시 험 성 적 서
TEST REPORT

성적서 번호 Report No.		ICRT-TR-E211789-0A
신청자 Client	기관명 Name	AJAX SYSTEMS CYPRUS HOLDINGS LTD
	주 소 Address	Ifigeneias, 17, Strovolos, 2007, Nicosia, Cyprus
시험대상품목 Sample description		Security Control Panel
모델명 Type designation		Ajax Hub 2 (9NA)
정 격 Ratings		AC 110 V ~ 240 V
시험장소 Place of test		■ 고정시험(Inside test) □ 현장시험(Field test) 주소지(Address): 112, 113 Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
시험기간 Date of test		28. July. 2021 ~ 30. July. 2021
시험방법/항목 Test Method/Item		FCC rule §1.1310
시험결과 Test Results		Refer to 3. Maximum Permissible Exposure
확 인 Affirmation	작성자 Tested by 성 명 Name Yeong-Hwan, Hong (Signature)	기술책임자 Technical Manager 성 명 Name Min-Gi, Son (Signature)

□ 위 성적서는 고객이 제공한 시료에 대한 시험결과 입니다.
This is certified that the above mentioned products have been tested for the sample

□ 위 성적서는 KS Q ISO/IEC 17025 및 한국인정기구(KOLAS)인정과 관련이 없습니다.
The above test report is not related to accreditation by KS Q ISO/IEC 17025 and Korea Laboratory Accreditation scheme.

□ 위 성적서는 주식회사 아이씨알의 승인 없이는 일부 복제에 대해 금지됩니다.
The test report is prohibited for some reproduction without the approval of the ICR.

2021. 08. 03

주식회사 아이씨알 대표이사

The head of INTERNATIONAL CERTIFICATION REGISTRAR

Contents

1. Applicant & Manufacturer & Test Laboratory Information 3
1.1 Applicant information 3
1.2 Manufacturer Information 3
1.3 Test Laboratory Information 3
2. Equipment under Test(EUT) Information 4
2.1 General Information 4
2.2 Additional Information 4
2.3 Mode of operation during the test ..... 오류! 책갈피가 정의되어 있지 않습니다.
2.4 Modifications of EUT 4
2.5 Reason of Additional Model Name 4
3. Maximum Permissible Exposure 5
3.1 RF Exposure calculation 5
3.2 EUT Descrption 5
3.3 Result 6

Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E211789-0A	03-Aug-2021	Initial Issue	All

1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	AJAX SYSTEMS CYPRUS HOLDINGS LTD
Address	Ifigeneias, 17, Strovolos, 2007, Nicosia, Cyprus
Contact Person	Iryna Khimych
Telephone No.	+380502279000
Fax No.	+380502279000
E-mail	ajax.systems.fcc@gmail.com

1.2 Manufacturer Information

Manufacturer 1	Ajax Systems Manufacturing Limited Liability Company
Address	Sklyarenka, 5, Kyiv, 04073 Ukraine

1.3 Test Laboratory Information

Conducted tests were performed at	
Laboratory	ICR Co., Ltd.
Address	112, Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
Telephone No.	+82-2-6351-9002
Fax No.	+82-2-6351-9007
RRA No.	KR0165
KOLAS No.	KT652
Test Firm Registration Number	490614

2. Equipment under Test(EUT) Information

2.1 General Information

Product Name	Security Control Panel
Model Name	Ajax Hub 2 (9NA)
Additional Model Name	-
FCC ID / IC ID	2AX5VHUB2-NA / 26860-HUB2NA1
Power Supply	AC 110 V ~ 240 V

2.2 Additional Information

Equipment Class	DSS-Spread Spectrum Transmitter	
Device Type	Stand-alone	
Operating Frequency	905 ㎒ ~ 926.5 ㎒	
RF Output Power	Module1	9.30 ㏈m
	Module2	12.50 ㏈m
Number of Channel	103	
Modulation Type	FHSS Modulation	
Antenna Type	Inverted-L / Inverted-F	
Antenna Gain	Inverted-L	-5 ㏈i
	Inverted-F	-6 ㏈i
Antenna Operating Mode	Single Equipment with only two antenna	

2.3 Modifications of EUT

- None

2.4 Reason of Additional Model Name

- This is due to differences in dealerships.

