



RF Exposure Evaluation Declaration

FCC ID: Y7V-VC3140C1
Applicant: ASSA ABLOY Global Solutions Norway AS
Product: Wall reader 3140
Model No.: VC550, VC560, VC570, VC580
Brand Name: vingcard ASSA ABLOY
FCC Rule Part(s): FCC Part 2.1091
Result: Complies
Evaluation Date: 2026-03-05

Reviewed By:

Denise Zhou

Denise Zhou

Approved By:

Robin Wu

Robin Wu



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report. Testing was performed in accordance with the applicable measurement procedures. The test results reported herein apply only to the specific item(s) tested.

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Revision History

Report No.	Version	Description	Issue Date	Note
R25S1081033-U401	V01	Initial Report	2026-07-16	Valid

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1. General Information

1.1. Applicant

ASSA ABLOY Global Solutions Norway AS

Postboks 340, Anolitveien 1-3, 1402,Ski, Norway

1.2. Manufacturer

ASSA ABLOY Global Solutions Norway AS

Postboks 340, Anolitveien 1-3, 1402,Ski, Norway

1.3. Testing Facility

☒	Test Site - MRT Suzhou Laboratory	
	☐ Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China	
	☐ Laboratory Location (Suzhou - SIP) 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China	
	☒ Laboratory Location (Suzhou - Wujiang) Building 1, No.1 Xingdong Road, Wujiang, Suzhou, Jiangsu, People's Republic of China	
	Laboratory Accreditations	
	A2LA: 3628.01 FCC: CN1166	CNAS: L10551 ISED: CN0001
☐	Test Site - MRT Shenzhen Laboratory	
	Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China	
	Laboratory Accreditations	
	A2LA: 3628.02 FCC: CN1284	ISED: CN0105

1.4. Product Information

Product Name	Wall reader 3140
Model No.	VC550, VC560, VC570, VC580
Model Difference	VC550: No Keypad Low Ingress Protection VC560: No Keypad High Ingress Protection VC570: With Keypad Low Ingress Protection VC580: With Keypad High Ingress Protection
Brand Name	vingcard ASSA ABLOY
Bluetooth Specification	Bluetooth_LE
ZigBee Specification	802.15.4
NFC Specification	13.56 MHz
Antenna Information	Refer to section 1.5
Operating Temperature	-20 ~ 70 °C
Power Voltage	12 VDC (5 ~ 32 VDC)
Notes: 1. The information of the EUT (Equipment Under Test) was provided by the manufacturer. The accuracy, completeness, and validity of the information are solely the responsibility of the manufacturer. 2. High ingress protection device has ring oval and potted and fixed cable. Low ingress protection device does not have ring oval and potted and fixed cable. Others are identical. Model VC580 is selected for test.	

1.5. Antenna Details

Technology	Frequency Range (MHz)	Antenna Type	Antenna Gain (dBi)
BLE	2400 ~ 2483.5	PCB Antenna	2.60
ZigBee	2400 ~ 2483.5	PCB Antenna	2.60
NFC	13.56	Integral inductive loop antenna	--

Note: The antenna gain is provided by the manufacturer.

1.6. Device Classification

According to the user manual, this device is classified as a Mobile Device. So, the RF exposure evaluation requirements of § 2.1091 for mobile device exposure conditions subject to MPE limits.

1.7. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 2.1091
- KDB 447498 D04 Interim General RF Exposure Guidance v01

2. RF Exposure Evaluation

2.1. Limits

According to FCC §1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in §1.1307(b)

Limits For Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
0.3 ~ 3.0	614	1.63	*(100)	≤6
3.0 ~ 30	1842/f	4.89/f	*(900/f ²)	<6
30 ~ 300	61.4	0.163	1.0	<6
300 ~ 1500	--	--	f/300	<6
1500 ~ 100000	--	--	5	<6
(B) Limits for General Population/ Uncontrolled Exposures				
0.3 ~ 1.34	614	1.63	*(100)	<30
1.34 ~ 30	824/f	2.19/f	*(180/f ²)	<30
30 ~ 300	27.5	0.073	0.2	<30
300 ~ 1500	--	--	f/1500	<30
1500 ~ 100000	--	--	1.0	<30

f= frequency in MHz. * = Plane-wave equivalent power density.

