FCC RF EXPOSURE REPORT

For

Yale Connect Plus Hub 2

MODEL NUMBER: YAR/SWAA/HUB
YAR/BDG/BLE
YAR/BDG/ZGB
YAR/BDG/OMN

FCC ID:2A9SQ-SWAAHUB

REPORT NUMBER: 4790701190-1-RF-3

ISSUE DATE: February 13, 2023

Prepared for

ASSA ABLOY Australia Pty Ltd.

235 Huntingdale Rd, Oakleigh, VIC 3166, Australia

Prepared by

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch

Building 10, Innovation Technology Park, No. 1, Li Bin Road,
Song Shan Lake Hi-Tech Development Zone, Dongguan, People's Republic of China
Tel: +86 769-22038881
Fax: +86 769 33244054
Website: www.ul.com

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	February 13, 2023	Initial Issue	

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	ASSA ABLOY Australia Pty Ltd.
Address:	235 Huntingdale Rd, Oakleigh, VIC 3166, Australia

Manufacturer Information

Company Name:	ASSA ABLOY Australia Pty Ltd.
Address:	235 Huntingdale Rd, Oakleigh, VIC 3166, Australia

EUT Information

EUT Name:	Yale Connect Plus Hub 2
Model:	YAR/SWAA/HUB YAR/BDG/BLE YAR/BDG/ZGB YAR/BDG/OMN
Brand:	Yale
Sample Received Date:	January 3, 2023
Sample Status:	Normal
Sample ID:	5673628
Date of Tested:	January 3, 2023 ~ February 13, 2023

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC 47CFR§2.1091	PASS

Prepared By:

Kebo Zhang

Senior Project Engineer

Checked By:

Denny Huang

Senior Project Engineer

Approved By:

Stephen Guo

Operations Manager

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 and KDB 447498 D01 General RF Exposure Guidance v06.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	**A2LA (Certificate No.: 4102.01)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. **FCC (FCC Designation No.: CN1187)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Delcaration of Conformity (DoC) and Certification rules **ISED(Company No.: 21320)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with Industry Canada. The Company Number is 21320. **VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B , the VCCI registration No. is C-20012 and T-20011

Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Note 2: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3: For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30MHz had been correlated to measurements performed on an OFS.

4. REQUIREMENT

LIMIT

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f2)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/150	30
1500-100,000	--	--	1.0	30
Note 1: f = frequency in MHz, * means Plane-wave equivalent power density				
Note 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.				
Note 3: The limit value 1.0mW/cm^2 is available for this EUT.				

MPE CALCULATION METHOD

$S = PG/(4\pi R^2)$

where: S = power density (in appropriate units, e.g. mW/ cm2)
P = power input to the antenna (in appropriate units, e.g., mW)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

CALCULATED RESULTS

Radio Frequency Radiation Exposure Evaluation

Zigbee (Worst case)				
Operating Mode	Max. Turn up Power	Max. Antenna Gain	Power density	Limit
	(dBm)	(dBi)	(mW/ cm^2)	
Zigbee	6	3.73	0.00187	1
BLE	6	3.24	0.00167	1
WIFI 2.4G	27	3.42	0.21914	1

Note:

1. The Power comes from report operation description.
2. Module ZigBee + Module BLE + Module WIFI 2.4G=0.00187+ 0.00167 + 0.21914=0.22268 (mW/ cm^2)
3. The minimum separation distance of the device is greater than 20 cm.
4. Calculate by WORST-CASE mode.

END OF REPORT