3. Maximum Permissible Exposure

3.1 RF Exposure calculation

According to the FCC rule 1.1310 table 1B, the limit for the maximum permissible RF exposure for an uncontrolled environment are f/1500 ㎽/㎠ for the frequency range between 300 ㎒ and 1 500 ㎒ and 1.0 ㎽/㎠ for the frequency range between 1 500 ㎒ and 100 000 ㎒.

The electric field generated for a 1 ㎽/㎠ exposure is calculated as follows:

$E = \sqrt{(30 * P * G)} / d$, and $S = E^2 / Z = E^2 / 377$, because 1 ㎽/㎠ = 10 W/m²

Where

S = Power density in ㎽/㎠, Z = Impedance of free space, 377 Ω

E = Electric filed strength in V/m, G = Numeric antenna gain, and d = distance in meter

Combing equations and rearranging the terms to express the distance as a function of the remaining variable

$d = \sqrt{(30 * P * G) / (377 * 10 S)}$

Changing to units of ㎽ and cm, using P (㎽) = P (W) / 1 000, d (㎝) = 0.01 * d (m)

$d = 0.282 * \sqrt{(P * G) / S}$

Where

d = distance in ㎝, P = Power in ㎽, G = Numeric antenna gain, and S = Power density in ㎽/㎠

3.2 EUT Descrption

Kind of EUT	Wireless Home Camera	
Operating Frequency Band	■ GFSK : 905 ㎒ ~ 926.5 ㎒	
Max. Output Power	Module1	9.30 ㏈m
	Module2	12.50 ㏈m
Exposure Evaluation Applied	■ MPE □ SAR □ N/A	

3.3 Result

According to above equation, the following result was obtained.

- Module 1

Operating Mode	Target Power W / tolerance	Max tune up power		Antenna Gain		Safe Distance (㎝)	Power Density (㎽/㎠) @ 20 ㎝ Separation	Limit (㎽/㎠)
		(dBm)	(㎽)	Log	Linear			
905	9.3 ± 1.0	10.30	10.72	-5	0.32	0.52	0.001	1.00
915.85	9.22 ± 1.0	10.22	10.52			0.52	0.001	
926.5	8.52 ± 1.0	9.52	8.95			0.48	0.001	

According to above table, for Band(GFSK), safe distance,

D = 0.282 * $\sqrt{(10.72 * 0.32)/1.00}$ = 0.52 ㎝.

For getting power density at 20 ㎝ separation in above table, following formula was used.

S = P * G / (4π * R²) = 10.72 * 0.32 / (4 * π * 20^2) = 0.001

Where:

S = Power Density,

P = Power input to the external antenna (Output power from the EUT antenna port (dBm) – cable loss (dB)),

G = Gain of Transmit Antenna (linear gain), R = Distance from Transmitting Antenna

- Module 2

Operating Mode	Target Power W / tolerance	Max tune up power		Antenna Gain		Safe Distance (㎝)	Power Density (㎽/㎠) @ 20 ㎝ Separation	Limit (㎽/㎠)
		(dBm)	(㎽)	Log	Linear			
905	12.5 ± 1.0	13.50	22.39	-6	0.25	0.67	0.001	1.00
915.85	11.59 ± 1.0	12.59	18.16			0.61	0.001	
926.5	10.73 ± 1.0	11.73	14.89			0.55	0.001	

According to above table, for Band(GFSK), safe distance,

D = 0.282 * $\sqrt{(22.39 * 0.25)/1.00}$ = 0.67 ㎝.

For getting power density at 20 ㎝ separation in above table, following formula was used.

S = P * G / (4π * R²) = 22.39 * 0.25 / (4 * π * 20^2) = 0.001

Where:

S = Power Density,

P = Power input to the external antenna (Output power from the EUT antenna port (dBm) – cable loss (dB)),

G = Gain of Transmit Antenna (linear gain), R = Distance from Transmitting Antenna

- END OF REPORT.