2.2. MPE Exemptions

For single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph §1.1307(b)(2) of this section): A single RF source is exempt if:

(Option A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph §1.1307(b)(3)(ii)(A) of this section.

Medical implant devices may only use this exemption and that in paragraph §1.1307(b)(3)(ii)(A);

(Option B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P is given by:

$$P_{th}(mW) = \{ERP_{20cm}(d/20 \text{ cm})^x \quad d \leq 20 \text{ cm}$$

$$P_{th}(mW) = \{ERP_{20cm} \quad 20 \text{ cm} < d \leq 40 \text{ cm}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20cm}\sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20cm}(mW) = \{2040f \quad 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz}$$

$$ERP_{20cm}(mW) = \{3060 \quad 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz}$$

(Option C) Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

Table 1 to §1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source Frequency (MHz)	Threshold ERP (watts)
0.3 ~ 1.34	1920R ²
1.34 ~ 30	3450R ² /f ²
30 ~ 300	3.83R ²
300 ~ 1500	0.0128R ² f
1500 ~ 100000	19.2R ²

For multiple RF sources: Multiple RF sources are exempt if:

(A) The available maximum time-averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required). This exemption may not be used in conjunction with other exemption criteria other than those in paragraph §1.1307(b)(3)(i)(A) of this section. Medical implant devices may only use this exemption and that in paragraph §1.1307(b)(3)(i)(A).

(B) in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1$$

Where:

a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph §1.1307(b)(3)(i)(B) of this section for P_{th} , including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph §1.1307(b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.

P_i = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

$P_{th,i}$ = the exemption threshold power (P_{th}) according to paragraph §1.1307(b)(3)(i)(B) of this section for fixed, mobile, or portable RF source i .

ERP_j = the ERP of fixed, mobile, or portable RF source j .

$ERP_{th,j}$ = exemption threshold ERP for fixed, mobile, or portable RF source j , at a distance of at least $\lambda/2\pi$ according to the applicable formula of paragraph §1.1307(b)(3)(i)(C) of this section.

$Evaluated_k$ = the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure.

$Exposure Limit_k$ = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source k , as applicable from §1.1310 of this chapter.

2.3. Calculated Result

Product	Wall reader 3140
Test Item	RF Exposure Evaluation

For single RF source, Option A

Test Mode	Frequency Band (MHz)	E-Field (dBμV/m@3 m)	EIRP (dBm)	EIRP (mW)	Thresholds EIRP (mW)
NFC	13.56	66.82	-28.38	0.00145	1.00

Note 1: E-Field (dBμV/m@3 m) is referenced from the report (report No.: R25S1081033-U202).

Note 2: Tune-up EIRP (dBm) = E-Field (dBμV/m@3 m) - 95.2.

Note 3: Tune-up EIRP (mW) = $10^{\text{Tune-up EIRP (dBm)} / 10}$.

For single RF source, Option C

Test Mode	Frequency Band (MHz)	Max Conducted Power (dBm)	Tune-up Conducted Power (dBm)	Antenna Gain (dBi)	Tune-up ERP (dBm)	Tune-up ERP (mW)
BLE	2400 ~ 2483.5	6.59	7.00	2.60	7.45	5.56
ZigBee	2400 ~ 2483.5	7.24	8.00	2.60	8.45	7.00

Note 1: Max Conducted Power (dBm) of BLE is referenced from the report (report No.: R25S1081033-U201).

Note 2: Max Conducted Power (dBm) of ZigBee is referenced from the report (report No.: R25S1081033-U203).

Note 3: Tune-up Conducted Power was declared by the manufacturer.

Note 4: Tune-up ERP (dBm) = Tune up Conducted Power (dBm) + Antenna Gain (dBi) - 2.15.

Note 5: Tune-up ERP (mW) = $10^{\text{Tune-up ERP (dBm)} / 10}$.

Test Mode	Frequency Band (MHz)	$\lambda / 2 \pi$ (m)	R (m)	Tune-up ERP (mW)	Thresholds ERP (mW)
BLE	2400 ~ 2483.5	0.0199	0.20	5.56	768
ZigBee	2400 ~ 2483.5	0.0199	0.20	7.00	768

Note: The distance R used in the MPE calculation is specified in the user manual.

CONCLUSION:

The device does not support BLE & Zigbee & NFC simultaneous transmission. The device qualifies for RF exposure test exemption at 20 cm distance.

The End