시 험 성 적 서
TEST REPORT

성적서 번호 Report No.		ICRT-TR-E222376-0A
신청자 Client	기관명 Name	TAEHA MECHATRONICS Co., Ltd.
	주 소 Address	421, Bakdal-ro, Manan-gu, Anyang-si, Gyeonggi-do, Republic of Korea
시험대상품목 Sample description		Monitor
모델명 Type designation		WL-STAGE VE Monitor
정 격 Ratings		DC 24 V
시험장소 Place of test		■ 고정시험(Inside test) □ 현장시험(Field test) 주소지(Address): 112, Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
시험기간 Date of test		14. Sep. 2022 ~ 16. Sep. 2022
시험방법/항목 Test Method/Item		FCC rule §1.1310
시험결과 Test Results		Refer to 3. Test Summary
확 인 Affirmation	작성자 Tested by 성 명 (서 명) Name In-Jung, Kim (Signature)	기술책임자 Technical Manager 성 명 (서 명) Name Min-Gi, Son (Signature)

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

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2022. 09. 20

주식회사 아이씨알 대표이사

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Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E222376-0A	2022.09.20	Initial Issue	All

1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	TAEHA MECHATRONICS Co., Ltd.
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Contact Person	Byoungsun Lee
Telephone No.	+82-31-463-8075
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E-mail	best-electronic@taeha.co.kr

1.2 Manufacturer Information

Manufacturer	TAEHA MECHATRONICS Co., Ltd.
Address	421, Bakdal-ro, Manan-gu, Anyang-si, Gyeonggi-do, Republic of Korea

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

2. Equipment under Test(EUT) Information

2.1 General Information

Product Name	Monitor
Brand Name	-
Model Name	WL-STAGE VE Monitor
Additional Model Name	-
FCC ID	2AP7F-WLSTAGEVEMONI

2.2 Additional Information

Equipment Class	DTS - Digital Transmission System	
Device Type	Stand-alone	
Operating Frequency	802.11n(HT20)	2 412 ㎒ ~ 2 462 ㎒
RF Output Power	802.11n(HT20)	14.25 ㏈m
Number of Channel	802.11n(HT20)	11
Modulation Type	802.11n(HT20) : OFDM	
Antenna Type	SMD Antenna	
Antenna Gain	3.5 ㏈i	
Antenna Operating Mode	Single Antenna Equipment with only one antenna	

2.3 Mode of operation during the test

- The EUT is continuous transmission mode during the test with set at Low Channel, Middle Channel, and High Channel.

To get a maximum radiated emission levels from the EUT, the EUT was moved throughout the XY, YZ, XZ planes.

2.4 Modifications of EUT

- None

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 ㎽/㎠

3.1 Result

According to above equation, the following result was obtained.

Operating Mode	Target Power W / tolerance	Max tune up power		Antenna Gain		Power Density (㎽/㎠) @ 20 ㎝ Separation	Limit (㎽/㎠)
		(dBm)	(㎽)	Log	Linear		
802.11n(HT20)	14.25 ± 1.0	15.25	33.50	3.50	2.24	0.0149	1.00

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

$S = P * G / (4\pi * R^2) = 33.50 * 2.24 / (4 * \pi * 20^2) = 0.014\ 9$

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 -