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RF Exposure Evaluation Report

Report No.:	CQASZ20210400442E-02
Applicant:	Shenzhen Xinsilu Smart Home Co., Ltd.
Address of Applicant:	5 floor No.18 Langkou Industrial Park Langkou Community Dalang street, Longhua District,shenzhen,China
Equipment Under Test (EUT):	
EUT Name:	V70W
Model No.:	V70W+WIFI
Brand Name:	XINSILU
FCC ID:	2AZKVG64909
Standards:	47 CFR Part 1.1307 47 CFR Part 1.1310 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2021-4-9
Date of Test:	2021-4-9 to 2021-7-15
Date of Issue:	2021-7-15
Test Result:	**PASS***

***In the configuration tested, the EUT complied with the standards specified above**

Tested By: lewis zhou

(Lewis Zhou)

Reviewed By: Jun Li

(Jun Li)

Approved By:

(Jack Ai)

SHENZHEN HUAXIA TESTING TECHNOLOGY CO., LTD APPROVED

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210400442E-02	Rev.01	Initial report	2021-7-15

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Xinsilu Smart Home Co., Ltd.
Address of Applicant:	5 floor No.18 Langkou Industrial Park Langkou Community Dalang street, Longhua District,shenzhen,China
Manufacturer:	Shenzhen Xinsilu Smart Home Co., Ltd.
Address of Manufacturer:	5 floor No.18 Langkou Industrial Park Langkou Community Dalang street, Longhua District,shenzhen,China
Factory:	Shenzhen Xinsilu Smart Home Co., Ltd.
Address of Factory:	5 floor No.18 Langkou Industrial Park Langkou Community Dalang street, Longhua District,shenzhen,China

3.2 General Description of EUT

Product Name:	V70W
Model No.:	V70W+WIFI
Trade Mark:	XINSILU
Hardware Version:	V70W+WIFI-V61
Software Version:	Doorbell wifi 20190911
EUT Power Supply:	AC/DC Adapter Model:TP04-150120U Input: 100-240V~ 50/60Hz 0.6 MAX Out put: 15V 1.2A

3.3 General Description of 2.4G WIFI

Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422 MHz to 2452MHz
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels IEEE 802.11n(HT40): 7 Channels
Channel Separation:	5MHz
Type of Modulation:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11 g/n(HT20)/n(HT40) : OFDM
Product Type:	☐ Mobile ☐ Portable ☒ Fix Location
Test Software of EUT:	RF test (manufacturer declare)
Antenna Type:	FPC Antenna
Antenna Gain:	1.5dBi

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Limitst

According to FCC Part1.1310: 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 part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled 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
1500–100,000	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
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
1500–100,000	.....	.....	1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $Pd = (Pout*G)/(4* Pi * R^2)$

Where

Pd = power density in mW/cm2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd id the limit of MPE, 1 mW/cm2 . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

4.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.1.3 EUT RF Exposure

1) For 2.4G WIFI

Antenna Gain: Antenna 1: 1.5 dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.41 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data

802.11b mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest	14.82	14±1.0	15	31.623
Middle	16.64	16±1.0	17	50.119
Highest	15.37	14.5±1.0	15.5	35.481
802.11g mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest	21.59	21±1.0	22	158.489
Middle	22.3	21.5±1.0	22.5	177.828
Highest	21.84	21±1.0	22	158.489
802.11n(HT20) SISO mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest	21.88	21±1.0	22	158.489
Middle	22.81	22±1.0	23	199.526
Highest	22.1	21.5±1.0	22.5	177.828
802.11n(HT40) SISO mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest	21.8	21±1.0	22	158.489
Middle	22.97	22±1.0	23	199.526
Highest	21.96	21±1.0	22	158.489

The worst case:

Maximum tune-up Power (mW)	**Antenna Gain (dBi)**	**Power Density at R = 20 cm (mW/cm^2)**	**Limit**	**Result**
199.526	1.5	0.056	1.0	PASS

Note: 1) Refer to report No. CQASZ20210100004EX-02 for EUT test Max Conducted average Output Power value.

2) $Pd = (Pout*G)/(4* Pi * R^2)=0.056$