.2.3.

Time(Minutes)	Ambient (°C)	T1 (°C)	T2 (°C)	T3 (°C)	T4 (°C)	T5 (°C)	T6 (°C)	T7 (°C)
Initial	10	7	10	9	6	5	9	10
5	10	7	10	10	7	5	9	11
10	10	8	11	10	8	6	9	11
15	10	11	17	14	15	8	10	31
20	10	28	32	29	28	16	16	57
25	10	52	25	52	23	39	22	37
30	11	66	55	53	53	43	30	65
35	11	71	53	70	52	67	45	70
40	11	72	65	66	66	66	43	66
45	11	72	69	70	69	70	49	67
50	11	73	72	71	72	73	53	69
55	11	72	74	72	73	74	58	70
60	11	73	75	72	74	75	64	72
Temperature Rise (°C)		65	65	63	67	70	55	62

Average temperature rise at 60 min	66 °C
Maximum temperature rise at 60 min	69 °C
Maximum temperature rise at 60 min (Frame)	17 °C

Intertek

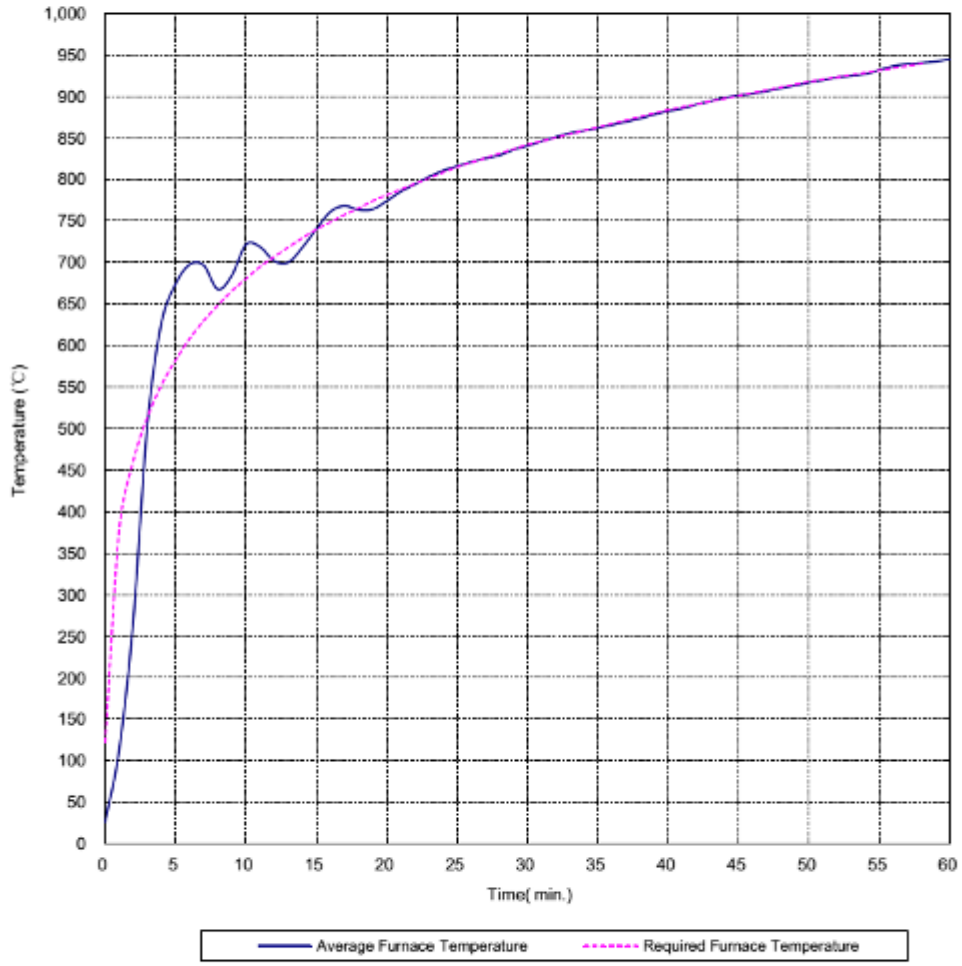
Test: Fire Resistance
Reviewer: Harrison Li
Test Date: 2015.01.21
Job No: 141222001SHJ-BP
Client: GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED
Eng/Tech: Jason b Xu
Sample: Guardian RFID Elegant, Model of G2
Sample ID: S141222001SHJ-001
Standards: EN1634-1:2014 Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware
Procedure: Part 1: Fire resistance tests for doors, shutters and openable windows
Performance Criteria: According to EN 1634-1, Section 11.2

2) Insulation: Average temperature rise 140°C according to EN1363-1. Maximum temperature rise 180°C according to EN 1363-1, Section 11.3, and of the frame of the door or shutter assembly shall be 360°C according to EN 1634-1, Section 11.2.3.

Time(Minutes)	T8 (°C)	T9 (°C)	T10 (°C)	T11 (°C)	T12 (°C)	T13 (°C)	T14 (°C)	T15 (°C)
Initial	9	10	9	9	8	8	9	6
5	10	13	10	9	9	10	11	6
10	10	12	10	9	9	10	10	6
15	13	39	12	9	10	10	10	6
20	23	53	32	9	10	11	11	7
25	36	59	61	10	10	12	12	7
30	50	59	69	10	11	13	13	7
35	67	60	71	10	11	14	14	7
40	73	66	72	10	12	16	15	8
45	75	69	74	11	13	17	17	8
50	76	71	75	11	15	18	20	8
55	76	72	75	12	17	20	22	9
60	76	73	76	13	20	21	24	9
Temperature Rise (°C)	67	62	66	4	11	13	15	4

Intertek

Test:	Fire Resistance	Reviewer: Harrison Li
Test Date:	2015.01.21	
Job No:	141222001SHJ-BP	
Client:	GUANGDONG BE-TECH SECURITY SYSTEMS LIMITED	Eng/Tech: Jason b Xu
Sample:	Guardian RFID Elegant, Model of G2	
Sample ID:	S141222001SHJ-001	
Standards:	EN1634-1:2014 Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware	
Procedure:	Part 1: Fire resistance tests for doors, shutters and openable windows	
Measurement of Furnace Conditions:	Pressure and temperature according to EN 1363-1, Section 10.4.2 and 10.4.3	



WSB099-1A
16 Feb 2011

PAGE 6 OF 6

12 Appendix F: Test Photographs

Fig. 1 – Exposed Side Prior to the Fire Test

Fig. 2 – Unexposed Side Prior to the Fire Test

Fig. 3 – Unexposed Side after 5 Minutes

Fig. 4 – Unexposed Side after 10 Minutes

Fig. 5 – Unexposed Side after 20 Minutes

Fig. 6 – Unexposed Side after 30 Minutes

Fig. 7 – Unexposed Side after 39 Minutes

Fig. 8 – Unexposed Side after 50 Minutes

Fig. 9 – Unexposed Side after 60 Minutes

Fig. 10 –Exposed Side after 60 Minutes

13 Revision Page

Revision No.	Date	Changes	Author	Reviewer
0	January 23, 2015	First issue	Jason b Xu	Harrison Li

END OF DOCUMENT