



시험 성적서

TEST REPORT

페이지(page) : (1) / (총(Total) 6)

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	기술책임자 Technical Manager	
	성 명 Name Yeong-Hwan, Hong (Signature)	성 명 Name Min-Gi, Son (Signature)	
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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 MHz ~ 926.5 MHz	
RF Output Power	Module1	9.30 dBm
	Module2	12.50 dBm
Number of Channel	103	
Modulation Type	FHSS Modulation	
Antenna Type	Inverted-L / Inverted-F	
Antenna Gain	Inverted-L	-5 dBi
	Inverted-F	-6 dBi
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 $f/1500 \text{ mW/cm}^2$ for the frequency range between 300 MHz and 1 500 MHz and 1.0 mW/cm^2 for the frequency range between 1 500 MHz and 100 000 MHz.

The electric field generated for a 1 mW/cm^2 exposure is calculated as follows:

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

Where

S = Power density in mW/cm^2 , Z = Impedance of free space, 377Ω

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

Combining 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 mW and cm , using $P (\text{mW}) = P (\text{W}) / 1000$, $d (\text{cm}) = 0.01 * d (\text{m})$

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

Where

d = distance in cm , P = Power in mW , G = Numeric antenna gain, and S = Power density in mW/cm^2

3.2 EUT Description

Kind of EUT	Wireless Home Camera	
Operating Frequency Band	■ GFSK : 905 MHz ~ 926.5 MHz	
Max. Output Power	Module1	9.30 dBm
	Module2	12.50 dBm
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 (cm)	Power Density (mW/cm ²) @ 20 cm Separation	Limit (mW/cm ²)
		(dBm)	(mW)	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,

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

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

$$S = P * G / (4\pi * R^2) = 10.72 * 0.32 / (4 * \pi * 20^2) = 0.001$$

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 (cm)	Power Density (mW/cm ²) @ 20 cm Separation	Limit (mW/cm ²)
		(dBm)	(mW)	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,

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

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

$$S = P * G / (4\pi * R^2) = 22.39 * 0.25 / (4 * \pi * 20^2) = 0.001$$

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.